# BARTLETT REGIONAL HOSPITAL (BRH) MEDICAL SURGICAL EAST WING RENOVATION

# **VOLUME I OF III Divisions 0 through 8**

# Contract No. E10-221

File No. 1648



ENGINEERING DEPARTMENT

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#### SECTION 00030 - NOTICE INVITING BIDS

#### **OBTAINING CONTRACT DOCUMENTS.** The Contract Documents are entitled:

#### Bartlett Regional Hospital (BRH) Medical Surgical East Wing Renovation CBJ Contract No. E10-221

The Contract Documents may be obtained at the CBJ Engineering Department, 3<sup>rd</sup> Floor Marine View Center, upon payment of <u>\$75.00</u> (non-refundable) for each set of Contract Documents (including Technical Specifications and Drawings.)

**PRE-BID CONFERENCE.** Prospective Bidders are encouraged to attend a Pre-Bid conference of the proposed WORK, which will be conducted by the OWNER and ARCHITECT, at 1:00 p.m. on July 23, 2010 at the Bartlett Regional Hospital Robert Valliant Center Board Room. A site-visit and walk through will immediately follow the Pre-Bid conference. The object of the conference is to acquaint Bidders with the bid documents and site conditions. Conference call capability will be available for the Pre-Bid meeting. Proposers intending to participate via conference call shall notify Netti Pahl in the CBJ Engineering Contracts Division, at (907) 586-0892, or 907-586-0490, or email contracts@ci.juneau.ak.us by 3:30 p.m., July 22, 2010.

**DESCRIPTION OF WORK.** This Project consists of abatement, demolition and renovation of architectural, structural, mechanical, plumbing and electrical components in the existing Level 3 East Wing of the Medical Surgical Unit, and related WORK in the ceilings of Level 2, as described in the Contract Documents. Additive Alternates include Level 3 Solarium work and renovation of portions of Level 2 and are further described in Section 012300 – Alternates.

**COMPLETION OF WORK.** The WORK must be completed in by:

#### Work Description

#### **Completion Date**

Substantial Completion	182 Calendar Days from issuance of Notice to Proceed
Final Completion	30 Calendar Days after Substantial Completion

**DEADLINE FOR BIDS:** Sealed bids must be received by the Purchasing Division <u>prior to 2:00 p.m.</u>, <u>Alaska Time on August 10, 2010</u>, or such later time as may be announced by addendum at any time prior to the deadline. Bids will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of bids. Bids will be opened immediately thereafter in the Assembly Chambers of the Municipal Building, 155 S. Seward Street, unless otherwise specified.

Bid documents delivered in person or by courier service must be delivered to:

#### **PHYSICAL LOCATION:**

City and Borough of Juneau, Purchasing Division 105 Municipal Way, Room 300 Juneau, AK 99801

Bid documents delivered by the U.S. Postal Service must be mailed to:

#### SECTION 00030 - NOTICE INVITING BIDS

#### **MAILING ADDRESS:**

City and Borough of Juneau, Purchasing Division 155 South Seward Street Juneau, AK 99801

Please affix the label below to outer envelope in the lower left hand corner.

IMPORTANT NOTICE TO BIDDER		
To subm	it your Bid:	
1. Print	your company name and address on the upper	left corner
of you	ur envelope.	
2. Com	plete this label and place it on the lower left	corner
of yo	ur <u>envelope.</u>	
S	<b>BID NUMBER:</b>	
Ε	E10-221	В
Α	SUBJECT:	Ι
L	BRH MEDICAL SURGICAL EAST	D
Е	WING RENOVATION	
D	<b>DEADLINE DATE:</b>	
	PRIOR TO 2:00PM ALASKA	
	TIME	

Mailing/delivery times to Alaska may take longer than other areas of the U.S. Late bids will <u>not</u> be accepted and will be returned.

**SITE OF WORK.** The site of the WORK is Bartlett Regional Hospital, 3260 Hospital Drive in Juneau, Alaska.

**BIDDING, CONTRACT, or TECHNICAL QUESTIONS.** All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Jennifer Mannix, Contract Administrator CBJ Engineering Department, 3<sup>rd</sup> Floor, Marine View Center jennifer\_mannix@ci.juneau.ak.us Telephone: (907) 586-0873 Fax: (907) 586-4530

**BID SECURITY.** Each Bid shall be accompanied by a certified or cashier's check or Bid Bond, in the amount of 5% percent of the Bid, payable to the City and Borough of Juneau, Alaska, as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

**CONTRACTOR'S LICENSE.** All contractors are required to have a current Alaska Contractor's License, prior to submitting a Bid, and a current Alaska Business License prior to award.

**BID TO REMAIN OPEN.** The Bidder shall guarantee the Bid for a period of 90 Days from the date of Bid opening. Any component of the Bid including Additive Alternates may be awarded anytime during the 90 Days.

#### SECTION 00030 - NOTICE INVITING BIDS

**OWNER'S RIGHTS RESERVED.** The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

### **OWNER:** City and Borough of Juneau

walked ward

By:

Jennifer Mannix, Contract Administrator

<u>7-9-10</u> Date

#### SECTION 00031 – SPECIAL NOTICE TO BIDDERS

#### PART 1 - GENERAL

#### 1.1 SPECIAL NOTICE

A. Bidders are hereby alerted that this Project, Bartlett Regional Hospital (BRH) Medical Surgical East Wing Renovation, CBJ Contract No. E10-221, is subject to a Project Labor Agreement (PLA). It shall be understood that the PLA is an exclusive agreement between the eventual CONTRACTOR (and Subcontractors) and the organized labor unions. The City and Borough of Juneau (also known as OWNER), the ARCHITECT, and the Design Professionals of Record are not members of this agreement and play no role in its implementation or administration.

NOTE: The terms and conditions of the Project Labor Agreement for this project are currently being negotiated. The final agreement will be added to this contract by addendum.

**1.0 DEFINED TERMS.** Terms used in these Instructions to Bidders and the Notice Inviting Bids, which are defined in the General Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

#### 2.0 INTERPRETATIONS AND ADDENDA.

- A. INTERPRETATIONS. All questions about the meaning or intent of the Contract Documents are to be directed to the Engineering Contracts Administrator. Interpretations or clarifications considered necessary by the Engineering Contracts Administrator in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the Engineering Contracts Administrator, or OWNER, as having received the Contract Documents. Questions received less than seven Days prior to the Deadline for Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.
- B. ADDENDA. Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. Addenda may be faxed or, if addendum format warrants, addenda may be posted to the CBJ Engineering Department website. In any event, notification of addendum issuance will be faxed to planholders. Hard copies are available upon request. The OWNER will make all reasonable attempts to ensure that all planholders receive notification of Addenda, however, it is strongly recommended by the OWNER that bidders independently confirm the contents, number, and dates of each Addendum prior to submitting a Bid.
- **3.0** FAIR COMPETITION. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.
- **4.0 RESPONSIBLE BIDDER**. Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. A responsible Bidder is one who is considered to be capable of performing the WORK.
  - 1. financial resources
  - 2. ability to meet delivery standards
  - 3. past performance record
    - a. References from others on contractor's performance
    - b. Record of performance on prior OWNER contracts
  - 4. record of integrity
  - 5. obligations to OWNER
    - a. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER within ten Days of OWNER's Notice of Intent to Award.

- b. City and Borough of Juneau (CBJ) Finance Department, Treasury Division administers the registration and assessment of sales, business personal property and business real property taxes.
- A. Special standards for responsibility, if applicable, will be specified. These special standards establish minimum standards or experience required for a responsible Bidder on a specific contract.
- B. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.
- **5.0 NON-RESPONSIVE BIDS**. Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:
  - A. If a Bid is received by the CBJ Purchasing Division after the Deadline for Bids.
  - B. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.
  - C. If there are unauthorized additions, conditional or alternate Bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite, ambiguous as to its meaning, or in conflict with the OWNER's Bid document.
  - D. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one Bid opening, provided that any selection of awards will be made by the OWNER.
  - E. If the Bid does not contain a Unit Price for each pay item listed, except in the case of authorized alternate pay items.
  - F. If the Bidder has not acknowledged receipt of each Addendum.
  - G. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.
  - H. If any of the Unit Prices Bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.
  - I. If a Bid modification does not conform to Article 15.0 of this Section.
- 6.0 **BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE**. It is the responsibility of each Bidder before submitting a Bid:
  - A. To examine thoroughly the Contract Documents, and other related data identified in the Bidding documents (including "technical data" referred to below):

- 1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance, of the WORK,
- 2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK,
- 3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and
- 4. To notify the ARCHITECT of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

# 7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

- A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Architect of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.
- B. Those Drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the site have been utilized by the Architect of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such Drawings, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with nontechnical data, interpretations, and opinions contained in such Drawings or the completeness thereof is the responsibility of the Bidder.
- C. Copies of such reports and Drawings will be made available by the OWNER to any Bidder on request if said reports and Drawings are not bound herein. Those reports and Drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.
- D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Architect of Record by the owners of such underground utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 Protection and Restoration of Existing Facilities of the General Requirements.
- E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.
- F. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface,

and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

- G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.
- H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and other lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.
- I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6.0, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

#### 8.0 BID FORM.

- A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow Bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, the required Bid Security, and any other documents required in Section 00300 Bid.
- B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.
- C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.
- D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.
- E. The Bidder's Bid must be signed. All names must be printed or typed below the signature.
- F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form. <u>Failure to acknowledge Addenda may render Bid</u> non-responsive and may cause its rejection.

- G. The address to which communications regarding the Bid are to be directed must be shown.
- **9.0 QUANTITIES OF WORK**. The quantities of WORK, or material, stated in Unit Price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any Unit Price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the Unit Price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see Section 00700 General Conditions, Article 10 Changes In the WORK).
- **10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS.** The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 Submittals.
- **11.0 SUBMISSION OF BIDS**. The Bid shall be delivered by the time and to the place stipulated in Section 00030 Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. <u>Oral, telegraphic, emailed, or faxed Bids will not be considered</u>. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall also include the label included in Section 00030 Notice Inviting Bids. The Bid Security shall be enclosed in the same envelope with the Bid
- **12.0 BID SECURITY, BONDS, AND INSURANCE**. Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the Base Bid, plus the amount of alternate Bids, if any, which total to the maximum amount for which the CONTRACT could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible Power of Attorney.
- **13.0 RETURN OF BID SECURITY.** The OWNER will return all Bid security checks (certified or cashier's) accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. Following execution of the Agreement, all other Bid security checks will be returned to the respective Bidders whose Bids they accompanied and Bid security bonds will be appropriately discarded.
- **14.0 DISCREPANCIES IN BIDS**. In the event there is more than one Pay Item in a Bid Schedule, the Bidder shall furnish a price for all Pay Items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are Unit Price Pay Items in a Bid Schedule and the "amount" indicated for a Unit Price Bid Item does not equal the product of the Unit Price and quantity, the Unit Price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one Pay Item in a Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

#### 15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.

A. Any bidder may deliver a modification to a bid in person, by mail or fax (907-586-4561), provided that such modification is received by the Purchasing Division no later than the deadline for bids. Modifications will be time and date stamped by the Purchasing Division, which will establish the official time of receipt of the modification. The modification must not reveal the bid price but should be in the form of an addition or subtraction or other modification so that the final prices will not be known until the sealed bid is opened.

The Bid modifications shall be provided on the **Bid Modification Form** located at the end of this Section. Submittal of any other form by the vendor may deem the modification unacceptable by the OWNER. A mail or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the City and Borough until the sealed Bid is opened. Submitted Modification forms shall include the modification to the unit price or lump sum amount of each pay item modified.

**FAX DISCLAIMER:** It is the responsibility of the bidder to submit modifications in a timely manner. Bidders' use of a fax machine to modify their bid shall be at bidders' sole risk. The Purchasing Division will attempt to keep the fax machine in good working order but will not be responsible for bid modifications that are late due to mechanical failure, a busy fax machine, or any other cause arising from bidder's use of a fax machine, even if bidder submits a transmission report or provides other confirmation indicating that the bidder transmitted a bid modification prior to the deadline. The City will not be responsible for its failure to receive the modification whether such failure is caused by equipment or human error, or otherwise. Bidders are therefore strongly encouraged to confirm receipt of their bid modification with the Purchasing Division (907-586-5258) prior to deadline.

- B. <u>Conditioned bids, limitations, or provisos attached to the Bid or bid modification will</u> render it unauthorized and cause its rejection as being non-responsive. The completed Bid forms shall be without interlineations, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative Bids will not be considered unless called for.
- **16.0 WITHDRAWAL OF BID**. Prior to the Deadline for Bids, the Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids.

#### **17.0 AWARD OF CONTRACT.**

A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule.

- B. If the OWNER has elected to advertise this Project with a Base Bid and Alternates, the OWNER may elect to award the contract for the Base Bid, or the Base Bid in combination with one or more Alternates selected by the OWNER. In either case, award shall be made to the responsive, responsible bidder offering the lowest total Bid for the WORK to be awarded.
- C. Low Bidder will be determined on the basis of the lowest total of the Base Bid plus combinations of Alternates if funding allows, as selected by the Selection Committee through the process described below.
  - 1 Prior to the Deadline for Bids, a Selection Committee will be appointed by the Owner.
  - 2 The Selection Committee will be sequestered in a conference room apart from the bid opening room at the time of bid opening.
  - 3 The CBJ Purchasing staff will open bids. A bid summary sheet will be compiled without bidder identification, so that the Selection Committee will have no knowledge of which bids were made by which bidders.
  - 4 The bid summary sheet will be delivered to the Selection Committee by the Engineering Contract Administrator.
  - 5 The Selection Committee will choose the low bid comprised of the Base Bid and those Alternates deemed to be in the best interest of the project and within the approved construction budget. For award purposes, the CBJ will add any Alternate to the Total Base Bid Amount in Section 00310 – Bid Schedule.
  - 6 The Selection Committee will identify in order from low to high the bids received for the project and the results will be posted.

#### **18.0 EXECUTION OF AGREEMENT.**

- A. All Bids of value greater than \$1,000,000 must be approved by the CBJ Assembly. After the CBJ Assembly has approved the award and after the Bid protest period, the OWNER will issue a Notice of Intent to Award to the approved Bidder. The Bidder to whom award is made shall execute a written Agreement with the OWNER on the Agreement form, Section 00500, collect insurance, and shall furnish all certificates and Bonds required by the Contract Documents within 10 Days (calendar) from the date of the Notice of Intent to Award letter.
- B. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder. Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.
- **19.0 LIQUIDATED DAMAGES.** Provisions for liquidated damages if any, are set forth in Section 00500 Agreement.

#### 20.0 FILING A PROTEST.

- A. A Bidder may protest the proposed award of a competitive sealed Bid by the City and Borough of Juneau. The protest shall be executed in accordance with CBJ Ordinance 53.50.062 PROTESTS and CBJ Ordinance 53.50.080 ADMINISTRATION OF PROTEST. The entire text of the CBJ Purchasing Ordinance can be accessed at the CBJ website, *http://www.juneau.org/law/code/Purchasing.pdf*, or call the CBJ Purchasing Division at (907) 586-5258 for a copy of the ordinance.
- B. Late protests shall not be considered by the CBJ Purchasing Officer.
- 21.0 JUNEAU BUSINESS SALES AND PERSONAL PROPERTY TAX: Vendors/merchants conducting business within the City are required by law to register with, and periodically report to, the City for sales and property taxes. CONTRACTORs and Subcontractors must be in good standing with the City prior to award, and prior to any contract renewals, and in any event no later than ten Days (calendar) following notification by the City of intent to award. Good standing means: all amounts owed to the City are paid in full, including Confession of Judgments; and vendor/merchant is current in reporting (sales tax filings, business personal property declarations). Failure to meet these requirements, if so subject, may be cause for rejection of your bid. To determine if your business is in good standing, or for further information, contact the City Finance Department's Sales Tax Division, at (907) 586-5265, concerning sales tax and/or Treasury Division, at (907) 586-5268, concerning business personal property and real property tax.
- **22.0 PERMITS AND LICENSES**. The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit and licensing requirements.

#### CITY AND BOROUGH OF JUNEAU PURCHASING DIVISION FAX NO. 907-586-4561

# **BID MODIFICATION FORM**

Modification Number: \_\_\_\_\_

Note: All modifications shall be made to the original bid amount(s). If more than one Modification form is submitted by any one bidder, changes from all Modification forms submitted will be combined and applied to the original bid. Changes to the modified Bid amounts will be calculated by the OWNER.

PAY ITEM NO.	PAY ITEM DESCRIPTION	MODIFICATIONS TO UNIT PRICE OR LUMP SUM (indicate +/-)

Total Increase or Decrease: <u>\$</u>\_\_\_\_\_

Name of Bidding Firm

**Responsible Party Signature** 

Printed Name (must be an authorized signatory for Bidding Firm)

#### **BID TO: THE CITY AND BOROUGH OF JUNEAU**

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER in the form included in the Contract Documents (as defined in Article 7 of Section 00500 - Agreement) to perform the WORK as specified or indicated in said Contract Documents entitled

#### BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221

- 2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the "Notice Inviting Bids" and "Instructions to Bidders," dealing with the disposition of the Bid Security.
- 3. This Bid will remain open for the period of time stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders," and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.
- 4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.
- 5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
- 6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.
- 7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Date Issued

Addenda No.	Date Issued			

Give number and date of each addenda above. Failure to acknowledge receipt of all Addenda may cause the Bid to be non-responsive and may cause its rejection.

**BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221**  BID Page 00300-1 8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing his/her signature in the space provided below.

Dated:	Bidder:	(Company Name)
Alaska CONTRACTOR's Business License No:	By: _	(Signature)
Alaska CONTRACTOR's	Printed Name:	
License No:	Title:	
Telephone No:	Address:	
Fax No:		(Street or P.O. Box)
	_	(City, State, Zip)

#### 9. <u>TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING</u> <u>AT THE TIME OF THE BID OPENING</u>:

- Bid, Section 00300 (includes addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)
- 10. The apparent low Bidder is required to complete and submit the following documents by 4:30 p.m. on the *fifth business day* following the date of the Posting Notice.
  - Subcontractor Report, Section 00360

The apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

- 11. The successful Bidder will be required to submit, within <u>ten Days (calendar)</u> after the date of the "Notice of Intent to Award" letter, the following executed documents:
  - Agreement Forms, Section 00500
  - Performance Bond, Section 00610
  - Payment Bond, Section 00620
  - Certificates of Insurance, (CONTRACTOR) Section 00700 and Section 00800

#### **SECTION 00310 - BID SCHEDULE**

Bid Schedule for construction of E10-221 named BRH Medical Surgical East Wing Renovation, in accordance with the Contract Documents. All prices should be written in figures.

#### BASE BID

Furnish all labor, equipment and materials and	
perform all Base Bid WORK as described in these	
Contract Documents.	TOTAL BASE BID: \$

#### **ADDITIVE ALTERNATE NO. 1 – LEVEL 2 EXISTING CORRIDORS**

Day Itam 1	Abatement, Demolition and Renovation of the Building	
Pay nem 1	Corridor 2217, Corridor 2225 and Alcove 263.	\$
	Cost of all WORK associated with Abating ACM	
Pay Item 2	fireproofing on beam shown on ASB1204 (identified as	
	"bid item"), and described on that drawing in "Work This	
	Sheet", item 4; and Fireproofing of same.	\$

### TOTAL ADDITIVE ALTERNATE 1: \$

#### ADDITIVE ALTERNATE NO. 2 – LEVEL 2 FORMER HEALTH INFORMATION

Abatement, Demolition and Renovation in the	
former Health Information spaces to become Shell	TOTAL ADDITIVE
Space 2234.	ALTERNATE 2: \$

#### ADDITIVE ALTERNATE NO. 3 – LEVEL 3 EXISTING SOLARIUM

Demolition and Renovation in the existing	TOTAL ADDITIVE
Solarium 3378.	ALTERNATE 3: \$

# ADDITIVE ALTERNAT NO. 4 – LEVEL 2 SURGERY STORAGE

Renovation of Shell Space 2402 to become	TOTAL ADDITIVE
Surgery Storage 2402A and Shell Space 2402B.	ALTERNATE 4: \$

#### ADDITIVE ALTERNATE NO. 5 – LEVEL 2 SELECTIVE WINDOW REPLACEMENT

Additive Alternate # 5, Abate and remove existing window; and all items as may be required to install Window Type W-5.

		Unit Price		
Pay Unit	Approximate Quantity	Dollars	Cents	
Each	9			TOTAL ADDITIVEALTERNATE 5:

Date: \_\_\_\_\_ Bidder: \_\_\_\_

(Company Name)

#### **SECTION 00320 - BID BOND**

#### KNOW ALL PERSONS BY THESE PRESENTS, that

as Principal, and

as Surety, are held and firmly bound unto THE CITY AND BOROUGH OF JUNEAU hereinafter called "OWNER," in the sum of

dollars, (not less than five percent of the total amount of the Bid) for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the Bid Schedule of the OWNER's Contract Documents entitled

#### **BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221**

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

(SEAL)\_\_\_\_\_

(Principal)

(SEAL)\_\_\_\_\_(Surety)

By:\_\_\_\_\_(Signature)

By:\_\_\_\_\_\_(Signature)

#### SECTION 00360 - SUBCONTRACTOR REPORT

#### LIST OF SUBCONTRACTORS (AS 36.30.115)

1

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract on the fifth business day following the Posting Notice of Bids. If the fifth day falls on a weekend or holiday, the report is due by close of business on the next business Day following the weekend or holiday. The Subcontractor Report list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below

2	SUBCONTRACTOR	<sup>1</sup> AK Contractor <u>License No.</u>	<sup>1</sup> Contact Name	Type of	Contract	/ ···
	ADDRESS	<sup>2</sup> AK Business <u>License No.</u>	<sup>2</sup> Phone No.	Work	Amount	DBE
1. <u>-</u>		1			\$	
-		2				
2		1			\$	
-		2				
3.		1			\$	
-		2				
-		1			¢	
<b>4.</b> _		2			۵	

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

CONTRACTOR, Authorized Signature

CONTRACTOR, Printed Name

#### COMPANY

#### SECTION 00360 - SUBCONTRACTOR REPORT

SUBCONTRACTOR	<sup>1</sup> AK Contractor <u>License No.</u>	<sup>1</sup> Contact Name	<u>Type of</u>	Contract	√ ;f
ADDRESS	<sup>2</sup> AK Business <u>License No.</u>	<sup>2</sup> Phone No.	Work	Amount	<u>DBE</u>
5	1 2			\$	
6	1 2			\$	_
7	1 2			\$	_
8	1 2			\$	

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

\_\_\_\_

CONTRACTOR, Authorized Signature

CONTRACTOR, Printed Name

COMPANY

#### SECTION 00360 - SUBCONTRACTOR REPORT

- A. A Bidder may replace a listed Subcontractor if the Subcontractor:
  - 1. fails to comply with AS 08.18;
  - 2. files for bankruptcy or becomes insolvent;
  - 3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
  - 4. fails to obtain bonding;
  - 5. fails to obtain insurance acceptable to the OWNER;
  - 6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
  - 7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
  - 8. refuses to agree or abide with the Bidder's labor agreement; or
  - 9. is determined by the OWNER not to be responsible.
- B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.
- C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.
- D. If a contract is awarded to a Bidder who violates this section, the OWNER may:
  - 1. cancel the contract; or
  - 2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.
- E. On the Subcontractor Report, the apparent low Bidder must list any Subcontractors anticipated to perform WORK with a value of greater than one-half of one percent of the intended award amount, or \$2,000, whichever is less.
- F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

THIS AGREEMENT is between <u>THE CITY AND BOROUGH OF JUNEAU</u> (hereinafter called OWNER) and \_\_\_\_\_\_ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

#### ARTICLE 1. WORK.

CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNERS Contract Documents <u>Contract E10-221, named BRH Medical Surgical East Wing Renovation.</u>

The WORK is generally described as follows: This Project consists of abatement, demolition and renovation of architectural, structural, mechanical, plumbing and electrical components in the existing Level 3 East Wing of the Medical Surgical Unit, and related WORK in the ceilings of Level 2, as described in the Contract Documents. Additive Alternates include Level 3 Solarium work and renovation of portions of Level 2 and are further described in Section 012300 – Alternates.

The WORK to be paid under this contract shall include the following: Base Bid and Additive Alternate Nos. 1 through 5 as shown in Section 00310 - Bid Schedule.

ARTICLE 2. CONTRACT COMPLETION TIME. The WORK must be completed in by:

Work Description	<b><u>Completion Date</u></b>
Substantial Completion	182 Calendar Days from issuance of Notice to
	Proceed
Final Completion	30 Calendar Days after Substantial Completion

#### **ARTICLE 3. DATE OF AGREEMENT**

The date of this agreement will be the date of the last signature on page three of this section.

#### ARTICLE 4. LIQUIDATED DAMAGES.

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual damages suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER **§1,200.00** for each Day that expires after the completion time(s) specified in Article 2 herein. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

#### ARTICLE 5. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in current funds the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: <u>CBJ Contract E10-221, named</u> **BRH Medical Surgical East Wing Renovation**, those amounts as set forth in the Bid Schedule in the

Contract Documents for this Project.

The total amount of this contract shall be \_\_\_\_\_\_(\$\_\_\_\_), except as adjusted in accordance with the provisions of the Contract Documents.

### ARTICLE 6. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the ARCHITECT as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

#### ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following sections of the Contract Documents:

- Table of Contents (pages 00005-1 to 00005-8, inclusive).
- ▶ Notice Inviting Bids (pages 00030-1 to 00030-3, inclusive).
- Special Notice to Bidders (pages 00031-1, inclusive)
- ▶ Instructions to Bidders (pages 00100-1 to 00100-9, inclusive).
- ➢ Bid (pages 00300-1 to 00300-2, inclusive).
- Bid Schedule (pages 00310-1, inclusive).
- ▶ Bid Bond (page 00320-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00360-1 to 00360-3, inclusive).
- Performance Bond (pages 00610-1 to 00610-2, inclusive).
- Payment Bond (pages 00620-1 to 00620-2, inclusive).
- Insurance Certificate(s).
- ▶ General Conditions (pages 00700-1 to 00700-44, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-6, inclusive).
- Alaska Labor Standards, Reporting, and Prevailing Wage Determination (page 00830-1).
- ➢ Permits, (page 00852-1).
- > Technical Specifications as listed in the Table of Contents.
- > Drawings consisting of <u>159</u> sheets, as listed in the Table of Contents.
- > Addenda numbers \_\_\_\_\_\_ to \_\_\_\_, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto.

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

#### ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below signed by OWNER.

#### **OWNER:**

#### **CONTRACTOR:**

City and Borough of Juneau	
	(Company Name)
(Signature)	(Signature)
By: <u>Rod Swope, City Manager</u> (Printed Name)	By: (Printed Name, Authority or Title)
Date:	Date:
	(CONTRACTOR Signature Date)
OWNER's address for giving notices:	CONTRACTOR's address for giving notices:
155 South Seward Street	
Juneau, Alaska 99801	
907-586-0873 907-586-4530	
(Telephone) (Fax)	(Telephone) (Fax)
	(E-mail address)

CONTRACTOR License No.

# **CERTIFICATE** (if Corporation)

STATE OF ) ) SS: COUNTY OF )

I HEREBY CERTIFY that a meeting of the Board of Directors of the

\_\_\_\_\_a corporation existing under the laws of the State of \_\_\_\_\_\_, held on \_\_\_\_\_\_, 20\_\_\_\_, the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_\_, as \_\_\_\_\_President of the Corporation, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this corporation and that the execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the

corporation this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Secretary

(SEAL)

# **CERTIFICATE** (if Partnership)

STATE OF ) ) SS: COUNTY OF )

I HEREBY CERTIFY that a meeting of the Partners of the

a partnership existing under the laws of the State

of \_\_\_\_\_\_, held on \_\_\_\_\_\_, 20\_\_\_\_, the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_\_, as \_\_\_\_\_ of the Partnership, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this partnership and that the execution thereof, attested by the \_\_\_\_\_\_ shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_\_, day of \_\_\_\_\_, 20\_\_\_\_\_.

Secretary

(SEAL)

# **CERTIFICATE** (if Joint Venture)

STATE OF ) ) SS: COUNTY OF )

I HEREBY CERTIFY that a meeting of the Principals of the

\_\_\_\_\_\_a joint venture existing under the laws of the State of \_\_\_\_\_\_, held on \_\_\_\_\_, 20\_\_\_, the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_\_, as \_\_\_\_\_\_ of the Joint Venture, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF JUNEAU and this joint venture and that the execution thereof, attested by the \_\_\_\_\_\_\_ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_\_, day of \_\_\_\_\_, 20\_\_\_\_.

Secretary

(SEAL)
#### **SECTION 00610 - PERFORMANCE BOND**

#### 

	(ituile of contrateron)
a	
	(Corporation, Partnership, Individual)
he	einafter called "Principal" and
	(Surety)
of	, State of hereinafter called the "Surety", are held and firmly bound
to	the CITY AND BOROUGH of JUNEAU, ALASKA hereinafter called "OWNER", for the penal sum
	(Owner)` (City and State)
of	dollars (\$) in
lav	ful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves,
ou	heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) \_\_\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

#### BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

#### **SECTION 00610 - PERFORMANCE BOND**

#### BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

#### **CONTRACTOR:**

By: \_\_\_\_\_

(Signature)

(Printed Name)

(Company Name)

(Street or P.0. Box)

(City, State, Zip Code)

#### **SURETY:**

By:

(Signature of Attorney-in-Fact)

(Printed Name)

(Company Name)

(Street or P.0. Box)

(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221 PERFORMANCE BOND Page 00610-2

Date Issued:

#### **SECTION 00620 - PAYMENT BOND**

KNOW A	ALL PERSONS BY THE	SE PRESENTS: That we
		(Name of CONTRACTOR)
	a	
		(Corporation, Partnership, Individual)
hereinafter called	"Principal" and	
		(Surety)
of	, State of	hereinafter called the "Surety," are held and
firmly bound to <u>th</u>	ne CITY AND BOROUG	<u>H of JUNEAU, ALASKA</u> hereinafter called "OWNER," for the (City and State)
penal sum of	(Owner)	Dollars
(\$	) in lawful ade, we bind ourselves, by these presents.	money of the United States, for the payment of which sum well our heirs, executors, administrators and successors, jointly and
THECO	NDITION OF THIS OBL	GATION is such that Whereas the CONTRACTOR has entered

THE CONDITION OF THIS OBLIGATION is such that Whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is (CBJ Contracts Office to fill in effective date) \_\_\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

#### BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, Subcontractors, and corporations furnishing materials for, or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said work, and for all labor performed in such WORK, whether by Subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

#### **SECTION 00620 - PAYMENT BOND**

#### BRH Medical Surgical East Wing Renovation CBJ Contract No. E10-221

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

#### **CONTRACTOR:**

By: \_\_\_\_

(Signature)

(Printed Name)

(Company Name)

(Street or P.0. Box)

(City, State, Zip Code)

#### **SURETY:**

By: \_\_\_\_

(Signature of Attorney-in-Fact)

(Printed Name)

(Company Name)

(Street or P.0. Box)

(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

Date Issued:

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Wherever used in these General Conditions or in the Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where a word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ARCHITECT which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

ARCHITECT - The ARCHITECT is the firm or person(s) selected by the City and Borough of Juneau (CBJ) to perform the duties of project inspection and management. CBJ will inform the CONTRACTOR of the identity of the ARCHITECT at or before the Notice to Proceed.

Architect of Record – The individual, partnership, corporation, joint-venture or other legal entity legally responsible for preparation of Design and Construction Documents for the project.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

CBJ - City and Borough of Juneau

CBJ Project Manager - The authorized representative of the City and Borough of Juneau Engineering Department, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ARCHITECT, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, Field Orders and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar Days or the specific date stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ARCHITECT's recommendation of final payment.

Drawings - The drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the Architect of Record and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Field Order - A written order issued by the ARCHITECT which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - The CBJ legal holidays occur on:

- A. New Year's Day January 1
- B. Martin Luther King's Birthday Third Monday in January
- C. President's Day Third Monday in February
- D. Seward's Day Last Monday in March
- E. Memorial Day Last Monday in May
- F. Independence Day July 4
- G. Labor Day First Monday in September
- H. Alaska Day October 18
- I. Veteran's Day November 11
- J. Thanksgiving Day Fourth Thursday and the following Friday in November
- K. Christmas Day December 25.

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

Inspector - The authorized representative of the ARCHITECT assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the work, or a period of time within which the portion of the work should be performed prior to Substantial Completion of all the WORK.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ARCHITECT and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER. This filing starts the 30 day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

OWNER - The City and Borough of Juneau (CBJ), acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER of a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ARCHITECT, to illustrate some portion of the WORK.

Specifications - Same definition as for "Technical Specifications" hereinafter.

Stop Notice - A legal remedy for subcontractors and suppliers who contribute to public works, but who are not paid for their work, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with Architect of Record, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ARCHITECT as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to Substantial Completion thereof.

Supplementary General Conditions - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, material man, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK, Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

#### **ARTICLE 2 PRELIMINARY MATTERS**

- 2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.
- 2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.
- 2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed. If no date is stated, Contract Time shall commence upon the date of the Notice to Proceed is issued.
- 2.4 STARTING THE WORK
  - A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.
  - B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ARCHITECT any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ARCHITECT before proceeding with any WORK affected thereby.
  - C. The CONTRACTOR shall submit to the ARCHITECT for review those documents called for under Section 01300 CONTRACTOR Submittals in the General Requirements.
- 2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ARCHITECT and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of Work.
- 2.6 FINALIZING CONTRACTOR SUBMITTALS. At least 7 days before submittal of the first Application for Payment a conference attended by the CONTRACTOR, the ARCHITECT and others as appropriate will be held to finalize the initial CONTRACTOR submittals in accordance with the General Requirements. As a minimum the CONTRACTOR's representatives should include it's project manager and schedule expert. The CONTRACTOR should plan on this meeting taking no less than 8 hours. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first Application for Payment. No Application for Payment will be processed until CONTRACTOR submittals are finalized.

#### ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

#### 3.1 INTENT

- A. The Contract Documents comprise the entire agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.
- It is the intent of the Contract Documents to describe the WORK, functionally complete, to be B constructed in accordance with the Contract Documents. Any WORK, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe WORK, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the ARCHITECT, OWNER, the CONTRACTOR, or the Architect of Record or any of their consultants, agents, or employees from those set forth in the Contract Documents.
- C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ARCHITECT in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ARCHITECT) until a clarification Field Order, or Change Order to the Contract Documents has been issued.

#### 3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

- A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:
  - 1. Permits from other agencies as may be required by law, excepting the definition of "Permittee" in these permits.
  - 2. Field Orders
  - 3. Change Orders
  - 4. ARCHITECT's written interpretations and clarifications.
  - 5. Agreement
  - 6. Addenda
  - 7. CONTRACTOR's Bid (Bid Form)
  - 8. Supplementary General Conditions
  - 9. Notice Inviting Bids
  - 10. Instructions to Bidders

- 11. General Conditions
- 12. Technical Specifications
- 13 Drawings
- B. With reference to the Drawings the order of precedence is as follows:
  - 1. Figures govern over scaled dimensions
  - 2. Detail drawings govern over general drawings
  - 3. Addenda/Change Order drawings govern over contract Drawings
  - 4. Contract Drawings govern over standard details
- 3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).
- 3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

# ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement furnished to the ARCHITECT prior to said use; and, neither the OWNER nor the ARCHITECT shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

## 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the Architect of Record in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in such reports are not to be relied on by the CONTRACTOR. The CONTRACTOR is responsible for any further explorations or tests that

may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.

B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the Architect of Record in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings are not to be relied on by the CONTRACTOR. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

## 4.3 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ARCHITECT, in writing of any:
  - 1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
  - 2. Subsurface or latent physical conditions at the site differing from those indicated.
  - 3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.
- B. The ARCHITECT shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.
- C. In the event that a dispute arises between the ARCHITECT and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

## 4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the Architect of Record by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities, the OWNER and the Architect of Record shall not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of

the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.

B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ARCHITECT in accordance with the requirements of the Supplementary General Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

#### 4.5 REFERENCE POINTS

- A. The ARCHITECT will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of architects, engineers, and land surveyors.

#### 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT

- A. On City and Borough of Juneau (CBJ) construction projects, the CBJ may make unclassified material available to CONTRACTORs, from the CBJ/State Lemon Creek gravel pit, at a rate less than charged other customers. CONTRACTORs are not required to use material from the CBJ/State pit and the CBJ makes no guarantee as to the quantity or quality of the available material. For this Project, the price shall be \$1.90 per ton.
- B. CONTRACTORs proposing to use gravel from the CBJ/State pit are required to be in good standing for all amounts owed to the CBJ, for previous gravel operations, prior to submitting a mining plan for approval. CONTRACTORs using the pit must comply with Allowable Use Permit USE 98-00047. Failure to meet these requirements, if so subject, shall be sufficient reason to deny use of the CBJ/State pit as a gravel source. To determine if your company is subject to these requirements, contact the CBJ Engineering Department, Gravel Pit Management, at (907) 586-0883.
- C. CONTRACTORs deciding to use material from the CBJ/State pit shall provide an Individual Mining Plan prepared by a professional engineer registered in the State of Alaska. The Individual Mining Plan must be reviewed and approved by the CBJ, prior to commencing operations within the pit. CONTRACTORs shall also secure a Performance Bond to ensure compliance with contract provisions, including any Individual Mining Plan stipulations. The bond shall remain in full force and effect until a release is obtained from the CBJ.
- D. If CONTRACTOR operations for a Project do not exceed 500 tons of material, the CONTRACTOR will not be required to provide an Individual Mining Plan prepared by an engineer, however, the CONTRACTOR must submit an Individual Mining Plan that is in compliance with Allowable Use

Permit USE 98-00047 for gravel extraction within the CBJ/State pit. The CONTRACTOR must contact the CBJ Engineering Department for conditions for the extraction.

- E. CONTRACTORs using the CBJ material may do primary dry separation (screening) of materials within the pit. Crushing and washing of material will not be allowed. CONTRACTORs shall account for placement of materials removed from the pit. The CBJ may require CONTRACTORs to cross-check weight tickets, submit to an audit, or participate in other measures required by the CBJ to ensure accountability. Unprocessed overburden removed from the pit will not be weighed. All other material mined will be weighed at the CBJ scale. CONTRACTORs will be responsible for loading and/or screening their own material. If asphalt pavement is removed as part of the WORK, CONTRACTORs shall dispose of the material at a to-be-specified location within the pit area, as directed by the CBJ Gravel Pit Manager, (907) 586-0883.
- F. The gravel pit overhead charge shall be paid to the CBJ by the CONTRACTOR within 60 days after removal of all materials from the pit and prior to requesting and/or receiving final payment. Upon completion of each excavation CONTRACTORs shall notify the CBJ, in writing, in sufficient time to perform a field-compliance examination prior to vacating the pit. Any significant deviation from the stipulations of the Individual Mining Plan identified during the field inspection shall be corrected by the CONTRACTOR prior to release of the bond. A signed release from CBJ will be required prior to releasing the CONTRACTOR's bond.
- G. If asphalt pavement is removed as part of this WORK, the CONTRACTOR shall dispose of the material at the location designated as the Asphalt Storage Facility, or as directed by the ARCHITECT.
- H. The CBJ/State Pit is a seasonal operation. The hours of operation are from 7:00 a.m. to 6:00 p.m., Monday through Friday, from April 1 through October 15 of the year. CONTRACTORs may obtain gravel on weekends, or during the off-season, by applying for a separate agreement with the City and Borough of Juneau Engineering Department. The CONTRACTOR will be responsible for any additional costs incurred during weekend or off-season operations at the gravel pit.
- I. All CONTRACTORs/equipment operators using the CBJ/State Pit shall be in compliance with Federal Mine Safety and Health Administration regulations for quarry and gravel operations.

# ARTICLE 5 BONDS AND INSURANCE

## 5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

A. The CONTRACTOR shall furnish Performance and Payment Bonds, each in the amount set forth in the Supplementary General Conditions as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. These bonds shall remain in effect at least until one year after the date of Substantial Completion except as otherwise provided by Law or Regulation or by the Contract Documents. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations,

U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

- B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.
- C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

## 5.2 INSURANCE

- A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.
- B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.
- C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies. The CONTRACTOR shall purchase and maintain the following insurance:
  - 1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any

class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected.

- 2. Commercial General Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees or damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees, or Subcontractors. The policy shall contain no exclusions for any operations within the scope of this contract.
- 3. Comprehensive Automobile Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired. Coverage for hired motor vehicles should include endorsement covering liability assumed under this contract.
- 4. Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The CONTRACTOR shall either require each of its Subcontractors to procure and to maintain Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its subcontractors in the CONTRACTOR's own policy, in like amount.
- 5. Builder's Risk. This insurance shall be of the "all risks" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ARCHITECT, against risks of damage to buildings, structures, and materials and equipment. The amount of such insurance shall be not less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR and the OWNER, as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, and the ARCHITECT. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

# ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

## 6.1 SUPERVISION AND SUPERINTENDENCE

- A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.
- B. The CONTRACTOR shall designate in writing and keep on the work site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the

ARCHITECT. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ARCHITECT and the ARCHITECT only.

C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

#### 6.2 LABOR, MATERIALS, AND EQUIPMENT

- A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all WORK at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime WORK or the performance of WORK on Saturday, Sunday, or any legal holiday without the OWNER's written consent. The CONTRACTOR shall apply for this consent through the ARCHITECT.
- B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime WORK, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime WORK may be required under emergency conditions and may be ordered by the ARCHITECT in writing. Additional compensation will be paid the CONTRACTOR for overtime WORK only in the event extra WORK is ordered by the ARCHITECT and the Change Order specifically authorizes the use of overtime WORK and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime WORK of a similar nature in the same locality.
- C. All costs of inspection and testing performed during overtime WORK by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The ARCHITECT shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.
- D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.
- E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ARCHITECT, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ARCHITECT, or any of the

Architect's of Record consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.9C and 9.9D.

- F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to properly perform the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.
- G. Any person employed by the CONTRACTOR or by any SUBCONTRACTOR who, in the opinion of the ARCHITECT, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ARCHITECT, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ARCHITECT. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ARCHITECT may suspend the WORK by written notice until such orders are complied with.
- 6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ARCHITECT for acceptance in accordance with the provisions in Section 01300 CONTRACTOR Submittals in the General Requirements.
- 6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 CONTRACTOR Submittals in the General Requirements.
- 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS. The CONTRACTOR shall be responsible to the OWNER and the ARCHITECT of Record for the acts and omissions of its subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any subcontractor and the OWNER or the ARCHTIECT nor relieve the CONTRACTOR of any liability or obligation under the contract.

## 6.6 PERMITS

- A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and Bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.
- B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required

for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the PERMITTEE in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

- 6.7 PATENT FEES AND ROYALTIES. The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the Architect of Record its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the Architect of Record and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.
- 6.8 LAWS AND REGULATIONS. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ARCHITECT. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the Architect of Record, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.
- 6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.
- 6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the Architect of Record by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the Architect of Record harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of Architect's of Records attorneys, and other

professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the Architect of Record, their consultants, sub-consultants, and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.

#### 6.11 SAFETY AND PROTECTION

- A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 1. all employees on the WORK and other persons and organizations who may be affected thereby;
  - 2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
  - 3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.
- D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet (MSDS) shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.
- E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.
- F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.
- G. The CONTRACTOR shall notify the ARCHITECT if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ARCHITECT prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

#### 6.12 SHOP DRAWINGS AND SAMPLES

- A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ARCHITECT for review, all Shop Drawings in accordance with Section 01300 CONTRACTOR Submittals in the General Requirements.
- B. The CONTRACTOR shall also submit to the ARCHITECT for review all samples in accordance with Section 01300 CONTRACTOR Submittals in the General Requirements.
- C. Before submittal of each Shop Drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.
- 6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No WORK shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

#### 6.14 INDEMNIFICATION

- A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the Architect of Record, their consultants, sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the Architect of Record. Such indemnification by the CONTRACTOR shall include but not be limited to the following:
  - 1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
  - 2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's or Subcontractor's own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, or the Architect of Record;
  - 3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
  - 4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.

- 5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the ARCHITECT, OWNER or any other parties by the CONTRACTOR, its employees, or agents;
- 6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
- 7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.
- B. The CONTRACTOR shall reimburse the OWNER and the Architect of Record for all costs and expenses, (including but not limited to fees and charges of Architects of Record, attorneys, and other professionals and court costs including all costs of appeals) incurred by the OWNER, and the Architect of Record in enforcing the provisions of this Paragraph 6.14.
- C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- 6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ARCHITECT and shall be submitted to the ARCHITECT at the conclusion of each WORK day. The report should comment on the daily progress and status of the WORK within each major component of the WORK. These components will be decided by the ARCHITECT. The CONTRACTOR shall record the name, affiliation, time of arrival and departure, and reason for visit for all visitors to the location of the WORK.
- 6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.
- 6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on, or turn-off line locates and any other WORK or assistance necessary by the CBJ Water Utilities Division, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the Project cost. Billing to the CONTRACTOR will be direct from the CBJ Water Utilities Division.

## 6.18 OPERATING WATER SYSTEM VALVES

A. The CONTRACTOR shall submit a written request, to the ARCHITECT, for approval to operate any valve on any in-service section of the CBJ water system. The request must be submitted at least 24-hours prior to operating any valves. The CBJ Water Utilities Division reserves the right to approve or deny the request. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed. The CONTRACTOR shall obtain the written approval of the ARCHITECT for any scheduled operation before operating any valve.

- B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the OWNER or any other party, caused by unauthorized operation of any valve of the CBJ water system.
- 6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Friday, or before 9:00 a.m. or after 10:00 p.m., Saturday and Sunday, unless a permit shall first be obtained from the City and Borough Building Official. Such permit shall be issued by the Building Official only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

#### **ARTICLE 7 OTHER WORK**

#### 7.1 RELATED WORK AT SITE

- A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.
- B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate with their WORK. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ARCHITECT and the others whose work will be affected.
- C. If the proper execution or results of any part of the CONTRACTOR's WORK depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ARCHITECT in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's WORK except for latent or nonapparent defects and deficiencies in the other work.
- 7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

#### **ARTICLE 8 OWNER'S RESPONSIBILITIES**

#### 8.1 COMMUNICATIONS

- A. The OWNER shall issue all its communications to the CONTRACTOR through the ARCHITECT.
- B. The CONTRACTOR shall issue all its communications to the OWNER through the ARCHITECT.
- 8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.
- 8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.
- 8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.
- 8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.
- 8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.
- 8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

#### **ARTICLE 9 ARCHITECT'S STATUS DURING CONSTRUCTION**

- 9.1 OWNER'S REPRESENTATIVE. The ARCHITECT will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ARCHITECT as the OWNER's representative during construction are set forth in the Contract Documents.
- 9.2 VISITS TO SITE. The ARCHITECT will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ARCHITECT. The ARCHITECT will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.
- 9.3 PROJECT REPRESENTATION. The ARCHITECT may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority of any such Inspector and assistants will be as provided in the Supplementary General Conditions.
- 9.4 CLARIFICATIONS AND INTERPRETATIONS. The ARCHITECT will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the ARCHITECT may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

- 9.5 AUTHORIZED VARIATIONS IN WORK. The ARCHITECT may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.
- 9.6 REJECTING OR ACCEPTING DEFECTIVE WORK. The ARCHITECT will have authority to reject or accept WORK which the ARCHITECT believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.

#### 9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

- A. In accordance with the procedures set forth in the General Requirements, the ARCHITECT will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes, or "or equal" items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. The ARCHITECT's review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.
- B. In connection with the ARCHITECT's responsibilities as to Change Orders, see Articles 10, 11, and 12.
- C. In connection with the ARCHITECT's responsibilities in respect of Applications for Payment, see Article 14.

#### 9.8 DECISIONS ON DISPUTES

- A. The ARCHITECT will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ARCHITECT in writing with a request for formal decision in accordance with this paragraph, which the ARCHITECT will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ARCHITECT promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ARCHITECT within 60 days after such occurrence unless the ARCHITECT allows an additional period of time to ascertain more accurate data in support of the claim.
- B. The rendering of a decision by the ARCHITECT with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

#### 9.9 LIMITATION ON ARCHITECT'S RESPONSIBILITIES

- A. Neither the ARCHITECT's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ARCHITECT in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ARCHITECT to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.
- B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ARCHITECT as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ARCHITECT any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.
- C. The ARCHITECT will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ARCHITECT will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.
- D. The ARCHITECT will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, Supplier, or any other person or organization performing any of the WORK.

## **ARTICLE 10 CHANGES IN THE WORK**

## 10.1 GENERAL

- A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ARCHITECT.
- B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.
- C. If the OWNER and CONTRACTOR agree on the value of any WORK, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ARCHITECT, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the WORK pending the issuance of a Change Order.
- D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be

allowed as a result of a Field Order, the ARCHITECT can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to the WORK, and a claim may be made therefor as provided in Articles 11 and 12.

- E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any WORK performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering WORK as provided in Paragraph 13.3G.
- F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:
  - 1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
  - 2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
  - 3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
  - 4. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by the ARCHITECT pursuant to Paragraph 9.8.
- G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

#### 10.2 ALLOWABLE QUANTITY VARIATIONS

- A. In the event of an increase or decrease in bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.
- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated WORK, the price of the eliminated WORK shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated WORK, said price shall be determined in accordance with the provisions of Article 11.

## ARTICLE 11 CHANGE OF CONTRACT PRICE

#### 11.1 GENERAL

- A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ARCHITECT promptly (but in no event later than 30 days) after the start of the occurrence or the event giving rise

to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ARCHITECT allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ARCHITECT in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.

- C. The value of any WORK covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
  - 1. Where the WORK involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
  - 2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
  - 3. On the basis of the "Cost of WORK" (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).
- 11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ARCHITECT, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and WORK, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the WORK, materials, or equipment.

#### 11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

- A. General. The term "Cost of WORK" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra WORK. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in <u>Paragraph 11.5 EXCLUDED COSTS</u>.
- B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra WORK at the time the extra WORK is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned WORK and only that applicable to extra WORK shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.
- C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:

- 1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
- 2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ARCHITECT. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
- 3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra WORK items or the current wholesale price for such materials delivered to the WORK site, whichever price is lower.
- 4. If in the opinion of the ARCHITECT the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the WORK site less trade discount. The OWNER reserves the right to furnish materials for the extra WORK and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.
- D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ARCHITECT. The CONTRACTOR may furnish cost data which might assist the ARCHITECT in the establishment of the rental rate.
  - 1. All equipment shall, in the opinion of the ARCHITECT, be in good working condition and suitable for the purpose for which the equipment is to be used.
  - 2. Before construction equipment is used on the extra WORK, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ARCHITECT, in duplicate, a description of the equipment and its identifying number.
  - 3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
  - 4. Individual pieces of equipment or tools having a replacement value of \$200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
  - 5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
  - 6. <u>Equipment</u>. Unless otherwise agreed to in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" available on-line at <u>http://www.equipmentwatch.com/rrbb.htm</u> or contact Equipment Watch at (800) 669-3282.
- E. Equipment on the WORK Site. The rental time to be paid for equipment on the WORK site shall be the time the equipment is in productive operation on the extra WORK being performed and, in addition, shall include the time required to move the equipment to the location of the extra WORK and return it to the original location or to another location requiring no more time than that required

to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra WORK, even though located at the site of the extra WORK. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra WORK on other than the extra WORK. The following shall be used in computing the rental time of equipment on the WORK site.

- 1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
- 2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra WORK to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
- 3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
- 4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the WORK site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra WORK, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.
- 5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.
- F. Specialty WORK. Specialty WORK is defined as that WORK characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty WORK:
  - 1. Any bid item of WORK to be classified as Specialty WORK shall be listed as such in the Supplementary General Conditions. Specialty WORK shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ARCHITECT, invoices for Specialty WORK based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
  - 2. When the CONTRACTOR is required to perform WORK necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the WORK performed at the off-site facility may, by agreement, be accepted as Specialty WORK and accordingly, the invoices for the WORK may be accepted without detailed itemization.
  - 3. All invoices for specialty WORK will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty WORK.

G. Sureties. All WORK performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety Bonds or supplemental surety Bonds shall be submitted to the OWNER for review prior to the performance of any WORK hereunder.

# 11.4 CONTRACTOR'S FEE

A. Extra WORK ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ARCHITECT, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, Bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance

Labor	
Materials	
Equipment	

To the sum of the costs and mark-ups provided for in this Article, one (1) percent shall be added as compensation for Bonds.

B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra WORK is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add five (5) percent of the Subcontractor's total cost for the extra WORK. Regardless of the number of hierarchical tiers of Subcontractors, the five (5) percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

# 11.5 EXCLUDED COSTS.

- A. The term "Cost of the WORK" shall not include any of the following:
  - 1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, architects, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the WORK, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.
  - 2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.
  - 3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments.

- 4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).
- 5. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.
- 6. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

#### **ARTICLE 12 CHANGE OF CONTRACT TIME**

#### 12.1 GENERAL

- A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ARCHITECT promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ARCHITECT allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ARCHITECT in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph. An increase in Contract Time does not mean that the CONTRACTOR is due an increase in Contract Price. Only Compensable time extensions will result in an increase in Contract Price.
- B. All time limits stated in the Contract Documents are of the essence of the Agreement.
- C. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the Project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.
- D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the Project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of
CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract time may be extended by the ARCHITECT because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ARCHITECT in writing of the cause of delay and request an extension of contract time. The ARCHITECT will ascertain the facts and the extent of the delay and extend the time for completing the WORK when, in the ARCHITECT's judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent state or federal agency.

# ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

- 13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ARCHITECT that all WORK will be in accordance with the Contract Documents and will not be defective. Prompt notice of defects known to the OWNER or ARCHITECT shall be given to the CONTRACTOR. All Defective WORK, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.
- 13.2 ACCESS TO WORK. The OWNER, ARCHITECT, Architect of Record, their consultants, subconsultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the WORK at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

#### 13.3 INSPECTIONS AND TESTS

- A. The CONTRACTOR shall give the ARCHITECT timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ARCHITECT's acceptance of a Supplier of materials or equipment proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).
- C. The ARCHITECT will make, or have made, such inspections and tests as the ARCHITECT deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost

of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ARCHITECT, as well as the cost of subsequent re-inspection and retesting. Neither observations by the ARCHITECT nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

- D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ARCHITECT and the CONTRACTOR.
- E. If any WORK (including the work of others anticipated under paragraph 7.1) that is to be inspected, tested, or approved is covered without written concurrence of the ARCHITECT, it must, if requested by the ARCHITECT, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ARCHITECT timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ARCHITECT has not acted with reasonable promptness in response to such notice.
- F. If any WORK is covered contrary to the written request of the ARCHITECT, it must, if requested by the ARCHITECT, be uncovered for the ARCHITECT's observation and recovered at the CONTRACTOR's expense.
- G. If the ARCHITECT considers it necessary or advisable that covered WORK be observed by the ARCHITECT or inspected or tested by others, the CONTRACTOR, at the ARCHITECT's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ARCHITECT may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such WORK is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of Architects of Record, attorneys, and other professionals. However, if such WORK is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.
- 13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform WORK in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.
- 13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ARCHITECT, the CONTRACTOR shall promptly, either correct all Defective WORK, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ARCHITECT, remove it from the site and replace it with non-defective WORK. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of Architects of Record, attorneys, and other professionals made necessary thereby.

# 13.6 ONE YEAR CORRECTION PERIOD

- A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any WORK is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective WORK, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of Architects of Record, attorneys and other professionals will be paid by the CONTRACTOR.
- B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- 13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of Defective WORK, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such Defective WORK. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

# ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

- 14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The Schedule of Values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ARCHITECT.
- 14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price WORK will be based on the number of units completed.

#### 14.3 APPLICATION FOR PROGRESS PAYMENT

- A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ARCHITECT for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
- B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR's Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously

incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.

- C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the contract amount has been paid. The remaining 10% of the contract amount shall be retained until:
  - 1. final inspection has been made;
  - 2. completion of the project;
  - 3. acceptance of the project by the OWNER and;
  - 4. the OWNER has received notification from the Alaska Department of Labor that the CONTRACTOR has no outstanding wage/hour violations.
- D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the Project site or at another location agreed to in writing; provided, each such individual item has a value of more than \$5000 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that the CONTRACTOR has received the materials and equipment free and clear of all liens, charges, security interests, and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER.
- 14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all WORK, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

## 14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

- A. The ARCHITECT will, within seven (7) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ARCHITECT's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application. If the ARCHITECT still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for review and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ARCHITECT's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.
- B. The OWNER may refuse to make payment of the full amount recommended by the ARCHITECT because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give

the CONTRACTOR written notice within seven (7) days (with a copy to the ARCHITECT) stating the reasons for such action.

#### 14.6 PARTIAL UTILIZATION

- A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.
- B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.
- C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.
- 14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ARCHITECT in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all WORK items that remain to be completed and a request that the ARCHITECT prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ARCHITECT shall make an inspection of the WORK to determine the status of completion. If the ARCHITECT does not consider the WORK substantially complete, or the list of remaining WORK items to be comprehensive, the ARCHITECT will notify the CONTRACTOR in writing giving the reasons thereof. If the ARCHITECT considers the WORK substantially complete, the ARCHITECT will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion.
- 14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining WORK items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ARCHITECT has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.

# 14.9 FINAL PAYMENT AND ACCEPTANCE

A. If, on the basis of the ARCHITECT's observation of the WORK during construction and final inspection, and the ARCHITECT's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ARCHITECT is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ARCHITECT will, within 14 days after receipt of the final Application for Payment, indicate in writing the ARCHITECT's recommendation of payment and present the Application to the OWNER for payment.

- B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:
  - 1. Liquidated damages, as applicable.
  - 2. Two times the value of outstanding items of correction WORK or punch list items yet uncompleted or uncorrected, as applicable. All such WORK shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

#### 14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

- A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.
- B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction WORK remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining WORK items will be returned to the CONTRACTOR; provided, that said WORK has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the OWNER under the contract to cover 2 times the value of such remaining uncompleted or uncorrected items.
- 14.11 CONTRACTOR'S CONTINUING OBLIGATION. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ARCHITECT, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of WORK not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.
- 14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

# ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.1 SUSPENSION OF WORK BY OWNER. The OWNER, acting through the ARCHITECT, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ARCHITECT of a notice of resumption of WORK. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

#### 15.2 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

- A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of WORK meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ARCHITECT's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.
- B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall pay the excess amount to the owner.
- 15.3 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE). The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of WORK performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated, which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of WORK performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ARCHITECT in accordance with the procedure prescribed for the making of the final Application for Payment and payment under Paragraphs 14.8 and 14.9.
- 15.4 TERMINATION OF AGREEMENT BY CONTRACTOR. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through

no fault or negligence of the CONTRACTOR, and notice to resume WORK or to terminate the Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due to the CONTRACTOR in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

## **ARTICLE 16 MISCELLANEOUS**

16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

# 16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

- A. The CONTRACTOR may use on the Project, with ARCHITECT's approval, such stone, gravel, sand, or other material determined suitable by the ARCHITECT, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.
- B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the Project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.
- C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ARCHITECT.
- D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the CBJ may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such materials are in a stockpile, the ARCHITECT may require: that it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the CBJ from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the CBJ and the CONTRACTOR.
- E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ARCHITECT.

- 16.3 RIGHT TO AUDIT. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.
- 16.4 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ARCHITECT. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ARCHITECT order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra WORK, such order(s) shall be covered by an appropriate contract change document.
- 16.5 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. All WORK over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued by the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.
- 16.6 GRATUITY AND CONFLICT OF INTEREST. The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER, nor will the CONTRACTOR rent or purchase any equipment or materials from any employee or elected official of the OWNER, or to the best of the CONTRACTOR's knowledge, from any agent of any employee or elected official of the OWNER. Before final payment, the CONTRACTOR shall execute and furnish the OWNER an affidavit certifying that the CONTRACTOR has complied with the above provisions of the contract.

# 16.7 SUITS OF LAW CONCERNING THE WORK

- A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.
- B. If one of the questions at issue is the satisfactory performance of the WORK by the CONTRACTOR and should the appropriate court of law judge the WORK of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's surety) shall reimburse the

OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

## 16.8 CERTIFIED PAYROLLS

- A. All CONTRACTORs or Subcontractor who perform work on a public construction contract for the OWNER shall file a Certified Payroll with the Alaska Department of Labor every two weeks. Before the second Friday, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).
- B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.
- C. Any CONTRACTOR or Subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

# 16.9 PREVAILING WAGE RATES

- A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.
- B. Failure to Pay Agreed Wages, AS 36.05.080. If it is found that a laborer, mechanic, or field surveyor employed by the CONTRACTOR or Subcontractor has been, or is being, paid a rate or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the WORK. The OWNER may prosecute the WORK to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).
- C. Listing CONTRACTORS Who Violate contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this list, and no firm, corporation, partnership or association in which the person has an interest, may WORK as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).
- 16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

## 16.11 COST REDUCTION INCENTIVE

- A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ARCHITECT in writing, proposals for modifying the plans, specifications, or other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.
- B. The cost reduction proposal shall contain the following information:
  - 1. Description of both the existing contract requirements for performing the WORK and the proposed changes.
  - 2. An itemization of the contract requirements that must be changed if the proposal is adopted.
  - 3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
  - 4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
  - 5. The contract items of WORK effected by the proposed changes including any quantity variations.
  - 6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
  - 7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.
- C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the WORK attributable to the consideration or implementation of any such proposal.
- D. If a cost reduction proposal is similar to a change in the plans or Specifications for the Project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.
- E. The CONTRACTOR shall continue to perform the WORK in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.
- F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.
- G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a Contract Change Order, which specifically states that the change is executed pursuant

to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and Specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the WORK attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.

- H. Acceptance of the cost reduction proposal and performance of the WORK does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.
- I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.
- J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.
- K. The CONTRACTOR shall bear the costs, if any, to revise all Bonds and insurance requirements for the Project, to include the cost reduction WORK.

# **END OF SECTION**

**GENERAL.** These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

# SGC 2.2 COPIES OF DOCUMENTS. Add the following:

The OWNER shall furnish to the CONTRACTOR up to ten (10) copies of the Contract Documents which may include bound reduced Drawings, if any, together with up to five (5) sets of full-scale Drawings. The CBJ Contracts Office shall contact the CONTRACTOR after issuance of Notice of Intent to Award to determine how many copies are needed. Additional quantities of the Contract Documents and full-scale Drawings will be furnished at reproduction cost.

# **SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES.** *Add* the following:

C. In the preparation of the Contract Documents, the Engineer of Record has relied upon field measurements and visual inspection of the existing structures and surface conditions.

*Add* the following SGC 4.6:

# SGC - 4.6 USE OF THE CBJ/STATE LEMON CREEK GRAVEL PIT. Add the following.

The CBJ/State Lemon Creek Gravel Pit is not available for this project.

*Add* the following SGC 4.7:

# SGC 4.7 USE OF CITY/STATE STABLER'S POINT ROCK QUARRY. Add the following:

The CBJ/State Stabler's Point Rock Quarry is not available for this Project.

**SGC 5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS.** The Contractor shall furnish Performance and Payment Bonds in the amount of 100% of the Bid.

SGC 5.2 INSURANCE AMOUNTS. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations. All certificates of insurance supplied to the OWNER shall state that the OWNER is named as "Additional Insured for any and all work performed for the City & Borough of Juneau." The Additional Insured requirement does not apply to Workers Compensation insurance. NOTE: This requirement has changed. The OWNER no longer requires certificates of insurance referencing project names and contract numbers.

- Workers' Compensation: Under Paragraph 5.2C.1 of the General Conditions as in accordance with AS 23.30.045: (Additional Insured requirements not necessary for Workers' Compensation coverage.)
  - 1. State: Statutory
  - 2. Applicable Federal (e.g., Longshore): Statutory

Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

3. Employer's Liability

Bodily Injury by Accident:	\$100,000.00	Each Accident
Bodily Injury by Disease:	\$100,000.00	Each Employee
Bodily Injury by Disease:	\$500,000.00	Policy Limit

- a. CONTRACTOR agrees to waive all rights of subrogation against the OWNER of Record for work performed under contract.
- b. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the contract.
- B. Commercial General Liability: (under Paragraph 5.2C.2 of the General Conditions):

1.	General Policy	\$1,000,000.00 \$2,000,000.00	Each Occurrence Annual Aggregate
2.	Products/Completed Operations	\$1,000,000.00 \$2,000,000.00	Each Occurrence Annual Aggregate
3.	Personal Injury	\$1,000,000.00	Each Occurrence

- C. Comprehensive Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:
  - 1. Combined Single Limit, Bodily Injury and Property Damage \$1,000,000.00

The CONTRACTOR shall require each Subcontractor similarly to provide Commercial Automobile Liability Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Commercial Automobile Liability Insurance.

- D. Builder's Risk: (under Paragraph 5.2C.5 of the General Conditions) in an amount equal to the completed value of the BID. Flood and earthquake shall be excluded as a requirement of the Builder's Risk policy.
- E. Hazardous Materials: As a condition of the Contract award, CONTRACTOR shall provide evidence of insurance coverage for Contractor's Pollution Liability as applicable to the WORK covered by abatement Subcontractor(s). Such coverage shall include operations addressing the removal and disposal of all hazardous materials with no exclusions for asbestos. Minimum limits shall be \$5,000,000. The policy shall not contain any exclusion relating to hazardous materials. Form of such policies shall be acceptable to the OWNER.

- F. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER.
- G. All policies will provide for 30 Days written notice prior to any cancellation or non-renewal of insurance policies required under contract. "Will endeavor" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the Company, its agents or representatives" wording will be deleted from certificates.

## SGC 6.1 SUPERVISION AND SUPERINTENDENCE. Add the following:

D. The CONTRACTOR's superintendent shall attend a weekly progress meeting at the site with the OWNER and/or the ARCHITECT at a time to be mutually agreed upon. The CONTRACTOR's superintendent shall have an operating cellular phone on hand at all times that WORK is performed.

#### SGC 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS. Add the following:

The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the original contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for Contract Award, and any other information requested by the OWNER from the apparent low Bidder.

## SGC 6.6 PERMITS. Add the following:

- C. The ARCHITECT shall apply for, and obtain, the necessary building permit for this Project; however, the CONTRACTOR is responsible for scheduling and coordinating all necessary inspections. The CBJ Inspection number is 586-1703. All other provisions of this section remain in effect.
- D. Contractor is responsible for obtaining a Hot Works permit from the CBJ Permit Center, if performing work which requires such a permit. Work requiring a Hot Works Permit includes but is not limited to the following: cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

#### SGC 6.8 LAWS AND REGULATIONS. Add the following:

The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

#### SGC 6.15 CONTRACTOR'S DAILY REPORTS. Add the following:

"Weekly summary reports may be completed in lieu of daily reports."

*Add* the following SCG 6.19:

**SGC 6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS.** Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Friday, or before 9:00 a.m. or after 10:00 p.m., Saturday and Sunday, unless a permit shall first be obtained from the City and Borough Building Official. Such permit shall be issued by the Building Official only upon a determination

that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

# SGC 9.3 PROJECT REPRESENTATION. Add the following:

# DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF INSPECTOR

General. The Inspector will act as directed by and under the supervision of the ARCHITECT and will confer with the ARCHITECT regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ARCHITECT and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ARCHITECT. The ARCHITECT may further delegate the responsibilities and authorities associated with this Project, when such delegation is in writing and notice thereof is provided to the CONTRACTOR.

**SGC 11.1 GENERAL**. Paragraph B. In the second sentence change the number of days from 30 Days to 7 Days. In the third sentence change the number of days from 60 Days to 14 Days.

**SCG 14.3 APPLICATION FOR PROGRESS PAYMENT.** *Delete* Paragraph C and replace with the following:

- C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the contract amount may be withheld until:
  - 1. final inspection has been made;
  - 2. completion of the Project; and
  - 3. acceptance of the Project by the OWNER.

### SCG 14.3 APPLICATION FOR PROGRESS PAYMENT. Paragraph D.

D. The Value of Materials Stored at the site shall be the amount of 90%.

#### SGC 14.9 FINAL PAYMENT AND ACCEPTANCE. Add the following paragraph:

C. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor and Workforce Development (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. The following page is a sample form for this purpose. The CONTRACTOR also shall submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" signed by ADOL.

#### SGC 16.8 CERTIFIED PAYROLLS. Change paragraph A. to read:

A. All CONTRACTORs or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination.

*Add* the following SGC 17:

**SGC 17 GENERAL INFORMATION.** This Project is currently funded by the City and Borough of Juneau, Alaska Bartlett Regional Hospital Operating Budget.

# **Employment Security Tax Clearance**

Date:		
To:	Alaska Department of Labor Juneau Field Tax Office 907-465-2787 FAX 907-465-2374	
From:		
Subject:	BRH Medical Surgical East Wing Reno Contract No. E10-221	vation
Timeframe of	of Contract	
Please adviso (List only on	e whether or not clearance is granted for the for the for the for the for the for the formation of the contractor list per part of the contractor list per par	ollowing CONTRACTOR or Subcontractor: age.)
Name	Address	
Per AS 23.20 release to ma response to:	0.265 of the Alaska Employment Security Ac ake final payment for WORK performed unde	t, this request is for tax liability clearance and or the subject contract. Please send your
Jennifer Mar Engineering 155 S. Sewa Juneau, Alas FAX 907-58	nnix, Contract Administrator Department rd Street ska 99801 36-4530	
<ul><li>( ) Tax Cleater</li><li>( ) Tax Cleater</li></ul>	arance is granted. arance is NOT granted.	
Remarks:		
Signature		Date
Title		

**END OF SECTION** 

# PART 1 - GENERAL

# 1.1 INDEX OF PERMITS

- A. The ARCHITECT is obtaining a CBJ Building Permit.
- B. Hospital Construction License Pending

# 1.2 ASSOCIATED PAYMENTS (Reference SGC 6.6)

- A. Payments by the ARCHITECT. The ARCHITECT shall pay for all permit fees and inspection costs pertaining to jurisdictional authorities for the following:
  - 1. Fees and costs associated to the building permit as issued by the CBJ Building Division.
  - 2. Fees and costs associated with all special inspections services as required by the CBJ Building Department in conjunction with the building permit.
  - 3. Fees and costs associated to the services provided by the State Fire Marshal's Office including reviews of the fire suppression and alarm systems.
  - 4. Fees and costs associated to the services provided by the State of Alaska, Department of Health and Social Services as they relate to the Hospital Construction License.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

# END OF SECTION 00852

## SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND PREVAILING WAGE RATE DETERMINATION

State of Alaska, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010 and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations.

<u>Required Reporting During Contract</u> (to be provided by <u>every</u> CONTRACTOR and Subcontractor):

A. Certified Payrolls must be submitted every two weeks. Before the second Friday, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. Indicate "*Start*" on your first payroll, and "*Final*" on your last payroll for this Project. Send to:

Wage and Hour Section State of Alaska Department of Labor and Workforce Development Labor Standards and Safety Division and Wage and Hour Administration P.O. Box 11149 Juneau, AK 99811-1149 907-465-4842 Jennifer Mannix, Contract Administrator City and Borough of Juneau 155 S. Seward Street Juneau, AK 99801 (907) 586-0873

B. Within 10 Days of "Notice of Award/Notice to Proceed" make a list of <u>all</u> Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send to:

Wage and Hour Section State of Alaska Department of Labor and Workforce Development Labor Standards and Safety Division Wage and Hour Administration P.O. Box 11149 Juneau, AK 99811-1149

C. As part of the **final payment request package**, CONTRACTOR must submit a "NOTICE OF COMPLETION OF PUBLIC WORKS" form signed by ADOL personnel.

# END OF SECTION

BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221 ALASKA LABOR STANDARDS, REPORTING AND PREVAILING WAGE RATE DETERMINATION Page 00830-1

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Project information.
  - 2. WORK covered by Contract Documents.
  - 3. WORK by OWNER.
  - 4. WORK under separate contracts.
  - 5. Purchase contracts.
  - 6. OWNER-furnished, OWNER-installed products (OFOI)
  - 7. OWNER-furnished, CONTRACTOR-installed products (OFCI).
  - 8. CONTRACTOR-furnished, OWNER-installed products (CFOI).
  - 9. Access to site.
  - 10. Coordination with occupants.
  - 11. Work restrictions.
  - 12. Specification and drawing conventions.
- B. Related Section:
  - 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of OWNER'S facilities.

#### 1.3 PROJECT INFORMATION

- A. Project Identification: Bartlett Regional Hospital, Medical/Surgical East Wing Renovation.
  - 1. Project Location: The site of WORK is 3260 Hospital Drive Juneau, Alaska 99801.
- B. OWNER: City and Borough of Juneau, 155 South Seward St. Juneau, Alaska 99801
  1. OWNER'S Representative: Alicja Gorska, CBJ Project Architect.
- C. Architect of Record: Jensen Yorba Lott, Inc., 522 West 10<sup>th</sup> St. Juneau, Alaska 998021.
- D. Using Agency: Bartlett Regional Hospital.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project is defined by the Contract Documents and consists of renovation to the existing Bartlett Regional Hospital. Project will be constructed under a single prime contract.

#### 1.5 WORK BY OWNER

- A. General: Cooperate fully with OWNER so WORK may be carried out smoothly, without interfering with or delaying WORK under this Contract or work by OWNER. Coordinate the WORK of this Contract with work performed by OWNER.
- B. Preceding WORK: OWNER will perform the following construction operations at Project site prior to the start of WORK in each phase of this Contract.
  - 1. Removal of existing building in area of Construction Trailer and Storage.
- C. Concurrent WORK: OWNER will perform the following construction operations at Project site simultaneously with WORK under this Contract.
  - 1. Installation of camera security systems specific to the areas of WORK.
- D. Subsequent Work: OWNER will perform the following additional work at site after Substantial Completion:
  - 1. Installation of directory signage.
  - 2. Installation of advertising signage.
  - 3. Installation of miscellaneous fixtures and equipment

#### 1.6 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate CONTRACTORs so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the WORK of this Contract with work performed under separate contracts.

#### 1.7 OWNER-FURNISHED PRODUCTS

A. OWNER will furnish products indicated. The WORK includes receiving, unloading, handling, storing, protecting, and installing OWNER-furnished products and making building services connections.

#### 1.8 CONTRACTOR-SALVAGED, CONTRACTOR-INSTALLED PRODUCTS

A. CONTRACTOR shall salvage a quantity of the products indicated, offer them to the OWNER for inspection and approval. CONTRACTOR shall store products for re-installation where indicated so that the re-installed products match existing products indicated to remain. Only those quantities of products required to be re-installed shall be retained. Remaining removed products not needed for re-installation or use by the OWNER shall be disposed of by the CONTRACTOR.

- B. CONTRACTOR-Salvaged, CONTRACTOR-Installed Products:
  - 1. Level 2 Surgery Short Stay Ceiling tiles.
  - 2. Level 2 & 3 Signage

## 1.9 ACCESS TO SITE

- A. General: CONTRACTOR shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Limits: Confine construction operations to areas indicated for demolition and/or construction. Limit staging to area to CONTRACTOR Staging Area indicated on sheet A-101.
  - 2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to OWNER, Using Agency and it's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials, except where existing driveways, sidewalks and entrances are schedule for demolition and/or improvements.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

# 1.10 COORDINATION WITH OCCUPANTS

- A. Partial OWNER Occupancy: Using Agency will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with OWNER during construction operations to minimize conflicts and facilitate OWNER usage. Perform the WORK so as not to interfere with Using Agency operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from OWNER and approval of authorities having jurisdiction.
  - 2. Notify the OWNER not less than 72 hours in advance of activities that will affect OWNER'S operations.
- B. OWNER Limited Occupancy of Completed Areas of Construction: OWNER reserves the right to occupy and to place and install equipment in completed portions of the WORK, prior to

Substantial Completion of the WORK, provided such occupancy does not interfere with completion of the WORK. Such placement of equipment and limited occupancy shall not constitute acceptance of the total WORK.

- C. OWNER will prepare a Certificate of Substantial Completion for each specific portion of the WORK to be occupied prior to OWNER acceptance of the completed WORK.
  - 1. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited OWNER occupancy.
  - 2. Before limited OWNER occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, OWNER will operate and maintain mechanical and electrical systems serving occupied portions of Work.
  - 3. On occupancy, OWNER will assume responsibility for maintenance and custodial service for occupied portions of Work.

#### 1.11 WORK RESTRICTIONS:

- A. OWNER will occupy the Surgery Short Stay spaces on Level 2 directly below the WORK space on Level 3, during the entire construction period. WORK in the Surgery Short Stay space will be limited not only to WORK space but also to WORK hours. WORK shall be coordinated with OWNER. OWNER reserves the right to stop work in the area on a short notice to coordinate with BRH use.
  - 1. The Surgery Short Stay space on Level 2 is defined as approximately from grid "H" to "P" and from grid "1" to "4".
  - 2. A maximum of two (2) Patient Bed spaces 2101 2113 (1 -13); may be taken out of the OWNER's use, for WORK at any given time.
  - 3. WORK in the space will be scheduled and coordinated and will be limited to non scheduled patient periods.
    - a. Obtain OWNER's written permission before proceeding with WORK in the space.
    - b. On weekdays, Monday through Thursday WORK in this space may occur no earlier than 4:30 pm and not later than 9:30 pm daily.
    - c. On weekends:
      - 1) For WORK which will create sounds levels up to 60 decibels (dB), WORK will be allowed over the weekend from 4:30 pm Friday through 6:00 am Monday.
      - 2) For WORK which will create sound levels greater than 60 dB, WORK will be allowed no earlier than 9:00 am and no later than 9:30 pm; Saturday and Sunday.
  - 4. WORK on Level 3 which will create noise levels above 60 dB and cause impact vibrations will be restricted to the times as listed in subparagraph 3 above.
  - 5. Patient Bed spaces WORK is to be enclosed from adjacent spaces by use of temporary partitions complying with section 015000 Temporary Facilities and Controls until such time as WORK is completed in that space.
    - a. Negative air pressure shall be maintained in enclosed WORK spaces.
  - 6. Ceiling shall be enclosed in spaces not enclosed by temporary partitions by use of undamaged reinstalled ACP after each WORK period/day.

7. All fire protection, mechanical, electrical, lighting, life safety and OWNER's services; shall be maintained and be completely operational during WORK in this space.

## 1.12 CONTRACTOR USE OF PROJECT SITE

- A. The CONTRACTOR's use of the Project site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices.
- B. Limit use of the site and/or premises to construction activities in areas indicated on the Contract Drawings; allow for OWNER occupancy and use by the public.
- C. Confine operations to areas within the Project limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
- D. Keep driveways and entrances serving the premises clear and available to the OWNER and the OWNER's employees at all times. Do not use these areas for parking or storage of materials and equipment on the site.
- E. Maintain existing buildings in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the structure and its occupants during the construction period
- F. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by OWNER or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify OWNER not less than three days in advance of proposed utility interruptions.
  - 2. Obtain OWNER's written permission before proceeding with utility interruptions.
- H. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to OWNER occupancy with OWNER.
  - 3. Notify OWNER not less than three days in advance of proposed disruptive operations.
  - 4. Obtain OWNER's written permission before proceeding with disruptive operations.
- I. Nonsmoking Building and Grounds: Smoking is not permitted within the building or within hospital grounds.
- J. Employee Identification: See other provisions in Division 1 for requirements.

#### 1.13 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

- 2. Specification requirements are to be performed by CONTRACTOR unless specifically stated otherwise.
- B. Division 1 General Requirements: Requirements of Sections in Division 1 apply to the WORK of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
  - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

# PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

## **END OF SECTION 011000**

## **SECTION 012300 - ALTERNATES**

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

#### 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if OWNER decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the WORK only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the WORK. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

#### **SECTION 012300 - ALTERNATES**

## PART 2 - PRODUCTS (Not Used)

# **PART 3 - EXECUTION**

#### 3.1 SCHEDULE OF ALTERNATES

- A. ADDITIVE Alternate No. 1: Level 2 Existing Corridors.
  - 1. Base Bid: Abatement, Demolition and Renovation from approximately grid lines 1 through 2 and grid lines A through B at ceiling and above the Dr's Sleep 2235C, Shower 2235B, Hall 2235D and Corridor 2401; creating a temporary tunnel (corridor) T202 from Corridor 238 to Stair #2, Vestibule T201; to include contractor constructed secured access through the existing windows as indicated on A1203 and A1301 to the project space; including but not limited to the work as required for work on Level 3 above, between grid lines 1 through 3 and A through Q as indicated on the Architectural, Abatement, Mechanical, Plumbing and Electrical sheets.
  - 2. Alternate: Abatement from grid lines 1 through 8 and B through approximately C; and renovation of the Building Corridor 2217 (E, F & G), Corridor 2225 and Alcove 263 as indicated on the Architectural, Abatement, Mechanical, Plumbing, and Electrical sheets.
- B. ADDITIVE Alternate No. 2: Level 2– Former Health Information.
  - 1. Base Bid: See description of Base Bid as described in Additive Alternate No: 1 above.
  - 2. Alternate: Abatement, Demolition and Renovation in the former Health Information spaces rooms A1203 Records 2233, Transcription 2234, Supervisor Office 2234B and Work 2234C to become Shell Space A2234; from approximately grid lines 1 through 2 and C through G; as indicated on the Architectural, Abatement, Mechanical, Plumbing, and Electrical sheets.
- C. ADDITIVE Alternate No. 3: Level 3 Existing Solarium.
  - 1. Base Bid: Abatement, Demolition and Renovation from approximately grid lines 1 through 4 and grid lines A through Q' as indicated on the Architectural, Abatement, Mechanical, Plumbing, and Electrical sheets; to include contractor constructed secured access through the existing windows as indicated on A1203, A1205 and A1301 to the project space.
  - 2. Alternate: Demolition and Renovation in the existing Solarium 3378; as indicated on the Architectural, Mechanical, Plumbing and Electrical drawings and specifications.
- D. ADDITIVE Alternate No. 4: Level 2 Surgery Storage.
  - 1. Base Bid: See description of Base Bid as described in Additive Alternate No: 1 above; WORK in Existing Shell Space 2402 for wall in Corridor 2217E (approximately Grid B) is part of Alternate No.1

# **SECTION 012300 - ALTERNATES**

- 2. Alternate: Renovation of Shell Space 2402 to become Surgery Storage 2402A and Shell Space 2402B; with finishes and items as indicated on Architectural, Plumbing, Mechanical and Electrical drawings and specifications.
- E. ADDITIVE Alternate No. 5: Level 2 Selective Window Replacement.
  - 1. Base Bid: See description of Additive Alternate No: 4 Level 2 Surgery Storage above; WORK in Existing Shell Space 2402 for wall in Corridor 2217E (approximately Grid B) is part of Alternate No.1 for location.
  - 2. Alternate: Abate and remove the windows in Alternate 4 for the Renovation of Surgery Storage 2402A; and replace with Architectural Aluminum Window Type 5 as indicated on Abatement and Architectural drawings and specifications.

# END OF SECTION 012300

#### SECTION 012900 - PAYMENT PROCEDURES

## PART 1 - GENERAL

#### 1.1 SCOPE

- A. Payment for the various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- B. No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefor shall be included in the prices named in the Bid Schedule for the various appurtenant items of WORK.
- C. In addition to other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other Items of WORK under this contract:
  - 1. Maintenance of all services through Project area, including water, sewer, storm, garbage pickup, mail delivery, other deliveries and emergency vehicles.
- 1.2 Base Bid and Additive Alternates 1 4: PRICE BASED ON LUMP SUM PAY UNIT
  - A. Measurement for payment for the Lump Sum Pay Unit will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
  - B. Payment will be made at the amount shown on the Bid Schedule, which payment will constitute full compensation for all WORK.
- 1.3 Additive Alternate No. 5 Selective Window Replacement: PRICE BASED ON QUANTITY, EACH
  - A. Additive Alternate No. 5 Selective Window Replacement will be measured per each, complete in place, including all other items necessary for a complete installation.
  - B. Payment for Additive Alternate No. 5 Selective Window Replacement will be made at the Unit Price named in the Bid Schedule, which payment will constitute full compensation for all WORK associated with this pay item.

#### PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

#### END OF SECTION 012900

**BRH MEDICAL SURGICAL EAST WING RENOVATIONS CBJ Contract No. E10-221** 

#### **SECTION 013201 - SCHEDULE OF VALUES**

#### PART 1 - GENERAL

#### 1.1 THE REQUIREMENT

A. This Section defines the process whereby the Schedule of Values (Lump Sum Pay Unit price breakdown) shall be developed and ultimately incorporated into the cost loading function of the CPM Schedule as specified in Section 013211 - CPM Construction Schedules. Monthly progress payment amounts shall be determined from the monthly progress updates of the CPM Schedule activities.

#### 1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 011000 Summary.
- B. Section 013211 CMP Construction Schedule.

#### 1.3 PRELIMINARY SCHEDULE OF VALUES

- A. The Schedule of Values shall be developed in two (2) steps independent but parallel with the development of the CPM Schedule activities and logic. The steps shall be as follows:
  - 1. The CONTRACTOR shall submit a preliminary Schedule of Values for the major components of the WORK at the Preconstruction Conference as specified and referenced in Section 01010 -Summary of WORK. The listing shall include, at a minimum, the proposed value for the major WORK components:

#### Listed by specification section as a minimum.

2. The CONTRACTOR and ARCHITECT shall meet and jointly review the preliminary Schedule of Values and make any adjustments in value allocations necessary, if in the opinion of the ARCHITECT, allocation adjustments are necessary to establish fair and reasonable allocation of values for the major WORK components. Front end loading will not be permitted. The ARCHITECT may require inclusion of other major WORK components not included in the above listing if, in the opinion of the ARCHITECT, such additional components are appropriate. This review and any necessary revisions shall be completed within 15 Days from the date of Notice to Proceed.

#### 1.4 DETAILED SCHEDULE OF VALUES

A. The CONTRACTOR shall prepare and submit a detailed Schedule of Values to the ARCHITECT within 30 Days from the date of the Notice to Proceed. The detailed Schedule of Values shall be based on the accepted preliminary Schedule of Values for major WORK components. Because the ultimate requirement is to develop a detailed Schedule of Values sufficient to determine appropriate monthly progress payment amounts through cost loading of the CPM Schedule activities, sufficient detailed breakdown shall be provided to meet this requirement. The ARCHITECT shall be the sole

#### SECTION 013201 - SCHEDULE OF VALUES

judge of acceptable numbers, details and description of values established. If, in the opinion of the ARCHITECT, a greater number of Schedule of Values items than proposed by the CONTRACTOR is necessary, the CONTRACTOR shall add the additional items so identified by the ARCHITECT.

1. The minimum detail of breakdown of the major WORK components is indicated below. Greater detail shall be provided as directed by the ARCHITECT.

Listed by specification section as a minimum.

The CONTRACTOR and ARCHITECT shall meet and jointly review the detailed Schedule of Values within 35 Days from the Notice to Proceed. The value allocations and extent of detail shall be reviewed to determine any necessary adjustments to the values and to determine if sufficient detail has been proposed to provide cost loading of the CPM Schedule activities. Any adjustments deemed necessary to the value allocation or level of detail shall be made by the CONTRACTOR and a revised detailed Schedule of Values shall be submitted within 40 Days from the date of Notice to Proceed.

2. Following acceptance of the detailed Schedule of Values, the CONTRACTOR shall incorporate the values into the cost loading portion of the CPM Schedule. The CPM activities and logic shall have been developed concurrent to the development of the detailed Schedule of Values; however, it shall be necessary to adjust the detailed Schedule of Values to correlate to individual schedule activities. It is anticipated that instances will occur, due to the independent but parallel development of the Schedule of Values and the CPM Schedule activities, where interfacing these two documents will require changes to each document, Schedule activities may need to be added to accommodate the detail of the Schedule of Values. Schedule of Values items may need to be added to accommodate the detail of the CPM Schedule activities. Where such instances arise, the CONTRACTOR shall propose changes to the Schedule of Values and to the CPM Schedule activities to satisfy the CPM Schedule cost loading requirements.

# 1.5 CROSS REFERENCE LISTING

- A. To assist in the correlation of the Schedule of Values and the CPM Schedule, the CONTRACTOR shall provide a Cross Reference Listing which shall be furnished in two parts. The first part shall list each scheduled activity with the breakdown of the respective valued items making up the total cost of the activity. The second part shall list the valued items with the respective scheduled activity or activities that make up the total cost for a valued item (shown in the Schedule of Values). The total cost for each scheduled item should be indicated.
- B. These listings shall be updated and submitted in conjunction with the CPM monthly submittals as stated in Section 013211 CMP Construction Schedule.
- C. Approved change orders reflected in the CPM Schedule shall be incorporated into the Schedule of Values as a single unit identified by the Change Order number.

## SECTION 013201 - SCHEDULE OF VALUES

### 1.6 CHANGES TO SCHEDULE OF VALUES

- A. Changes to the CPM Schedule which add activities not included in the original schedule but included in the original WORK (schedule omissions) shall have values assigned as approved by the ARCHITECT. Other activity values shall be reduced to provide equal value adjustment increases for added activities as approved by the ARCHITECT.
- B. In the event that the CONTRACTOR and ARCHITECT agree to make adjustments to the original Schedule of Values because of inequities discovered in the original accepted detailed Schedule of Values, increases and equal decreases to values for activities may be made.

## 1.7 LIQUIDATED DAMAGES

A. If any submittal that is required by this Section is determined by the ARCHITECT to be incomplete or is submitted later than set out herein, the OWNER will suffer financial loss and the CONTRACTOR will be assessed liquidated damages as required by Article 4 of the Section 00500 - Agreement.

## PART 2 - PRODUCTS (Not Used)

# PART 3 - EXECUTION (Not Used)

#### END OF SECTION 013201

#### **SECTION 013210 - PROGRESS SCHEDULES**

#### PART 1 - GENERAL

#### 1.1 REQUIREMENTS INCLUDED.

A. Procedures for preparation and submittal of construction progress schedules and periodic schedule updating.

#### 1.2 RELATED REQUIREMENTS

- A. Section 011000 Summary of WORK.
- B. Section 013300 Submittal Procedures.
- C. Section 013201 Schedule of Values.

#### 1.3 FORMAT

- A. Prepare schedules as a horizontal bar chart with separate bar for each major portion of WORK or operations, identifying first work day of each week.
- B. Sequence of listings shall reflect the chronological order of the start of each item of WORK and encompass those items as noted in the table of contents of this Project manual.
- C. Scale and spacing shall be such as to provide for notations and revisions.
- D. Minimum sheet size of 22 x 34 inches, unless approved otherwise by the ARCHITECT.

#### 1.4 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by Specification section number.
- C. Identify WORK of separate stages and other logically grouped activities.
- D. Provide sub-schedules to define critical portions of entire schedule.
- E. Show accumulated percentage of completion of each item, and total percentage of WORK completed, as of the mid and final days of each month.
- F. Provide separate schedules of submittal dates for Shop Drawings, product data, and samples, including products specified under alternate bids, and dates reviewed submittals will be required from the Project ARCHITECT. Show decision dates for selection of finishes and options, where appropriate.
- G. Show delivery dates for materials and products.
- H. Coordinate and display cost allocation requirements of Section 013201 Schedule of Values, prior to the CONTRACTOR's initial application for payment.

#### **SECTION 013210 - PROGRESS SCHEDULES**

#### 1.5 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- C. Provide narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken, or proposed, and its effect including the effect of changes on schedules of separate Subcontractors.
- D. When submitting a revised schedule, CONTRACTOR shall state specifically the reason for the revision and the adjustments made in the schedule or methods of operation to ensure the completion of all the WORK within the Contract time.

#### 1.6 SUBMITTALS

- A. Prior to the Pre-Construction Meeting submit two sets of initial schedules in accordance with Section 013300 CONTRACTOR Submittals. After review, resubmit required revised data within ten days, modified to accommodate revisions recommended by the Project ARCHITECT.
- B. Submit progress schedules reflecting the progress to date and anticipated in the future with each Application for Payment. Upon substantial changes to the CONTRACTOR's progress schedule of WORK, or upon request of the Project ARCHITECT, the CONTRACTOR shall submit the revised progress schedule(s) in the form required.
- C. Submit under transmittal letter specified in Section 013300 CONTRACTOR Submittals.

#### 1.7 DISTRIBUTION

- A. Distribute copies of reviewed schedules to job site file, Subcontractors, suppliers, and other concerned entities.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

#### PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

#### END OF SECTION 013210
### PART 1 - GENERAL

#### 1.1 GENERAL

A. The scheduling of the WORK under the contract shall be performed by the CONTRACTOR in accordance with the requirements of this Section. The development of the schedule, the cost loading of the schedule, monthly payment request requisitions and Project status reporting requirements of the contract shall employ computerized Critical Path Method (CPM) scheduling. The CPM Schedule shall be cost loaded based on the schedule of values as approved by the ARCHITECT in accordance with the requirements of Section 013201 - Schedule of Values. The CPM Schedule and all reports should be prepared with Primavera, MS Project 2003, or other software approved by the ARCHITECT with substantially similar functions.

### 1.2 QUALIFICATIONS

A. Within 14 calendar days after the date of the Notice of Intent to Award letter, the CONTRACTOR shall provide a statement which verifies that the CONTRACTOR has in-house capability qualified to use CPM technique and the approved software, or that the CONTRACTOR will employ a CPM consultant so qualified. In either event the statement shall identify the individual who will perform the CPM scheduling. Capability shall be verified by description of construction Projects on which the individual has successfully applied computerized CPM and shall include at least two projects of similar nature, scope and valued at not less than one-half the expected cost of this Project.

### 1.3 INITIAL SCHEDULE SUBMITTALS

- A. The CONTRACTOR shall submit a project overview bar chart schedule at the Pre-Construction Conference as specified below:
  - 1. Project Overview Bar Chart: The overview bar chart shall indicate the major components of the Project WORK and the sequence relations between major components and subdivisions of major components. The overview bar chart shall indicate the relationships and time frames in which the various components of the WORK will be made substantially complete and placed into service in order to meet the Project milestones. Planned durations and start dates shall be indicated for each WORK item.

### 1.4 CPM SCHEDULE SUBMITTALS

A. Original CPM Schedule Submittal: Within 15 days after the Notice to Proceed letter, the CONTRACTOR shall submit for review by the ARCHITECT a hard copy of the CPM Network Schedule. The CONTRACTOR's attention is directed to the requirement that the schedule shall contain sufficient detail and information to cost load the CPM schedule in accordance with the approved schedule of values as specified under Section 013201 - Schedule of Values. Each installation and side WORK activity shall have been cost loaded as specified.

- B. Acceptance: The acceptance of the CONTRACTOR's schedule by the ARCHITECT and OWNER will be based solely upon the schedules compliance with the contract requirements. By way of the CONTRACTOR assigning activity durations and proposing the sequence of the WORK, the CONTRACTOR agrees to utilize sufficient and necessary management and other resources to perform the WORK in accordance with the schedule. Upon submittal of a schedule update, the updated schedule shall be considered the "current" Project schedule.
- C. Submission of a CONTRACTOR's Progress Schedule to the OWNER or ARCHITECT shall not relieve the CONTRACTOR of it's total responsibility for scheduling sequencing and pursuing the WORK to comply with the requirements of the Contract Documents, including adverse effects such as delays resulting from ill-timed WORK.
- D. Monthly Updates and Periodic CPM Schedule Submittals: Following the acceptance of the CONTRACTOR's Initial Construction Schedule, the CONTRACTOR shall monitor the progress of the WORK and adjust the schedule each month to reflect actual progress and any changes in planned future activities. Each schedule update submitted must be complete including all information requested in the original CPM schedule. Each update should continue to show all WORK activities including those already completed. These computer activities should accurately reflect the "As Built" information by indicating when the WORK was actually started and completed.
- E. Neither the submission nor the updating of the CONTRACTOR's original schedule submittal nor the submission, updating, change or revision of any other report, curve, schedule or narrative submitted to the OWNER by the CONTRACTOR under this contract, nor the OWNER's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending, or modifying, in any way, the contract completion date or milestone dates or of modifying or limiting in any way the CONTRACTOR's obligations under this contract. Only a signed, fully executed Change Order can modify these contractual obligations.

# 1.5 CHANGE ORDERS

A. Upon approval of a Change Order, or upon receipt by the CONTRACTOR of authorization to proceed with additional WORK, the change shall be reflected in the next submittal of the CPM schedule by the CONTRACTOR. The CONTRACTOR shall utilize a sub-network in the schedule depicting the changed WORK and its effect on other activities. This sub-network shall be tied to the main network with the appropriate logic so that a true analysis of the Critical Path can be made.

# 1.6 CPM SCHEDULE FLOAT

- A. Float Time: Float time shall be as follows:
  - 1. Definition: Unless otherwise provided herein, float as referenced in these documents is total float. Total float is the period of time measured by the number of working days each noncritical path activity may be delayed before it and its succeeding activities become part of the critical path. If a noncritical path activity is delayed beyond its float period, that activity then becomes part of the critical path and controls the end date of the Project. Thus, the delay of a noncritical path activity beyond its float period will cause delay to the Project itself.
  - 2. Float Ownership. Neither the OWNER nor the CONTRACTOR own the float time. The

Project owns the float time. As such, liability for delay for the Project completion date rests with the party actually causing delay to the Project completion date. For example, if Party A uses some, but not all of the float time and Party B later uses the remainder of the float time as well as additional time beyond the float time, then Party B shall be liable for the costs associated with the time that represents a delay to the Project's completion data. Party A would not be responsible for any costs since it did not consume all of the float time and additional float time remained, therefore, the Project's completion date was unaffected.

## 1.7 SCHEDULE REPORTS (FORMAT)

- A. Schedule Reports: Schedule Reports shall be prepared based on the Construction Schedule, and shall include the following minimum data for each activity:
  - 1. Activity Numbers, and Responsibility Codes.
  - 2. Estimated Activity Duration.
  - 3. Activity Description.
  - 4. Activity's Percent Complete.
  - 5. Early Start Date (Calendar Dated).
  - 6. Early Finish Date (Calendar Dated).
  - 7. Late Start Date (Calendar Dated).
  - 8. Late Finish Date (Calendar Dated).
  - 9. Status (Whether Critical).
  - 10. Total Float for Each Activity.
  - 11. Free Float for Each Activity.
  - 12. Cost Value for Each Activity.
- B. Project Information: Each Schedule Report shall be prefaced with the following summary data.
  - 1. Project Name.
  - 2. CONTRACTOR.
  - 3. Type of Tabulation.
  - 4. Project Duration.
  - 5. Contract Completion Date (revised to reflect time extensions).
  - 6. The Commencement Date Stated in the Noticed to Proceed.
  - 7. The Data Date and Plot Date of the Network Diagram.
  - 8. If anupdate, cite the new schedule completion date.

## 1.8 PROJECT STATUS REPORTING

- A. In addition to the submittal requirements for the CPM scheduling identified in this Section , the CONTRACTOR shall provide monthly Project status reports (Overview Bar Chart and a written narrative report) to be submitted in conjunction with the revised CPM Schedules as specified in paragraph 1.5(D). Status reporting shall be in the form specified below.
- B. The CONTRACTOR shall prepare and submit monthly an Overview Bar Chart schedule of the major Project components. The overview bar chart schedule shall be a summary of the current CPM schedule (original and as updated and adjusted throughout the entire construction period). It shall be limited to not more that four sheets which shall not exceed 36-inch by 60-inch. The major

Project components shall be represented as time bars which shall be subdivided into various types of WORK including but not limited to demolition, excavation and earthwork, yard piping, concrete construction, mechanical, electrical and instrumentation installations. Major components shall include each new structure by area designation, sitework, modifications to existing structures, tie-ins to existing facilities and plant start-ups.

- C. Each major component and subdivision shall be accurately time scale plotted consistent with the Project overview bar chart specified in Article 1.4 above. It shall represent the same status indicated by early start and finish activity information contained in the latest update of the CPM schedule. In addition, a percent complete shall be indicated for each major component and subdivision. The initial submittal of the overview bar chart schedule shall be made at the time that the revised original CPM schedule is submitted to the ARCHITECT (65 days from the commencement date stated in the Notice to Proceed). The CONTRACTOR shall amend the overview schedule to include any additional detail required by the ARCHITECT. The CONTRACTOR shall include any additional information requested by the ARCHITECT at any time during the construction of the WORK.
- D. The CONTRACTOR shall provide written narrative reports of the status of the Project for submission to the ARCHITECT as noted in paragraph 1.9.(A) of this Section. Written status reports shall include:
  - 1. The status of major Project components (percent complete, amount of time, ahead or behind schedule) and an explanation of how the Project will be brought back on schedule if delays have occurred.
  - 2. The progress made on critical activities indicated on the CPM schedule.
  - 3. Explanations for any lack of WORK on critical path activities planned to be progressed during the last month.
  - 4. Explanations for any schedule changes, including changes to the logic or to activity durations.
  - 5. A list of the critical activities scheduled to be performed in the next two month period.
  - 6. The status of major material and equipment procurement.
  - 7. The value of materials and equipment properly stored at the site but not yet incorporated into the WORK-in-place.
  - 8. Any delays encountered during the reporting period.
  - 9. An assessment of inclement weather delays and impacts to the progress of the WORK.
- E. The CONTRACTOR may include any other information pertinent to the status of the Project. The CONTRACTOR shall include additional status information required by the ARCHITECT.

# 1.9 INCLEMENT WEATHER PROVISIONS OF THE SCHEDULE

A. CONTRACTOR's construction schedule shall include at least 100 lost normal WORK days on the CPM schedule's critical path due to inclement weather. Lost normal WORK days shall be determined as specified in Section 00800 - Supplemental General Conditions.

### 1.10 LIQUIDATED DAMAGES

A. If any submittal required by this Section is determined by the ARCHITECT to be incomplete or is

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submitted later than required, the OWNER will suffer financial loss and accordingly liquidated

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damages will be assessed against the CONTRACTOR in accordance with Article 4 in Section 00500 - Agreement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013211

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### PART 1 - GENERAL

### 1.1 GENERAL

- A. Wherever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the ARCHITECT.
- B. Prior to the Pre-Construction Conference, the CONTRACTOR shall submit the following items to the ARCHITECT for review:
  - 1. A submittal schedule for Shop Drawings, Samples, Product Data, and proposed Substitutes or "Or-Equal" items.
  - 2. A Schedule of Values.
  - 3. A complete progress schedule for all phases of the Project.
  - 4. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit. CBJ shall apply for the Building Permit.
  - 5. Material Safety Data Sheets on products used on the Project.
  - 6. A traffic maintenance plan, as required.
  - 7. A letter designating the CONTRACTOR's Superintendent, defining that person's responsibility and authority.
  - 8. A letter designating the CONTRACTOR's safety representative and the EEO Officer and that person's responsibility and authority.
  - 9. Individual Mining Plan shall be submitted and approved, by CBJ Engineering, prior to any materials extraction from the CBJ/State pit at Lemon Creek.
- C. No payments shall be made to the CONTRACTOR until the above-listed items are submitted in their entirety, as determined by the ARCHITECT.
- D. The CONTRACTOR shall coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay. Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The ARCHITECT reserves the right to withhold action on a submittal requiring coordination until related submittals are received. No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the WORK to permit processing.
- E. The CONTRACTOR shall distribute copies of the Construction Schedule, Schedule of Values, and the Submittal Schedule to the ARCHITECT, Subcontractors, and other parties required to comply with scheduled dates. Post copies in the temporary field office. When revisions are made, distribute to the same parties and post in the same locations. Revise and update each Schedule after each meeting or activity, where revisions have been made. Issue the updated Schedules concurrently with report of each meeting.

### 1.2 SUBMITTAL PROCESS

- A. Wherever called for in the Contract Documents, or where required by the ARCHITECT, the CONTRACTOR shall furnish to the ARCHITECT, for review, 6 copies of each submittal.
- B. All submittals shall be accompanied by the CONTRACTOR's standard submittal transmittal form. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal.
- C. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ARCHITECT.
- D. Except as may otherwise be provided herein, the ARCHITECT will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 14 calendar days following their receipt by the ARCHITECT. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ARCHITECT by the second submission of a submittal item. The OWNER reserves the right to withhold monies due the CONTRACTOR to cover additional costs of the ARCHITECT to review beyond the second submittal. The ARCHITECT's maximum review period for each submittal including all re-submittals will be 14 days per submission.
- E. If 3 copies of a submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.
- F. If 3 copies of a submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision shall be made, and resubmission of said submittal will not be required.
- G. If one copy of the submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and resubmit the required number of copies of said revised submittal to the ARCHITECT.
- H. If one copy of the submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT" the CONTRACTOR shall revise said submittal and resubmit the required number of copies of said revised submittal to the ARCHITECT.
- I. Fabrication of an item may be commenced only after the ARCHITECT has reviewed the pertinent submittal and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittal shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements. Only a change order can alter the contract price, time, or requirements.
- J. All CONTRACTOR submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ARCHITECT. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. No consideration for review by the ARCHITECT of any CONTRACTOR submittal

will be made for any items which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ARCHITECT, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.

K. The ARCHITECT's review of CONTRACTOR submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.

## 1.3 SUBMITTAL SCHEDULE

- A. The CONTRACTOR shall coordinate the Submittal Schedule with the list of subcontracts, Schedule of Values and list of products as well as the Construction Schedule. Prepare the Submittal Schedule in chronological order. Identify all submittals required for the completion of the Work. Provide the following information in the Submittal Schedule:
  - 1. Scheduled date for the first submittal.
  - 2. Related Section number.
  - 3. Name of Subcontractor.
  - 4. Description of the construction element covered.
  - 5. Anticipated date of the ARCHITECT's final release or approval.

# 1.4 SHOP DRAWING SUBMITTALS

- A. The CONTRACTOR shall submit shop Drawings as required with new information, drawn to accurate scale. Indicate deviations from Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings.
- B. The Shop Drawings shall include the following information:
  - 1. Dimensions.
  - 2. Identification of products and materials included.
  - 3. Notation of coordination requirements.
  - 4. Notation of dimensions established by field measurement.
  - 5. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".
- C. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop Drawings, fabrication, and installation Drawings, section Drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items.
- D. Do not use shop Drawings without a final stamp indicating action taken in connection with construction.

### 1.5 SAMPLE SUBMITTALS

- A. Whenever in the Specifications samples are required, the CONTRACTOR shall submit not less than 3 samples of each such item or material to the ARCHITECT for acceptance at no additional cost to the OWNER.
- B. Samples, as required herein, shall be submitted for acceptance a minimum of 14 days prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.
- C. The CONTRACTOR shall submit full-size samples, cured and finished as specified, and identical to the product proposed. Mount, display, or package samples to facilitate review. Include the following:
  - 1. Generic description.
  - 2. Source.
  - 3. Product name or name of manufacturer.
  - 4. Compliance with recognized standards.
  - 5. Availability and delivery time.
  - 6. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics, and a comparison of these characteristics between the final submittal and the component as delivered and installed. Where variations are inherent in the product, submit multiple units that show limits of the variations.
  - 7. Preliminary Submittals. Where samples are for selection of characteristics from a range of choices, submit a full set of choices for the product. Preliminary submittals will be reviewed and returned indicating selection and other action.
  - 8. Submittals. Except for samples illustrating assembly details, quality of WORK, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken. Maintain a sample set at the Project site, for quality comparisons. Sample sets may be used to obtain final acceptance of the construction associated with each set.
  - 9. Prepare additional sets for Subcontractors, manufacturers, fabricators, installers, and others as required for performance. Show distribution on transmittal forms.
- D. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Supplier's names for identification and submitted to the ARCHITECT for acceptance. Upon receiving acceptance of the ARCHITECT, one set of the samples will be stamped and dated by the ARCHITECT and returned to the CONTRACTOR, and one set of samples will be retained by the ARCHITECT, and one set of samples shall remain at the job site until completion of the WORK.
- E. Unless clearly stated otherwise, it is assumed that all colors and textures of specified items presented in sample submittal are from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products or equipment lines, and their selection will require an increase in Contract Time or Price, the CONTRACTOR will clearly indicate this on the transmittal page of the submittal.

### 1.6 PRODUCT DATA SUBMITTALS

- A. The CONTRACTOR shall collect all the Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
  - 1. Manufacturer's printed recommendations.
  - 2. Compliance with recognized trade association standards.
  - 3. Compliance with recognized testing agency standards.
  - 4. Application of testing agency labels and seals.
  - 5. Notation of dimensions verified by field measurement.
  - 6. Notation of coordination requirements.
  - 7. Preliminary Submittal: Submit a preliminary single-copy where selection of options is required.
  - 8. Furnish copies of final submittal to installers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an approved copy of Product Data is in the installer's possession. Do not permit use of unmarked copies of Product Data in connection with construction.

# 1.7 PROPOSED SUBSTITUTE OR "OR EQUAL" ITEM SUBMITTALS

- A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other Suppliers may be accepted by the ARCHITECT if sufficient information is submitted by the CONTRACTOR to allow the ARCHITECT to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:
  - 1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
  - 2. The ARCHITECT will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ARCHITECT's decision shall be final.
  - 3. The ARCHITECT may require the CONTRACTOR, to furnish at the CONTRACTOR's expense, additional data about the proposed substitute.
  - 4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
  - 5. Acceptance by the ARCHITECT of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
  - 6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's WORK, the WORK of its Subcontractors and of other contractors, and shall effect such changes without cost to the OWNER. This shall include the cost for redesign and claims of other contractor(s) affected by the resulting change.
- B. The procedure for review by the ARCHITECT will include the following:
  - 1. If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment,

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the CONTRACTOR shall make written application to the ARCHITECT on the "Substitution Request Form" for acceptance thereof.

- 2. Unless otherwise provided by law or authorized in writing by the ARCHITECT, the "Substitution Request Form(s)" shall be submitted within the 14-day period after Notice of Award/Notice To Proceed.
- 3. Wherever a proposed substitute material or equipment has not been submitted within said 14-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ARCHITECT, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
- 4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
- 5. The ARCHITECT will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than14 days.
- 6. As applicable, no shop Drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ARCHITECT's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which will be evidenced by a Change Order.
- C. The CONTRACTOR's application using the "Substitution Request Forms" shall contain the following statements and/or information which shall be considered by the ARCHITECT in evaluating the proposed substitution when one or more of the following conditions are satisfied, as determined by the ARCHITECT; otherwise, requests will be returned without action except to record non-compliance with these requirements.
  - 1. Extensive revisions to the Contract Documents are not required.
  - 2. Proposed changes are in keeping with the general intent of the Contract Documents.
  - 3. The request is timely, fully documented, and properly submitted.
  - 4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
  - 5. The specified product or method of construction cannot be provided within the contract time. The request will not be considered if the product or method cannot be provided as a result of the CONTRACTOR's failure to pursue the WORK promptly, or to coordinate activities properly.
  - 6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  - 7. A substantial advantage is offered to the OWNER, in terms of cost, time, energy conservation, or other considerations of merit, after deducting off-setting responsibilities the OWNER may be required to bear. Additional responsibilities for the OWNER may include additional compensation to the Architect of Record for redesign and evaluation services, increased cost of other construction by the OWNER, or separate contractors, and similar considerations.
  - 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the CONTRACTOR certifies that the substitution will overcome the incompatibility.
  - 9. The specified product or method of construction cannot be coordinated with other materials, and where the CONTRACTOR certifies that the proposed substitution can be coordinated.
  - 10. The specified product or method of construction cannot provide a warranty required by the contract documents and where the CONTRACTOR certifies that the proposed substitution provide the required warranty.

- 11. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of substantial completion on time.
- 12. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
- 13. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
- 14. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.
- D. The CONTRACTOR's submittal and ARCHITECT's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the contract documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

## 1.8 SCHEDULE OF VALUES

- A. For Lump Sum Pay Unit contracts, the CONTRACTOR shall submit a Schedule of Values to the ARCHITECT. The Schedule of Values shall list the cost breakdown of the Lump Sum Pay Unit contract and shall be coordinated with the construction schedule.
  - 1. Correlate line items in the Schedule of Values with other schedules and forms.
  - 2. Use the Contract Document's Table of Contents as a guide to establish the format for the Schedule of Values.
  - 3. Include Record Drawings as a line item.

### 1.9 PROGRESS SCHEDULE

- A. The progress schedule shall be in Bar Chart or Critical Path Method (CPM) form, as required by the ARCHITECT.
- B. The progress schedule shall show the order in which the CONTRACTOR proposes to carry out the WORK and the contemplated date on which the CONTRACTOR and its Subcontractors will start and finish each of the salient features of the WORK, including any scheduled periods of shutdown. The schedule shall also indicate any anticipated periods of multiple-shift work.
- C. Upon substantial changes to the CONTRACTOR's progress schedule of WORK or upon request of the ARCHITECT, the CONTRACTOR shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the Contract Time and take into account delays which may have been encountered in the performance of the WORK. In submitting a revised schedule, the CONTRACTOR shall state specifically the reason for the revision and the adjustments made in the schedule or methods of operation to ensure the completion of all the WORK within the Contract Time.

### 1.10 RECORD DRAWING SUBMITTAL

- A. The CONTRACTOR shall keep and maintain, at the job site, one record set of CONTRACT Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  - 1 Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - 1 Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - 2 Accurately record information in an acceptable drawing technique.
    - 3 Record data as soon as possible after obtaining it.
    - 4 Record and check the markup before enclosing concealed installations.
    - 5 Cross-reference record prints to corresponding archive photographic documentation.
  - 2 Content: Types of items requiring marking include, but are not limited to, the following:
    - 1 Dimensional changes to Drawings.
    - 2 Revisions to details shown on Drawings.
    - 3 Revisions to routing of piping and conduits.
    - 4 Revisions to electrical circuitry.
    - 5 Actual equipment locations.
    - 6 Duct size and routing.
    - 7 Locations of concealed internal utilities.
    - 8 Changes made by Change Order or Construction or Work Change Directive.
    - 9 Changes made following ARCHITECT'S written orders.
    - 10 Details not on the original CONTRACT Drawings.
    - 11 Field records for variable and concealed conditions.
    - 12 Record information on the Work that is shown only schematically.
  - 3 Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  - 4 Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  - 5 Mark important additional information that was either shown schematically or omitted from original Drawings.
  - 6 Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Said record Drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed.
- C. These master record Drawings of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by Addenda, Change Orders, and the like shall be maintained up-to-date during the progress of the WORK.

- B. Copies of the record Drawings shall be submitted to the ARCHITECT prior to the Notice of Substantial Completion by the ARCHITECT.
- C. Final payment will not be acted upon until the CONTRACTOR prepared record Drawings have been delivered to the ARCHITECT.

## 1.11 RECORD SPECIFICATIONS SUBBMITTAL

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 7 Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 8 Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 9 Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 10 For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  - 11 Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Copies of the record Specifications shall be submitted to the ARCHITECT prior to the Notice of Substantial Completion by the ARCHITECT.
- C. Final payment will not be acted upon until the CONTRACTOR prepared record Specifications have been delivered to the ARCHITECT.

PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

(Substitution Request Form - Next Page)

# CBJ Engineering Department SUBSTITUTION REQUEST FORM

ТО:		Projec	ct:
Contract No			
SPECIFIED ITEM:			
Section	Page	Paragraph	Description

The undersigned requests consideration of the following: **PROPOSED SUBSTITUTION**:

Attached data includes product description, Specifications, Drawings, photographs, performance and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

- 1. The proposed substitution does not affect dimensions shown on Drawings and will not require a change in any of the Contract Documents.
- 2. The undersigned will pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution which is estimated to be \$\_\_\_\_\_.
- 3. The proposed substitution will have no adverse affect on other contractors, the construction schedule (specifically the date of substantial completion), or specified warranty requirements.
- 4. Maintenance and service parts will be locally available for the proposed substitution.
- 5. The incorporation or use of the substitute in connection with the WORK is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the Proposed Substitution are equivalent or superior to the specified item.

Submitted by CONTRACTOR (date):	ARCHITECT Review (date):
Signature:	By:
Print Name:	Decision by CBJ:
Firm:	AcceptedAccepted as Noted
Title:	Not AcceptedReceived Too Late
Telephone:	
Attachments:	Signature:

The use of this substitution is not authorized until accepted by the ARCHITECT.

# END OF SECTION 013300

### **SECTION 014000 - QUALITY CONTROL**

### PART 1 - GENERAL

### 1.1 DEFINITION

A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

### 1.2 INSPECTION AT PLACE OF MANUFACTURE

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the ARCHITECT at the place of manufacture.
- B. The presence of the ARCHITECT at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the ARCHITECT.

### 1.3 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, ATM, and AASHTO as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ARCHITECT will insure the OWNER that the quality of the WORK is in full accord with the Contract Documents.
- B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the ARCHITECT reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ARCHITECT to require the removal or correction and reconstruction of any such WORK in accordance with the General Conditions.

### **SECTION 014000 - QUALITY CONTROL**

### 1.4 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
  - 1. The OWNER will appoint, employ, and pay for services of an independent firm to perform inspection and testing or will perform inspection and testing itself.
  - 2. The ARCHITECT will perform inspections as specified in individual Specification sections.
  - 3. Reports will be submitted by the independent firm to the ARCHITECT in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
  - 4. The CONTRACTOR shall cooperate with the ARCHITECT or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
  - 5. The CONTRACTOR shall notify ARCHITECT 24-hours prior to the expected time for operations requiring inspection and laboratory testing services.
  - 6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ARCHITECT. The CONTRACTOR shall bear all costs from such re-testing at no additional cost to the OWNER.
  - 7. For samples and tests required for CONTRACTOR's use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR's use shall be included in the Contract Price.

# PART 2 - PRODUCTS (Not Used)

# PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Inspection: The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

### END OF SECTION 014000

### SECTION 014210 - REFERENCE STANDARDS & DEFINITIONS

## PART 1 - GENERAL

### 1.1 GENERAL

- A. Titles of Sections and Paragraphs: Captions accompanying Specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. Applicable Publications: Whenever in these Specifications references are made to published Specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest Specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Specialists, Assignments: In certain instances, Specification text requires (or implies) that specific WORK is to be assigned to specialists or expert entities, who must be engaged for the performance of that WORK. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of WORK is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

### 1.2 ABBREVIATIONS AND NAMES

A. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision.

### 1.3 PERMITS, LICENSES, AND CERTIFICATES

A. Upon request by the ARCHITECT, the CONTRACTOR shall submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing on performance of the WORK.

#### 1.4 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of other requirements of the Specifications, all WORK specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.

### SECTION 014210 - REFERENCE STANDARDS & DEFINITIONS

- B. References herein to "Building Code" or "International Building Code" shall mean International Building Code of the International Conference of Building Officials (ICBO).
- C. Similarly, references to "Mechanical Code" or "International Mechanical Code," "Plumbing Code" or "International Plumbing Code," "Fire Code" or "International Fire Code," shall mean International Mechanical Code, International Plumbing Code and International Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- D. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ARCHITECT for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.
- E. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and Specifications listed herein.
- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

### 1.5 DEFINITIONS

A. The basic contract definitions are included in Section 00700 - General Conditions. The following definitions have the meaning defined in the Technical Portions of the WORK:

Approve - Used in conjunction with action on submittals, applications, and requests, is limited to the ARCHITECT's duties and responsibilities as stated in the Conditions of the Contract.

Directed - Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the ARCHITECT," "requested by the ARCHITECT", and similar phrases.

Experienced - Means having a minimum of five previous Projects similar in size to this Project, and being familiar with precautions required and with requirements of the authority having jurisdiction.

Furnish - means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and start-up.

### SECTION 014210 - REFERENCE STANDARDS & DEFINITIONS

Indicated - is a word used to direct the CONTRACTOR to information contained on the drawings or in the Specifications. Terms such as "shown," "noted," "scheduled," and "specified" also may be used to assist in locating information but no limitation of location is implied or intended.

Install - defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER's use.

Installer - A CONTRACTOR or an entity engaged by the CONTRACTOR, as an employee or Subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

Project Site - The space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

Provide - is defined as furnish and install, ready for the intended use.

Regulation - Includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the WORK.

Testing Laboratories - An independent entity engaged to perform specific inspections or tests at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION (Not Used)

### END OF SECTION 014200

**BRH MEDICAL SURGICAL EAST WING RENOVATIONS** 

REFERENCE STANDARDS AND DEFINITIONS Page 014210-3

#### **SECTION 014250 - ACRONYMS OF INSTITUTIONS**

### PART 1 - GENERAL

### 1.1 GENERAL

A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms or abbreviations which may appear in these Specifications shall have the meanings indicated herein.

#### 1.2 ACRONYMS

AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGMA	American Gear Manufacturer's Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBJ	City and Borough of Juneau
CBM	Certified Ballast Manufacturers

### SECTION 014250 - ACRONYMS OF INSTITUTIONS

CEMA	Conveyors Equipment Manufacturer's Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drill Manufacturer's Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
FPL	Forest Products Laboratory
HI	Hydronics Institute
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IOS	International Organization for Standardization
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
ΜΡΤΔ	Mechanical Power Transmission Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NRS	National Bureau of Standards
NCCI S	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturar's Association
NEDA	National Eigenbrotaction Association
NFDA	National Forest Products Association
NI GI	National Lubricating Grease Institute
NWMA	National Woodwork Manufacturers Association
	Occupational Sofaty and Health Administration
DCA	Developed Compart Association
	Politianu Cement Association
	Redwood Inspection Service
K W MA	Resistance weider Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UBC	Uniform Building Code
UMC	Uniform Mechanical Code

### SECTION 014250 - ACRONYMS OF INSTITUTIONS

UPC	Uniform Plumbing Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

### PART 2 - PRODUCTS (Not Used)

# PART 3 - EXECUTION (Not Used)

# **END OF SECTION 014250**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections:
  - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.

#### 1.3 JOB CONDITIONS

A. Scheduled Uses. The CONTRACTOR shall, in conjunction with establishment of the job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility, at the earliest feasible time, and when acceptable to the OWNER and the ARCHITECT, change over from use of temporary utility service to permanent service

#### 1.4 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to OWNER'S construction forces, ARCHITECT, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from OWNER'S existing water system is available for use without metering and without payment of use charges, as long as CONTRACTOR demonstrates responsible use, coordinates closely with OWNER, and uses conservation measures. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from OWNER'S existing system is available for use without metering and without payment of use charges, as long as CONTRACTOR demonstrates responsible use, coordinates closely with OWNER, and uses conservation measures. Provide connections and extensions of services as required for construction operations.

### 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable codes, regulations, and OWNER'S operational needs to maintain building access and egress throughout the WORK.

### 1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before OWNER'S acceptance, regardless of previously assigned responsibilities.

## PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. The CONTRACTOR shall provide either new or used materials and equipment, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of temporary utility is provided for CONTRACTOR by utility company, the CONTRACTOR shall provide remainder with matching and compatible materials and equipment and comply with recommendations of utility company.
- B. Portable Chain-Link Fencing: Minimum 2-inch galvanized steel, chain-link fabric fencing; with galvanized steel pipe posts with concrete bases for supporting posts, or as directed by the Owner to maintain security.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils minimum thickness, with flame-spread rating of 15 or less per ASTM E 84.
- D. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- E. Finished Materials Protection: Provide minimum <sup>1</sup>/<sub>2</sub>" plywood or OSB over permanently installed floors as required to protect from temporary use until final acceptance by the OWNER.

## 2.2 TEMPORARY FACILITIES

A. Contractor shall provide Field Office space their own use and additional separate OWNER-Use Field Office.

- B. Field Offices, General: Prefabricated or mobile units with serviceable finishes, windows, temperature controls, and foundations adequate for normal loading.
- C. OWNER-Use Field Office: Of sufficient size to accommodate needs of OWNER, ARCHITECT, and construction personnel office activities and to accommodate project meetings specified in other Division 1 Sections. Provide office from 45 days after Notice to Proceed or seven days prior to commencement of WORK whichever comes first, through up to two weeks after Substantial Completion. Furnish and equip offices as follows:
  - 1. One office, acoustically and physically separated from the remainder of the building, with a locking door, minimum 100 sq ft, with at least one secured operable window. Provide electrical power service and 120-V ac duplex receptacles, not less than three receptacles in room.
  - 2. Conference room of sufficient size (approximately 10' x 18') to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with 4-foot square tack and marker boards.
  - 3. One general work area minimum 200 S.F. with six (6) electrical outlets, copier/printer outlet, overhead lights, and two (2) secured windows.
  - 4. Drinking water and private toilet.
  - 5. Kitchenette with sink and counter space large enough to accommodate a work area, microwave oven and refrigerator. Provide electrical power service and 120-V ac duplex receptacles, with not less than two GFI receptacles serving the counter and one receptacle with adequate power for the refrigerator.
  - 6. Heating equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
  - 7. Lighting fixtures capable of maintaining average illumination of 40 fc at desk height.
- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Sheds to have lighting of 20 fc at 36" AFF min.; GFI power and temporary circuits, etc.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control as approved by the OWNER for use in areas of the WORK that have systems interrupted.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 3. Permanent HVAC System: Clean permanent HVAC systems that are used by the Contractor during the Work as required in Division 1 Section "Closeout Procedures".

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION, GENERAL

- A. Obtain approval of temporary facilities locations by the OWNER and locate where they will serve Project adequately and result in minimum interference with performance of the WORK. Relocate and modify facilities as required by progress of the WORK.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY INSTALLATION

- A. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- B. Isolation of WORK Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  - 1. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
  - 2. Perform daily construction cleanup and final cleanup using approved, HEPA-filterequipped vacuum equipment.
  - 3. Provide negative pressure air locks at vestibules between hospital spaces into construction work areas; to be maintained for the duration of the construction WORK.
- C. Ventilation and Humidity Control: Provide temporary conditioning and ventilation equipment to provide a negative air pressure during entire duration of construction WORK. This equipment shall meet the required construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide construction for temporary facilities located within construction area to maintain hospital operations. Comply with NFPA 241.
  - 2. Maintain support facilities until OWNER schedules Substantial Completion inspection. Remove before Substantial Completion.
- B. Parking: Use areas designated by OWNER for construction personnel parking.

- C. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
  - 1. Temporary Signs: Provide signs as indicated and as required to inform public and individuals seeking entrance to Project and temporary, directional signs for public access and use of affected hospital areas.
  - 2. Maintain and touchup signs so they are legible at all times.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations Comply with requirements of authorities having jurisdiction. Contractor is encouraged to recycle materials accepted at the Juneau waste recycling center, and to offer scrap materials to the public for no cost to minimize waste to the land fill.
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- F. Existing Elevator Use: Use of OWNER'S existing elevator will limited and use granted only on a limited basis, upon written approval; which must be requested for each use with a minimum 72 hr notification prior to need; provided stairs are cleaned and maintained in a condition acceptable to OWNER. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Do not load elevator beyond their rated weight capacity.
  - 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- G. Temporary Stairs: Access to the hospital for all WORK will be provide by temporary stairs access with security enclosure through existing windows on both level 2 and 3, as indicated on the construction documents; for duration of construction WORK; for access of workers, materials and equipment. Submit necessary documentation to ARCHITECT prior to installation for approval.
- H. Existing Stair Usage: Use of OWNER'S existing stairs will limited and use granted only on a limited basis, upon written approval; which must be requested for each use with a minimum 72 hr notification prior to need; provided stairs are cleaned and maintained in a condition acceptable to OWNER. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

## 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to authorities having jurisdiction.
  - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter protection zones.
  - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
  - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from the project site during the course of the project.
  - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Site/Enclosure Fence: Furnish and install fence enclosures in a manner that will prevent people and animals from easily entering work areas.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- H. Temporary Partitions: Provide dustproof partitions to limit dust and dirt migration and to separate areas occupied by OWNER and tenants from fumes and noise.
  - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, or other materials approved by the OWNER, and as indicated on drawings
  - 2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  - 3. Insulate partitions to control noise transmission to occupied areas.
  - 4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
  - 5. Protect air-handling equipment.

- 6. Provide walk-off mats at each entrance through temporary partition. Monitor and replace mats through the day as needed (*or other similar verbiage to make sure that they keep the sticky walk off mats clean*)
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - 1. PROHIBIT SMOKING ON HOSPITAL GROUNDS AND CONSTRUCTION AREAS.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

## 3.5 MOISTURE AND MOLD CONTROL

- A. Moisture-Protection During WORK: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Construction WORK: Prior to the full operation of permanent HVAC systems, maintain as follows:
  - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions providing a negative air pressure in the construction WORK area.
  - 2. Use permanent HVAC system to control humidity.
  - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
    - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
    - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record daily readings over a forty-eight hour period. Identify materials containing moisture levels higher than allowed. Report findings in writing to OWNER.
    - c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

### 3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired. Repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

### **END OF SECTION 015000**

# PART 1 - GENERAL

### 1.1 GENERAL

- A. Mobilization shall include obtaining all permits; moving all plant and equipment onto the site; furnishing and erecting plants, temporary buildings, and other construction facilities; implementing security requirements, all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:
  - 1. Moving all the CONTRACTOR's plant and equipment required for operations onto the site.
  - 2. Providing all on-site communication facilities, including radios and cellular phones.
  - 3. Providing on-site sanitary facilities.
  - 4. Obtaining all required permits.
  - 5. Having all OSHA required notices and establishment of safety programs.
  - 6. Having the CONTRACTOR's superintendent at the jobsite full time.
  - 7. Submitting initial submittals.
  - 8. Arranging for, and erection of, CONTRACTOR's work and storage yard.
  - Installation of CBJ Project sign, if applicable, in accordance with CBJ Standard Detail 127A

     Project Sign Display. Sign board and sign graphics will be provided by the OWNER. All
     other materials and installation shall be provided by the CONTRACTOR.

### 1.2 PAYMENT FOR MOBILIZATION

- A. The CONTRACTOR's attention is directed to the condition that no payment for Mobilization, or any part thereof, will be approved for payment under the Contract until all Mobilization items listed above have been completed as specified.
- B. As soon as practicable, after receipt of Notice to Proceed, the CONTRACTOR shall submit a breakdown showing the estimated value of each major component of Mobilization to the ARCHITECT for approval. When approved by the ARCHITECT, the breakdown will be the basis for initial progress payments in which Mobilization is included.

### PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION 015005** 

### **SECTION 015010 - TEMPORARY UTILITIES**

## PART 1 - GENERAL

### 1.1 GENERAL REQUIREMENTS

- A. Types. The types of utility services required for general temporary use at the Project site include the following and coordinated with section 150000 Temporary Facilities and Controls:
  - 1. Water service (potable for certain uses)
  - 2. Storm sewer
  - 3. Sanitary sewer
  - 4. Electric power service
  - 5. Telephone service

### 1.2 JOB CONDITIONS

- A. Utilities. In general, water, sewer, power and electrical services shall be provided without cost to the CONTRACTOR. In doing so the ARCHITECT expects the CONTRACTOR to make prudent use of such facilities and not to act in any manner that would escalate utility costs above a level that would be anticipated for such activities. Should ARCHITECT determine that CONTRACTOR fails to make prudent use of utilities, and following efforts to resolve such improper use, ARCHITECT may assess the costs associated with such improper use to the CONTRACTOR.
- B. Scheduled Uses. The CONTRACTOR shall, in conjunction with establishment of the job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility, at the earliest feasible time, and when acceptable to the OWNER and the ARCHITECT, change over from use of temporary utility service to permanent service.

### **PART 2 - PRODUCTS**

## 2.1 MATERIALS

A. The CONTRACTOR shall provide either new or used materials and equipment, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry, by compliance with appropriate standards, as being suitable for intended use in each case. Where a portion of temporary utility is provided for CONTRACTOR by utility company, the CONTRACTOR shall provide remainder with matching and compatible materials and equipment and comply with recommendations of utility company.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION OF TEMPORARY UTILITY SERVICES

A. CONTRACTOR to make connections for Temporary Utilities for Field Offices and Sheds, to

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## SECTION 015010 - TEMPORARY UTILITIES

OWNER provided utility pedestal in Staging Area.

- B. General. When connection are required to be made to utility company service, the CONTRACTOR shall engage the utility company to install temporary service to Project, or as a minimum, to make connection to existing utility service; locate services where they will not interfere with total Project construction WORK, including installation of permanent utility services; and maintain temporary services as installed for required period of use; and relocate, modify or extend as necessary from time to time during that period as required to accommodate total Project construction WORK.
- C. Approval of Electrical Connections. All temporary connections for electricity shall be subject to approval of the ARCHITECT and the power company representative, and shall be removed in like manner at the CONTRACTOR's expense prior to final acceptance of the WORK.
- D. Separation of Circuits. Unless otherwise permitted by the ARCHITECT, circuits separate from lighting circuits shall be used for all power purposes.
- E. Construction Wiring. All wiring for temporary electric light and power shall be properly installed and maintained and shall be securely fastened in place. All electrical facilities shall conform to the requirements of Subpart K of the OSHA Safety and Health Standards for Construction.

# 3.2 INSTALLATION OF POWER DISTRIBUTION SYSTEM

- A. Power. The CONTRACTOR shall provide all necessary power required for its operations under the contract, and shall provide and maintain all temporary power lines required to perform the WORK in a safe and satisfactory manner.
- B. Temporary Power Distribution. The CONTRACTOR shall provide a weatherproof, grounded, temporary power distribution system sufficient to accommodate performance of entire WORK of Project, including, but not necessarily limited to, temporary electrical heating where indicated, operation of test equipment and test operation of building equipment and systems which cannot be delayed until permanent power connections are operable, temporary operation of other temporary facilities, including permanent equipment and systems which must be placed in operation prior to use of permanent power connections (pumps, HVAC equipment, elevators, and similar equipment), and power for temporary operation of existing facilities (if any) at the site during change-over to new permanent power system. Provide circuits of adequate size and proper power characteristics for each use; run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations, and result in least interference with performance of the WORK; provide rigid steel conduit or equivalent raceways for wiring which must be exposed on grade, floors, decks, or other recognized exposures to damage or abuse.

# 3.3 INSTALLATION OF LIGHTING

- A. Construction Lighting. All WORK conducted at night or under conditions of deficient daylight shall be suitably lighted to insure proper WORK and to afford adequate facilities for inspection and safe working conditions.
- B. Temporary Lighting. The CONTRACTOR shall provide a general, weatherproof, grounded temporary lighting system in every area of construction WORK, as soon as overhead floor/roof

## SECTION 015010 - TEMPORARY UTILITIES

deck structure has been installed; and provide sufficient illumination for safe WORK and traffic conditions; and run circuit wiring generally overhead, and rise vertically in locations where it will be least exposed to possible damage from construction operations on grade, floors, decks, or other recognized areas of possible damage or abuse.

## 3.4 WATER SUPPLY

- A. General. The CONTRACTOR shall coordinate with the ARCHITECT and Using Agency for obtaining water service. CONTRACTOR shall provide all facilities necessary to convey the water from the source to points of use in accordance with the requirements of the Contract Documents.
- B. CONTRACTOR shall provide and operate all pumping facilities, pipelines, valves, hydrants, storage tanks, and all other equipment necessary for the adequate development and operation of the water supply system. Water used for domestic purposes shall be free of contamination and shall conform to the requirements of the State and local authorities for potable water.
- C. The CONTRACTOR shall be solely responsible for the adequate functioning of its water supply system and shall be solely liable for any claims arising from the use of same, including discharge or waste of water therefrom.
- D. Water Connections. The CONTRACTOR shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining the ARCHITECT's permission and that of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the CONTRACTOR shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. The CONTRACTOR shall pay all permit and water connection charges.

# 3.5 INSTALLATION OF SANITARY FACILITIES

- A. Toilet Facilities. Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes. The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ARCHITECT and in accordance with all laws and regulations pertaining thereto.
- C. Sewer Connection. The CONTRACTOR shall coordinate with the Utilities Department for obtaining sewer connection and shall schedule all inspections, as may be required. The sewer capacity charges shall be paid by the Using Agency.
- 3.6 INSTALLATION OF FIRE PROTECTION
- A. Fire Protection. The construction plant and all other parts of the WORK shall be connected with the CONTRACTOR's water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the WORK, and
#### SECTION 015010 - TEMPORARY UTILITIES

responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The CONTRACTOR's fire protection program shall conform to the requirements of the OSHA Standards for Construction.

B. Campus Wide Fire Protection: CONTRACTOR shall ensure that existing fire protection systems elsewhere on the hospital campus remain in service at all times and are not affected by the WORK of the CONTRACTOR, Subcontractors, Suppliers or others involved with the Project.

#### 3.7 INSTALLATION OF COMMUNICATIONS

- A. Telephone Services. The CONTRACTOR shall provide and maintain at all times during the progress of the WORK not less than one telephone in good working order, at its own field construction office, at or near the site of the WORK included in the contract. Each such telephone shall be connected to an established exchange for toll service and with all other telephones utilized by the CONTRACTOR.
- B. OWNER's Telephone. The CONTRACTOR shall also furnish and install in each office provided for the use of the OWNER's or ARCHITECT's employees, a separate outlets for each desk and facsimile machine (separate trunk line) similarly connected to an established exchange.
- C. At each telephone, post a list of important telephone numbers.
  - a. Police and fire departments.
  - b. Ambulance service.
  - c. Contractor's home office.
  - d. Architect's office.
  - e. Engineers' offices.
  - f. Owner's office.
  - g. Principal subcontractors' field and home offices.
- D. Cellular Phone: CONTRACTOR shall provide a cellular phone for its Project superintendent and require such phone to be available to all Subcontractors, Suppliers and other installers performing WORK at the site. Such phone shall be activated during hours of construction and workers shall respond to any call from the ARCHITECT, Using Agency or governing authority without delay.
- E. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail and web use, in common-use facilities.
  - 1. Provide additional electronic communication connections for the following:
    - a. Provide two network jacks in the private office of the Owner-Use Field Office.
    - b. Provide one network jack in the Conference Room of the Owner-Use Field Office.
    - c. Provide two network jacks in the General work area of the Owner-Use Field Office.
    - d. All network jacks to be standard RJ45 jacks running on Cat5 or Cat5e cable, concealed within walls and ceilings. Cable to terminate in a patch panel in the utility/phone closet of the Owner-Use Field Office.

#### 3.9 OPERATIONS AND TERMINATIONS

A. Inspections. Prior to placing temporary utility services into use, and in addition to notifying the

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#### SECTION 015010 - TEMPORARY UTILITIES

ARCHITECT, the CONTRACTOR shall inspect and test each service and arrange for governing authorities' required inspection and tests, and obtain required certifications and permits for use thereof.

- B. Protection. The CONTRACTOR shall maintain distinct markers for underground lines, and protect from damage during excavating operations.
- C. Termination and Removal. When need for a temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than time of substantial completion, the CONTRACTOR shall promptly remove installation unless requested by ARCHITECT to retain it for a longer period. The CONTRACTOR shall complete and restore WORK which may have been delayed or affected by installation and use of temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces.
- D. Removal of Water Connections. Before final acceptance of the WORK on the Project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the ARCHITECT and to the agency owning the affected utility

#### END OF SECTION 015010

#### PART 1 – GENERAL

#### 1.1 SECURITY PROGRAM

#### A. The CONTRACTOR shall:

- 1. Protect WORK, existing premises, and Using Agency's operations from theft, vandalism, and unauthorized entry.
- 2. Initiate program in coordination with Using Agency's existing security program at initialization of Project mobilization.
- 3. Maintain program throughout construction period until Final Completion.

#### 1.2 ENTRY CONTROL

- A. The CONTRACTOR shall:
  - 1. Restrict entry of persons and vehicles into Project site, as appropriate.
  - 2. Allow entry only to authorized persons with proper identification.
  - 3. Maintain log of visitors and make log available to ARCHITECT on request.

#### 1.3 PERSONNEL IDENTIFICATION

- A. At the discretion of the ARCHITECT, the CONTRACTOR shall:
  - 1. Require each person authorized to enter premises to possess and visibly display an identification card.
  - 2. Maintain a list of authorized persons and assigned card number. Submit copy to ARCHITECT on request. Individuals not visibly displaying an identification card shall be denied access to the Project. Cost of lost or replacement cards, after the first replacement, shall be charged to CONTRACTOR.
  - 3. Remove "on site" workers without proper identification from the Project site when required by the ARCHITECT.
  - 4. Require return of cards from all individuals when they are no longer involved with WORK at the Project site.
- B. Identification card shall be provided by the Using Agency and include: personal photograph; name, title and employer, and assigned number.

#### 1.4 SECURITY SERVICE

A. If CONTRACTOR chooses not to utilize existing BRH Security forces; then CONTRACTOR shall employ uniformed guard service to provide surveillance of site during all non-working hours.

#### 1.5 **RESTRICTIONS**

- A. The CONTRACTOR shall not allow cameras on Project site or photographs taken except by written Approval of ARCHITECT.
- B. All personnel employed on the Project site by the CONTRACTOR, Subcontractors, Suppliers, installers and other entities engaged in WORK shall strictly adhere to the security, safety, confidentiality, and hospital compliance program requirements depicted in Section 00800 Supplementary General Conditions, SGC 6.5.
- C. ARCHITECT reserves the right to monitor CONTRACTOR's workforce utilizing both audio and visual technology.

#### PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

#### **END OF SECTION**

#### PART 1 – GENERAL

#### 1.1 SAFETY PROGRAM

- A. General:
  - 1. The safety of bidders, the CONTRACTOR, their work forces in total, the Using Agency's personnel, patients and the public is a major concern of the ARCHITECT. To ensure Project and campus wide safety the CONTRACTOR shall carefully adhere to the following requirements.
  - 2. CONTRACTOR shall employ a safety program to insure that CONTRACTOR's personnel and all personnel of the Subcontractors, Suppliers, Installers and material workers are trained and kept abreast of hospital safety requirements. In addition to the safety requirements enforced by code or jurisdictional entities, the CONTRACTOR's safety program shall also address, fire safety and deployment plans for the Project site, response to accidental release of hazardous materials, breach of infection containment barriers, and general emergency response.
  - 3. CONTRACTOR's safety program will be provided to the ARCHITECT, in writing, prior to commencement of WORK. Plans shall be periodically revised in response to issues that may arise during the course of construction. Such revisions shall be provided promptly to the ARCHITECT.
- B. The CONTRACTOR shall:
  - 1. Abide by all applicable safety practices and requirements, irrespective of their origins.
  - 2. Attend safety related meetings as periodically required by the ARCHITECT.
  - 3. CONTRACTOR shall employ a safety program to insure that CONTRACTOR's personnel and all personnel of the Subcontractors, Suppliers, Installers and material workers are trained and kept abreast of hospital safety requirements. Maintain program throughout construction period until Final Completion.

#### 1.2 SAFETY STANDARDS

- A. Applicable safety related standards promulgated by safety or code enforcement agencies, such as but not limited to: AK-DEC, OSHA, Building Officials and Fire Marshal's Office representatives.
- B. Safety guidelines and policies established by the Department of Infection Control/Safety/Facilities of Bartlett Regional Hospital covering Infection Control for Construction and Renovation. (See BRH Policy at the end of this section.)
- C. Safety guidelines and policies established by Bartlett Regional Hospital covering Interim Life Safety Plan. (See BRH Policy at the end of this section.)
- D. Safety requirements required by the Contract Documents.

#### 1.3 SAFETY PROCEDURES

- A. In addition to devices required by enforcement entities, the CONTRACTOR shall employ safety and containment devices (barricades, temporary separation/isolation walls, etc.) and warning signs at all locations where the public, patients or hospital staff may have access to, or mistakenly venture into, an area of active construction. The ARCHITECT will have the final determination as to the locations and the extent of the required safety and containment devices and signage.
- B. As determined by the ARCHITECT, and where conditions necessitate the construction of temporary exit routes, the CONTRACTOR shall construct such routes to the standards of the Contract Documents, or the enforcement agency. Such routes shall be Approved by the ARCHITECT prior to putting them into use.
- C. CONTRACTOR shall cooperate with and assist the Using Agency in the establishment and maintenance of "user oriented" directional signage. CONTRACTOR shall not remove, block, or otherwise obscure such directional signage without specific written direction by the ARCHITECT. Signage that has been disrupted during the course of construction shall be immediately repaired or replaced by the CONTRACTOR.
- D. When Directed by the ARCHITECT, CONTRACTOR shall provide fire watch and other fire/life safety personnel on the Project.

#### 1.4 SECURITY SERVICE

- A. The CONTRACTOR shall:
  - 1. Provide all security personnel and programs as described in Specification Section 015220, Security.
  - 2. Cooperate with the ARCHITECT, Using Agency and security forces employed by the Using Agency in ensuring the security and safety of the Project, and all other facilities on the hospital campus.
  - 3. Be advised that the ARCHITECT may observe safety practices via audio and video means.

#### 1.5 RESTRICTIONS WITHIN ACTIVE CONSTRUCTION AREAS

- A. The CONTRACTOR shall restrict entry of persons and vehicles into the active construction areas as appropriate. Allow entry only to authorized persons with proper identification.
- B. Provide immediate notification to the ARCHITECT, Using Agency and security forces employed by the Using Agency of entry, or desired entry, into the active construction areas of any individual not properly authorized.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION (Not Used)

## **Bartlett Regional Hospital**

#### Title: INFECTION CONTROL FOR CONSTRUCTION AND RENOVATION

Department: Infection Control/Safety/Facilities

Original Date: 07-02

Author: Jan Beauchamp

#### PURPOSE:

To establish a process for the identification and reduction of risk from airborne transmission of infectious agents during construction, demolition, renovation, and repair on the Bartlett Regional Hospital Campus.

#### **DEFINITIONS**:

- A. **ICRA:** Infection Control Risk Assessment. Analysis of a construction, demolition, or renovation project to establish infection risk and control by a multidisciplinary group designated for that purpose.
- B. **Infection Control Permit:** A permit issued by Infection Control for construction and renovation projects that are Class III or above as determined by the Infection Control Risk Group Matrix. (in the Infection Control Risk Assessment Packet, Appendix C)
- C. **ICRAC:** Infection Control Risk Assessment Committee. An ad hoc subcommittee of the BRH Infection Control Committee tasked with development, oversight, and enforcement of this policy.
- D. HEPA Filter: High efficiency particulate air filters. (99% of 0.3-micron size particles)
- E. HVAC: Heating, Ventilation, Air-conditioning. (Air-handling unit.)
- F. CRP: Construction and Renovation Policy. (This policy.)

#### **POLICY:**

- A. An Infection Control Risk Assessment (ICRA) will be performed for every construction, demolition, and renovation project on the BRH campus, including site work (utilities, landscaping, etc) even when no building is being constructed or renovated.
- B. Bartlett Regional Hospital requires any subcontractor, sub-subcontractor, vendor, employee, or agent to be bound by these requirements. Before any demolition or construction on-site begins, the contractor and contractor's employees will attend mandatory training sessions provided by a Bartlett Regional Hospital Safety or Infection Control representative. Course objectives will be distributed at class.
- C. An Infection Control Permit (see the Infection Control Risk Assessment Packet Appendix C) will be issued by the ICRAC and posted at the work-site as appropriate for the duration of the project, as indicated by the ICRA.
- D. Infection Control and Safety inspections are the responsibility of the ICRAC.
- E. Changes to the ICRA may be made by the ICRAC at any time during the project. Changes will be communicated to the Construction Manager or designee.

- F. Bartlett Regional Hospital's Safety Officer or the ICRAC may modify performance requirements for certain activities. A modification made by BRH personnel does not relieve the contractor of compliance with proper infection control procedures.
- G. When required by the Infection Control Permit, HEPA equipped filtration machines shall provide air flow into construction area not less than 100 FPM at barricade entrances with doors fully open. HEPA equipped air filtration machines shall be connected to normal power and ganged to a single switch for emergency shutoff and shall run continuously. In the event of a power failure and no back-up power is immediately available, work will be stopped until power becomes available.
- H. Documentation of the ICRA process will be maintained by the Construction Manager or designee.
- I. Regular reports will be provided to the Infection Control Committee by a representative of the ICRAC.

#### **PROCEDURES**:

#### A. Responsibilities During Project Planning

- A.1. An interdisciplinary team including architects, construction managers, contractors, department personnel, the Infection Control Coordinator, and Safety Officer will evaluate any construction project from design through completion for infection control concerns.
- A.2. The Infection Control Coordinator will be involved in the design phase of any project. The design and function considerations for infection control are listed in Appendix A. These considerations are for the duration of the project, as well as considerations for the infection control issues for the finished project. The Construction Manager or designee will contact the Infection Control Coordinator for obtaining input on the project.
- A.3. Each project will have an Infection Control Risk Assessment (ICRA) performed during the planning phase of the project. Projects in Class III, III/IV, or IV require an Infection Control Permit to be posted at the site for the duration of the project. (Appendix C)
- A.4. Construction measures required by the ICRA will be communicated to the contractors by the Construction Manager or designee during the bidding phase of the project. All contractors and contract construction personnel be responsible for maintaining and complying with the general and class specific infection control and safety practices for the project.

#### **B.** Responsibilities During the Active Construction Phase

- B.1. The Construction Manager or designee will perform a Safety and Infection Control Risk Assessment for every day that there is work on the site (Appendix B). Unsafe conditions will be corrected immediately and corrections documented on the form. The Construction Manager or designee is responsible for oversight and documentation of this process.
- B.2. As a quality control measure, a member of the ICRAC will inspect each project of Class III or greater on a weekly basis, using the BRH Safety and Infection Control Risk Assessment form. (Appendix C) The Construction Manager or designee will be notified immediately to correct any unsafe conditions.
- B.3. The contractor shall be required to take immediate action to correct all deficiencies.
- B.4. The ICRAC has the authority to stop construction for any breach in the infection control practices, or for any patient safety concern related to infection and construction. This will be done through the Construction Manager or designee.
- B.5. Failure of the contractor to promptly correct such deficiencies will result in corrective action taken by CBJ and BRH Construction Management per project documents.

B.6. The Contractor will notify the Construction Manager or designee for any assistance with medical waste, work in negative pressure areas, or any concerns involving patients or patient care areas.

#### C. General Infection Control Practices for All Construction and Renovation Projects

- C.1. Construction activities causing disturbance of existing dust, or creating new dust, must be conducted in tight enclosures cutting off any flow of particles into patient areas.
- C.2. Construction areas will have dust mops, wet mops, brooms, buckets, and clean rags for wiping fine dust from floors and surfaces in adjacent areas.
- C.3. Walk-off mats shall be used outside of every construction entrance. Any dust outside the barrier shall be cleaned up immediately using a HEPA-filtered vacuum or wet mop.
- C.4. Debris from the construction site will be removed with carts that are covered in a manner that does not allow the escape of dust.
- C.5. Any ceiling tiles that are moved (even for visualization) outside of the construction barrier will be replaced immediately when unattended.
- C.6. Barriers

C.6.1. Closed door with masking tape applied over the frame and door is acceptable for projects that can be contained within a single room.

C.6.2. Construction, demolition or reconstruction not capable of containment within a single room must have the following barriers erected:

C.6.2.1. Small, short duration projects generating minimal dust may use fire-rated plastic sheeting that extends from floor to ceiling. Seams must be sealed with tape to prevent dust and debris from escaping and have at least 2-foot overlapping flaps for access to entry.

C.6.2.2. Any project generating moderate to high levels of dust or of more than short duration must require rigid dust-proof, and fire-rated barrier walls (e.g. drywall) with caulked seams. An interim plastic dust barrier may be required to protect the area while the rigid impervious barrier is being constructed.

C.6.2.3. Barriers are required at penetrations of ceiling envelopes, chases and ceiling spaces to stop movement of air and debris.

C.6.2.4. Large dusty projects require an anteroom or double entrance vestibule for workers to remove protective clothing or vacuum off existing clothing.

C.7. HEPA-filtered negative pressure units will be run continually during the course of the project (24 hours per day).

#### D. Performing An Infection Control Risk Assessment

- D.1. Each project will have an Infection Control Risk Assessment done during the programming phase of the project. The results will be communicated with the architect and contractor. (See ICRA Packet, Appendix C).
- D.2. Class III and higher projects require an Infection Control Permit before construction begins. (ICRA Packet, Appendix C)

#### **REFERENCES:**

Bartley, J., ed. (1999). <u>APIC Infection Control Toolkit Series: Construction and Renovation</u>. Washington, DC: Association for Professionals in Infection Control and Epidemiology, Inc.

Centers for Disease Control and Prevention, Healthcare Infection Control Practices Advisory Committee. (2001). <u>Draft Guideline for Environmental Infection Control in Healthcare Facilities</u>.

Comprehensive Manual on Accreditation of Hospitals (2001). Oakbrook, IL.: Joint Commission on Accreditation of Hospitals and Healthcare Organizations: 2001.

Davis, S. (2001). "Don't Wait for Dust to Settle on Patient Risk." In <u>Environment of Care Leader (6)</u> 11. (May 21, 2001).

Approval/Review/Revision							
Date:	Signature:	Date:	Signature:	Date:	Signature:		

#### **APPENDIX A:**

#### **Construction Design and Function Considerations for Environmental Infection Control**

- A. Location of sinks and handwashing product dispensers.
- B. Types of faucets (aerated vs. non-aerated, and type of faucet e.g. wrist blades, knee, foot, or infrared controlled).
- C. Air-handling systems engineered for optimal performance and easy maintenance and repair.
- D. Air changes per hour (ACH) and pressure differentials to accommodate special patient care areas.
- E. Location of fixed sharps containers.
- F. Types of surface finishes (non-porous vs. porous).
- G. Well-caulked wall with minimal seams.
- H. Location of adequate storage and supply areas.
- I. Appropriate location of medicine preparation areas (e.g. >3ft. from a sink).
- J. Appropriate location and type of ice machines.
- K. Appropriate materials for sinks and wall coverings.
- L. Appropriate traffic flow (no "dirty" movement through "clean" areas).
- M. Isolation rooms with anterooms as required.
- N. Appropriate flooring (e.g. seamless floors in dialysis units).
- O. Sensible use of carpeting (e.g. no carpeting in special care areas or areas likely to become wet.)
- P. Properly engineered areas for linen services and solid waste management.
- Q. Location of main generator to minimize risk of system failure from flooding or other emergency.
- R. Installation guidelines for gypsum wallboard.

From: Centers for Disease Control (2001) Guidelines for Environmental Infection Control in Healthcare Facilities (draft).

## APPENDIX B:

Safety and Infection Control Risk Assessment Tool

Project No.\_\_\_\_\_ Date\_\_\_\_\_Time\_\_\_\_

#### **DAILY INFECTION CONTROL MONITOR:**

Standard	
A. Construction Barricades:	
Barricades sealed, no penetrations	
Walk-off mats at all exits	
Barricade doors have closers	
Door frames gasketed, close and seal properly	
Adjacent ceiling areas intact	
Adjacent floors clean, no dust tracked	
B. Negative Air:	
Negative pressure at barricade entrance	
All windows and doors closed behind barricade	
Negative air machines running, filters clean, discharge	
hoses intact	
Demonstrated use of appropriate equipment to prevent airborne particulate matter: this includes HEPA filtration units, HEPA vacuum equipment, and continuous use of exhaust fans	
No construction activity within 25 feet of existing fresh air intake	
C. Jobsite:	
Project area clean, debris removed daily	
Debris removed in suitable closed containers	
No signs of pests	
No signs of water leakage	
D. Occupied Areas:	
Work authorized and scheduled	
Sheet plastic barricade in place and properly sealed	
Surrounding area clean	
Patient care equipment and supplies removed from	
construction area	
Ceiling tiles replaced when not being accessed (if	
occupied area, adjacent patient doors are closed)	

#### **DAILY SAFETY MONITOR:**

Standard		
A. General Safety:		
Contract workers wearing required identification		
Construction personnel wearing required PPE (e.g. hardhat, goggles, coveralls, etc.)		
Construction area secure (e.g. barriers adequate to prevent entry of unauthorized persons)		
Construction personnel following safe work practices (e.g. ladder safety, no smoking, trip and fall hazards, etc.)		
Power secured at end of each day		
Extension cords grounded, in good condition		
B. Exits		
Exits provide free and unobstructed access		
Alternate egress established and workers received training		
Negative air machines running, filters clean, discharge hoses intact		
C. Fire Equipment:		
Fire alarms, detection, and suppression systems operational		
Additional fire equipment and training provided for personnel		
D. Fire Safety:		
No smoking policy implemented		
Minimum of two fire drills per shift per quarter		
Area free of storage, housekeeping materials, food waste, and debris to reduce flammable and combustible fire load of building		

### Additional comments and observations: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

BRH MEDICAL SURGICAL EAST WING RENOVATION PROJECT & SITE SAFETY CBJ Contract No. E10-221

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**APPENDIX C** 



**BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221** 

An Infection Control Risk Assessment (ICRA) will be performed by the Construction Manager or designee for every construction, demolition, and renovation project on the Bartlett Regional Hospital campus, including site work (utilities, landscaping, etc.) even when no building is being constructed or renovated.

## **1. Step #1: Using the following table, determine the <u>type</u> of construction activity** and <u>circle</u> Type A, B, C, or D.:

The construction activity types are defined by the amount of dust generated, the duration of the activity, and the amount of shared HVAC systems.

Contact Infection Control if any activity is questionable under these guidelines.

Circle one **Type** below:

	<ul> <li>Inspection and Non-Invasive Activities</li> <li>Includes, but is not limited to: <ul> <li>removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet</li> </ul> </li> </ul>
Туре А	<ul> <li>painting (but not sanding)</li> <li>wall covering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection</li> </ul>
	Small Scale, Short Duration Activities Which Create Minimal Dust Includes, but is not limited to:
Туре В	<ul> <li>installation of telephone and computer cabling</li> <li>access to chase spaces</li> </ul>
	<ul> <li>access to chase spaces</li> <li>cutting of walls or ceiling where dust migration can be controlled</li> </ul>
	Work That Generates a Moderate to High Level of Dust or Requires Demolition or Removal of Any Fixed Building Components or Assemblies Includes, but is not limited to:
Туре С	<ul> <li>sanding of walls for painting or wall covering</li> <li>removal of floor coverings, ceiling tiles and casework</li> </ul>
	new wall construction
	• minor duct work or electrical work above ceilings
	• major cabling activities
	• any activity which cannot be completed within a single workshift
	Major Demolition and Construction Projects Includes, but is not limited to:
Туре D	<ul> <li>activities that require consecutive work shifts</li> <li>requires heavy demolition or removal of a complete cabling system</li> <li>new construction</li> </ul>

**2.** Step # 2.: Using the following table, identify the Infection Control Risk Group or Groups that will be affected by the construction activity, and *circle* Group 1, 2, 3, or 4.

Group 1	Group 2	Group 3	Group 4
Low Risk	Medium Risk	High Risk	Highest Risk
<ul> <li>Low Risk</li> <li>Office Areas</li> <li>Public Areas (except when associated with a higher risk area)</li> <li>All other non-patient work areas (e.g. facilities, stores)</li> <li>Behavioral Health Units</li> </ul>	<ul> <li>Medium Risk</li> <li>Cafeteria</li> <li>Patient care areas, inpatient and outpatient, except as noted in Groups 3 and 4.</li> </ul>	High Risk • Emergency Department • Radiology • PACU • Same Day Surgery • Laboratory • Kitchen • Obstetrics • Newborn Nursery • Pharmacy • PT: Tub and Treatment Rooms	<ul> <li>Highest Risk</li> <li>Critical Care Unit</li> <li>Special Care Nursery</li> <li>Operating Rooms, including C-Section Rooms</li> <li>Central Sterile Supply</li> <li>Endoscopy</li> <li>Infusion Therapy</li> <li>Pharmacy Admixture</li> <li>Negative Pressure Isolation Rooms</li> </ul>

\*Circle the appropriate **Risk Group(s)** below:

**3. Step # 3: Determine the Level of Infection Control Activity** required by *matching* the Construction **Type** with the Risk **Level** using the matrix below.

Circle one Class below:

	Construction Activity-Infection Control Matrix Construction Activity					
Risk Level	Туре А	Туре В	Туре С	Type D		
Group 1	Ι	II	II	III/IV		
Group 2	Ι	П	III	IV		
Group 3	Ι	П	III/IV	IV		
Group 4	II	III/IV	III/IV	IV		

BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221

#### 4. Step # 4. Obtain an Infection Control Permit:

- An Infection Control Permit and approval will be required when the Construction Activity and Risk Level indicate Class III or higher (shaded areas).
- This permit will remain posted at the worksite for the duration of the project.
- This permit will be returned to the Construction Manager or designee at the completion of the project.

#### 5. Step # 5. Identify Areas Surrounding Project Area

Identify Identify		Identify Identify Lateral Unit Lateral Unit		Identify Unit Behind	Identify Unit Front	
				Omit Denniu		
Identify Risk	Identify Risk	Identify Risk	Identify Risk	Identify Risk	Identify Risk	
Group:	Group	Group	Group	Group	Group	
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	
Potential	Potential	Potential	Potential	Potential	Potential	
Impact?	Impact?	Impact?	Impact?	Impact?	Impact?	
Yes No	Yes No	Yes No	Yes No	Yes No	YesNo	
See	See	See	See	See	See	
comments	comments	comments	comments	comments	comments	
Comments*	•	•	•	•	•	

Identify the **areas** surrounding the project area, assessing potential impact. \*

\*note:

Another aspect of "Areas Surrounding Project Area" are any nearby buildings where patients are present that could be in the path of blown dust coming from building demolition, excavation, foundation construction, and site work

6. Step # 6. Identify specific site of activity, e.g.: patient rooms, medication room, etc.\_\_\_\_\_

 7. Step # 7. Work hours: Can or will the work be done during non-patient care hours?

 Yes\_\_\_\_\_
 No\_\_\_\_\_\_
 Not applicable\_\_\_\_\_\_

\_\_\_\_\_ 1.0\_\_\_\_\_ 1.00 upp10000\_\_\_\_\_

Other\_\_\_\_\_

#### INFECTION CONTROL PERMIT

Bart	lett R	egional Hospital Infection Control Construction	n Peri	nit			
					Permit No:		
Loca	Location of Construction:				Project Start Date:		
Project Coordinator				Estimated Duration:			
Cont	ractor	Performing Work		Permit Expiration Date:			
Supe	rvisor	:		Telephone:			
YES	NO	CONSTRUCTION ACTIVITY	YES	NO	INFECTION CONTROL RISK GROUP		
		TYPE A: Inspection, non-invasive activity			GROUP 1: Least Risk		
		TYPE B: Small scale, short duration, moderate to high levels			GROUP 2: Medium Risk		
		TYPE C: Activity generates moderate to high levels of dust, requires greater 1 work shift for completion			GROUP 3: Medium/High Risk		
		TYPE D: Major duration and construction activities Requiring consecutive work shifts			GROUP 4: Highest Risk		
CLAS	SS I	<ol> <li>Execute work by methods to minimize raising dust from construction operations.</li> <li>Immediately replace any ceiling tile displaced for visual inspection.</li> </ol>	3.	Minor D	Demolition for Remodeling		
CLAS	SS II	1. Provides active means to prevent air-borne dust from	6.	Contain	construction waste before transport in tightly		
		dispersing into atmosphere 2. Water mist work surfaces to control dust while cutting.	7.	coverec Wet mo	d containers. op and/or vacuum with HEPA filtered vacuum bef	fore	
		3. Seal unused doors with duct tape.		eaving	work area.		
		<ol> <li>Block off and seal air vents.</li> <li>Wipe surfaces with disinfectant</li> </ol>	8. 9	Place dust mat at entrance and exit of work area.			
			0.	being p	erformed.	, ,	
		1. Obtain infection control permit before construction	6.	Vacuum	n work with HEPA filtered vacuums.		
CLAS	5 111	begins. 2. Isolate HVAC system in area where work is being	7. 8.	<ol> <li>8. Remove barrier materials carefully to minimize spreading</li> </ol>			
		done to prevent contamination of the duct system.	0	of dirt and debris associated with construction.			
		cube method before construction begins.	9.	Contain	i construction waste before transport in		
Da	ate	4. Maintain negative air pressure within work site	tightly covered containers.				
Init	tial	5. Do not remove barriers from work area until complete	10. 11.	Cover ti Remove	over transport receptacies or carts. Tape covering. emove or isolate HVAC system in areas where work is		
		project is thoroughly cleaned by Env. Services Dept.		being p	erformed.		
Class	. IV	1. Obtain infection control permit before construction	7.	All pers	onnel entering work site are required to wear sho	oe	
01033	, , ,	<ol> <li>Isolate HVAC system in area where work is being</li> </ol>		8. Do not remove barriers from work area until completed			
		done to prevent contamination of duct system.		project i	is thoroughly cleaned by the Environmental Serv	/ice	
Da	ate	cube method before construction begins.	9.	Vacuum	n work area with HEPA filtered vacuums.		
Init	tial	4. Maintain negative air pressure within work site	10.	0. Wet mop with disinfectant.			
		5. Seal holes, pipes, conduits, and punctures	11.	of dirt a	and debris associated with construction.	ig	
		appropriately.	12.	Contain	construction waste before transport in tightly		
		<ol> <li>Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a</li> </ol>	13.	coverec Cover ti	ransport receptacles or carts. Tape covering.		
		HEPA vacuum cleaner before leaving work site or	14.	Remove	e or isolate HVAC system in areas where is being	g	
		they can wear cloth or paper coveralls that are removed each time they leave the work site.		done.			
A .1-114							
Additio	onal Re	quirements:					
					Exceptions/Additions to this permit		
Date		Initials		D	Date, Initials are noted by attached memoranda.		

#### **BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221**

Cut here and hang from door knob

# **Bartlett Regional Hospital**

# MAINTENANCE/CONSTRUCTION IN PROCESS

# **KEEP DOOR CLOSED**

Per Infection Control Policy Contact the Project Manager

at \_\_\_\_\_ for questions

**Bartlett Regional Hospital** BRH MEDICAL SURGICAL EAST WING RENOVATION CBJ Contract No. E10-221

Title: Interim Life Safety Plan

Department/s: All Departments

Original Date:

Author: B. Sharp

**PURPOSE:** To provide protection when normal life safety processes are affected by construction to temporarily compensate for the hazard posed by existing life safety deficiencies.

#### **POLICY:**

A. The Safety Officer will:

- A.1. Be responsible for training personnel working in the construction areas to the ILSM program. Documentation of this training will be maintained in the employees file.
- A.2. All hospital staff will be trained when structural and component features of fire safety are compromised.
- B. The Construction Manager will:
  - B.1. Be responsible for initiation of the Interim Life Safety Measures to ensure that a safe environment is maintained throughout construction or alterations to buildings and grounds.
  - B.2. Be responsible for training the contractor or designee in the elements of the BRH life safety and interim life safety measures.
- C. Free and unobstructed access to all existing exits in the building under construction will be provided at all times. Personnel will receive training if alternate exits must be designated.

D. Free and unobstructed access to emergency departments or services shall be maintained at all times.

- E. Fire alarm, detection and suppression systems must not be impaired. A temporary but equivalent system will be provided when any fire alarm system is impaired. Temporary systems will be tested and inspected monthly. If a fire alarm system or the fire suppression systems are taken out of service or impaired for a period greater than 4 hours in a 24 hour period, the fire department will be notified and a fire watch provided.
- F. Temporary construction partitions will be smoke tight and built of noncombustible materials.
- G. The no-smoking policy in construction areas will be strictly enforced in accordance with BRH tobacco use policy.
- H. Storage and removal of construction debris that reduces the flammable and combustible fire load to the lowest level necessary for daily operations will be strictly enforced.
- I. The frequency of fire drills will be increased to two per shift per quarter.
- J. Hazard surveillance of buildings, construction areas and construction storage will be increased.

SCOPE: All employees in all departments of BRH.

#### **PROCEDURE:**

- A. The Construction Manager and the Facilities Manager will facilitate compliance with ILSM using BRH Interim Life Safety Measures checklist.
- B. The Construction Manager, Facilities Manager or designee will conduct daily inspections of all major construction areas where life safety deficiencies may exist. These inspections will be documented and deficiencies will be corrected immediately.
- C. The Construction Manager, Facilities Manager or a designee will ensure that the ILSM deficiencies are resolved as soon as possible and monitored daily until completed.
- D. The Safety Officer or designee will receive periodic updates concerning the ILSM programs and will report compliance to the Safety Committee and include this information in the quarterly board report.

#### **REFERENCES:**

Interim Life Safety Code, NFPA 101-1997

JCAHO 2002 Hospital Accreditation Standards, EC 1.5

Approval/Review/Revision							
Date:	Signature:	Date:	Signature:	Date:	Signature:		

#### **END OF SECTION**

#### SECTION 015250 - SITE ACCESS AND STORAGE

#### PART 1 - GENERAL

#### 1.1 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR may be allowed limited areas for non-hazardous on-site storage (in addition to CONTRACTOR staging Area) necessary for the proper execution of the WORK. Such areas will be authorized by the OWNER at the Pre-Construction conference.
- B. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.
- C. The CONTRACTOR shall construct and use a separate construction entrance into the building at Level 2 and 3, through the existing windows on these levels; to be used throughout constructing the WORK for the duration of construction. CONTRACTOR shall submit design of construction entrance with supporting documents and Engineers seals as may be required, to the ARCHTITECT and construct only when written permission is obtained from the ARCHITECT and governing authorities having jurisdictions. The construction entrance shall be removed upon completion of the construction WORK and the surround areas returned to the condition prior to the construction WORK.
- D. The CONTRACTOR shall have limited use of the OWNER's elevators and stairs and only upon written permission being granted on a per use requirement. CONTRACTOR shall request from the OWNER at least 72 hrs in advance of the requirement for use.

#### 1.2 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR shall be allowed limited areas for non-hazardous on-site storage necessary for the proper execution of the WORK. Such areas will be authorized by the OWNER at the Pre-Construction conference.
- B. Should the CONTRACTOR find it necessary to use any additional land for its camp or for other purposes during the construction of the WORK, it shall provide for the use of such lands at its own expense.
- C. The CONTRACTOR shall not store materials, tools, or equipment in areas to be occupied by the public unless specifically authorized by the ARCHITECT.

#### 1.3 PARKING

- A. The CONTRACTOR shall direct its employees to park in areas at the site as indicated on the drawings and as directed by the ARCHITECT.
- B. Traffic and parking areas available to the public shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies that are the result of the CONTRACTOR's WORK.

#### SECTION 015250 - SITE ACCESS AND STORAGE

#### PART - 2 PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION 015250** 

#### PART 1 - GENERAL

#### 1.1 RELATED REQUIREMENTS

A. Section 015000 - Temporary Facilities and Controls

#### 1.2 RUBBISH CONTROL

A. During the progress of the WORK, the CONTRACTOR shall keep the site of the WORK and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the WORK site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

#### 1.3 SANITATION

- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ARCHITECT and in accordance with all laws and regulations pertaining thereto.

#### 1.4 CHEMICALS

A. All chemicals used during Project construction or furnished for Project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer. In addition, see the requirements set forth in paragraph 6.11 of the General Conditions.

#### PART 2 - PRODUCTS (Not Used)

BRH MEDICAL SURGICAL EAST WING RENOVATIONS

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#### PART 3 - EXECUTION (Not Used)

#### **END OF SECTION 015260**

BRH MEDICAL SURGICAL EAST WING RENOVATIONS

CBJ Contract No. E10-221

#### PART 1 - GENERAL

#### 1.1 GENERAL

- A. The word "Products," as used herein, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for Project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the WORK.

#### 1.2 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
- B. Compatibility of Options: Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.

#### 1.3 PRODUCT DELIVERY-STORAGE-HANDLING

A. The CONTRACTOR shall deliver, handle, and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the CONTRACTOR shall ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

#### 1.4 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in manufacturer's unopened containers or packaging.
- B. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.

C. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

#### 1.5 STORAGE AND PROTECTION

- A. Products shall be stored in accordance with manufacturer's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's written instructions.
- B. For exterior storage of fabricated products, they shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged to provide access for inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.
- E. Storage shall be arranged in a manner to provide access for maintenance of stored items and for inspection.

#### 1.6 MAINTENANCE OF STORAGE

- A. Stored products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make said log available on request.
- B. The CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements.
- C. The CONTRACTOR shall verify that manufacturer-required environmental conditions are maintained continually.
- D. The CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes does not occur.
- E. For mechanical and electrical equipment, the CONTRACTOR shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- F. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Contract Documents.

#### 1.7 PROPOSED SUBSTITUTES OR "OR-EQUAL" ITEM SUBMITTAL

- A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other Suppliers may be accepted by the ARCHITECT if sufficient information is submitted by the CONTRACTOR to allow the ARCHITECT to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:
  - 1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
  - 2. The ARCHITECT will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ARCHITECT's decision shall be final.
  - 3. The ARCHITECT may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute.
  - 4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
  - 5. Acceptance by the ARCHITECT of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
  - 6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's WORK, the WORK of its Subcontractors and of other contractors, and shall effect such changes without cost to the OWNER.
- B. The procedure for review by the ARCHITECT will include the following:
  - 1. If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ARCHITECT on the "Substitution Request Form" for acceptance thereof.
  - 2. Unless otherwise provided by law or authorized in writing by the ARCHITECT, the "Substitution Request Form(s)" shall be submitted within the 35-day period after award of the contract.
  - 3. Wherever a proposed substitute material or equipment has not been submitted within said 35-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ARCHITECT, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
  - 4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
  - 5. The ARCHITECT will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than 30 days.
  - 6. As applicable, no shop drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ARCHITECT's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which will be evidenced by a Change Order.
  - 7. The ARCHITECT will record the time required by the ARCHITECT in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract

Documents occasioned thereby. Whether or not the ARCHITECT accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ARCHITECT for evaluating each proposed substitute.

- C. The CONTRACTOR's application using the "Substitution Request Forms" shall contain the following statements and/or information which shall be considered by the ARCHITECT in evaluating the proposed substitution:
  - 1. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of substantial completion on time.
  - 2. Whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adopt the design to the proposed substitute.
  - 3. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
  - 4. All variations of the proposed substitute for that specified will be identified.
  - 5. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
  - 6. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION (Not Used)

#### END OF SECTION 016000

#### SECTION 017350 - CUTTING AND PATCHING

#### PART 1 - GENERAL

#### 1.1 DEFINITION

A. "Cutting-and-Patching" is defined to include the cutting and patching of nominally completed and previously existing concrete, steel, wood and miscellaneous metal structures; piping and pavement, in order to accommodate the coordination of WORK, or the installation of other facilities or structures or to uncover other facilities and structures for access or inspection, or to obtain samples for testing, or for similar purposes.

#### 1.2 REQUIREMENTS OF STRUCTURAL WORK

- A. Structural WORK shall not be cut and patched in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
- B. Prior to cutting and patching the following categories of WORK, the CONTRACTOR shall obtain the ARCHITECT's approval to proceed with:
  - 1. Structural steel
  - 2. Miscellaneous structural metals, including equipment supports, stair systems and similar categories of WORK
  - 3. Structural concrete
  - 4. Foundation construction
  - 5. Timber and primary wood framing
  - 6. Bearing and retaining walls
  - 7. Structural decking
  - 8. Exterior curtain wall construction
  - 9. Pressurized piping, vessels and equipment

#### 1.3 OPERATIONAL AND SAFETY LIMITATIONS

- A. The CONTRACTOR shall not cut and patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
- B. Prior to cutting and patching the following categories of WORK, the CONTRACTOR shall obtain the ARCHITECT's approval to proceed with:
  - 1. Sheeting, shoring and cross bracing
  - 2. Operating systems and equipment
  - 3. Water, moisture, vapor, air, smoke barriers, membranes and flashings
  - 4. Noise and vibration control elements and systems
  - 5. Control, communication, conveying and electrical wiring systems

#### 1.4 VISUAL REQUIREMENTS

A. The CONTRACTOR shall not cut and patch WORK which is exposed on the exterior or exposed in occupied spaces, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut and patch WORK, both as judged solely by the ARCHITECT. The CONTRACTOR shall remove and replace WORK judged by the ARCHITECT to have been cut and patched in a visually unsatisfactory manner.

#### 1.5 APPROVALS

- A. Where prior approval of cutting and patching is required, the CONTRACTOR shall submit the request well in advance of time WORK will be performed. The request should include a description of why cutting and patching cannot reasonably be avoided, how it will be performed, how structural elements (if any) will be reinforced, products to be used, firms and tradesmen to perform the WORK, approximate dates of the WORK, and anticipated results in terms of structural, operational, and visual variations from the original WORK.
- B. The CONTRACTOR shall also request approval to proceed prior to starting WORK of this Section.

#### PART 2 - PRODUCTS

#### 2.1 MATERIALS USED IN CUTTING AND PATCHING

- A. Except as otherwise indicated, the CONTRACTOR shall provide materials for cutting and patching which will result in equal-or-better WORK than the WORK being cut and patched, in terms of performance characteristics and including visual effects where applicable. The CONTRACTOR shall use material identical with the original materials where feasible.
- B. Materials shall comply with the requirements of the Technical Specifications wherever applicable.

#### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. The CONTRACTOR shall provide adequate temporary support for WORK to be cut to prevent failure.
- B. The CONTRACTOR shall provide adequate protection of other WORK during cutting and patching.

#### **SECTION 017350 - CUTTING AND PATCHING**

#### 3.2 INSTALLATION

- A. The CONTRACTOR shall employ skilled tradespeople to perform cutting and patching. Except as otherwise indicated, the CONTRACTOR shall proceed with cutting and patching at the earliest feasible time and perform the WORK promptly.
- B. The CONTRACTOR shall use methods least likely to damage WORK to be retained and WORK adjoining.
  - 1. In general, where physical cutting action is required, the CONTRACTOR shall cut WORK with sawing and grinding tools, not with hammering and chopping tools. Openings through concrete WORK shall be core-drilled.
  - 2. Comply with the requirements of Technical Specifications wherever applicable.
  - 3. Comply with the requirements of applicable sections of Division 2 where cutting and patching requires excavating and backfilling.
- C. The CONTRACTOR shall patch with seams which are as invisible as possible and comply with specified tolerances for the WORK.
- D. The CONTRACTOR shall restore exposed seams of patched area; and, where necessary, extend finish restoration onto retained WORK adjoining, in a manner which will eliminate evidence of patching.

#### **END OF SECTION 017350**

#### SECTION 017700 - CLOSEOUT PROCEDURES

#### PART 1 - GENERAL

#### 1.1 CLOSEOUT TIMETABLE

A. The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ARCHITECT, and their authorized representatives sufficient time to schedule attendance at such activities.

#### 1.2 SUBSTANTIAL COMPLETION

- A. Before requesting inspection for certification of Substantial Completion, complete the following:
  - 1. In the Application for Payment that coincides with the date Substantial Completion is claimed, show 100 percent completion for the portion of the WORK claimed substantially complete.
  - 2. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
  - 3. Submit record Drawings, maintenance manuals, damage or settlement survey, property survey, and similar record information.
  - 4. Changeover permanent locks and transmit keys to the ARCHITECT.
  - 5. Complete start-up testing of systems, and instruction of CBJ Maintenance personnel. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
  - 6. Complete final clean-up. Touch-up and repair and restore marred exposed finishes.

#### 1.3 INSPECTION PROCEDURES

- A. Upon receipt of a request for inspection for Substantial Completion, the ARCHITECT will proceed and advise the CONTRACTOR of unfilled requirements. The ARCHITECT will prepare the Certificate of Substantial Completion following inspection, or advise the CONTRACTOR of construction that must be completed or corrected before the certificate will be issued.
- B. The ARCHITECT will reinspect the WORK upon receipt of notice by the CONTRACTOR that the WORK has been completed, except items whose completion has been delayed because of circumstances acceptable to the ARCHITECT. If reinspection is requested and the CONTRACTOR has not completed all punch list items, the cost of that inspection will be paid by the CONTRACTOR. Upon completion of reinspection, the ARCHITECT will prepare a certificate of final acceptance, or advise the CONTRACTOR of WORK that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. If necessary, reinspection will be repeated.
- C. The ARCHITECT will repeat inspection when requested and assured by the CONTRACTOR that the WORK has been substantially completed.
- D. Results of the completed inspection will form the basis of requirements for final acceptance.

#### SECTION 017700 - CLOSEOUT PROCEDURES

#### 1.4 FINAL ACCEPTANCE

- A. Before requesting inspection for certification of final acceptance and final payment, complete and submit the following:
  - 1. Submit final payment request.
  - 2. Submit a final Change Order request.
  - 3. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
  - 4. Submit final meter readings for utilities, a record of stored fuel, and similar data as of Substantial Completion.
  - 5. Submit consent of surety to final payment.
  - 6. Submit evidence of continuing insurance coverage complying with insurance requirements.
  - 7. Submit those items listed under Article 1.5 of this section as they apply.
  - 8. Written guarantees, where required.
  - 9. Maintenance stock items; spare parts; special tools, where required.
  - 10. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
  - 11. Releases from all parties who are entitled to claims against the subject Project, property, or improvement pursuant to the provisions of law.
  - 12. Completed Certificate of Compliance and Release for the CONTRACTOR involved in the WORK included as part of this section.
  - 13. Before final payment can be made, the CONTRACTOR shall supply a copy of the "Notice of Completion of Public Works" form approved by Wage and Hour Administration of the Labor Standards and Safety Division of the Alaska Department of Labor and Workforce Development.
  - 14. Alaska Department of Labor Employment Security Tax Clearance letter for the Prime CONTRACTOR and all Subcontractors, a copy of which is located at the end of Section 00800 Supplementary General Conditions.
  - 15. Submit Items 12, 13 and 14 to Jennifer Mannix, Contract Administrator, CBJ-Engineering.

#### 1.5 FINAL SUBMITTALS

- A. Record Document Submittals: Do not use Record Documents for construction purposes; protect from loss in a secure location; provide access to Record Documents for the ARCHITECT's reference.
- B. Record Drawings: Maintain a clean, undamaged set of blue or blackline prints of Contract Drawings and Shop Drawings (this includes Architectural, Structural/Civil, Mechanical and Electrical). Mark-up these Drawings to show the actual installation. Mark whichever Drawing is most capable of showing conditions accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Organize record Drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover. Record Drawings shall be kept current with the WORK's progress and will be checked prior to each payment.
- C. Record Specifications: Maintain one copy of the Contract Documents, including Addenda. Mark to show variations in actual WORK performed in comparison with the specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot be readily discerned later by direct observation. Note related record Drawing information and product data. Upon completion of the WORK, submit record Specifications to the ARCHITECT for the OWNER's records.

#### SECTION 017700 – CLOSEOUT PROCEDURES

Maintenance Manuals: Organize maintenance data into sets of manageable size. Bind in individual heavy-duty 2-inch (maximum), 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following

information. Mark identification on front and spine of each binder. Include the following information:

- 1. Emergency instructions.
- 2. Spare parts list.
- 3. Copies of warranties.
- 4. Recommended "turn around" cycles.
- 5. Inspection procedures.
- 6. Shop Drawings and product data.
- D. Operating and Maintenance Instructions: Arrange for the installer of equipment that requires regular maintenance to meet with CBJ personnel to provide instruction in proper operation and maintenance. Include a detailed review of maintenance manuals, agreements, warranties and bonds. As part of instruction for operating equipment, demonstrate all necessary safety procedures.
- E. Before final payment can be made, the CONTRACTOR shall supply a copy of the "Notice of Completion of Public Works" form approved by Wage and Hour Administration of the Labor Standards and Safety Division of the Alaska Department of Labor and Workforce Development.

#### 1.6 MAINTENANCE AND GUARANTEE

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Article 13 of the General Conditions.
- B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the CONTRACTOR shall have obtained a statement in writing from the affected private owner or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.
- C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the WORK and the CONTRACTOR and its surety shall be liable to the OWNER for the cost thereof.

#### PART 2 - MATERIALS (Not Used)

#### PART 3 - EXECUTION (Not Used)

#### SECTION 017700 – CLOSEOUT PROCEDURES

#### COMPLIANCE CERTIFICATE AND RELEASE FORM

## PROJECT:BRH MEDICAL SURGICAL EAST WING RENOVATIONCONTRACT NO:E10-221

The CONTRACTOR must complete and submit this to the Contract Administrator. The CONTRACTOR shall complete this form with respect to the entire contract.

Completed forms must be submitted upon completion of the Project. All requirements and submittals must be met before final payment will be made to the CONTRACTOR.

*I certify that the following and any referenced attachments are true:* 

- All WORK has been performed, materials supplied, and requirements met in accordance with the applicable plans, specifications, and Contract Documents.
- All suppliers and Subcontractors have been paid in full with no claims for labor, materials, or other services outstanding. If all Subcontractors and suppliers are not paid in full, please explain on a separate sheet.
- All employees have been paid not less that the current prevailing wage rates set by the State of Alaska (or U.S. Department of Labor, as applicable).
- All equal employment opportunity, certified payroll and other reports have been filed in accordance with the prime contract.
- The attachment list of Subcontractors is complete (required from CONTRACTORs). The Contract Administrator was advised and approved of all Subcontractors before WORK was performed and has approved any substitutions of Subcontractors.
- All DBE firms listed as a precondition of the prime contract award must have performed a commercially useful function in order for the work to count to a DBE goal. All DBE firms performed the WORK stated and have received at least the amount claimed for credit in the Contract Documents.
- All DBE Subcontractors must attach a signed statement of the payment amount received, the nature of WORK performed, whether any balance is outstanding, and indicate that no rebates are involved.
- If the amount paid is less than the amount originally claimed for DBE credit, the CONTRACTOR has attached approval from the Contract Administrator for underutilization.

I understand it is unlawful to misrepresent information in order to receive a payment which would otherwise be withheld if these conditions were not met. I am an authorized agent of this firm and sign this freely and voluntarily. The foregoing statements are true and apply to the following project contractor.

Firm Name

Signed

Capacity: CONTRACTOR

Date

Return completed form to: Jennifer Mannix, Contract Administrator, City and Borough of Juneau, 155 South Seward Street, Juneau, AK 99801. Call (907) 586-0873 if we can be of further assistance or if you have any questions.

Printed Name and Title

#### END OF SECTION 017700
### SECTION 017704 - FINAL CLEAN-UP AND SITE RESTORATION

# PART 1 - GENERAL

#### 1.1 DESCRIPTION

A. The WORK under this Section includes providing all supervision, labor, materials, tools and equipment necessary for final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by other construction items.

# **PART 2 - PRODUCTS**

### 2.1 MATERIALS

A. Any materials required shall conform to the appropriate Section of these Specifications.

# **PART 3 - EXECUTION**

### 3.1 GENERAL

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed WORK and all sites disturbed by the construction, all rubbish and debris, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction and shall grade the sites so that no standing water is evident. Restore site and structure disturbed by construction to preconstruction conditions. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final clean-up of the Project site.
- B. If the CONTRACTOR has obtained material from the CBJ/State pit, the excavated area shall be cleaned up and any stipulations required by the Individual Mining Plan shall be completed. The gravel pit overhead charge shall be paid to CBJ within 60 days after removal of material from the pit.

# 3.2 FINAL CLEANING OF BUILDINGS

- A. The CONTRACTOR shall employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following before requesting inspection for certification of Substantial Completion:
  - 1. Remove labels that are not permanent labels.
  - 2. Clean transparent materials. Remove glazing compound. Replace chipped or broken glass.
  - 3. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

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FINAL CLEAN-UP AND SITE RESTORATION Page 017704-1

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# SECTION 017704 - FINAL CLEAN-UP AND SITE RESTORATION

- 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
- 5. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas, remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- 6. Remove temporary protection and facilities.
- 7. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
- 8. Remove waste materials from the site and dispose of in a lawful manner.

# **END OF SECTION 017704**

### SECTION 017823 - OPERATION AND MAINTENANCE DATA

# PART 1 - GENERAL

### 1.1 GENERAL

A. Equipment testing and start-up are requisite to satisfactory completion of the contract and, therefore, shall be completed within the Contract time.

### 1.1 1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Product maintenance manuals.
  - 5. Systems and equipment maintenance manuals.
- B. Related Sections:
  - 1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 1 Section "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.
  - 3. Divisions 2 through 34 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

#### 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### 1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

# SECTION 017823 – OPERATION AND MAINTENANCE DATA

- 1. Where applicable, clarify and update reviewed manual content to correspond to modifications and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically-indexed file. Submit on digital media acceptable to the OWNER.
    - a. Name each indexed document file in composite electronic index with applicable item name.
    - b. Enable inserted reviewer comments on draft submittals.
  - 2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. OWNER will return one copy.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. ARCHITECT will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. OWNER will return copy with comments.
  - 1. Correct or modify each manual to comply with OWNER'S comments and submit corrected manuals prior to commencing demonstration and training.

# **PART 2 - PRODUCTS**

# 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a teaching outline for each module that includes a objectives and specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions and functions.
    - b. Performance and design criteria if CONTRACTOR is delegated design responsibility.
    - c. Operating standards and characteristics.
    - d. Regulatory requirements.
    - e. Equipment performance curves and limiting conditions.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.

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- b. Operations and Maintenance manuals.
- c. Project record documents.
- d. Warranties and bonds.
- e. Maintenance service agreements and similar continuing commitments.
- 3. Emergencies: Include the following, as applicable:
  - a. Instructions on meaning of warnings, trouble indications, and error messages.
  - b. Instructions on stopping.
  - c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures including instructions on stopping.
  - g. Normal shutdown instructions.
  - h. Operating procedures for emergencies.
  - i. Operating procedures for system, subsystem, or equipment failure.
  - j. Special operating instructions including seasonal and weekend operations.
- 5. Adjustments: Include the following:
  - a. Alignments and checking adjustments.
  - b. Noise and vibration adjustments.
  - c. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive and routine maintenance.
  - f. Instruction on use of special tools.
- 8. Repairs: Include the following:
  - a. Diagnosis and repair instructions.
  - b. Disassembly; component removal, repair, and reassembly instructions.

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- c. Instructions for identifying parts and components.
- d. Review of spare parts needed for operation and maintenance.

# PART 3 - EXECUTION

# 3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Division 1 Section "Operations and Maintenance Data."
- B. Set up instructional equipment at instruction location approved by OWNER.

# 3.2 INSTRUCTION

- A. Engage qualified instructors to instruct OWNER'S personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. OWNER will furnish an instructor to describe OWNER'S operational philosophy.
  - 3. OWNER will furnish CONTRACTOR with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

# END OF SECTION 017823

# PART 1-GENERAL

# 1.1 RELATED DOCUMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions.
- B. Architectural "Overall Plan" Drawings (A101-A103), Architectural demolition drawings, Mechanical demolition drawings, Electrical demolition drawings.
- C. Asbestos Abatement Drawings (ASB Drawings).

# 1.2 SUMMARY

- A. Bulk sampling and historical information has identified the following major asbestos containing materials (ACM) in Bartlett Regional Hospital that will impact the overall Project:
  - 1. Duct tape: Duct tape on original ductwork is ACM. This material is found in the project areas on Levels 2 and 3.
  - 2. Gypsum Wall Board/joint compound (GWB/mud): Older GWB/mud in the hospital has generally been shown to be ACM, and is found in select existing areas of Levels 2 and 3.
  - 3. Spray-on fireproofing: Spray-on fireproofing on structural steel in older portions of the building has been shown to be ACM. The material is found in select existing areas on Levels 2, and 3. In certain areas on Level 2 (as indicated on the drawings), the original fireproofing has been encapsulated with BWE 3000/5000.
  - 4. Thermal system insulation (TSI): Original plumbing systems in the hospital have ACM TSI on fittings. Original heating systems have ACM TSI on fittings and on pipe runs. These piping systems are found in select existing areas on Levels 2 and 3.
  - 5. Vinyl asbestos tile (VAT), sheet vinyl (SV), and associated adhesives: Original VAT & SV flooring and the associated adhesives found in older areas of the existing facility have been shown to be ACM. These types of original flooring materials are found in select existing areas on Levels 2 and 3.
  - 6. Caulk and filler on window, door, and louver frames: Older windows, doors, and louvers in the facility are usually sealed to the building with ACM caulking, and concealed ACM material is typically found packed around the frames, beneath the ACM caulk. Such materials are assumed to exist on original windows, doors, and louvers throughout the original hospital.
  - 7. Fire doors: Older fire doors are filled with ACM. These doors are found in select existing areas on Levels 2 and 3.
  - 8. Floor penetrations: Floor penetration sleeves have ACM packing installed to seal where pipes pass from floor to floor. Such materials are assumed to exist throughout the original hospital.
- B. The intent of the abatement portion of the overall Project is to perform all demolition and abatement of all ACM within the various abatement areas on each floor. The following elements are included as part of the abatement effort, although the drawings may show some exceptions in each abatement area:
  - 1. Removal and disposal of all suspended ceiling tile and associated grid. This material is non-ACM.
  - 2. Removal and disposal of ACM firedoors.

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- 3. Removal and disposal of all GWB/mud finishes on walls and ceilings. This material is assumed to be ACM.
- 4. Removal and disposal of "non-GWB" wall and ceiling finishes, wall and ceiling framing (unless specifically noted to remain), wall insulation (down to clean concrete on exterior walls), interior doors, fixtures, and cabinets. These materials are usually non-ACM.
- 5. Removal and disposal of floor coverings and associated adhesives where indicated, of whatever nature, down to clean concrete. These materials are assumed to be ACM, unless specific information proves otherwise.
- 6. Removal and disposal of duct systems (complete with insulation and duct tape) and associated HVAC components slated for demolition.
- 7. Removal and disposal of insulation and ACM duct tape wherever they are encountered on duct systems with work limits that are identified to remain.
- 8. Removal and disposal of TSI of whatever nature wherever it is encountered on pipe systems and fittings.
- 9. Removal and disposal of piping systems slated for demolition where such removal is specifically approved.
- 10. Removal and disposal of packing material in floor penetration sleeves. The material is assumed to be ACM.
- 11. Removal and disposal of all fluorescent fixtures, including tubes and ballasts.
- 12. Preservation of electrical, controls, and mechanical systems identified to remain.
- 13. Removal and disposal of windows slated for demolition.
- 14. Removal and disposal of ACM spray-on fireproofing on structural steel and associated overspray wherever it exists.
- C. The abatement portion of the overall Project includes all material, labor, equipment and other related costs for:
  - 1. mobilization (including moving all plant and equipment onto the site; providing temporary construction power, wiring, and lighting facilities; developing construction water supply, providing all on-site communication facilities, arranging for approved storage areas, issuing and posting all notices, and submitting all submittals),
  - 2. erecting non-permanent asbestos control areas (including barriers and temporary corridors where shown on the drawings) to isolate the various abatement areas and provide continued access by hospital staff where needed,
  - 3. installing permanent, sealed reinforced poly enclosures above ceilings that completely isolate the abated areas from above-ceiling spaces that have not been abated (see detail in abatement drawings),
  - 4. providing noise control and security for the control areas (by means that may include, but not be limited to, stud and sheetrock partitions and locked doors),
  - 5. completing all project elements as described in Paragraph B. above, in accordance with these specifications and as described on the drawings,
  - 6. cleaning all spaces within the confines of the asbestos control areas (including over-spray from spray-on fireproofing), and applying lockdown sealant as appropriate,
  - 7. providing air monitoring (including all elements summarized in <u>Asbestos Air Monitoring</u> in DEFINITIONS below),
  - 8. providing all lab analysis for required monitoring,
  - 9. disposing of ACM and related debris in accordance with these contract documents (the solid waste facility in Juneau is permitted to accept only non-regulated ACM, and only after special arrangements have been made),
  - 10. removing the non-permanent asbestos control areas, and

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- 11. general cleanup and demobilization.
- D. Contract Drawings illustrate the locations where the above-described WORK is necessary and allow quantification for bidding purposes.

# 1.3 COORDINATION AND TIMING OF ABATEMENT ACTIVITIES

- A. Adjacent areas and floors of the building will be occupied throughout the course of the overall Project.
- B. The Using Agency will provide access to temporary power and to hot and cold water for direct Project use. The CONTRACTOR is responsible for all costs and effort required to develop those utilities for his or her use. Close coordination with Using Agency is essential.
- C. Electrical and mechanical systems not demolished or otherwise directly modified by this Project shall remain functional, and shall be protected from contamination during the abatement WORK.
- D. The Using Agency shall be allowed access to electrical, communications, controls, and mechanical systems as necessary throughout all abatement work to ensure their operational continuity.
- E. Security to the site shall be maintained for the duration of the Project. It will be the responsibility of the CONTRACTOR to coordinate with other trades to sequence the WORK.
- F. The Using Agency shall have first salvage rights to signage, doors, windows, cabinetry, fixtures & related hardware, and other miscellaneous items in the building.

# 1.4 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. The publications listed below form a part of the specification to the extent referenced. The publications are referred to in the text by the basic designation only.
  - 1. Code of Federal Regulations (CFR) Publications:

U	
29 CFR 1910.1001	Asbestos (for general industry standards)
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.145	Specifications for Accident Prevention Signs and Tags
29 CFR 1910.1200	Hazard Communications
29 CFR 1926.1101	Asbestos (for construction and demolition standards)
40 CFR 61 Sub-part A	General Provisions
40 CFR 61 Sub-part M	National Emission Standard for Asbestos
40 CFR 241	Guidelines for Land Disposal of Solid Wastes
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- Alaska Department of Labor Construction Code: Subchapter 05.045 (as amended November 27, 1991)-Construction Code (Asbestos) Subchapter 15.0101-Hazard Communication
- 3. Additional References: US EPA Publication 560/5-85-024:

Guidance for Controlling Asbestos Containing Materials in Buildings

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### 1.5 DEFINITIONS

- A. ACM: See Asbestos Containing Material (ACM).
- B. Abandonment: Leaving in place existing asbestos materials. An example is leaving pipes inside walls when new piping is to be routed differently. Complete documentation must be made of the exact location and condition of the asbestos before abandonment, including the type and method of use of any encapsulant.
- C. Action Level: See Exposure Standards.
- D. Aggressive Conditions: Required technique to prepare an area that has passed visual inspection for clearance sampling. Before starting the sampling pumps, the exhaust from forced air equipment (such as a 1 horsepower leaf blower) shall be directed against all walls, ceilings, floors, ledges and other surfaces in the room. This effort shall take at least 5 minutes per 1,000 square feet of floor. Next, a 20-inch fan shall be placed in the center of the space (one such fan shall be employed for every 10,000 cubic feet of room volume), directed towards the ceiling, and set to run on slow speed. Once the fans are set up and operational, the sampling pumps shall be started and run for the required time. Once sampling is complete all 20-inch fans shall be secured.
- E. Amended Water: Water containing a wetting agent specifically designated by the manufacturer for the wetting of asbestos.
- F. Approved Laboratory: An independent laboratory properly staffed and equipped for the collection and analysis of asbestos bulk and/or air samples, and who maintains demonstrable satisfactory performance from all technicians involved in the performance of these analyses. For air samples, participation and a documented record of satisfactory performance in either the NIOSH Proficiency Analytical Testing (PAT) program, equivalent American Industrial Hygiene Association (AIHA) program, or an equivalent inter-laboratory testing protocol in accordance with 29 CFR 1926.1101, Appendix A is required. The lab must be capable of performing both phase contract illumination microscopy, and transmission electron microscopy, and be capable of the required short turn around times. For bulk analysis, participation in and maintenance of a satisfactory record with the bulk asbestos analysis program with the Research Triangle Park, NC 27709-2194, (919) 541- 6000, is required. If any participation in any equivalent program is proposed to meet this requirement, the details of the program, documentation of satisfactory performance, and name, address and telephone number of the operator of the program must be submitted as part of the Asbestos Work Plan for approval (see Paragraph 1.6 A below).
- G. Area Monitoring: See Asbestos Air Monitoring.
- H. Asbestos: A class of six naturally occurring fibrous hydrous mineral silicates. Minerals included in this group are chrysotile, crocidolite, amosite and the fibrous forms of anthophyllite, tremolite and actinolite.
- I. Asbestos Air Monitoring: An approved air monitoring plan is required if air monitoring is part of the abatement work. To be approved such a plan must include the following elements:
  - 1. Area Monitoring: Sampling for airborne concentrations of asbestos fibers within the existing or planned asbestos control area that is representative of the fiber levels that may

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reach the worker's breathing zone. Area pumps drawing 10 liters per minute through the filter cassette are used for area monitoring and should pull at least 1,200 liters of air for each sample.

- 2. Environmental Monitoring: Sampling for airborne concentrations of asbestos fibers outside the asbestos control area to assure that no asbestos fibers are escaping the enclosure, and that personnel outside the control area are not being exposed. Where a sealed area is not used, such as during exterior siding removal, this will refer to sampling conducted at the perimeter of the control area to assure that a sufficient buffer zone around the work in progress has been established, and that personnel outside this zone are not being exposed. Area pumps drawing 10 liters per minute through the filter cassette are used for environmental monitoring and should pull at least 1,200 liters of air for each sample.
- 3. Baseline (Background) Monitoring: Sampling conducted to determine the initial level of airborne asbestos fibers present prior to the start of asbestos work. Area pumps drawing at least one and less than ten liters per minute through the filter cassette are used for this monitoring and should pull at least 1,200 liters of air for each sample. This sampling can be subdivided into three parts:
  - a. Natural Background Sampling: Sampling conducted outside the structure where the work will be accomplished to determine the naturally occurring fiber levels present in that locale. When results indicate that this level may reach or exceed 0.01 f/cc, a minimum of 5 consecutive days of sampling will be used to establish an arithmetic average. This average will be used as the background level.
  - b. Environmental Background Sampling: Sampling conducted to determine the background fiber levels within a structure, but outside the planned asbestos work area. This sampling is accomplished to ascertain the normal background fiber level within these areas of the structure. Special care must be taken during this sampling to minimize sample contamination by non-asbestos fibers, such as from cloth, paper and carpet.
  - c. WORK Area Background Sampling: Sampling conducted in the area where asbestos WORK is planned, normally used to determine the level of personal and other protective measures required by personnel preparing the area for asbestos work and to establish the level of contamination present prior to the beginning of asbestos operations.
- 4. Initial Exposure Assessment Monitoring: Sampling conducted by a "competent person" immediately before or at the initiation of the operation to ascertain the expected exposures during that operation. Initial Exposure Assessment Monitoring must be completed in time to allow compliance with requirements which are triggered by exposure data or the lack of a "negative exposure assessment", and to provide information necessary to assure that all control systems planned are appropriate for the operation and will function properly. Until Initial Exposure Assessment Monitoring confirms that employees on the job will not be exposed in excess of the Permissible Exposure Level (PEL), or a "negative exposure assessment" for non-friable asbestos has been accepted, it shall be assumed that employees are exposed in excess of the Time Weighted Average (TWA) and excursion limit.
- 5. Negative Exposure Assessment: For any one specific asbestos job involving non-friable material which will be performed by trained employees, it may be demonstrated that

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employee exposures will be below the PEL by data which conform to the following criteria:

- a. Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those WORK conditions having the greatest potential for releasing asbestos.
- b. Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analyses were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted workplace conditions "closely resembling" the processes, type of material, control methods, WORK practices, and environmental conditions in the current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit.
- c. The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30 minute short-term exposures of each employee covering operations that are most likely during the performance of the entire asbestos job to result in exposures over the PEL.
- 6. Clearance Monitoring: Sampling occurring at the completion of the asbestos work, or at the completion of a specific phase of asbestos WORK, prior to removing the enclosure. It is accomplished to prove that the clean-up activities have been effective, and that remaining fiber levels both inside and outside the enclosure comply with airborne fiber concentrations defined in "Clearance Levels" below. Clearance sampling is normally accomplished in the same locations and by the same methods as the baseline monitoring, and is done using aggressive conditions (see "Aggressive Conditions" above). Transmission Electron Microscopy (TEM) analysis is required for clearance monitoring inside schools and sometimes for inside public buildings to assure that the area is truly safe for reoccupancy. For public buildings the requirement for TEM analysis can be waived in favor of Phase Contrast Illumination Microscopy (PCM) at the ARCHITECT's option. See PART 3-EXECUTION, MONITORING for project specific requirements.
- 7. Personal Monitoring: Sampling for asbestos fiber concentrations at the breathing zone of a worker, used to document individual exposures, and, in conjunction with the WORK area sampling, to determine the required degree of personal and respiratory protection. A minimum of two samples shall be collected per eight-hour shift at a flow rate of 0.5 to 2.5 liters per minute. At least 25% of the workers doing a particular job shall be sampled each eight-hour shift. See Exposure Standards for more information.
- J. Asbestos Containing Material (ACM): Material composed of asbestos of any type, and in any amount equal to or greater than 1 percent by weight, either alone or mixed with other fibrous or non-fibrous materials.
- K. Asbestos Control Area: An area where operations involving asbestos are performed which is isolated by physical barriers designed to prevent the spread of asbestos dust, fibers, and debris, and to prevent or deter the entry or unauthorized and unprotected personnel. For areas where isolation is not feasible, it will be an area that is physically demarcated, e.g., bounded by a

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physical barrier such as a rope, barricade, etc., separating the known "clean" zone from the asbestos WORK area and buffer zone.

- L. Asbestos Fibers: This expression refers to a particular form of asbestos, fibrous tremolite, anthophyllite, or actinolite having a length to diameter aspect ratio of 3:1 or greater, and an overall length of 5.0 micrometers or longer. Where specialized analytical techniques, such as electron microscopy, are utilized for analysis, this shall refer to the number of fibers considered to equate to a specific weight of asbestos.
- M. Asbestos Survey: A detailed survey accomplished by specially trained, experienced technicians of a specific area to determine the presence, absence, condition, and amount of asbestos and asbestos contamination present in that area.
- N. Asbestos Workers' Personal Hygiene Area: A dedicated area containing shower(s), change room and, if required, toilet facilities where personnel working with asbestos (where a control area is not established) can change into protective clothing, and can disrobe, shower, and change into clean clothing without danger of transferring contamination to themselves or others.
- O. Baseline Monitoring: See Asbestos Air Monitoring.
- P. Bulk Sampling and Analysis: Representative samples taken from materials suspected to contain asbestos, analyzed by an approved laboratory using polarized light microscopy (PLM). When specialized methodology, such as electron microscopy is required, collection and analysis shall be in accordance with the recommendations of the laboratory providing the analysis, and the result expressed as both mass per unit volume and percent by weight shall be given.
- Q. Clean: As used in these documents, "clean" means that the surface in question is free of visible asbestos, to the point where no physical sample can be collected for analysis.
- R. Clean Room: An uncontaminated room having facilities for storage of employees' street clothing, uncontaminated materials and equipment.
- S. Clearance Levels: The maximum fiber levels present after completion of the asbestos WORK, or a given phase of WORK, sampled during initial or final clearance monitoring. This level shall be the lower of the baseline WORK area monitoring value for the location, or less than 0.01 fibers/cc, whichever is lower. In the special case where the naturally occurring outdoor background levels outside the structure are greater than or equal to 0.01 f/cc, averaged arithmetically over a minimum 5-day period, the clearance level shall be the interior WORK area background level prior to the start of CONTRACTOR work, or less than or equal to the average natural background level, wherever is lower.
- T. Clearance Monitoring: See Asbestos Air Monitoring.
- U. Competent Person: An individual experienced in the abatement and control of asbestos who has received specialized additional training in the supervision and management of asbestos abatement projects. This individual is the full-time on-site manager responsible for ensuring that all safety, health and environmental protection requirements are met, that approved operational methods are followed, and that all personnel on the site comply with these requirements. Specialized training must include an EPA recognized course in the management of asbestos abatement projects. The Competent Person shall report to the Industrial Hygienist.

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- V. Containment: See Enclosure.
- W. Decontamination Area: An enclosed area adjacent and connected to a sealed asbestos control area and consisting of an equipment room, shower area, and clean room used for the decontamination of workers, materials and equipment. This also forms the only authorized entry and exit for the control area, except as required in Equipment Decontamination Area below.
- X. Encapsulant: A liquid material which can be applied to ACM which reduces the potential for release of asbestos fibers from a material, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- Y. Encapsulate: The process whereby an encapsulant is applied to ACM to seal in or bind together the individual asbestos fibers, thereby reducing the potential for the release of these fibers.
- Z. Enclosure: Construction of a sealed, permanent structure around asbestos. Complete documentation must be made of the exact location and condition of the asbestos before the enclosure is finished, including the type and method of use of any encapsulant.
- AA. Equipment Decontamination Area: When used, a separate area designed similarly to the personnel decontamination area, but on a large scale. Used to decontaminate large items, or for the purpose of a separate exit for asbestos waste removal where the normal means of egress is not effective (such as the removal of long pieces of pipe from the basement of a structure).
- BB. Equipment Room (Change Room): A room located within the decontamination area that is supplied with impermeable bags or receptacles for the disposal or storage of contaminated protective clothing and equipment, and lockers for the storage and contaminated tools and work shoes.
- CC. Exposure Standards
  - 1. Workers:
    - a. Action Level: An action level concept shall be used by the abatement Subcontractor to ensure that no personnel are exposed to airborne concentrations of asbestos, actinolite, anthophyllite, or tremolite fibers, or a combination of these mineral fibers, equaling or exceeding 0.1 fibers per cubic centimeter (0.1 f/cc) expressed as an 8-hour time weighted average (TWA) without placement on a medical monitoring program for asbestos. Personnel exposed at or above this level must be provided proper training in the removal of asbestos containing materials, and must be provided proper personal protective equipment.
    - b. Excursion Limit (EL): An airborne concentration of asbestos of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of 30 minutes.
    - c. Permissible Exposure Level (PEL): The abatement Subcontractor shall ensure that no employee is exposed to an airborne concentration of asbestos, actinolite, anthophyllite, or tremolite fibers, or a combination of these mineral fibers, exceeding 0.1 fibers per cubic centimeter (0.1 f/cc) expressed as an 8-hour time weighted average (TWA) as defined by the NIOSH sampling and analytical method 7400. (Reference 29 CFR 1926.1101, Appendix A.)
  - 2. Non-Workers:

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- a. Personnel who are not asbestos workers as defined by OSHA and this Specification shall not be exposed to levels of asbestos fibers exceeding the EPA clearance level criteria of 0.01 f/cc.
- DD. Fibers: All fibers, regardless of composition, as determined by analysis in accordance with the method described in 29 CFR 1926.1101, Appendix A. When specialized methodology, such as electron microscopy is required, collection and analysis shall be in accordance with the recommendations of the laboratory providing the analysis, and the equivalent fiber level, expressed in both mass per unit volume and fibers per cubic centimeter shall be given.
- EE. Glovebag Technique: A method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non planar surfaces not isolated inside an enclosure. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6-mil transparent polyethylene or polyvinyl chloride plastic), two inward projecting long sleeve gloves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glovebag technique must be highly trained, experienced and skilled in this method.
- FF. HEPA Filter Equipment: High Efficiency Particulate Air (HEPA) filtered vacuuming, local exhaust, or respiratory protective equipment equipped with specialized filters capable of collecting and retaining asbestos fibers. Filters must be of 99.97 percent or greater efficiency at collection of 0.3-micron diameter particles. Filters must be factory tested and certified as meeting this filtration requirement.
- GG. Industrial Hygienist: An individual certified by the American Board of Industrial Hygiene, and having significant prior experience in managing and evaluating the health and safety aspects on asbestos projects of similar nature and scope to ensure capability of performing asbestos WORK in a satisfactory manner. Prior project similarities shall be in areas related to material composition, project size, number of employees, and in the engineering, WORK practice, environmental, and personal protection control required. An equivalent individual, such as a Licensed Professional Safety Engineer, Certified Safety Professional, and other qualified person with a minimum of 5 years of experience in industrial hygiene, including extensive experience in the management and evaluation of health and safety aspects of asbestos abatement, may substitute for the Certified Industrial Hygienist, subject to approval by the ARCHITECT. The Industrial Hygienist shall be responsible for all monitoring, training and asbestos WORK, for ensuring that all safety and health requirements prescribed by State and Federal regulations, as well as these specifications, are compiled with, and for ensuring that the competent person performs all assigned duties in accordance with this specification and applicable Federal and State regulations.
- HH. Initial Exposure Assessment Monitoring: See Asbestos Air Monitoring.
- II. Lockdown Sealant: A spray-on liquid-type sealant applied to surfaces from which ACM has been removed. It is applied after final cleaning and visual inspection has occurred, but prior to initial clearance sampling. Its purpose is to control and minimize the amount of airborne asbestos fiber generation that might result from any residual ACM debris on the substrate. All lockdown sealant shall be acrylic copolymer blend that forms a durable non-combustible barrier

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that when cured becomes an excellent primer for spray back insulation and water based architectural coatings.

- JJ. Lower Limit of Detection (LLD): The smallest quantifiable amount of a substance, or number of fibers, present in a given sample that can be determined accurately by the sampling and analysis methods in use. A LLD is normally specified to represent a 95% confidence level. All samples taken for baseline, background, environmental or clearance sampling shall have an LLD of 0.01 f/cc or less. Samples taken for bulk analysis shall have an LLD of less than 0.1 percent by weight of the sample of homogeneous samples.
- KK. Negative Exposure Assessment: See Asbestos Air Monitoring.
- LL. Negative Pressure: A minimum of minus 0.02 inches of water pressure (negative pressure) differential between the asbestos control area and all adjacent areas, at a minimum flow rate of four air changes per hour at all points within the asbestos control area. See PART 3-EXECUTION; SAFETY AND HEALTH COMPLIANCE; Vacuums and local exhaust systems for additional information.
- MM. Permissible Exposure Level (PEL): See Exposure Standards.
- NN. Personal Monitoring: See Asbestos Air Monitoring.
- OO. Phase Contrast Illumination Microscopy (PCM): An analytical method for counting fibers in air sampling filters.
- PP. Polarized Light Microscopy (PLM): An analytical method for determining asbestos content in bulk samples.
- QQ. Time Weighted Average (TWA): The TWA is an average of the airborne concentration of asbestos fibers, expressed as the number of fibers per cubic centimeter (f/cc) of air, measured and calculated for a minimum of 8 hours, and taken into account the relative proportions of time exposed when averaging different exposure levels.
- RR. Transmission Electron Microscopy (TEM): A procedure whereby an electron beam is scanned through a specially prepared air-sampling filter. The beam diffraction pattern is then analyzed by computer, which differentiates between the patterns of asbestos and the non-asbestos materials, and quantifies the mass of the asbestos present on the filter. This mass can then be referenced to an equivalent number of fibers per cubic centimeter. By far the most sensitive and specific test for airborne asbestos, it is expensive and results cannot normally be provided for several days. Used for detection of extremely low levels, or when suspected non-asbestos fibers are believed to be interfering with the accuracy or readability of normal sampling methods. TEM clearance sampling, done in accordance with methods set forth in 40 CFR 760, Subpart E, is required by regulation for all projects inside school buildings. TEM clearance sampling is optional (at the OWNER's discretion) for all projects not in school buildings.

# 1.6 PRE-WORK SUBMITTALS

A. Six copies of the Pre-WORK Submittal shall be submitted. The following items shall be included and submitted as a complete package in a three ring binder complete with index and divider tabs. Modify as necessary to obtain approval by the ARCHITECT five working days

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prior to any work on the project. The CONTRACTOR shall perform its WORK in compliance with the approved Pre-WORK Submittal:

- 1. Asbestos WORK Plan: Prepare a detailed plain language plan covering the WORK procedures to be used during each and all operations involving asbestos. Annotated building plans or site plans no larger than 11 inches by 17 inches shall be included to detail locations for asbestos control areas, monitoring locations, access and disposal routes, and other activities where needed. The plan shall include as a minimum the following elements:
  - a. Estimated electrical load requirements for each abatement area (for successful planning of temporary power).
  - b. Location and construction of each asbestos control area.
  - c. Sequencing of asbestos WORK to include phasing sequences if the WORK is to be accomplished in separate sections or phases. This item shall include a timeline for completing the WORK.
  - d. Transport and disposal plans.
  - e. A contingency plan for potential emergencies/accidents/incidents covering, but not limited to:
    - Medical emergencies/accidents inside the control area.
    - Violation of the control area.
    - Spills inside the control area.
    - Spills outside the control area.
    - Fire inside and outside the control area.
    - Loss of power.
    - Loss of negative pressure in the controlled area.
    - Discovery that fiber levels inside or outside the control area have exceeded prescribed limits.
    - Water intrusion from the abatement area into occupied areas of the building.
    - Spills during transport or disposal.
  - f. A notification listing of personnel and organizations to be contacted by the CONTRACTOR in the event of an incident, emergency or contingency.
  - g. The 24-hour contact point for the CONTRACTOR and the designated "competent person" to contact in case of an on-site problem. Response time to the site shall not exceed 1 hour from the time of the notification.
- 2. Notifications: Copies of EPA and OSHA notifications submitted prior to WORK.
- 3. Competent Person: Submit the name(s) proposed, address(es), telephone number(s) and complete documentation of each individual's qualifications proving their qualifications meet the requirements described in DEFINITIONS above and PART 3-EXECUTION below.
- 4. Industrial Hygienist: Submit the name, address and telephone number of the Industrial Hygienist selected to prepare the asbestos WORK plan, and direct monitoring and training. Include documentation proving the person's qualification meet the requirements described in DEFINITIONS above and PART 3-EXECUTION below.
- 5. Testing Laboratory: Submit the name, address, telephone number and qualifications of the independent testing laboratory selected to perform the monitoring, testing and

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reporting of airborne asbestos fibers. Include documentation certifying that all technicians performing the analysis have been judged proficient by successful participation within the last year in the NIOSH PAT program or the equivalent AIHA program, or an equivalent inter-laboratory testing program.

- 6. Training: Submit certificates signed by each employee and the Industrial Hygienist that each employee has received the training required by 29 CFR 1910.1001, 29 CFR 1926.1101, and appropriate State of Alaska Regulations and this specification. Include proof that each employee is certified as an asbestos worker in the State of Alaska in accordance with current state regulations.
- 7. Protective Equipment and Protective Method Plans: Details of planned personnel protective equipment requirements and protective methods, including respirators as will be required for each specific type of operation or condition. Include supporting justification when alternate (e.g., less than the maximum specified) protection is proposed.
- 8. Manufacturer's Data: Provide complete manufacturer's information, including maintenance and usage instructions, on all specialized equipment to be used for asbestos WORK, including, but not limited to:
  - a. Sealants, adhesives, and foams.
  - b. Lockdown encapsulant.
  - c. Low odor mastic remover.
  - d. Local Exhaust Equipment.
  - e. Vacuum Equipment.
  - f. Respirators.
  - g. Pressure Differential Monitor/Airflow Monitor (including an audible alarm that sounds if negative pressure is lost).
  - h. Decontamination Units (including a provision to filter any discharge from the unit).
- 9. Material Safety Data Sheets (MSDS): Provide copies of the MSDS for each chemical, adhesive, sealant, foam, glue, encapsulant, additive for creation of the amended water, and paints to be utilized, as well as any other material requiring this reporting in accordance with Federal Standard 313B. This requirement is in addition to the requirement for submittal of material data sheets specified elsewhere in the specifications.
- B. Any changes to procedures, methods, conditions, etc., identified in the approved Pre-WORK Submittal must be submitted in writing for review and approval by the ARCHITECT prior to the inception of the change. The changes must be reviewed and approved by the Certified Industrial Hygienist prior to being submitted to the ARCHITECT for review. Where changes must be implemented immediately for the protection of workers, personnel outside the WORK area, the structure or the environment, and the change established an environment more stringent than that previously existing, the changes may be implemented by the competent person or other individuals with appropriate authority, and the ARCHITECT notified immediately. These changes will then be submitted in writing within 24 hours for final review and approval.

# 1.7 POST-WORK SUBMITTALS

A. Six copies of a post-WORK submittal shall be submitted. The following items shall be included, submitted as a complete package in a three ring binder complete with index and divider tabs, and approved by the ARCHITECT as complete before final payment is approved:

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- 1. WORK Log: Upon completion of the Project, or upon completion of each phase of asbestos WORK if the work is performed in phases or sections, prepare a detailed log of all operations involving the asbestos portion of the WORK, to include but not be limited to:
  - a. The names, entry and exit dates and times, duties performed, and protective equipment worn by each individual during their time within the asbestos control area, covering all personnel, (including inspectors, monitoring personnel and visitors) entering each asbestos control area. This information is normally provided in the form of fully legible copies of the entry/exit control log for the control area. Each day's listing should also include a summary of the WORK performed (quantity, type, location, etc.).
  - b. A listing of all personnel performing asbestos related WORK outside the control area, showing duties performed, date, time, duration, and location of the WORK, and protective equipment worn while performing these duties. Each day's listing should also include a summary of the WORK performed (quantity, type, location, etc.).
  - c. A continuous 24-hour daily log of negative air pressure actually maintained inside the enclosure(s).
  - d. A list of the exact placement of each sampling device, and a summary of sampling results on a chronological basis.
  - e. Copies of the complete and reviewed sampling results as an attachment.
  - f. A summary of each problem, incident, contingency, and emergency that occurred, and the actions taken to resolve the situation.
  - g. A copy of all shipping manifests that document disposal of all ACM at an approved solid waste facility.

# PART 2-PRODUCTS

# 2.1 LOCKDOWN ENCAPSULANT

A. All lockdown encapsulant shall be acrylic copolymer blend that forms a durable noncombustible barrier that when cured becomes an excellent primer for spray back insulation and water based architectural coatings. Specifically, all lockdown encapsulant used on the abatement project shall be compatible with fireproofing materials (Section 078100) and flooring materials (Division 9) applied afterwards by other trades.

# 2.2 MASTIC REMOVER

A. Mastic remover shall be a <u>no odor</u> product. The mastic remover shall be "Control ZerO Mastic Remover" manufactured by Grayling Industries or approved equal. Grayling's product (advertised as a blend of new technology hydrocarbons formulated to eliminate odors and V.O.C.s) is identified here because the facility will be occupied during the project, and chemical odors are a major concern.

# 2.3 FINAL WASH

A. A final wash cleaner shall be used to provide final surface preparation for the concrete floor to accept adhesive for new flooring. The final wash cleaner shall be a concentrated high-phosphate liquid approved by the manufacturer of the mastic removal product.

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### **PART 3-EXECUTION**

#### 3.1 PROTECTION OF ADJACENT AREAS

Perform all asbestos WORK in such a way as to not contaminate adjacent areas, or interior A. spaces of components within the abatement area (such as cabinets, ducts, or electrical junction boxes). Where such areas or spaces are contaminated, they shall be cleaned and/or restored to their original condition as directed by the ARCHITECT at the CONTRACTOR's expense.

#### 3.2 NOTIFICATIONS AND PERMITS

- The CONTRACTOR shall notify the regional office of the United States Environmental A. Protection Agency (US EPA) in accordance with 40 CFR 61 Subpart M.
- The CONTRACTOR shall also notify the Alaska Department of Labor, Occupational Safety B. and Health Division (AK OSHD) in accordance with current State of Alaska asbestos regulations.
- The CONTRACTOR shall notify the ARCHITECT 48 hours prior to commencement of any C. abatement WORK, and immediately upon completion or termination of the WORK. Where any emergency removal is required, notifications will be made immediately, but WORK schedules will not be contingent on the notification timing specified in the paragraph.
- The CONTRACTOR shall carry out disposal in accordance with state and federal requirements, D. and shall secure necessary permits in conjunction with asbestos removal and transport, and provide timely notification of such actions as may be required by Federal, State, regional and local authorities.

#### 3.3 COMPETENT PERSON

All asbestos WORK, including setup and teardown of the asbestos enclosure(s) and control A. area(s), and all asbestos disposal operations shall be under the direct and continuous on-site supervision of the Competent Person (who is identified in the Pre-WORK Submittal and whose qualifications and duties are defined in DEFINITIONS above). The Industrial Hygienist shall oversee all activities of the competent person.

#### 3.4 INDUSTRIAL HYGIENIST

The CONTRACTOR shall conduct all training and asbestos WORK under the direction of the A. Industrial Hygienist (who is identified in the Pre-WORK Submittal and whose qualifications and duties are defined in DEFINITIONS above).

#### 3.5 PROJECT INSPECTION

While performing asbestos WORK, the CONTRACTOR may be subject to on-site inspection A. by the Using Agency, the ARCHITECT (or designated representative), fire, safety, and health personnel, and Federal and State inspectors. If the WORK is in violation of specification requirements, or applicable Federal or State regulations, the ARCHITECT may issue a stop-WORK order to be in effect immediately, and which will remain in place until the violation(s) are resolved and, if required by the ARCHITECT, a new or amended asbestos WORK plan is submitted. Restart will not be accomplished without approval of the ARCHITECT. Standby

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time and expenses required to resolve the violation(s) and provide new or amended submittals shall be at the abatement Subcontractor's expense.

B. The Project WORK Log (see Paragraph 1.7A.1 above) shall be subject to review by the Using Agency and the ARCHITECT on a daily basis and at each Application for Payment by the CONTRACTOR.

# 3.6 SAFETY AND HEALTH COMPLIANCE

A. The CONTRACTOR shall comply with all laws, ordinances, rules and regulations of Federal, State, regional and local authorities regarding demolition, handling, storing, transporting and disposing of asbestos and asbestos containing materials. He shall also comply with the applicable requirements of the current issues of 29 CFR 1910.1001, 29 CFR 1926.1101, and 40 CFR 61 Subparts A and M. Asbestos removal is also required to comply with the provisions of the State of Alaska, Solid Waste Management Codes, title 18 of the Alaska Administrative Code, and the State of Alaska OSHA Standards.

# 3.7 ASBESTOS WORK PROCEDURES

- A. The WORK specified in these contract documents shall be carried out in accordance with all applicable local, state, and federal regulations, and the following special requirements:
  - 1. Permanent reinforced poly enclosures are required above the ceiling, generally located at the "work limits" as identified on the ASB drawings except in areas where: 1) existing building structure isolates the abated area from unabated areas, and 2) where no ceiling exists. Some adjustment of the exact location may need to be made to allow for existing above-ceiling systems. All areas enclosed by permanent reinforced polyethylene enclosures shall be rendered free of asbestos.
  - 2. Permanent reinforced poly enclosures above ceilings shall be built in accordance with the standard detail shown in the drawings using fire retardant materials, shall be completely sealed around pipes, ducts, and conduits, and shall be fabricated in such a way as to allow continuous re-fireproofing to be readily applied to all beams and columns.
  - 3. Upon completion of the abatement WORK the permanent asbestos control enclosures shall remain in place.
  - 4. Negative Air: The CONTRACTOR shall use negative air machines to ensure that air is drawn into the abatement WORK area and exhausted through HEPA filters.
  - 5. OSHA Class I asbestos WORK: Class I WORK shall comply with the appropriate sections of OSHA 1926.1101(g)(4) "Class I Requirements" and OSHA 1926.1101(g)(5). Certified asbestos abatement workers are a requirement for Class I asbestos WORK.
  - 6. OSHA Class II asbestos WORK: GWB removal and other Class II WORK shall comply with the appropriate sections of OSHA 1926.1101(g)(7) "Work Practices and Engineering Controls for Class II WORK" and OSHA 1926.1101(g)(8). Certified asbestos abatement workers are a requirement for Class II asbestos WORK.
  - 7. GWB Removal: All GWB in areas illustrated on abatement drawings is assumed to be ACM. It is anticipated that miscellaneous GWB cuts may need to be made where GWB abatement is not specifically identified on the drawings. All such GWB work shall be done by ADOL-certified abatement workers. Minimum acceptable engineering controls for such miscellaneous cuts shall be the use of a Roto-Zip tool equipped with a dust collection system discharging directly to a HEPA-vac.

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- 8. Mastic on concrete decks shall be removed using methods recommended by the approved Mastic Remover manufacturer.
- 9. Final cleaning of concrete deck shall be in accordance with the recommendations of the approved Final Wash Cleaner manufacturer.
- 10. No lock-down encapsulant shall be applied to cleaned concrete deck.
- 11. Asbestos Handling Procedures: The CONTRACTOR shall sufficiently wet ACM with a fine spray of amended water during removal, cutting or other handling to reduce the emission of airborne fibers. All removed and waste materials shall be placed in plastic disposal bags or other approved containers. Under no circumstances shall asbestos waste or debris be allowed to accumulate in the WORK area.
- 12. Disposal of Asbestos: Procedures for hauling and disposal shall comply with 40 CFR 61, Subpart M, 40 CFR 241 and 257, and state, regional, and local standards. Abated material and associated debris shall be packaged in accordance with applicable regulations and disposed of at an approved facility. All ACM shall be transported in an enclosed vehicle.

# 3.8 MONITORING

- A. The abatement Subcontractor shall provide third-party on-site air monitoring for the duration of the Project in accordance with the approved Pre-WORK Submittal.
- B. At a minimum the CONTRACTOR shall provide "Area Monitoring", "Environmental Monitoring", "Baseline (Background) Monitoring", "Initial Exposure Assessment Monitoring", "Personal Monitoring" and "Clearance Monitoring" all as specified in Paragraph 1.5 "DEFINITIONS", above.
- C. The CONTRACTING OFFICER reserves the right to perform confirmation air monitoring including all elements summarized in Asbestos Air Monitoring in DEFINITIONS, above.
- D. Clearance Procedures for each abatement area
  - 1. After abatement activities are complete but prior to the application of lockdown sealant and the performance of clearance monitoring, the CONTRACTOR and the Using Agency representative shall perform a detailed visual inspection of the WORK area for any visible asbestos residual. If any is found, a complete recleaning of the area shall be performed, and the area reinspected. Once the visual inspection is satisfactorily completed the lockdown shall be applied.
  - 2. The CONTRACTOR shall be responsible for <u>all</u> Using Agency costs (including costs accrued by the Using Agency's representative) relating to all visual inspections after the second failed visual inspection.
  - 3. After the area has passed the visual inspection and has received spray application of lockdown sealant but prior to the removal of the enclosure, clearance monitoring of the WORK area, conducted under aggressive conditions (as defined in DEFINITIONS above), shall be accomplished to confirm the effectiveness of the clean-up operations. Such sampling shall not be performed until all areas and materials within the WORK area are fully dry.
  - 4. Clearance sampling will be done using PCM analysis. Once clearance criteria have been achieved, clearance shall be considered final and removal of any protective enclosure shall be accomplished.

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5. The CONTRACTOR shall be responsible for <u>all</u> Using Agency costs (including costs accrued by the Using Agency's representative) relating to all clearance monitoring after the first failed clearance sampling.

# **END OF SECTION**

# PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of built-up roofing, roofing insulation, and structural decking and miscellaneous accessory items.
  - 2. Removal of such items as indicated on the drawings.
- B. Related Sections include the following:
  - 1. Division 1 Section 011000 Summary of WORK for use of the premises and phasing requirements.
  - 2. Division 1 Section 017350 Cutting and Patching for cutting and patching procedures for selective demolition operations.

### 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to OWNER.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain OWNER's property, demolished materials shall become CONTRACTOR's property and shall be removed from Project site.

# 1.5 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate the following:

- 1. Detailed sequence of selective demolition and removal WORK, with starting and ending dates for each activity. Ensure OWNER's on-site operations are uninterrupted.
- 2. Interruption of utility services.
- 3. Coordination of OWNER's continuing occupancy of portions of existing building and of OWNER's partial occupancy of completed WORK.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

# 1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

# 1.7 PROJECT CONDITIONS

- A. OWNER shall occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so OWNER's operations will not be disrupted. Provide not less than 48 hours' notice to OWNER of activities that will affect OWNER's operations.
- B. OWNER assumes no responsibility for condition of areas to be selectively demolished.
- C. Hazardous Materials: Hazardous materials are present in building to be selectively demolished. A report on the presence of hazardous materials is attached to this project manual for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- D. Storage or sale of removed items or materials on-site will not be permitted.

# PART 2 - PRODUCTS

# 2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
  - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification sections.

# PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to ARCHITECT.
- C. Perform surveys, sampling and other documentation as required by regulatory agencies as the WORK progresses to detect hazards resulting from selective demolition activities.

# 3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by OWNER and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to OWNER and to authorities having jurisdiction.
  - 1. Provide at least 48 hours notice to OWNER if shutdown of service is required.

# 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct garage areas, hallways, streets, walks, walkways, parking areas, or other adjacent occupied or used facilities without permission from OWNER and authorities having jurisdiction. Provide alternate routes around closed or obstructed areas if required by OWNER or governing regulations.
  - 2. Protect existing structure, finishes, waterproofing, site improvements, appurtenances, and landscaping to remain.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent facilities or surfaces to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

- 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
- D. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- E. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

# 3.4 POLLUTION CONTROLS

- A. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

# 3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the WORK within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 4. Do not use cutting torches.

- 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
- 6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- 7. Dispose of demolished items and materials promptly.
- 8. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with OWNER's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Roofing: Remove no more existing roofing than can be covered in one day by new roofing.

# 3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Section 017350 Cutting and Patching.
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
  - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

# 3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off OWNER's property and legally dispose of them.

# END OF SECTION 024119

# SECTION 024120 - FLOOR SUBSTRATE PREPARATION

# PART 1 - GENERAL

### 1.1 SUMMARY

- A. Section Includes:
  - 1. Demolition and removal of selected portions of the existing concrete slab using scarifying and steel shot blasting equipment. Use of scabblerizers is prohibited.

#### 1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, waste becomes property of CONTRACTOR.

#### 1.4 PREINSTALLATION MEETINGS

- A. Pre Construction Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review areas where existing construction is to remain and requires protection.

# 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For subcontractor including documentation of the operator's qualifications.
- B. Equipment Data: For steel shot blasting system and scarifying equipment including vacuum system and equipment to be used for final clean-up and wash down of the demolished surface.
- C. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.

- D. Noise Control Plan: Submit a plan to ensure that noise levels are kept below 60 dB at all times. Work may need to be scheduled to occur at night or weekends to avoid impacts to hospital.
- E. Schedule of Activities: Indicate the following:
  - 1. Detailed sequence of work, with starting and ending dates for each activity. Ensure OWNER'S on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of drain lines.
  - 4. Coordination of OWNER'S continuing occupancy of portions of existing building and of OWNER'S partial occupancy of completed WORK.
- F. Predemolition Photographs or Video: Submit before WORK begins.

# 1.6 QUALITY ASSURANCE

- A. Sub-contractor:
  - 1. Work shall be performed by organizations that have successfully performed at least five verifiable projects similar to this project within the last five years.
  - 2. Work shall be under the immediate control of a person experienced in scarifying and steel shot blasting who has supervised three documented projects of similar type and size. Supervising person shall be present during all operations.
  - 3. An individual trained and certified in the proper use and safety of the equipment and having a minimum of two years experience with the equipment on jobs of similar type and size shall operate the scarifying equipment and the steel shot blasting system.
- B. Steel shot blasting system:
  - 1. Concrete removals shall be performed with an ARCHITECT approved steel shot blasting system.
  - 2. Equipment shall be capable of removing concrete to the depth specified on the drawings.
  - 3. Equipment shall be limited to producing noise levels not to exceed 85 dB.
  - 4. Steel shot blasting sub-contractor shall supply all necessary equipment, parts, and manpower to assure adherence to construction schedule. Sub-contractor shall maintain, on the jobsite, an inventory of common wear parts and replacement accessories for equipment adequate to ensure that routine maintenance tasks can be performed without delay to the demolition schedule.
  - 5. Vacuum equipment shall be of sufficient capacity to collect all debris from the demolition operation no later than two hours following the demolition operation.
  - 6. CONTRACTOR shall provide adequate lighting as required to perform the work of this section.
- C. Scarifying Equipment:
  - 1. Scarifying equipment shall be carbide grinding equipment capable of removing a minimum of 1/16 to 1/8 inch of concrete from the deck surface in one pass. The scarifying head shall have a minimum width of 3 feet.

- 2. Dust shall be controlled during scarifying. All parts of the structure that are to be in operation during scarification shall be isolated from the scarifying operation with sealed barriers until the dust and debris have been cleaned and removed.
- 3. Sub-contractor shall supply all necessary equipment, parts, and manpower to assure adherence to construction schedule. Sub-contractor shall maintain, on the jobsite, an inventory of common wear parts and replacement accessories for equipment adequate to ensure that routine maintenance tasks can be performed without delay to the demolition schedule.
- 4. Vacuum equipment shall be of sufficient capacity to collect all debris from the demolition operation no later than two hours following the demolition operation.
- 5. CONTRACTOR shall provide adequate lighting as required to perform the work of this section.

# 1.7 FIELD CONDITIONS

- A. OWNER will occupy portions of building immediately adjacent and below floor to selective demolition area. Conduct work so OWNER'S operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by OWNER as far as practical.
- C. Notify ARCHITECT of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the WORK.
- E. Utility Service: Maintain existing utilities to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.
- F. Maintain fire-protection facilities in service during selective demolition operations.

# PART 2 - PRODUCTS (Not Used)

# PART 3 - EXECUTION

# 3.1 EXAMINATION

- A. Verify that drains have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by OWNER. OWNER does not guarantee that existing conditions are same as those indicated in record documents.

- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to ARCHITECT.
- D. Documentation of Existing Conditions: Record existing conditions by use of preconstruction photographs or preconstruction videotapes.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.

# 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Division 01."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off drains to be selectively demolished.
  - 1. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 2. Disconnect, demolish, and remove drains indicated to be removed.
    - a. Equipment to Be Removed: Disconnect and cap services and remove equipment.

# 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 01."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Install temporary protection and other safety requirements prior to starting demolition.
    - a. Contractor shall adequately shield the work area to prevent dust and debris resulting from demolition operation from traveling beyond the boundaries of the work area.
  - 2. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

- 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- 4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

# 3.4 FLOOR PREPARATION, GENERAL

- A. General: Work in the areas designated on the drawings to the minimum depth specified in the drawings and in these specifications and as demonstrated and approved by the Architects in the demolition test cut area.
  - 1. A trial area will be designated by the ARCHITECT to demonstrate that equipment, personnel, and methods of operation are capable of producing results satisfactory to the Architect.
    - a. The trial area shall consist of two sections of approximately 50 square feet each.
    - b. If in the sole opinion of the ARCHITECT the demolition equipment does not produce satisfactory removal of the concrete, then the Architect may require that the equipment be removed from the project and replaced with equipment that will meet the requirements of the specifications.
  - 2. Maintain the quality and depth of cut demonstrated in the tests area throughout the project.
    - a. The demolition equipment shall be adjusted, as required, to maintain the quality and depth of cut demonstrated in the test area and to compensate for variations in the compressive strength of the concrete and other factors that may affect the actual depth of removal during the demolition operation.
  - 3. Scarifying shall be followed by steel shot blasting. Final concrete profile shall be a result of steel shot blasting.
  - 4. Following the demolition, the bulk debris shall be removed from the area with the vacuum system.
  - 5. Following cleanup of debris with vacuum, clean the area to remove all loose debris and other materials scheduled to be removed during the demolition.
    - a. Thoroughly clean the demolished area using an 8,000-psi water blaster using a minimum of 8 gpm held at a maximum of 12" from the deck surface.
    - b. The surface shall be vacuumed immediately following the high-pressure water cleaning to remove any debris or wastewater.
    - c. Following the cleaning, the surface shall be free of all debris, loose material, and any other material that might interfere with the bond of the new concrete overlay.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by ARCHITECT, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

- C. After concrete demolition notify ARCHITECT to inspect deck to remain. Architect shall inspect the deck, locating and identifying structural cracks. Structural cracks shall be sealed, prior to placing concrete overlay.
- D. Work may expose existing top mat of concrete reinforcing. If loose, remove by cutting at point of embedment.
- E. Keep areas, where concrete demolition is complete, free of slurry and dust produced from wet sawing or scarifying by planning the work so slurry drains away and dust is kept from area that is clean.

# 3.5 DISPOSAL OF MATERIALS

- A. Remove waste materials from Project site and legally dispose of them in a manner acceptable to authorities having jurisdiction.
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

# 3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before operations began.

# END OF SECTION 024120

# SECTION 033053 - MISCELLANEOUS CAST-IN-PLACE CONCRETE

# PART 1 - GENERAL

# 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes.

### 1.3 ACTION SUBMITTALS

- A. General: In addition to the following, comply with submittal requirements in ACI 301.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: For each concrete mixture.

#### 1.4 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing readymixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
- B. Source Limitations: Obtain each type of cement of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- C. Comply with ACI 301.
- D. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

# PART 2 - PRODUCTS

#### 2.1 FORMWORK

A. Furnish formwork and formwork accessories according to ACI 301.

# BRH MEDICAL SURGICAL EAST WING RENOVATIONS

MISCELLANEOUS CAST-IN-PLACE CONCRETE Page 033053 - 1

# CBJ Contract No. E10-221

### 2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

### 2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I or II or Type I/II
- B. Normal-Weight Aggregate: ASTM C 33, graded, 1-1/2-inch (38-mm) nominal maximum aggregate size.
- C. Water: Potable and complying with ASTM C 94.
- D. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

#### 2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent watersoluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

# 2.5 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth or cotton mats.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.

# 2.6 CONCRETE MIXTURES

A. Comply with ACI 301 requirements for concrete mixtures.

# BRH MEDICAL SURGICAL EAST WING RENOVATIONS

MISCELLANEOUS CAST-IN-PLACE CONCRETE Page 033053 - 2

# **CBJ Contract No. E10-221**
- B. Prepare design mixes, proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data bases, as follows:
  - 1. Compressive Strength (28 Days): 4000 psi (20.7 MPa).
  - 2. Slump: 4 inches (100 mm).
- C. Synthetic Micro-Fiber: Monofilament or fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.
  - 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Monofilament Micro-Fibers:
      - 1) Axim Italcementi Group, Inc.; Fibrasol II P.
      - 2) Euclid Chemical Company (The), an RPM company; Fiberstrand.
      - 3) FORTA Corporation; FORTA Econo-Mono.
      - 4) Grace Construction Products, W. R. Grace & Co.; Grace MicroFiber.
      - 5) Metalcrete Industries; Polystrand 1000.
      - 6) Nycon, Inc.; ProConM.
      - 7) Propex Concrete Systems Corp.; Fibermesh 150.
      - 8) Sika Corporation; Sika Fiber PPM.
    - b. Fibrillated Micro-Fibers:
      - 1) Axim Italcementi Group, Inc.; Fibrasol F.
      - 2) Euclid Chemical Company (The), an RPM company; Fiberstrand F.
      - 3) FORTA Corporation; FORTA [Econo-Net] [Ultra-Net].
      - 4) Grace Construction Products, W. R. Grace & Co.; Grace Fibers.
      - 5) Nycon, Inc.; ProConF.
      - 6) Propex Concrete Systems Corp.; Fibermesh 300.
      - 7) Sika Corporation; Sika Fiber PPF.
- D. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 6.0 percent within a tolerance of plus 1.0 or minus 1.5 percent.
  - 4. Air content of trowel-finished interior concrete floors shall not exceed 3.0 percent.

#### 2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116.
  - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## BRH MEDICAL SURGICAL EAST WING RENOVATIONS

MISCELLANEOUS CAST-IN-PLACE CONCRETE Page 033053 - 3

## PART 3 - EXECUTION

#### 3.1 FORMWORK

A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

#### 3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

#### 3.3 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

#### 3.4 CONCRETE PLACEMENT

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.
- C. Consolidate concrete with mechanical vibrating equipment.

### 3.5 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with the holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch (6 mm) in height rubbed down or chipped off.
  - 1. Apply to concrete surfaces not exposed to public view.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

## 3.6 FINISHING UNFORMED SURFACES

## BRH MEDICAL SURGICAL EAST WING RENOVATIONS

MISCELLANEOUS CAST-IN-PLACE CONCRETE Page 033053 - 4

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
  - 1. Do not further disturb surfaces before starting finishing operations.

## 3.7 TOLERANCES

A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

### 3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

# BRH MEDICAL SURGICAL EAST WING RENOVATIONS

#### MISCELLANEOUS CAST-IN-PLACE CONCRETE Page 033053 - 5

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

## 3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Tests: Perform according to ACI 301 (ACI 301M).
  - 1. Testing Frequency: One composite sample shall be obtained for each day's pour of each concrete mix exceeding 5 cu. yd. (4 cu. m) or fraction thereof.

### 3.10 REPAIRS

A. Remove and replace concrete that does not comply with requirements in this Section.

### END OF SECTION 033053

## PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Floor underlayment and screeding required to slope floor to drains.
- B. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.
- 1.2 Related Sections:
  - A. Division 2 Section "Floor Substrate Preparation" for existing concrete floor preparation for hydraulic cement underlayment.
  - B. Division 9 Sections "Ceramic Tile, Carpet and Sheet Vinyl" for installation over.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Submit detailed procedure for method which shall be employed to bring floor slab areas up to required elevations as indicated on drawings, including surface preparation and types of mixing and application equipment.
- B. Product certificates.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.

## PART 2 - PRODUCTS

### 2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

### BRH MEDICAL SURGICAL EAST WING RENOVATIONS

### HYDRAULIC CEMENT UNDERLAYMENT Page 035416 - 1

- B. Products: Subject to compliance with requirements, provide the following, but not limited to, the following:
  - 1. Underlayment: One of the following:
    - a. Ardex Inc; Ardex "K-15 Self-Leveling Underlayment Concrete".
    - b. Dayton Superior Corporation; "LeveLayer".
    - c. MAPEI Corporation; "Novoplan 2"
  - 2. Primer: One of the following, and compatable with self-leveling underlayment:
    - a. Ardex Inc; Ardex "P-82 Ultra Prime".
    - b. Dayton Superior Corporation; Superior J-42 Primer".
    - c. MAPEI Corporation; "Plaintop Primer".
- C. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
- D. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
- E. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
- F. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
  - 1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- G. Water: Potable and at a temperature of not more than 70 deg F.
- H. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.
- I. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

# PART 3 - EXECUTION

## 3.1 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
  - 1. Treat nonmoving substrate cracks to prevent cracks from telegraphing (reflecting) through underlayment.
  - 2. Fill substrate voids to prevent underlayment from leaking.

### BRH MEDICAL SURGICAL EAST WING RENOVATIONS

- B. Concrete Substrates: Mechanically remove laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
  - 1. Moisture Testing: Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
- C. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond, and prepare surfaces.
- D. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment.

## 3.2 APPLICATION

- A. Floor substrate preparation, i.e. leveling/underlayment compound: leveling material is required over existing concrete floor deck so as to achieve vertical floor elevations indicated with required tolerances and to compensate for structural floor deflection. Maximum anticipated floor deflection is 1-1/2" at center point of any floor slab span/structural bay.
- B. General: Mix and apply underlayment components according to manufacturer's written instructions.
  - 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
  - 2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
  - 3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- C. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- D. Apply underlayment to produce uniform, level surface.
  - 1. Apply a final layer without aggregate to product surface.
  - 2. Feather edges to match adjacent floor elevations.
- E. Cure underlayment. Prevent contamination during application and curing processes.
- F. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- G. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

# BRH MEDICAL SURGICAL EAST WING RENOVATIONS

## 3.3 REMEDIAL WORK FOR FLOORS TO RECEIVE FLOORING MATERIALS

- A. Repairing of minor holes, cracks and transition areas is specified under respective finish flooring sections.
- B. Grind ridges and other uneven surfaces smooth to prevent telegraphing, bulges and protrusions after finish materials are laid.
- C. Sand concrete floors with drum sander to remove scale and other foreign materials which would interfere with the bonding of adhesive. Remove but not limited to: SFRM, lumps of paint, drywall compound and other items.
- D. Any openings in rated slabs must be filled with appropriate fire caulk and fire stopping materials prior to remedial repairs to comply with the floor rated fire assembly.

## END OF SECTION 035416

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Composite roof/floor deck.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
- C. Gravity and shear loading information: Provide product data demonstrating that deck gauge and sidelap fastener type and pattern selected meet or exceed the gravity and shear loads indicated on the drawings.
- D. Product certificates.
- E. Welding certificates.
- F. Field quality-control test and inspection reports.
- G. Research/Evaluation Reports: For steel deck.

#### 1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code Sheet Steel."
- B. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Fire-Resistance Ratings: Indicated by design designations of applicable testing and inspecting agency.
  - 2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.

C. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

## PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Nucor Corp.; Vulcraft Division.
  - 2. Verco Manufacturing Co.

#### 2.2 COMPOSITE FLOOR DECK

- A. Composite Steel Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel Floor Deck," in SDI Publication No. 30, with the minimum section properties indicated, and with the following:
  - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33, G60 zinc coating.
  - 2. Profile Depth: 3 inches to match existing.
  - 3. Design Uncoated-Steel Thickness: As required to meet design loads indicated on drawings; minimum 0.0358 inch.

### 2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- C. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

- D. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- E. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, requirements in this Section, and as indicated.
- B. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- C. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- D. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- E. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- F. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- G. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 3 inches.
- H. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than 12 inches apart with at least one weld at each corner.
  - 1. Install reinforcing channels or zees in ribs to span between supports and weld.
- I. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
  - 1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.
- J. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations, unless otherwise indicated.
- K. Floor-Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

## 3.2 FIELD QUALITY CONTROL

- A. Testing and Inspections: OWNER will engage special inspectors to perform inspections Field welds will be subject to inspection.
- B. Remove and replace work that does not comply with specified requirements.
- C. Additional inspecting, at CONTRACTOR'S expense, will be performed to determine compliance of corrected work with specified requirements.

## 3.3 REPAIRS

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.

## END OF SECTION 053100

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior load-bearing wall framing for temporary partitions.
- B. Related Sections include the following:
- C. Related Requirements:
  - 1. Division 1 Section "Temporary Facilities and Controls" for interior temporary partitions; temporary corridors and tunnels.
  - 2. Division 9 Section "Gypsum Board" for interior and ceiling-suspension assemblies.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
  - 1. Design Loads: As follows:
    - a. Dead Loads: Weights of materials and construction.
    - b. Live Loads, 80 psf: Per General Structural Notes and IBC 2006.
    - c. Wind Loads: Per General Structural Notes and IBC 2006.
    - d. Seismic Loads: Per General Structural Notes and IBC 2006.
  - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height.
  - 3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.

- 4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
  - a. Upward and downward movement of 3/4 inch.
- B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing General Provisions."
  - 1. Headers: Design according to AISI's "Standard for Cold-Formed Steel Framing Header Design."
  - 2. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

### 1.4 SUBMITTALS

- A. Product Data: For each type of cold-formed metal framing product and accessory indicated.
- B. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
  - 1. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible, registered in the state of Alaska, for their preparation.
- C. Welding certificates.
- D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Product Test Reports: From a qualified testing agency, unless otherwise stated, indicating that each of the following complies with requirements, based on evaluation of comprehensive tests for current products:
  - 1. Steel sheet.
  - 2. Expansion anchors.
  - 3. Power-actuated anchors.
  - 4. Mechanical fasteners.
  - 5. Vertical deflection clips.
  - 6. Horizontal drift deflection clips
  - 7. Miscellaneous structural clips and accessories.
- F. Research/Evaluation Reports: For cold-formed metal framing.

### 1.5 QUALITY ASSURANCE

- A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated.
- D. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, ductility, and metallic-coating thickness.
- E. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- F. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
- G. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing General Provisions."
  - 1. Comply with AISI's "Standard for Cold-Formed Steel Framing Header Design."
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

## PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
  - 1. Allied Studco.
  - 2. AllSteel Products, Inc.
  - 3. California Expanded Metal Products Company.
  - 4. Clark Steel Framing.
  - 5. Consolidated Fabricators Corp.; Building Products Division.
  - 6. Craco Metals Manufacturing, LLC.
  - 7. Custom Stud, Inc.
  - 8. Dale/Incor.
  - 9. Design Shapes in Steel.
  - 10. Dietrich Metal Framing; a Worthington Industries Company.
  - 11. Formetal Co. Inc. (The).
  - 12. Innovative Steel Systems.
  - 13. MarinoWare; a division of Ware Industries.
  - 14. Quail Run Building Materials, Inc.
  - 15. SCAFCO Corporation.
  - 16. Southeastern Stud & Components, Inc.
  - 17. Steel Construction Systems.
  - 18. Steeler, Inc.
  - 19. Super Stud Building Products, Inc.
  - 20. United Metal Products, Inc.

### 2.2 MATERIALS

- A. Steel Sheet: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
  - 1. Grade: Minimum of 33 for minimum uncoated steel thickness of 0.0428 inch and less; 50 for minimum uncoated steel thickness of 0.0538 inch and greater as required by structural performance.
  - 2. Coating: G60.
- B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
  - 1. Grade: 50, Class 1 or 2.
  - 2. Coating: G90.

#### 2.3 INTERIOR NON-LOAD-BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: .0428 inch
  - 2. Flange Width: 2 inches
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: .0428 inch
  - 2. Flange Width: 2 inches.
- C. Vertical Deflection Clips: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Dietrich Metal Framing; a Worthington Industries Company.
    - b. MarinoWare, a division of Ware Industries.
    - c. SCAFCO Corporation
    - d. The Steel Network, Inc.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1 inch plus the design gap for 1-story structures.
- E. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.
  - 1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
    - a. Minimum Base-Metal Thickness: 0.0428 inch.
    - b. Flange Width: 1 inch plus the design gap for 1-story structures.
  - 2. Inner Track: Of web depth indicated, and as follows:
    - a. Minimum Base-Metal Thickness: 0.0428 inch.

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- b. Flange Width: Sum of outer deflection track flange width plus 1 inch.
- F. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure.

### 2.4 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
  - 1. Supplementary framing.
  - 2. Bracing, bridging, and solid blocking.
  - 3. Web stiffeners.
  - 4. Anchor clips.
  - 5. End clips.
  - 6. Foundation clips.
  - 7. Gusset plates.
  - 8. Stud kickers, knee braces, and girts.
  - 9. Joist hangers and end closures.
  - 10. Hole reinforcing plates.
  - 11. Backer plates.

### 2.5 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts and carbonsteel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
  - 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

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F. Welding Electrodes: Comply with AWS standards.

### 2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A 780.
- B. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- C. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107, with fluid consistency and 30-minute working time.
- D. Shims: Load bearing, high-density multimonomer plastic, nonleaching.
- E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

## 2.7 FABRICATION

- A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  - 1. Fabricate framing assemblies using jigs or templates.
  - 2. Cut framing members by sawing or shearing; do not torch cut.
  - 3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
  - 4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

- 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
- 2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Install load bearing shims or grout between the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

### 3.3 INSTALLATION, GENERAL

- A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
  - 1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.
- D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
  - 1. Cut framing members by sawing or shearing; do not torch cut.
  - 2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.

- a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
- b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- H. Install insulation, specified in Division 7 Section "Building Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
- J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

### 3.4 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to bottom track, unless otherwise indicated. Space studs as follows:
  - 1. Stud Spacing: As indicated.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
  - 1. Install single-leg deflection tracks and anchor to building structure.
  - 2. Install double deep-leg deflection tracks and anchor outer track to building structure.
  - 3. Connect vertical deflection clips to bypassing studs and anchor to building structure.

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- 4. Connect drift clips to cold formed metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
  - 1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
    - a. Install solid blocking at centers indicated on Shop Drawings.
  - 2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
  - 3. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  - 4. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.

### 3.5 FIELD QUALITY CONTROL

- A. Testing and Inspections: Owner will engage special inspectors to perform inspections Field welds will be subject to inspection.
- B. Remove and replace work that does not comply with specified requirements.
- C. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.
- D. Field and shop welds will be subject to testing and inspecting.

## 3.6 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

# **END OF SECTION 054000**

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# PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Steel framing and supports for doors.
  - 2. Steel framing and supports for mechanical and electrical equipment.
  - 3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
- B. Related Sections:
  - 1. Division 5 Section "Steel Deck."

### 1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design alternating tread devices, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance of Alternating Tread Devices: Alternating tread devices shall withstand the effects of loads and stresses within limits and under conditions specified in ICC's International Building Code.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

### 1.4 SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details for metal fabrications.
  - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- B. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- C. Qualification Data: For qualified professional engineer.
- D. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.
- E. Welding certificates.

### 1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."

### 1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

## 1.7 COORDINATION

A. Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

# PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed WORK, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

### 2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- C. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- D. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40) unless otherwise indicated.

### 2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at interior walls. Select fasteners for type, grade, and class required.
  - 1. Provide stainless-steel fasteners for fastening stainless steel.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.
  - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- D. Eyebolts: ASTM A 489.
- E. Machine Screws: ASME B18.6.3.
- F. Lag Screws: ASME B18.2.1.
- G. Wood Screws: Flat head, ASME B18.6.1.
- H. Plain Washers: Round, ASME B18.22.1.
- I. Lock Washers: Helical, spring type, ASME B18.21.1.
- J. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- K. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

### 2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
  - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

- D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Concrete: Comply with requirements in Division 3 Section "Miscellaneous Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 4000 psi.

## 2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
- F. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- G. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

# 2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the WORK.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
- C. Fabricate steel pipe columns for supporting coiling doors and grilles from steel pipe with steel baseplates and top plates as indicated. Drill or punch baseplates and top plates for anchor and connection bolts and weld to pipe with fillet welds all around. Make welds the same size as pipe wall thickness unless otherwise indicated.

- 1. Unless otherwise indicated, fabricate from Schedule 40 steel pipe or tubes.
- 2. Unless otherwise indicated, provide 1/2-inch baseplates with four 5/8-inch anchor bolts and 1/4-inch top plates.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

## 2.7 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
  - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Prime with manufacturer standard shop primer for field painting

### 2.8 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the WORK. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

## 2.9 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

### 2.10 STEEL AND IRON FINISHES

- A. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
  - 1. Shop prime with universal shop primer.
- B. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

# PART 3 - EXECUTION

## 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

# 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.
  - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- C. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.
  - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

### 3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.

## END OF SECTION 055000

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Rooftop equipment bases and support curbs.
  - 2. Wood blocking, and nailers.
  - 3. Wood furring.
  - 4. Plywood backing panels.
- B. Related Sections include the following:
  - 1. Division 6 Section "Interior Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.

#### 1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NHLA: National Hardwood Lumber Association.
  - 3. NLGA: National Lumber Grades Authority.
  - 4. SPIB: The Southern Pine Inspection Bureau.
  - 5. WCLIB: West Coast Lumber Inspection Bureau.
  - 6. WWPA: Western Wood Products Association.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

- 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
- 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
  - 1. Fire-retardant-treated wood.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- B. Deliver interior wood materials that are to be exposed to view only after building is enclosed and weatherproof, wet work other than painting is dry, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.

# PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

### 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).
  - 1. Use treatment that does not promote corrosion of metal fasteners.
  - 2. Use Exterior type for exterior locations and where indicated.
  - 3. Use Interior Type A, unless otherwise indicated.
- B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- C. Application: Treat all miscellaneous carpentry, unless otherwise indicated.
- D. Maximum Moisture Content: 19 percent.

### 2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Furring.
  - 5. Grounds.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.
- C. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

#### 2.4 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exterior, AC, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

#### 2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1.
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, window coverings and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

### END OF SECTION 061053

# SECTION 062023 - INTERIOR FINISH CARPENTRY

# PART 1 - GENERAL

### 1.1 SUMMARY

- A. Section Includes:
  - 1. Interior trim.
  - 2. Solid Surface Window Sills.
  - 3. Solid Surface Shelves.
  - 4. Shop finishing of interior woodwork.
- B. Related Requirements:
  - 1. Division 6 Section "Miscellaneous Rough Carpentry" for interior carpentry not exposed to view that is not specified in this Section
  - 2. Division 9 Section "Interior Painting" for priming and backpriming of interior finish carpentry.

### 1.2 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NHLA: National Hardwood Lumber Association.
  - 3. NLGA: National Lumber Grades Authority.
  - 4. SPIB: The Southern Pine Inspection Bureau.
  - 5. WCLIB: West Coast Lumber Inspection Bureau.
  - 6. WWPA: Western Wood Products Association.
- B. MDF: Medium-density fiberboard.
- C. MDO Plywood: Plywood with a medium-density overlay on the face.
- D. Interior finish carpentry includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

### 1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful inservice performance.
- B. Installer Qualifications: Installers who have a record of successful installations similar in size and materials.

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- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- E. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry materials only when environmental conditions meet requirements specified for installation areas. If interior finish carpentry materials must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

### 1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install interior finish carpentry materials until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
  - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

# 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Data: For each type of process and factory-fabricated product.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- 1. Show details full size.
- 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
- 3. Show locations and sizes of cutouts and holes for plumbing fixtures, soap dispensers and other items installed in architectural woodwork.
- D. Samples for Verification:
  - 1. Plastic laminates, for each type, color, pattern, and surface finish.
  - 2. Solid-surfacing materials, 4 inches square.

# PART 2 - PRODUCTS

- 2.1 MATERIALS, GENERAL
  - A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
    - 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
  - B. Softwood Plywood: DOC PS 1.
  - C. Hardboard: AHA A135.4.
  - D. MDF: ANSI A208.2, Grade 130.
  - E. Particleboard: ANSI A208.1, Grade M-2.
  - F. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3.
    - 1. Plastic Laminate: Type VGS.
      - a. Unless otherwise indicated, provide plastic laminate for exposed surfaces of shelf cleats.
  - G. Melamine-Faced Particleboard: Particleboard complying with ANSI A208.1, Grade M-2, finished on both faces with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.
    - 1. Color: As selected by ARCHITECT from manufacturer's full range.
  - H. Solid-Surfacing-Material Tops: Made from homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI Z124.3, for Type 5 or Type 6, without a precoated finish

# 2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flamespread index of 25 or less when tested according to ASTM E 84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
  - 1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent respectively.
- B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. For exposed lumber and plywood indicated to receive a stained or natural finish, mark back of each piece.

# 2.3 OPENING AND WINDOW SILLS; AND SHELVING

- A. Sills and Shelving: Made from one of the following materials, 3/4 inch thick.
  - 1. Solid-Surfacing Material:
    - a. Avonite, Inc.
    - b. DuPont Polymers.
    - c. Formica Corporation.
    - d. International Paper; Decorative Products Div.
    - e. Wilsonart International; Div. of Premark International, Inc.
  - 2. Edge Treatment: Bullnose with 1" edge return, UON.
  - 3. Seam width: No greater than 1/8" or as recommended by manufacturer.
  - 4. Joint Adhesive: As recommended by manufacturer.
- B. Shelf Cleats: 3/4-by-3-1/2-inch boards.
  - 1. Cover exposed surfaces with Plastic-Laminate Material:
    - a. Formica Corporation.
    - b. International Paper; Decorative Products Div.
    - c. Laminart.
    - d. Wilsonart International; Div. of Premark International, Inc.

## 2.4 MISCELLANEOUS MATERIALS

- A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
  - 1. Galvanized fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.

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- B. Low-Emitting Materials: Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.
  - 1. Wood glue shall have a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.
  - 1. Use adhesive that has a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

# PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

A. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours unless longer conditioning is recommended by manufacturer.

## 3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
  - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Scribe and cut interior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
  - 2. Countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining interior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.

# 3.4 SILLS AND SHELVES

- A. Install shelf cleats and sill after gypsum board joint finishing operations are completed
- B. Cut shelf cleats at ends of shelves about 1/2 inch less than width of shelves and sand exposed ends smooth.
- C. Install shelf cleats by fastening to framing or backing with finish nails or trim screws, set below face and filled. Space fasteners not more than 16 inches o.c.
- D. Cut sills and shelves to neatly fit openings with only enough gap to allow shelves to be removed and reinstalled. Install shelves, fully seated on cleats, brackets, and supports.
- E. Sills are to be fasten to prevent movement.
  - 1. Shim and set in construction adhesive.
  - 2. Seal exposed edges with moisture and mold resistant sealant. Color as selected by ARCHICTECT.
- F. Shelves are to be fasten to prevent movement.
  - 1. Drill pilot holes in shelves before fastening.
  - 2. Countersink fastener heads and fill holes.

#### 3.5 ADJUSTING

A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

## 3.6 CLEANING

A. Clean interior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

## 3.7 **PROTECTION**

- A. Protect installed products from damage from weather and other causes during remainder of the construction period.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.

- 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
- 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

# END OF SECTION 062023

# SECTION 072100 - THERMAL INSULATION

# PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Rigid insulation.
  - 2. Self adhering sheet underlayment
  - 3. Concealed building insulation.
  - 4. Vapor retarders.
  - 5. Sound attenuation insulation.
- B. Related Sections include the following:
  - 1. Division 9 Sections "Non Structural Metal Framing & Gypsum Board" for installation in metal-framed assemblies of insulation specified by referencing this Section.

#### 1.3 DEFINITIONS

A. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers; produced in boards and blanket with latter formed into batts (flat-cut lengths) or rolls.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

# SECTION 072100 - THERMAL INSULATION

- 1. Surface-Burning Characteristics: ASTM E 84.
- 2. Fire-Resistance Ratings: ASTM E 119.
- 3. Combustion Characteristics: ASTM E 136.

# 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
  - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
  - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

# PART 2 - PRODUCTS

# 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the WORK include, but are not limited to, products specified.
  - 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, manufacturers specified.

## 2.2 FOAM-PLASTIC BOARD INSULATION

- A. Extruded-Polystyrene Board Insulation: For above grade use:
  - 1. Available Manufacturers and products:
    - a. Dow Chemical Company, Styrofoam Highload 100.
    - b. Owens Corning Foamular 150.

# 2.3 SELF ADHERING SHEET UNDERLAYMENT

A. General: Cross laminated high density polyethylene sheet, with pressure sensitive rubberized asphalt adhesive, in 24 mil thickness, widths as required. W.R. Grace "Vycor Plus".

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# 2.4 GLASS-FIBER BLANKET INSULATION

- A. Available Manufacturers:
  - 1. CertainTeed Corporation.
  - 2. Guardian Fiberglass, Inc.
  - 3. Johns Manville.
  - 4. Knauf Fiber Glass.
  - 5. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- C. Where glass-fiber blanket insulation is indicated, provide blankets in batt or roll form of thickness sufficient to completely fill wall cavity.

# 2.5 VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 10 mils thick, with maximum permeance rating of 0.13 perm.
- B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates and conditions, grade level, site compaction with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

## 3.3 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

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- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

# 3.4 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.
- C. Install glass-fiber insulation in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. For wood-framed construction, install mineral-fiber blankets according to ASTM C 1320 and as follows:

## 3.5 INSTALLATION OF VAPOR RETARDERS

- A. General: Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.
- C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarder.
- D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarder.

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# 3.6 **PROTECTION**

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

# **END OF SECTION 072100**

# PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Adhered membrane roofing system.
  - 2. Roof insulation.
- B. Related Sections include the following:
  - 1. Division 6 Section " Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
  - 2. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
  - 3. Division 7 Section "Joint Sealants."

# 1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.
- C. Factored Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," after multiplication by the required safety factor.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Roofing System Design: Provide a membrane roofing system that is designed to meet the requirements for a 20 year warranty and is identical to systems that have been successfully tested by a qualified testing and inspection agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems." Calculate separate corner, perimeter and field design uplift pressures based on a design wind load of 110 mph exposure D, Importance Factor 1.15 as determined in the 2006 International Building Code. Design snow load is 60 pounds per square foot.

#### 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other WORK.
  - 1. Base flashings and membrane terminations.
  - 2. Insulation fastening patterns.
  - 3. Tapered insulation layout drawings.
- C. Samples for Verification: For the following products:
  - 1. 12-by-12-inch square of sheet roofing, of color specified, including T-shaped side and end lap seam.
  - 2. 12-by-12-inch square of roof insulation.
  - 3. 12-by-12-inch square of walkway pads or rolls.
  - 4. 12-inch length of metal termination bars.
  - 5. 12-inch length of battens.
  - 6. Six roof cover fasteners of each type, length, and finish.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system. Workers performing the roof installation shall have a minimum of 3 years experience with similar projects. Include a list of completed projects with project names and addresses, and contact information for OWNER and ARCHITECT.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system to be installed complies with requirements specified in "Performance Requirements" Article 1.4 and "Warranty" Article 1.9
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- G. Research/Evaluation Reports: For components of membrane roofing system.
- H. Maintenance Data: For roofing system to include in maintenance manuals.
- I. Warranties: Special warranties specified in this Section.

J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

# 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Manufacturer Qualifications: A qualified manufacturer that has UL listing for membrane roofing system identical to that used for this Project.
- C. Source Limitations: Obtain components for membrane roofing system from same manufacturer as roofing membrane or approved by roofing membrane manufacturer.
- D. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-testresponse characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire-Test Exposure: Class B; ASTM E 108, for application and roof slopes indicated.
  - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- E. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
  - 1. Meet with OWNER; ARCHITECT; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening. Inspect existing room membrane to remain for cleanliness, defects and/or damage caused by the work. Repair the existing membrane as required prior to proceeding with installation of cover board.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.

# 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

## 1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. All roof work must be accomplished in weather conditions acceptable to membrane manufacturer. During periods of weather not acceptable to the manufacturer for the installation of roofing system components, the Work may proceed if measures are taken to protect the work so that manufacturer acceptable conditions can be maintained. Measures include, but are not limited to, weather tight tented environment capable of remaining inflated and in place in winds up to 25 mph. Any tent structure must be capable of being deflated or otherwise secured when winds exceed 25 mph, with additional measures taken to ensure the building remains weather tight, that roof runoff is conducted to drainage structures, and that all aspects of the work are secured to prevent FOD from entering the AOA. Debris removed from the roof must either be wrapped or removed from the roof in an enclosure, and deposited in an enclosed container.

## 1.9 WARRANTY

- A. Special System Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or work quality within specified warranty period. Failure includes roof leaks.
  - 1. Special system warranty includes roofing membrane, base flashings, membrane parapet flashing, roofing accessories, roof insulation, cover boards, substrate board, walkway products and other components of membrane roofing system.
  - 2. Warranty Period: 20 years from date of Final Completion.
  - 3. Warranty to include coverage from peak gust winds of 110 miles per hour measured at 10 meters off the ground.

- B. Special Roofer's Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering WORK of this Section, including all components of membrane roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
  - 1. Warranty Period: Two years from date of Substantial Completion.

# PART 2 - PRODUCTS

# 2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.

## 2.2 EPDM ROOFING MEMBRANE

- A. EPDM Roofing Membrane: ASTM D 4637, Type II, scrim or fabric internally reinforced uniform, flexible sheet made from EPDM, and as follows:
  - 1. Manufacturers:
    - a. Carlisle SynTec Incorporated. No exceptions.
  - 2. Thickness: 90 mils, nominal.
  - 3. Exposed Face Color: Black.
  - 4. Installation: 20 year membrane system detailing.

## 2.3 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
  - 1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Roof Vapor Barrier: 10 mil polyvinylchloride (PVC) sheet, with adhesive tape and spray adhesive for sealing seams and patching penetrations.
- C. Flexible expansion joint covers: Manufactured self flanging expansions joint covers consisting of 60 mil EPDM bellows and .8mm mill finish aluminum flashing. Size and configure expansion joint covers to suit conditions. Johns-Manville International "Expand-O-Flash".
- D. Sheet Flashing: 60-mil- thick EPDM, partially cured or cured, according to application.

- E. Epichlorohydrin Sheet: 60-mil- thick, unreinforced flexible sheet with the following typical properties as determined per ASTM test method indicated:
  - 1. Tensile Strength: 1500 psi; ASTM D 412.
  - 2. Ultimate Elongation: 200 percent; ASTM D 412.
  - 3. Tear Resistance: 150 lbf/in.; ASTM D 412.
  - 4. Brittleness Temperature: Minus 20 deg F; ASTM D 746.
  - 5. Resistance to Ozone Aging: No cracks after 168 hours' exposure of 50 percent elongated sample at 104 deg F and 100-pphm ozone; ASTM D 1149.
  - 6. Resistance to Oil Aging: 15 percent maximum mass change after 168 hours' immersion in diesel fuel No. 2 at 158 deg F; ASTM D 471.
- F. Membrane Bonding Adhesive: Manufacturer's standard low VOC bonding adhesive.
- G. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch- wide minimum, butyl splice tape with release film.
- H. Lap Sealant: Manufacturer's standard single-component sealant.
- I. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- J. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- K. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.
- L. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosionresistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- M. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

## 2.4 SUBSTRATE BOARDS

- A. Substrate Board: Georgia Pacific "Dens Deck Prime", 5/8" thick.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening substrate panel to roof deck.

## 2.5 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Molded-Polystyrene Board Tapered Insulation: ASTM C 578 Type II, 1.35-lb/cu. ft. minimum density.

- 1. Manufacturers:
  - a. Manufacturers with a third-party certification program satisfying model building code mandatory requirements for foam plastics.
  - b. Configure tapers as required to suit roof conditions and to meet membrane manufacturer's minimum slope requirements. Modify layout shown on drawings as required to suit conditions.
- C. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
  - 1. Manufacturers:
    - a. Carlisle Syntec, Inc.
    - b. Firestone Building Products, Inc.
    - c. Genflex Roofing Systems.
    - d. Johns Manville International, Inc.

# 2.6 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Two Part Foam Adhesive: Two part polyurethane foam adhesive, applied either in bulk delivery equipment or cartridges. Carlisle "Fast 100", or other product approved by roof membrane manufacturer.
- C. Cover Board: DOC PS 2, Exposure 1, oriented strand board, 7/16 inch thick.
- D. Metal Securement System: Perimeter securement flashing and strapping fabricated from stainless steel, a minimum of 0.031 inch thick. Provide fasteners as recommended by mortar-faced insulation manufacturer.

# 2.7 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer. Provide 200 linear feet of walkmat a minimum of 36" wide, in locations and configuration requested by owner. Field verify mat configuration prior to installing them.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Following the Pre-Installation conference described in 1.6E, examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

- 1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
- 2. Verify that steel deck installation meets membrane manufacture minimum requirements.
- 3. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- 4. Verify that existing surface is clean, dry and free of defects.
- 5. Proceed with installation only after unsatisfactory conditions have been corrected, and accepted by the Owners Representative.

## 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

## 3.3 SUBSTRATE BOARD

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
  - 1. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions.

## 3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
  - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
  - 1. Set each layer of insulation in 2 part foam adhesive as directed by membrane roof manufacturer.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Loosely butt cover boards together and fasten to roof deck.
  - 1. Fasten according to membrane roof manufacturer requirements with 2 part foam adhesive.

# 3.5 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel. Install membrane only within manufacturer accepted environmental conditions.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Cold Fluid-Applied Adhesive: Apply 2 part foam adhesive to substrate at rate required by manufacturer and install fleece-backed roofing membrane at alternate bid.
- F. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
- G. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- H. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
- I. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's

written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

- J. Repair tears, voids, and lapped seams in roofing that does not meet requirements.
- K. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
- L. Install roofing membrane and auxiliary materials to tie in to existing roofing.

### 3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

#### 3.7 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated by OWNER. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

#### 3.8 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to OWNER.
  - 1. Notify ARCHITECT or OWNER 48 hours in advance of date and time of inspection.
- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at CONTRACTOR's expense, will be performed to determine compliance of replaced or additional work with specified requirements if requested by OWNER or manufacturer's representative.

### 3.9 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to ARCHITECT and OWNER.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

#### 3.10 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS **<Insert name>** of **<Insert address>**, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
  - 1. Owner: **<Insert name of Owner.>**
  - 2. Address: <**Insert address.**>
  - 3. Building Name/Type: **<Insert information.>**
  - 4. Address: **<Insert address.**>
  - 5. Area of Work: <**Insert information.**>
  - 6. Acceptance Date: <**Insert date.**>
  - 7. Warranty Period: <Insert time.>
  - 8. Expiration Date: <**Insert date.**>
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
  - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning;
    - b. peak gust wind speed exceeding <**Insert wind speed**> mph;
    - c. fire;
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;

- f. vapor condensation on bottom of roofing; and
- g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
- 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
- 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
- 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
- 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
- 6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
- 7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
- E. IN WITNESS THEREOF, this instrument has been duly executed this <**Insert day**> day of <**Insert month**>, <**Insert year**>.
  - 1. Authorized Signature: <**Insert signature.**>
  - 2. Name: <**Insert name.**>
  - 3. Title: **<Insert title.**>

# END OF SECTION 075323

# PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following sheet metal flashing and trim:
  - 1. Formed equipment support flashing.
  - 2. Window trim
- B. Related Sections include the following:1. Division 8 Section "Aluminum Windows" for window trim and sills

#### 1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Fabricate and install roof edge flashing capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49, for project design wind loads.
- C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

#### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

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- B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
  - 1. Identify material, thickness, weight, and finish for each item and location in Project.
  - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
  - 3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
- C. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.
  - 1. Include similar Samples of trim and accessories involving color selection.

# 1.5 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

## 1.7 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

# PART 2 - PRODUCTS

## 2.1 SHEET METALS

- A. Aluminum Sheet: ASTM B 209, Alloy 3003, 3004, 3105, or 5005, Temper suitable for forming and structural performance required, but not less than H14, finished as follows:
  - 1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to

exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- a. Fluoropolymer 3-Coat System: Manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight, with a minimum total dry film thickness of 1.5 mil; complying with AAMA 2605.
  - 1) Color: Match ARCHITECT's samples, three colors maximum.
- B. Prepainted, Metallic-Coated Steel Sheet: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
  - 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation; structural quality.
  - 2. Exposed Finishes: Apply the following coil coating:
    - a. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      - 1) Fluoropolymer 3-Coat System: Three coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2604, except as modified below:
        - a) Humidity Resistance: 2000 hours.
        - b) Salt-Spray Resistance: 2000 hours.
      - 2) Color: As selected by ARCHITECT. ARCHITECT will provide sample for custom color matching.

#### 2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
  - 1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
  - 2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
  - 3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

- C. Solder for Zinc: ASTM B 32, 60 percent lead and 40 percent tin with low antimony, as recommended by manufacturer.
- D. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

#### 2.3 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
  - 1. Seams: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
  - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

# 2.4 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Drip Edges: Fabricate from the following material:a. Prepainted, Metallic-Coated Steel: 0.0217 inch thick.

### 2.5 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
  - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
  - 1. Coat side of sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
  - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.

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- 3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.
- E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  - 1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
- F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- G. Fasteners: Use fasteners of sizes that will provide wind uplift and withdrawl resistance as required to suit project conditions. Use stainless steel fastners.
- H. Seal joints with butyl sealant as required for watertight construction.
  - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
  - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

# 3.3 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
  - 1. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 24-inch centers.
- C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend

counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant.

- 1. Secure in a waterproof manner by means of interlocking folded seam or blind rivets and sealant.
- D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
  - 1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
  - 2. Seal with butyl sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

# 3.4 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Openings Flashing: Install continuous head, sill, jamb, and similar flashings at openings.

## 3.5 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with butyl sealant to equipment support member.

## 3.6 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

## END OF SECTION 076200

#### **BRH MEDICAL SURGICAL EAST WING RENOVATIONS**

CBJ Contract No. E10-221

# PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Concealed SFRM.
    - a. Existing abated structural steel.
    - b. Existing structural steel disturbed by construction activities.
- B. Related Sections include the following:
  - 1. Division 2 Section "Asbestos Abatement" for SFRM on abated structural members.
  - 2. Division 7 Section "Thermal Insulation" for fire-safing insulation and head-of-wall.
  - 3. Division 7 Section "Intumescent Mastic Fireproofing" for head-of-wall.

#### 1.3 DEFINITIONS

- A. SFRM: Sprayed fire-resistive material.
- B. Concealed: Fire-resistive materials applied to surfaces that are concealed from view behind other construction when the WORK is completed and have not been defined as exposed.
- C. Exposed: Fire-resistive materials applied to surfaces that are exposed to view when the WORK is completed.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Structural framing plans indicating the following:
  - 1. Locations and types of surface preparations required before applying SFRM.
  - 2. Extent of SFRM for each construction and fire-resistance rating, including the following:
    - a. Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
    - b. Minimum thicknesses needed to achieve required fire-resistance ratings of structural components and assemblies.

- 3. Treatment of SFRM after application.
- C. Product Certificates: For each type of SFRM, signed by product manufacturer.
- D. Qualification Data: For Installer and manufacturer.
- E. Compatibility and Adhesion Test Reports: From SFRM manufacturer indicating the following:
  - 1. Materials have been tested for bond with substrates.
  - 2. Materials have been verified by SFRM manufacturer to be compatible with substrate primers and coatings.
  - 3. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for proposed SFRM.
- G. Research/Evaluation Reports: For SFRM.
- H. Field quality-control test reports.
- I. Warranties: Special warranties specified in this Section.

# 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by SFRM manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its SFRM to CONTRACTOR or to an installer engaged by CONTRACTOR does not in itself confer qualification on the buyer.
- B. Source Limitations: Obtain SFRM through one source from a single manufacturer.
- C. SFRM Testing: By a qualified testing and inspecting agency engaged by OWNER. Cooperate with OWNERs testing and inspection agency.
- D. Provide products containing no detectable asbestos as determined according to the method specified in 40 CFR 763, Subpart E, Appendix E, Section 1, "Polarized Light Microscopy."
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to SFRM including, but not limited to, the following:
  - 1. Review products, exposure conditions, design ratings, restrained and unrestrained conditions, calculations, densities, thicknesses, bond strengths, and other performance requirements.
  - 2. Review and finalize construction schedule and verify sequencing and coordination requirements.
  - 3. Review weather predictions, ambient conditions, and proposed temporary protections for SFRM during and after installation.
  - 4. Review surface conditions and preparations.

5. Review field quality-control testing procedures.

# 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, shelf life if applicable, and fire-resistance ratings applicable to Project.
- B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.
- C. Store materials inside, under cover, and aboveground; keep dry until ready for use. Remove from Project site and discard wet or deteriorated materials.

# 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply SFRM when ambient or substrate temperature is 40 deg F or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.
- B. Ventilation: Ventilate building spaces during and after application of SFRM. Use natural means or, if they are inadequate, forced-air circulation until fire-resistive material dries thoroughly.

## 1.8 COORDINATION

- A. Sequence and coordinate application of SFRM with other related work specified in other Sections to comply with the following requirements:
  - 1. Provide temporary enclosure as required to confine spraying operations and protect the environment.
  - 2. Provide temporary enclosures for applications to prevent deterioration of fire-resistive material due to exposure to weather and to unfavorable ambient conditions for humidity, temperature, and ventilation.
  - 3. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
  - 4. Do not apply fire-resistive material to metal roof deck substrates until roofing has been completed; prohibit roof traffic during application and drying of fire-resistive material.
  - 5. Do not apply fire-resistive material to metal floor deck substrates until concrete topping has been completed.
  - 6. Do not begin applying fire-resistive material until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.
  - 7. Defer installing ducts, piping, and other items that would interfere with applying fireresistive material until application of fire protection is completed.
  - 8. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, and tested and corrections have been made to defective applications.

## 1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by CONTRACTOR and by Installer, in which manufacturer agrees to repair or replace SFRMs that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Cracking, flaking, spalling, or eroding in excess of specified requirements; peeling; or delaminating of SFRM from substrates.
    - b. Not covered under the warranty are failures due to damage by occupants and Owner's maintenance personnel, exposure to environmental conditions other than those investigated and approved during fire-response testing, and other causes not reasonably foreseeable under conditions of normal use.
  - 2. Warranty Period: five years from date of Substantial Completion.

# PART 2 - PRODUCTS

## 2.1 CONCEALED SFRM

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the WORK include, but are not limited to, the following:
- B. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Concealed Cementitious SFRM:
    - a. Carboline Co., Fireproofing Products Div.; Pyrolite 15 High Yield.
    - b. Grace, W. R. & Co. Conn., Construction Products Div.; Monokote Type MK-6s.
    - c. Isolatek International Corp.; Cafco 300.
    - d. Southwest Vermiculite Co., Inc.; Type 5.
- C. Basis-of-Design Product: Subject to compliance with requirements, provide W.R. Grace MK-6s.
  - 1. Floor Beams (unrestrained beams): UL N708, two hour
  - 2. Steel Columns (unrestrained): UL X772, two hour

## 2.2 AUXILIARY FIRE-RESISTIVE MATERIALS

- A. General: Provide auxiliary fire-resistive materials that are compatible with SFRM and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product, provide primer that complies with one or more of the following requirements:
  - 1. Primer's bond strength complies with requirements specified in UL's "Fire Resistance Directory" for coating materials based on a series of bond tests per ASTM E 736.

- 2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of SFRM per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Adhesive for Bonding Fire-Resistive Material: Product approved by manufacturer of SFRM.
- D. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required to comply with fire-resistance designs indicated and fire-resistive material manufacturer's written recommendations. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive SFRM.
- E. Reinforcing Fabric: Glass- or carbon-fiber fabric of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of SFRM.
- F. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by manufacturer of intumescent mastic coating fire-resistive material. Include pins and attachment.

# PART 3 - EXECUTION

# 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of work. A substrate is in satisfactory condition if it complies with the following:
  - 1. Substrates comply with requirements in the Section where the substrate and related materials and construction are specified.
  - 2. Substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, incompatible paints, incompatible encapsulants, or other foreign substances capable of impairing bond of fire-resistive materials with substrates under conditions of normal use or fire exposure.
  - 3. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
  - 4. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.
- B. Verify that concrete work on steel deck has been completed.
- C. Verify that roof construction, installation of roof-top HVAC equipment, and other related work are completed.
- D. Conduct tests according to fire-resistive material manufacturer's written recommendations to verify that substrates are free of substances capable of interfering with bond.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application.
- B. Clean substrates of substances that could impair bond of fire-resistive material, including dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, and incompatible primers, paints, and encapsulants.
- C. Prime substrates where recommended in writing by SFRM manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive SFRM.
- D. For exposed applications, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of SFRM. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

## 3.3 APPLICATION, GENERAL

- A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and spray on fire-resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
- B. Apply SFRM that is identical to products tested as specified in Part 1 "Quality Assurance" Article and substantiated by test reports, with respect to rate of application, accelerator use, sealers, topcoats, tamping, troweling, water overspray, or other materials and procedures affecting test results.
- C. Coat substrates with bonding adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by SFRM manufacturer for material and application indicated.
- D. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by SFRM manufacturer, install body of fire-resistive covering in a single course.
- E. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by SFRM manufacturer.
- F. For applications over encapsulant materials, including lockdown (post-removal) encapsulants, apply SFRM that differs in color from that of encapsulant over which it is applied.
- G. Where sealers are used, apply products that are tinted to differentiate them from SFRM over which they are applied.

### 3.4 APPLICATION, CONCEALED SFRM

A. Apply concealed SFRM in thicknesses and densities not less than those required to achieve fire-resistance ratings designated for each condition.

- B. Apply water overspray to concealed sprayed-fiber fire-resistive material as required to obtain designated fire-resistance rating.
- C. Cure concealed SFRM according to product manufacturer's written recommendations.

# 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: OWNER will engage a qualified special inspector to perform the following special inspection and prepare reports:
  - 1. SFRM.
- B. Testing Agency: OWNER will engage a qualified testing agency to perform tests and inspections and prepare test reports.
  - 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- C. Tests and Inspections: Testing and inspecting of completed applications of SFRM shall take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of SFRM for the next area until test results for previously completed applications of SFRM show compliance with requirements. Tested values must equal or exceed values indicated and required for approved fire-resistance design.
  - 1. Thickness for Floor, Roof, and Wall Assemblies: For each 1000-sq. ft. area, or partial area, on each floor, from the average of 4 measurements from a 144-sq. in. sample area, with sample width of not less than 6 inches per ASTM E 605.
  - 2. Thickness for Structural Frame Members: From a sample of 25 percent of structural members per floor, taking 9 measurements at a single cross section for structural frame beams or girders, 7 measurements of a single cross section for joists and trusses, and 12 measurements of a single cross section for columns per ASTM E 605.
  - 3. Density for Floors, Roofs, Walls, and Structural Frame Members: At frequency and from sample size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 605 or AWCI Technical Manual 12-A, Section 5.4.5, "Displacement Method."
  - 4. Bond Strength for Floors, Roofs, Walls, and Structural Framing Members: For each 10,000-sq. ft. area, or partial area, on each floor, cohesion and adhesion from one sample of size indicated for determining thickness of each type of construction and structural framing member, per ASTM E 736.
    - a. Field test SFRM that is applied to flanges of wide-flange, structural-steel members on surfaces matching those that will exist for remainder of steel receiving fire-resistive material.
    - b. If surfaces of structural steel receiving SFRM are primed or otherwise painted for coating materials, perform series of bond tests specified in UL's "Fire Resistance Directory." Provide bond strength indicated in referenced UL fire-resistance criteria.
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- 5. If testing finds applications of SFRM are not in compliance with requirements, testing and inspecting agency will perform additional random testing to determine extent of noncompliance.
- D. Remove and replace applications of SFRM that do not pass tests and inspections for cohesion and adhesion, for density, or for both and retest as specified above.
- E. Apply additional SFRM, per manufacturer's written instructions, where test results indicate that thickness does not comply with specified requirements, and retest as specified above.

## 3.6 CLEANING, PROTECTING, AND REPAIR

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Protect SFRM, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at time of Substantial Completion.
- C. Coordinate application of SFRM with other construction to minimize need to cut or remove fire protection. As installation of other construction proceeds, inspect SFRM and patch any damaged or removed areas.
- D. Repair or replace work that has not successfully protected steel.

## END OF SECTION 078100

## SECTION 078123 - INTUMESCENT MASTIC FIREPROOFING

## PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes mastic and intumescent fire-resistive coatings (MIFRC).
- B. Related Requirements:
  - 1. Division 07 Section "Applied Fireproofing" for sprayed fire-resistive materials (SFRM).
  - 2. Division 09 Sections "Non-Structural Metal Framing & Gypsum Board" for head of wall.

## 1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

## 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Evaluation reports.
- C. Field quality-control reports.

#### 1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by fireproofing manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements.

## **PART 2 - PRODUCTS**

#### 2.1 MATERIALS, GENERAL

- A. Assemblies: Provide fireproofing, including auxiliary materials, according to requirements of each fire-resistance design and manufacturer's written instructions.
- B. Fire-Resistance Design: Indicated on Drawings, tested according to ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Steel members are to be considered unrestrained unless specifically noted otherwise.
- C. VOC Content: Products shall comply with VOC content limits of authorities having jurisdiction and the following VOC limits when calculated according to 40 CFR 59, Subpart D EPA Method 24:
  - 1. Flat Paints and Coatings: 50 g/L.
  - 2. Nonflat Paints and Coatings: 150 g/L.
  - 3. Primers, Sealers, and Undercoaters: 200 g/L.
  - 4. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
  - 5. Fireproofing Exterior Coatings: 350 g/L.
- D. Low-Emitting Materials: Fireproofing used within the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Asbestos: Provide products containing no detectable asbestos.

#### 2.2 MASTIC AND INTUMESCENT FIRE-RESISTIVE COATINGS

- A. MIFRC : Manufacturer's standard, factory-mixed formulation, and complying with indicated fire-resistance design.
  - 1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Albi Manufacturing, Division of StanChem Inc.; Albi Clad 800 and] Albi Clad TF.
    - b. Isolatek International; Cafco SprayFilm-WB 3andCafco SprayFilm-WB 4
  - 2. Application: Designated for "interior general purpose" and "conditioned interior space purpose" use by a qualified testing agency acceptable to authorities having jurisdiction.
  - 3. Thickness: As required for fire-resistance design indicated, measured according to requirements of fire-resistance design.
  - 4. Surface-Burning Characteristics: Flame-spread and smoke-developed indexes of 25 and 50, respectively, or less according to ASTM E 84.

- 5. Finish: As selected by ARCHITECT from manufacturer's standard finishes
  - a. Color and Gloss: As selected by ARCHITECT from manufacturer's full range.

## 2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that are compatible with fireproofing and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: Primers approved by fireproofing manufacturer.
- C. Topcoat: Suitable for application over applied fireproofing; of type recommended in writing by fireproofing manufacturer for each fire-resistance design.

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Cover other work subject to damage from fallout or overspray of fireproofing materials during application.
- B. Prime substrates where included in fire-resistance design and where recommended in writing by fireproofing manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive fireproofing.
- C. For applications visible on completion of Project, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of fireproofing.

#### 3.2 APPLICATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of the WORK and according to each fire-resistance design. Verify that objects penetrating fireproofing are securely attached to substrates and that substrates receiving fireproofing are not obstructed by ducts, piping, equipment, or other suspended construction that will interfere with fireproofing application.
- B. Construct fireproofing assemblies that are identical to fire-resistance design indicated and products as specified, tested, and substantiated by test reports; for thickness, primers, topcoats, finishing, and other materials and procedures affecting fireproofing work.
- C. Spray apply fireproofing to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by fireproofing manufacturer.

- D. Do not install enclosing or concealing construction until after fireproofing has been applied, inspected, and tested and corrections have been made to deficient applications.
- E. Finishes: Where indicated, apply fireproofing to produce the following finishes:
  - 1. Manufacturer's Standard Finishes: Finish according to manufacturer's written instructions for each finish selected.
  - 2. Spray-Textured Finish: Finish left as spray applied with no further treatment.
  - 3. Rolled, Spray-Textured Finish: Even finish produced by rolling spray-applied finish with a damp paint roller to remove drippings and excessive roughness.
  - 4. Skip-Troweled Finish: Even leveled surface produced by troweling spray-applied finish to smooth out the texture and neaten edges.

## 3.3 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
  - 1. Test and inspect as required by the IBC, 1704.11.
- B. Fireproofing will be considered defective if it does not pass tests and inspections.
  - 1. Remove and replace fireproofing that does not pass tests and inspections, and retest.
  - 2. Apply additional fireproofing, per manufacturer's written instructions, where test results indicate insufficient thickness, and retest.
- C. Prepare test and inspection reports.

#### 3.4 CLEANING AND REPAIRING

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
- B. Repair fireproofing damaged by other work before concealing it with other construction.
- C. Repair fireproofing by reapplying it using same method as original installation or using manufacturer's recommended trowel-applied product.

## END OF SECTION 078123

## SECTION 078413 - PENETRATION FIRESTOPPING

#### PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including the General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
  - 1. Floors and Roof.
  - 2. Walls and partitions.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
  - 1. Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.
  - 2. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
  - 3. Fire-resistance-rated floor and roof assemblies.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
  - 1. Penetrations located outside wall cavities.
  - 2. Penetrations located in construction containing fire-protection-rated openings.
  - 3. Penetrating items larger than 4-inch- diameter nominal pipe or 16 sq. in. in overall crosssectional area.
- D. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

## SECTION 078413 – PENETRATION FIRESTOPPING

- 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
- 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- E. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

## 1.4 SUBMITTALS

- A. Product Data: For each type of through-penetration firestop system product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
  - 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.
- E. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed through-penetration firestop systems similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:

## SECTION 078413 – PENETRATION FIRESTOPPING

- 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
- 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:.
  - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
  - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
    - 1) UL in "Fire Resistance Directory."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

#### 1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Notify OWNER's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until OWNER's inspecting agency and building inspector, if required

## SECTION 078413 - PENETRATION FIRESTOPPING

by authorities having jurisdiction, have examined each installation.

## PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:
  - 1. DAP Inc.
  - 2. Firestop Systems Inc.
  - 3. Hilti Construction Chemicals, Inc.
  - 4. 3M Fire Protection Products.
  - 5. Tremco.

#### 2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
  - 1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-/rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  - 2. Temporary forming materials.
  - 3. Substrate primers.
  - 4. Collars.
  - 5. Steel sleeves.

#### 2.3 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete

#### SECTION 078413 - PENETRATION FIRESTOPPING

floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- I. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- K. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
  - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
  - 3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

#### 2.4 MIXING

A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## SECTION 078413 – PENETRATION FIRESTOPPING

## **PART 3 - EXECUTION**

## 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

### 3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.

## SECTION 078413 - PENETRATION FIRESTOPPING

- 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
- 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

## 3.4 FIELD QUALITY CONTROL

- A. Inspecting Agency: OWNER will engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports.
  - 1. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.
- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

#### 3.5 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as WORK progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

#### 3.6 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to the alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.
- B. Firestop Systems for Metallic Pipes, Conduit, or Tubing: Comply with the following:
  - 1. Available UL-Classified Systems: C-AJ-1001-1999.
  - 2. Type of Fill Materials: One or more of the following:
    - a. Latex sealant.
    - b. Silicone sealant.
    - c. Intumescent putty.
    - d. Mortar.
- C. Firestop Systems for Electrical Cables: Comply with the following:
  - 1. Available UL-Classified Systems: C-AJ-3001-3999.

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- 2. Type of Fill Materials: One or more of the following:
  - a. Latex sealant.
  - b. Silicone sealant.
  - c. Intumescent putty.
  - d. Silicone foam.
- D. Firestop Systems for Insulated Pipes: Comply with the following:
  - 1. Available UL-Classified Systems: C-AJ-5001-5999.
  - 2. Type of Fill Materials: One or more of the following:
    - a. Latex sealant.
    - b. Intumescent putty.
    - c. Silicone foam.
    - d. Intumescent wrap strips.

## END OF SECTION 078413

## PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
  - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints between windows and trim.
    - b. Bottoms of door jambs.
    - c. Other joints as indicated.
  - 2. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints of exterior openings where indicated.
    - b. Tile control and expansion joints.
    - c. Perimeter joints between interior wall surfaces and frames of interior doors windows.
    - d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
- B. Related Sections include the following:
  - 1. Division 8 Section "Glazing" for glazing sealants.
  - 2. Division 9 Section "Gypsum Board" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
  - 3. Division 9 Section "Tiling" for sealing tile joints.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and waterresistant continuous joint seals without staining or deteriorating joint substrates.

#### 1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- F. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.

## 1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

#### 1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by jointsealant manufacturer.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

#### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the WORK include, but are not limited to, products listed in other Part 2 articles.
- 2.2 MATERIALS, GENERAL
  - A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

#### 2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

## 2.4 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.5 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

## 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- H. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

## 3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the WORK progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

#### 3.5 **PROTECTION**

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

#### 3.6 JOINT-SEALANT SCHEDULE

- A. Mildew-Resistant Silicone Sealant: Provide products formulated with fungicide that are intended for sealing interior ceramic tile joints, door jamb bottoms and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes, and that comply with the following:
  - 1. Products: Available products include the following:
    - a. 786 Mildew Resistant; Dow Corning.
    - b. Sanitary 1700; GE Silicones.
    - c. NuFlex 302; NUCO Industries, Inc.
    - d. 898 Silicone Sanitary Sealant; Pecora Corporation.
    - e. PSI-611; Polymeric Systems, Inc.
    - f. Tremsil 600 White; Tremco.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: Coated glass, color anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, and ceramic tile.
- B. Single-Component Nonsag Urethane Sealant: Provide products complying with the following:
  - 1. Products: Available products include the following:
    - a. Vulkem 116; Mameco International.
    - b. Vulkem 230; Mameco International.
    - c. Sikaflex 1a; Sika Corporation.
    - d. NP 1; Sonneborn Building Products Div., ChemRex Inc.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
    - a. Use O Joint Substrates: Coated glass, color anodic aluminum, aluminum coated with a high-performance coating, galvanized and painted steel, ceramic tile, and wood. Applications: Exterior joints and interior joints at perimeter of openings.

#### END OF SECTION 079200

## SECTION 081213 - HOLLOW METAL FRAMES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes steel frames.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 8 Section "Flush Wood Doors" for solid-core wood doors installed in hollow metal frames.
  - 2. Division 8 Section "Fiberglass Reinforced Plastic Doors" for FRP doors installed in hollow metal frames
  - 3. Division 8 Section "Door Hardware" for door hardware.
  - 4. Division 9 Section "Non-Structural Metal Framing & Gypsum Board" for frames in gypsum board partitions.
  - 5. Division 9 Section "Painting" for field painting primed doors and frames.

## 1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the CONTRACT and Division 1 Specification Sections.
- B. Product Data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- C. Shop Drawings showing fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- D. Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on CONTRACT Drawings.
  - 1. Indicate coordination of glazing frames and stops with glass and glazing requirements.

## 1.4 QUALITY ASSURANCE

A. Provide doors and frames complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors and Frames" and as specified.

## 1.5 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E 152, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.
  - 2. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Engineer; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch- high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to promote air circulation.

## PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the WORK include, but are not limited to, the following:
  - 1. Steel Frames:

- a. Amweld Building Products, Inc.
- b. Ceco Door Products.
- c. Copco Door Co.
- d. Curries Co.
- e. Hope's Architectural Products Inc.
- f. Kewanee Corp.
- g. Mesker Door, Inc.
- h. Pioneer Industries.
- i. Republic Builders Products.
- j. Steelcraft.

#### 2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial-quality carbon steel, pickled and oiled, complying with ASTM A 569.
- B. Cold-Rolled Steel Sheets: Carbon steel complying with ASTM A 366, commercial quality, or ASTM A 620, drawing quality, special killed.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel complying with ASTM A 526, commercial quality, or ASTM A 642, drawing quality, hot-dip galvanized according to ASTM A 525, with A 60 or G 60 coating designation, mill phosphatized.
- D. Supports and Anchors: Fabricated from not less than 0.0478-inch- thick steel sheet; 0.0516inch- thick galvanized steel where used with galvanized steel frames.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.

## 2.3 FRAMES

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, according to ANSI/SDI 100, and of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 0.0478-inch- thick cold-rolled steel sheet.
  - 1. Fabricate frames with mitered or coped and continuously welded corners.
  - 2. Form frames from 0.0635-inch- thick steel sheet, galvanized.
- B. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.

## 2.4 FABRICATION

A. Fabricate steel door and frame units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.

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- 1. Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:
  - a. Rigid polyurethane conforming to ASTM C 591.
  - b. Rigid polystyrene conforming to ASTM C 578.
- 2. Clearances: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between non-fire-rated pairs of doors. Not more than 3/4 inch at bottom.
  - a. Fire Doors: Provide clearances according to NFPA 80.
- B. Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel sheet.
- C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- F. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI 107 and ANSI A115 Series specifications for door and frame preparation for hardware.
  - 1. For overhead door closers, provide space, cutouts, reinforcing, and provisions for fastening in top rail of doors or head of frames, as applicable.
  - 2. Coordinate frame preparation with OWNER provided and installed electric strikes.
- G. Reinforce frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- H. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

## 2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for steel sheet finishes.
- C. Apply primers and organic finishes to doors and frames after fabrication.

## 2.6 GALVANIZED STEEL SHEET FINISHES

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- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
  - 1. Factory prime frames for field painting.

## PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Install steel frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
  - 1. Place frames before constructing enclosing walls and ceilings.
  - 2. Install fire-rated frames according to NFPA 80.
- C. Door Installation: Fit wood and FRP doors accurately in frames, within clearances specified in ANSI/SDI 100.
  - 1. Fire-Rated Doors: Install with clearances specified in NFPA 80.

#### 3.2 ADJUSTING AND CLEANING

- A. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

## END OF SECTION 081213

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the CONTRACT, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Requirements.
  - 1. Division 8 Section "Hollow Metal Frames" for wood doors installation.
  - 2. Division 8 Section "Door Hardware" for door hardware.
  - 3. Division 9 Section "Painting" for field finishing.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Solid-core doors with wood veneer faces with transparent finish.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, trim for openings, and louvers.
  - 1. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
  - 1. Indicate dimensions and locations of cutouts.
- C. Samples for Initial Selection: Color charts consisting of actual materials in small sections for the following:
  - 1. Wood veneer door faces. Show the full range of colors, textures, and patterns available.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with the following standard:
  - 1. AWI Quality Standard: AWI's "Architectural Woodwork Quality Standards" for grade of door, core, construction, finish, and other requirements.

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at postive pressure as possible according to NFPA 252 or UL 10B.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.
  - 1. Individually package doors in plastic bags or cardboard cartons.
- B. Mark each door with individual opening numbers used on Shop Drawings. Use removable tags or concealed markings.

## 1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet-work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

#### 1.7 WARRANTY

- A. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form, signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not comply with tolerances in referenced quality standard.
  - 1. Warranty shall be in effect during the following period of time after the date of Substantial Completion:
    - a. Solid-Core Interior Doors: Life of installation.

## PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:
  - 1. Flush Wood Doors:
    - a. Algoma Hardwoods Inc.
    - b. Eggers Industries; Architectural Door Division.
    - c. Graham Manufacturing Corp.
    - d. Marlite.
    - e. Oshkosh Architectural Door Co.

- f. Poncraft Door Co.
- g. Vancouver Door Company, Inc.
- h. V-T Industries Inc.
- i. Weyerhaeuser Co.
- j. Hiawatha, Inc.
- k. Leslie-Locke, Inc.

#### 2.2 DOOR CONSTRUCTION, GENERAL

- A. WDMA I.S.1-A Performance Grade:
  - 1. Extra Heavy Duty unless otherwise indicated.
  - 2. Grade: Premium, with Grade AA faces.
  - 3. Faces: Birch, to match existing doors trim.
  - 4. Veneer matching: Match existing doors.
  - 5. Stiles: Hardwood edges for staining to match faces.

#### 2.3 SOLID-CORE DOORS

- A. Particleboard Cores: Comply with the following requirements:
  - 1. Particleboard: ANSI A208.1, Grade LD-1.
  - 2. Blocking: Provide wood blocking at particleboard-core doors as follows:
    - a. 5-inch top-rail blocking, at doors indicated to have closers.
    - b. 5-inch bottom-rail blocking, at exterior doors and doors indicated to have kick, mop, or armor plates.
    - c. 5-inch midrail blocking, at doors indicated to have exit devices.
  - 3. Provide doors with either glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.
- B. Interior wood veneer Faced Doors: Comply with the following requirements:
  - 1. Core: Particleboard core.
  - 2. Construction: Five or seven plies with stiles and rails bonded to core, then entire unit abrasive planed before faces and crossbands are applied.
  - 3. Match between Veneer Leaves: Book match.
  - 4. Pair and Set Match: Provide for doors hung in same opening
- C. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fireprotection rating indicated.
  - 1. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

2. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

## 2.4 LOUVERS AND LIGHT FRAMES

- A. Metal Louvers:
  - 1. Metal and Finish: Extruded aluminum with dark bronze, Class II, color anodic finish, AA-M12C22A32/A34.
- B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- thick, cold-rolled steel sheet; with baked-enamel- or powder-coated finish; and approved for use in doors of fire-protection rating indicated.

## 2.5 FABRICATION

- A. Fabricate flush wood doors in sizes indicated for Project site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
  - 1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-rated doors.
- C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
  - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

#### 2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory that are indicated to receive transparent finish.
- C. Use only paints and coatings that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Transparent Finish:
  - 1. Grade: Custom.
  - 2. Finish: AWI catalyzed polyurethane.

3. Stain: Stain to match existing.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine installed door frames before hanging doors.
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
  - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. Hardware: For installation, see Division 8 Section "Door Hardware."
- B. Manufacturer's Written Instructions: Install wood doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
  - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
  - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold.
    - a. Comply with NFPA 80 for fire-rated doors.
  - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
  - 3. Bevel fire-rated doors 1/8 inch in 2 inches on lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation, if fitting or machining is required at Project site.

#### 3.3 ADJUSTING AND PROTECTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of Substantial Completion.

## END OF SECTION 081416

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION OF THE WORK

- A. The extent and location of fiberglass reinforced plastic doors for corrosive environments is shown on the drawings and in schedules, and generally includes the following:
  - 1. Fiberglass Reinforced Plastic (FRP) Doors.
- B. Related Requirements.
  - 1. Division 8 Section "Hollow Metal Frames" for (FRP) door installation.
  - 2. Division 8 Section "Door Hardware" for door hardware.
  - 3. Division 9 Section "Painting" for field finishing.

#### 1.3 QUALITY ASSURANCE

- A. Standards: The following referenced standards and standard specifications, referred to thereafter by designation only, form a part of the specification.
  - 1. American Society for Testing and Materials (ASTM):
    - a. ASTM D 523, Standard Test Method for Specular Gloss.
    - b. ASTM D 635, Standart Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal position.
    - c. ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Material.
    - d. ASTM E 152, Standard Methods of Fire Tests of Door Assemblies.
  - 2. National Fire Protection Association (NFPA):
    - a. NFPA 252, Standard Methods of Fire Tests of Door Assemblies
  - 3. Steel Door Institute (SDI): SDI-100 Recommended Specifications for Steel Doors and Frames.
  - 4. Underwriters Laboratories (UL):
    - a. UL 10B, Standard for Fire Tests of Door Assemblies.
    - b. UL 305, Standard for Panic Hardware.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturers printed product data indicating characteristics of products specified in this Section.
- B. Shop Drawings: Submit shop drawings for the fabrication and installation of doors and frames specified in this section. Include:
  - 1. Dimensioned elevation of each type of door opening assembly in

project; indicate sizes and locations of door hardware, and lites and louvers, if specified.

- 2. Installation details of each type installation condition in project; indicate installation details of glazing, if specified.
- C. Schedule: Indicate each door opening assembly in project cross–reference to plans, elevations, and details.
- D. Selection Sample: Manufacturers standard color chips.
- E. Verification Samples: Two (2) samples to verify color match.
- F. Manufacturer's Instructions: Printed installation instructions for door opening assemblies.
- G. Warranty Documents: Manufacturers standard warranty documents, executed by manufacturers representative, countersigned by contractor.

## 1.5 DELIVERY, STORAGE AND HANDLING

A. Package door opening assemblies in manufacturer's standard containers. Store door assemblies in manufacturer's standard containers, on end, to prevent damage to face, corners and edges.

#### 1.6 WARRANTY

A. Provide manufacturers 10 year warranty against failure due to corrosion from specified environment.

#### PART 2 - PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering fiberglass doors and frames which may be incorporated into the project include:
  - 1. FIB-R-DOR Division of Advance Fiberglas, Inc.
  - 2. Corrim Door Division of Fenestra Corporation
  - 3. Special-Lite, Inc.

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Door opening assemblies: Maximum flame spread 25 in accordance with ASTM E 84, self extinguishing in accordance with ASTM D 635, USDA accepted.
- B. Fire rated assemblies: Comply with requirements of UL 10B, NFPA 252, and ASTM E 152; UL ratings as indicated on drawings and in schedule, with doors and frames bearing rating labels.

#### 2.3 MATERIALS

- A. Fiberglass Mat: Minimum 1.5 ounces per square foot.
- B. Resins: Manufacturer's formulation for fabricating units to meet specified requirements.
- C. Anchors: Manufacturer's standard stainless steel expansion anchors for existing openings, and stainless steel masonry tee anchors for new construction.
- D. Fasteners: Stainless steel.
- E. Glazing: Type specified in Section 08800; factory installed.
- F. Non-rated Fiberglass Reinforced Plastic (FRP) Doors:
  - 1. Thickness must be 1-3/4 inches.
  - 2. Thermal insulating Value: R factor 11.
  - 3. Construction:
    - a. Core: End-grain balsa wood, resin impregnated.
    - b. Door Plates: Molded in one continuous piece, resin reinforced with hand laid glass fiber mat, nominal 1/8 inch thick, minimum 15 mil gel-coat surface.
    - c. Door Edges: Minimum three (3) layers resin-reinforced glass fiber mat, nominal 3/8 inch thick, machine tooled.
  - 4. Sizes: Indicated on drawings.
  - 5. Finish: Smooth gloss surface, minimum value 88 in accordance with ASTM D 523.
  - 6. Color: As selected by Architect from manufacturers standard colors.
- G. Fire-rated Fiberglass Reinforced Plastic (FRP) Doors: UL approved, and as follows:
  - 1. Thickness: 1-3/4 inches.
  - 2. Thermal insulating Value: 'R' factor 11.
  - 3. Construction:
    - a. Core: Fire-resistant mineral core.
    - b. Door Plates: Molded in one continuous piece, resin reinforced with hand laid glass fiber mat, nominal 1/8 inch thick, minimum 25 mil gel-coated surface.
    - c. Door Edges: Minimum two (2) layers resin-reinforced glass fiber mat, nominal <sup>1</sup>/<sub>4</sub> inch thick, machine tooled.
  - 4. Sizes: Indicated on drawings.
  - 5. Finishes: Smooth gloss surface, minimum value 88 in accordance with ASTM D 523.
  - 6. Color: As selected by ARCHITECT from Manufacturer's standard colors.

## 2.4 FABRICATION

- A. Fiberglass Reinforced Plastic (FRP) Doors: Mortise for lockset, and recess for strike plate in lock stile. Embed steel reinforcement for hinges in fiberglass matrix; provide for hinge leaf recess in hinge stile. Minimum glass to door ratio: 30 percent
- B. Fiberglass frames: Mortise for lock strike and recess for strike plate in lock jamb. Reinforce for hinges and other indicated hardware.

## **PART 3 - EXECUTION**

## **3.1 EXAMINATION**

- Verify that openings are correctly prepared to receive doors and frames and that openings A. are correct size and depth in accordance with shop drawings. Verify that glazing has been factory-installed.
- Β. Have installer examine conditions under which construction activities of this section are to be performed and submit written report if conditions are unacceptable. Transmit two (2) copies of installers report to ARCHITECT within 24 hours of receipt.
- C. Beginning construction activities of this section before unacceptable conditions have been corrected as prohibited. Beginning construction activities of this section indicated installers acceptance of conditions.

#### 3.2 **INSTALLATION**

- A. Install door opening assemblies in accordance with shop drawings, SDI-100and manufacturers printed installation instructions, using installation methods and materials specified in installation instructions.
- B. Install door hardware in accordance with manufacturers printed instructions, using through-bolts to secure surface applied hardware. Installation of door hardware is specified in section 08710.
- C. Fill all frames solid with grout.
- D. Site Tolerances: Maintain plump and level tolerances specified in manufacturer's printed installation instructions.

## 3.3 ADJUST AND CLEAN

- Adjust doors in accordance with door manufacturer's maintenance instructions to swing A. open and shut with out binding, and to remain in place at any angle with out being moved by gravitational influence.
- B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.
- E. Clean surfaces of door opening assemblies and sight-exposed door hardware in

accordance with manufacturer's maintenance instructions.

F. Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.

## **END OF SECTION 081430**

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FIBERGLASS REINFORCED PLASTIC DOORS Page 081430-5

## SECTION 083113 - ACCESS DOORS AND FRAMES

## PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Access doors and frames for walls and ceilings.
  - 2. Floor access doors and frames.

## 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each door face material.
- D. Schedule: Types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 tested according to the following test method:
  - 1. NFPA 252 or UL 10B for fire-rated access door assemblies installed vertically.
  - 2. NFPA 288 for fire-rated access door assemblies installed horizontally.

#### 2.2 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following, but are not limited to, the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:
  - 1. Access Panel Solutions.
  - 2. Acudor Products, Inc.
  - 3. Alfab, Inc.
  - 4. Babcock-Davis.
  - 5. Cendrex Inc.
  - 6. Elmdor/Stoneman Manufacturing Co.; Div. of Acorn Engineering Co.
  - 7. Jensen Industries; Div. of Broan-Nutone, LLC.
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- 8. J. L. Industries, Inc.; Div. of Activar Construction Products Group.
- 9. Karp Associates, Inc.
- 10. Larsen's Manufacturing Company.
- 11. Maxam Metal Products Limited.
- 12. Metropolitan Door Industries Corp.
- 13. MIFAB, Inc.
- 14. Milcor Inc.
- 15. Nystrom, Inc.
- 16. Williams Bros. Corporation of America (The).
- C. Source Limitations: Obtain each type of access door and frame from single source from single manufacturer.
- D. Recessed Access Doors
  - 1. Assembly Description: Fabricate door in the form of a pan recessed 1/2 inch for gypsum board and acoustical tile infill. Provide frame with gypsum board bead for concealed flange and no bead for acoustical tile installation.
  - 2. Locations: Ceiling.
  - 3. Door Size: 24"x 24" nominal.
  - 4. Metallic-Coated Steel Sheet for Door: Nominal 0.064 inch, 16 gage.
    - a. Finish: Factory finish.
  - 5. Frame Material: Same material and thickness as door.
  - 6. Hinges: Manufacturer's standard.
  - 7. Hardware: Latch.
- E. Hardware:
  - 1. Latch: Cam latch operated by pinned-hex-head wrench Delete "Lock Preparation"

### 2.3 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed WORK, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access doors to types of supports indicated.
- D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.
  - 1. For recessed doors with plaster infill, provide self-furring expanded metal lath attached to door panel.

### SECTION 083113 - ACCESS DOORS AND FRAMES

- E. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
  - 1. For cylinder locks, furnish two keys per lock and key all locks alike.
  - 2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
- F. Extruded Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

#### 2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished WORK: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Steel and Metallic-Coated-Steel Finishes:
  - 1. Factory Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat, with a minimum dry-film thickness of 1 mil for topcoat.

## **PART 3 - EXECUTION**

#### 3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Install doors flush with adjacent finish surfaces or received to receive finish material.

#### 3.2 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

#### END OF SECTION 083113

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes fixed and operable aluminum-framed windows.

### 1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size required by AAMA/WDMA 101/I.S.2/NAFS.
- B. Structural Performance: Provide aluminum windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:
  - 1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour at 33 feet above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
    - a. Basic Wind Speed: 110 mph.
  - 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch, whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.
- C. Windborne-Debris Resistance: Provide glazed windows capable of resisting impact from windborne debris, based on the pass/fail criteria as determined from testing glazed windows identical to those specified, according to ASTM E 1886 and testing information in ASTM E 1996 and requirements of authorities having jurisdiction.
- D. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F material surfaces.

## 1.3 SUBMITTALS

A. Product Data: For each type of aluminum window indicated.

- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, and installation details
- C. Samples: For each exposed finish.
- D. Product Schedule: Use same designations indicated on Drawings.
- E. Field quality-control test reports.
- F. Product test reports.
- G. Maintenance data.

### 1.4 QUALITY ASSURANCE

- A. Installer: A qualified installer, approved by manufacturer to install manufacturer's products.
- B. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
- D. Preinstallation Conference: Conduct conference at Project site.

### 1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to meet performance requirements.
    - b. Structural failures including excessive deflection, water leakage, air infiltration, or condensation.
    - c. Faulty operation of movable sash and hardware.
    - d. Deterioration of metals, other materials, and metal finishes beyond normal weathering.
    - e. Failure of insulating glass.
  - 2. Warranty Period:
    - a. Window: Ten years from date of Substantial Completion.
    - b. Glazing: 20 years from date of Substantial Completion.
    - c. Metal Finish: 20 years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### 2.1 MANUFACTURERS

c.

- A. Manufacturers:
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Kawneer Company, Inc.
    - a. Address: 555 Guthridge Court, Technology Park/Atlanta, Norcross, GA 30092
    - b. Telephone: 770 449 5555; Fax: 770 734 1560
      - Kawneer Architectural Windows.
        1) Series: 8225TL ISOLOCK<sup>®</sup>, 2-1/4" Deep Frame, Thermally Broken, 0.125 Wall Thickness, Fixed and Project-Out

### 2.2 WINDOW

- A. Window Type: Fixed and Projected, As indicated on Drawings.
- B. Comply with AAMA/WDMA 101/I.S.2/NAFS.
  - 1. Performance Class and Grade: F&P-HC100.
  - 2. Performance Class and Grade: F&P-AW100.
- C. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 52.
- D. Thermal Transmittance: Provide aluminum windows with a whole-window, U-factor maximum indicated at 15-mph exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.
  - 1. U-Factor: 0.60 Btu/sq. ft. x h x deg F or less.
- E. Solar Heat-Gain Coefficient (SHGC): Provide aluminum windows with a whole-window SHGC maximum of 0.55, determined according to NFRC 200 procedures.

### 2.3 GLAZING

A. Glass and Glazing Materials: Refer to Division 08 Section "Glazing" for glass units and glazing requirements applicable to glazed aluminum window units.

### 2.4 INSECT SCREENS

A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to

ALUMINUM WINDOWS Page 085113 - 3

fully integrate with window frame. Locate screens on inside of window and provide for each operable exterior sash or ventilator.

- 1. Aluminum Tubular Frame Screens: Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," Monumental M-32 class.
- B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners and removable PVC spline/anchor concealing edge of frame.
  - 1. Finish: Baked-on organic coating in color selected by Architect from manufacturer's full range.
- C. Glass-Fiber Mesh Fabric: 18-by-14 mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration; in the following color. Comply with ASTM D 3656.
  - 1. Mesh Color: Silver gray.
- D. Wickets: Provide hinged wickets, framed and trimmed for a tight fit and for durability during handling.

### 2.5 FABRICATION

- A. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.
- B. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.
- C. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- D. Provide water-shed members above side-hinged ventilators and similar lines of natural water penetration.
- E. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- F. Subframes: Provide subframes with anchors for window units as shown, of profile and dimensions indicated but not less than 0.062-inch thick extruded aluminum. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.
- G. Glazing Stops: Provide snap-on glazing stops coordinated with Division 08 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.

### 2.6 ALUMINUM FINISHES

A. Aluminum Anodic Finish: Kawneer Permanodic<sup>®</sup> AA-M12C22A44, AAMA 611, Architectural Class I, clear anodic coating.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- F. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- G. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- H. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- I. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

### 3.2 FIELD QUALITY CONTROL

- A. Testing Agency: OWNER will engage a qualified testing agency to perform tests and inspections and prepare test reports.
  - 1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.
- B. Testing Services: Testing and inspecting of installed windows shall take place as follows:

- 1. Testing Methodology: Testing of windows for air infiltration and water resistance shall be performed according to AAMA 502, Test Method A, by applying same test pressures required to determine compliance with AAMA/WDMA 101/I.S.2/NAFS in Part 1 "Performance Requirements" Article.
- 2. Testing Extent: Three windows as selected by ARCHITECT and a qualified independent testing and inspecting agency. Windows shall be tested immediately after installation.
- 3. Test Reports: Shall be prepared according to AAMA 502.
- C. Remove and replace noncomplying aluminum window and retest as specified above.
- D. Additional testing and inspecting, at CONTRACTOR'S expense, will be performed to determine compliance of replaced or additional work with specified requirements.

## END OF SECTION 085113

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division1 Specification Sections, apply to this section.
- 1.2 SUMMARY
  - B. Section Includes:
    - 1. Door and related hardware specified or indicated on drawings to complete project.
  - C. Related Sections:
    - 1. Division 8 Section "Steel Doors and Frames".
    - 2. Division 8 Section "Flush Wood Doors"
    - 3. Division 8 Section "Fiberglass Reinforced Plastic Doors"

## 1.3 REFERENCES:

- A. American National Standards Institute ANSI 156.18 Materials and Finishes.
- B. ANSI A117.1 Specifications for making buildings and facilities usable by physically handicapped people.
- C. ADA Americans with Disabilities Act of 1990
- D. BHMA Builders Hardware Manufacturers Association
- E. DHI Door and Hardware Institute
- F. NFPA National Fire Protection Association
- G. UL Underwriters Laboratories
- H. WHI Warnock Hersey Incorporated
- I. SDI Steel Door Institute
- J. NAAM National Association of Architectural Metal Manufacturers

## 1.4 SUBMITTALS & SUBSTITUTIONS

- A. Hardware Schedule: Submit for approval six copies of schedule per Division 1. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
  - 1. Type, style, function, size, quantity and finish of hardware items.
    - a. Use BHMA Finish codes per ANSI A156.18.
  - 2. Name, part number and manufacturer of each item.
  - 3. Fastenings and other pertinent information.
  - 4. Location of hardware set coordinated with floor plans and door schedule.

- 5. Explanation of abbreviations, symbols, and codes contained in schedule.
- 6. Mounting locations for hardware.
- 7. Door and frame sizes, materials, hand, rating, degrees of swing, and jamb depth.
- 8. List of manufacturers used and their nearest representative with address and phone number.
- 9. Catalog cuts.
- 10. Manufacturer's technical data and installation instructions for hardware, including electronic hardware.
- 11. Diagrams, templates or other information as required to assure coordination with Owner installed door security system.
- 12. Date of jobsite visit if existing conditions.
- B. Schedules in coded or horizontal format are unacceptable. Submittals not conforming to the above requirements will be returned without review, for re-submittal.
- C. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
- E. Make substitution requests in accordance with Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
  - 1. Items listed with no substitute manufacturers have been requested by OWNER to meet existing standard.
- G. Closeout Submittals: Furnish 5 copies of the as-built/as-installed hardware schedule with closeout documents including wiring diagrams, manufacturers installation instructions, and suppliers final inspection report.

## 1.4 QUALITY ASSURANCE:

- A. Supplier Qualifications:
  - 1. Direct factory contract supplier who has been furnishing hardware in the projects vicinity for a period of not less then 5 years.
  - 2. Employs a certified architectural hardware consultant (AHC), available at reasonable times during course WORK for project hardware consultation to OWNER, ARCHITECT and Contractor. Responsible for detailing, scheduling and ordering of finish hardware.
  - 3. Supplier willing to agree in writing to maintain parts inventory of items supplied for future service to OWNER.
- B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.
- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Notify ARCHITECT of any code conflicts before ordering material.

## 1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

Permanent keys and cores: secured delivery direct to OWNER's representative.

- B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.
- C. Storage: Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.

## 1.6 PROJECT CONDITIONS:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to ARCHITECT's approval.

## 1.7 SEQUENCING AND COORDINATION:

- A. Reinforce walls.
- B. Coordinate finish floor materials and floor-mounted hardware.
- C. Furnish manufacturer templates to door and frame fabricators, including templates for Owner provided door security system.
- D. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.
  - 1. Confirm that door manufacturers furnish necessary UBC-7-2 compliant seal packages.

### 1.8 WARRANTY:

- A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' warranties:
  - 1. Closers: Ten years mechanical.
  - 2. Exit Devices: Three years.
  - 3. Hinges: Life of Building.
  - 4. Other Hardware: Two years.

## 1.9 MAINTENANCE:

A. Extra Materials: Provide extra materials ONLY as specified in a Misc.hardware set for future maintenance direct to OWNER.

- 1. 1 each closer.
- 2. 1 each lockset.
- B. Tools: After final adjustment of door hardware turn over to OWNER tools furnished during construction used for installation and adjustment.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS:

A. Listed are specified manufacturers and acceptable alternates:

ITEM:	MANUFACTURER:
Hinges	(HA) Hager

- B. Provide hardware items required to complete the work in accordance with these specifications and manufacturers' instructions.
  - 1. Include items inadvertently omitted from this specification at no additional cost to the project. Note these items in submittal for review.
  - 2. Where scheduled item is now obsolete, bid and furnish manufacturers updated item at no additional cost to the project.

## 2.2 HANGING MEANS:

- A. Conventional Hinges: Hinge open widths minimum, but, of sufficient throw to permit maximum door swing. Steel or stainless steel pins and concealed bearings.
  - 1. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.
  - 2. Extra heavy weight hinges on doors over 3 foot 5 inches in width.
  - 3. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins. Pivot reinforced hinge type where specified.
  - 4. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
  - 5. Provide shims and shimming instructions for proper door adjustment.

### 2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

- A. Cylinder Locksets and Latchsets:
  - 1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
  - 2. Latchbolts: <sup>3</sup>/<sub>4</sub> inch throw stainless steel anti-friction type.
  - 3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

- a. Spindles: security design independent break-away. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
- 4. Deadbolts: stainless steel 1-inch throw.
- 5. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing. Where indicated, provide template to door frame mfr for electric strikes to be provided and installed by Owner.

## 2.5 CLOSERS

- A. Door Closers: Full rack and pinion type with removable non-ferrous cover. Provide sex bolts at all wood doors. Place closers inside building, stairs, and rooms. Closers shall be non-handed, non-sized and adjustable.
  - 1. Provide multi-size 1 through 6 at all doors rated or not.
  - 2. Flush transom offset brackets shall be used where parallel arm closers are required.
  - 3. Drop brackets are required at narrow head rails.
  - 4. Set exterior doors closers to have 8.5 lbs maximum pressure to open, interior non-rated at 5 lbs, rated openings at 12 lbs.

## 2.6 OTHER HARDWARE

- A. Flush Bolts: Low operating force design.
- B. Exit Devices: Furnish all sets at wood doors with sex bolts unless otherwise specified. Lever handle trim shall match locksets. All touch bar type devices shall have deadlocking latchbolt, stainless steel touchpads or vinyl covered pads and be non-handed. The unlatching force shall not exceed 15 pounds when applied in the direction of exit travel.
- C. Door Stops: Provide stops to protect walls, casework or other hardware.
  - 1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
- D. Seals: Finished to match adjacent frame color. Resilient seal material: solid high-grade neoprene. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.
  - 1. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
  - 2. Non-corroding fasteners at in-swinging exterior doors.

- G. Thresholds: As scheduled. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
  - 1. Exteriors: Set in full bed of butyl-rubber or polyisobutylene mastic sealant. Nonferrous <sup>1</sup>/<sub>4</sub> inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
- H. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.
  - 1. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered prepunched silencer holes.

## 2.7 FINISH:

- A. Generally BHMA 626 Satin Chromium
  - 1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware, unless otherwise noted.
  - 1. Provide satin-chrome plated arms, tracks and covers where scheduled bright metallic powder coat (789 MTLPC) not available.
- C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

## 2.8 KEYING REQUIREMENTS:

- A. Key System: Key to the existing Corbin Russwin Master Key System. Confirm with owner proper keyway, key quantities and submit key schedule for approval before ordering.
  - 1. Provide cylinders and keys furnished with visual key control with code stamped on back of each cylinder and the face of each key.
  - 2. Provide 6 pin cylinders for locks or scheduled items requiring cylinders for proper operation.
  - 3. Construction key all locks.
  - 4. Provide the following keys:
    - 1. 10 construction keys
    - 2. 6 Master keys
    - 3. 3 keys per lock

### PART 3 - EXECUTION

### 3.1 ACCEPTABLE INSTALLERS:

A. Factory trained, certified, and carries a factory-issued card certifying that person as a "Certified Installer". Alternative: can demonstrate suitably equivalent competence and experience.

## 3.2 PREPARATION:

- A. Ensure that walls and frames are square and plumb before hardware installation.
- B. Clarify placement if new hardware is to be installed near existing doors/hardware scheduled to remain.
- C. Mounting Heights: Locate hardware units at heights indicated in DHI's recommended locations unless otherwise indicated below or required to comply with governing regulations.

## 3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.
  - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
  - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
- B. Locate floor stops not more than 4 inches from the wall.
- C. Drill pilot holes for fasteners in wood doors and/or frames.
- D. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to OWNER items not scheduled for reuse.

## 3.4 ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
  - 1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to OWNER's satisfaction.
- B. Inspection: Use hardware supplier. Include suppliers with closeout documents.
- C. Follow-up inspection: Installer to provide letter of agreement to OWNER that approximately 6 months after substantial completion, installer will visit Project with

representatives of the manufacturers of the locking devices and door closers to accomplish following:

- 1. Re-adjust hardware.
- 2. Evaluate maintenance procedures and recommend changes or additions, and instruct OWNER's personnel.
- 3. Identify items that have deteriorated or failed.
- 4. Submit written report identifying problems and likely future problems.

## 3.5 PROTECTION/CLEANING:

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

### 3.6 SCHEDULE OF FINISH HARDWARE

- A. See door schedule in drawings for hardware set assignments.
- B. Manufacturers and their abbreviations used in this schedule:
  - 1. CR Corbin/Russwin
  - 2. GJ Glynn Johnson (Match Existing)
  - 3. HA Hager
  - 4. NO Norton Closers
  - 5. PE Pemko
  - 6. RX Rixon
  - 7. VO Von Duprin
  - 8. TR Trimco MFG
- C. Hardware groups

### HW SET: 01

3	EA	SWING CLEAR	BB1263 5	26D	HAG
		HINGE			
1	EA	PUSH/PULL LATCH	HL6-2-A	626	GLY
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	WS33	626	IVE
1	SET	SEALS	S88D	DKB	PEM

#### HW SET: 02

6	EA	SWING CLEAR	BB1263 5	26D	HAG
		HINGE			
1	SET	AUTO FLUSH BOLT	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	E DP2	626	IVE
1	EA	PUSH/PULL LATCH	HL6-2-A	626	GLY
1	EA	ROLLER LATCH	RL30-A (TOP MOUNT MOUNT ON 1'0 LEAF))	626	IVE

2	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	WS33	626	IVE
1	SET	SEALS	S88D	DKB	PEM

#### HW SET: 03

3	EA	HINGE	BB1168 4.5 X 4.5	26D	HAG
1	EA	PASSAGE SET	ML2010 LSA	626	C-R
1	EA	CLOSER	PR7500 DA	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	1270CX	630	TRI
1	SET	SEALS	\$88D	DKB	PEM

### HW SET: 04

3	EA	HINGE	BB1279 4.5 X 4.5	26D HA	١G
1	EA	OFFICE LOCK	ML2051 LSA	626 C-H	R
1	EA	WALL STOP	1270CX	630 TR	Ι
3	EA	SILENCER	SR64	GRY IVI	E

# HW SET: 05

EA	SWING CLEAR	BB1263 5	26D	HAG
	HINGE			
EA	CLASSROOM LOCK	ML2055 LSA	626	C-R
EA	CLOSER	7500H	689	NOR
EA	OVERHEAD STOP	100S	626	GLY
EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
EA	SILENCER	SR64	GRY	IVE
	EA EA EA EA EA	<ul> <li>EA SWING CLEAR HINGE</li> <li>EA CLASSROOM LOCK</li> <li>EA CLOSER</li> <li>EA OVERHEAD STOP</li> <li>EA KICK PLATE</li> <li>EA SILENCER</li> </ul>	EASWING CLEAR HINGEBB1263 5 BB1263 5EACLASSROOM LOCKML2055 LSAEACLOSER7500HEAOVERHEAD STOP100SEAKICK PLATEKO050 .050 THICK 16" X 2" LDWEASILENCERSR64	EASWING CLEAR HINGEBB1263 526DEACLASSROOM LOCKML2055 LSA626EACLOSER7500H689EAOVERHEAD STOP100S626EAKICK PLATEKO050 .050 THICK 16" X 2" LDW630EASILENCERSR64GRY

### HW SET: 06

3	EA	HINGE	BB1168 5 X 4.5	26D	HAG
1	EA	CLASSROOM LOCK	ML2055 LSA	626	C-R
1	EA	CLOSER	7500H X DROP PLATE	689	NOR
1	EA	OVERHEAD STOP	100S	626	GLY
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	THRESHOLD	166A MSES10	AL	PEM
3	EA	SILENCER	SR64	GRY	IVE

### HW SET: 07

3	EA	HINGE	BB1168 5 X 4.5	26D	HAG
1	EA	STOREROOM LOCK	ML2057 LSA	626	C-R
1	EA	CLOSER	7500H	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI

1	EA	WALL STOP	1270CX	630	TRI
1	SET	SEALS	S88D	DKB	PEM

### HW SET: 08

8	EA	HINGE	BB1168 5 X 4.5	26D	HAG
2	EA	PULL PLATE	1001S 6 X 18	630	TRI
2	EA	PULL PLATE	1017-2B 3.5"X15" (6" C TO C)	630	TRI
2	EA	CLOSER	PR7500	689	NOR
2	EA	MAGNET	998	689	RIX
1	SET	SEALS	S88D	DKB	PEM

## HW SET: 09

3	EA	SWING CLEAR	BB1263 5	26D	HAG
1	БA	HINGE	MI 2070 I SD Y CYLINDED TUDN OUTSIDE	()(	CD
1	EA	PRIVCY	ML2069 LSR X CYLINDER TURN OUTSIDE	626	C-K
1	EA	OVERHEAD HOLDER	410F	630	GLY
1	EA	THRESHOLD	166A MSES10	AL	PEM
3	EA	SILENCER	SR64	GRY	IVE

#### HW SET: 10

3	EA	HINGE	BB1168 5 X 4.5	26D	HAG
1	EA	STOREROOM LOCK	ML2057 LSA	626	C-R
1	EA	CLOSER	7500	689	NOR
1	EA	OVERHEAD STOP	900S	630	GLY
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	SET	SEALS	S88D	DKB	PEM

#### HW SET: 11

3	EA	HINGE	BB1168 4.5 X 4.5	26D	HAG
1	EA	PRIVACY SET	ML2060 LSA	626	C-R
1	EA	CLOSER	7500	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	1270CX	630	TRI
1	SET	SEALS	\$88D	DKB	PEM
1	EA	THRESHOLD	166A MSES10	AL	PEM

## HW SET: 12

3	EA	HINGE	BB1168 4.5 X 4.5	26D	HAG
1	EA	PRIVACY SET	ML2060 LSA	626	C-R
1	EA	CLOSER	PR7500 X DROP PLATE FOR STOP	689	NOR

1	EA	OVERHEAD STOP	100S	626	GLY
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	THRESHOLD	166A MSES10	AL	PEM
3	EA	SILENCER	SR64	GRY	IVE

### HW SET: 13

3	EA	HINGE	BB1168 5 X 4.5	26D	HAG
1	EA	STOREROOM LOCK	ML2057 LSA	626	C-R
1	EA	CLOSER	PR7500H	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	1270CX	630	TRI
3	EA	SILENCER	SR64	GRY	IVE

## HW SET: 14

3	EA	HINGE	BB1168 4.5 X 4.5	26D	HAG
1	EA	STOREROOM LOCK	ML2057 LSA	626	C-R
1	EA	CLOSER	7500	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	1270CX	630	TRI
1	SET	SEALS	S88D	DKB	PEM

## **HW SET: 15**

6	EA	SWING CLEAR	BB1263 5	26D	HAG
		HINGE			
1	EA	AUTO FLUSH BOLT	FB31B (BOTTOM BOLT ONLY)	630	IVE
1	EA	DUST PROOF STRIKE	E DP2	626	IVE
1	EA	PUSH/PULL LATCH	HL6-2-A	626	GLY
2	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	WS33	626	IVE
1	SET	SEALS	\$88D	DKB	PEM

### HW SET: 16

3	EA	HINGE	BB1168 5 X 4.5	26D	HAG
1	EA	PASSAGE SET	ML2010 LSA	626	C-R
1	EA	CLOSER	PR7500 DA	689	NOR
1	EA	KICK PLATE	KO050 .050 THICK 16" X 2" LDW	630	TRI
1	EA	WALL STOP	1270CX	630	TRI
1	SET	SEALS	S88D	DKB	PEM

#### **END OF SECTION 087100**

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the CONTRACT, including General and Special Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
  - 1. Windows.
  - 2. Doors.

#### 1.3 DEFINITIONS

- A. Manufacturer: A firm that produces primary glass or fabricated glass as defined in referenced glazing publications.
- B. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
- C. Deterioration of Insulating Glass: Failure of the hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure at the project site, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
  - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

- a. Specified Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour at 33 feet above grade, according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.4.2, "Analytic Procedure," based on mean roof heights above grade indicated on Drawings.
- b. Maximum Lateral Deflection: For the following types of glass supported on all four edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 3/4 inch, whichever is less.
  - 1) For monolithic-glass lites heat treated to resist wind loads.
  - 2) For insulating glass.
- c. Minimum Glass Thickness for Exterior Lites: Not less than ¼ inch.
- d. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for each tint color indicated throughout Project.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
  - 1. For insulating-glass units, properties are based on units with lites  $\frac{1}{4}$ " thick and a nominal  $\frac{1}{2}$ -inch- wide interspace.
  - 2. Center-of-Glass U-Values: NFRC 100 methodology using LBL-35298 WINDOW 4.1 computer program, expressed as Btu/ sq. ft. x h x deg F.
  - 3. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBL-35298 WINDOW 4.1 computer program.
  - 4. Solar Optical Properties: NFRC 300.

## 1.5 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glazing Schedule: Prepare a schedule listing glass types and thicknesses for each size opening and location.
- C. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
- D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An installer with at least 3 years experience who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Source Limitations for Insulating Glass: Obtain insulating-glass units from one manufacturer using the same type of glass and other components for each type of unit indicated.
- C. Source Limitations for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.
- D. Elastomeric Glazing Sealant Product Testing: Obtain sealant test results for product test reports in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
  - 1. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
  - 2. Test elastomeric glazing sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
- E. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
- F. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. GANA Publications: GANA'S "Glazing Manual" and "Laminated Glass Design Guide."
- G. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following inspecting and testing agency:
  - 1. Insulating Glass Certification Council.
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
  - 1. Meet with OWNER; ARCHITECT; Installer; glazing system manufacturer's representative; aluminum window framing manufacturer representative; and installers whose work interfaces with or affects glazing.
  - 2. Review methods and procedures related to glazing installation, including manufacturer's written instructions.

- 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- 4. Examine frame and substrate conditions and finishes for compliance with requirements, including flatness and fastening. Correct conditions as required prior to proceeding with glazing installation.
- 5. Review flashings, special details, window drainage and weep system, and other construction that will affect glazing system.
- 6. Review temporary protection requirements for window system during and after installation.

## 1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

## 1.8 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive OWNER of other rights OWNER may have under other provisions of the CONTRACT Documents and shall be in addition to, and run concurrent with, other warranties made by CONTRACTOR under requirements of the CONTRACT Documents.
- B. Manufacturer's Special Warranty on Coated-Glass Products: Written warranty, made out to OWNER and signed by coated-glass manufacturer agreeing to furnish replacements for those coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: 10 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty on Laminated Glass: Written warranty, made out to OWNER and signed by laminated-glass manufacturer agreeing to furnish replacements for laminated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: Five years from date of Substantial Completion.
- D. Manufacturer's Special Warranty on Insulating Glass: Written warranty, made out to OWNER and signed by insulating-glass manufacturer agreeing to furnish replacements for insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
  - 1. Warranty Period: 10 years from date of Substantial Completion.

## 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F.

## PART 2 - PRODUCTS

## 2.1 PRODUCTS AND MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the WORK include, but are not limited to, the products indicated in schedules at the end of Part 3.

## 2.2 PRIMARY FLOAT GLASS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select); <sup>1</sup>/<sub>4</sub>" thick, class as indicated in schedules at the end of Part 3.

### 2.3 HEAT-TREATED FLOAT GLASS

- A. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent glass, flat); Quality q3 (glazing select); <sup>1</sup>/<sub>4</sub>" thick, class, kind, and condition as indicated in schedules at the end of Part 3.

### 2.4 INSULATING GLASS - SCHEDULED (HS) & (FT).

- A. Insulating-Glass Units: Preassembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article.
  - 1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.
- B. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated in the Insulating-Glass Schedule at the end of Part 3 are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
- C. Sealing System: Dual seal, with primary and secondary sealants as follows:

- 1. Manufacturer's standard sealants.
- D. Spacer Specifications: Aluminum spacer with integral polyurethane thermal break.
  - 1. Product: Azon USA Inc "Warm-Light" 269 385 5942.
- E. Low-E Insulating Glass: Provide low-emissivity insulating-glass units complying with the following:
  - 1. Overall Unit Thickness and Thickness of Each Lite: 1"unit thickness, and ¼" thick each lite.
  - 2. Interspace Content: Argon.
  - 3. Indoor Lite: Type I (transparent glass, flat), Class 1 (clear) float glass.
    - a. Kind HS (heat strengthened), Condition C (other coated glass). Kind FT (fully tempered), Condition C (other coated glass) where safety glass is required.
  - 4. Outdoor Lite: float glass.
    - a. Class 1 (clear).
    - b. Kind HS (heat strengthened), Condition A (uncoated surfaces), Kind FT (fully tempered), Condition A (uncoated surfaces).
  - 5. Low-Emissivity Coating or Film: MSVD soft coat high performance Low E (sputtered) coating on second surface. "Solarban 70 XL" by PPG Industries, Inc.
  - 6. Visible Light Transmittance: 64%.
  - 7. Winter Nighttime U-Value: .28.
  - 8. Summer Daytime U-Value: .26
  - 9. Solar Heat Gain Coefficient: .31

### 2.5 PLASTIC GLAZING

A. General: Provide polycarbonate glazing with improved scratch resistant coating, <sup>1</sup>/<sub>4</sub>" thick.

## 2.6 ELASTOMERIC GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
  - 1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  - 3. Colors of Exposed Glazing Sealants: As selected by ARCHITECT from manufacturer's full range for this characteristic.

B. Elastomeric Glazing Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied, chemically curing sealant in the Glazing Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

### 2.7 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
  - 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
- B. Expanded Cellular Glazing Tape: Closed-cell, PVC foam tape; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
  - 1. Type 1, for glazing applications in which tape acts as the primary sealant.

#### 2.8 GLAZING GASKETS

- A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.
- B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
  - 1. Neoprene, ASTM C 864.
  - 2. EPDM, ASTM C 864.
  - 3. Silicone, ASTM C 1115.
  - 4. Thermoplastic polyolefin rubber, ASTM C 1115.
  - 5. Any material indicated above.
- C. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:
  - 1. Neoprene.
  - 2. EPDM.
  - 3. Silicone.
  - 4. Thermoplastic polyolefin rubber.
  - 5. Any material indicated above.

## 2.9 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Following the Pre-Installation conference described in 1.6 H, examine framing glazing, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

## 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

## 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.

- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Install gaskets so they protrude past face of glazing stops.

### 3.6 GLASS SCHEDULE

- A. G1: (1") Low-E Insulating Glass: Fully Tempered. Indoor lite "Clear Float Glass", ¼" thick; Outdoor lite PPG Industires "Starphire" with Solarban 70XL low E coating, ¼" thick and Azon "Warm-Lite" insulated glass spacer. All exterior glass in to be type G1, unless otherwise noted.
- B. G2: Uncoated Clear Float Glass: Where glass as designated below is indicated, provide Type I (transparent glass, flat), Class 1 (clear) glass lites complying with the following:
  - 1. Uncoated Clear Fully Tempered Float Glass, Kind FT (fully tempered), <sup>1</sup>/<sub>4</sub>"thick.
- C. G3: (1") Low-E Spandrel Insulating Glass: Fully Tempered: Indoor lite "Clear Float Glass" <sup>1</sup>/<sub>4</sub>"thick, Ceramic-coated on Fourth Surface; Outdoor lite PPG Industires "Starphire" with Solarban 70XL low E coating, <sup>1</sup>/<sub>4</sub>" thick and Azon "Warm-Lite" insulated glass spacer.

### 3.7 GLAZING SEALANT SCHEDULE

A. Low-Modulus Nonacid-Curing Silicone Glazing Sealant : Provide products complying with the following:

- 1. Products: Provide one of the following
  - a. 790; Dow Corning.
  - b. Omniseal; Sonneborn, Div of ChemRex, Inc.
  - c. Spectrem 1; Tremco.
- 2. Type and Grade: S (single component) and NS (nonsag).
- 3. Class: 25.
- 4. Use Related to Exposure: NT (nontraffic).
- 5. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.

# **END OF SECTION**