ENGINEERING DEPARTMENT

ADDENDUM TO THE CONTRACT

for the

Downtown Fire Station
Apparatus Bay Reroof
Contract No. BE17-252

ADDENDUM NO.: **TWO**

CURRENT DEADLINE FOR BIDS:
July 18, 2017

PREVIOUS ADDENDA: **ONE**

ISSUED BY: City and Borough of Juneau
ENGINEERING DEPARTMENT
155 South Seward Street
Juneau, Alaska 99801

DATE ADDENDUM ISSUED: **July 10, 2017**

The following items of the contract are modified as herein indicated. All other items remain the same. This addendum has been issued and is posted online. Please refer to the CBJ Engineering Contracts Division webpage at: http://www.juneau.org/engineering_ftp/contracts/Contracts.php

INFORMATION:

1) The plans and specifications call for extruded polystyrene flat and tapered insulation to be installed. Would it be acceptable to use expanded polystyrene?
In Addenda

2) If it acceptable to use EPS please specify type. Type I type II etc.
In Addenda

3) Please specify a minimum or average R-value for the roof insulation. (with the XPS it was a base layer at 4" and taper starting at ¼")
In Addenda (note that we are not calling out a R-value but a base layer thickness.)

4) Specification Section 075419 2.1 C.1 calls for 110 MPH 3 second gust wind loads. The assumption is that the manufacturer's warranty will be 20 year 110 MPH. Please confirm.
In Addenda (note the warranty Wind Rider is 110 mph based off of IBC 2009. The design criteria is 135 mph based off of IBC 2012 and ASCE 7. One is warranty requirement and the other is what the roof system is to be designed to)

5) If the wind speed warranty is to be 110, the manufacturer may require the cover board to be 5/8" Dens Deck or a ½" HD board.
In Addenda

6) Please confirm all existing coping flashing is to be salvaged, reinstalled and no new coping flashing is to be provided.
Review the drawings, it shows to remove and salvage all flashings and reinstall including copings.

7) Specification section 075419 2.8 calls out OMG retrofit roof drains are to be installed. Detail 4 AD 801 shows the primary drains will remain and the overflow drains will be removed. Detail 4 A801 shows the primary drain will receive a retrofit drain and strainer with the existing overflow leader piping to be capped. Please confirm the OMG SpeedTite retrofit drains are to be used in the new over flow drains that are to receive new leader piping.
Review the drawings, Detail 4/A802 calls out 2/A803 sim. Detail 2/A803 has a note on right side top "Overflow Drain Dam at Sim". Detail 2/A803 calls out 1/A803 with the same note showing sim condition. The Roof and Overflow drains are the same OMG product as specified with the overflows having an overflow dam by the manufacturer.

8) Will all of the ship ladders shown on A 201 be included in Alternate 1 or are any in the base bid?
See alternate language in 01230.3.1.A.1. "Provide ship ladders per drawings and specifications."

9) Specification section 070150.19 calls out PVC membrane to be removed at the apparatus bay. Are the areas that are not to be replaced, also PVC membrane or something else? *The roof work where existing PVC membrane assembly and the existing builtup roof is removed is at the Apparatus bay as shown in the documents. There are small areas of roof removal and repair where the Alternate for the ship ladders occurs on roofs other than the Apparatus Bay roof as shown in the documents. See AD201.*

The reason for the question is the Ships ladders are to be installed at three of the areas not scheduled for replacement and the contractor will have to flash the bases of the ladders. *The existing roofs where the Alternate ship ladders land are not replaced and will be required to be flashed to with PVC as part of the ship ladder curbs as shown in the documents.*

Please identify the membrane at these areas and the manufacturer of the membrane if available. *The existing roofs where the Alternate ship ladders land are PVC and not under warranty. They were installed around 2000 and had a 10 yr warranty. At these locations the ACM builtup roof has previously been removed. Assume there is not ACM at these locations.*

10) Will the fire suppression system require a shutdown during the roof demolition new roof installation?
In Addenda

11) Will all of the existing roof drains need to be tested and verified that they are not blocked or will the contractor only be required to test those drains in the area that the roof is to be replaced?
The contractor is only required to test the drains in the area that the roof is to be replaced.

12) Have the roof drains been tested for asbestos?
In addenda – Asbestos Abatement spec.

13) Please confirm the entire roof assembly is to be treated as ACM.
See above.

Are there photos available? Photos are available at the following link:
http://ftp.ci.juneau.ak.us/pub/CBJ_Bid_Documents/ - Click on the folder named "Downtown Fire Station Apparatus Bay Reroof – Photos"

Will there be a problem if the specified roof drains aren't UL listed. *Not that we know of. If there is, we'll deal with during submittal process.*

What is the extent of the staging area? *The contractor may use the space in front of the two most northern bays (Bays where workout room is located) for staging and parking. There is also public street parking at the rear of the fire station parking lot.*

PROJECT MANUAL:

Item No. 1 SECTION 00030 NOTICE INVITING BIDS, COMPLETION OF WORK and SECTION 00500 AGREEMENT, ARTICLE 2. CONTRACT COMPLETION TIME, ***Change*** the completion times to the following:

Work Description	**Completion Date**
Substantial Completion	October 30, 2017
Final Completion	November 30, 2017

Item No. 2 SECTION 00800 SUPPLEMENTARY GENERAL CONDITIONS, SGC 5.2 INSURANCE AMOUNTS, ***Add*** the following:

Hazardous Materials: As a condition of the Contract award, CONTRACTOR shall provide evidence of insurance coverage for Contractor's Pollution Liability. Such coverage shall include operations addressing the removal and disposal of all hazardous materials. Minimum limits shall be $1,000,000. The policy shall not contain any exclusion relating to hazardous materials. Form of such policies shall be acceptable to the OWNER.

Item No. 3 ***Add*** the attached SECTION 028213 ASBESTOS ABATEMENT, labeled Addendum No. 2, dated July 10, 2017.

Item No. 4 SECTION 070150.19 – PREPARATION FOR REFOOFING, Part 1 – GENERAL, Article 1.4 QUALITY ASSURANCE, Paragraph B. No. 2., Subparagraph j. ***Delete*** in its entirety and ***replace*** with the following: "j. Shutdown of fire-suppression, -protection, and –alarm and –detection systems, if needed."

Item No. 5 SECTION 075419 POLYVINYL-CHLORIDE ROOFING, Part 1 – GENERAL, Article 1.11 WARRANTY, Paragraph A. No. 3., ***Delete*** in its entirety and ***replace*** with the following: "3. Include coverage for damage to membrane roofing systems for wind and wind pressures up to the design values indicated. 110 mph (3 second gust) exposure C, as defined in the 2009 IBC."

Item No. 6 SECTION 075419 POLYVINYL-CHLORIDE ROOFING, Part 2-Products, Article 2.1 PERFORMANCE REQUIREMENTS, Paragraph C. No. 1. ***Delete*** in its entirety and ***replace*** with the following: "1. Wind Loads: 135 mph (3 second gust) exposure C, risk category IV, as defined in the 2012 IBC.
a. Determine loads based on ASCE 7, importance factor, exposure category, and basic wind speed indicated."

Item No. 7 SECTION 075419 POLYVINYL-CHLORIDE ROOFING, Part 2-Products, Article 2.2. POLYVINYL CHLORIDE ROOFING, Paragraph B., ***Delete*** in its entirety and ***replace*** with the following: " B. Basis of Design: Provided by Carlisle SynTec Incorporated, PO Box 7000, Carlisle, PA 17013, 800-453-2554 – ext 7021: fax 717-245-7143, www.carlisle-syntec.com. Manufacturer's Representative – Harper Winn, Inc. – Pacific Northwest Division – 206-489-5222."

Item No. 8 SECTION 075419 POLYVINYL-CHLORIDE ROOFING, Part 2 Products, Article 2.5 INSULATION ACCESSORIES, Paragraph C.1. ***Delete*** in its entirety and ***replace*** with

DRAWINGS:

Add the following drawing labeled Addendum No. 2, dated July 10, 2017: ASB201 ASBESTOS ABATEMENT PLAN

By: _____ 7/10/2017
Greg Smith,
Contract Administrator

Total number of pages contained within this Addendum: 19

SECTION 028213 – ASBESTOS ABATEMENT

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract, including General and Supplementary Conditions.

B. Contract Drawings.

1.2 SUMMARY

A. The asbestos abatement work is in support of the re-roofing of the Apparatus Bay area of the Downtown Fire Station in Juneau, Alaska.

B. Bulk sampling has identified the following asbestos containing materials (ACM) on the Apparatus Bay Roof that will impact this project:

1. Asphaltic roofing under existing non-ACM roofing membrane.

C. Bulk sampling shows the following suspect materials to be non-ACM:

1. Cement Board remnants behind flashing on parapet walls;
2. Caulk on parapet walls;
3. Coating on cement masonry unit (CMU) blocks on hose tower; and
4. Foam insulation layers between layers of membrane roofing and asphaltic roofing.

D. Visual inspection of material identifies the following materials as non-ACM:
1. Metal flashings over parapet walls (to be removed and reserved for reinstallation); and
2. Drain bowl insulation (or lack thereof) on roof drains in the Apparatus Bay.

E. The intent of the abatement portion of the overall project is to remove asphaltic roofing from the building to prepare for installation of a new roof. At the finish of the abatement project, all areas should be clean down to the roof parapet and roof deck substrates, ready application of new roofing products.

F. The abatement project includes all material, labor, equipment and other related costs for:

1. coordinating with prime contractor to determine the timing for abatement.
2. mobilizing (including moving all plant and equipment onto the site; providing necessary project utilities or improving existing utilities as necessary, arranging for approved storage areas, issuing and posting all notices, and submitting all submittals),
3. installing all necessary critical barriers to establish non-permanent asbestos control areas to isolate the various abatement areas,
4. completing all abatement elements as described in Paragraph C. above,
5. cleaning all surfaces and spaces within the confines of the asbestos control areas,
6. providing air monitoring, including appropriate elements summarized in Asbestos Air Monitoring in DEFINITIONS below, and in accordance with PART 3 EXECUTION of this

section,
7. providing on-site lab analysis for required air monitoring,
8. disposing of ACM and related demolition debris in accordance with these contract documents,
9. removing the non-permanent asbestos control areas,
10. general cleanup and demobilization.

G. Hazardous Materials drawings, along with Architectural and Civil drawings, illustrate the locations where the above-described work is necessary and allow quantification for the bidding purposes. A site visit is strongly recommended for the Abatement Subcontractor (required for General Contractor).

1.3 COORDINATION AND TIMING OF ABATEMENT ACTIVITIES

A. The building will be occupied during the project and will be in active use as a fire station.

B. The Owner will provide access to temporary power and to cold water for direct project use. Abatement Subcontractor will need to supply provisions for hot water on the site. The Abatement Subcontractor is responsible for all costs and effort required to develop those utilities for his use.

C. Security to the site shall be maintained for the duration of the abatement project. It will be the responsibility of the Abatement Subcontractor to coordinate with the CONTRACTOR and other trades to sequence the work.

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:

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

2. Alaska Department of Labor Construction Code:

Subchapter 05.045 (as amended November 27, 1991)-Construction Code (Asbestos)
Subchapter 15.0101-Hazard Communication

1. Additional References:

US EPA Publication 560/5-85-024: A Revision to the US EPA's 1985 Guidance for Controlling Asbestos Containing Materials in Buildings, March 2015
ASTM1368-14 Standard Practice for Visual Inspection of Asbestos Abatement Projects

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.

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 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 ≥ 1 but < 10 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 work properly. Until

Initial Exposure Assessment Monitoring confirms that employees on the job will not be exposed in excess of the 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 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 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 in an aggressive manner (see EPA 560/5-85-024 for description of methods). 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 Owner's option. See PART 3-EXECUTION, MONITORING for additional information.

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 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.

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:

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 Engineer. 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 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. All clearance samples for projects inside school buildings must use TEM in accordance with methods set forth in 40 CFR 760, Subpart E.

1.6 PRE-WORK SUBMITTALS

A. The Pre-Work Submittal shall be submitted digitally as a complete package and modified as necessary to obtain approval by the Engineer five working days prior to any work on the project. The abatement Subcontractor shall perform his work in compliance with the approved Pre-Work Submittal which shall include:

1. Asbestos Work Plan: A plain language plan describing 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. Location and construction of each asbestos control area.
   b. Sequencing of asbestos work, to include separate sequences if the work is to be accomplished in separate sections or phases, including detail regarding how the abatement work fits into the overall schedule for demolition.
   c. A detailed air monitoring plan that complies with 05.045 Alaska Department of Labor Construction Code (Asbestos), 29 CFR 1926.1101, current US EPA guidance, and applicable requirements of “Asbestos Air Monitoring”, “Exposure Standards”, and “Personal Monitoring” in DEFINITIONS above.
   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.
- Site instability encountered during the project.
- Spills during transport or disposal.

f. A notification listing of personnel and organizations to be contacted by the abatement Subcontractor in the event of an incident, emergency or contingency.

g. The 24-hour contact point for the abatement Subcontractor 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 the individual's qualifications proving the person's qualifications meet the requirements described in DEFINITIONS above.
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.
5. 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.

6. Testing Laboratory: If Asbestos Air Monitoring is included in the Contract, submit the name, address, telephone number and qualifications of the independent testing laboratory selected to perform the monitoring, testing and 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.
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.

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 Engineer 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 Engineer 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 Engineer notified immediately. These changes will then be submitted in writing within 24 hours for final review and approval.

C. Any analytical data collected as part of the pursuit of the WORK shall be considered the property of the Owner and shall be submitted to the Owner within 24 hours of receipt of such data.

1.7 POST-WORK SUBMITTALS

A. The Post-Work Submittal shall be submitted digitally and approved by the Engineer as complete before final payment is approved. The Post-Work Submittal shall include:

1. Work Log: 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. Copies of the complete and reviewed sampling results as an attachment.

d. A summary of each problem, incident, contingency, and emergency that occurred, and the actions taken to resolve the situation.

e. A copy of all shipping manifests that document disposal of all ACM at an approved solid waste facility.

PART 2- PRODUCTS-NOT USED

PART 3- EXECUTION

3.1 PROTECTION OF ADJACENT AREAS

A. Perform all asbestos work in such a way as to not contaminate 1) adjacent areas, or 2) interior spaces of components within the abatement area. At the finish of the abatement project, all areas should be asbestos-free and ready for demolition as non-hazardous construction. Should any areas become contaminated during the implementation of the abatement plan, such areas shall be cleaned and/or restored to their original condition as directed by the Engineer at the abatement Subcontractor’s expense.

B. Parapet flashings are to be removed and reserved for reinstallation. Any flashings damaged in the pursuit of this Work shall be replaced at the Contractor’s expense.

3.2 NOTIFICATIONS AND PERMITS

A. The abatement Subcontractor shall notify the regional office of the United States Environmental Protection Agency (US EPA) in accordance with 40 CFR 61 Subpart M.

B. The abatement Subcontractor shall also notify the Alaska Department of Labor, Occupational Safety and Health Division (AK OSHD) in accordance with current State of Alaska asbestos regulations.

C. The abatement Subcontractor shall notify the Engineer 48 hours prior to commencement of any abatement work, and immediately upon completion or termination of the work.

D. The abatement Subcontractor shall carry out removal, transportation, and disposal in accordance with state and federal requirements, 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

A. All asbestos work, including setup and teardown of the asbestos enclosure(s) and control 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

A. The abatement Subcontractor shall conduct all monitoring, training and asbestos work under the direction of the Industrial Hygienist (who is identified in the Pre-Work Submittal and whose qualifications and duties are defined in DEFINITIONS above).

B. While performing asbestos work, the abatement Subcontractor may be subject to on-site inspection by the Owner, the Engineer (or his 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 Engineer 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 Engineer, a new or amended asbestos work plan is submitted. Restart will not be accomplished without approval of the Engineer. Standby time and expenses required to resolve the violation(s) and provide new or amended submittals shall be at the abatement Subcontractor's expense.

3.5 SAFETY AND HEALTH COMPLIANCE

A. The abatement Subcontractor 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.

3.6 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. OSHA Class II asbestos WORK: 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.
2. 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.

3. 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.

3.7 MONITORING

A. At a minimum, the CONTRACTOR shall provide "Initial Exposure Assessment Monitoring" and "Personal Monitoring" all as specified in Paragraph 1.5 "DEFINITIONS", above.

B. The CONTRACTING OFFICER reserves the right to perform confirmation air monitoring including all elements summarized in Asbestos Air Monitoring in DEFINITIONS, above.

C. Clearance Procedures
1. After abatement activities are complete the abatement Subcontractor and the Engineer or his representative shall perform a detailed visual inspection of the work area for any visible asbestos residual. If any is found, a complete re-cleaning of the area shall be performed, and the area re-inspected.
2. The abatement Subcontractor shall be responsible for all costs relating to all visual inspections after the second failed visual inspection.

END OF ADDENDUM No. 1/SECTION 028213

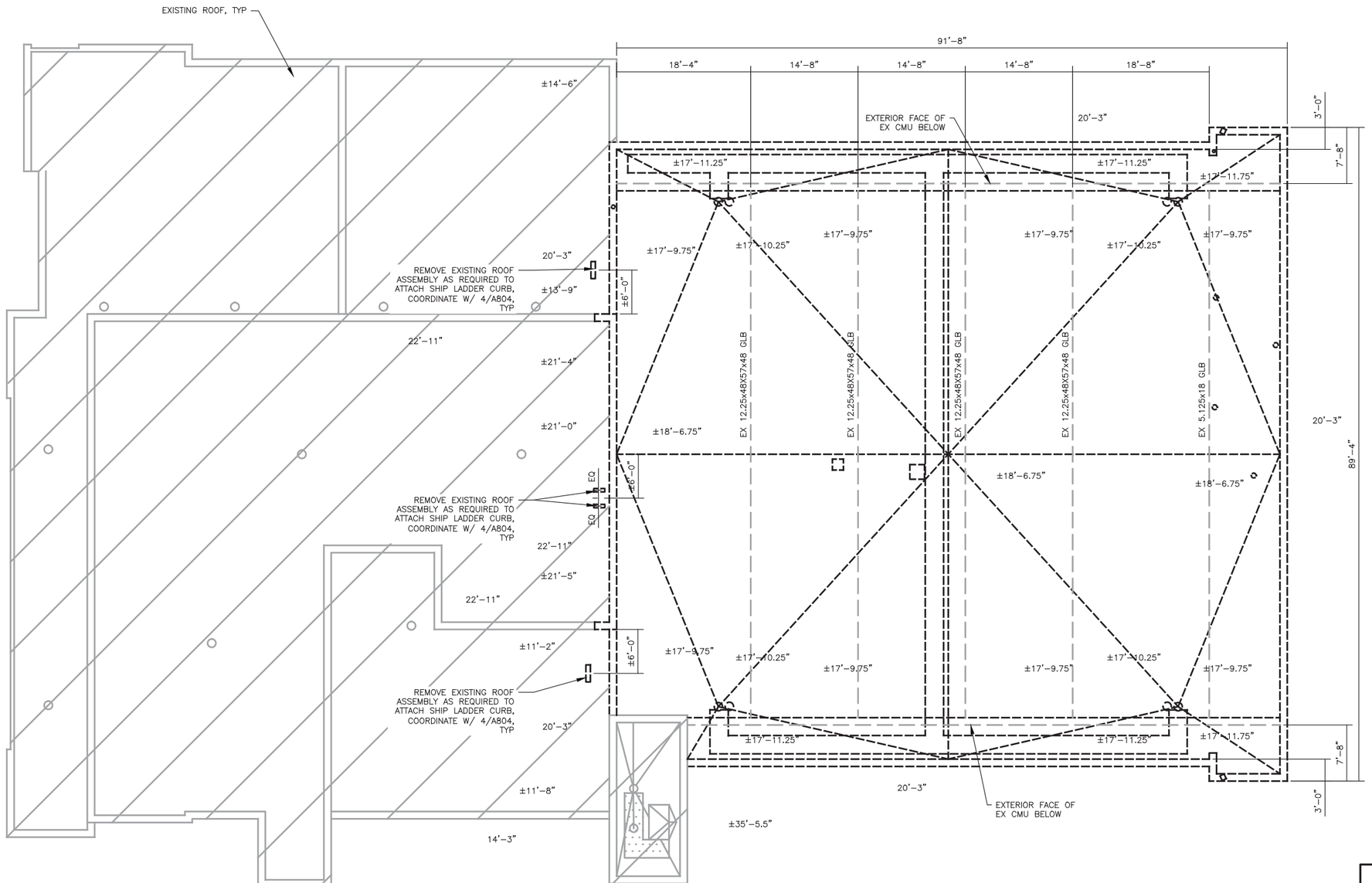
ABATEMENT GENERAL NOTES

1. METAL PARAPET FLASHING IS TO BE REMOVED INTACT AND RESERVED FOR REINSTALLATION. CALUKING ASSOCIATED WITH PARAPET FLASHINGS IS NON-ACM. THIS TASK MAY BE ACCOMPLISHED BY GENERAL CONTRACTOR OR BY ABATEMENT SUBCONTRACTOR.

2. DRAIN BOWLS ON APPARATUS BAY ROOF ARE UNINSULATED OR INSULATED WITH NON-ACM FIBERGLASS.

BASE BID ABATEMENT WORK THIS SHEET

1. REMOVE AND DISPOSE OF ACM BUILT-UP ROOFING UNDER PVC MEMBRANE, DOWN TO CLEAN PLYWOOD DECK.



1 **DEMOLITION ROOF PLAN**

SCALE: 0 4' 8' 16'

NOTE:
THESE DRAWINGS ARE BASED ON A LIMITED AMOUNT OF INFORMATION ABOUT AN EXISTING BUILDING. THE CONTRACTOR MUST FIELD VERIFY ALL INFORMATION SHOWN AND NOTIFY THE ARCHITECT OF ANY DISCREPANCY PRIOR TO MODIFICATION

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City and Borough of Juneau
DOWNTOWN FIRE STATION
APPARATUS BAY REROOF
CBJ Contract No. BE17-252
Juneau, Alaska

REVISIONS

ASBESTOS ABATEMENT PLAN ADDENDA #2 JULY 10, 2017

DATE: JULY 2017
FILE: 17047

ASB201