JUNEAU DOUGLAS CITY MUSEUM HVAC UPGRADES

VOLUME II of II

Contract No. E13-217

File No. 1832

ENGINEERING DEPARTMENT

JUNEAU DOUGLAS
CITY MUSEUM HVAC UPGRADES
CONTRACT NO. RFP E13-217

CONSTRUCTION DOCUMENTS
NOVEMBER 1, 2013

FOR:

CITY AND BOROUGH OF JUNEAU

ENGINEERING
CITY/BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

PREPARED BY:

PDC INC. ENGINEERS
MECHANICAL ENGINEERING
ELECTRICAL ENGINEERING

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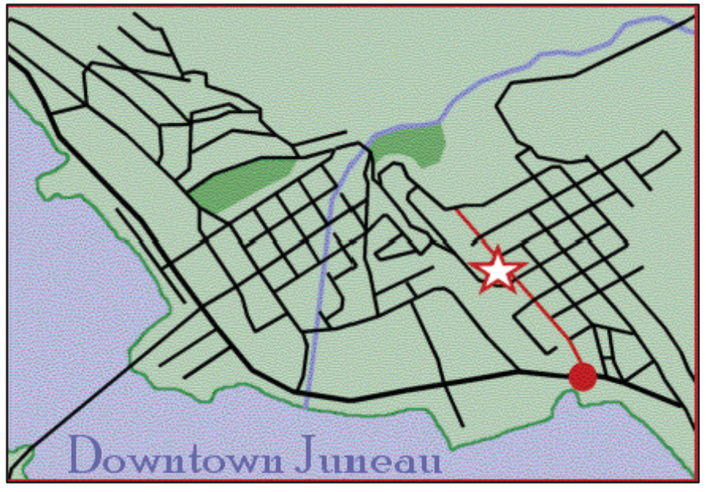
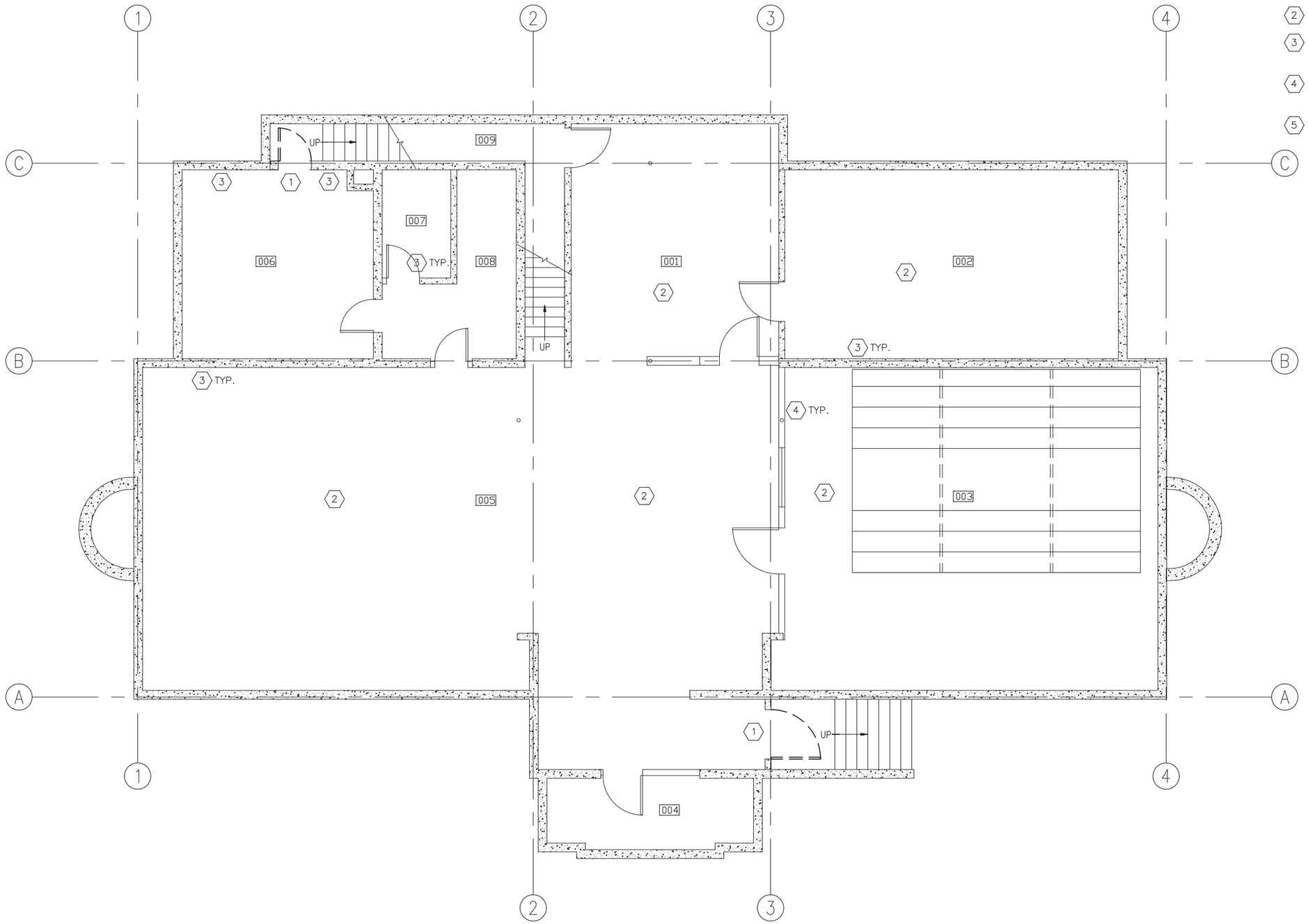
ENVIRONMENTAL ENGINEERING
AND HAZARDOUS MATERIALS



SHEET INDEX



SHEET NOTES

1. DEMOLISH DOORS & FRAMES, PREPARE FOR NEW CONSTRUCTION.
2. DEMOLISH LAY–IN CEILING & GRID.
3. CORE DRILL OR NEATLY CUT CONC. AS REQ'D FOR PIPES, DUCTS, & CONDUIT, SEE MECH. & ELEC.
4. NEATLY CUT EXTG FRAMED WALL AS REQ'D FOR PIPES, DUCTS, & CONDUIT. SEE MECH. & ELEC.
5. COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS AND ASSOCIATED MATERIALS WITH THE OWNER.

1 DEMO PLAN - BASEMENT LEVEL

Scale: 1/4" = 1'-0"

0' 2' 5'

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STATE OF ALASKA
REGISTERED PROFESSIONAL ARCHITECT
PAUL VOELCKERS
No. 8636-A

PDC INC. ENGINEERS

PROJECT :

JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13–217

JUNEAU, AK

SHEET TITLE :

ARCHITECTURAL
DEMO PLAN
BASEMENT LEVEL

CONSTRUCTION DOCUMENTS

DESIGN	
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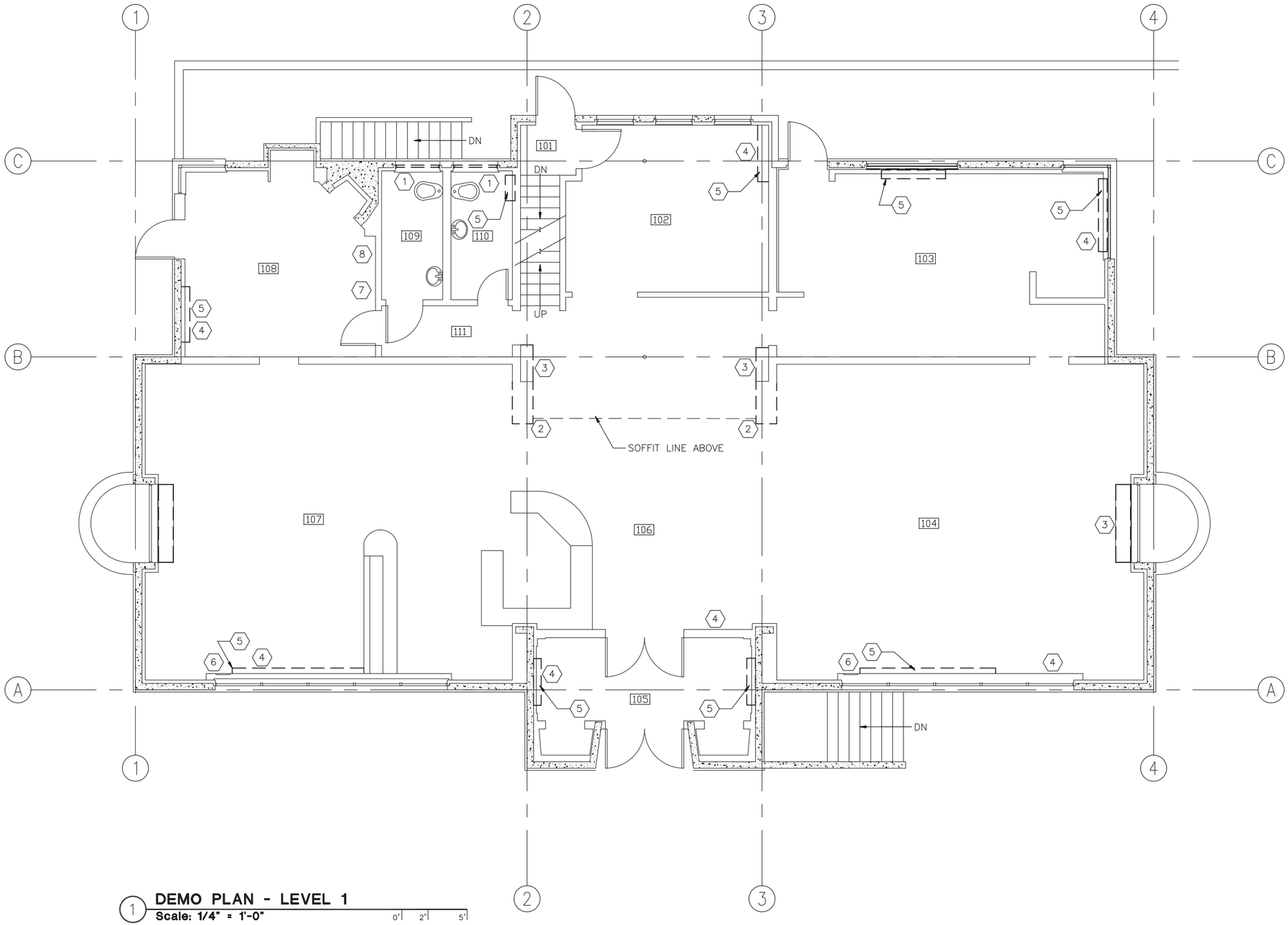
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	A101



SHEET NOTES

1. ALT. 1: DEMOLISH WINDOWS, PREPARE FOR NEW CONSTRUCTION.
2. DEMOLISH WALL AND FLOOR AS REQUIRED FOR DUCTS, PREPARE FOR NEW CONSTRUCTION. SEE MECH.
3. DEMOLISH SOFFIT, DUCT WORK & LOUVERS. PREPARE FOR NEW FINISHES.
4. DEMOLISH WALL AS REQUIRED FOR HVAC UNITS, PIPING & CONDUIT, CORE DRILL FLOOR AS REQ'D FOR PIPING. PREPARE FOR NEW CONSTRUCTION. SEE MECH.
5. DEMOLISH EXTG MECHANICAL UNIT & PIPING AS PER MECHANICAL PLANS. PREPARE FOR NEW FINISHES.
6. REMOVE ACCESS DOOR.
7. DEMOLISH FLOOR AS REQ'D FOR DUCTS, SEE MECHANICAL.
8. DEMOLISH FLOOR AS REQ'D FOR PIPING AND CONDUIT, SEE MECHANICAL AND ELECTRICAL.
9. COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAY, COLLECTIONS, ASSOCIATED MATERIALS WITH THE OWNER.

1 **DEMO PLAN - LEVEL 1**
Scale: 1/4" = 1'-0" 0' 2' 5'

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PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL
DEMO PLAN
LEVEL 1

CONSTRUCTION DOCUMENTS

DESIGN
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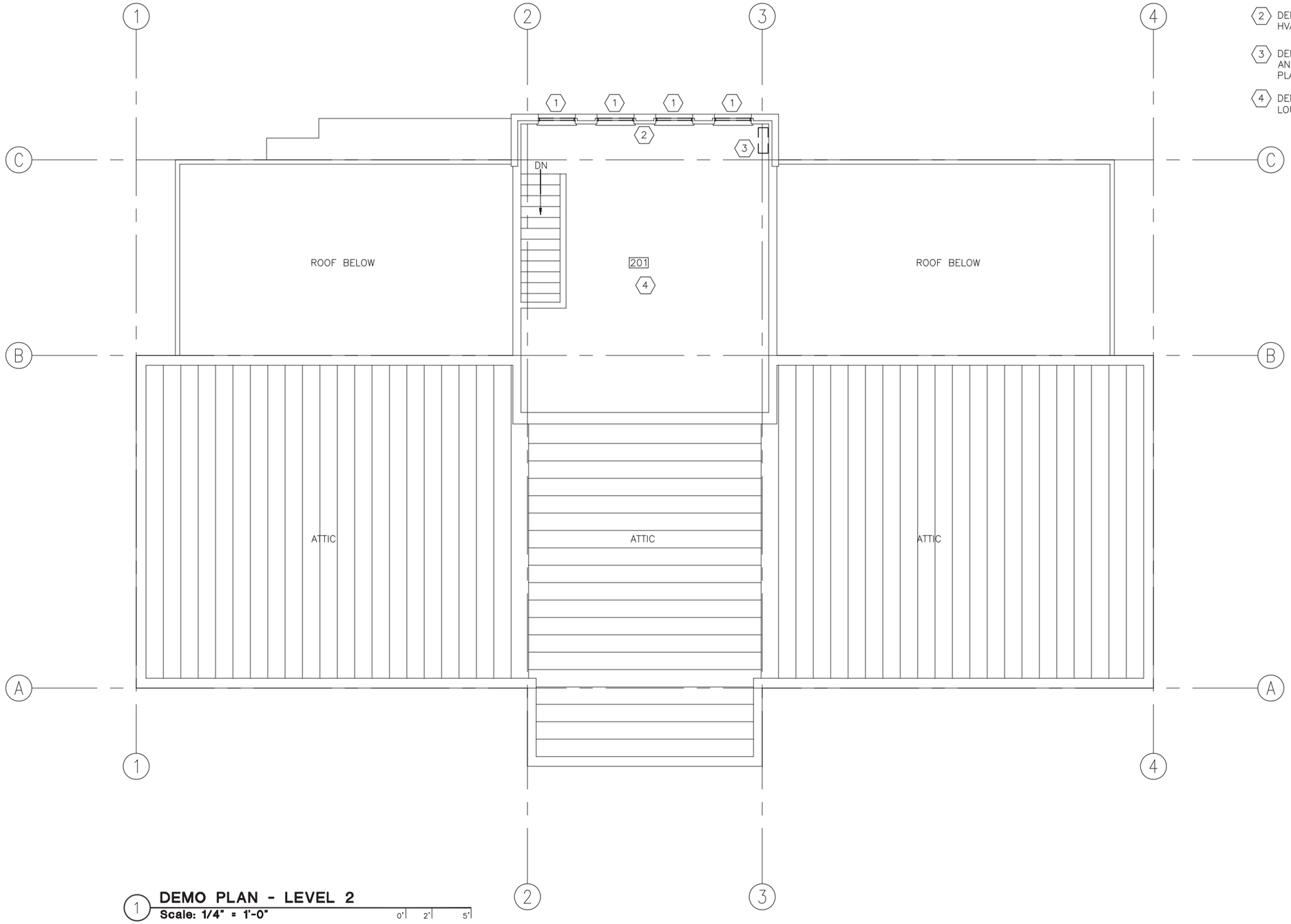
DATE 11/01/13
PROJECT No. 13028AN
SHEET NUMBER A102



SHEET NOTES

1. ALT. 1: DEMOLISH WINDOWS, PREPARE FOR NEW FINISHES.
2. DEMOLISH WALL AS REQUIRED FOR HVAC UNITS. SEE MECH.
3. DEMOLISH EXTG MECHANICAL UNIT AND PIPING AS PER MECHANICAL PLANS. PREPARE FOR NEW FINISHES.
4. DEMOLISH CEILING AS REQ'D FOR LOUVER, SEE MECHANICAL.

1 DEMO PLAN - LEVEL 2

Scale: 1/4" = 1'-0" 0' 2' 5'

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PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL
DEMO PLAN
LEVEL 2

CONSTRUCTION DOCUMENTS

DESIGN	
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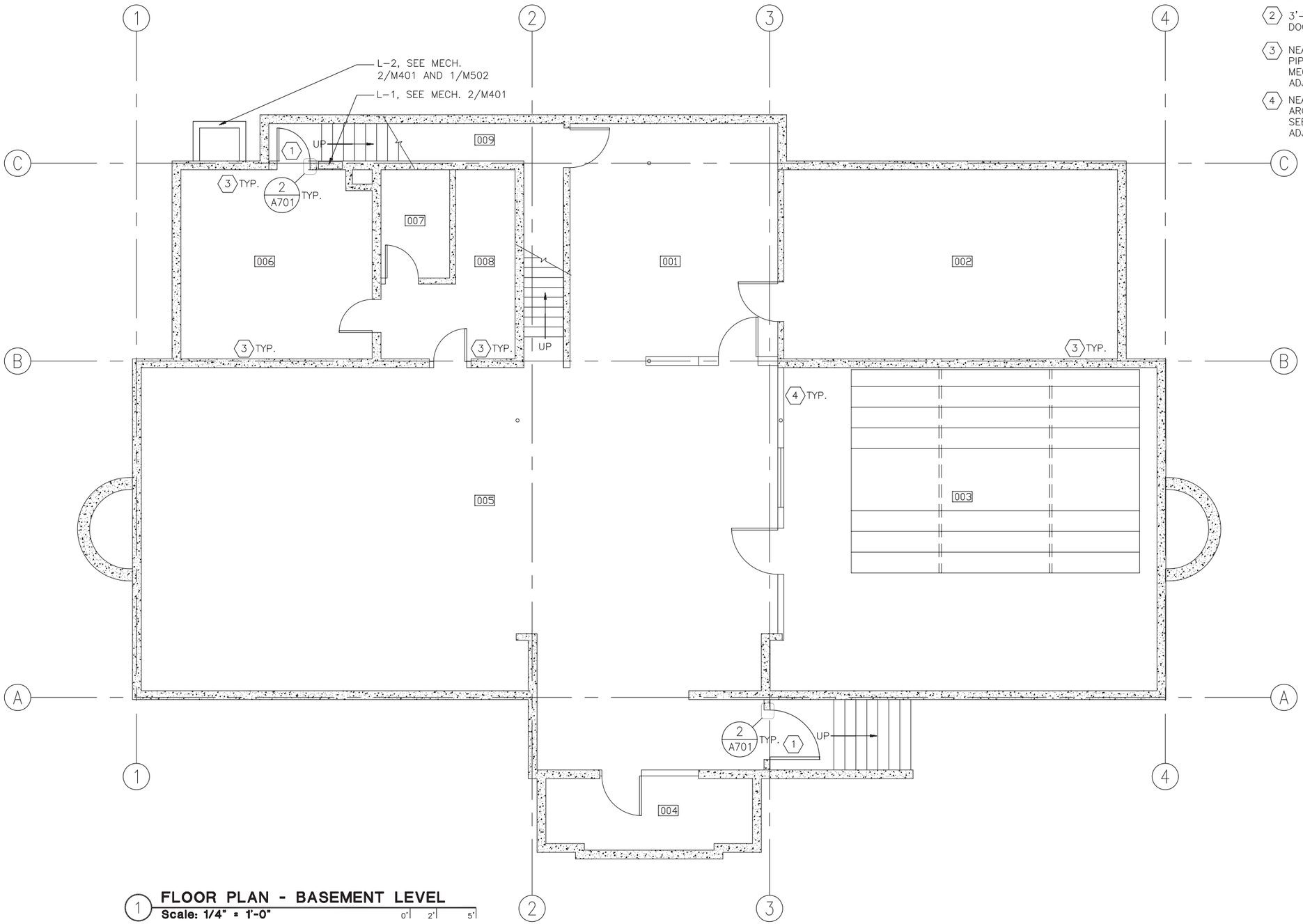
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	A103



1 **FLOOR PLAN - BASEMENT LEVEL**
Scale: 1/4" = 1'-0" 0' 2' 5'

SHEET NOTES

1. 3'-0"x7'-0" INSULATED GALV. STEEL DOOR AND FRAME. HARDWARE SET 1.
2. 3'-6"x7'-0" INSULATED GALV. STEEL DOOR AND FRAME. HARDWARE SET 1.
3. NEATLY PATCH CONC. WALLS AROUND PIPES, DUCTS, & CONDUIT, SEE MECH & ELEC. PAINT TO MATCH ADJACENT.
4. NEATLY PATCH FRAMED WALLS AROUND PIPES, DUCTS, & CONDUIT, SEE MECH. & ELEC. PAINT TO MATCH ADJACENT.

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PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL PLAN
BASEMENT LEVEL

CONSTRUCTION DOCUMENTS

DESIGN
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DATE 11/01/13
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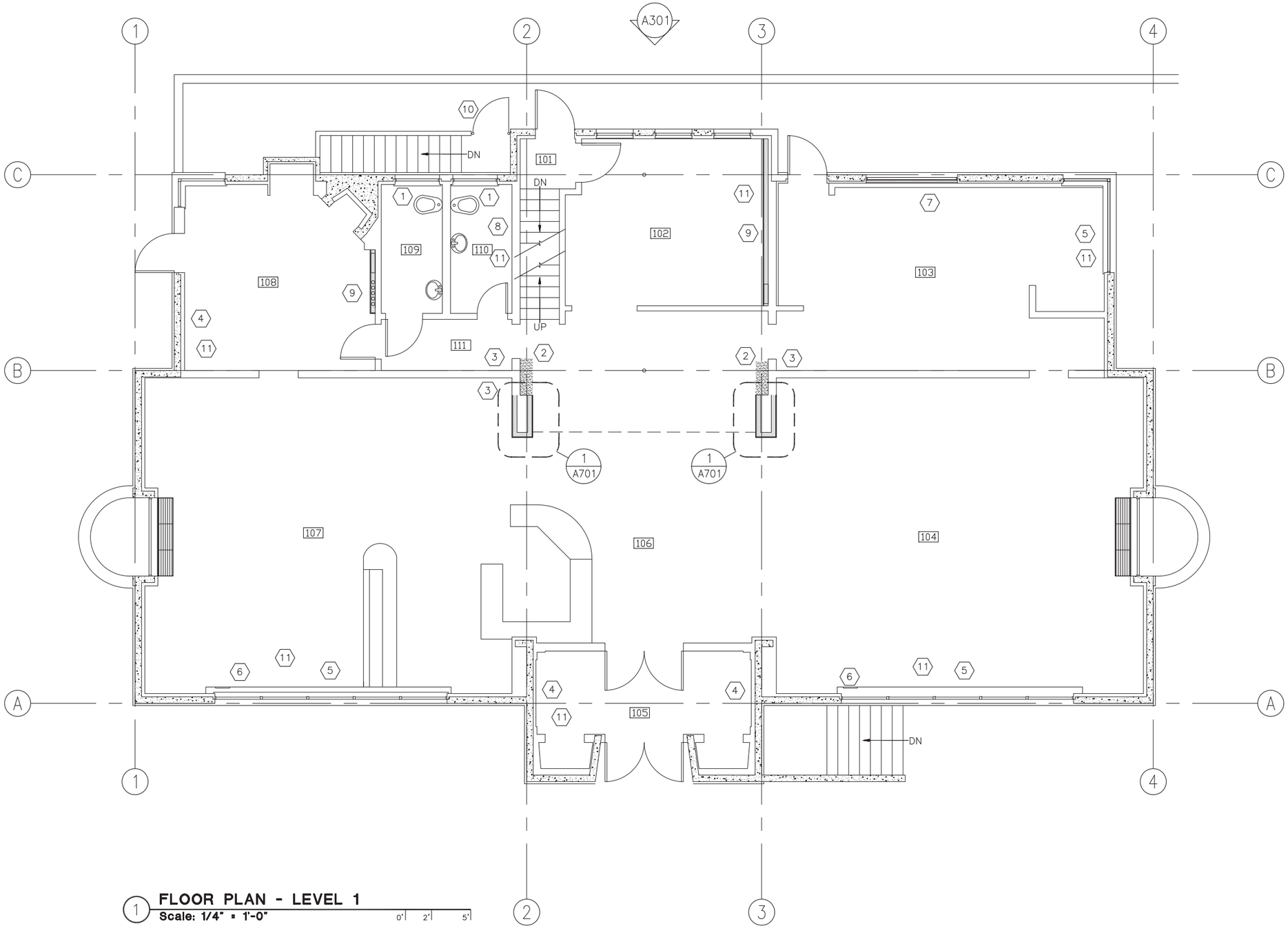
SHEET NUMBER A201



1 **FLOOR PLAN - LEVEL 1**
Scale: 1/4" = 1'-0" 0' 2' 5'

SHEET NOTES

1. ALT. 1: INSTALL WINDOWS
2. PATCH WALLS AND CEILING IN LOCATION OF REMOVED DUCT CHASE & SOFFIT W/ GWB. APPROXIMATELY 2'–3" x 2'–0". MATCH ADJACENT FINISHES.
3. PATCH WALL IN LOCATION OF REMOVED LOUVER W/ GWB & FRAMING AS REQ'D. APPROXIMATELY 12"x18". MATCH ADJACENT FINISHES.
4. PATCH WALL @ LOCATION OF REMOVED UNIT HEATER W/ FRAMING AND HARDWOOD–FACED ¾" PLYWOOD, PAINTED. TRIM JOINTS W/ 4" x ¾" HARDWOOD TRIM, PAINTED. REPLACE 6" x ¾" SHAPED HARDWOOD BASE TRIM ENTIRE LENGTH OF WALL. PAINT WAINSCOT TO 4' AFF FOR ENTIRE WALL.
5. PATCH GWB WALL @ REMOVED MECH. UNIT. COORDINATE FINISH W/ OWNER.
6. PATCH @ REMOVED ACCESS DOOR W/ GWB AND FRAMING AS REQ'D. MATCH ADJACENT FINISHES.
7. PATCH WALL IN LOCATION OF REMOVED UNIT HEATER W/ GWB & FRAMING AS REQ'D. REPLACE 6" x ¾" SHAPED HARDWOOD BASE TRIM AS REQ'D FOR SEAMLESS TRANSITION. MATCH ADJACENT FINISHES.
8. PATCH WALL IN LOCATION OF REMOVED UNIT HEATER W/ GWB & FRAMING AS REQ'D. INSTALL APPROX. 4' OF CERAMIC BASE TILE. PATCH APPROX. 6" x 4' OF CONC. FLOOR AND INSTALL CERAMIC FLOOR TILE. FLOOR TILE @ BASE TO MATCH EXTG.
9. FURRED WALL. GWB OVER 4005162–33 METAL STUDS @ 16" O.C., FULL HEIGHT. 6"x¾" HARDWOOD BASE TRIM SHAPED TO MATCH ADJACENT.
10. 3'–0" x 7'–0" CHAIN LINK GATE W/ LATCH. CORE DRILL POSTS INTO EXTG CONC. WALK.
11. PATCH WALL IN LOCATION OF NEW PIPING & MECH. UNIT. MATCH ADJACENT.

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PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13–217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL PLAN
LEVEL 1

CONSTRUCTION DOCUMENTS

DESIGN	
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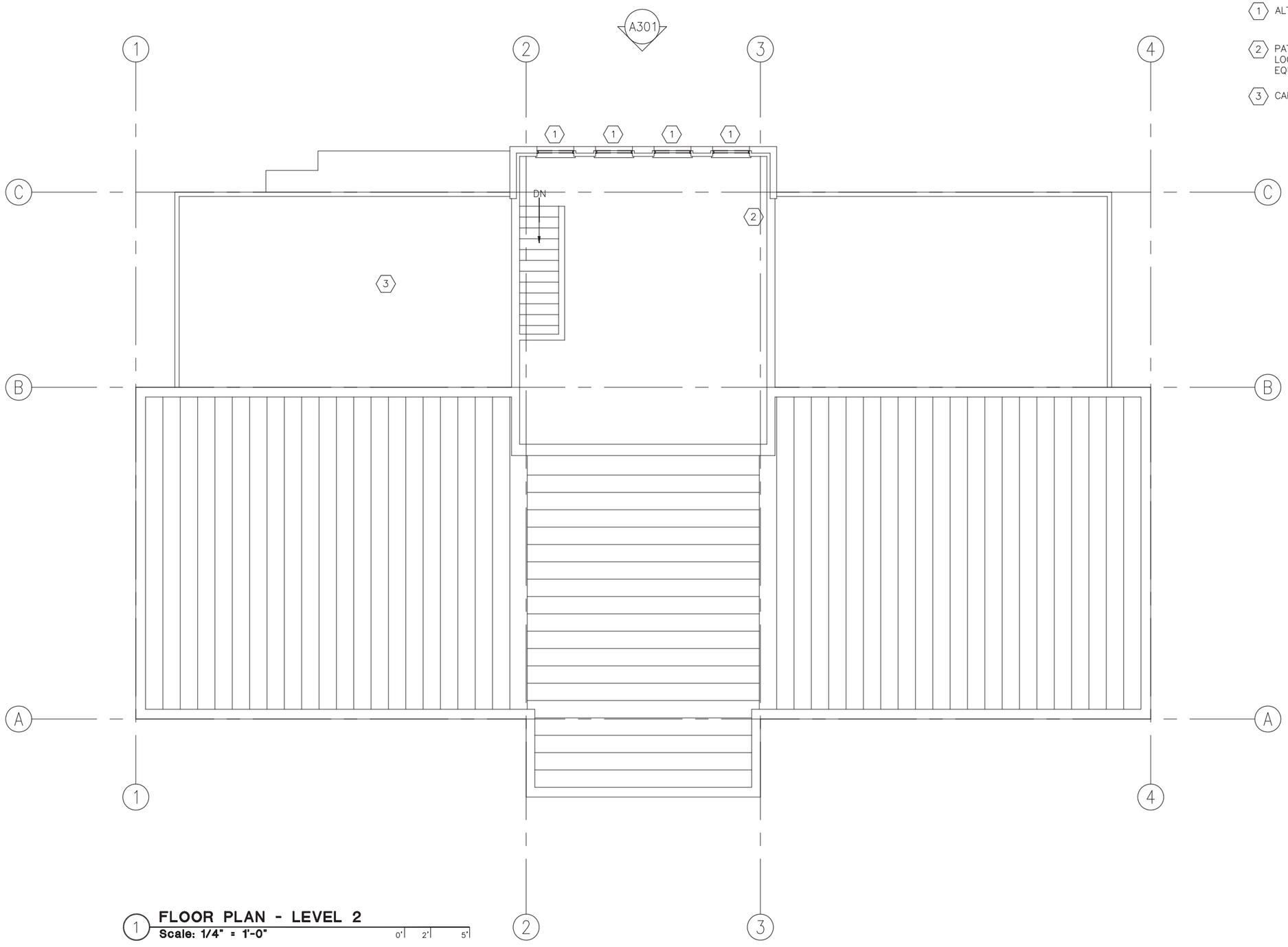
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	A202



SHEET NOTES

1. ALT. 1: INSTALL WINDOWS.
2. PATCH WALL AND FINISHES IN LOCATION OF REMOVED HVAC EQUIPMENT. SEE MECH.
3. CAP EXTG BOILER STACK WATERTIGHT.

1 FLOOR PLAN - LEVEL 2
Scale: 1/4" = 1'-0" 0' 2' 5'

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PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL PLAN
LEVEL 2

CONSTRUCTION DOCUMENTS

DESIGN
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SHEET NOTES

1. ALT. 1: EXISTING WINDOW IN CONCRETE OPENING. DOUBLE HUNG WINDOW, ROUGH OPENING 42"x33", CONTRACTOR TO VERIFY. OBSCURED GLASS.
2. ALT. 1: EXISTING WINDOW IN CONCRETE OEPNING. COMBINATION FIXED AND DOUBLE-HUNG WINDOW, ROUGH OPENING 50"x35", CONTRACTOR TO VERIFY.

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JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL
ELEVATION – NORTH

CONSTRUCTION DOCUMENTS

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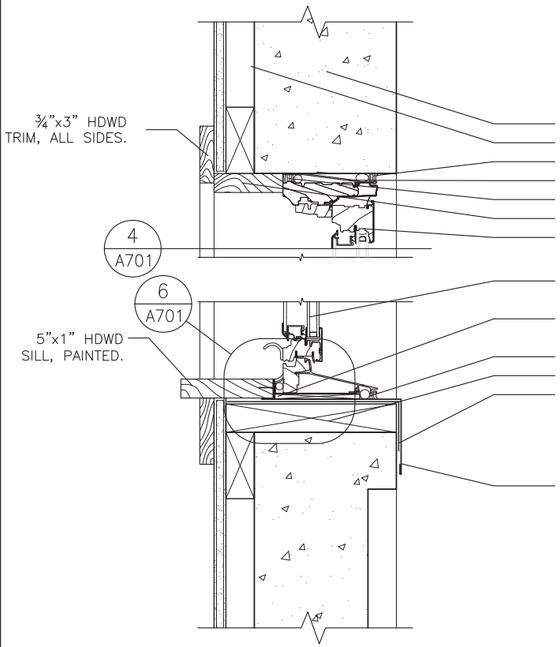
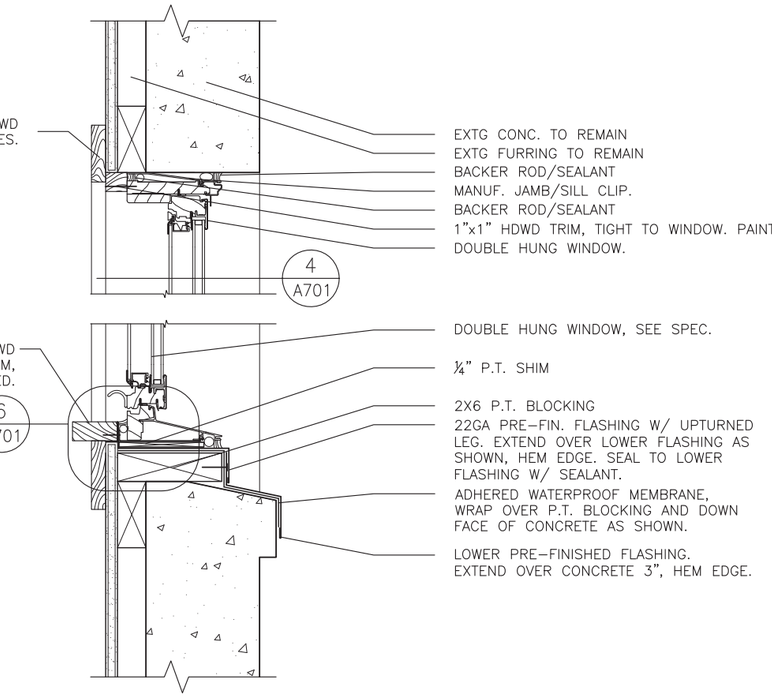
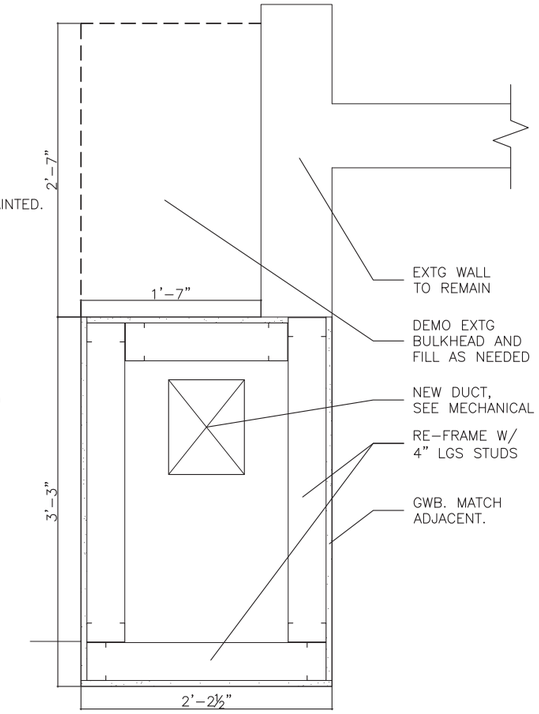
SHEET NUMBER	A301



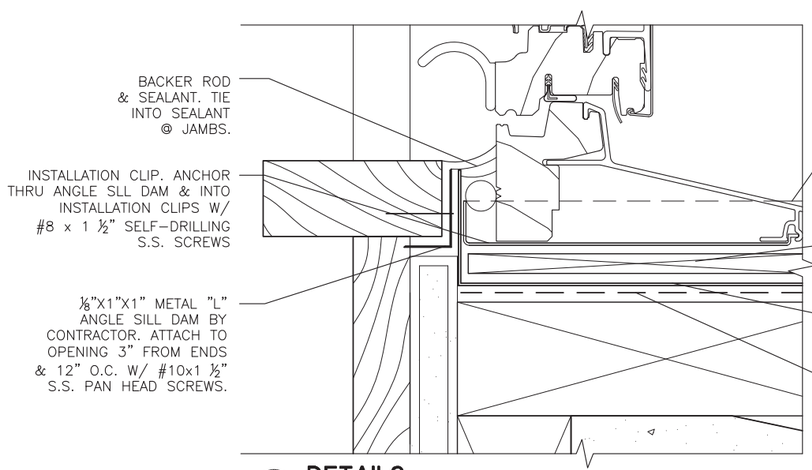
5 **NEW WINDOW @ 2ND FLOOR OFFICE, TYP.**
Scale: 3" = 1'-0" 0" 2" 6"



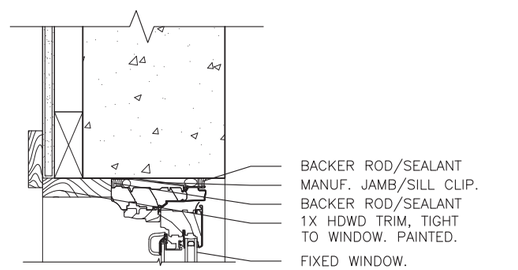
3 **NEW WINDOW @ RESTROOMS, TYP.**
Scale: 3" = 1'-0" 0" 2" 6"



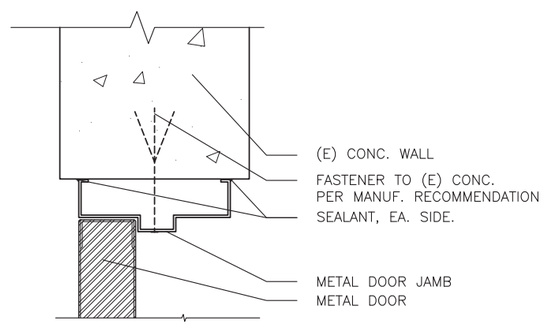
1 **FLOOR 1 VENT CHASE, TYP.**
Scale: 1-1/2" = 1'-0" 0" 4" 12"



6 **DETAILS**
Scale: 12" = 1'-0" 0" 1"



4 **FIXED JAMB**
Scale: 3" = 1'-0" 0" 2" 6"



2 **DOOR JAMB**
Scale: 3" = 1'-0" 0" 2" 6"

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PDC INC. ENGINEERS

PROJECT :
JUNEAU – DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13–217
JUNEAU, AK

SHEET TITLE :
ARCHITECTURAL DETAILS

CONSTRUCTION DOCUMENTS

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GENERAL NOTES

1. THE HAZARDS ABATEMENT PORTION OF THIS PROJECT INCLUDES THE DISTURBANCE AND/OR REMOVAL AND DISPOSAL OF SELECTED ASBESTOS-CONTAINING MATERIALS, POLYCHLORINATED BIPHENYL (PCB) CONTAINING LIGHT BALLASTS, MERCURY-CONTAINING MATERIALS, AND LEAD-CONTAINING MATERIALS. THE PURPOSE OF THE HAZARDS ABATEMENT PORTION OF THE WORK IS TO REMOVE THESE MATERIALS FROM THE JUNEAU-DOUGLAS CITY MUSEUM PRIOR TO RENOVATION OR DEMOLITION SO THAT PERSONNEL CAN SAFELY PERFORM THEIR WORK WITHOUT CREATING HAZARDS TO HEALTH OR THE ENVIRONMENT.

2. THE WORK DOES NOT INCLUDE REMOVAL OF ALL HAZARDOUS MATERIALS IN THE BUILDING. REMOVE HAZARDOUS MATERIALS COORDINATING WITH OTHER TRADES, AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS AND AS REQUIRED TO COMPLETE THE WORK. "REMOVAL" INCLUDES PROPER HANDLING, PACKAGING AND DISPOSAL OF MATERIALS REMOVED.

3. POTENTIALLY HAZARDOUS MATERIALS SUCH AS MERCURY-CONTAINING LAMPS AND THERMOSTATS, METALLIC LEAD ITEMS, REFRIGERANTS, HEATING SYSTEM GLYCOL AND PCB CONTAINING BALLASTS AFFECTED BY THE PROJECT ARE TO BE REMOVED AND DISPOSED OF PROPERLY. REFER TO SPECIFICATIONS AND THE CONTRACTOR'S APPROVED WORK PLAN FOR HAZARDOUS MATERIALS REMOVAL, DISTURBANCE AND DISPOSAL PROCEDURES.

4. LEAD-BASED PAINTS (PAINT CONTAINING EQUAL TO OR GREATER THAN 1.0 mg/cm^2) WERE IDENTIFIED DURING THE LIMITED LEAD TESTING SHOWN IN THE HAZMAT SURVEY, AND LEAD-BASED PAINTS MAY BE PRESENT AT OTHER LOCATIONS. LOW LEVELS OF LEAD FOUND BY XRF TESTING DOES NOT MEAN THE PAINTS ARE FREE OF LEAD, THE PAINTS MAY CONTAIN MEASURABLE AMOUNTS OF LEAD. LEAD-CONTAINING MATERIALS INCLUDE ALL PAINTED SURFACES, CERAMIC TILES, AND METALLIC LEAD, AS WELL AS LEAD-CONTAINING DUSTS. THIS IS NOT A LEAD ABATEMENT PROJECT, AND ALL TRADES WILL LIKELY DISTURB SOME LEAD-CONTAINING MATERIALS. CONTROL WORKER EXPOSURES USING LEAD-SAFE WORK PRACTICES AND CHOICE OF MEANS AND METHODS OF CONDUCTING THE WORK TO COMPLY WITH 29 CFR 1926.62 AND TO AVOID CONTAMINATION OF THE WORK AREA AND SITE.

5. PERFORM INITIAL AIR MONITORING TESTS ON ALL TASKS THAT DISTURB ASBESTOS OR LEAD-CONTAINING MATERIALS, DUST OR PAINT TO DETERMINE THE APPROPRIATE WORKER AND SITE PROTECTION PROCEDURES REQUIRED. DUE TO THE AGE OF THE BUILDINGS, METALLIC LEAD IS ASSUMED PRESENT IN BELL AND SPIGOT PIPE JOINTS AND IN SOLDER ON COPPER PIPES.

6. SETTLED AND CONCEALED DUST ON ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL COMPONENTS THROUGHOUT THE PROJECT AREA IS ASSUMED TO CONTAIN REGULATED AIR CONTAMINATES INCLUDING ASBESTOS AND LEAD. WORK OF ALL TRADES MAY INCLUDE DISTURBANCE OF ASBESTOS AND LEAD AND MAY RESULT IN WORKER EXPOSURE TO ASBESTOS AND LEAD ABOVE THE OSHA ACTION LEVEL OR PERMISSIBLE EXPOSURE LIMITS FOR ASBESTOS OR LEAD IF PROPER WORK PRACTICES AND/OR ENGINEERING CONTROLS ARE NOT USED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE APPROPRIATE WORKER AND SITE PROTECTION PROCEDURES SO THAT THEIR WORKERS ARE NOT EXPOSED ABOVE THOSE LIMITS AND THAT WORK IS PERFORMED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS. THE PRESENCE OF ASBESTOS OR LEAD IN DUSTS DOES NOT NECESSARILY MAKE THEM A HAZARD TO WORKERS OR A HAZARDOUS WASTE.

7. THE CONTRACTOR'S INDEPENDENT LABORATORY SHALL PROVIDE ALL INSPECTIONS, MONITORING, SAMPLING, ANALYSES AND REPORTING SERVICES AS SPECIFIED. CLEARANCE AIR MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH 40 CFR 763. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION ON SAMPLING.

8. LOCATIONS OF MATERIALS SHOWN ON THESE DRAWINGS ARE SCHEMATIC AND APPROXIMATE. FIELD VERIFY AND COORDINATE CONSTRUCTION DETAILS, DIMENSIONS, WORK CONDITIONS, AND LOCATIONS WHICH WILL AFFECT THE REMOVAL OR DISTURBANCE OF HAZARDOUS MATERIALS. HAZARDOUS MATERIALS MAY HAVE COME LOOSE AND FALLEN ONTO FLOORS, CEILINGS, CHASES, OR WALL CAVITIES. THE QUANTITIES SHOWN IN THE SHEET SUMMARY ARE APPROXIMATE AND MAY VARY DEPENDING ON THE CONTRACTOR'S MEANS AND METHODS. REQUIRE ALL TRADES TO COORDINATE WITH EACH OTHER AND TO CONDUCT THEIR WORK TO PREVENT WORKER EXPOSURE OR SITE CONTAMINATION, SEE DRAWINGS OF ALL DISCIPLINES FOR ADDITIONAL INFORMATION RELATING TO HAZARDOUS MATERIALS. IMMEDIATELY COMMUNICATE ALL DISCREPANCIES IN QUANTITIES TO THE OWNER. REFER TO HAZARDOUS MATERIALS SURVEY FOR MORE INFORMATION ABOUT POTENTIALLY HAZARDOUS MATERIALS THAT ARE NOT SCHEDULED FOR DISTURBANCE BY THIS PROJECT. FURNISH ALL WORK AND MATERIALS REQUIRED FOR A FINISHED PROJECT AS DESCRIBED IN THE CONTRACT DOCUMENTS.

10. BUILDINGS TO BE RENOVATED OR DEMOLISHED INCLUDE STORED MATERIALS AND CHEMICALS, SUCH AS PAINTS, CLEANING COMPOUNDS, THINNERS, SOLVENTS, ETC. THE OWNER WILL REMOVE AND SALVAGE MATERIALS FOR THEIR CONTINUED USE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL STORED MATERIALS AND CHEMICALS THAT THE OWNER CHOOSES TO LEAVE IN PLACE IN THE BUILDINGS.

11. PROVIDE ALL WASTE TESTING, PACKAGING, HANDLING, TRANSPORTATION AND DISPOSAL. ALL COSTS FOR DISPOSAL SHALL BE BORNE BY THE CONTRACTOR. PERFORM TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST(S) OF WASTE(S) CONTAINING LEAD OR PAINTED WITH LEAD-CONTAINING PAINT TO CHARACTERIZE THE WASTE(S) AS HAZARDOUS OR NON-HAZARDOUS PRIOR TO DISPOSAL. COORDINATE REQUIREMENTS OF LANDFILL(S) REGARDING MATERIALS PACKAGING, HANDLING, AND DISPOSAL REQUIREMENTS PRIOR TO SUBMITTING BID.

SHEET NOTES

HAZARDS ABATEMENT DRAWINGS DO NOT SHOW ALL DETAILS OF WORK REQUIRED. ALL TRADES SHALL EXAMINE DRAWINGS OF OTHER TRADES AND COORDINATE WITH EACH OTHER TO DETERMINE EXTENT, TIMING AND LOCATIONS OF MATERIALS AFFECTED BY THE PROJECT.

(1) REMOVE ASBESTOS-CONTAINING "MAG" AND "AIRCELL" INSULATION AND PIPING. PIPING IS EXPOSED AND CONCEALED ABOVE CEILINGS AND INSIDE WALLS. REMOVE ASBESTOS-CONTAINING GASKETS AT VALVES, FITTINGS, ETC.

(2) REMOVE BOILER AND BOILER BASE WITH ASBESTOS-CONTAINING INTERIOR AND EXTERIOR INSULATION, GASKETS, SEALANTS, AND CONTAMINATED FIRE BRICK.

(3) REMOVE AND/OR CREATE PENETRATIONS IN CARPETING OR VINYL ASBESTOS TILE AND COMPLETELY REMOVE ASBESTOS-CONTAINING OR CONTAMINATED MASTIC, INCLUDING UNDER WALLS SCHEDULED FOR DEMOLITION AS REQUIRED TO COMPLETE THE WORK. LOCATIONS OF DIFFERENT TYPES AND MULTIPLE LAYERS OF ACM NOT SHOWN SHOWN BY LEGEND.

(4) REMOVE AND/OR CREATE PENETRATIONS IN FOAM BOARD INSULATION WITH ASBESTOS-CONTAINING MASTIC, INCLUDING ALL MASTIC FROM CMU SUBSTRATE AS REQUIRED TO COMPLETE THE WORK.

(5) REMOVE AND DISPOSE OF WINDOWS WITH ASBESTOS-CONTAINING GLAZING COMPOUNDS. WINDOWS THROUGHOUT HAVE ASBESTOS-CONTAINING GLAZING COMPOUNDS BUT ARE NOT SHOWN IF NOT AFFECTED.

(6) REMOVE AND/OR CREATE PENETRATIONS IN CONCEALED ASBESTOS-CONTAINING FLAT ROOFING WITH ASBESTOS-CONTAINING SEALANTS AT FLASHINGS, ETC. AS REQUIRED TO COMPLETE THE WORK.

(7) REMOVE LAY-IN CEILING TILES AND CLEAN ALL ABOVE CEILING SURFACES WITH CONTAMINATION FROM ASBESTOS-CONTAINING "MAG" AND "AIRCELL" PIPE INSULATION.

(8) REMOVE FLUORESCENT LIGHT FIXTURES WITH PCB-CONTAINING BALLASTS AND MERCURY-CONTAINING LIGHT TUBES. REMOVE THERMOSTATS, SWITCHES AND OTHER ELECTRICAL DEVICES CONTAINING MERCURY.

(9) REMOVE WINDOW MOUNTED AIR CONDITIONING UNIT WITH OZONE DEPLETING SUBSTANCES. COORDINATE POSSIBLE SALVAGE WITH OWNER.

LEGEND

BOILER AND BOILER BASE WITH ASBESTOS-CONTAINING INTERIOR AND EXTERIOR INSULATION, GASKETS, SEALANTS, AND CONTAMINATED FIRE BRICK TO BE REMOVED.

LOCATION OF CARPETING OR VINYL ASBESTOS TILE AND ASBESTOS-CONTAINING OR CONTAMINATED MASTIC. DISTURB ONLY AS NECESSARY TO COMPLETE THE WORK. LOCATIONS OF DIFFERENT TYPES AND MULTIPLE LAYERS OF ACM NOT SHOWN SHOWN BY LEGEND, REFER TO SHEET SUMMARY.

LOCATION OF CONCEALED ASBESTOS-CONTAINING FLAT ROOFING WITH ASBESTOS-CONTAINING SEALANTS AT FLASHINGS, ETC. DISTURB ONLY AS NECESSARY TO COMPLETE THE WORK.

LOCATION OF LAY-IN CEILING TILES, LIGHT FIXTURES, DUCTS, ETC. WITH CONTAMINATION FROM ASBESTOS-CONTAINING "MAG" AND "AIRCELL" PIPE INSULATION.

REMOVE ASBESTOS-CONTAINING "MAG" AND "AIRCELL" INSULATION AND PIPING. PIPING IS EXPOSED AND CONCEALED ABOVE CEILINGS AND INSIDE WALLS. REMOVE ASBESTOS-CONTAINING GASKETS AT VALVES, FITTINGS, ETC.

LOCATION OF FOAM BOARD INSULATION WITH ASBESTOS-CONTAINING MASTIC. DISTURB ONLY AS NECESSARY TO COMPLETE THE WORK.

LOCATION OF WINDOWS WITH ASBESTOS-CONTAINING GLAZING COMPOUNDS TO BE REMOVED UNDER ALTERNATE 1.

ESTIMATED QUANTITIES TO BE REMOVED (ENTIRE PROJECT)

INCIDENTAL QUANTITIES OF MATERIALS, INCLUDING LEAD-CONTAINING MATERIALS, THAT ARE REQUIRED TO BE REMOVED TO COMPLETE THE WORK, BUT OTHERWISE ARE TO REMAIN, ARE NOT INCLUDED HERE, AS THEY WILL VARY DEPENDING ON THE CONTRACTOR'S CHOICE OF MEANS AND METHODS.

50	EACH ASBESTOS-CONTAINING "MAG" INSULATION AT PIPE FITTINGS, ELBOWS, VALVES, AND HANGARS
475	LINEAR FEET OF ASBESTOS-CONTAINING "AIRCELL" PIPE INSULATION
75	SQUARE FOOT ALLOWANCE OF CARPETING OR VINYL ASBESTOS TILE AND ASBESTOS-CONTAINING OR CONTAMINATED MASTIC
5	SQUARE FOOT ALLOWANCE OF FOAM BOARD INSULATION WITH ASBESTOS-CONTAINING MASTIC
50	SQUARE FOOT ALLOWANCE OF CONCEALED ASBESTOS-CONTAINING FLAT ROOFING
2,630	SQUARE FEET OF PLANAR AREA OF LAY-IN CEILING TILES, LIGHTS, DUCTS, ETC. WITH CONTAMINATION FROM ASBESTOS-CONTAINING "MAG" AND "AIRCELL" PIPE INSULATION. DOES NOT INCLUDE DEVELOPED SQUARE FOOTAGE OF ALL SURFACES REQUIRED TO BE CLEANED.
170	EACH MERCURY-CONTAINING FLUORESCENT LIGHTS TO BE REMOVED
100	EACH PCB-CONTAINING BALLASTS TO BE REMOVED
1	EACH WINDOW MOUNTED AIR CONDITIONING UNIT WITH OZONE DEPLETING SUBSTANCES
140	SQUARE FEET OF ASBESTOS-CONTAINING EXTERIOR BOILER INSULATION
140	SQUARE FEET OF ASBESTOS-CONTAINING INTERIOR BOILER INSULATION
1	LOT ASBESTOS-CONTAINING GASKETS AND SEALANTS ON PIPING
35	SQUARE FEET OF WINDOWS WITH ASBESTOS-CONTAINING WINDOW GLAZING COMPOUNDS UNDER ALTERNATE 1

1 / H001 HAZARDS ABATEMENT – GENERAL AND SHEET NOTES AND QUANTITIES

NOTIFICATION OF POTENTIAL HAZARDS

ASBESTOS, LEAD AND OTHER HAZARDOUS MATERIALS ARE PRESENT IN THE BUILDING THAT MAY IMPACT THE WORK OF ALL TRADES. REGULATED AIR CONTAMINANTS, INCLUDING ASBESTOS AND LEAD, ARE ASSUMED PRESENT IN SETTLED AND CONCEALED DUST IN AND ON ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL COMPONENTS OR SYSTEMS THROUGHOUT THE BUILDING. ALL TRADES SHALL COORDINATE WITH OTHER TRADES AND CONDUCT THEIR WORK TO PREVENT WORKER EXPOSURE OR SITE CONTAMINATION. REFER TO HAZARDOUS MATERIALS SURVEY REPORT, AIRBORNE CONTAMINANT CONTROL AND HAZARDOUS MATERIALS TECHNICAL SPECIFICATIONS FOR SPECIFIC INFORMATION CONCERNING DISTURBING, REMOVING AND DISPOSING OF THESE MATERIALS AND THE INSTALLATION OF NEW MATERIALS OR COMPONENTS. THIS NOTIFICATION IS PROVIDED IN ACCORDANCE WITH EPA AND OSHA REQUIREMENTS.

CONSULTANT: EHS ALASKA INCORPORATED – ENGINEERING, HEALTH & SAFETY CONSULTANTS

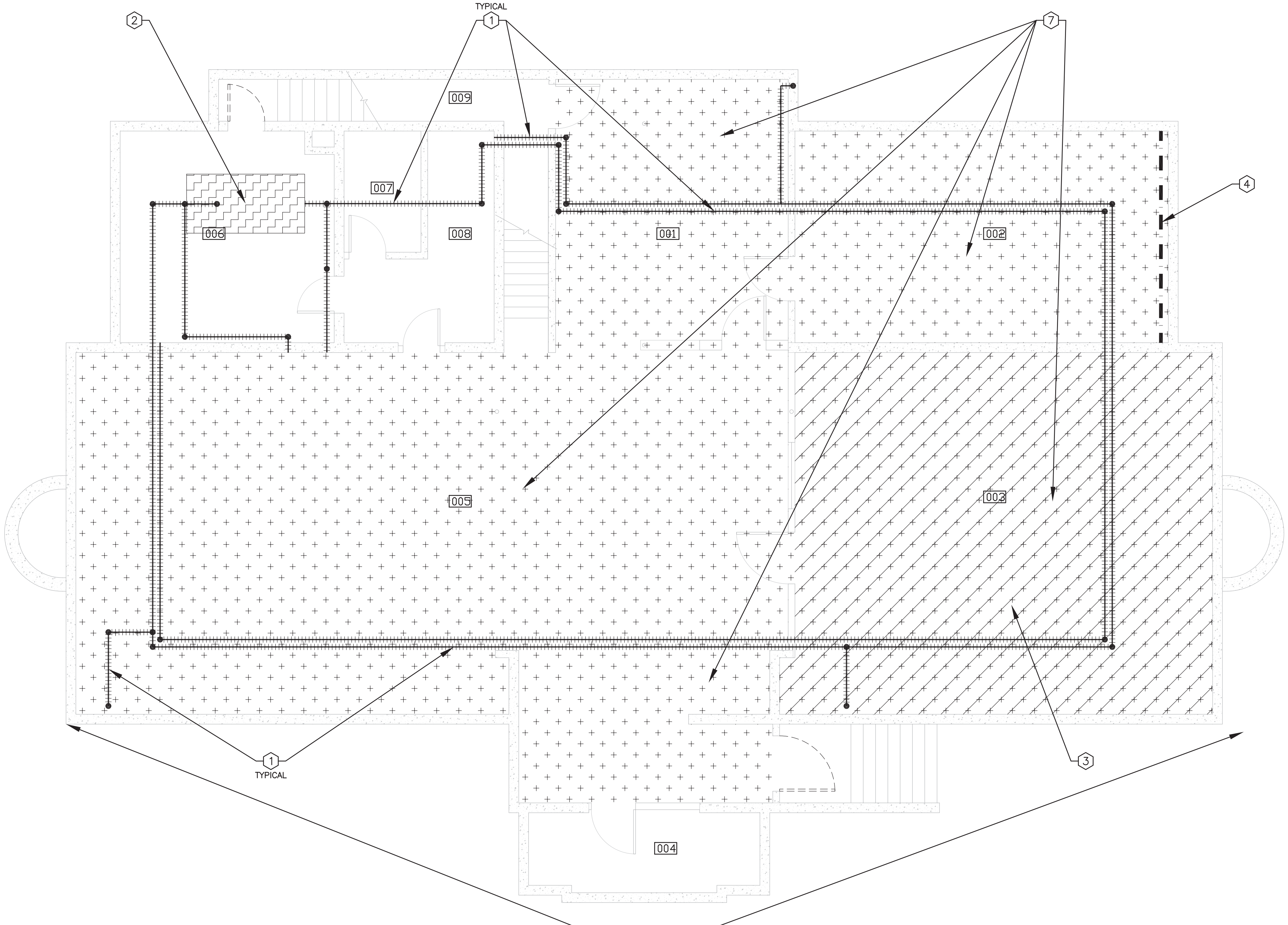
STATE OF ALASKA – 49TH – Robert A. French – 11-1-13 – No. ME9128 – REGISTERED PROFESSIONAL ENGINEER

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT: JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE: HAZARDS ABATEMENT GENERAL AND SHEET NOTES AND QUANTITIES
CONSTRUCTION DOCUMENTS

DESIGN	RAF
DRAWN	CTO
CHECKED	RAF
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	H001



1 / H101 HAZARDS ABATEMENT – BASEMENT LEVEL
FULL SIZE: 1/4" = 1'-0" HALF SIZE: 1/8" = 1'-0"

SHEET NOTES

HAZARDS ABATEMENT DRAWINGS DO NOT SHOW ALL DETAILS OF WORK REQUIRED. ALL TRADES SHALL EXAMINE DRAWINGS OF OTHER TRADES AND COORDINATE WITH EACH OTHER TO DETERMINE EXTENT, TIMING AND LOCATIONS OF MATERIALS AFFECTED BY THE PROJECT.

1. REMOVE ASBESTOS–CONTAINING "MAG" AND "AIRCELL" INSULATION AND PIPING. PIPING IS EXPOSED AND CONCEALED ABOVE CEILINGS AND INSIDE WALLS. REMOVE ASBESTOS–CONTAINING GASKETS AT VALVES, FITTINGS, ETC.
2. REMOVE BOILER AND BOILER BASE WITH ASBESTOS–CONTAINING INTERIOR AND EXTERIOR INSULATION, GASKETS, SEALANTS, AND CONTAMINATED FIRE BRICK.
3. REMOVE AND/OR CREATE PENETRATIONS IN CARPETING OR VINYL ASBESTOS TILE AND COMPLETELY REMOVE ASBESTOS–CONTAINING OR CONTAMINATED MASTIC, INCLUDING UNDER WALLS SCHEDULED FOR DEMOLITION AS REQUIRED TO COMPLETE THE WORK. LOCATIONS OF DIFFERENT TYPES AND MULTIPLE LAYERS OF ACM NOT SHOWN SHOWN BY LEGEND.
4. REMOVE AND/OR CREATE PENETRATIONS IN FOAM BOARD INSULATION WITH ASBESTOS–CONTAINING MASTIC, INCLUDING ALL MASTIC FROM CMU SUBSTRATE AS REQUIRED TO COMPLETE THE WORK.
5. REMOVE AND DISPOSE OF WINDOWS WITH ASBESTOS–CONTAINING GLAZING COMPOUNDS. WINDOWS THROUGHOUT HAVE ASBESTOS–CONTAINING GLAZING COMPOUNDS BUT ARE NOT SHOWN IF NOT AFFECTED.
6. REMOVE AND/OR CREATE PENETRATIONS IN CONCEALED ASBESTOS–CONTAINING FLAT ROOFING WITH ASBESTOS–CONTAINING SEALANTS AT FLASHINGS, ETC. AS REQUIRED TO COMPLETE THE WORK.
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9. REMOVE WINDOW MOUNTED AIR CONDITIONING UNIT WITH OZONE DEPLETING SUBSTANCES. COORDINATE POSSIBLE SALVAGE WITH OWNER.

LEGEND

BOILER AND BOILER BASE WITH ASBESTOS–CONTAINING INTERIOR AND EXTERIOR INSULATION, GASKETS, SEALANTS, AND CONTAMINATED FIRE BRICK TO BE REMOVED.

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LOCATION OF WINDOWS WITH ASBESTOS–CONTAINING GLAZING COMPOUNDS TO BE REMOVED UNDER ALTERNATE 1.

NOTIFICATION OF POTENTIAL HAZARDS

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CONSULTANT :
EHS ALASKA INCORPORATED
ENGINEERING, HEALTH & SAFETY CONSULTANTS
11901 Business Blvd, Suite 208, Eagle River, AK 99577-7701
PH: 907-694-1383
FAX: 907-694-1382
www.ehs-alaska.com

STATE OF ALASKA 49TH
Robert A. French
11-1-13
No. ME9128
REGISTERED PROFESSIONAL ENGINEER

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
HAZARDS ABATEMENT
BASEMENT LEVEL
CONSTRUCTION DOCUMENTS

DESIGN	RAF
DRAWN	CTO
CHECKED	RAF
DATE	11/01/13

PROJECT No. 13028AN

SHEET NUMBER H101

1 H102 HAZARDS ABATEMENT – LEVEL 1
FULL SIZE: 1/4" = 1'-0" HALF SIZE: 1/8" = 1'-0"

N

NOTIFICATION OF POTENTIAL HAZARDS

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LEGEND

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CONSULTANT : EHS ALASKA INCORPORATED — ENGINEERING, HEALTH & SAFETY CONSULTANTS

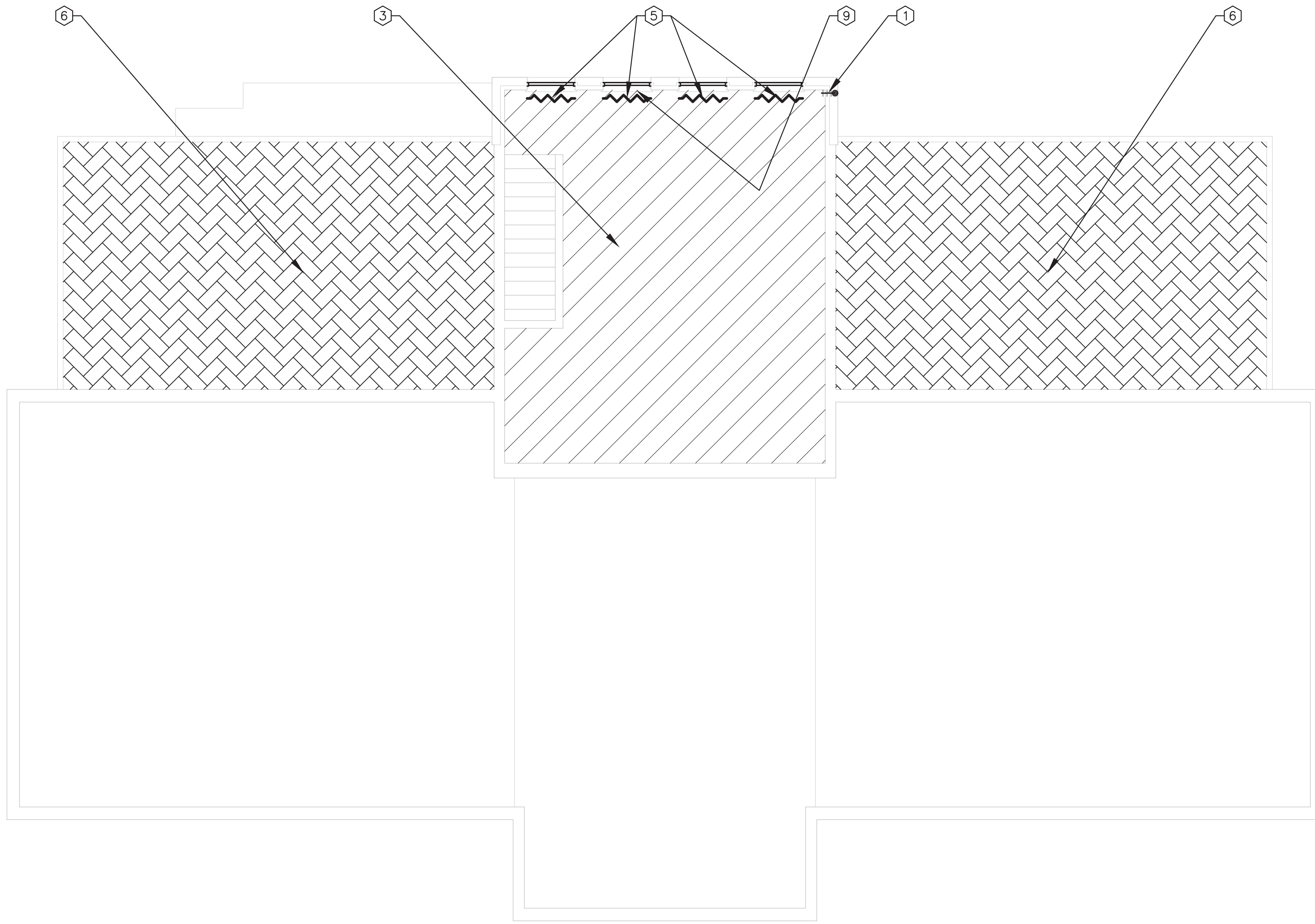
STATE OF ALASKA — 49TH — Robert A. French — 11-1-13 — No. ME9128 — REGISTERED PROFESSIONAL ENGINEER

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
HAZARDS ABATEMENT
LEVEL 1
CONSTRUCTION DOCUMENTS

DESIGN	RAF
DRAWN	CTO
CHECKED	RAF
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	H102



1 H103 HAZARDS ABATEMENT – LEVEL 2

FULL SIZE: 1/4" = 1'-0" HALF SIZE: 1/8" = 1'-0"

N

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LEGEND

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CONSULTANT: EHS ALASKA INCORPORATED ENGINEERING, HEALTH & SAFETY CONSULTANTS

STATE OF ALASKA 49TH Robert A. French 11-1-13 No. ME9128 REGISTERED PROFESSIONAL ENGINEER

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT: JUNEAU - DOUGLAS CITY MUSEUM HVAC UPGRADES CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE: HAZARDS ABATEMENT LEVEL 2
CONSTRUCTION DOCUMENTS

DESIGN	RAF
DRAWN	CTO
CHECKED	RAF
DATE	11/01/13

PROJECT No. 13028AN

SHEET NUMBER H103

GENERAL

DETAIL SYMBOL — DETAIL IDENTIFICATION: 1 / M3.2; DRAWING ON WHICH DETAIL IS SHOWN

SECTION SYMBOL — SECTION IDENTIFICATION: A / M3.2; DRAWING ON WHICH SECTION IS SHOWN

ROOM NUMBER DESIGNATION — 100

SHEET NOTE REFERENCE — 4

GENERAL SHEET NOTE — 3.

EQUIPMENT DESIGNATION, SEE EQUIPMENT SCHEDULE — EF-1

POINT OF CONNECTION

CONSTRUCTION LINETYPES

TO BE DEMOLISHED

EXISTING TO REMAIN

NEW WORK

PLUMBING

WASTE (ABOVE GRADE) — W

WASTE (BELOW GRADE) — W

COLD WATER — CW

HEATING & COOLING

BASEBOARD RADIATION — ENCLOSURE, ELEMENT

THERMOSTAT/TEMPERATURE SENSOR — T

FAN COIL UNIT

VENTILATION

DUCT WITH FLOW DIRECTION

SUPPLY DUCT SECTION — (UP) (DN)

EXHAUST DUCT SECTION — (UP) (DN)

SUPPLY REGISTER, GRILLE OR DIFFUSER WITH FLOW DIRECTION — DESIGNATION, CFM; SA-180

RETURN OR EXHAUST REGISTER, GRILLE, OR DIFFUSER WITH FLOW DIRECTION — DESIGNATION, CFM; RA-180

WALL SUPPLY REGISTER OR GRILLE — DESIGNATION, SA-180, CFM

WALL RETURN OR EXHAUST REGISTER OR GRILLE — DESIGNATION, RA-180, CFM

VOLUME DAMPER

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
APPROX	APPROXIMATE
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATION
CLNG	CEILING
CO	CLEANOUT
CONT	CONTINUATION, CONTINUED
CU	COPPER
CW	COLD WATER
DDC	DIRECT DIGITAL CONTROLS
(D)	DEMOLISH
DIA	DIAMETER
DN	DOWN
(E)	EXISTING
E/A	EXHAUST AIR
EBB	ELECTRIC BASEBOARD
ENT	ENTERING
FT	FEET
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
GAL	GALLONS
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HB	HOSE BIB
HC	HEATING COIL
HP	HORSE POWER
HW	HOT WATER
HZ	HERTZ
IN	INCHES
LF	LINEAL FEET
LVG	LEAVING
MAX	MAXIMUM
MBH	THOUSAND BTU'S PER HOUR
MIN	MINIMUM
MISC	MISCELLANEOUS
OA	OUTSIDE AIR
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OSA	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
POC	POINT OF CONNECTION
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RECIRC	RECIRCULATION
REFL	REFRIGERANT LIQUID PIPE
REFS	REFRIGERANT SUCTION PIPE
SA	SUPPLY AIR
SCH	SCHEDULE
SF	SQUARE FEET
SS	STAINLESS STEEL
TEMP	TEMPERATURE
TYP.	TYPICAL
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
VRV	VARIABLE REFRIGERANT VOLUME
W/	WITH
W.C.	WATER COLUMN
WWPD	WATER PRESSURE DROP
WRT	WITH RESPECT TO

CONSULTANT :

STATE OF ALASKA 49TH — DANIEL T. RAUCHENSTEIN ME 11019 REGISTERED PROFESSIONAL ENGINEER 11-1-13

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
MECHANICAL
SYMBOLS AND
ABBREVIATIONS
CONSTRUCTION DOCUMENTS

DESIGN	DR
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M001

MECHANICAL EQUIPMENT LIST

CU–1 THRU CU–6 VARIABLE REFRIGERANT CONDENSER

CAPACITY: HEATING: 54 MBH
COOLING: 48 MBH

ELECTRICAL: 208–230V/60HZ/1PH
MOP: 30A, MCA: 27A

PROVIDE: AIR COOLED VRF CONDENSER WITH STACKABLE CONFIGURATION, MAX 58dBA AND SELF–DIAGNOSTIC FUNCTION

BASIS OF DESIGN: DAIKIN VRVIII–S RXYMQ48PVJU

FCU–1 VRF INTERIOR FAN COIL UNIT

CAPACITY: 24 MBH

ELECTRICAL: 230V/60HZ/1PH
MCA: 0.6, MOP: 15, FLA: 0.5

PROVIDE: WALL MOUNTED VRF HEATING AND COOLING UNIT WITH INTEGRAL CONTROLS, LOCAL LOW–VOLTAGE THERMOSTAT, DDC SYSTEM CONNECTION, CONDENSATE PUMP, AND ENCLOSURE.

BASIS OF DESIGN: DAIKIN FXAQ24PVJU

FCU–2 VRF INTERIOR FAN COIL UNIT

CAPACITY: 18 MBH

ELECTRICAL: 230V/60HZ/1PH
MCA: 0.5, MOP: 15, FLA: 0.4

PROVIDE: WALL MOUNTED VRF HEATING AND COOLING UNIT WITH INTEGRAL CONTROLS, LOCAL LOW–VOLTAGE THERMOSTAT, DDC SYSTEM CONNECTION, CONDENSATE PUMP, AND ENCLOSURE.

BASIS OF DESIGN: DAIKIN FXAQ18PVJU

FCU–3 VRF INTERIOR FAN COIL UNIT

CAPACITY: 12 MBH

ELECTRICAL: 230V/60HZ/1PH
MCA: 0.4, MOP: 15, FLA: 0.3

PROVIDE: WALL MOUNTED VRF HEATING AND COOLING UNIT WITH INTEGRAL CONTROLS, LOCAL LOW–VOLTAGE THERMOSTAT, DDC SYSTEM CONNECTION, CONDENSATE PUMP, AND ENCLOSURE.

BASIS OF DESIGN: DAIKIN FXAQ12PVJU

FCU–4 VRF INTERIOR FAN COIL UNIT

CAPACITY: 24 MBH

ELECTRICAL: 230V/60HZ/1PH
MCA: 0.6, MOP: 15, FLA: 0.5

PROVIDE: FLOOR MOUNTED VRF HEATING AND COOLING UNIT WITH INTEGRAL CONTROLS, LOCAL LOW–VOLTAGE THERMOSTAT, DDC SYSTEM CONNECTION, CONDENSATE PUMP, AND ENCLOSURE.

BASIS OF DESIGN: DAIKIN FXLQ24MVJU9

HRV–1 HEAT RECOVERY VENTILATOR

CAPACITY: 1330 CFM SUPPLY, 1330 CFM EXHAUST
1 IN WC SUPPLY (ESP), 1 IN WC EXHAUST (ESP)

ELECTRICAL: SUPPLY FAN: 2 HP 230V/60HZ/1PH
EXHAUST FAN: 2 HP 230V/60HZ/1PH

PROVIDE: VFD FOR SUPPLY AND EXHAUST FANS, DUCT MOUNTED REFRIGERANT HEATING & COOLING COIL, ELECTRIC STEAM HUMIDIFIER, HUMIDITY CONTROLLER, AND TWO REMOTE HIGH–SPEED BOOSTER SWITCHES. PROVIDE STATUS CONNECTION TO DDC SYSTEM.

BASIS OF DESIGN: RENEWAIRE HE2XINH

EBB–1 ELECTRIC BASEBOARD

CAPACITY: 6.8 MBH

ELECTRICAL: 2 KW, 240V/60/1

PROVIDE: THERMOSTAT AND ENCLOSURE

BASIS OF DESIGN: KING MODEL 8K2420A

EBB–2 ELECTRIC BASEBOARD

CAPACITY: 1.2 MBH

ELECTRICAL: 375 W, 240V/60/1

PROVIDE: THERMOSTAT AND ENCLOSURE

BASIS OF DESIGN: KING MODEL 2K2403A

HM–1 ELECTRIC STEAM HUMIDIFIER

CAPACITY: 34 LBS/HR

ELECTRICAL: 277V/60HZ/1PH, 43.3 A

PROVIDE: GRAVITY CONDENSATE LINE TO FLOOR DRAIN PER MANUFACTURER RECOMMENDATIONS.

BASIS OF DESIGN: DRISTEEM VAPORSTEAM 12–1

DIFFUSER/REGISTER/GRILLE SCHEDULE

TAG	SERVICE	TYPE	DELTA P-MAX (IN W.C.)	NC RATING (MAX dB)	MATERIAL	NECK SIZE (W X H / ROUND)	FACE SIZE (W X H / LENGTH)	COLOR	BASIS OF DESIGN	NOTE
SA	SUPPLY	SIDE WALL	0.1	30	ALUMINUM	8" X 10"	10" X 12"	WHITE	PRICE SDGE	[1], [2]
SB	SUPPLY	SQUARE CONE	0.1	30	ALUMINUM	6" X 6"	24" X 24"	WHITE	PRICE SCD	[2]
SC	SUPPLY	SIDEWALL	0.1	30	ALUMINUM	8" X 10"	10" X 12"	WHITE	PRICE 510	
SD	SUPPLY	FLOOR REGISTER	0.1	20	POLY	6"ø	6"ø	BLACK	PRICE RFDD	
EA	EXHAUST	SIDE WALL	0.1	30	ALUMINUM	8" X 10"	10" X 12"	WHITE	PRICE SDGE	[1], [2]
EB	EXHAUST	SQUARE CONE	0.1	30	ALUMINUM	6" X 6"	24" X 24"	WHITE	PRICE SCD	[2]
EC	EXHAUST	SNORKEL	0.1	40	PVC	3"	10"ø	WHITE	MOVEX TERFU	[1]
ED	EXHAUST	SIDEWALL	0.1	30	ALUMINUM	8" X 10"	10" X 12"	WHITE	PRICE 535	
EF	EXHAUST	SIDEWALL	0.1	30	ALUMINUM	8" X 10"	10" X 12"	WHITE	PRICE 535	[1]

NOTES:
[1] PROVIDE INTEGRAL VOLUME DAMPER.
[2] DUCT MOUNTED.

REFRIGERANT COIL SCHEDULE

TAG		SERVICE	CAPACITY (MBH)	AIRFLOW (CFM)	EAT °F DB/WB	LAT °F DB/WB	APD (IN. W.C.)	REFRIGERANT	NOTE
HC-1	HEATING	HRV-1	47	1330	4.5/2.2	70/55.8	0.1	R-410A	[1],[2],[3]
	COOLING		15		73.8/59.6	70/55.8			

NOTES:
[1] COIL IS OPERATED ON A HEAT PUMP CONDENSING UNIT.
[2] CAPACITIES ASSUME A 50% EFFICIENCY IN THE HRV HEAT EXCHANGER.
[3] 2013 ASHRAE WEATHER DATA.

LOUVER SCHEDULE

TAG	SERVICE	LOCATION	SIZE (W X H)	FREE AREA (SQ FT)	AIRFLOW (CFM)	PRESSURE DROP (IN W.G.)	BASIS OF DESIGN	NOTE
L-1	HRV-1 SA	BASEMENT MECH	24"X36"	2.92	1,330	0.04	RUSKIN ELF-6375DX	
L-2	HRV-1 EA	BASEMENT MECH	18"X24"	2.92	1,330	0.12	RUSKIN ELF-6375DX	

NOTES:
1. COORDINATE COLOR WITH OWNER

CONSULTANT :

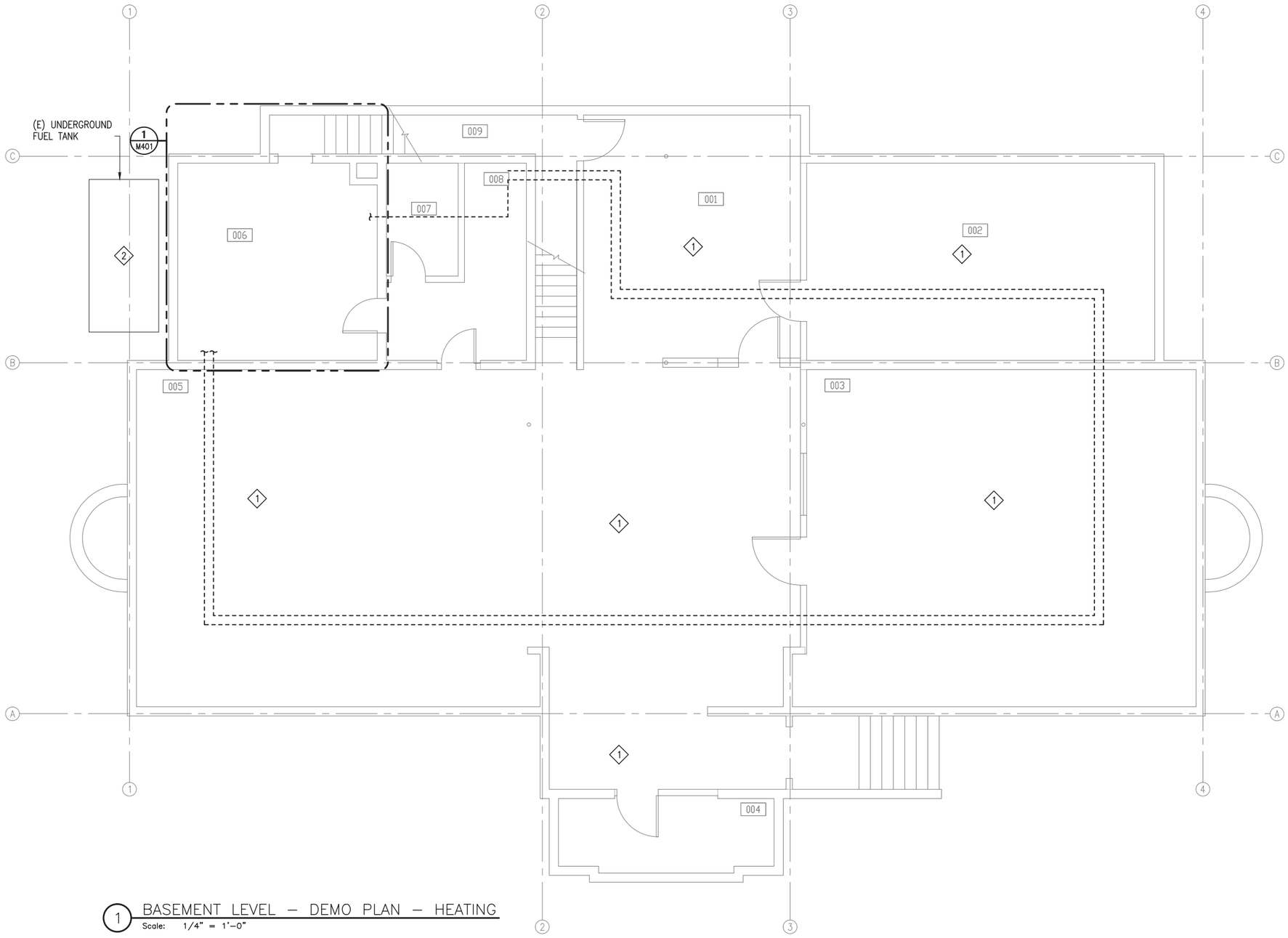
STATE OF ALASKA 49 TH
DANIEL T. RAUCHENSTEIN
ME 11019
11-1-13
REGISTERED PROFESSIONAL ENGINEER

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
MECHANICAL SCHEDULES
CONSTRUCTION DOCUMENTS

DESIGN	NK
DRAWN	JS
CHECKED	DR
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	M002



1 BASEMENT LEVEL – DEMO PLAN – HEATING
Scale: 1/4" = 1'–0"

SHEET NOTES

1. DEMOLISH BOILER AND ALL ASSOCIATED PIPING, VALVES, PUMPS, EXPANSION TANKS, CONTROLS, AND HYDRONIC EQUIPMENT IN BUILDING IN ENTIRETY. DEMOLISH FUEL OIL PIPING AND EQUIPMENT. ALL DOMESTIC PLUMBING AND RWL PIPING TO REMAIN.
2. PUMP OUT AND DISPOSE OF TANK CONTENTS, STEAM CLEAN, AND FILL WITH A FLOWABLE CONCRETE SLURRY, AND ABANDON INPLACE. CONTRACTOR TO ENSURE THAT THE OIL STORAGE TANK IS COMPLETELY FILLED WITH NO VOIDS. CONTRACTOR MAY CHOOSE TO REMOVE THE TANK IN ENTIRETY AND PROPERLY DISPOSE OF TANK OFF SITE. IF TANK IS TO BE REMOVED, ASSURE THAT THE TOTEM POLE ON SITE WON'T BE AFFECTED.
3. EQUIPMENT SHOWN MAY NOT INDICATE THE FULL EXTENT OF THE SYSTEM THAT REQUIRES DEMO.

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL - DEMO PLAN - HEATING
CONSTRUCTION DOCUMENTS

DESIGN	NK
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M201

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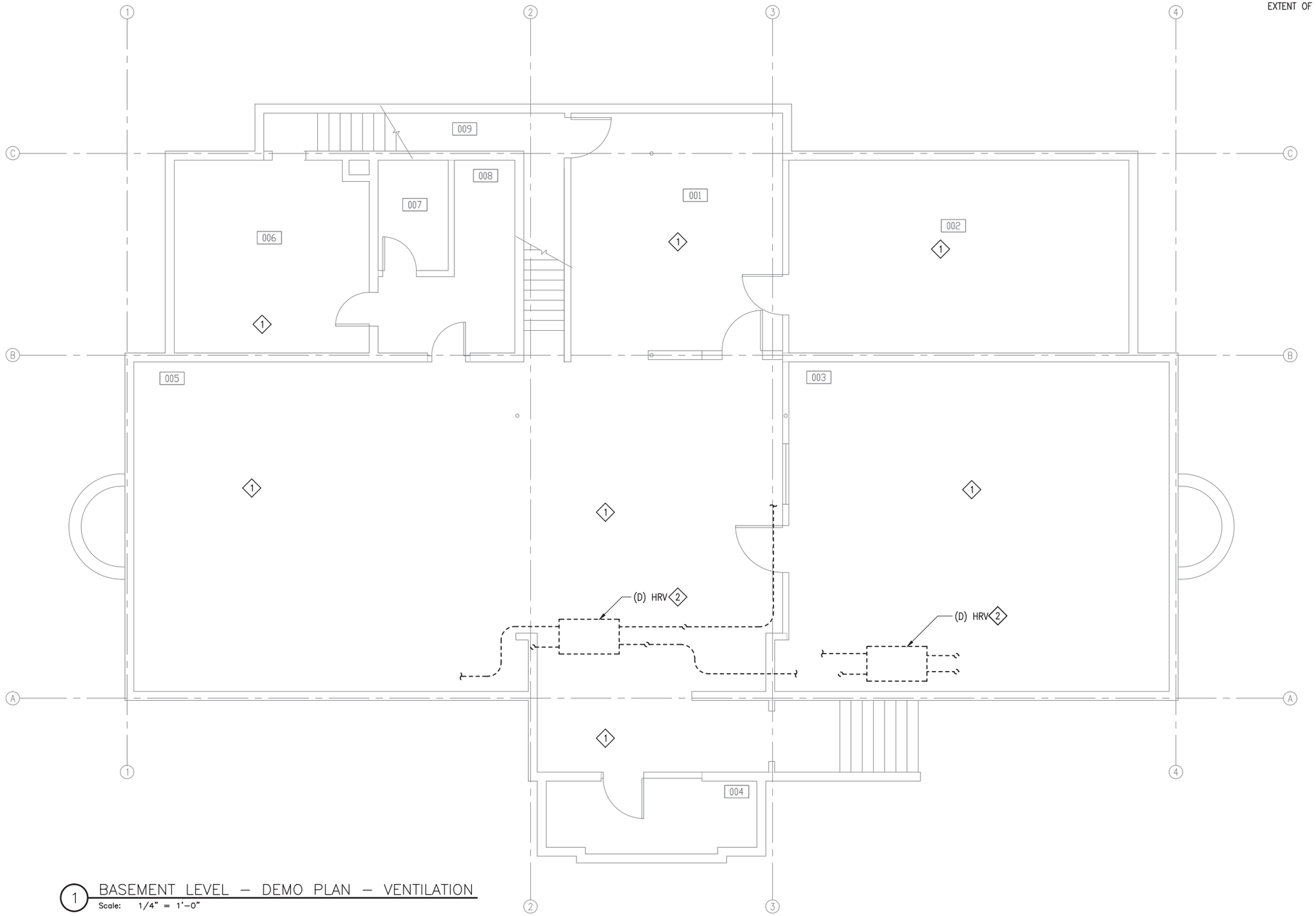
SHEET NOTES

1. DEMOLISH SUPPLY AND EXHAUST FAN, DUCTWORK, DIFFUSERS, AND ALL ASSOCIATED VENTILATION EQUIPMENT IN BUILDING IN ENTIRETY.
2. DEMOLISH EXISTING HRV AND ALL ASSOCIATED DUCTWORK, DIFFUSERS, AND EQUIPMENT TO ITS FULL EXTENT.
3. EQUIPMENT SHOWN MAY NOT INDICATE THE FULL EXTENT OF THE SYSTEM THAT REQUIRES DEMO.



1 BASEMENT LEVEL – DEMO PLAN – VENTILATION
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

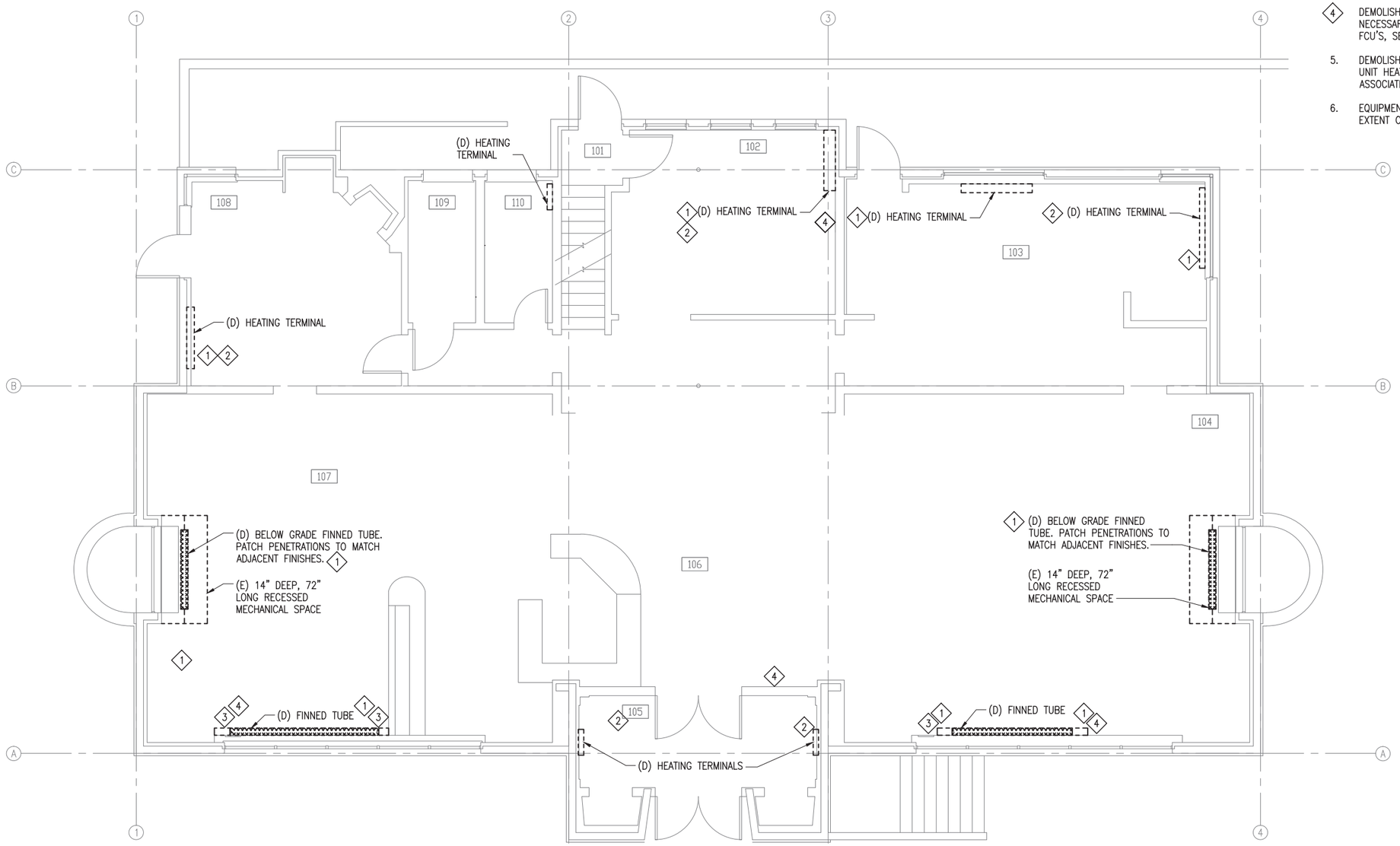
SHEET TITLE :
BASEMENT LEVEL - DEMO PLAN - VENTILATION

CONSTRUCTION DOCUMENTS

DESIGN	DR
DRAWN	JS
CHECKED	DR
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	M202

SHEET NOTES

1. REMOVE DISPLAYS PRIOR TO TERMINAL REMOVAL. COORDINATE WITH ARCHITECTURAL AND OWNER.
2. COORDINATE COVER REMOVAL AND REPLACEMENT WITH OWNER.
3. (E) 12"X12" ACCESS DOORS. COORDINATE LOCATIONS WITH ARCHITECT.
4. DEMOLISH FURRED WALL TO MINIMUM EXTENT NECESSARY TO RUN REFRIGERANT PIPES TO FCU'S, SEE M303.
5. DEMOLISH ALL HYDRONIC PIPING, FINNED TUBE, UNIT HEATERS, CONTROLS, VALVES, AND ASSOCIATED EQUIPMENT IN BUILDING IN ENTIRETY.
6. EQUIPMENT SHOWN MAY NOT INDICATE THE FULL EXTENT OF THE SYSTEM THAT REQUIRES DEMO.



1 LEVEL 1 – DEMO PLAN – HEATING
Scale: 1/4" = 1'–0"

CONSULTANT :

STATE OF ALASKA 49 TH
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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
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JUNEAU, AK

SHEET TITLE :
LEVEL 1 - DEMO PLAN
- HEATING

CONSTRUCTION DOCUMENTS

DESIGN	NK
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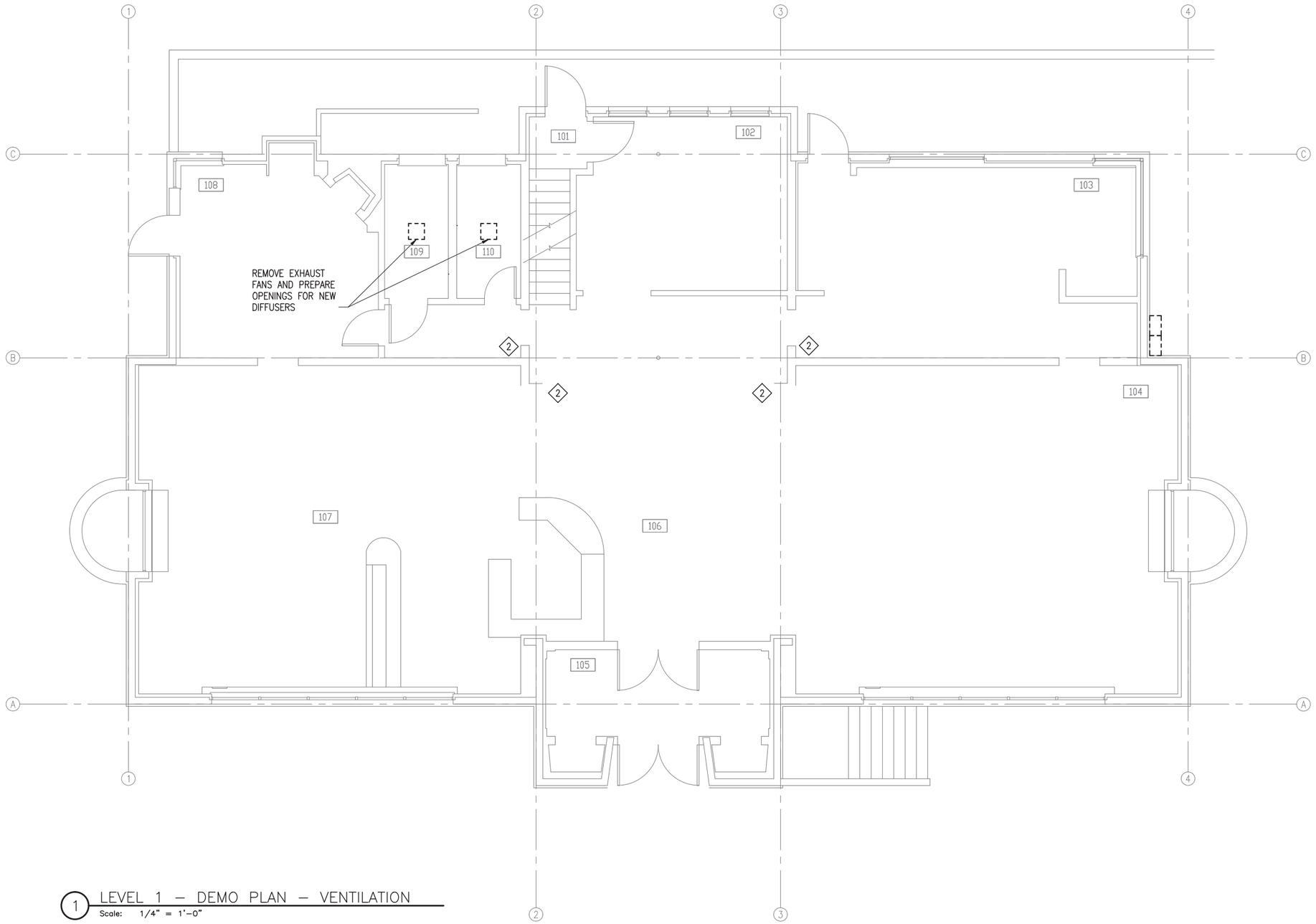
CHECKED	DR
DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	M203

SHEET NOTES

1. DEMOLISH ALL DUCTWORK, DIFFUSERS, AND ASSOCIATED VENTILATION EQUIPMENT IN BUILDING IN ENTIRETY. PATCH AND PAINT PER ARCHITECTURAL.

2 DEMOLISH GRILLES AND DUCTWORK IN SOFFIT.



1 LEVEL 1 – DEMO PLAN – VENTILATION
Scale: 1/4" = 1'–0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 1 - DEMO PLAN
- VENTILATION

CONSTRUCTION DOCUMENTS

DESIGN	NK
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DATE	11/01/13
PROJECT No.	13028AN
SHEET NUMBER	M204

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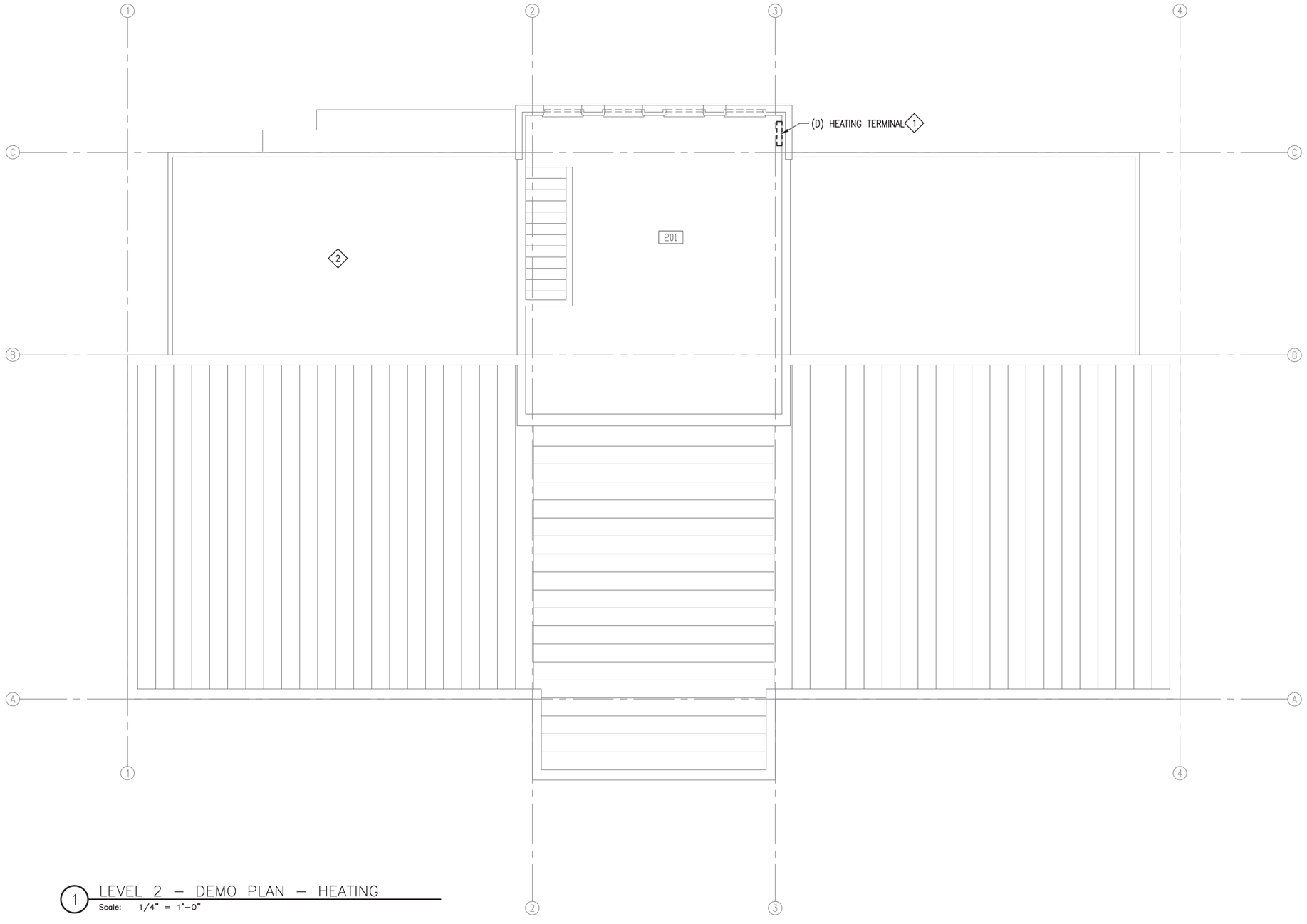
SHEET NOTES

1. COORDINATE WITH ARCHITECTURAL.
2. SEE 3/M501 FOR BOILER STACK DETAIL.
3. DEMOLISH ALL HYDRONIC PIPING, FINNED TUBE, UNIT HEATERS, CONTROLS, VALVES, AND ASSOCIATED EQUIPMENT IN BUILDING IN ENTIRETY.



1 LEVEL 2 – DEMO PLAN – HEATING
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 2 - DEMO PLAN - HEATING

CONSTRUCTION DOCUMENTS

DESIGN	NK
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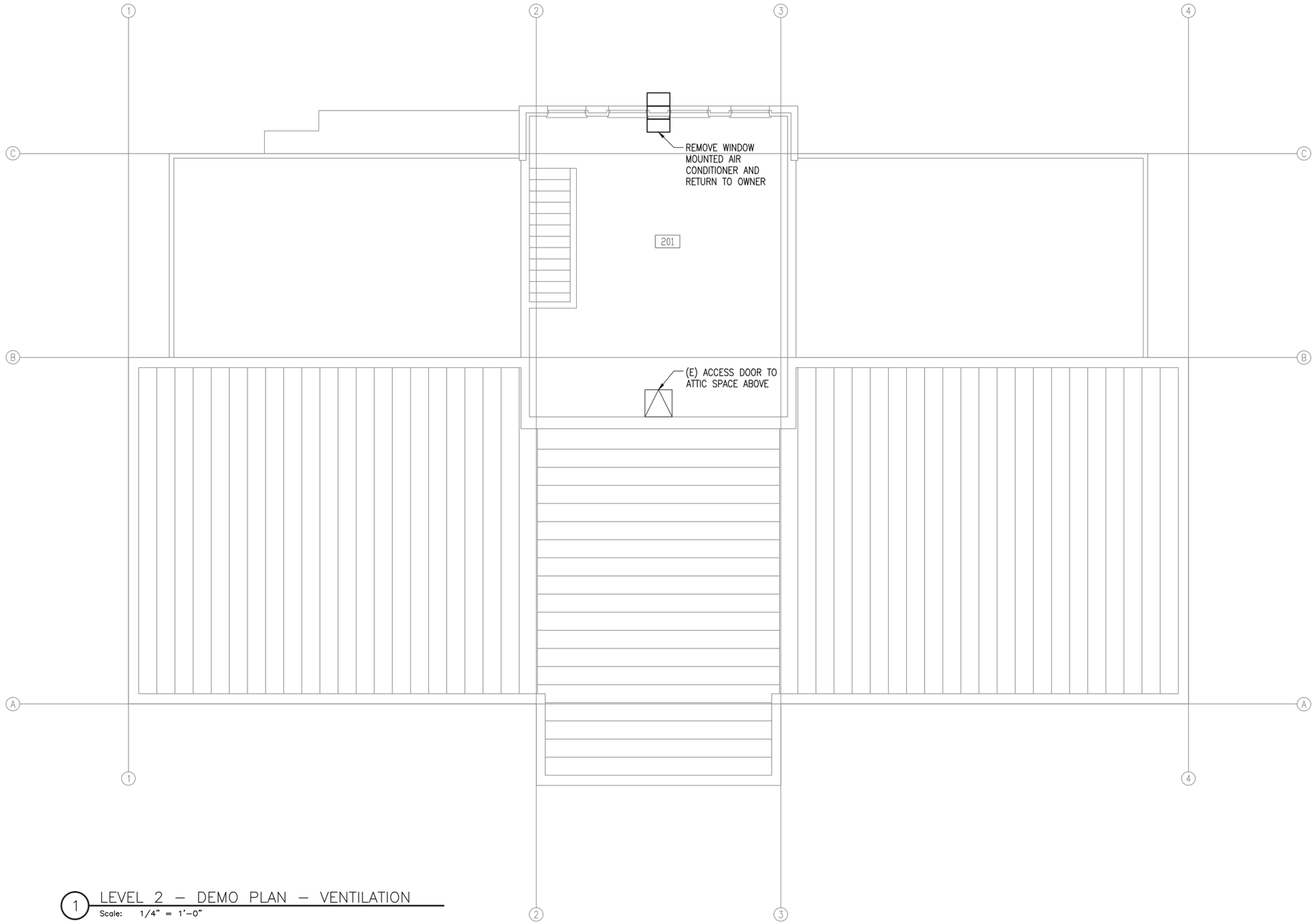
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M205

SHEET NOTES

1. DEMOLISH ALL DUCTWORK, DIFFUSERS, AND ASSOCIATED VENTILATION EQUIPMENT IN BUILDING IN ENTIRETY.



1 LEVEL 2 – DEMO PLAN – VENTILATION
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 2 - DEMO PLAN - VENTILATION

CONSTRUCTION DOCUMENTS

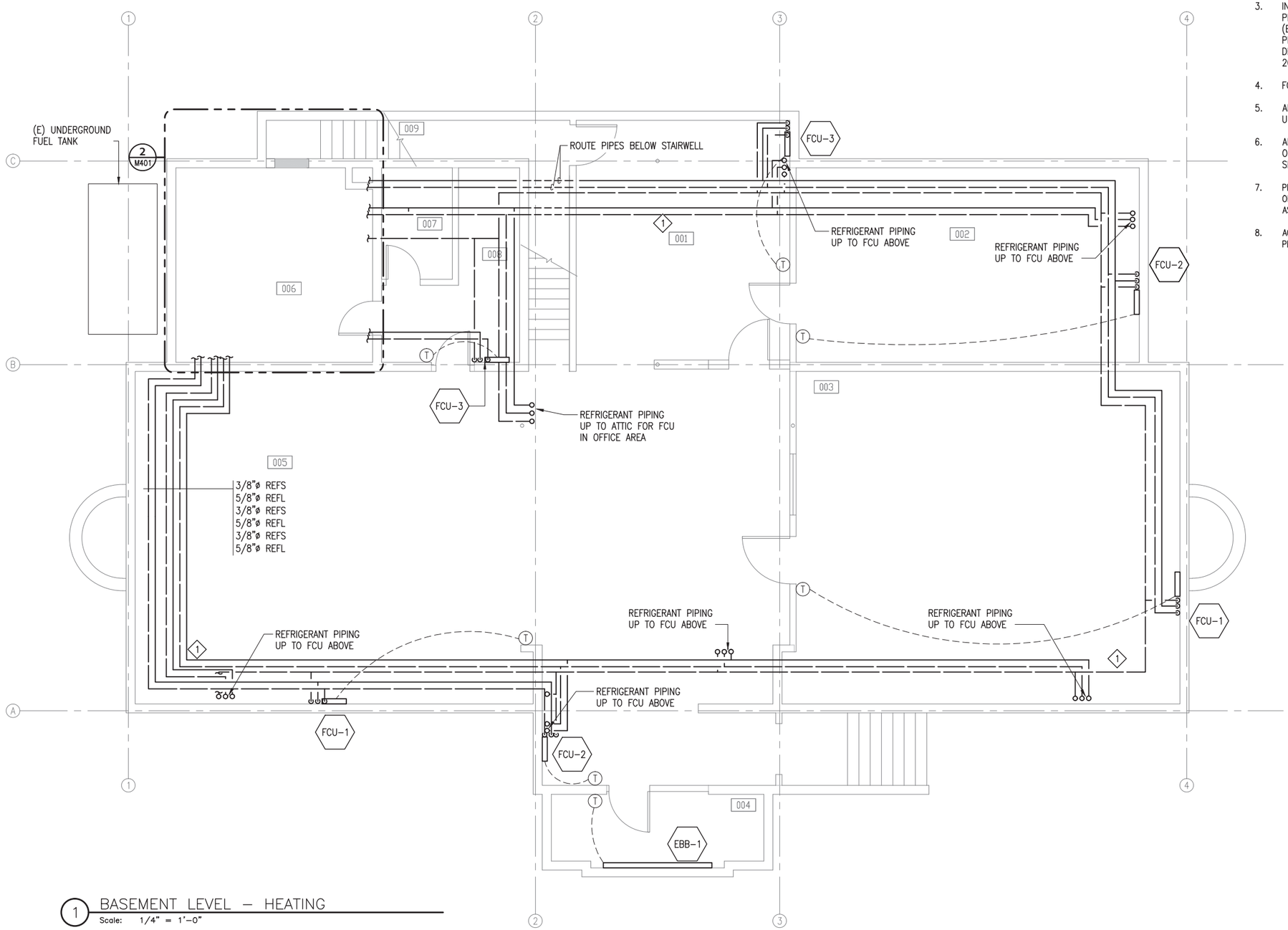
DESIGN	NK
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M206

SHEET NOTES

1. FOR ESTIMATION PURPOSES ONLY, ALL REFRIGERANT PIPES WILL BE 5/8"ø LIQUID LINES AND 3/8"ø SUCTION LINES EXCEPT LINES TO FCU-2 OR FCU-3 UNITS WILL BE 1/2"ø LIQUID AND 1/4"ø SUCTION. ALL CONDENSATE PIPE FOR VRV SYSTEM IS 1/2"ø.
2. ROUTE PIPES ALONG WALLS, AVOID PIPING OVER STORAGE OR EXHIBIT AREAS.
3. INSTALL CONDENSATE DRAIN LINE FROM EACH FCU PER MANUFACTURER RECOMMENDATION. ROUTE TO (E) FLOOR DRAIN IN MECHANICAL ROOM. AVOID PIPING OVER STORAGE OR EXHIBIT AREAS. GRAVITY DRAIN, SLOPE AT 1/8" PER FOOT OR 1% PER 2009 UPC 814.
4. FOR PIPING DIAGRAM SEE 2/M5.01.
5. ALL WALL-MOUNT FCU UNITS MOUNTED 8' AFF UNLESS OTHERWISE NOTED.
6. ALL REFRIGERANT PIPE SIZES ARE FOR ESTIMATES ONLY. ACTUAL REFRIGERANT PIPE SIZES TO BE SET BY MANUFACTURER OF VRV SYSTEM.
7. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
8. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.



1 BASEMENT LEVEL – HEATING
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
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SHEET TITLE :
BASEMENT LEVEL - HEATING

CONSTRUCTION DOCUMENTS

DESIGN	CP
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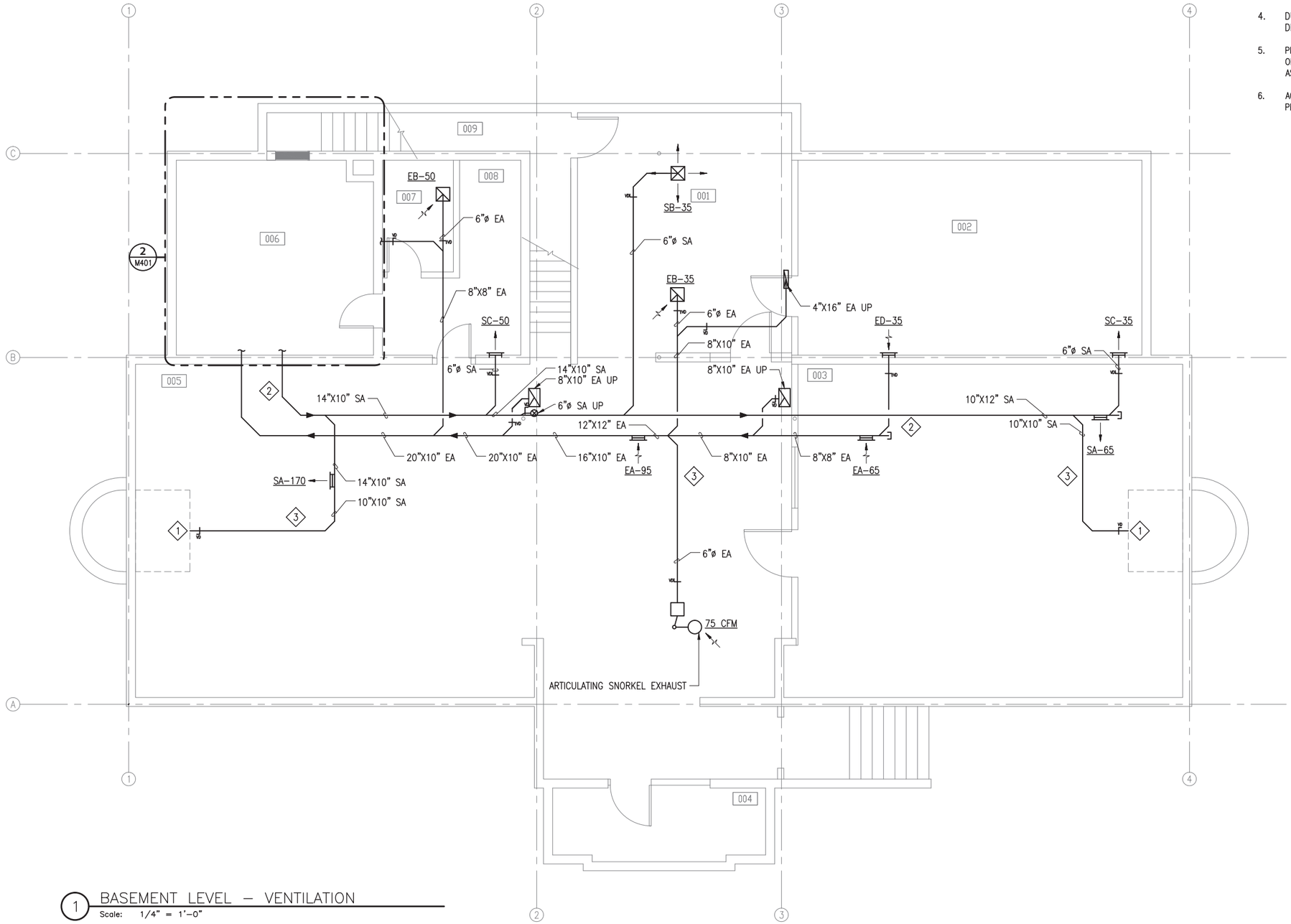
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M301

SHEET NOTES

1. DUCT SHALL TERMINATE IN SIDEWALL OF ENCLOSURE ABOVE. DUCTWORK SHALL BE PAINTED BLACK WHERE VISIBLE.
2. DUCT MAINS TO BE ROUTED IN ARCHITECTURAL SOFFIT BELOW STRUCTURE.
3. ROUTE DUCT BRANCHES IN BETWEEN AND THROUGH STRUCTURE AS REQUIRED.
4. DUCT ROUTING IS SHOWN SINGLE LINE AND IS DIAGRAMMATIC IN NATURE.
5. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
6. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.



1 BASEMENT LEVEL – VENTILATION
Scale: 1/4" = 1'–0"

CONSULTANT :

STATE OF ALASKA 49TH
DANIEL T. RAUCHENSTEIN
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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
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JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL - VENTILATION
CONSTRUCTION DOCUMENTS

DESIGN	NK
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DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M302

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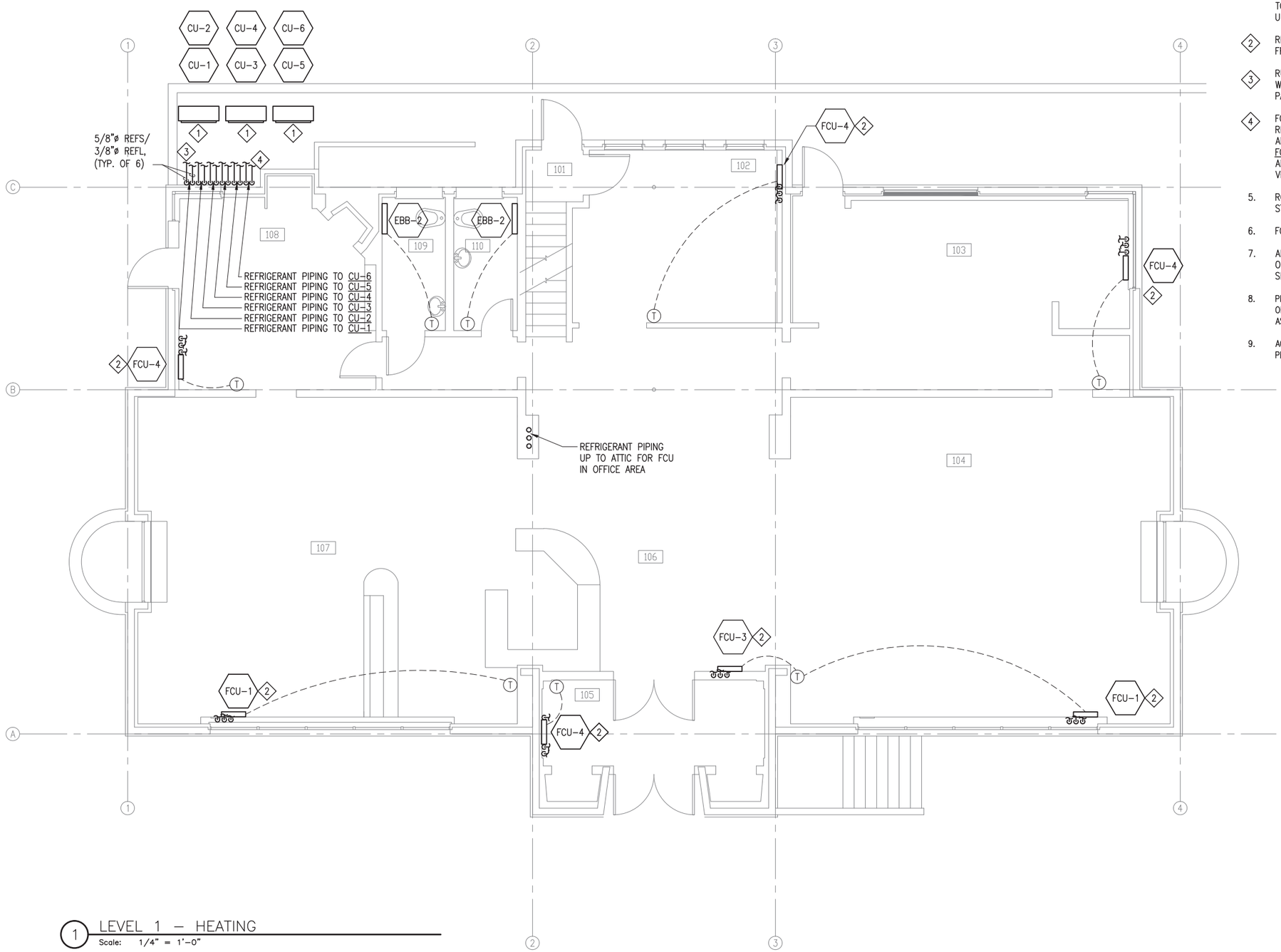

1 LEVEL 1 – HEATING
Scale: 1/4" = 1'-0"

SHEET NOTES

1. STACK CONDENSING UNITS TWO HIGH ACCORDING TO MANUFACTURER SERVICE SPACING. MOUNT BOTTOM UNIT AT LEAST 18" ABOVE GRADE TO AVOID DRIFTING SNOW. SECURE CONDENSING UNITS TO WALL OR USE BRACING TO HOLD UPRIGHT. AT CONDENSATE COLLECTION POINT OF TOP UNITS, PIPE CONDENSATE AWAY FROM LOWER UNITS
2. REFRIGERANT SUPPLY AND RETURN PIPES FED FROM BELOW, SEE M301.
3. RUN REFRIGERANT PIPING ALONG EAST CONCRETE WALL ON BLOCKING OR RACK, AND DOWN TRENCH PARALLEL TO THE HRV EXHAUST DUCT.
4. FOR ESTIMATION PURPOSES ONLY, ALL REFRIGERANT PIPES WILL BE 5/8"ø LIQUID LINES AND 3/8"ø SUCTION LINES EXCEPT LINES TO FCU-2 OR FCU-3 UNITS WILL BE 1/2"ø LIQUID AND 1/4"ø SUCTION. ALL CONDENSATE PIPE FOR VRV SYSTEM IS 1/2"ø.
5. ROUTE PIPES ALONG WALLS, AVOID PIPING OVER STORAGE OR EXHIBIT AREAS.
6. FOR PIPING DIAGRAM SEE 2/M5.01.
7. ALL REFRIGERANT PIPE SIZES ARE FOR ESTIMATES ONLY. ACTUAL REFRIGERANT PIPE SIZES TO BE SET BY MANUFACTURER OF VRF SYSTEM.
8. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
9. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.

CONSULTANT :

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REGISTERED PROFESSIONAL ENGINEER
11-1-13

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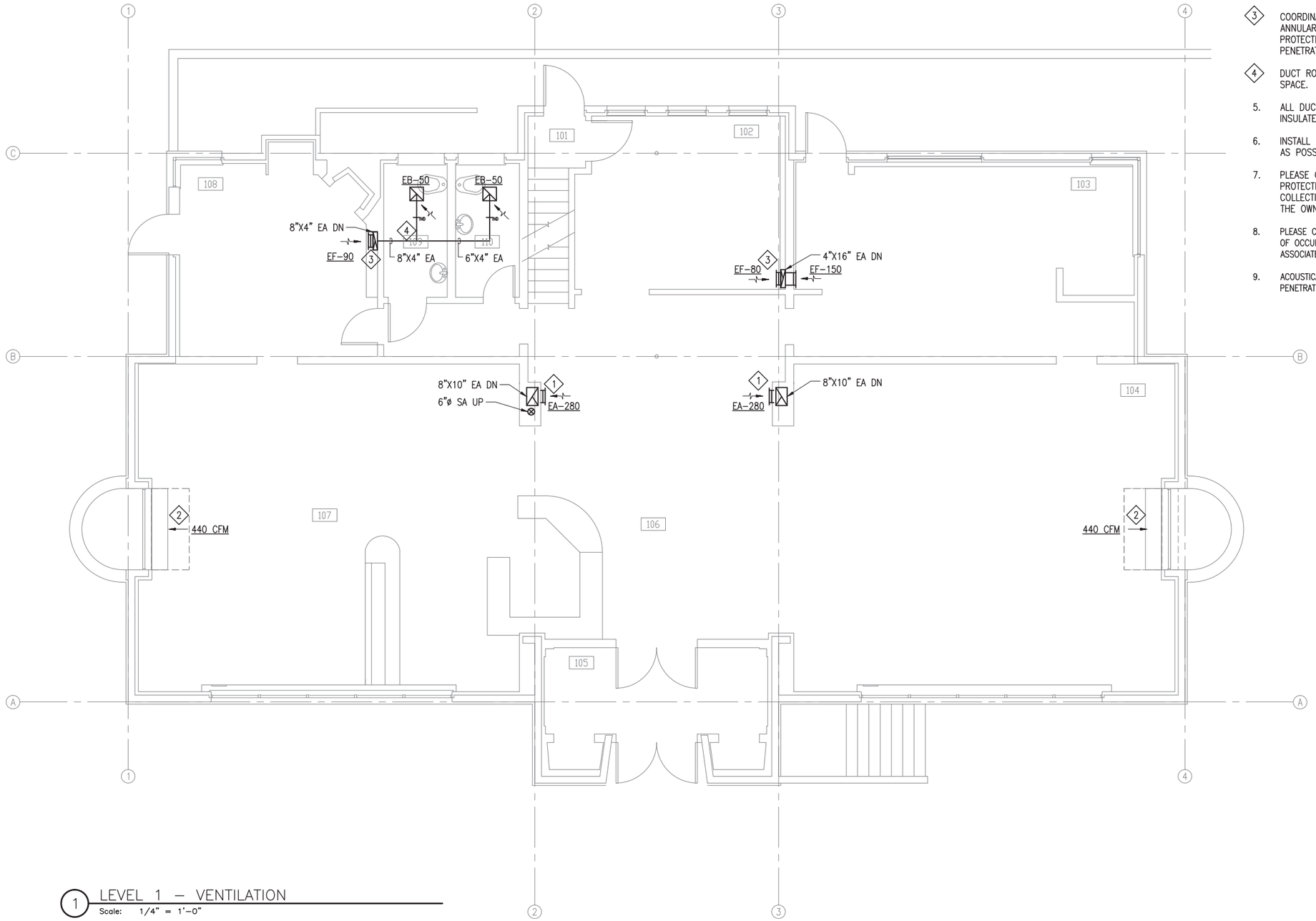
PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 1 - HEATING
CONSTRUCTION DOCUMENTS

DESIGN	CF
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M303



1 LEVEL 1 – VENTILATION
Scale: 1/4" = 1'-0"

SHEET NOTES

1. DUCTS IN WALL FROM BELOW. ANNULAR SPACE AROUND DUCT SHALL BE PROTECTED WITH FIRE CAULKING AT FLOOR PENETRATION.
2. SUPPLY DUCT WITH INTERIOR PAINTED BLACK TERMINATING AT THE SIDEWALL OF EXISTING ENCLOSURE. ANNULAR SPACE AROUND DUCT SHALL BE PROTECTED WITH FIRE CAULKING AT FLOOR PENETRATION.
3. COORDINATE WALL FUR-IN WITH ARCHITECTURAL. ANNULAR SPACE AROUND DUCT SHALL BE PROTECTED WITH FIRE CAULKING AT FLOOR PENETRATION.
4. DUCT ROUTED ABOVE CEILING IN STRUCTURE SPACE.
5. ALL DUCTWORK ROUTED IN TRUSS SPACE TO BE INSULATED WITH MIN 2" OF INSULATION.
6. INSTALL EXHAUST GRILLES AS CLOSE TO CEILING AS POSSIBLE.
7. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
8. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
9. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.

CONSULTANT :

STATE OF ALASKA 49TH
DANIEL T. RAUCHENSTEIN
ME 11019
REGISTERED PROFESSIONAL ENGINEER
11-1-13

PDC INC. ENGINEERS
2700 Gambell Street, Suite 500, Anchorage, Alaska 99503

PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

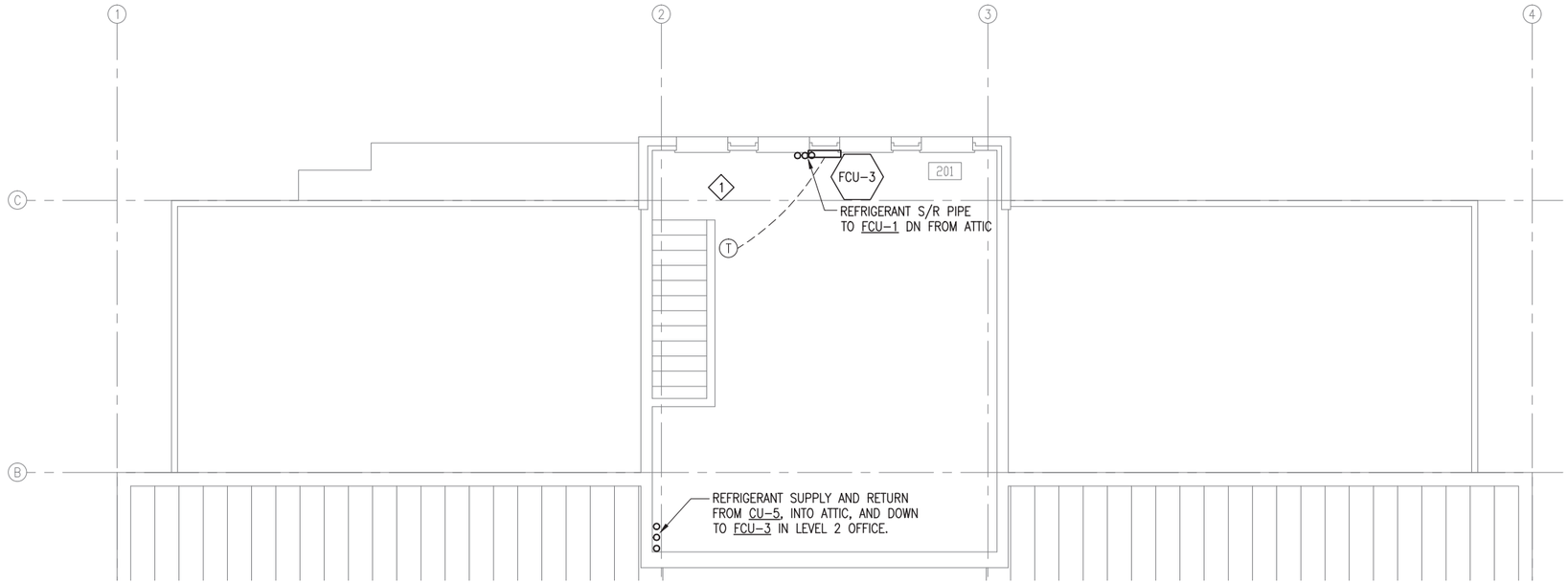
SHEET TITLE :
LEVEL 1 -
VENTILATION

CONSTRUCTION DOCUMENTS

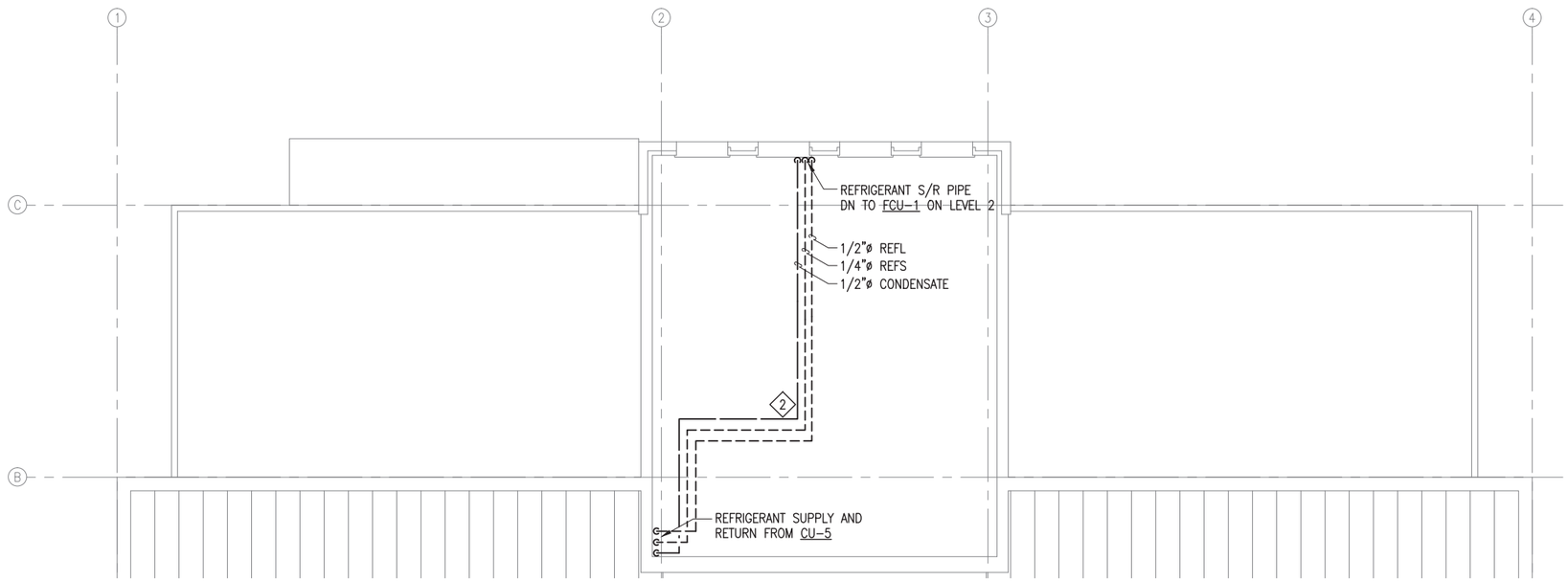
DESIGN	NK
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M304



1 LEVEL 2 – HEATING
Scale: 1/4" = 1'-0"



2 ATTIC LEVEL – HEATING
Scale: 1/4" = 1'-0"

SHEET NOTES

1. PIPING ROUTED IN TRUSS SPACE ABOVE.
2. FOR ESTIMATION PURPOSES ONLY, ALL REFRIGERANT PIPES WILL BE 5/8"ø LIQUID LINES AND 3/8"ø SUCTION LINES EXCEPT LINES TO FCU-2 OR FCU-3 UNITS WILL BE 1/2"ø LIQUID AND 1/4"ø SUCTION. ALL CONDENSATE PIPE FOR VRV SYSTEM IS 1/2"ø.
3. ALL REFRIGERANT PIPE SIZES ARE FOR ESTIMATES ONLY. ACTUAL REFRIGERANT PIPE SIZES TO BE SET BY MANUFACTURER OF VRV SYSTEM.
4. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
5. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.

CONSULTANT :

STATE OF ALASKA 49TH
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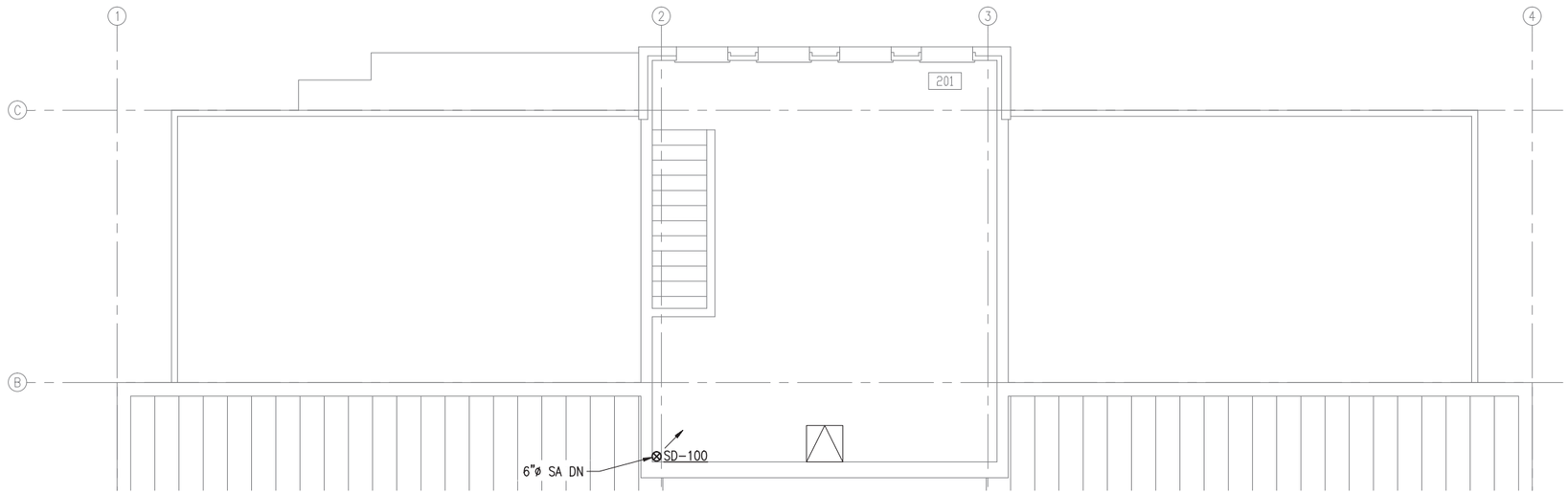
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 2 & ATTIC LEVEL- HEATING
CONSTRUCTION DOCUMENTS

DESIGN	CF
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
M305



1 LEVEL 2 – VENTILATION
Scale: 1/4" = 1'-0"

SHEET NOTES

1. ALL DUCTWORK ROUTED IN TRUSS SPACE TO BE INSULATED WITH MIN. 2" OF INSULATION.
2. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
3. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.

CONSULTANT :

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HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 2 -
VENTILATION

CONSTRUCTION DOCUMENTS

DESIGN	NK
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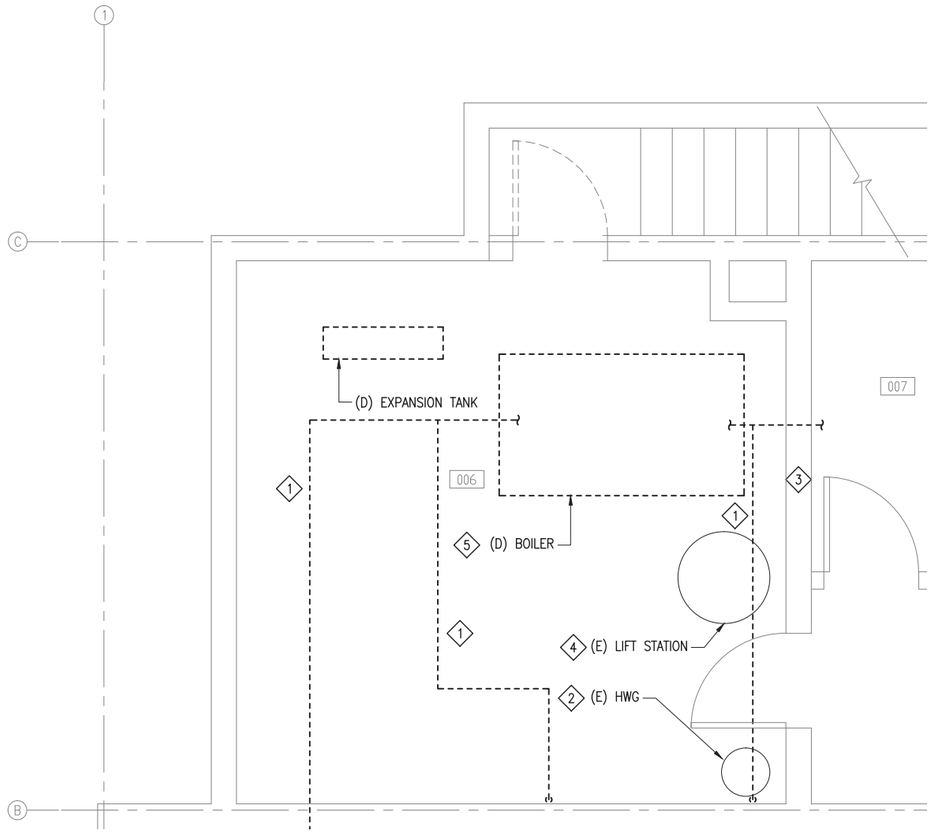
PROJECT No.
13028AN

SHEET NUMBER
M306

SHEET NOTES

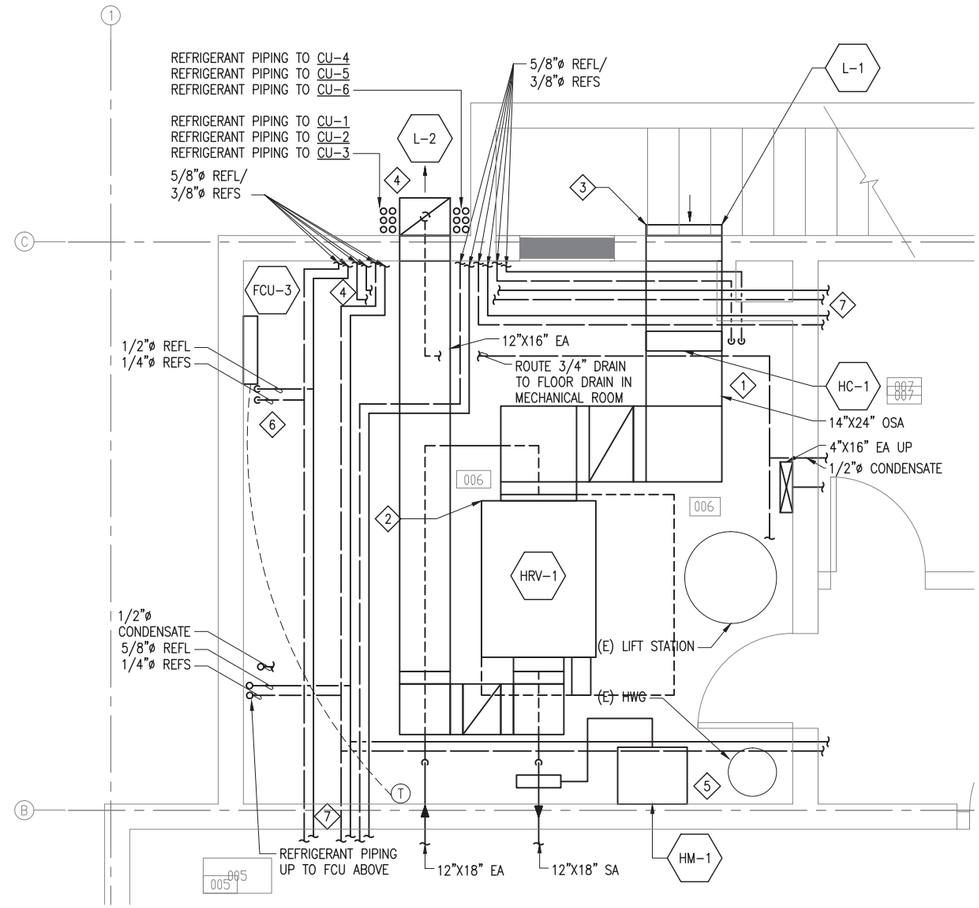
1. DEMOLISH BOILER AND ALL ASSOCIATED PIPING, VALVES, PUMPS, EXPANSION TANKS, CONTROLS, AND HYDRONIC EQUIPMENT IN BUILDING IN ENTIRETY. DEMOLISH FUEL OIL PIPING AND EQUIPMENT. ALL DOMESTIC PLUMBING AND RWL PIPING TO REMAIN.
2. EXISTING HOT WATER GENERATOR EXPANSION TANK AND ASSOCIATED DOMESTIC WATER PIPING TO REMAIN.
3. CAP WATER MAKE-UP PIPING AT FIRST ISOLATION VALVE.
4. LIFT STATION TO REMAIN.
5. DEMOLISH EXISTING BOILER FLUE STACK FROM THE BOILER UP TO THE CEILING. PATCH. SEE DETAIL 3/M501.
6. EQUIPMENT SHOWN MAY NOT INDICATE THE FULL EXTENT OF THE SYSTEM THAT REQUIRES DEMO.
7. ABATE BOILER AND PIPING INSULATION AS REQUIRED.



1 LARGE SCALE MECHANICAL ROOM – DEMO PLAN
Scale: 1/2" = 1'-0"

SHEET NOTES

1. PROVIDE WATER TO HUMIDIFICATION UNIT OFF OF THE OLD BOILER MAKE UP WATER.
2. ROUTE HRV CONDENSATE LINE TO FLOOR DRAIN.
3. CUT THROUGH MASONRY AS NECESSARY TO MOUNT LOUVER L-1 IN THE CONCRETE WALL OF THE MECHANICAL ROOM. ROUTE A 14"x24" INSULATED DUCT FROM LOUVER DOWN TO HRV-1 OUTSIDE AIR INTAKE. SEE DETAIL 3/M502.
4. CUT THROUGH CONCRETE WALKWAY AND DIG BELOW GRADE PER DETAILS 1/M502 & 3/M502. ROUTE 12"X16" EXHAUST DUCT DOWN TO HRV-1 EXHAUST AIR OPENING, AND ROUTE 12 INSULATED REFRIGERANT PIPES INTO MECHANICAL ROOM.
5. INSTALL ELECTRIC STEAM HUMIDIFIER PER MANUFACTURER INSTALLATION INSTRUCTIONS. ALLOW FOR NECESSARY CLEARANCES IN DOWNSTREAM DUCTWORK.
6. AVOID PIPING OVER ELECTRICAL PANELS.
7. FOR ESTIMATION PURPOSES ONLY, ALL REFRIGERANT PIPES WILL BE 5/8"ø LIQUID LINES AND 3/8"ø SUCTION LINES EXCEPT LINES TO FCU-2 OR FCU-3 UNITS WILL BE 1/2"ø LIQUID AND 1/4"ø SUCTION. ALL CONDENSATE PIPE FOR VRV SYSTEM IS 1/2"ø.
8. ALL REFRIGERANT PIPE SIZES ARE FOR ESTIMATES ONLY. ACTUAL REFRIGERANT PIPE SIZES TO BE SET BY MANUFACTURER OF VRF SYSTEM.
9. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS, AND ASSOCIATED MATERIALS WITH THE OWNER.
10. ACOUSTICALLY SEAL ANNULAR SPACE AT PIPE PENETRATIONS WITH SPRAY FOAM.



2 LARGE SCALE MECHANICAL ROOM
Scale: 1/2" = 1'-0"

CONSULTANT :

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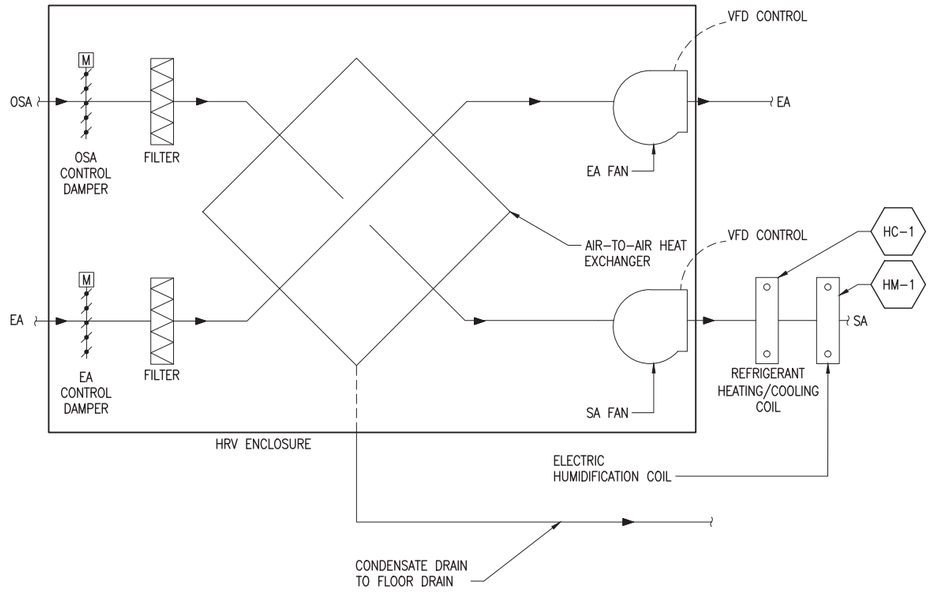
SHEET TITLE :
LARGE SCALE
MECHANICAL ROOM

CONSTRUCTION DOCUMENTS

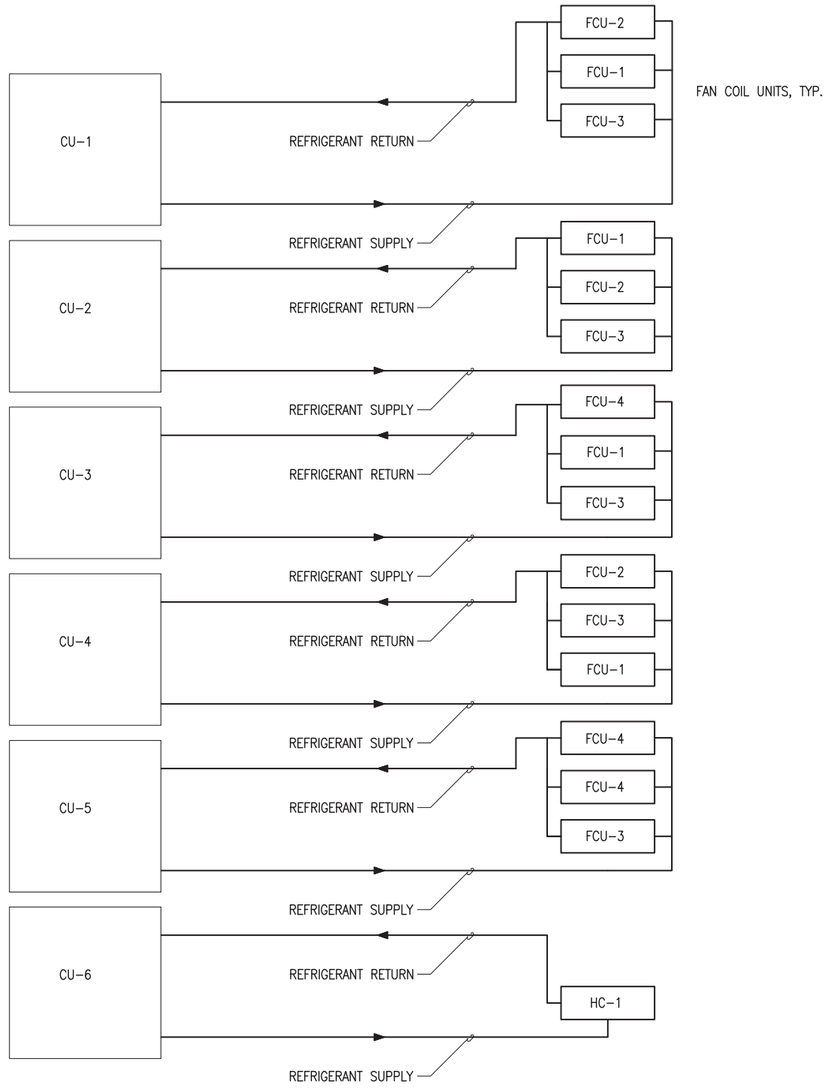
DESIGN	NK
DRAWN	JS
CHECKED	DR
DATE	11/01/13

PROJECT No.
13028AN

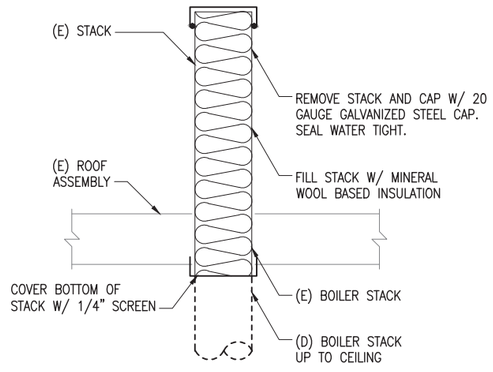
SHEET NUMBER
M401



1 HRV DIAGRAM
Scale: NO SCALE



2 VRV DIAGRAM
Scale: NO SCALE



3 BOILER STACK DEMO DETAIL
Scale: NO SCALE

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SHEET TITLE :
MECHANICAL DIAGRAMS
CONSTRUCTION DOCUMENTS

DESIGN	DR
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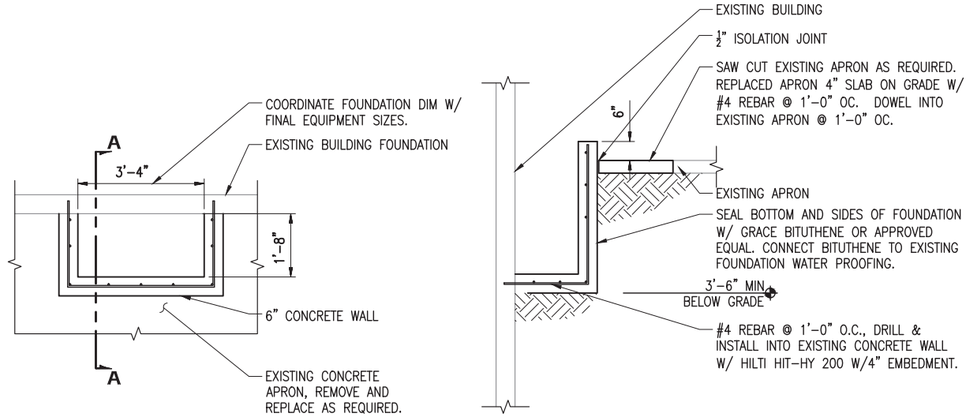
M501



FOUNDATION NOTES

1. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

   THE INTERNATIONAL BUILDING CODE (IBC) 2009 AND ITS REFERENCED STANDARDS, HEREIN REFERRED TO AS "THE CODE", AND OTHER REGULATORY CRITERIA WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

2. ALL FOOTING SUBGRADES AS REQUIRED AND ALL SLAB SUBGRADES INCLUDING PIT SLABS SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. ALL BACKFILL AROUND AND ABOVE ALL FOUNDATION ELEMENTS, FOOTINGS, CAPS, MATS, WALLS AND PITS SHALL BE COMPACTED TO 90 PERCENT OF MAXIMUM DENSITY.

3. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADES BEFORE AND AFTER PLACING OF CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

4. THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.

5. NO CONSTRUCTION SHALL COMMENCE UNTIL ALL SEASONAL FROST HAS THAWED OR BEEN REMOVED.

STRUCTURAL CONCRETE NOTES

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO CHP 19 OF THE CODE AND THE PROVISIONS IN ACI 318.

2. SUITABLE CONCRETE MIXES SHALL BE PREPARED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE ENGINEER OF RECORD. CONCRETE SPECIFIED BY COMPRESSIVE STRENGTH SHALL BE PROPORTIONED ON THE BASIS DESCRIBED IN 1905.1.1 OF THE CODE.

3. SCHEDULE OF CAST-IN-PLACE CONCRETE 28 DAY COMPRESSIVE STRENGTHS AND TYPES:

CONDITION	STRENGTH (PSI)	DENSITY (PCF)	W/C RATIO	AIR ENTRAINMENT
FOUNDATIONS	4000	150	0.45	4-7%
SLAB ON GRADES	4000	150	0.45	4-7%

4. PORTLAND CEMENT SHALL CONFORM TO ASTM STANDARD C-150 AND TYPE I/III.

5. ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER SHALL CONTAIN AN APPROVED AIR-ENTRAINING ADMIXTURE IN CONFORMANCE WITH ASTM C-260.

6. ALL REINFORCING BARS SHALL BE DEFORMED BAR CONFORMING TO THE STANDARDS OF ASTM A615, GRADE 60.

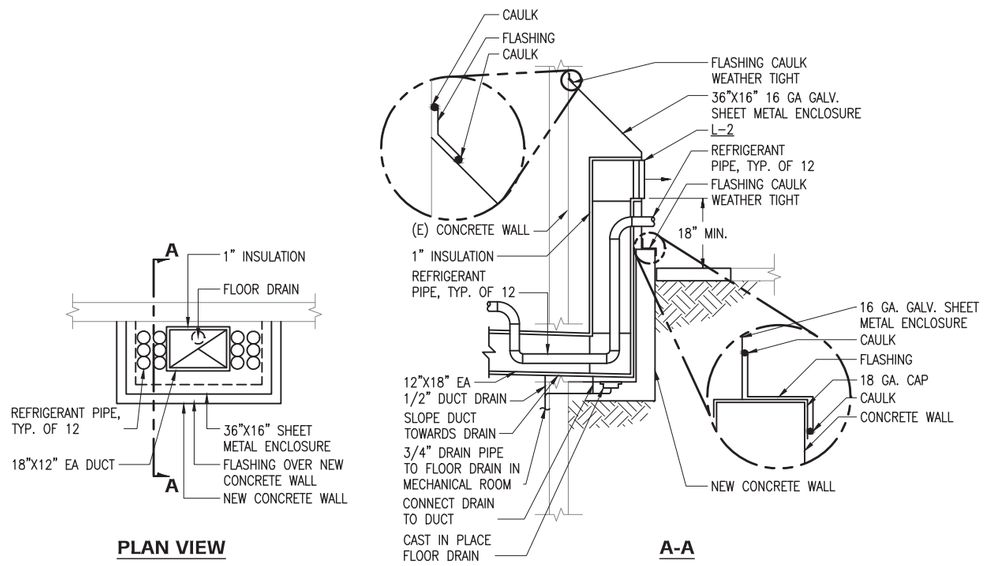
7. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OF THE LATEST EDITION OF CHP 19 OF THE CODE, ACI 318 AND THE "ACI DETAILING MANUAL: DETAILS AND DETAILING CONCRETE REINFORCEMENT", ACI 315.

8. MAXIMUM SLUMP SHALL BE 4 INCHES, UNO.

9. MINIMUM CONCRETE COVER SHALL BE:
   a. 3" FOR CONCRETE CAST AGAINST THE EARTH.
   b. 1 1/2" FOR BARS EXPOSED TO WEATHER AND BEAMS AND COLUMNS.

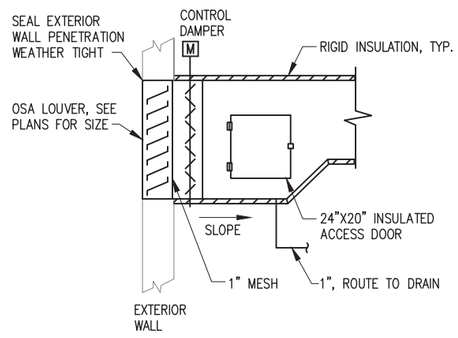
1 HRV-1 EXHAUST AIR PENTRATION DETAIL

Scale: NOT TO SCALE



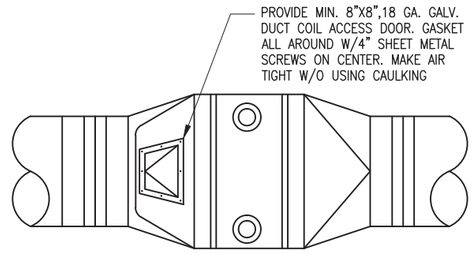
2 HRV-1 EXHAUST LOUVER DETAIL

Scale: NOT TO SCALE



3 HRV-1 SUPPLY AIR DETAIL

Scale: NOT TO SCALE



4 REFRIGERANT COIL ACCESS DETAIL

Scale: NOT TO SCALE

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SHEET TITLE :
MECHANICAL DETAILS
CONSTRUCTION DOCUMENTS

DESIGN	DR
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M502

LIGHTING SYMBOLS

⊷	PENDANT LUMINAIRE

WIRING AND LIGHTING CONTROL DEVICE SYMBOLS

OA	OCCUPANCY SENSOR, TYPE A COVERAGE INDICATED

POWER SYMBOLS

J	JUNCTION BOX
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
G	GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) DUPLEX RECEPTACLE
WP	WEATHERPROOF DUPLEX RECEPTACLE
	NONFUSIBLE SWITCH
B	ENCLOSED CIRCUIT BREAKER
SM	MOTOR-STARTING SWITCH, WITHOUT OVERLOAD PROTECTION
	MANUAL CONTROLLER, WITH OVERLOAD PROTECTION
	COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT
V	VARIABLE FREQUENCY CONTROLLER FURNISHED WITH EQUIPMENT
	MOTOR CONNECTION
	BRANCH-CIRCUIT PANELBOARD; RECESSED, SURFACE
	DISTRIBUTION PANELBOARD

MOUNTING HEIGHT SCHEDULE

SWITCHES	4'-0"
CONVENIENCE OUTLETS	2'-0"
WEATHERPROOF OUTLETS	2'-0"
BRANCH PANELS (TOP)	6'-6"
DISCONNECT SWITCHES (TOP)	5'-6"
COMBINATION MAG. STARTER / DISC. SW. (TOP)	5'-6"
MANUAL FIRE ALARM STATIONS	4'-0"
FIRE ALARM HORN, BELL OR VISUAL SIGNALS (BOTTOM)	6'-8"

MOUNTING HEIGHTS SHALL PREVAIL ON ALL NEW CONSTRUCTION UNLESS OTHERWISE NOTED.

MOUNTING HEIGHTS ARE TO CENTER AND ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

LUMINAIRE SCHEDULE

LUMINAIRE TYPE	NORMAL SYMBOL	EMERG. SYMBOL (SEE NOTE 8)	LAMPS (SEE NOTE 7) NO	LAMPS (SEE NOTE 7) TYPE	DESCRIPTION	BALLAST OR DRIVER	MOUNTING	MANUFACTURER'S NUMBER, (SEE NOTES 2-8)
A			3	F32T8/SP35/ECO	15"X48"" FLUORESCENT WRAP AROUND FIXTURE, DIE-FORMED STEEL HOUSING WITH WHITE POWDER-COAT FINISH, EXTRUDED ACRYLIC SHIELD, WITH BATTERY BALLAST WHERE SHOWN AS EMERGENCY.	MVOLT, 0.88 BF, INSTANT START	PENDANT MOUNT, +8'-0" TO BOTTOM	COLUMBIA WCW-4-3-32-E-U (-EL)

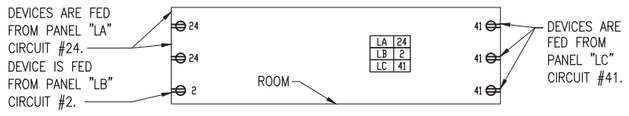
LUMINAIRE NOTES

1. VERIFY CEILING TYPES THROUGHOUT. PROVIDE ALL ACCESSORIES, TRIM, FLANGES, OUTLET BOXES, ETC. FOR COMPLETE AND FINISHED INSTALLATION.
2. PROVIDE ENERGY CONSERVING ELECTRONIC FLUORESCENT BALLASTS IN COMBINATION W/ ENERGY CONSERVING LAMPS THROUGHOUT, UON. SEE SPECIFICATIONS FOR BALLAST REQUIREMENTS.
3. PROVIDE LUMINAIRES W/ LABEL SUITABLE FOR APPLICATION PER NATIONAL ELECTRICAL CODE.
4. MANUFACTURERS LISTED ARE TO ESTABLISH A LEVEL OF QUALITY AND TYPE OF EQUIPMENT. SIMILAR EQUIPMENT MAY BE SUBMITTED FOR APPROVAL IF EQUAL.
5. LUMINAIRES SHALL BE MVOLT WHEN POSSIBLE, UON.
6. WHERE ONLY ONE LUMINAIRE TYPE DESIGNATION IS SHOWN IN AN AREA W/ MORE THAN ONE LUMINAIRE SYMBOL OF THE SAME SIZE AND SHAPE, THE INTENT IS TO INDICATE THAT ALL LUMINAIRES ARE THE SAME TYPE, UON.
7. ALL FLUORESCENT LAMPS SHALL BE LOW MERCURY TYPE, RE835 PHOSPHOR (3500'K, 70+CRI), UON.
8. EMERGENCY SYMBOL FOR FLUORESCENT FIXTURES INDICATES ONE LAMP WITHIN FIXTURE POWERED BY EMERGENCY BATTERY BALLAST. MINIMUM OF 1200 LUMENS PER LAMP.

CIRCUIT IDENTIFICATION

GROUP OR EQUIPMENT CIRCUIT IDENTIFICATION. "LA" DENOTES PANEL NAME, "24" DENOTES CIRCUIT NUMBER:

1) DEDICATED EQUIPMENT CIRCUIT WHERE COMBINED WITH EQUIPMENT IDENTIFICATION.
2) WHERE SHOWN ALONE IN A ROOM, ALL DEVICES ARE CONNECTED TO INDICATED PANEL AND CIRCUIT, UON.
3) WHERE MULTIPLE CIRCUIT IDENTIFICATIONS SHOWN IN A ROOM, SEE EXAMPLE:



PANEL "M2" SCHEDULE

VOLTAGE: 240/120V, 1PH, 3W
BUS: 400
MAIN: LUGS ONLY - FED BY 300A CB
LOCATION: "MECHANICAL ROOM"
MIN. A.I.C. RATING: 10,000
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

LOAD DESCRIPTION	NOTE	KVA	LOAD	AMP	P	CKT	PHASE	CKT	AMP	P	LOAD DESCRIPTION	NOTE	KVA	LOAD
HRV-1		6.24	M	30	2	1	A	2	30	2	CU-1		5.74	LM
			-	-	-	3	B	4	-	-				-
SPARE			S	20	2	5	A	6	30	2	CU-2		5.74	M
			-	-	-	7	B	8	-	-				-
BASEMENT FCU-1, FCU-2 AND FCU-3		0.65	M	15	2	9	A	10	30	2	CU-3		5.74	M
			-	-	-	11	B	12	-	-				-
EBB-1		2.00	O	15	2	13	A	14	30	2	CU-4		5.74	M
			-	-	-	15	B	16	-	-				-
LEVEL 1 FCU-1 , FCU-3, FCU-4		0.79	M	15	2	17	A	18	30	2	CU-5		5.74	M
			-	-	-	19	B	20	-	-				-
LEVEL 2 FCU-3		0.12	M	15	2	21	A	22	30	2	CU-6		5.74	M
			-	-	-	23	B	24	-	-				-
HM-1		11.99	O	70	2	25	A	26	20	1	WP RECEPTACLE AT CU		0.18	R
			-	-	-	27	B	28	20	2	EBB-2		0.75	C
SPARE			S	20	1	29	A	30	-	-				-
SPARE			S	20	1	31	B	32	20	1	SPARE			S
SPARE			S	20	1	33	A	34	20	1	SPARE			S
SPARE			S	20	1	35	B	36	20	1	SPARE			S
SPARE			S	20	1	37	A	38	20	1	SPARE			S
SPARE			S	20	1	39	B	40	20	1	SPARE			S
SPARE			S	20	1	41	A	42	20	1	SPARE			S

SUMMARY BY LOAD TYPE		CONNECTED KVA PH A	PH B	FEED	TOTAL KVA	NEC %	NEC TOTAL
L	LIGHTING					1.25	
R	RECEPTACLES	0.2			0.2	10K+50%	0.2
M	MOTORS	18.3	18.3		36.5	1.00	36.5
LM	LARGEST MOTOR	2.9	2.9		5.7	1.25	7.2
C	CONTINUOUS	0.4	0.4		0.8	1.25	0.9
N	NON-CONTINUOUS					1.00	
S	SPARE					1.00	
X	NON-COINCIDENT					0.00	
O	OTHER	7.0	7.0		14.0	1.00	14.0
F	FEEDER						
TOTAL KVA (PHASE)		28.7	28.5		57.2		58.8
TOTAL AMPERES		238.9	237.4		238.2		244.9
PHASE BALANCE, AB		A-B					
PERCENT		0.6%					

NOTES:

SHEET NOTES

1. ELECTRICAL SHEET NOTES, SEE DESCRIPTION ON SAME SHEET.
2. GENERAL ELECTRICAL SHEET NOTES ON SAME SHEET.

GENERAL NOTES

1. IN GENERAL, CIRCUIT ROUTING IS NOT SHOWN, HOWEVER THE CIRCUIT(S) TO BE CONNECTED ARE IDENTIFIED.
2. ALL 120V AND 208V SINGLE PHASE 15 AND 20 AMPERE BRANCH CIRCUITS LESS THAN 75' SHALL BE 2#12, 1#12 GND, 1/2" C UON. ALL OTHER BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC REQUIREMENTS FOR THE LOAD SERVED AND OVERCURRENT DEVICE SHOWN IN THE PANEL SCHEDULE, UON. CALCULATE VOLTAGE DROP FOR CIRCUITS EXCEEDING 75' IN LENGTH TO NOT EXCEED 3%.
3. SHARED NEUTRALS ARE NOT ALLOWED.
4. VFD'S FURNISHED BY MECHANICAL AND INSTALLED AND WIRED BY ELECTRICAL, UON.
5. ALL RACEWAYS SHALL BE STEEL, UON.

ABBREVIATIONS

ACS	ACCESS CONTROL SYSTEM
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFW	ABOVE FINISHED WALKWAY
AHU	AIR HANDLING UNIT
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BCU	BARE COPPER
BFF	BELOW FINISHED FLOOR
C	CONDUIT
CH	COUNTER HEIGHT
CL	CENTER LINE
CT	CURRENT TRANSFORMER
D	DEDICATED
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
(E)	EXISTING
EA	EACH
EPO	EMERGENCY POWER OFF
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FHP	FRACTIONAL HORSEPOWER MOTOR
FL	FLOW SWITCH
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTING
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
GWB	GYPSUM WALL BOARD
HOA	HAND OFF AUTO
HRV	HEAT RECOVERY VENTILATOR
IBC	INTERNATIONAL BUILDING CODE
IDC	INTRUSION DETECTION SYSTEM
IG	ISOLATED GROUND
LC	LIGHTING CONTRACTOR
LEC	LOCAL EXCHANGE COMPANY
LED	LIGHT EMITTING DIODE
LT	LIQUID TIGHT
MCB	MAIN CIRCUIT BREAKER
MCS	MOLDED CASE SWITCH
MDF	MAIN DISTRIBUTION FRAME
MPD	MAIN DISTRIBUTION PANEL
MFR'S	MANUFACTURER'S
MM	MILLIMETER
MOA	MULTI-OUTLET ASSEMBLY
MTD	MOUNTED
(N)	NEW
N	NEUTRAL
NAC	NOTIFICATION APPLIANCE CIRCUIT
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NOTC	NORMALLY OPEN TIMER CONTACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
PA	PUBLIC ADDRESS
RM	ROOM
SDBC	SOFT DRAWN BARE COPPER
SLC	SIGNALING LINE CIRCUIT
SPST	SINGLE POLE SINGLE THROW SWITCH
SS	STAINLESS STEEL; SOFT START
T	TELEPHONE
TBD	TO BE DETERMINED
TGB	TELECOMMUNICATIONS GROUNDING BUS BAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS
TTB	TELEPHONE TERMINAL BOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VOIP	VOICE OVER INTERNET PROTOCOL
W/	WITH
WG	WIRE GUARD
WP	WEATHERPROOF
WR	WIRE
ø	PHASE

LINE TYPES

- DEMO WORK
- EXISTING WORK
- NEW WORK

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ELECTRICAL SYMBOLS, ABBREVIATIONS

CONSTRUCTION DOCUMENTS

DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

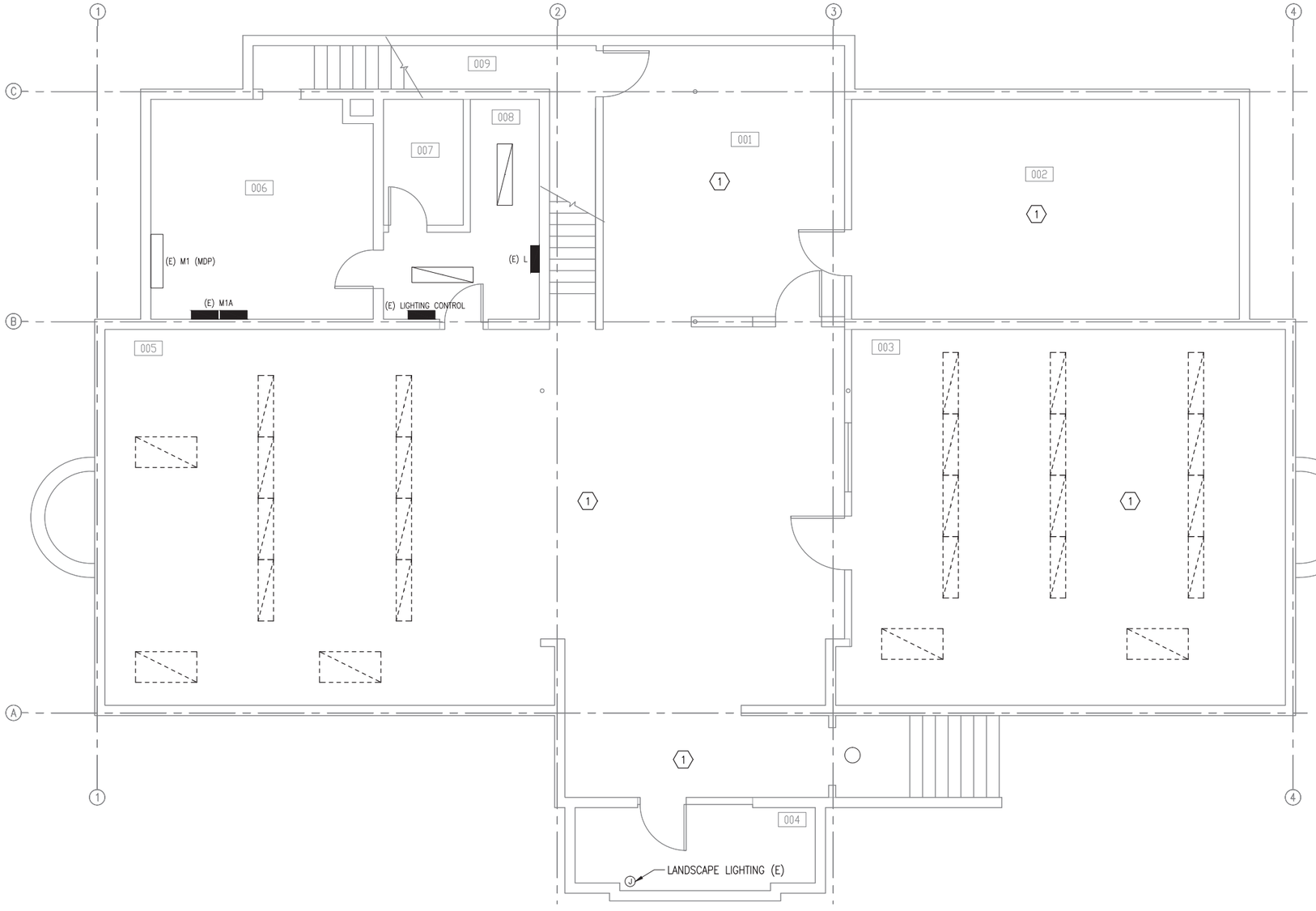
PROJECT No.
13028AN

SHEET NUMBER
E001

SHEET NOTES

1. DEMOLISH LIGHT FIXTURES IN THIS ROOM. SAVE BRANCH CIRCUITS AND SWITCHING FOR RE-USE, SEE 1/E3.1. COORDINATE DEMOLITION WITH ARCHITECTURE, HAZMAT, AND MECHANICAL.

2. LIGHTING SHOWN IS BASED ON EXISTING RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, CIRCUITING, CONTROLS, AND FIXTURE QUANTITIES. NO ALLOWANCE SHALL BE MADE FOR DIFFERENCE BETWEEN DESIGN DRAWINGS AND ACTUAL FIELD CONDITIONS.



1 BASEMENT LEVEL – DEMO LIGHTING PLAN
Scale: 1/4" = 1'-0"

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PROJECT :
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HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL -
DEMO LIGHTING PLAN

CONSTRUCTION DOCUMENTS

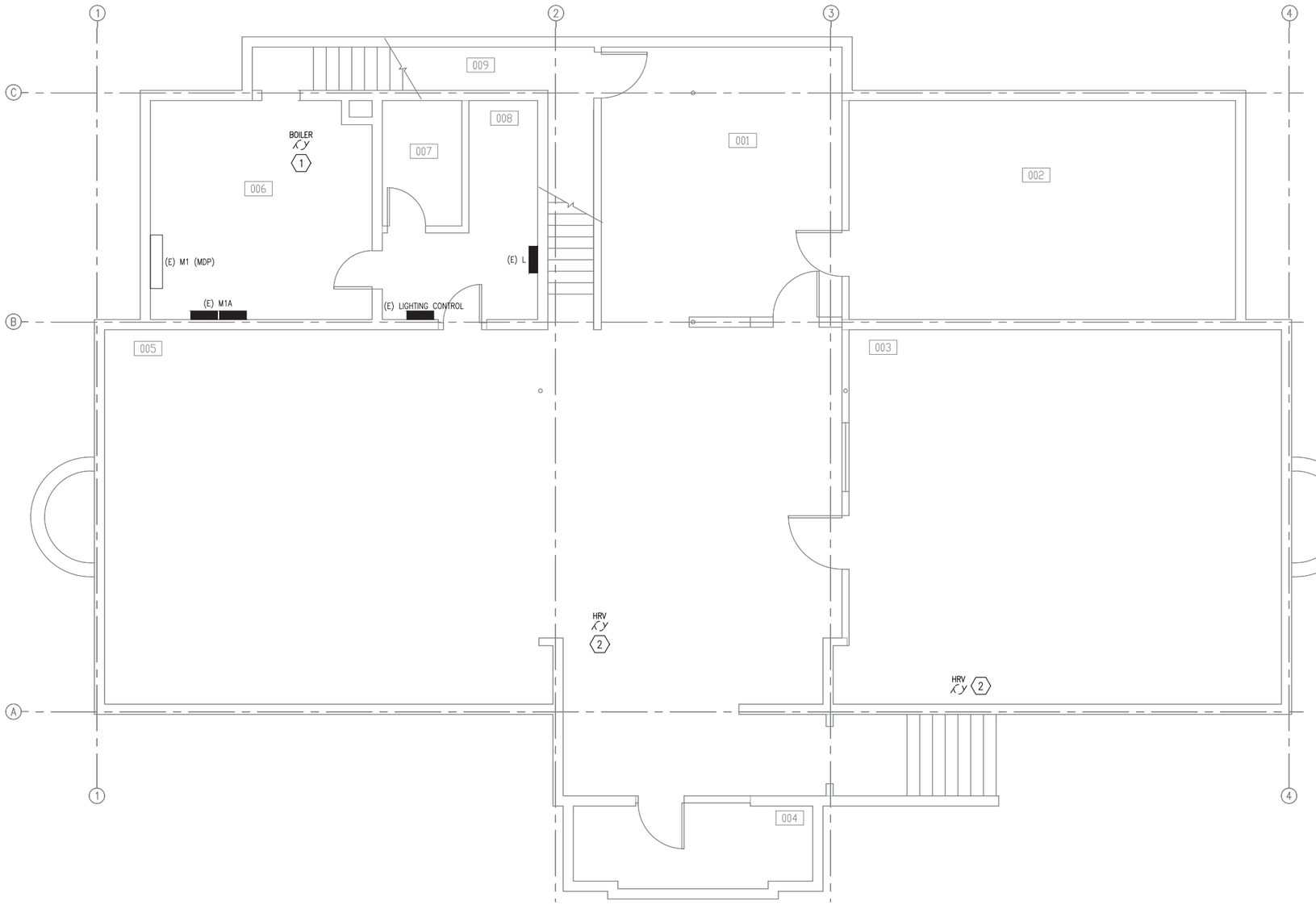
DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

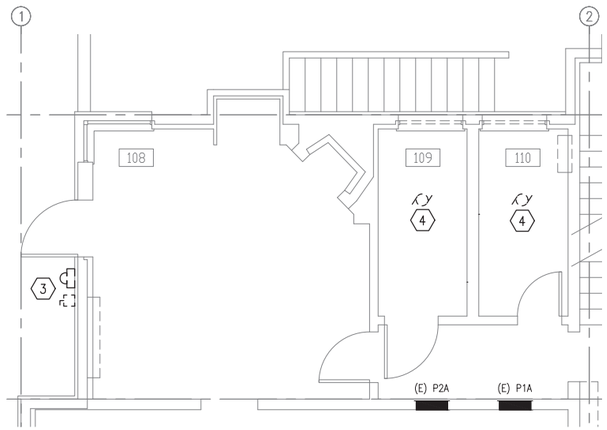
SHEET NUMBER
E201

SHEET NOTES

1. DEMOLISH POWER AND CONTROL WIRING FOR BOILER BACK TO SOURCE PANELBOARD AND CONTROLLER.
2. DEMOLISH POWER AND CONTROL WIRING FOR HRV, COORDINATE WITH MECHANICAL.
3. DEMOLISH SERVICE DISCONNECT AND METERING. COORDINATE WITH UTILITY AND OWNER. PROVIDE TEMPORARY POWER DURING CONSTRUCTION.
4. DEMOLISH CIRCUIT FOR EXHAUST FAN BACK TO SOURCE PANELBOARD. DEMOLISH ACCESSIBLE AND EXPOSED RACEWAYS. CONCEALED RACEWAYS MAY BE ABANDONED IN PLACE. DEMOLISH SWITCHES AND CONTROLS FOR EXHAUST FANS. COORDINATE WITH MECHANICAL AND ARCHITECTURAL.



1 BASEMENT LEVEL – DEMO ELECTRICAL PLAN
Scale: 1/4" = 1'–0"



2 LEVEL 1 – DEMO ELECTRICAL PLAN
Scale: 1/4" = 1'–0"

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL & LEVEL 1 - DEMO POWER PLAN
CONSTRUCTION DOCUMENTS

DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
E202

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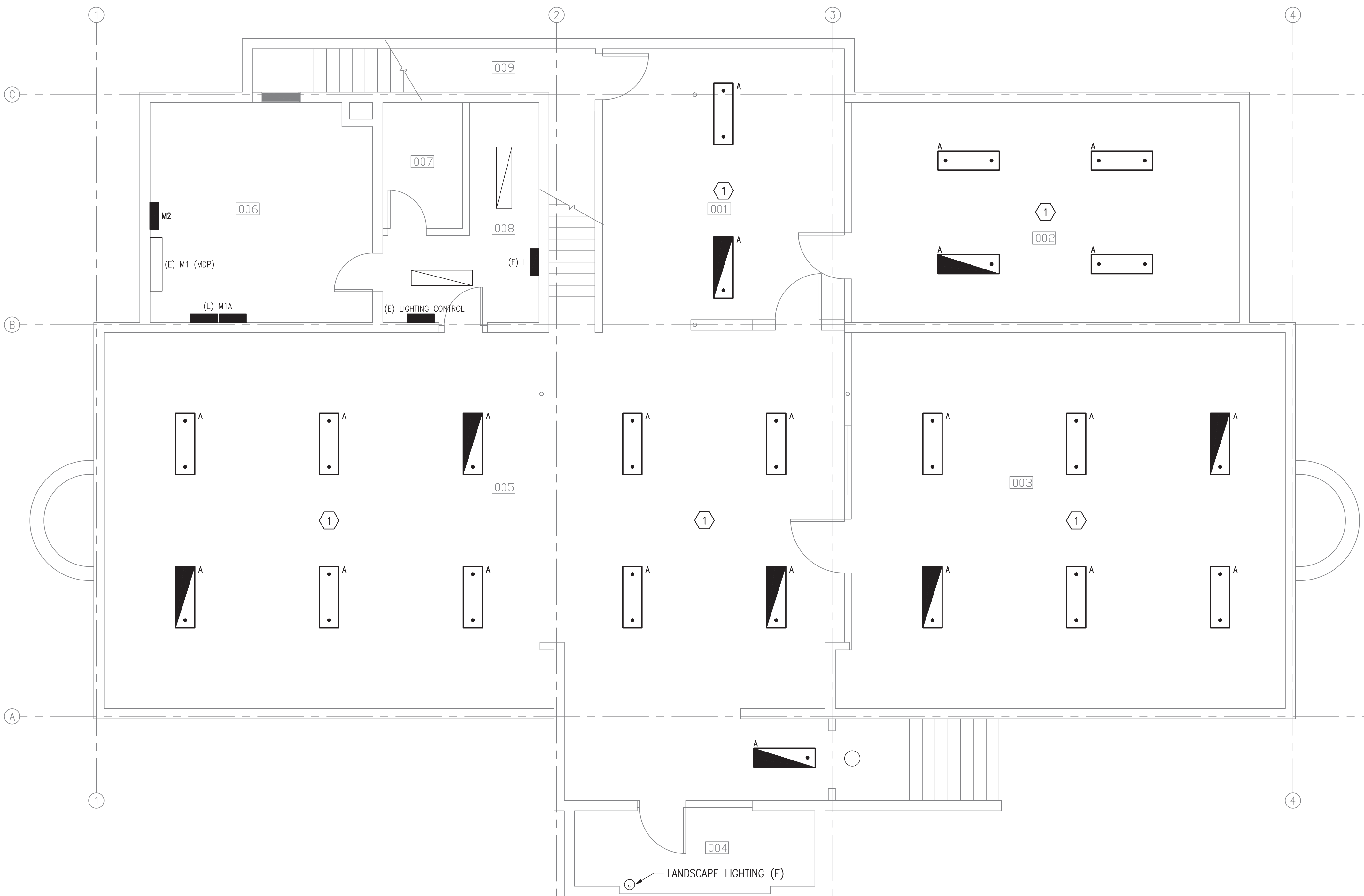
SHEET NOTES

1. CONNECT NEW LIGHTING TO EXISTING CIRCUITS AND SWITCHING. SEE 1/E201 FOR ADDITIONAL INFORMATION.
2. PENDANT MOUNT FIXTURES FROM CEILING OR MECHANICAL SUPPORTS ABOVE. COORDINATE LOCATIONS WITH MECHANICAL PIPING, DUCT, AND EQUIPMENT INSTALLATION.
3. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS AND ASSOCIATED MATERIALS WITH OWNER.



1 BASEMENT LEVEL – LIGHTING PLAN
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL - LIGHTING PLAN
CONSTRUCTION DOCUMENTS

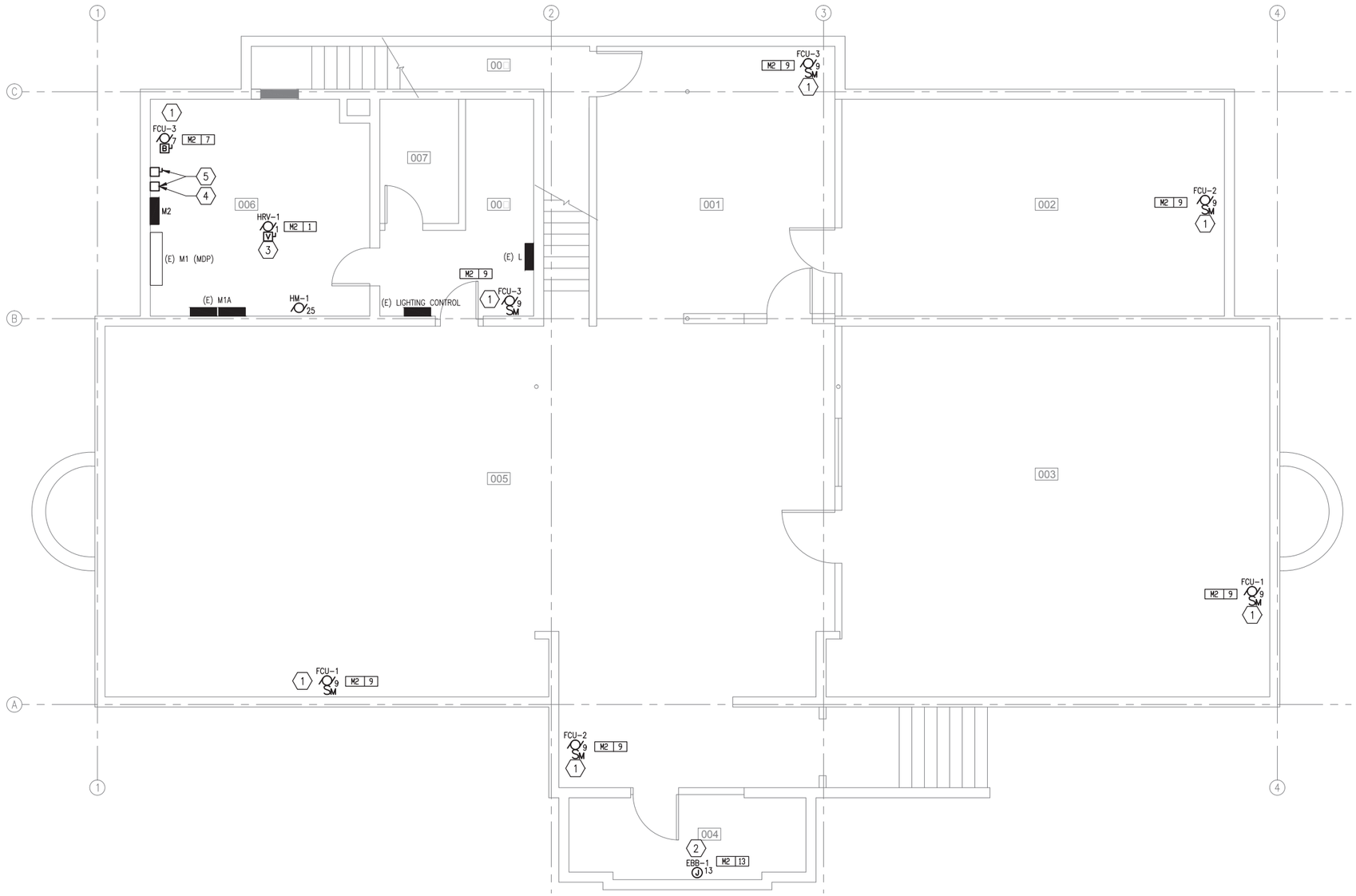
DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No. 13028AN

SHEET NUMBER
E301

SHEET NOTES

1. 15A 240V CIRCUIT FOR FAN COIL UNITS FROM PANEL "M2".
2. PROVIDE 15A, 240V CIRCUIT FOR ELECTRIC BASEBOARD FROM PANEL M2. BASEBOARD UNIT AND CONTROLS FURNISHED BY MECHANICAL, INSTALLED BY ELECTRICAL. COORDINATE INSTALLATION WITH MECHANICAL.
3. PROVIDE 30A, 240V, 1ø CIRCUIT FOR HRV-1 FROM PANEL "M2". INSTALL VFDs, FURNISHED BY MECHANICAL, FOR HEAT RECOVERY VENTILATOR.
4. PROVIDE 2KVA, 240V 1ø PRIMARY, 277V, 1ø SECONDARY BUCK/BOOST TRANSFORMER FOR HM-1. BASIS OF DESIGN IS SQUARE D MODEL 2S46F.
5. PROVIDE 60A, 277V, 1ø ENCLOSED CIRCUIT BREAKER ON LOAD SIDE OF TRANSFORMER WITH 2 – 6AWG + 1 8AWG GND, 3/4" C. FOR PRIMARY AND SECONDARY CONDUCTORS.
6. COORDINATE ELECTRICAL INSTALLATIONS WITH MECHANICAL AND ARCHITECTURAL.
7. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS AND ASSOCIATED MATERIALS WITH OWNER.



1 BASEMENT LEVEL – POWER PLAN
Scale: 1/4" = 1'-0"

CONSULTANT :

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
BASEMENT LEVEL - POWER PLAN

CONSTRUCTION DOCUMENTS

DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
E401

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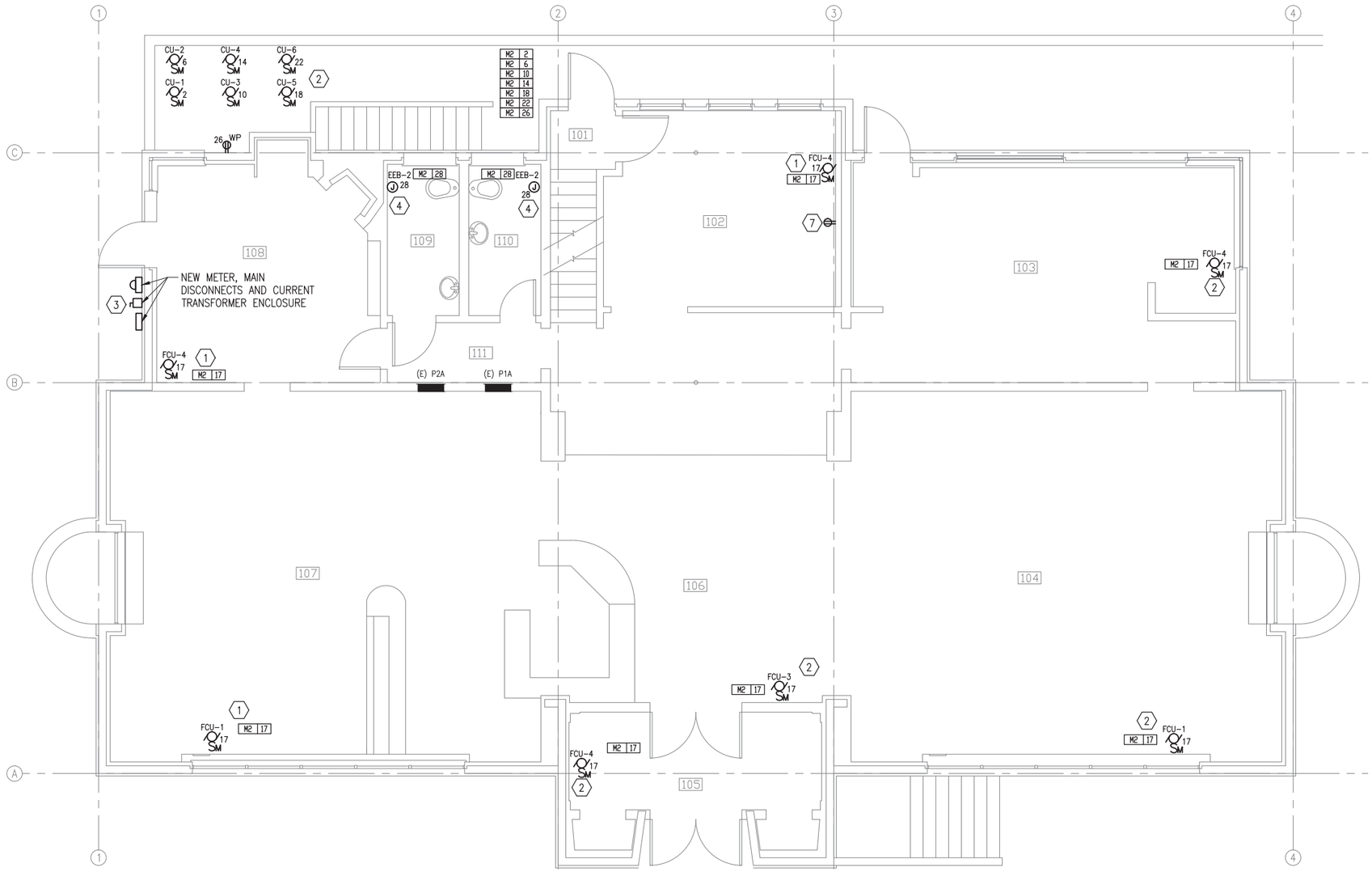
SHEET NOTES

1. 15A 240V CIRCUIT FOR FAN COIL UNITS FROM PANEL "M2", SEE PANEL SCHEDULE.
2. PROVIDE 30A 240V 1ø CIRCUITS FROM PANEL "M2" TO MODULAR CONDENSING UNITS CU-2 AS REQUIRED, SEE PANEL SCHEDULE.
3. SERVICE METER/MAIN BREAKER, SEE 1/E401 FOR ADDITIONAL INFORMATION.
4. PROVIDE 15A, 240V CIRCUIT FOR ELECTRIC BASEBOARD FROM PANEL M2. BASEBOARD UNIT AND CONTROLS FURNISHED BY MECHANICAL, INSTALLED BY ELECTRICAL. COORDINATE INSTALLATION WITH MECHANICAL.
5. COORDINATE ELECTRICAL INSTALLATION WITH MECHANICAL AND ARCHITECTURAL.
6. INSTALL SUPPLY WIRING FAN FOR COIL UNITS (FCU) IN SURFACE RACEWAY. ROUTE RACEWAYS ADJACENT TO MECHANICAL PIPING. COORDINATE WITH MECHANICAL AND ARCHITECTURAL.
7. REMOVE (E) RECEPTACLE FROM WALL AND RELOCATE TO BE FLUSH WITH FACE OF THICKENED WALL. SPLICE AND EXTEND CONDUCTORS AND RACEWAY AS REQUIRED.
8. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS AND ASSOCIATED MATERIALS WITH OWNER.



1 LEVEL 1 – POWER PLAN
Scale: 1/4" = 1'-0"

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
LEVEL 1 - POWER PLAN
CONSTRUCTION DOCUMENTS

DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
E402

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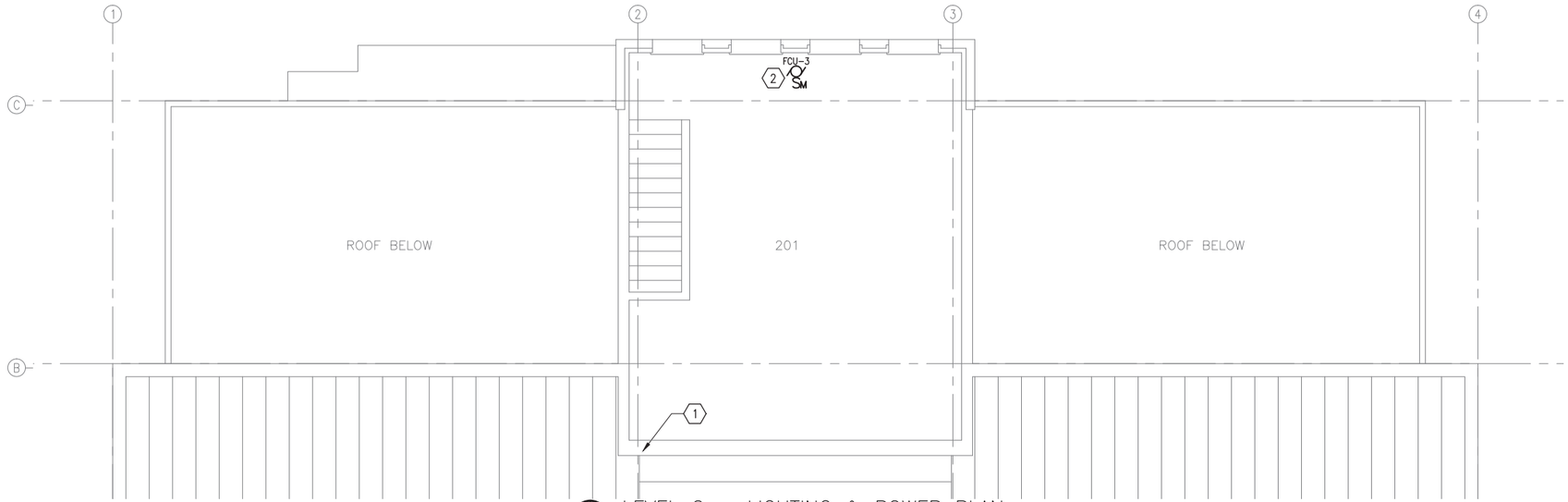
SHEET NOTES

1. ROUTE BRANCH CIRCUIT FOR FCU–3, HRV–2, LIGHTING AND RECEPTACLES WITH MECHANICAL PIPING.
2. 15A 240V CIRCUIT FOR FAN COIL UNIT FROM PANEL "M2".
3. COORDINATE ELECTRICAL INSTALLATION WITH MECHANICAL AND ARCHITECTURAL.
4. INSTALL SUPPLY WIRING FOR FAN COIL UNITS (FCU) IN SOFFIT RACEWAY. ROUTE RACEWAYS ADJACENT TO MECHANICAL PIPING. COORDINATE WITH MECHANICAL AND ARCHITECTURAL.
5. PLEASE COORDINATE RELOCATION AND/OR PROTECTION OF OCCUPANT'S DISPLAYS, COLLECTIONS AND ASSOCIATED MATERIALS WITH OWNER.



1 LEVEL 2 – LIGHTING & POWER PLAN
Scale: 1/4" = 1'–0"

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

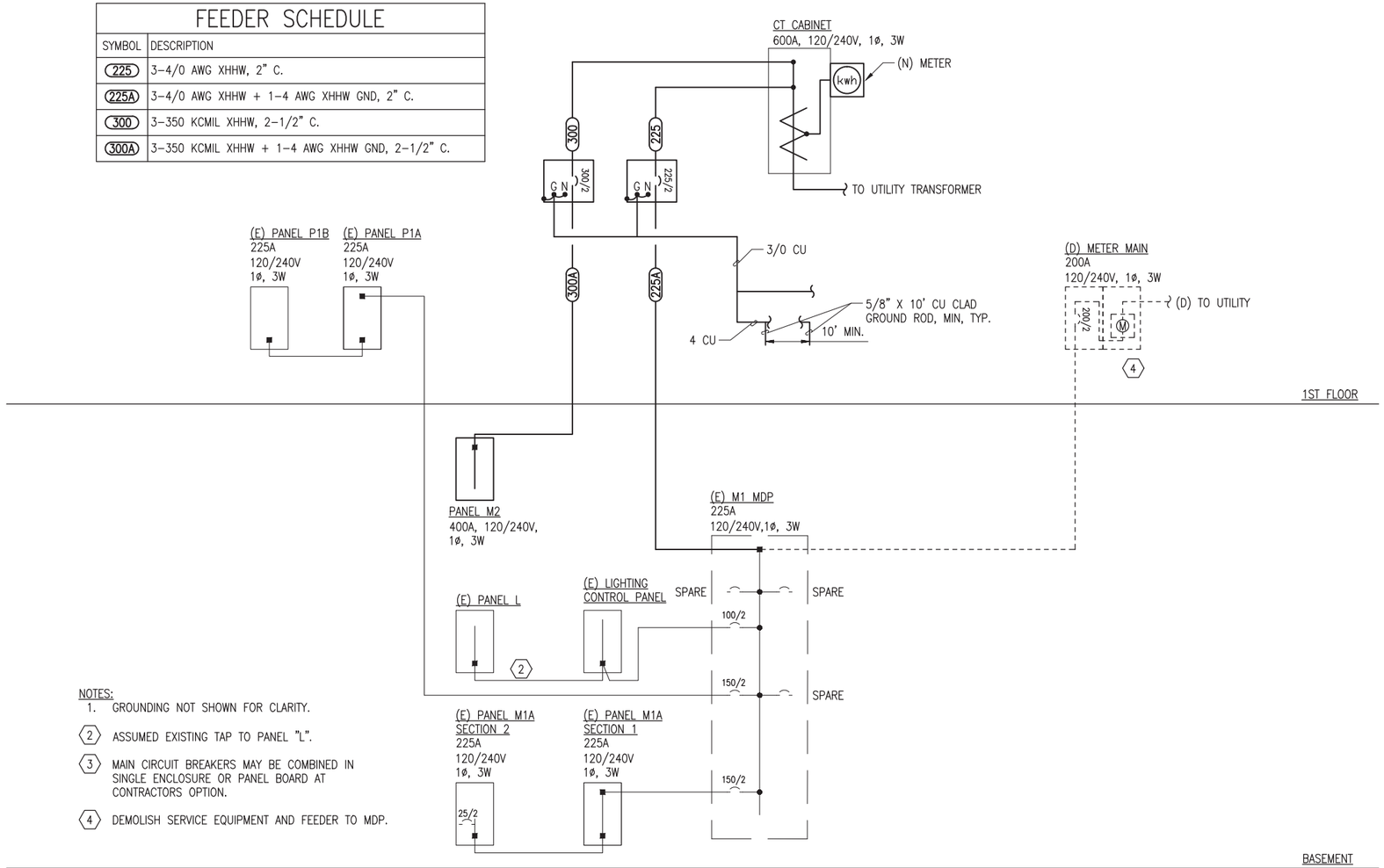
SHEET TITLE :
LEVEL 2 POWER PLANS
CONSTRUCTION DOCUMENTS

DESIGN	PF
DRAWN	PAH
CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
E403

FEEDER SCHEDULE	
SYMBOL	DESCRIPTION
(225)	3-4/0 AWG XHHW, 2" C.
(225A)	3-4/0 AWG XHHW + 1-4 AWG XHHW GND, 2" C.
(300)	3-350 KCMIL XHHW, 2-1/2" C.
(300A)	3-350 KCMIL XHHW + 1-4 AWG XHHW GND, 2-1/2" C.



NOTES:
1. GROUNDING NOT SHOWN FOR CLARITY.

(2) ASSUMED EXISTING TAP TO PANEL "L".

(3) MAIN CIRCUIT BREAKERS MAY BE COMBINED IN SINGLE ENCLOSURE OR PANEL BOARD AT CONTRACTORS OPTION.

(4) DEMOLISH SERVICE EQUIPMENT AND FEEDER TO MDP.

(1) POWER ONE-LINE RISER DIAGRAM

Scale: NO SCALE

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PROJECT :
JUNEAU - DOUGLAS CITY MUSEUM
HVAC UPGRADES
CONTRACT NO. RFP E13-217
JUNEAU, AK

SHEET TITLE :
ONE-LINE DIAGRAM
CONSTRUCTION DOCUMENTS

DESIGN	PF
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CHECKED	RP
DATE	11/01/13

PROJECT No.
13028AN

SHEET NUMBER
E501