

GENERAL STRUCTURAL NOTES (CONTINUED)
(APPLY UNLESS NOTED OTHERWISE)

DEFERRED STRUCTURAL SUBMITTALS

THE FOLLOWING ITEMS ARE DESIGNED AND DETAILED BY THE CONTRACTOR USING THE LOADING AND CRITERIA SHOWN IN THE CONTRACT DOCUMENTS. DEFERRED SUBMITTALS SHALL INCLUDE CALCULATIONS AND DRAWINGS STAMPED BY AN ALASKA REGISTERED ENGINEER AND ARE TO BE SUBMITTED TO THE CONTRACTING OFFICER PRIOR TO FABRICATION:

- MECHANICAL UNIT SEISMIC RESTRAINT
- ROOFING ATTACHMENT
- CURTAIN WALL SYSTEM
- GLASS STOREFRONT
- GUARDRAIL AND RAILING DESIGN AND ANCHORAGE
- PV RACKING SYSTEM AND ATTACHMENT
- SPECIALTY EXTERIOR CLADDING SYSTEM

REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL FOR OTHER DEFERRED SUBMITTALS.

DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE PRIOR APPROVAL OF THE BUILDING OFFICIAL. THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE CONTRACT DOCUMENTS AND THE CONTRACTOR SHALL SUBMIT THE DEFERRED SUBMITTAL DOCUMENTS FOR REVIEW BY THE BUILDING OFFICIAL.

SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE CONTRACTING OFFICIAL OR ENGINEER OF RECORD A MINIMUM OF 30 DAYS PRIOR TO FABRICATION. THE DOCUMENTS SHALL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE DRAWINGS. A COPY OF THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

SPECIAL STRUCTURAL INSPECTIONS AND TESTING

THE OWNER (OR REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT) SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTION AND TESTING DURING CONSTRUCTION OF THE TYPES OF WORK REQUIRING SPECIAL INSPECTION AS INDICATED ON THE DRAWINGS.

EACH SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL AND STRUCTURAL ENGINEER OF RECORD, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR

- THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.

- THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE ENGINEER OR ARCHITECT OF RECORD. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN IF UNCORRECTED, TO THE ENGINEER OR ARCHITECT OF RECORD AND THE BUILDING OFFICIAL.

- UPON COMPLETION OF THE ASSIGNED WORK, THE SPECIAL INSPECTOR SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT, TO THE BEST OF THEIR KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

DEFINITIONS

CONTINUOUS SPECIAL INSPECTION: CONTINUOUS SPECIAL INSPECTION IS THE FULL TIME OBSERVATION OF THE WORK BY THE SPECIAL INSPECTOR PRESENT IN THE WORK AREA WHENEVER WORK IS BEING PERFORMED. PERFORM CONTINUOUS SPECIAL INSPECTION WHERE SPECIFIED AS INDICATED IN THE SPECIAL INSPECTION TABLES.

PERIODIC SPECIAL INSPECTION: PERIODIC SPECIAL INSPECTION IS THE INTERMITTENT OBSERVATION OF THE WORK BY A SPECIAL INSPECTOR PRESENT IN THE WORK AREA WHILE WORK IS BEING PERFORMED. THE INTERMITTENT OBSERVATION PERIODS SHALL BE AT TIME OF SIGNIFICANT WORK, RECURRENT OVER THE COMPLETE WORK PERIOD AND TOTAL AT LEAST 25 PERCENT OF THE TOTAL WORK TIME FOR A GIVEN TASK. PERFORM PERIODIC SPECIAL INSPECTION WHERE SPECIFIED FOR ITEMS AS INDICATED IN THE SPECIAL INSPECTION TABLES.

GEOTECHNICAL SPECIAL INSPECTIONS				
SOILS				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY	1705.6	—	PERIODIC	—
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	1705.6	—	PERIODIC	—
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	1705.6	—	PERIODIC	—
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	1705.6	—	CONTINUOUS	—
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY SITE HAS BEEN PROPERLY PREPARED	1705.6	—	PERIODIC	—

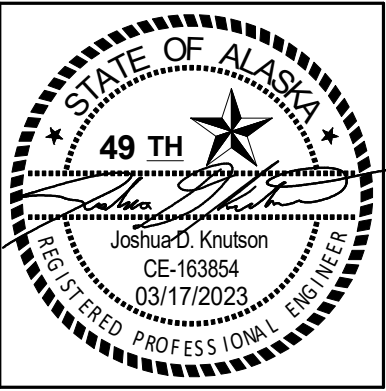
TESTING FOR SPECIAL INSPECTIONS				
GEOTECHNICAL				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
SOILS				
FILL IN-PLACE DENSITY OR PREPARED SUBGRADE DENSITY	1705.6	---	(NOTE 1)	—
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	1705.6	---	(NOTE 1)	—
VERIFY THE IN-PLACE DRY DENSITY OF THE COMPACTED FILL IS NOT LESS THAN 90% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT	1705.6	ASTM D1557	(NOTE 1)	(NOTE 2)
NOTES: 1. PER REGISTERED DESIGN PROFESSIONAL. 2. WHERE REPORTING OF MATERIALS AND PROCEDURES FOR FILL PLACEMENT IS NOT REQUIRED.				
CONCRETE				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
CONCRETE STRENGTH	1705.3 1908.10	ASTM C39, C31,C172 ACI 318 26.5, 26.12	(NOTE 1)	—
CONCRETE SLUMP	1705.3 1908.10	ASTM C143, C172 ACI 318 26.5, 26.12	(NOTE 1)	—
CONCRETE AIR CONTENT	1705.3 1908.10	ASTM C172, C173 ACI 318 26.5, 26.12	(NOTE 1)	—
CONCRETE TEMPERATURE	1705.3 1908.10	ASTM 172, C1064 ACI 318 26.5, 26.12	(NOTE 1)	—
NOTES: 1. AT LEAST ONCE: PER DAY; PER 150 CY; FOR EACH 5,000 SF OF SLAB OR WALL.				
STRUCTURAL STEEL				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
MT AND UT OF WELDS	1705.2	MT - AWS D1.1 6.14.4 UT - AWS D1.1 6.13 & 6.14.3	PER DRAWINGS	—
PRE-INSTALLATION VERIFICATION OF PRETENSIONED HIGH STRENGTH BOLTS	1705.2	(NOTE 3)	(NOTE 2)	—
NOTES: 1. PER AISC 360 N6, NONDESTRUCTIVE TESTING MAY NOT BE WAIVED WHERE WORK IS COMPLETED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. 2. NO FEWER THAN (3) COMPLETE FASTENER ASSEMBLIES OF EACH COMBINATION OF DIAMETER, LENGTH, GRADE AND LOT TO BE USED IN THE WORK				

SPECIAL INSPECTIONS FOR WIND RESISTANCE				
STRUCTURAL WOOD				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF THE MAIN WINDFORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES AND HOLD-DOWNS	1705.11.1	—	PERIODIC	(NOTE 1)
NOTES: 1. SPECIAL INSPECTIONS ARE NOT REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING AND OTHER FASTENING TO OTHER ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM, WHERE THE SPECIFIED FASTENER SPACING AT PANEL EDGES IS MORE THAN 4 INCHES ON CENTER.				
WIND-RESISTING ELEMENTS				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
ROOF COVERING, ROOF DECK AND ROOF FRAMING CONNECTIONS	1705.11.3	—	PERIODIC	—
EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGM AND FRAMING.	1705.11.3	—	PERIODIC	—

STRUCTURAL SPECIAL INSPECTIONS				
CONCRETE				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
GENERAL INSPECTIONS				
REINFORCING STEEL PLACEMENT	1705.3	ACI 318 20 ACI 318 25.2 ACI 318 25.3 ACI 318 26.6.1-3	PERIODIC	—
PLACEMENT OF CAST-IN-PLACE ANCHOR BOLTS	1705.3	ACI 318 17.8.2	PERIODIC	(NOTE 2)
VERIFY USE OF REQUIRED MIX DESIGN(S)	1705.3 1904.1 1904.2	ACI 318 19 ACI 318 26.4.3 ACI 318 26.4.4	PERIODIC	—
SAMPLING OF CONCRETE FOR STRENGTH, SLUMP, AIR CONTENT TESTS, AND TEMPERATURE DETERMINATION	1705.3	ASTM C172 ASTM C31 ACI 318 26.5 ACI 318 26.12	CONTINUOUS	REFER TO CONCRETE TESTING TABLES
CONCRETE PLACEMENT	1705.3	ACI 318 26.5	CONTINUOUS	—
CONCRETE CURING	1705.3	ACI 318 26.5.3-5	PERIODIC	—
VERIFICATION OF FORMWORK	1705.3	ACI 318 26.11.1.2(b)	PERIODIC	(NOTE 4)
NOTES: 1. REFER TO STRUCTURAL STEEL STRUCTURAL SPECIAL INSPECTION TABLE. 2. ALL ANCHOR BOLTS ARE VISUALLY INSPECTED. 3. ALL CONNECTIONS VISUALLY INSPECTED, REFER TO ANCHOR BOLT AND WELDING REQUIREMENTS. 4. SPECIAL INSPECTIONS APPLY TO SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.				

STRUCTURAL SPECIAL INSPECTIONS				
POST-INSTALLED ANCHORS				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
POST-INSTALLED ANCHORS	1705.3	ACI 318 17.8.2.4 ACI 318 17.8.2 ICC EVALUATION REPORT	—	(NOTE 1)
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	1705.3	—	CONTINUOUS	—
B. MECHANICAL AND ADHESIVE ANCHORS	1705.3	—	PERIODIC	—
NOTES: 1. SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE.				

STRUCTURAL SPECIAL INSPECTIONS				
STRUCTURAL STEEL - FABRICATED SYSTEMS AND ELEMENTS				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
FABRICATED SYSTEMS AND ELEMENTS	1704.2.5 1705.10	AISC 360 N6	PERIODIC	(NOTES 1 & 2)
NOTES: 1. SPECIAL INSPECTIONS APPLY TO VERIFICATION OF DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES, INCLUDING REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS. SPECIAL INSPECTIONS ARE NOT REQUIRED FOR WORK DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SAID WORK WITHOUT SPECIAL INSPECTION. APPROVED FABRICATOR'S, UPON COMPLETION OF COMPONENT MANUFACTURING, SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO OWNER OR OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. 2. NON-DESTRUCTIVE TESTING REQUIREMENTS FOR WELDS CANNOT BE WAIVED PER AISC 360 SECTION N6. NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP IS PERMITTED TO BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AUTHORITY HAVING JURISDICTION. WHEN THE FABRICATOR PERFORMS THE NDT, THE QA AGENCY SHALL REVIEW THE FABRICATOR'S NDT REPORTS.				



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	77006.00
DATE	2023.03.08
DRAWN	MEH
REVIEWED	JDK

SHEET NAME
GENERAL STRUCTURAL NOTES
AND SPECIAL INSPECTION
TABLES

SHEET NO.
S0.03

STRUCTURAL SPECIAL INSPECTIONS				
STRUCTURAL STEEL - WELDING				
INSPECTION TASKS	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY (NOTE 1)	REMARKS
INSPECTION TASKS PRIOR TO WELDING				
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
WELDING PROCEDURE SPECIFICATIONS	1705.2.1	AISC 360 N5.4-1	PERFORM	—
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES	1705.2.1	AISC 360 N5.4-1	PERFORM	—
MATERIAL IDENTIFICATION (TYPE/GRADE)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
WELDER IDENTIFICATION SYSTEM	1705.2.1	AISC 360 N5.4-1	OBSERVE	(NOTE 2)
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)				
A. JOINT PREPARATION	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
B. DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
C. CLEANLINESS (CONDITION OF SURFACES)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
D. TACK WELD QUALITY AND LOCATION	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
E. BACKING TYPE AND FIT (IF APPLICABLE)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY)				
A. JOINT PREPARATION	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
B. DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
C. CLEANLINESS (CONDITION OF SURFACES)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
D. TACK WELD QUALITY AND LOCATION	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
E. BACKING TYPE AND FIT (IF APPLICABLE)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
CONFIGURATION AND FINISH OF ACCESS HOLES	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
FIT UP OF FILLET WELDS				
A. DIMENSIONS (ALIGNMENT, GAPS AT ROOT)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
B. CLEANLINESS (CONDITION OF STEEL SURFACES)	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
C. TACK WELD QUALITY AND LOCATION	1705.2.1	AISC 360 N5.4-1	OBSERVE	—
INSPECTION TASKS DURING WELDING				
CONTROL AND HANDLING OF WELDING CONSUMABLES				
A. PACKAGING	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
B. EXPOSURE CONTROL	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
NO WELDING OVER CRACKED TACK WELDS	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
ENVIRONMENTAL CONDITIONS				
A. WIND SPEED WITHIN LIMITS	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
B. PRECIPITATION AND TEMPERATURE	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
WPS FOLLOWED				
A. SETTINGS ON WELDING EQUIPMENT	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
B. TRAVEL SPEED	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
C. SELECTED WELDING MATERIALS	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
D. SHIELDING GAS TYPE/FLOW RATE	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
E. PREHEAT APPLIED	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
F. INTERPASS TEMPERATURE MAINTAINED (MIN/MAX)	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
G. PROPER POSITION (F, V, H, OH)	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
WELDING TECHNIQUES				
A. INTERPASS AND FINAL CLEANING	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
B. EACH PASS WITHIN PROFILE LIMITATIONS	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
C. EACH PASS MEETS QUALITY REQUIREMENTS	1705.2.1	AISC 360 N5.4-2	OBSERVE	—
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	1705.2.1	AISC 360 N5.4-2	PERFORM	—
INSPECTION TASKS AFTER WELDING				
WELDS CLEANED	1705.2.1	AISC 360 N5.4-3	OBSERVE	—
SIZE, LENGTH AND LOCATION OF WELDS	1705.2.1	AISC 360 N5.4-3	PERFORM	—
WELDS MEET VISUAL ACCEPTANCE CRITERIA				
A. CRACK PROHIBITION	1705.2.1	AISC 360 N5.4-3	PERFORM	—
B. WELD/BASE-METAL FUSION	1705.2.1	AISC 360 N5.4-3	PERFORM	—
C. CRATER CROSS SECTION	1705.2.1	AISC 360 N5.4-3	PERFORM	—
D. WELD PROFILES	1705.2.1	AISC 360 N5.4-3	PERFORM	—
E. WELD SIZE	1705.2.1	AISC 360 N5.4-3	PERFORM	—
F. UNDERCUT	1705.2.1	AISC 360 N5.4-3	PERFORM	—
G. POROSITY	1705.2.1	AISC 360 N5.4-3	PERFORM	—
ARC STRIKES	1705.2.1	AISC 360 N5.4-3	PERFORM	—
K-AREA	1705.2.1	AISC 360 N5.4-3	PERFORM	(NOTE 3)
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SECTIONS	1705.2.1	AISC 360 N5.4-3	PERFORM	(NOTE 4)
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	1705.2.1	AISC 360 N5.4-3	PERFORM	—
REPAIR ACTIVITIES	1705.2.1	AISC 360 N5.4-3	PERFORM	—
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	1705.2.1	AISC 360 N5.4-3	PERFORM	
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	1705.2.1	AISC 360 N5.4-3	OBSERVE	—
NOTES:				
1. "OBSERVE": THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. "PERFORM": THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.				
2. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.				
3. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACK WITHIN 3 INCHES OF THE WELD.				
4. AFTER ROLLED HEAVY SHAPES AND BUILT-UP SHAPES ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.				

STRUCTURAL SPECIAL INSPECTIONS				
STRUCTURAL STEEL - AVAILABLE DOCUMENTS FOR STEEL CONSTRUCTION				
SYSTEM OR MATERIAL	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY	REMARKS
MATERIAL VERIFICATION OF STRUCTURAL STEEL	1705.2.1	ASTM A6 AISC 360 A3.1, N3.2	PERIODIC	CERTIFIED MILL TEST REPORTS
MATERIAL VERIFICATION OF STEEL CASTINGS AND FORGINGS	1705.2.1	AISC A3.2, N3.2	PERIODIC	(NOTE 1)
MATERIAL VERIFICATION OF FASTENERS	1705.2.1	AISC 360 A3.3, N3.2	PERIODIC	(NOTE 1)
MATERIAL VERIFICATION OF ANCHOR RODS AND THREADED RODS	1705.2.1	AISC 360 A3.4, N3.2	PERIODIC	(NOTE 1)
MATERIAL VERIFICATION OF WELDING CONSUMABLES	1705.2.1	AISC 360 A3.5, N3.2, N5.4	PERIODIC	(NOTE 1)
MATERIAL VERIFICATION OF WELDING FILLER METALS AND FLUXES	1705.2.1	AISC 360 N3.2	PERIODIC	(NOTE 2)
WELDING PROCEDURE SPECIFICATIONS (WPSs)	1705.2.1	AISC 360 N3.2	PERIODIC	—
PROCEDURE QUALIFICATION RECORDS (PQRs)	1705.2.1	AISC 360 N3.2	PERIODIC	—
WELDING PERSONNEL PERFORMANCE QUALIFICATION RECORDS (WPQR) AND CONTINUITY RECORDS	1705.2.1	AISC 360 N3.2	PERIODIC	—
FABRICATOR'S OR ERECTOR'S WRITTEN QC MANUAL	1705.2.1	AISC 360 N3.2	PERIODIC	AS APPLICABLE
FABRICATOR'S OR ERECTOR'S QC1 QUALIFICATIONS	1705.2.1	AISC 360 N3.2	PERIODIC	AS APPLICABLE
FABRICATOR NDT PERSONNEL QUALIFICATIONS	1705.2.1	AISC 360 N3.2	PERIODIC	(NOTE 3)
NOTES:				
1. MANUFACTURER'S TEST REPORTS.				
2. MANUFACTURER'S PRODUCT DATA SHEETS OR CATALOG DATA.				
3. IF NDT IS PERFORMED BY THE FABRICATOR.				
STRUCTURAL STEEL - GENERAL INSPECTIONS				
INSPECTION TASKS	IBC CODE REF	CODE OR STANDARD REF	FREQUENCY (NOTE 1)	REMARKS
INSPECTION OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS FOR CRACKS SUBSEQUENT TO GALVANIZING	1705.2.1	AISC 360 N5.7	OBSERVE	(NOTE 2)
VERIFICATION OF THE FABRICATED STEEL OR ERECTED STEEL FRAME INCLUDING BRACES, STIFFENERS, MEMBER LOCATIONS AND THE CORRECT APPLICATION OF JOINT DETAILS AT EACH CONNECTION	1705.2.1	AISC 360 N5.8	OBSERVE	(NOTE 3)
PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS	1705.2.1	AISC 360 N5.8	OBSERVE	(NOTE 4)
NOTES:				
1. "OBSERVE": THE INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. "PERFORM": THESE TASKS SHALL BE PERFORMED FOR EACH WELDED JOINT OR MEMBER.				
2. CRACKS SHALL BE REPAIRED OR THE MEMBER SHALL BE REJECTED.				
3. ACCEPTANCE OR REJECTION OF JOINT DETAILS AND THE CORRECT APPLICATION OF JOINT DETAILS SHALL BE DOCUMENTED.				
4. AT MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE.				



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	77006.00
DATE	2023.03.08
DRAWN	MEH
REVIEWED	JKD

SHEET NAME
SPECIAL INSPECTION TABLES

SHEET NO.
S0.04



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394

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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE

#	DESCRIPTION	DATE

JOB NO. 77006.00
DATE 2023.03.08
DRAWN MEH
REVIEWED JDR

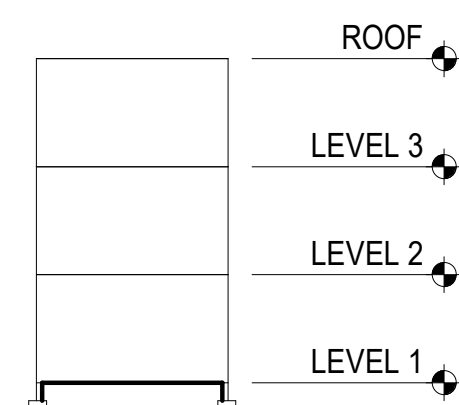
SHEET NAME
FOUNDATION PLAN

SHEET NO.
S1.00

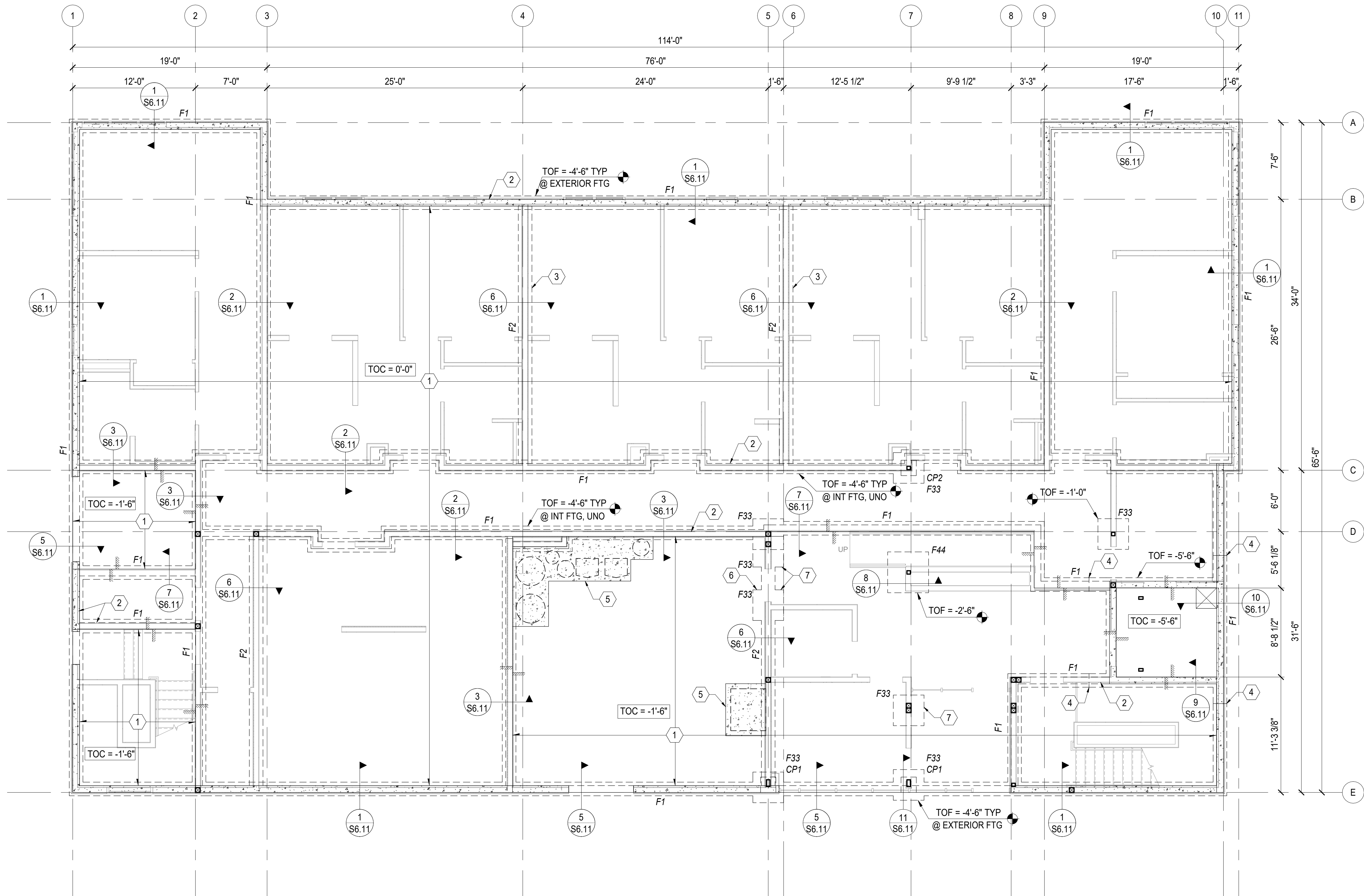
HALF SCALE WHEN PRINTED AT 11x17

FOUNDATION KEYNOTES:

- 5" CONCRETE SLAB ON GRADE, REINFORCE W/ #4 BARS @ 18" OC EACH WAY, LOCATED IN TOP 1/3 OF SLAB.
- TYPICAL: 8" CONCRETE STEM WALL, REINFORCE W/ #5 BARS @ 18" OC EACH WAY CENTERED IN WALL.
- TYPICAL: CONTINUOUS FOOTING MONOLITHIC WITH FLOOR SLAB.
- STEP FOOTING TO MATCH ELEVATOR PIT.
- 4" HOUSEKEEPING PAD, COORDINATE WITH MECHANICAL DRAWINGS.
- CENTER FOOTING ON SHEAR WALL HOLDOWN.
- PAD FOOTING MONOLITHIC WITH FLOOR SLAB.



NOTE:
DARK LINES INDICATE
AREA OF WORK



1 FOUNDATION PLAN
SCALE: 3/16" = 1'-0"



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	77006.00
DATE	2023.03.08
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REVIEWED	JKD

SHEET NAME
LEVEL 1 - STUD & SHEAR WALL
PLAN

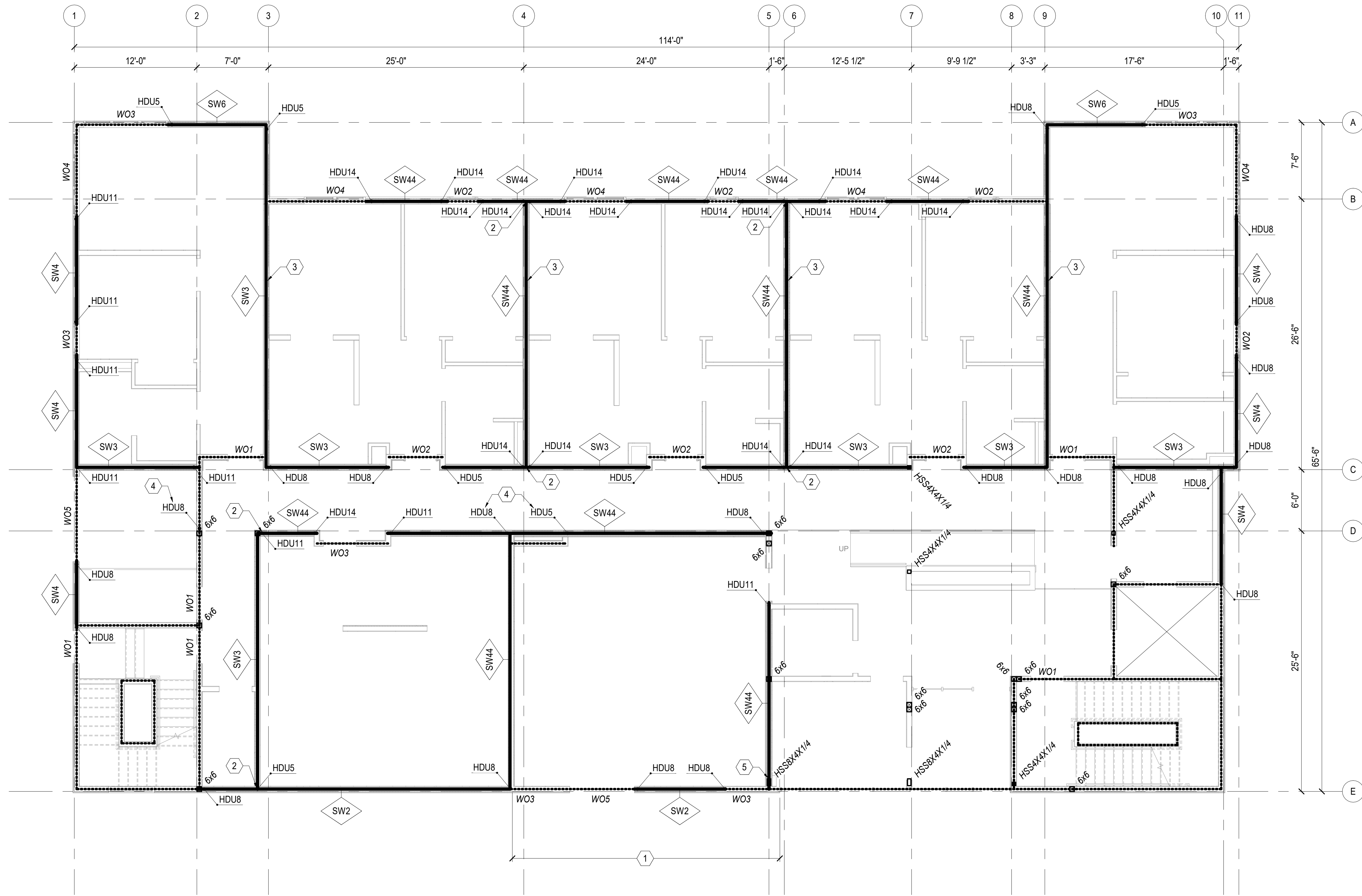
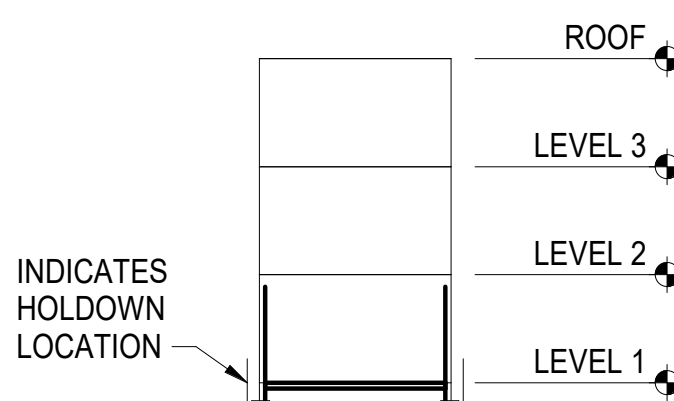
SHEET NO.
S1.01S

HALF SCALE WHEN PRINTED AT 11x17

STUD & SW KEYNOTES:

- 1 USE 2x6 STUDS @ 12" OC AT INDICATED WALL.
- 2 TYPICAL AT SHEAR WALLS ON THICKENED SLAB FOOTINGS: INSTALL HOLDDOWN(S) IN THE INTERSECTING WALL OVER THE CONCRETE STEM WALL SO THAT ANCHOR(S) ARE IN STEM WALL. ENSURE THE SHEAR WALL CHORD (END STUD) ARE WITHIN THE PERPENDICULAR WALL. SEE TYPICAL DETAIL 2/S6.06 SECTION "E".
- 3 TYPICAL AT SHEAR WALLS WITH STAGGERED STUDS: USE 2x4 STUDS AT 12" OC. SEE ARCHITECTURAL DRAWINGS FOR WALL TYPES WITH STAGGERED STUDS.
- 4 ALIGN HOLDDOWN WITH HOLDOWN AT LEVEL ABOVE.
- 5 USE STEEL COLUMN AS HOLDOWN.

SHEET NOTE:
A. WALL STUDS ARE 2x6 @ 16" OC, UNLESS NOTED OTHERWISE.



1 LEVEL 1 - STUD & SHEAR WALL PLAN
SCALE: 3/16" = 1'-0"



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#AECL392AK



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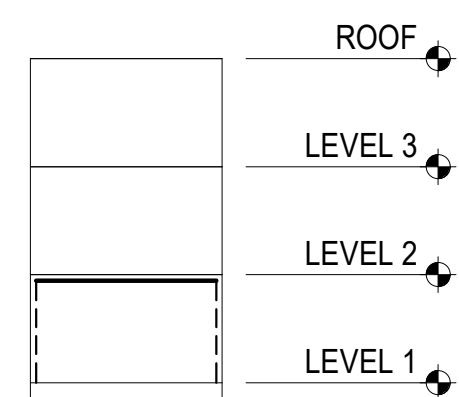
SHEET NAME
LEVEL 2 - FRAMING PLAN

SHEET NO.
S1.02

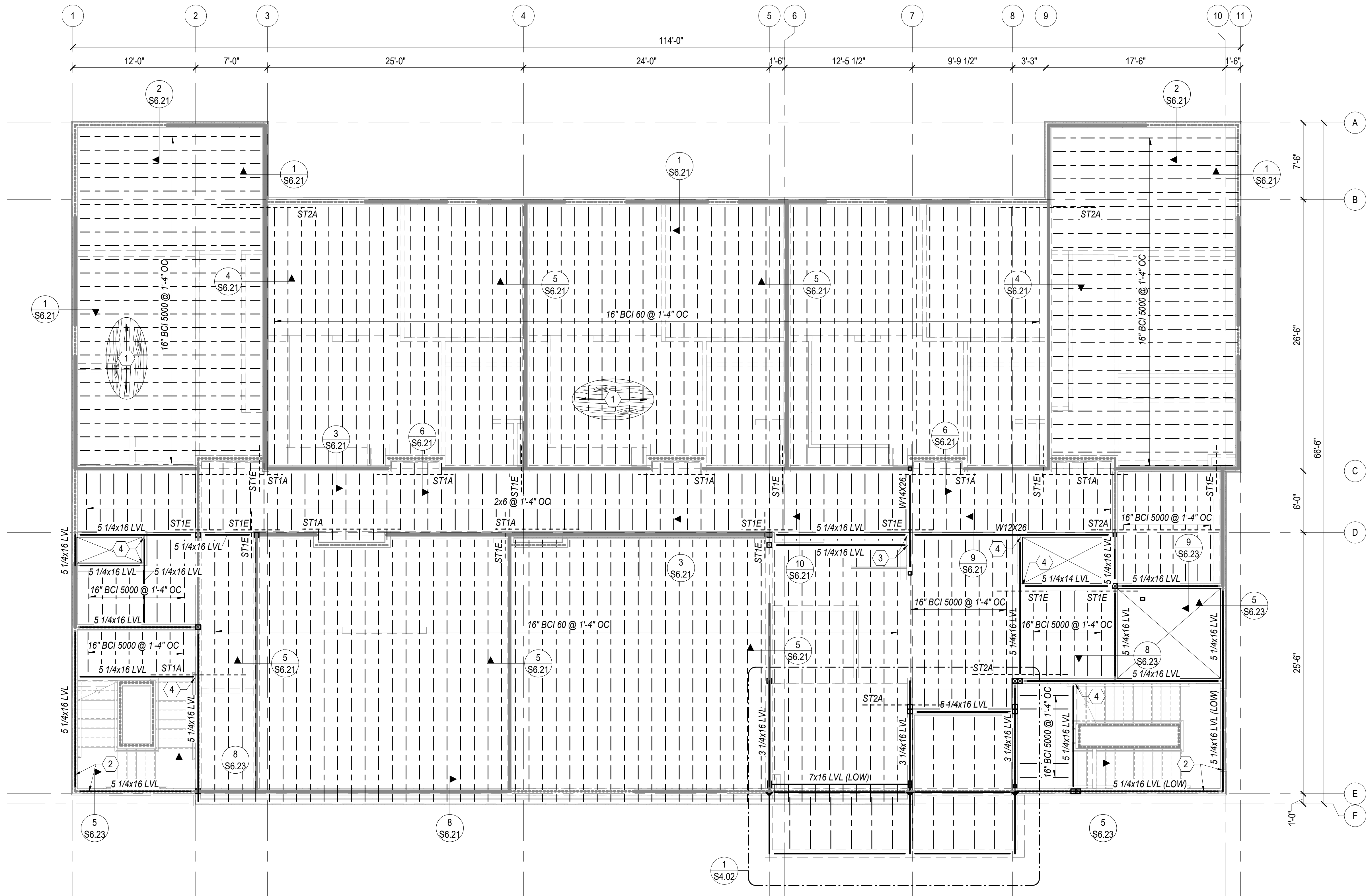
HALF SCALE WHEN PRINTED AT 11x17

FRAMING KEYNOTES:

- 1 FLOOR SHEATHING PER SHEET S0.01.
- 2 RIMBOARD ELEVATION PER ARCHITECTURAL DRAWINGS.
- 3 SIMPSON EGQ TYPE TOP-FLANGE HANGER.
- 4 SIMPSON HB TYPE TOP-FLANGE HANGER.



NOTE:
DARK LINES INDICATE
AREA OF WORK



1 LEVEL 2 - FRAMING PLAN
SCALE: 3/16" = 1'-0"



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SHEET NAME
LEVEL 2 STUD & SHEAR WALL
PLAN

SHEET NO.
S1.02S

HALF SCALE WHEN PRINTED AT 11x17

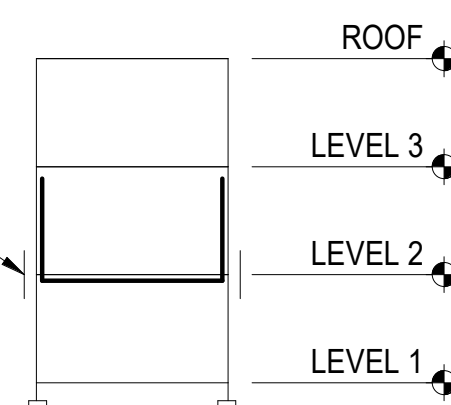
STUD & SW KEYNOTES:

- 1 TYPICAL: SIMPSON CSHPT20 STRAPS, TOP AND BOTTOM OF WINDOWS PER SHEAR WALL FORCE TRANSFER STRAPPING TYPICAL DETAIL.
- 2 TYPICAL AT SHEAR WALLS WITH STAGGERED STUDS: USE 2x4 STUDS AT 12" OC. SEE ARCHITECTURAL DRAWINGS FOR WALL TYPES WITH STAGGERED STUDS.

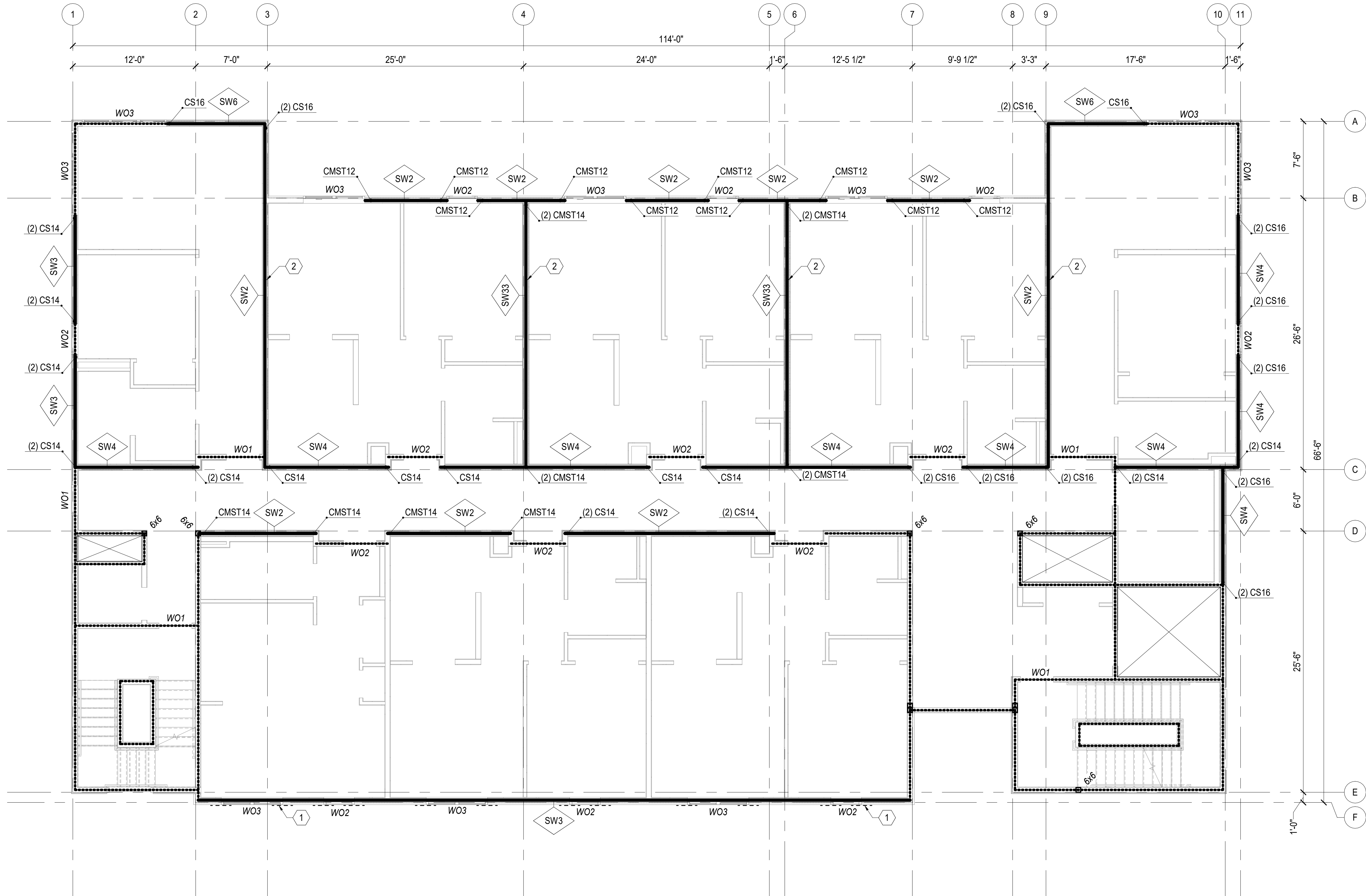
SHEET NOTE:

A. WALL STUDS ARE 2x6 @ 16" OC, UNLESS NOTED OTHERWISE.

INDICATES
HOLDOWN
LOCATION



NOTE:
DARK LINES INDICATE
AREA OF WORK



1 LEVEL 2 - STUD & SHEAR WALL PLAN
SCALE: 3/16" = 1'-0"



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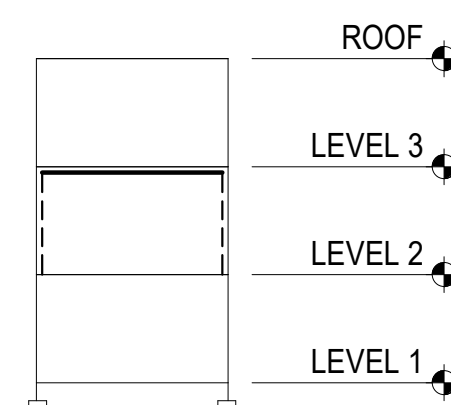
SHEET NAME
LEVEL 3 - FRAMING PLAN

SHEET NO.
S1.03

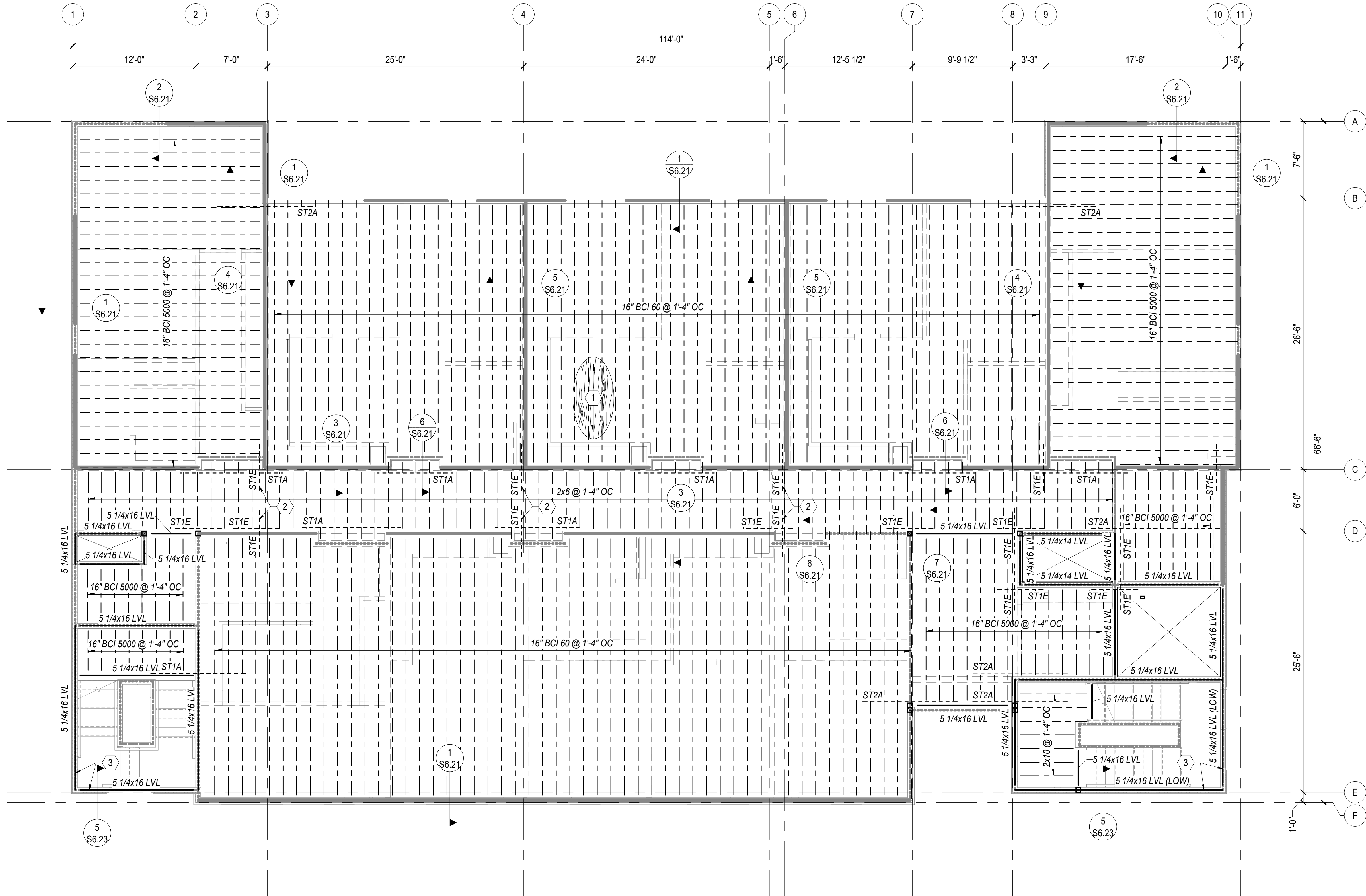
HALF SCALE WHEN PRINTED AT 11x17

FRAMING KEYNOTES:

- 1 FLOOR SHEATHING PER SHEET S0.01.
- 2 ALIGN FRAMING AND STRAPS WITH SHEAR WALL.
- 3 RIMBOARD ELEVATION PER ARCHITECTURAL DRAWINGS.



NOTE:
DARK LINES INDICATE
AREA OF WORK



1 LEVEL 3 - FRAMING PLAN
SCALE: 3/16" = 1'-0"



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SHEET NAME
LEVEL 3 - STUD & SHEAR WALL
PLAN

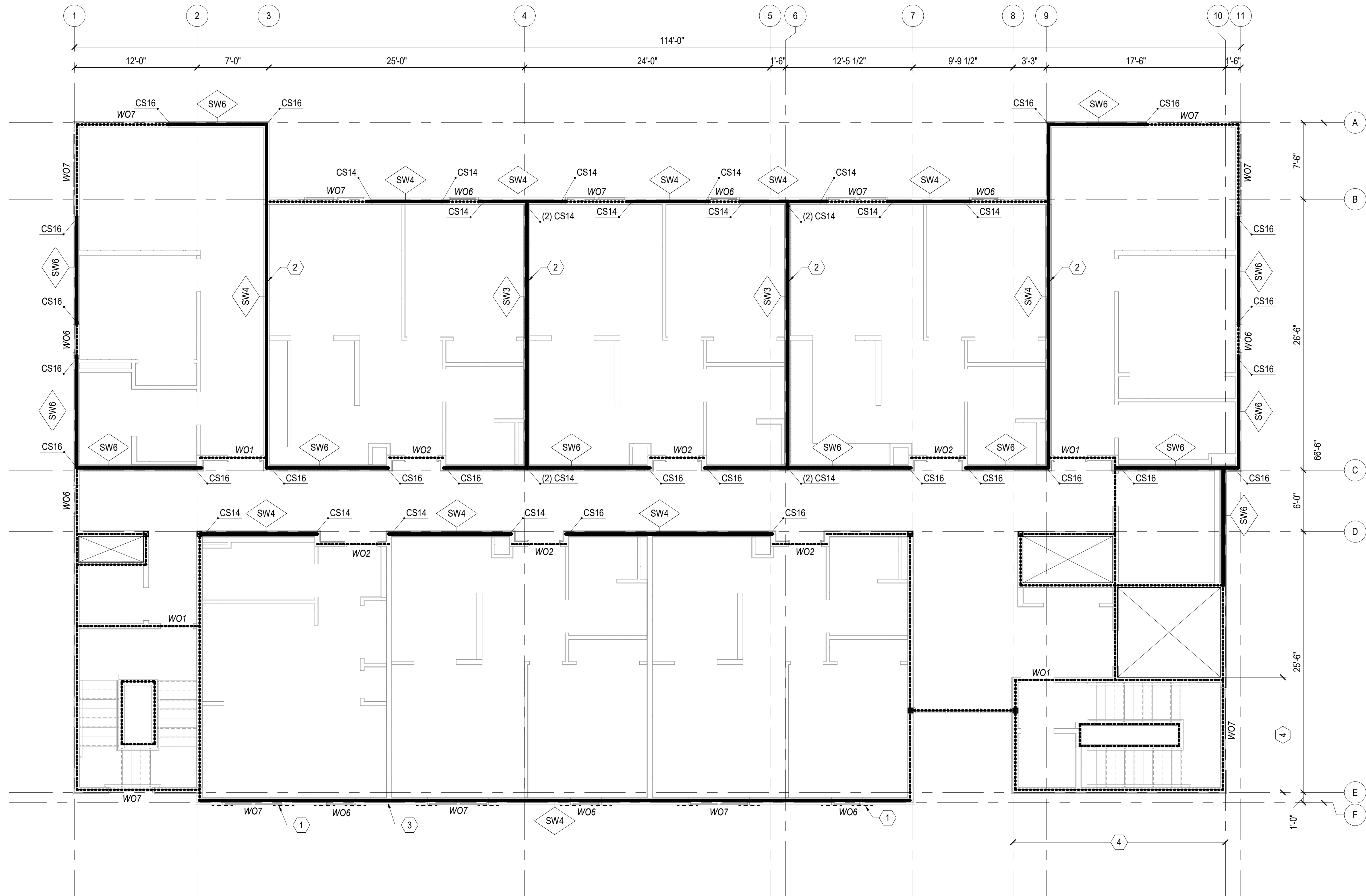
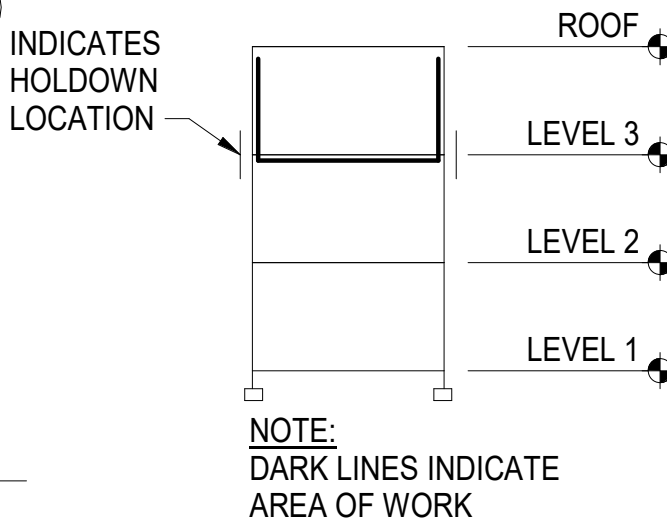
SHEET NO.
S1.03S

HALF SCALE WHEN PRINTED AT 11x17

STUD & SW KEYNOTES:

- 1 TYPICAL: SIMPSON CSHPT20 STRAPS, TOP AND BOTTOM OF WINDOWS PER SHEAR WALL FORCE TRANSFER STRAPPING TYPICAL DETAIL.
- 2 TYPICAL AT SHEAR WALLS WITH STAGGERED STUDS: USE 2x4 STUDS AT 12" OC. SEE ARCHITECTURAL DRAWINGS FOR WALL TYPES WITH STAGGERED STUDS.
- 3 TYPICAL AT TALL PARAPETS: USE 2x6 DF #2 STUDS AT 16" OC (12" OC WITHIN 6'-6" OF BUILDING CORNERS), CONTINUOUS FROM FLOOR TO TOP OF PARAPET. PARAPET TOP PLATE SHALL BE CONTINUOUS ABOVE OPENINGS, BETWEEN JAMBS.
- 4 USE 2x6 LVL STUDS AT 16" OC WHERE NOTED.

SHEET NOTE:
A. WALL STUDS ARE 2x6 @ 16" OC, UNLESS NOTED OTHERWISE.



1 LEVEL 3 - STUD & SHEAR WALL PLAN
SCALE: 3/16" = 1'-0"



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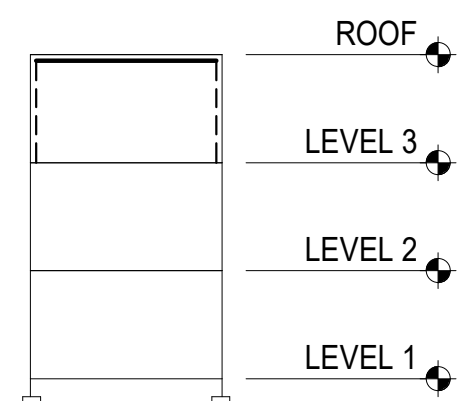
SHEET NAME
ROOF FRAMING PLAN

SHEET NO.
S1.04

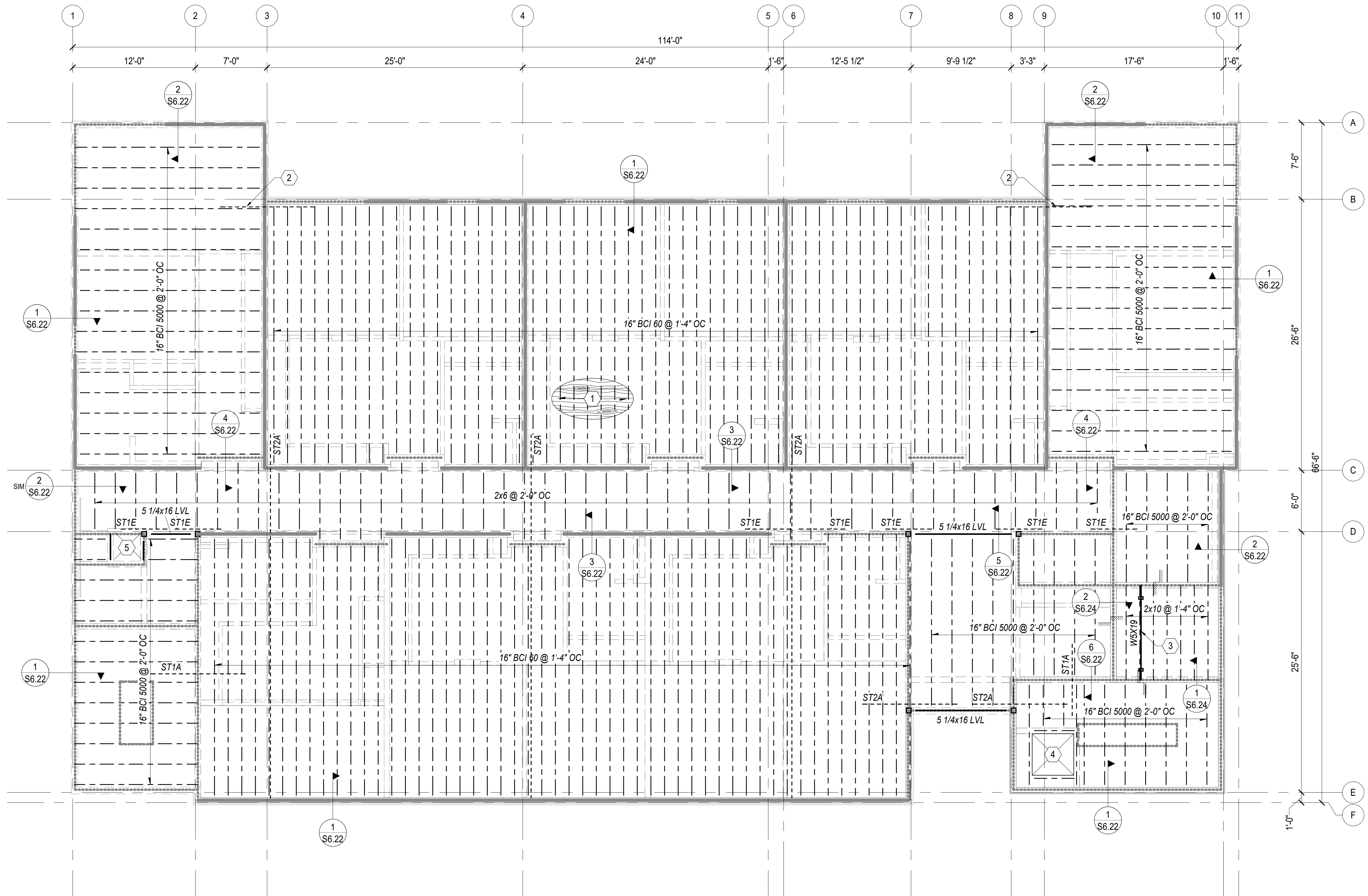
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FRAMING KEYNOTES:

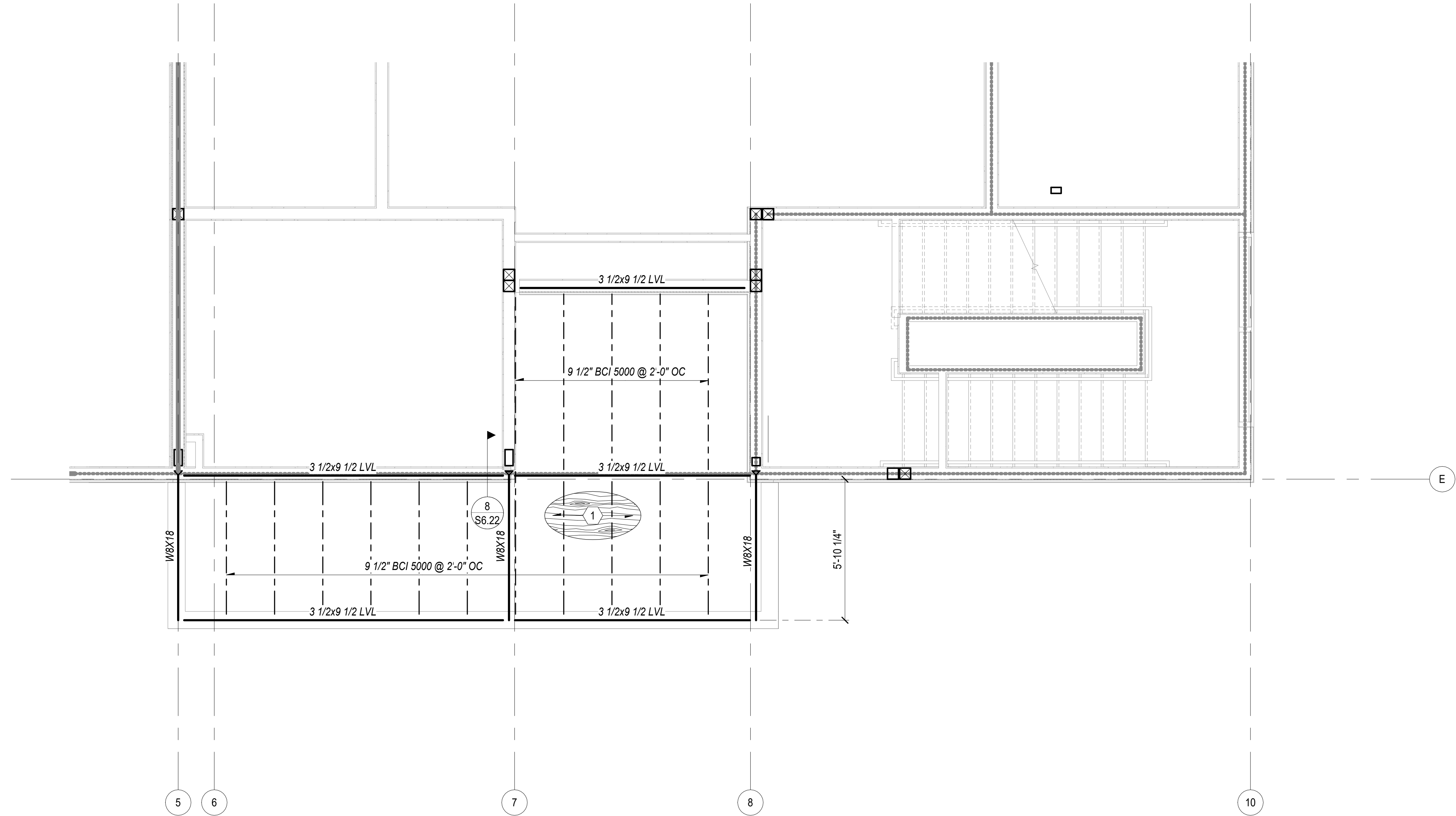
- 1 ROOF SHEATHING PER SHEET S0.01.
- 2 TYPICAL: SIMPSON CS 14 STRAP, STRAP FROM TOP OF JOIST TO TOP OF WOOD LEDGER. END LENGTH PER MFR ON BOTH SIDES OF WALL BELOW. ALIGN JOIST WITH STRAP OR ADD JOIST FOR ALIGNMENT. WHERE JOISTS ARE PERPENDICULAR TO STRAP INTALL 3X OR FLAT 2X BLOCKING BETWEEN JOISTS.
- 3 ELEVATOR HOIST BEAM.
- 4 ROOF HATCH OPENING PER ARCHITECTURAL DRAWINGS.
- 5 TRASH CHUTE VENT OPENING PER ARCHITECTURAL DRAWINGS.



NOTE:
DARK LINES INDICATE
AREA OF WORK



1 ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"



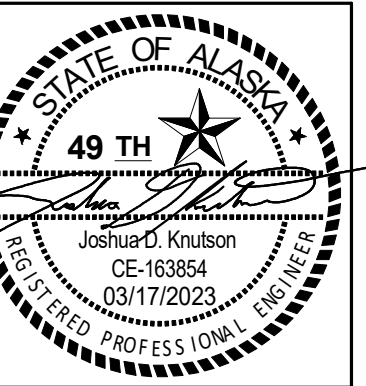
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ENLARGED CANOPY FRAMING PLAN

SCALE: 3/8" = 1'-0"

FRAMING KEYNOTES:

- 1 ROOF SHEATHING PER SHEET S0.01.



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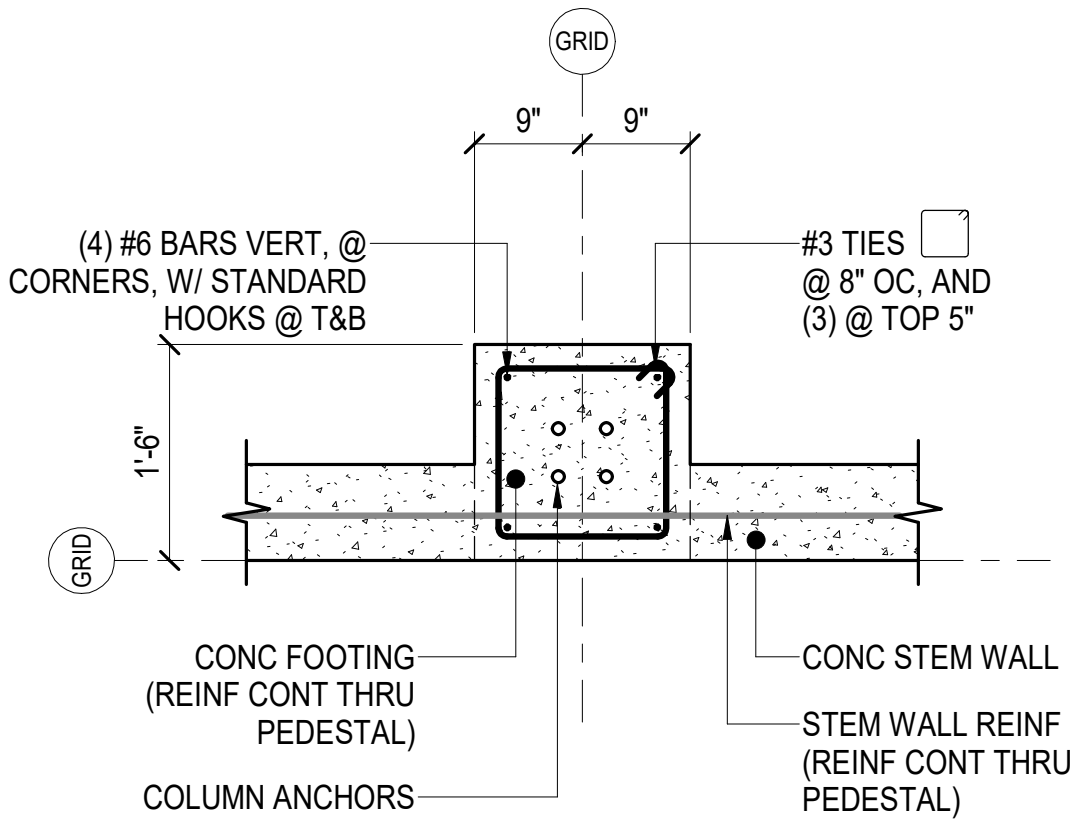
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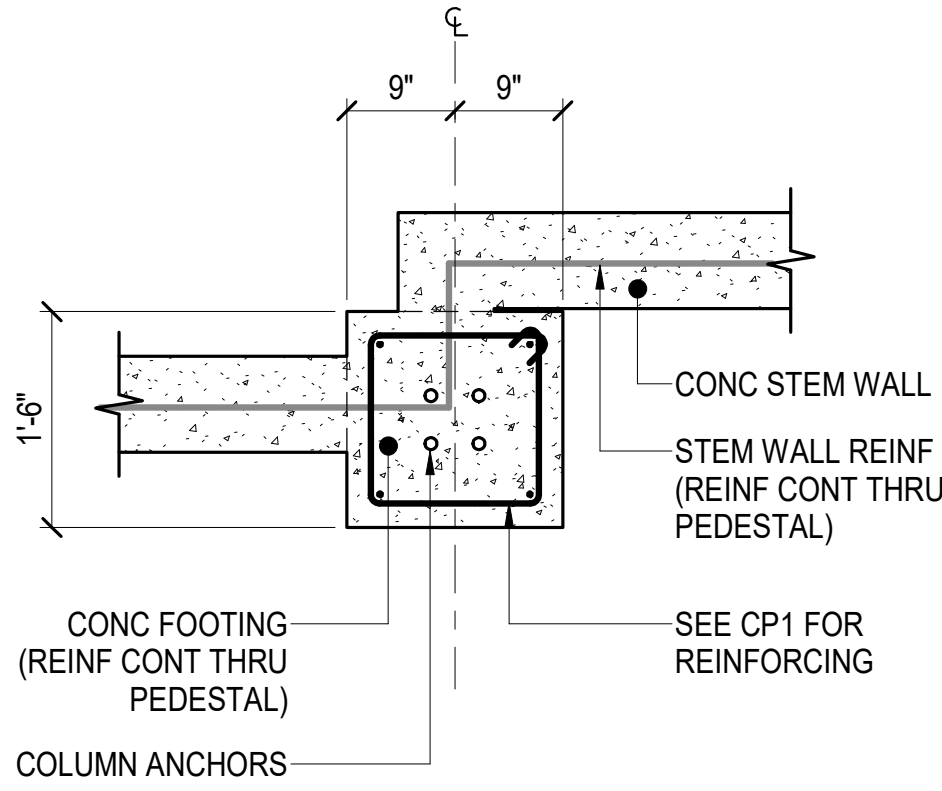
SHEET NAME
ENLARGED CANOPY FRAMING
PLAN

SHEET NO.
S4.02

FOUNDATION (F) SCHEDULE					
NOTES:					
1. FOR FOOTING BEARING DEPTH BELOW GRADE, SEE GSN, UNO.					
2. CENTER FOOTINGS UNDER WALLS OR COLUMNS, UNO.					
3. WHERE FOOTINGS INTERSET, THE GREATER REINFORCING REQUIREMENTS SHALL GOVERN.					
KEYED NOTES:					
A. PROVIDE CLEAR DISTANCE FOR TOP REINFORCING OF 6".					
B. PROVIDE 1" CLEAR SPACE BETWEEN DOUBLE LAYER OF BARS.					
MARK	HEIGHT	WIDTH	LENGTH	FOOTING REINFORCING	REMARKS
F1	1'-0"	1'-4"	<varies>	(2) #5 CONTINUOUS	---
F2	1'-0"	1'-4"	<varies>	(2) #5 CONTINUOUS, BOTTOM	MONOLITHIC WITH FLOOR SLAB
F33	1'-0"	3'-0"	3'-0"	(3) #5 EACH WAY BOTTOM	---
F44	1'-0"	4'-0"	4'-0"	(4) #5 EACH WAY BOTTOM	---



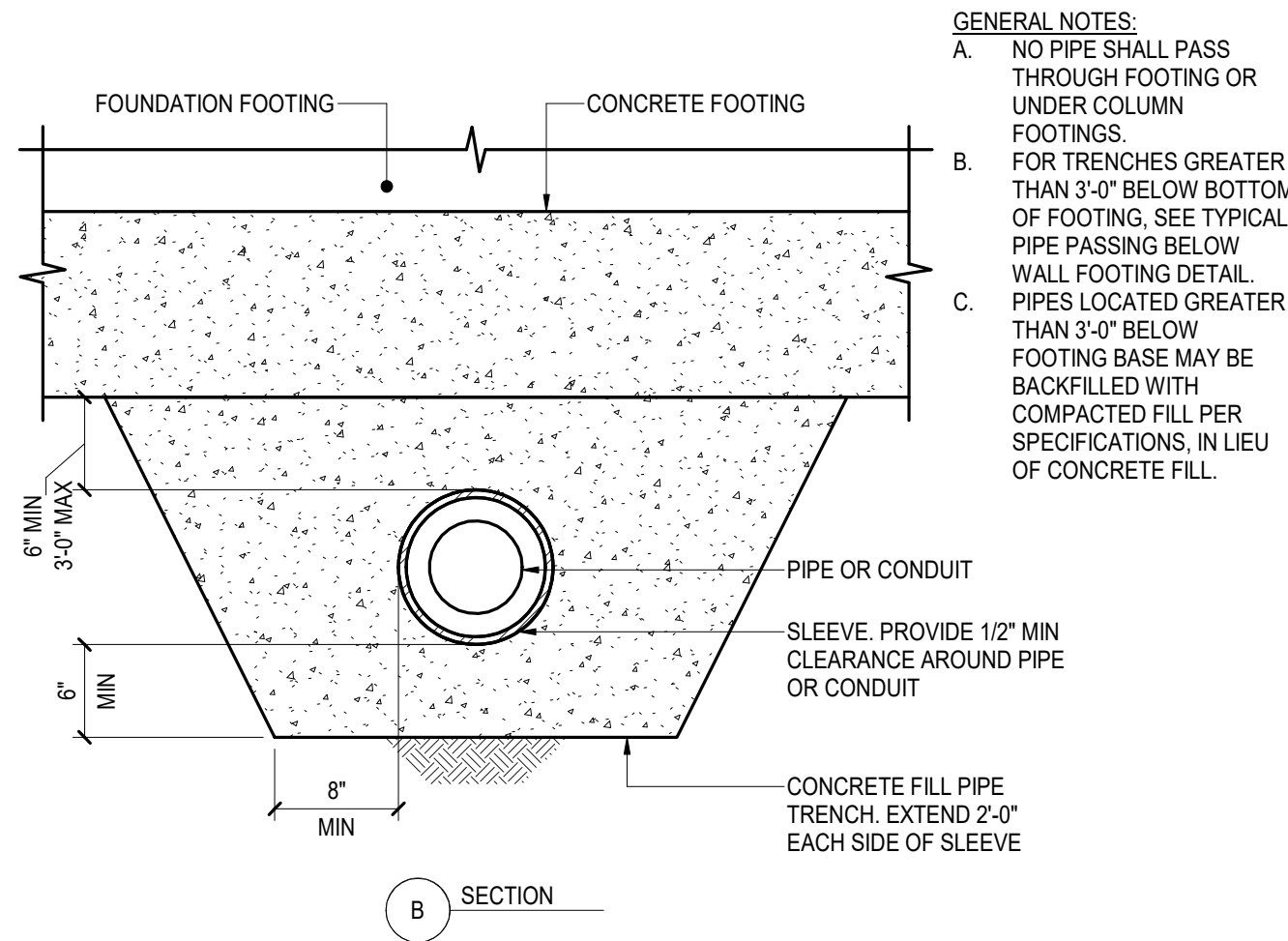
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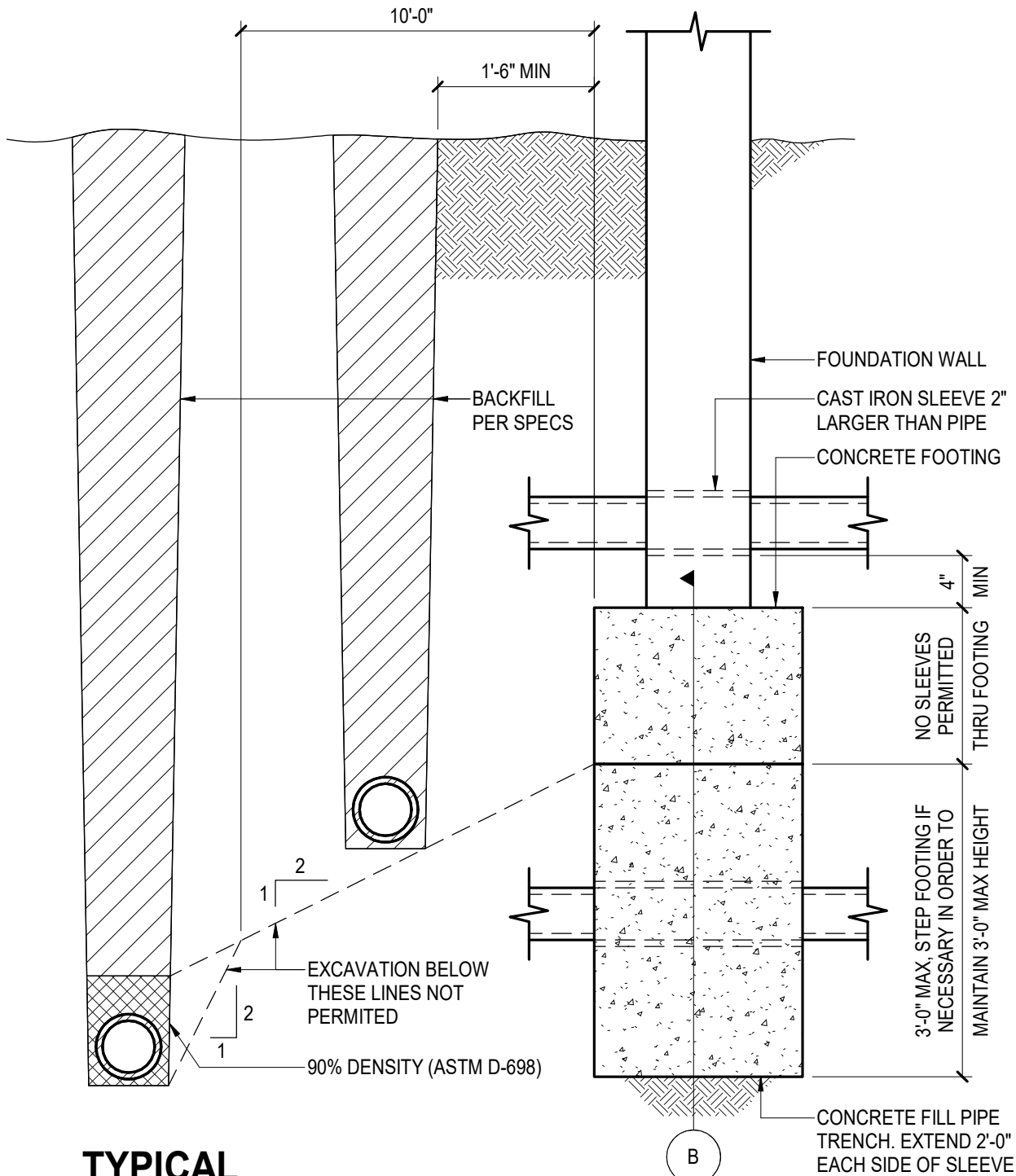
"CP2"

1 FOUNDATION SCHEDULE

SCALE: NTS



GENERAL NOTES:
A. NO PIPE SHALL PASS THROUGH FOOTING OR UNDER COLUMN FOOTINGS.
B. FOR TRENCHES GREATER THAN 3'-0" BELOW BOTTOM OF FOOTING, SEE TYPICAL PIPE PASSING BELOW WALL FOOTING DETAIL.
C. PIPES LOCATED GREATER THAN 3'-0" BELOW FOOTING BASE MAY BE BACKFILLED WITH COMPACTED FILL PER SPECIFICATIONS, IN LIEU OF CONCRETE FILL.

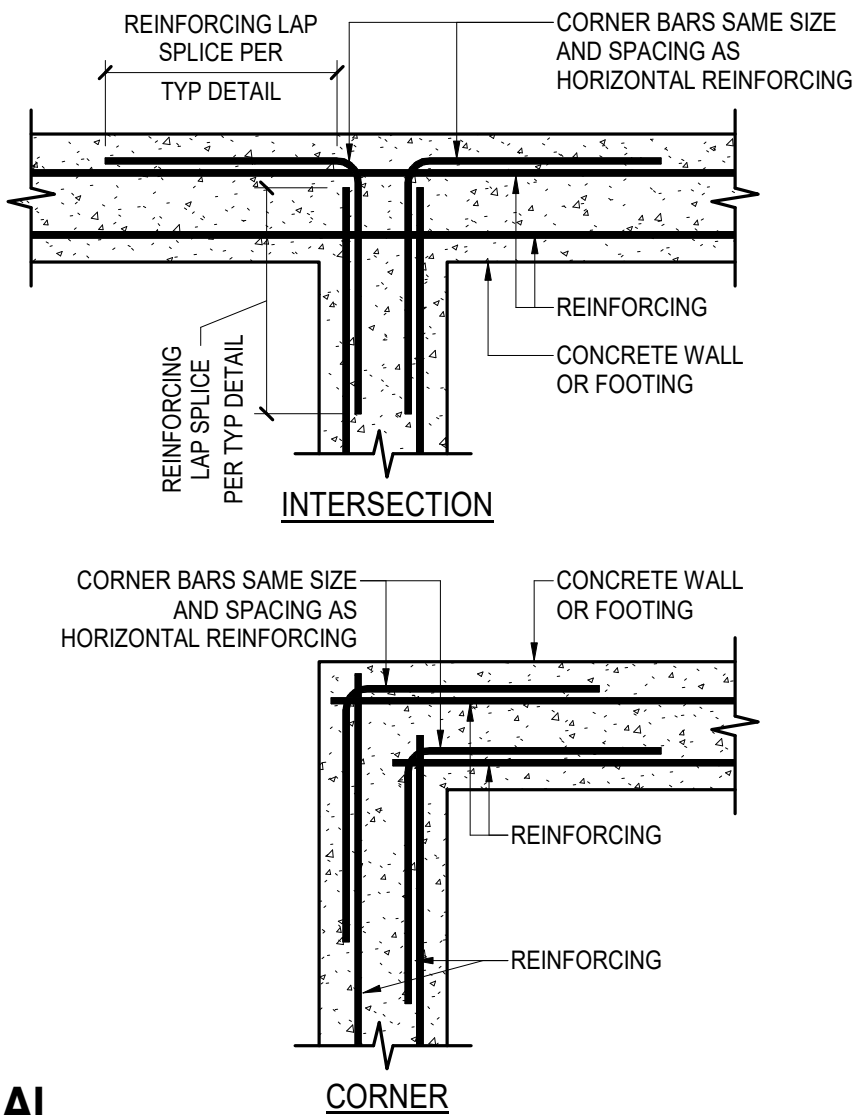


7 TYPICAL PIPE THROUGH FOUNDATION WALL AND TRENCH

SCALE: NTS

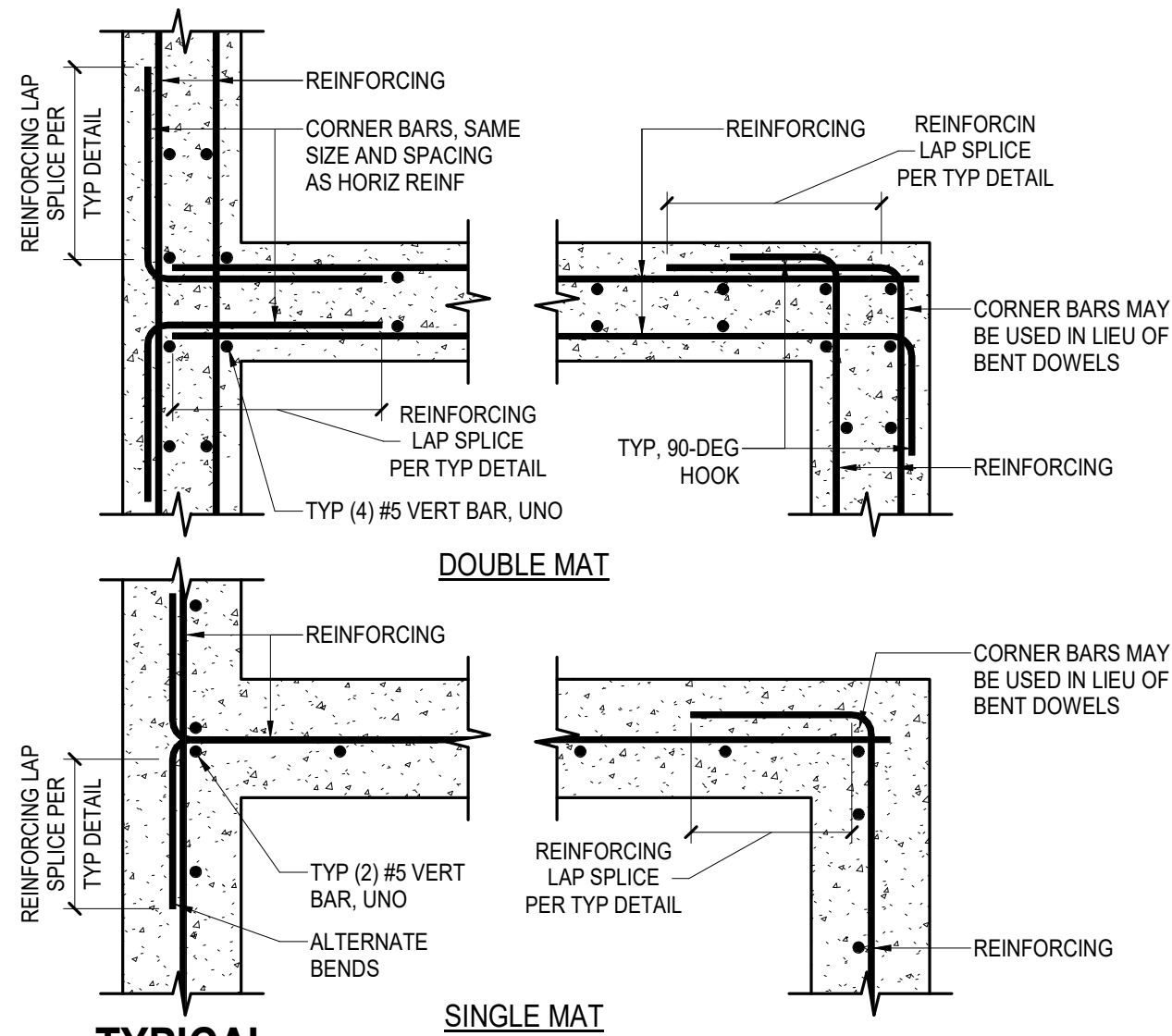
2 CONCRETE PEDESTAL PLANS

SCALE: NTS



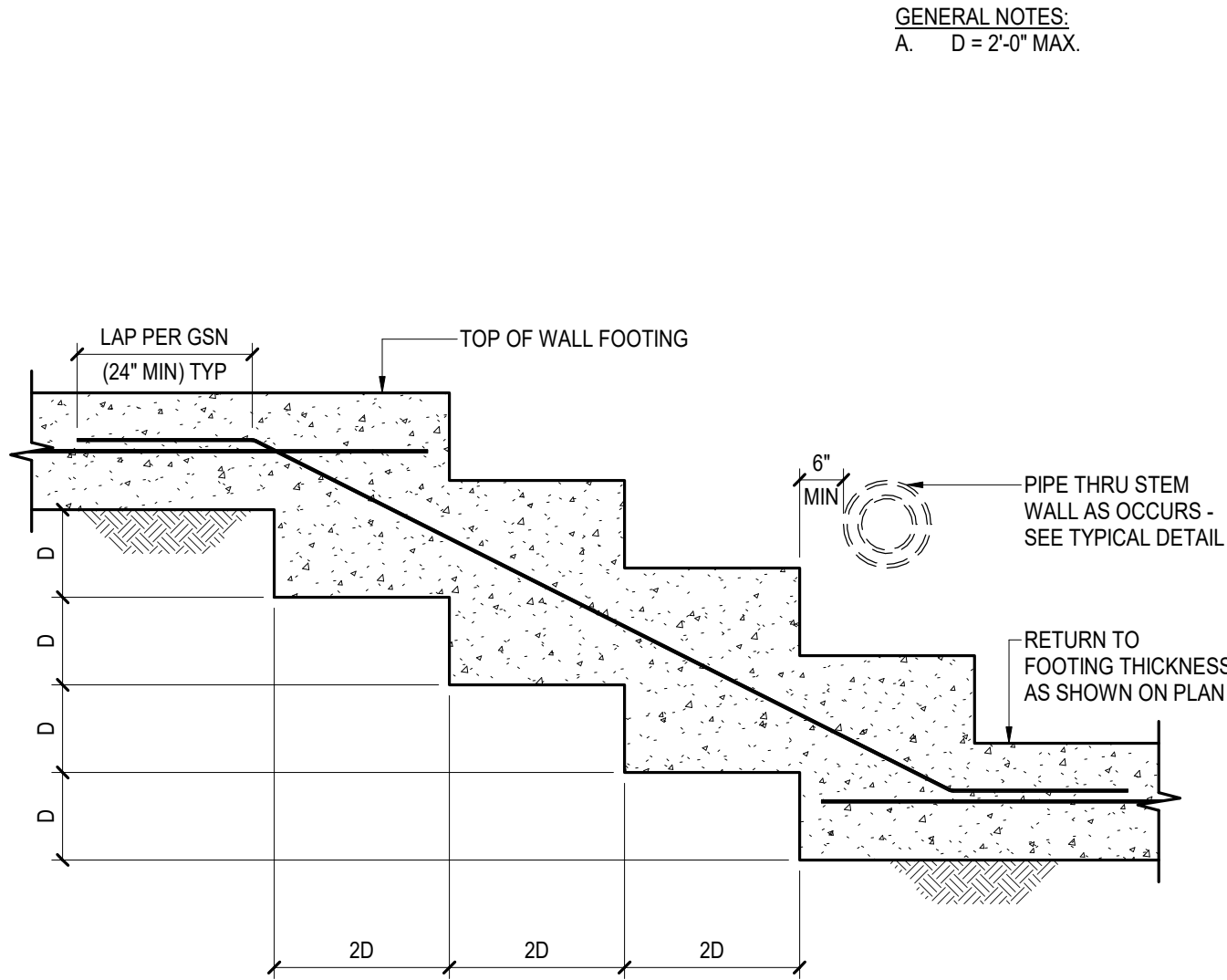
4 TYPICAL CONCRETE REINFORCING AT WALLS AND FOOTINGS

SCALE: NTS



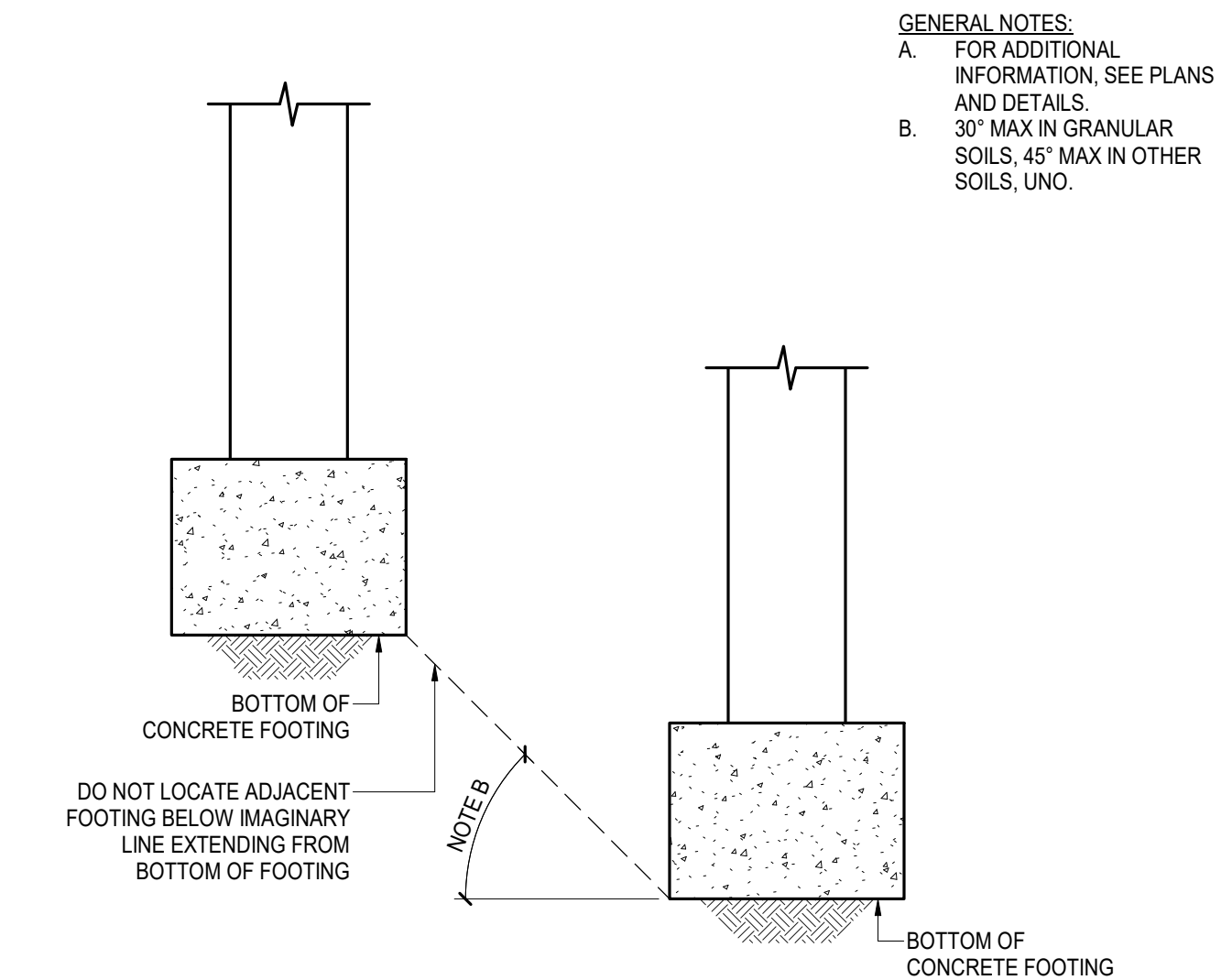
8 TYPICAL CONCRETE WALL INTERSECTION REINFORCING

SCALE: NTS



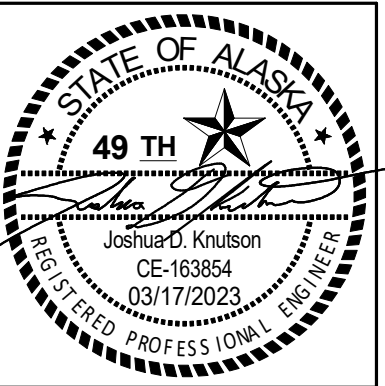
5 TYPICAL STEP IN CONCRETE FOOTING

SCALE: NTS



9 TYPICAL MAXIMUM SLOPE BETWEEN ADJACENT FOOTING

SCALE: NTS



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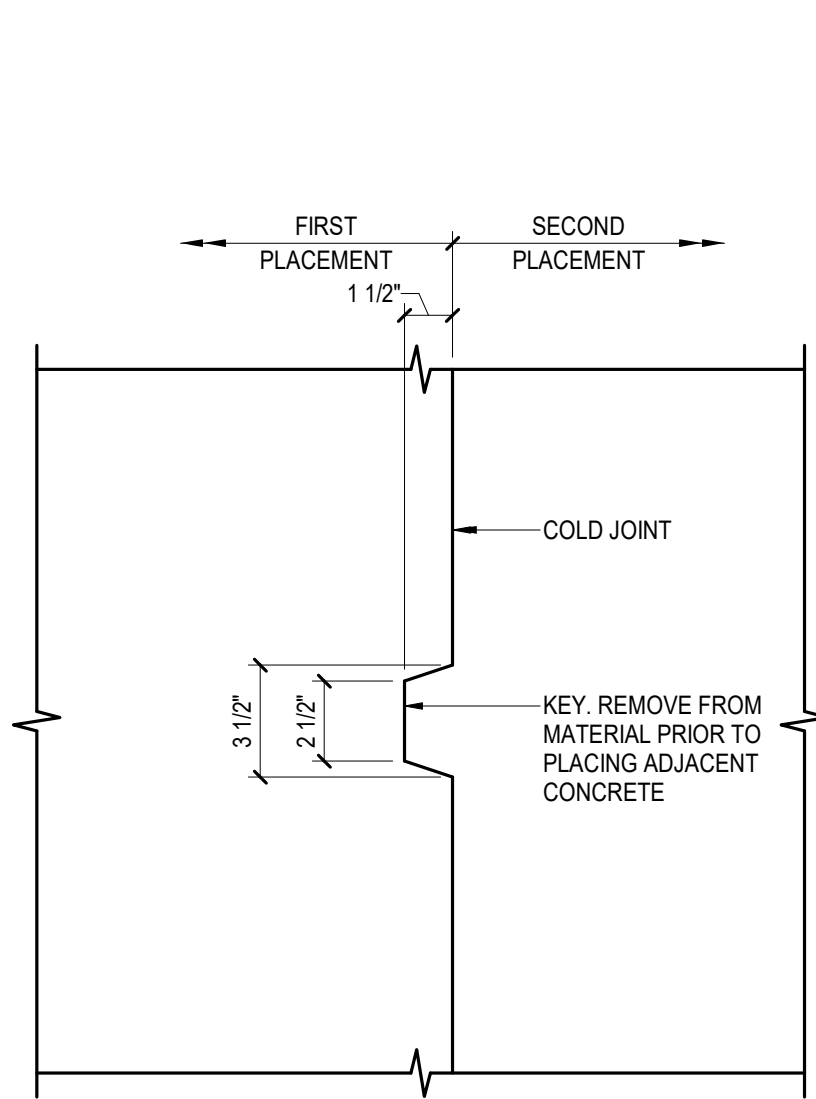
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BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

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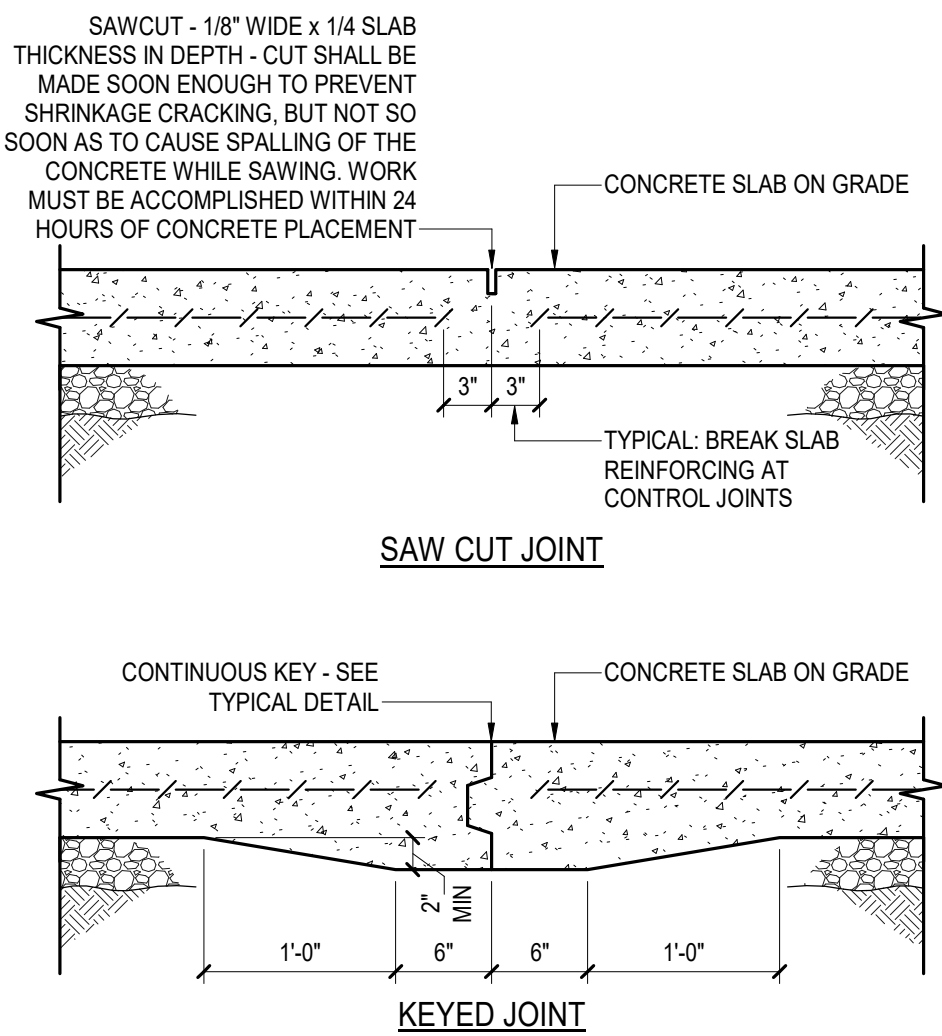
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SHEET NAME
SCHEDULES & TYP DETAILS -
CONC FOOTINGS

SHEET NO.
S6.01

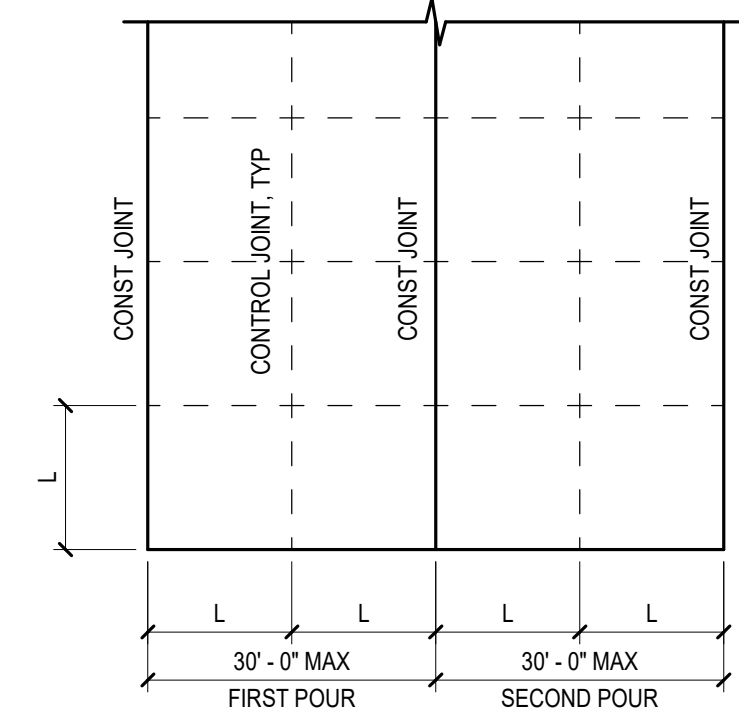


1 TYPICAL KEY IN CONCRETE
SCALE: NTS



2 TYPICAL CONTROL JOINTS IN CONCRETE SLAB ON GRADE
SCALE: NTS

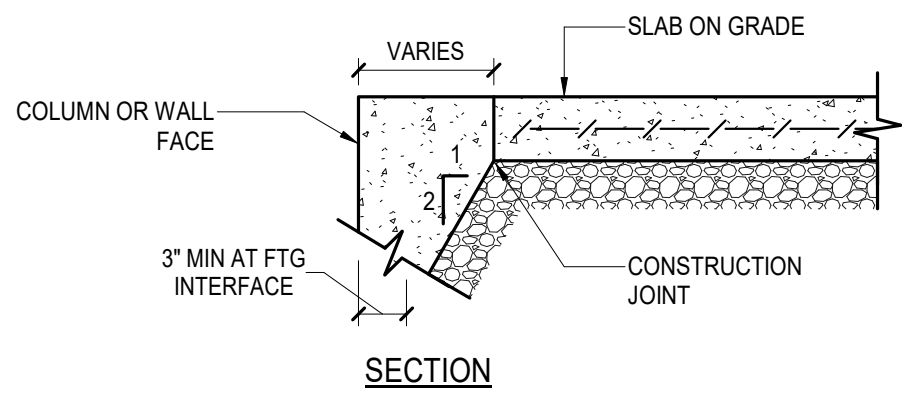
GENERAL NOTES:
A. KEYED JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING PLACEMENT UNLESS SPECIFICALLY NOTED ON THE PLANS. "TOOL WET JOINT", "SIP STRIP", ETC. SHALL MATCH SAWCUT REQUIREMENTS. SEE GSN OR DETAIL 3 / S6.02 FOR JOINT SPACING SPECIFICATIONS.



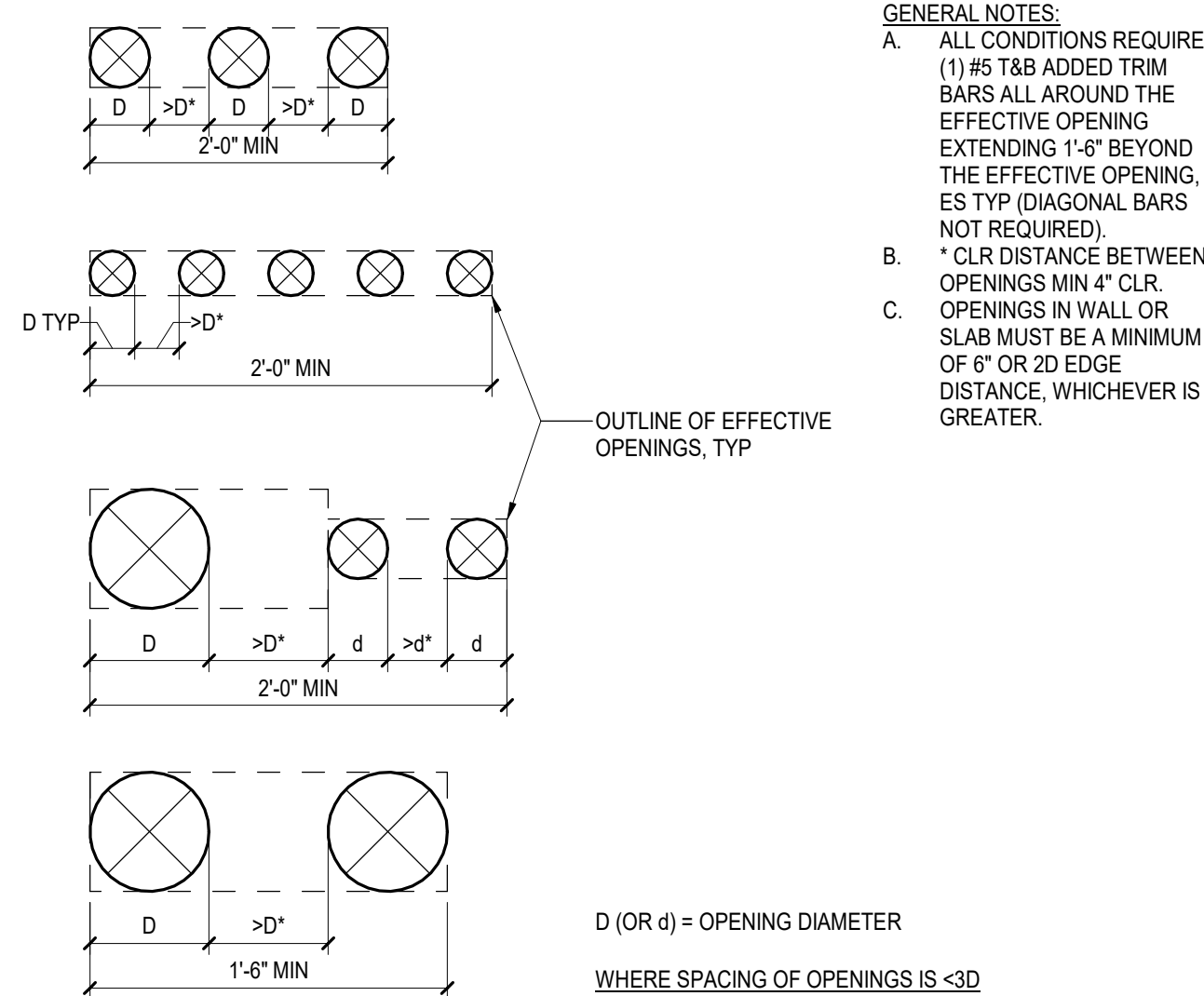
CONTROL JOINT SPACING LAYOUT		
SLAB THICKNESS	MAXIMUM CLEAR DISTANCE FOR SAW CUTS "L"	COMMENTS
4"	12'-0"	OR AS DIRECTED PER ACI 360
5"	13'-0"	OR AS DIRECTED PER ACI 360
6"	14'-0"	OR AS DIRECTED PER ACI 360

3 TYPICAL STANDARD METHOD OF POURING SLAB ON GRADE
SCALE: NTS

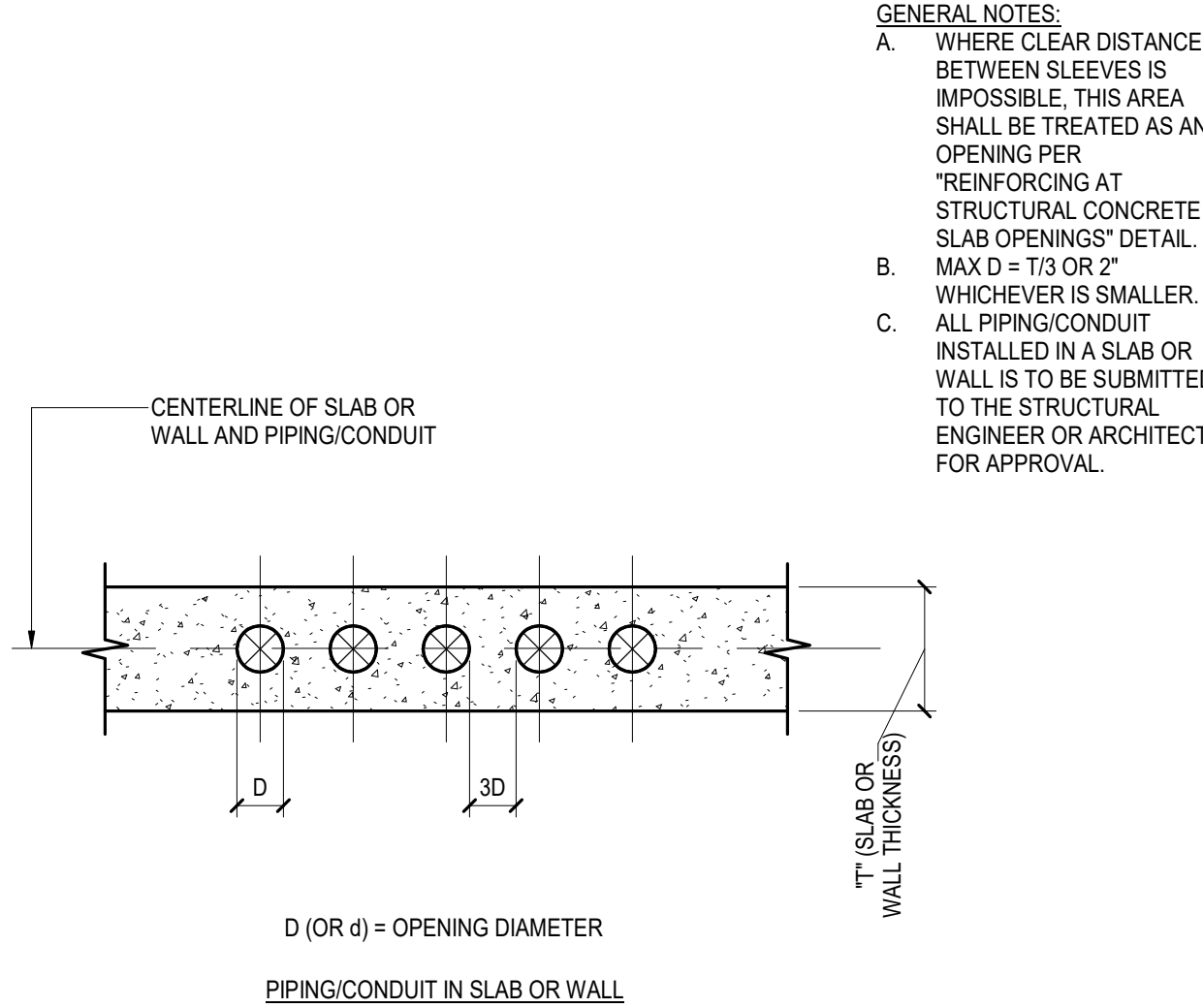
GENERAL NOTES:
A. FOR CONSTRUCTION JOINT AND CONTROL JOINT, SEE TYPICAL CONTROL JOINT DETAIL.
B. WHERE PLAN CONFIGURATION DIFFERS FROM ABOVE, CONTRACTOR TO SUBMIT PROPOSED POUR SEQUENCE TO STRUCTURAL ENGINEER FOR APPROVAL.
C. AVOID RE-ENTRANT CORNERS AT CONSTRUCTION AND CONTROL JOINTS.



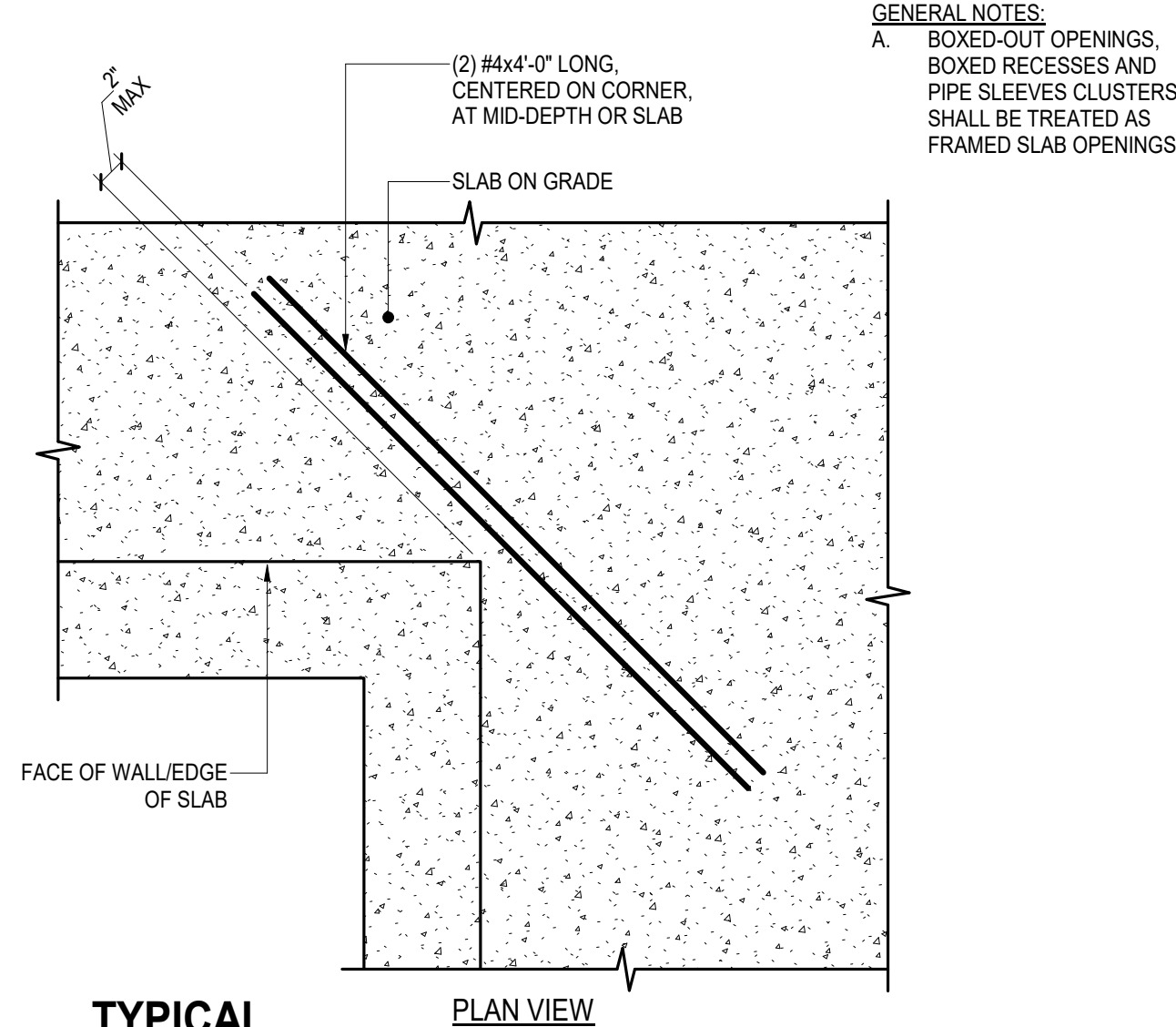
4 TYPICAL ISOLATION JOINT AT COLUMN
SCALE: NTS



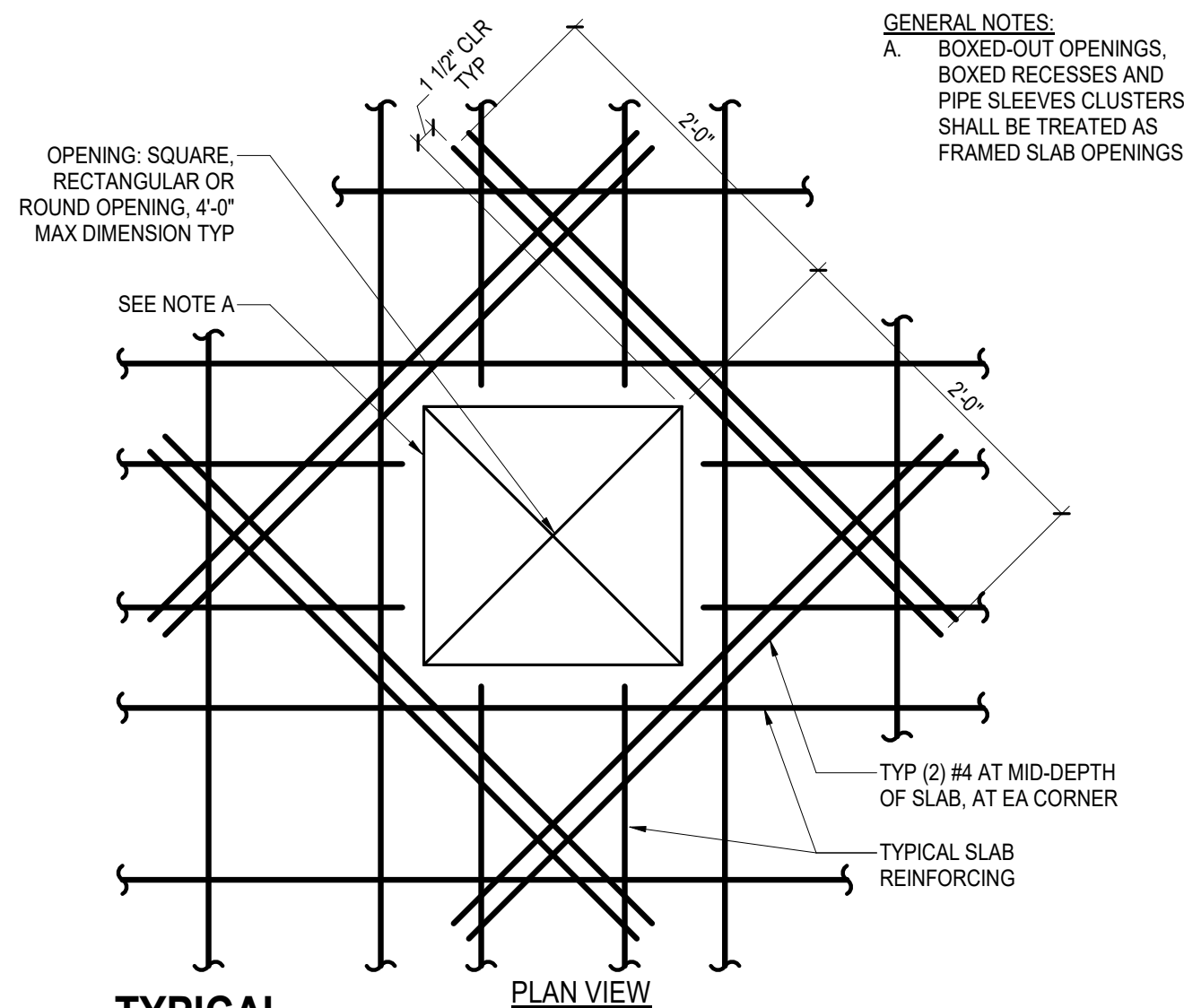
5 TYPICAL MULTIPLE OPENINGS PERP TO SLAB AND/OR WALL
SCALE: NTS



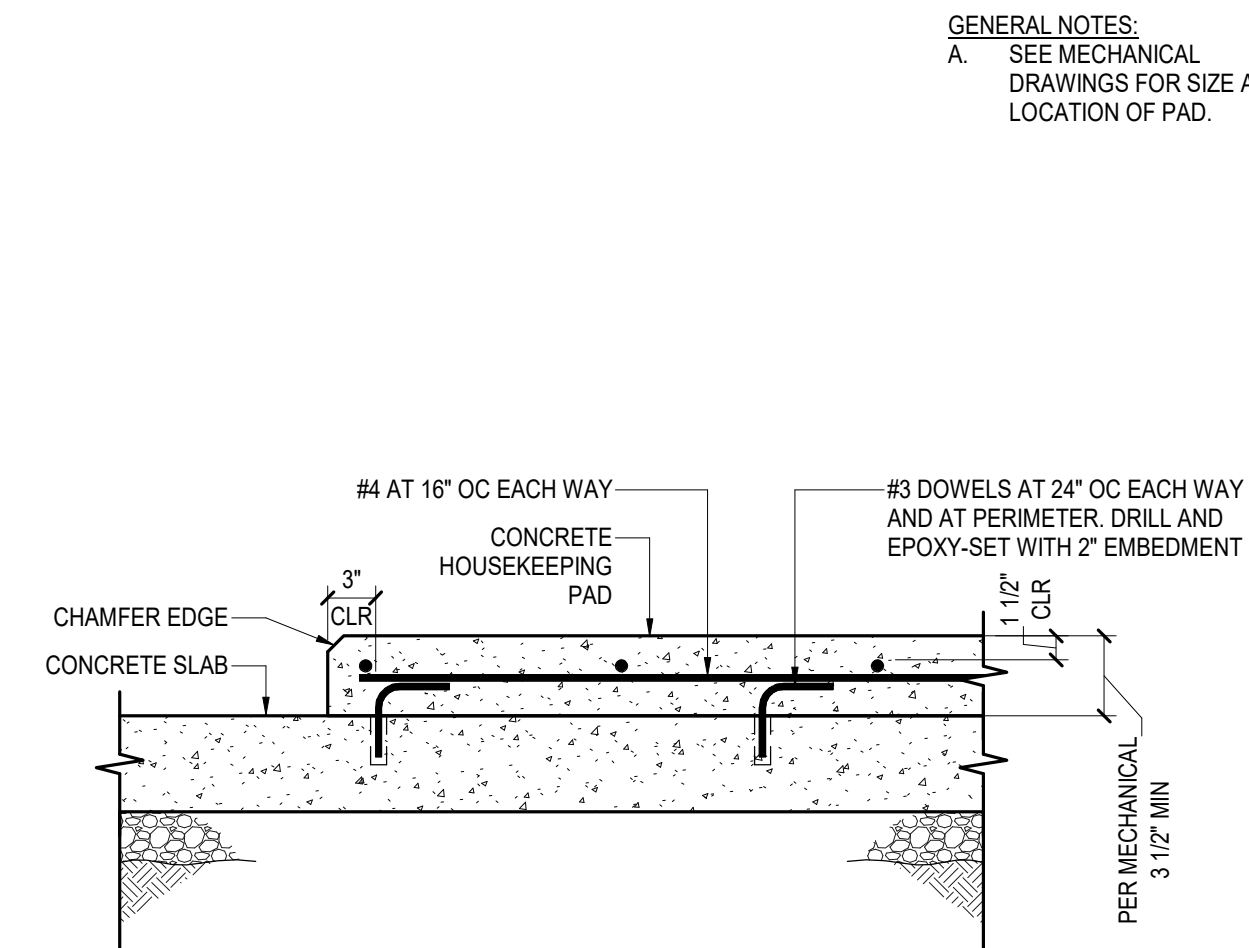
6 TYPICAL PIPING CONDUIT RUNNING CONT IN SLAB OR WALL
SCALE: NTS



7 TYPICAL SLAB REINFORCING AT RE-ENTRANT CORNERS
SCALE: NTS



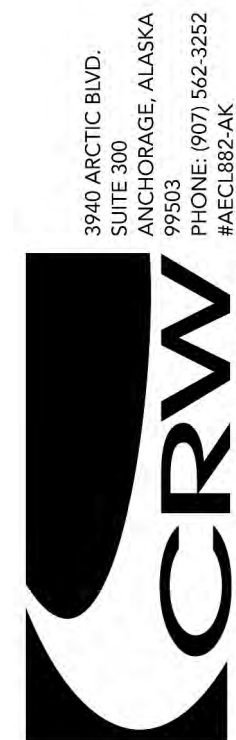
8 TYPICAL REINFORCING AT OPENINGS IN SLAB ON GRADE
SCALE: NTS



9 TYPICAL CONCRETE HOUSEKEEPING PAD AT MECHANICAL EQUIPMENT
SCALE: NTS



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SCHEDULES & TYP DETAILS -
CONC SLABS & WALLS

SHEET NO.
S6.02

	TENSION SPLICE LENGTHS (CLASS B)												COMPRESSION BARS					
CONCRETE PSI	f _c = 2,500/3,000 PSI						f _c = 4,000/4,500 PSI				f _c = 5,000 PSI				f _c < 3,000 PSI		f _c ≥ 3,000 PSI	
BAR LOCATION	REGULAR		TOP		REGULAR		TOP		REGULAR		TOP		STD LAP	ENCLOSED WITH SPIRAL TIES	STD LAP	ENCLOSED WITH SPIRAL TIES		
SPACING SIZE	≥2d _b	OTHER	≥2d _b	OTHER	≥2d _b	OTHER	≥2d _b	OTHER	≥2d _b	OTHER	≥2d _b	OTHER						
#3	24"	36"	31"	46"	19"	28"	25"	37"	17"	25"	22"	33"	12"	12"	12"	12"		
#4	32"	47"	41"	61"	25"	37"	33"	49"	23"	34"	29"	44"	20"	15"	15"	12"		
#5	39"	59"	51"	77"	31"	47"	41"	61"	28"	42"	36"	54"	25"	19"	19"	15"		
#6	47"	71"	61"	92"	37"	56"	49"	73"	34"	50"	44"	65"	30"	23"	23"	18"		
#7	69"	103"	89"	134"	54"	81"	71"	106"	49"	73"	63"	95"	35"	27"	27"	21"		
#8	78"	117"	102"	153"	62"	93"	81"	121"	56"	83"	72"	108"	40"	30"	30"	23"		
#9	88"	132"	115"	172"	70"	105"	91"	136"	63"	94"	81"	122"	46"	35"	35"	26"		
#10	100"	149"	129"	194"	79"	118"	102"	153"	71"	106"	92"	137"	51"	39"	39"	30"		
#11	110"	165"	143"	215"	87"	131"	114"	170"	78"	117"	102"	152"	57"	43"	43"	33"		

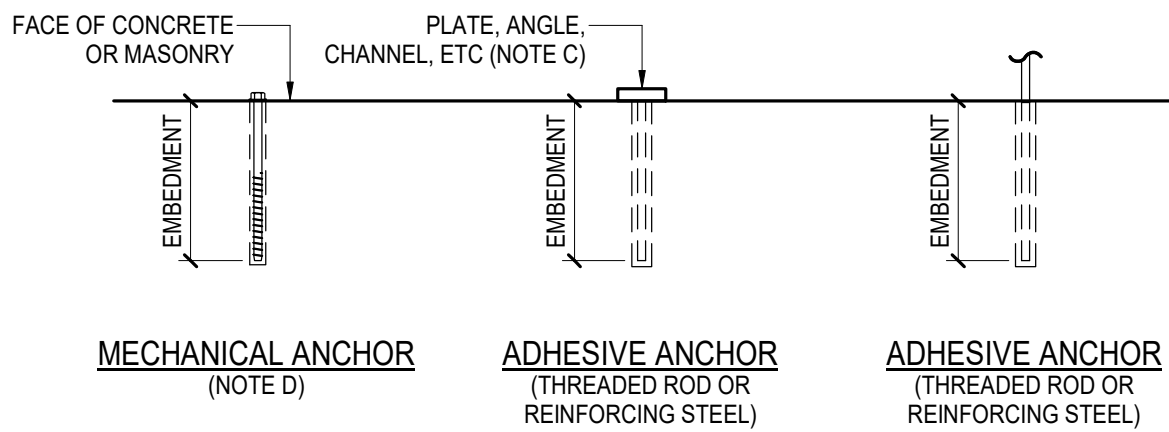
- NOTES:
- TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
 - CONCRETE COVERAGE AROUND REINFORCING SHALL NOT BE LESS THAN THE DIAMETER OF THE BAR.
 - APPLICABLE TO BARS HAVING A YIELD STRESS OF 60,000 PSI OR LOWER.
 - WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED IN TENSION, SPLICE LENGTH SHALL BE BASED ON LARGER BAR DIAMETER.
 - LAP SPLICES SHALL BE STAGGERED AT LEAST 24 INCHES.
 - FOR SPIRALS, LAP SPLICE SHALL BE THE GREATER OF 12 INCHES OR 48 BAR DIAMETERS.

1 TYPICAL MINIMUM REINFORCING BAR SPLICE LENGTHS IN CONCRETE

SCALE: NTS

REINFORCING STEEL SIZE	REINFORCING STEEL EMBEDMENT LENGTH IN CONCRETE	REINFORCING STEEL EMBEDMENT LENGTH IN MASONRY
#3	3"	6"
#4	6"	8"
#5	6"	8"
#6	8"	8"
#7	8"	8"
#8	10"	8"
#9	12"	12"

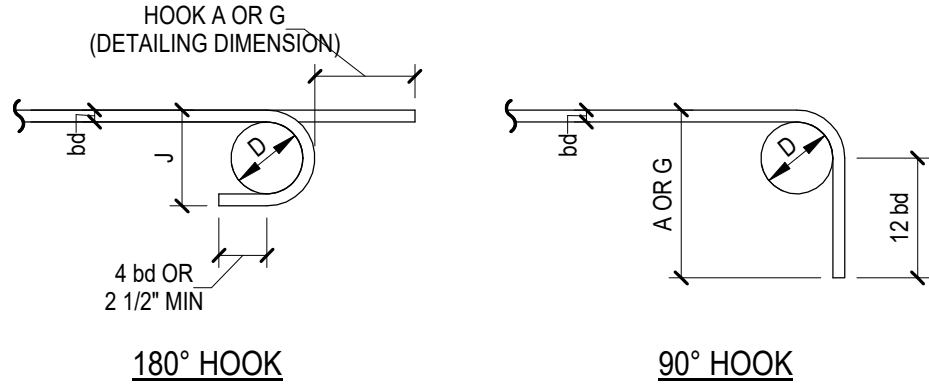
ANCHOR DIAMETER	MECHANICAL ANCHOR EMBEDMENT LENGTH IN CONCRETE	MECHANICAL ANCHOR EMBEDMENT LENGTH IN MASONRY	THREADED ROD ANCHOR EMBEDMENT LENGTH IN CONCRETE	THREADED ROD ANCHOR EMBEDMENT LENGTH IN MASONRY
3/8"	3"	2 3/4"	4 1/2"	3 1/2"
1/2"	4"	3 1/2"	5"	4 1/2"
5/8"	5 1/4"	4 1/2"	6 3/4"	6"
3/4"	5 3/4"	5 1/2"	6 3/4"	7"
7/8"	---	---	7"	---
1"	8"	8"	8"	---
1 1/4"	---	---	10"	---



4 TYPICAL POST-INSTALLED ANCHOR AND REINFORCING STEEL SCHEDULE

SCALE: NTS

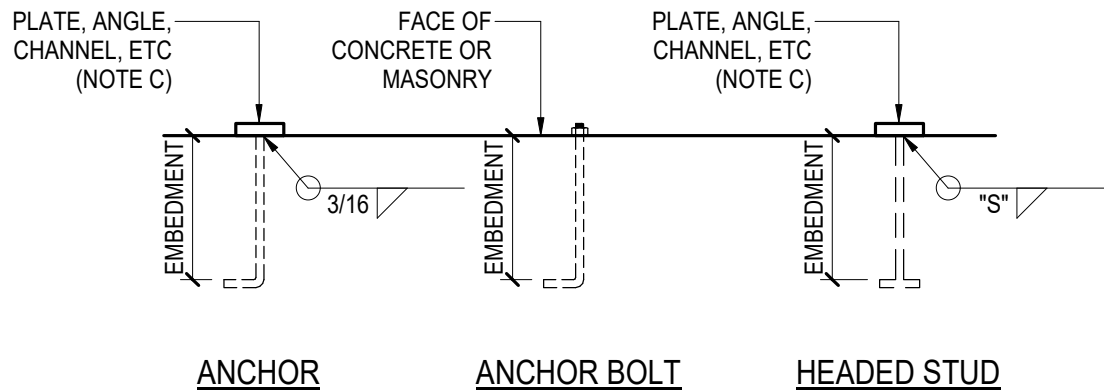
BAR SIZE	END HOOKS, ALL GRADES			
	FINISHED BEND DIA	180° HOOKS	90° HOOKS	
	D	A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	24"
#14	18 1/4"	27"	21 3/4"	31"
#18	24"	36"	28 1/2"	41"



2 TYPICAL REINFORCING HOOK SCHEDULE

SCALE: NTS

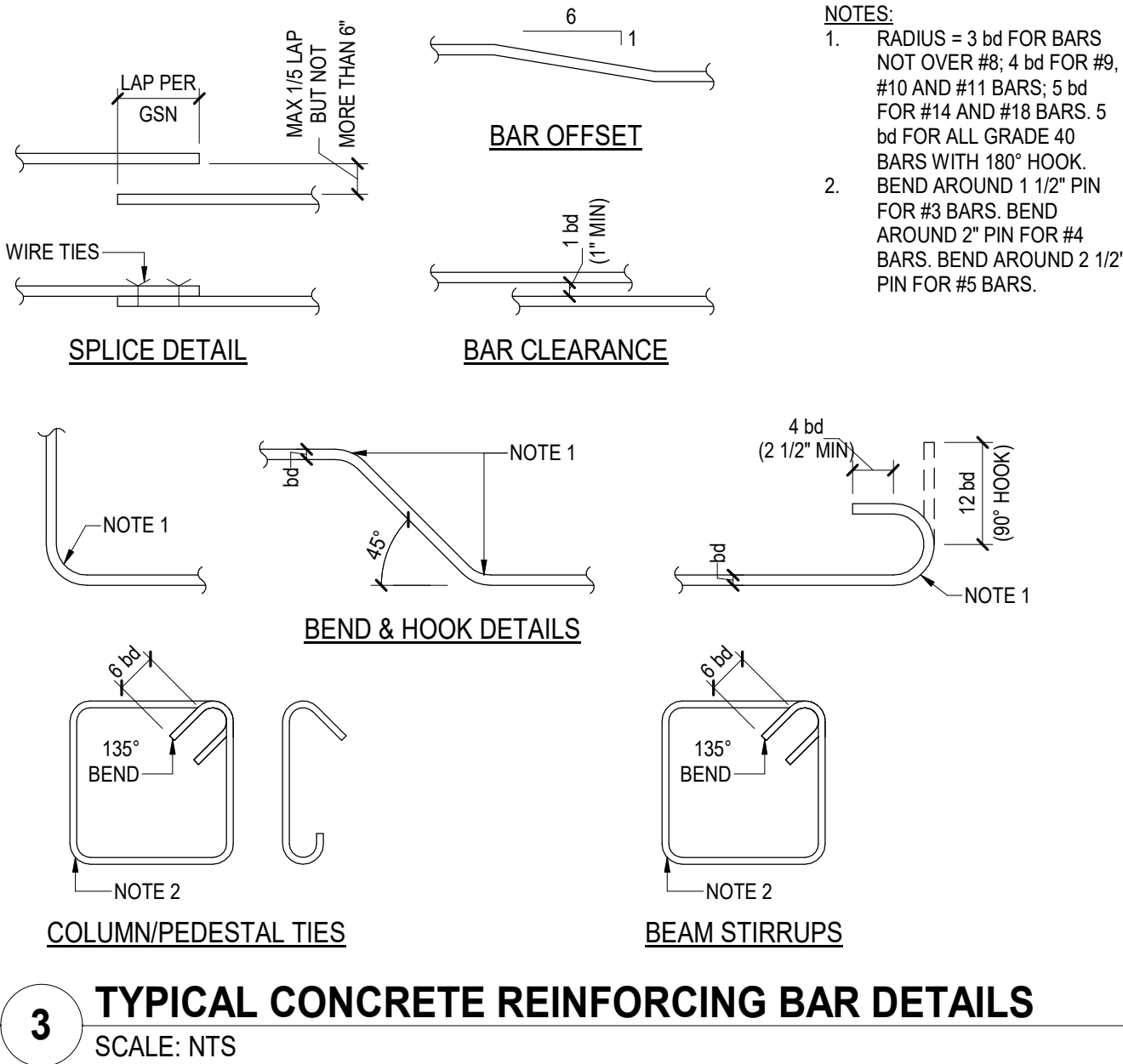
ANCHOR DIAMETER	VERT BOLT EMBEDMENT LENGTH	HORIZ BOLT EMBEDMENT LENGTH	HEADED STUD FILLET WELD SIZE, "S"
1/2"	7"	4"	1/4"
5/8"	7"	4"	5/16"
3/4"	7"	5"	5/16"
7/8"	8"	6"	5/16"
1"	9"	7"	3/8"
1 1/8"	10"	8"	---
1 1/4"	11"	9"	---



5 TYPICAL CAST-IN-PLACE ANCHOR, ANCHOR BOLT AND HEADED STUD SCHEDULE

SCALE: NTS

- GENERAL NOTES:
- PROVIDE ANCHORS, ANCHOR BOLTS, AND HEADED STUDS PER THIS SCHEDULE, UNO ON PLANS OR DETAILS.
 - SCHEDULE APPLIES TO ANCHORS IN CONCRETE AND MASONRY.
 - THICKNESS OF DRYPACK DOES NOT APPLY TOWARDS EMBEDMENT.

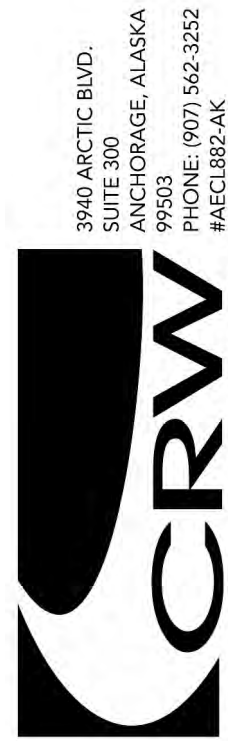


3 TYPICAL CONCRETE REINFORCING BAR DETAILS

SCALE: NTS



CERTIFICATE OF AUTHORIZATION NO. SPARK DESIGN, LLC #AECL1394



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

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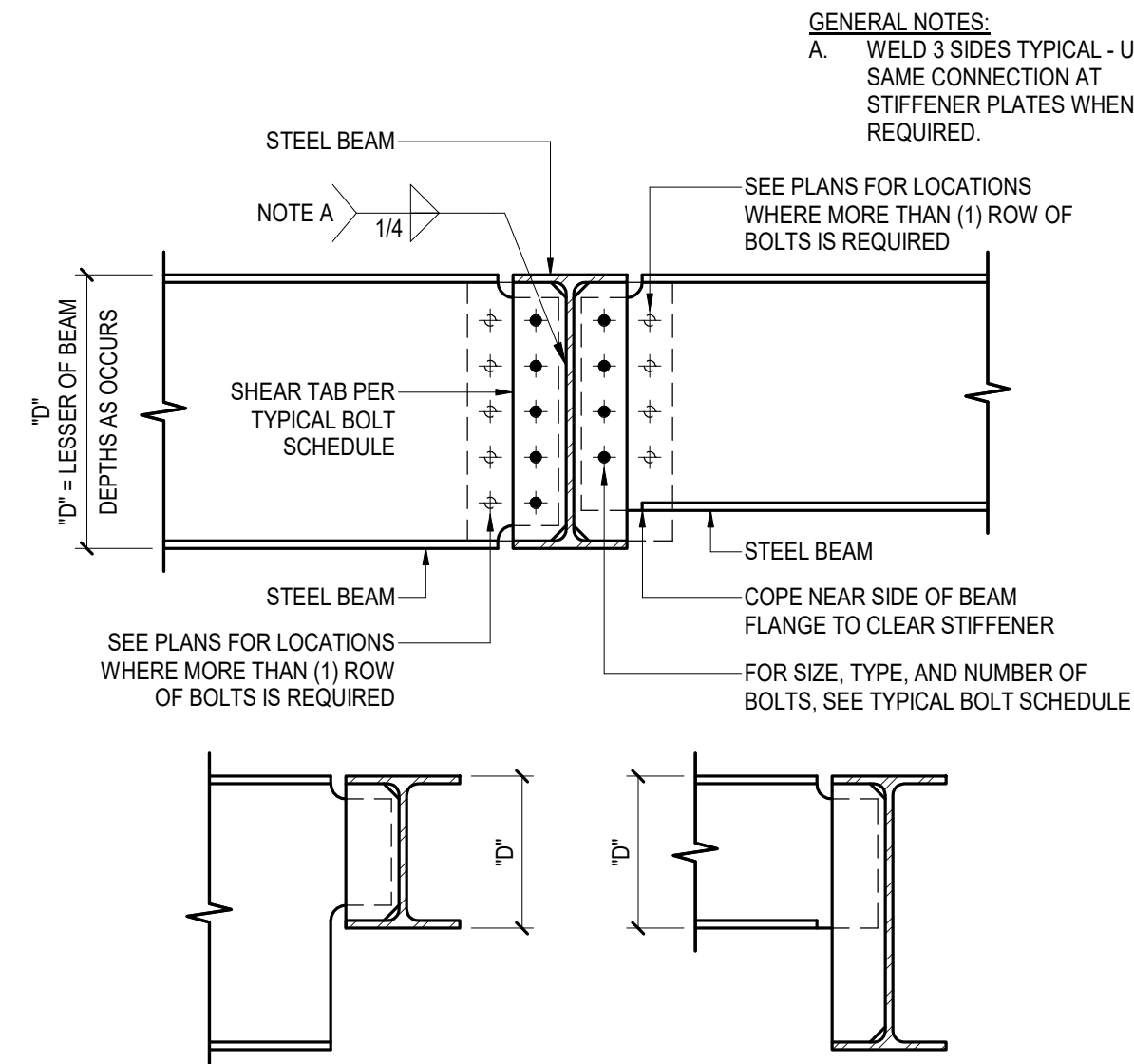
JOB NO.	77006.00
DATE	2023.03.08
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REVIEWED	JDK

SHEET NAME
SCHEDULES & TYP DETAILS -
CONC REINFORCING & ANCHORS

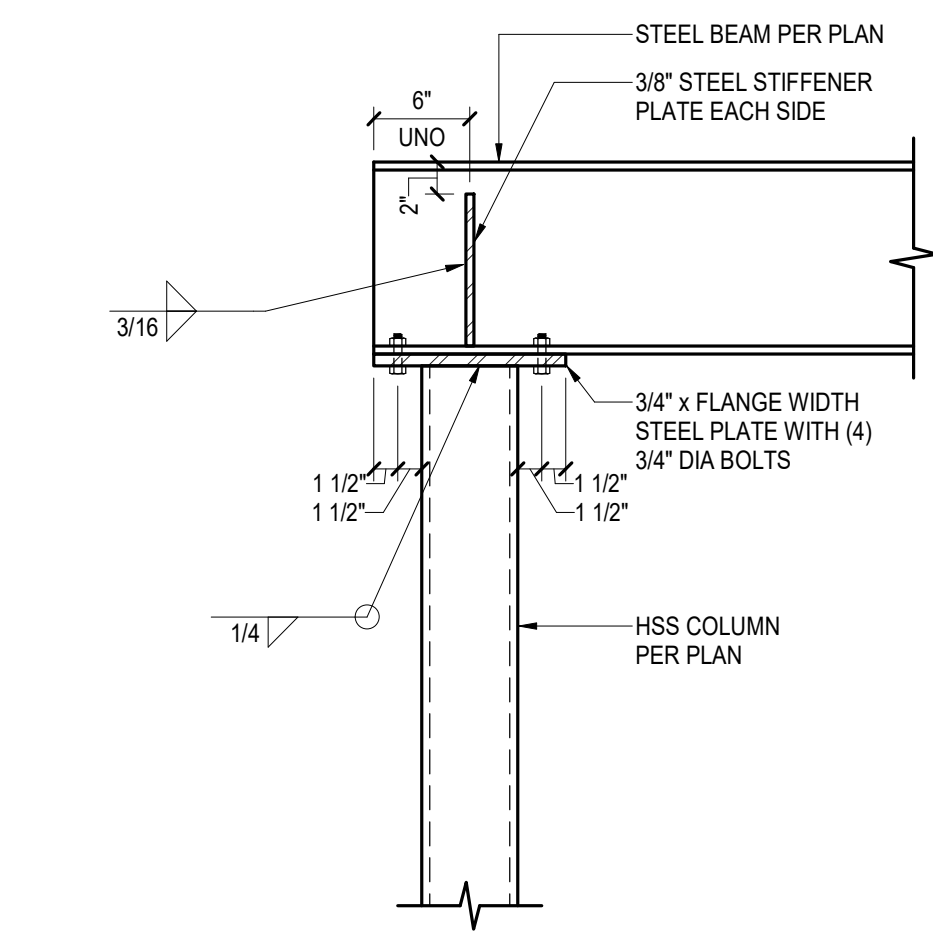
SHEET NO.
S6.03

STEEL COLUMN (TS) SCHEDULE									
NOTES: 1. INSTALL LEVELING NUT AND LOCK NUT WITH STANDARD WASHERS AT EACH ANCHOR BOLT, UNO. 2. TYPICAL GROUT SPACE AT COLUMN BASE PLATE IS 1 1/2" UNO. PROVIDE 2" GROUT SPACE AT BRACED FRAME COLUMNS. 3. PROVIDE OVERSIZE HOLES AND WASHERS PER AISC TABLE 14-2, UNO. 4. SEE BRACED FRAME DETAILS FOR SHEAR LUG INFORMATION. 5. ALL BASE PLATES AND SHEAR LUGS SHALL BE A572 GR 50 STEEL. 6. COLUMN SPLICES SHALL BE PER TYPICAL DETAILS AND MAY BE LOCATED AS REQUIRED. COLUMN SPLICE OCCURS AT THE LEVEL WHERE COLUMN MARK IS INDICATED ON PLAN. 7. SPLICE HSS COLUMNS WITH CJP WELD ALL-AROUND.									
KEYED NOTES A. FABRICATOR TO DETERMINE LENGTH "L" OR WIDTH "W" OF BASE PLATE BASED ON MINIMUM REQUIREMENTS SHOWN IN DETAILS. B. INSTALL 2 1/4"xW"xW" A572 GR 50 STEEL ANCHOR PLATE WITH SINGLE NUTS AT BOTTOM OF ANCHOR ROD AND AT TOP OF ANCHOR ROD DAMAGE THREADS. SEE DETAILS FOR MORE INFORMATION.									
MARK	COLUMN SIZE	BASE PLATE THICKNESS	BASE PLATE GEOMETRY				COLUMN TO BASE PLATE WELD SIZE	BASE PLATE ANCHORS	REMARKS
	<varies>		W	w	L	I			

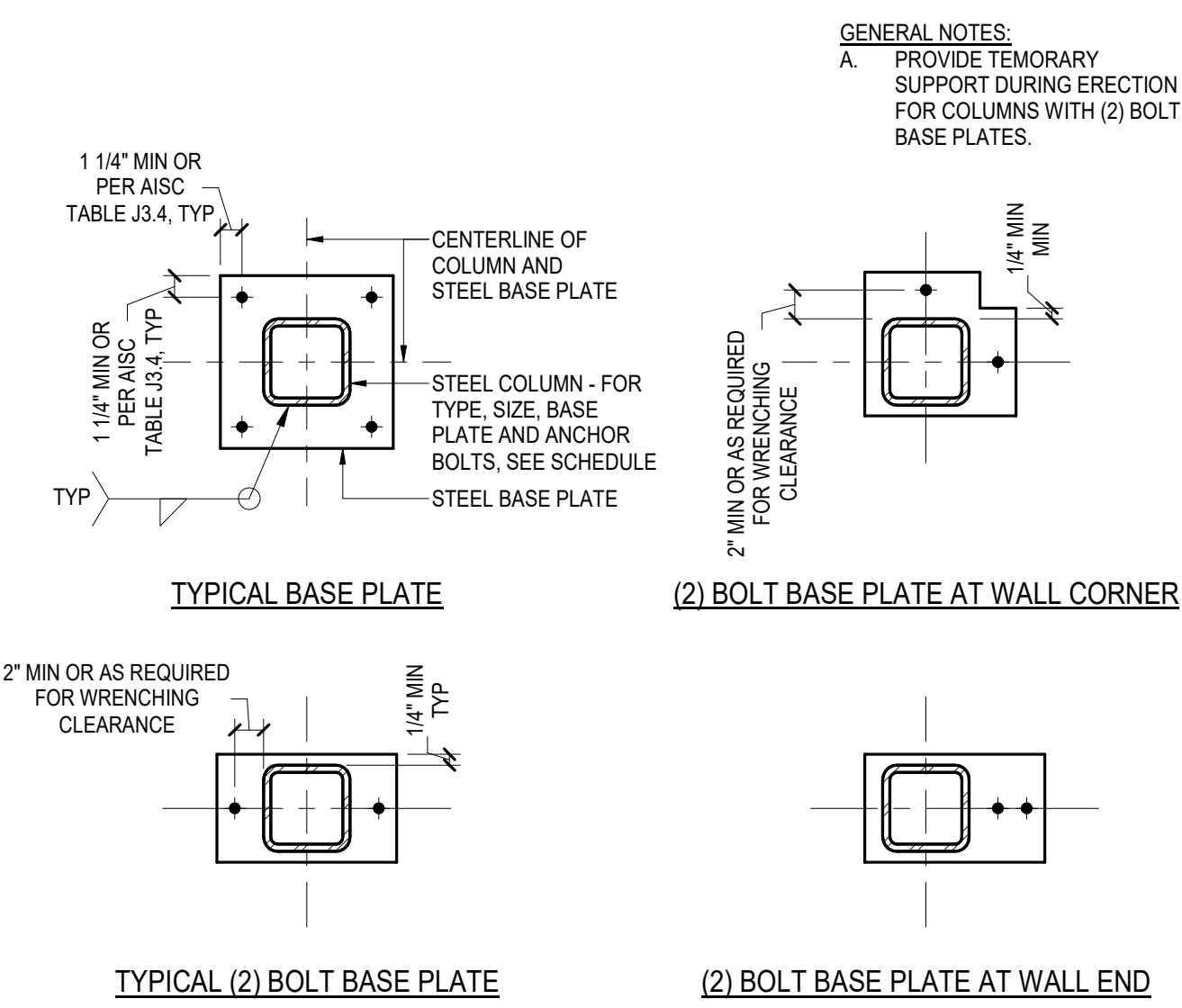
1 STEEL COLUMN SCHEDULE
SCALE: NTS



5 TYPICAL STEEL BEAM TO STEEL BEAM CONNECTION
SCALE: NTS

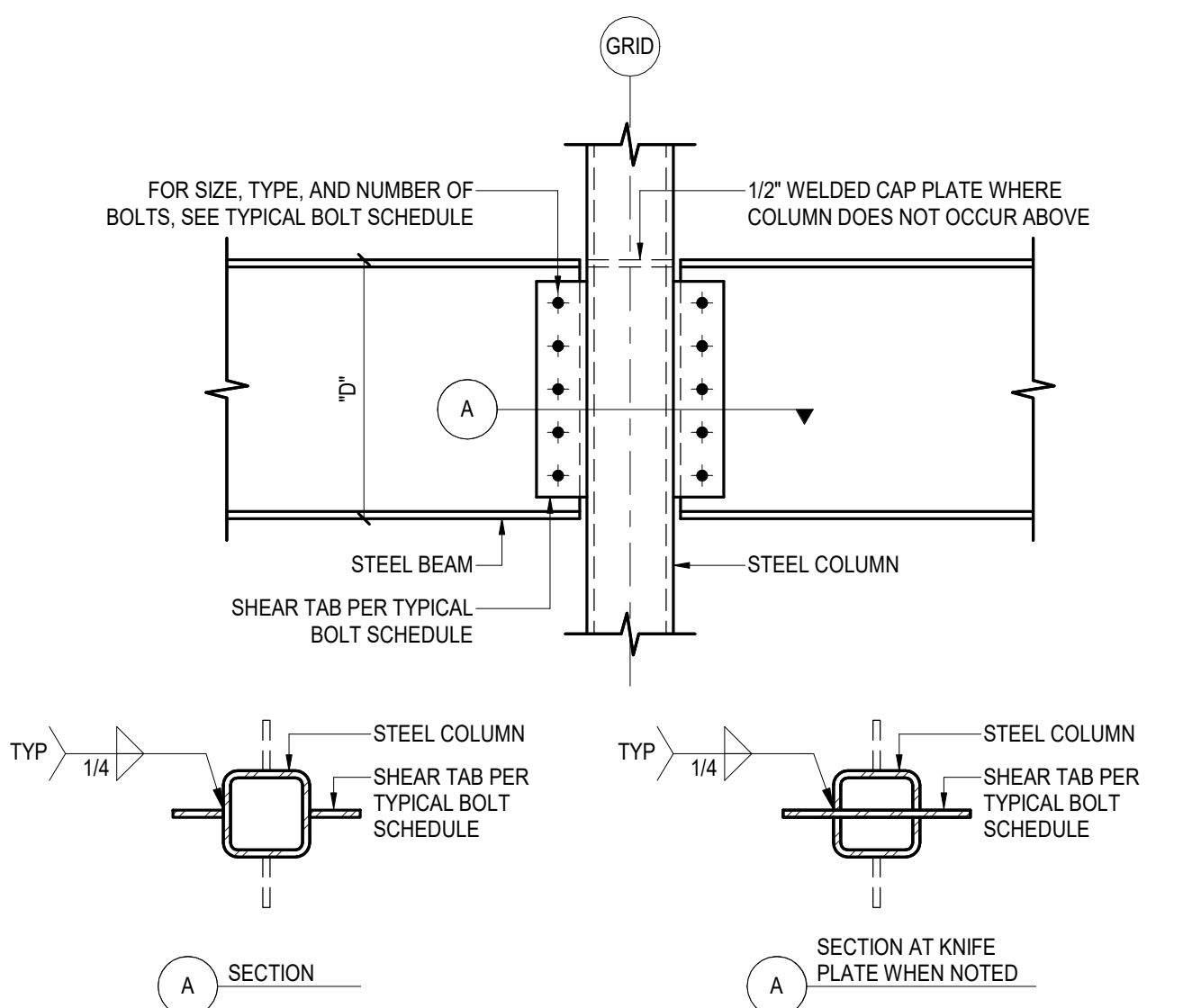


9 TYPICAL STEEL BEAM AT STEEL COLUMN
SCALE: NTS



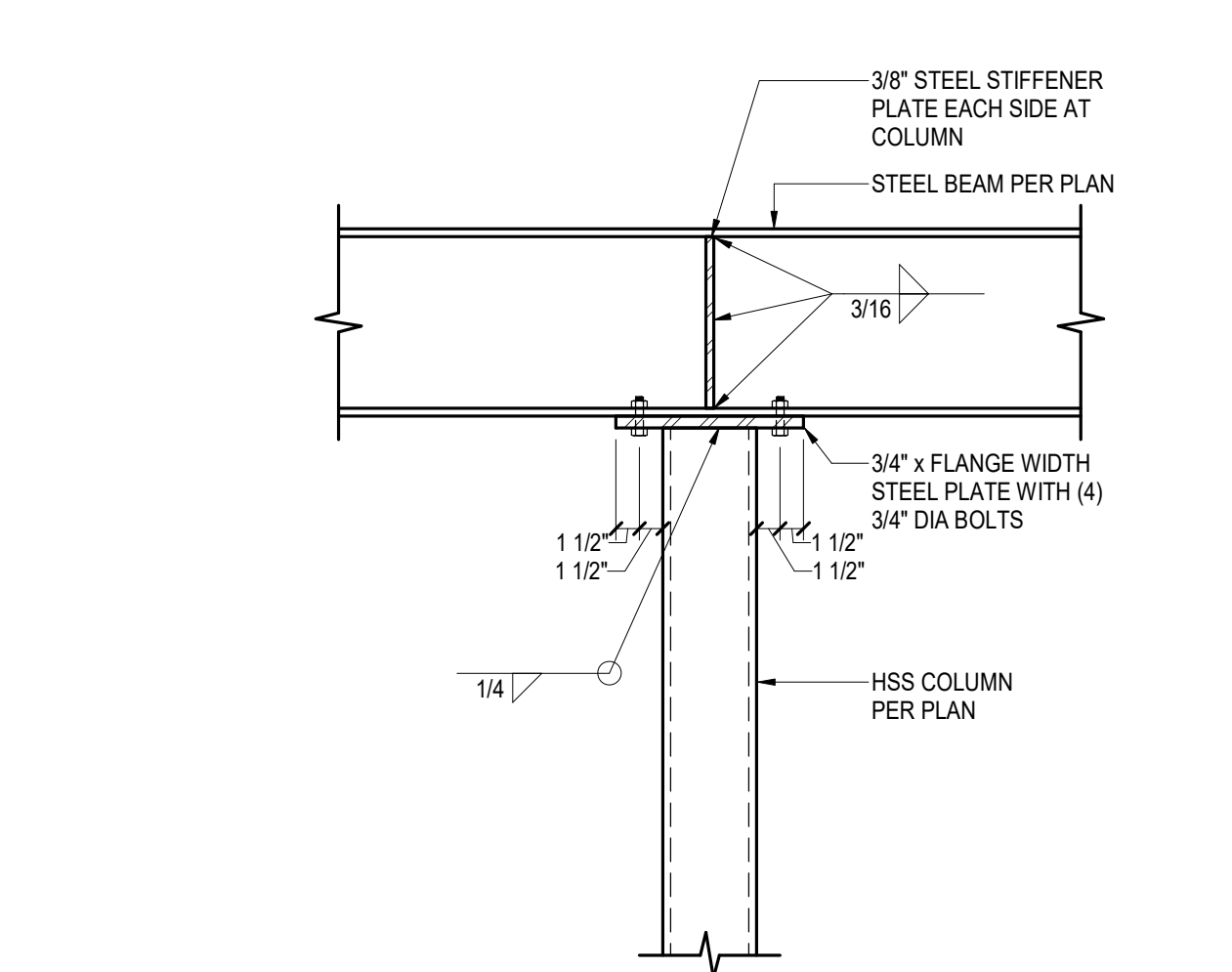
6 TYPICAL STEEL COLUMN BASE PLATE
SCALE: NTS

2 TYPICAL ANCHOR BOLT AND NON SHRINK GROUT SCHEDULE
SCALE: NTS



7 TYPICAL STEEL BEAM AT STEEL COLUMN
SCALE: NTS

3 TYPICAL BOLT SCHEDULE FOR STEEL CONNECTIONS
SCALE: NTS



8 TYPICAL STEEL BEAM AT STEEL COLUMN
SCALE: NTS

GENERAL NOTES:
A. MINIMUM GROUT THICKNESS SHALL BE 2 TIMES THE ANCHOR BOLTS DIAMETER.

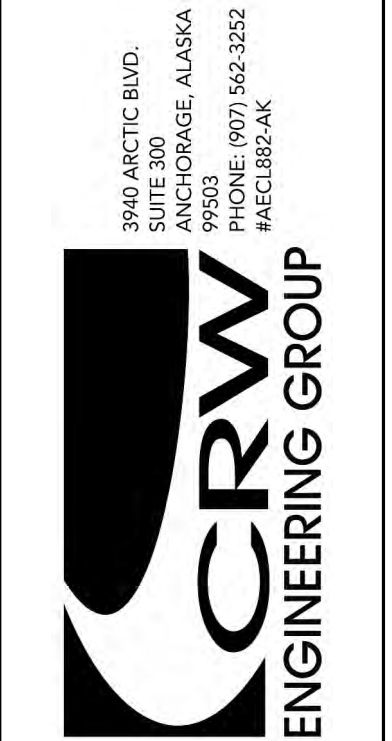
NON-SHRINK GROUT SCHEDULE	
BASE PLATE MIN DIMENSIONS	MIN NON-SHRINK GROUT THICKNESS
16" AND LESS	1 1/2"
17" - 23"	2"
24" - 35"	2 1/2"
36" AND OVER	3"

NOMINAL BEAM DEPTH "D"	NUMBER OF 3/4" DIA ASTM, A325 BOLTS
UP TO 7"	2
8" - 11"	2
12" - 14"	3
15" - 17"	4
18" - 20"	5
21" - 23"	6
24" - 29"	7
30" - 32"	8
33" - 35"	9
36"	10

- GENERAL NOTES:
A. THE TYPICAL STEEL BEAM TO STEEL COLUMN OR STEEL BEAM TO STEEL BEAM CONNECTION CONSISTS OF 3/8" SHEAR TABS WITH 3/4" DIA ASTM A325 BOLTS. USE 5/8" SHEAR TABS WHERE "D" = 27" OR GREATER.
B. ALL BOLTS SHALL BE INSTALLED USING STANDARD HOLES.



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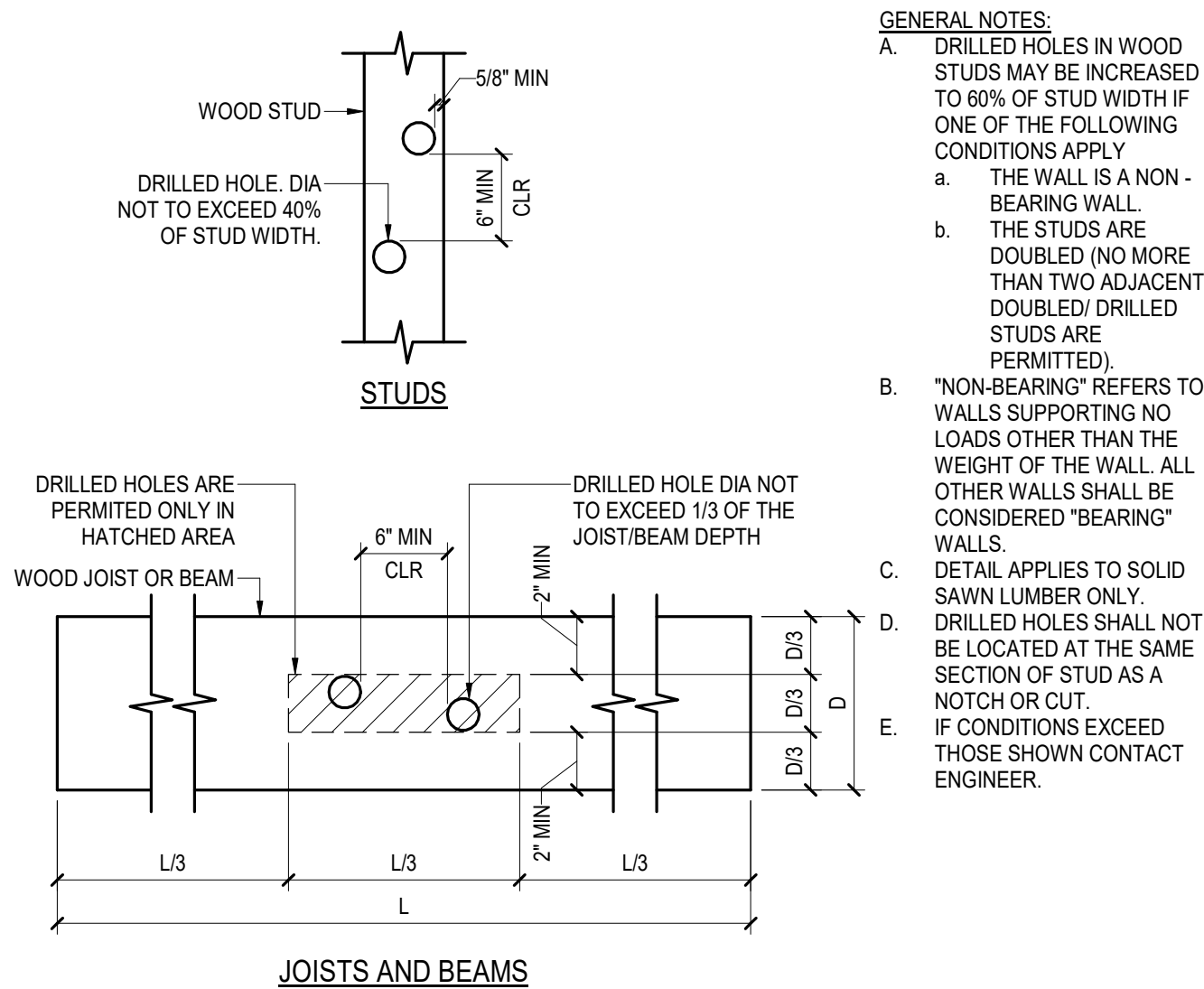
SHEET NAME
SCHEDULES & TYP DETAILS -
STEEL FRAMING

SHEET NO.
S6.04

WALL OPENING (WO) SCHEDULE				
NOTES: 1. SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION.				
MARK	HEADER	TRIMMER STUD	JAMB STUDS	REMARKS
WO1	4x6	2x6	2x6	---
WO2	4x8	2x6	2x6	---
WO3	3 1/8x9 GLB	2x6	(2) 2x6	---
WO4	3 1/8x9 GLB	(2) 2x6	(2) 2x6	---
WO5	5 1/2x12 GLB	(2) 2x6	(2) 2x6	---
WO6	4x8	2x6	2x6 LVL	JAMB STUDS CONT TO TOP OF PARAPET
WO7	3 1/8x9 GLB	2x6	(2) 2x6 LVL	JAMB STUDS CONT TO TOP OF PARAPET

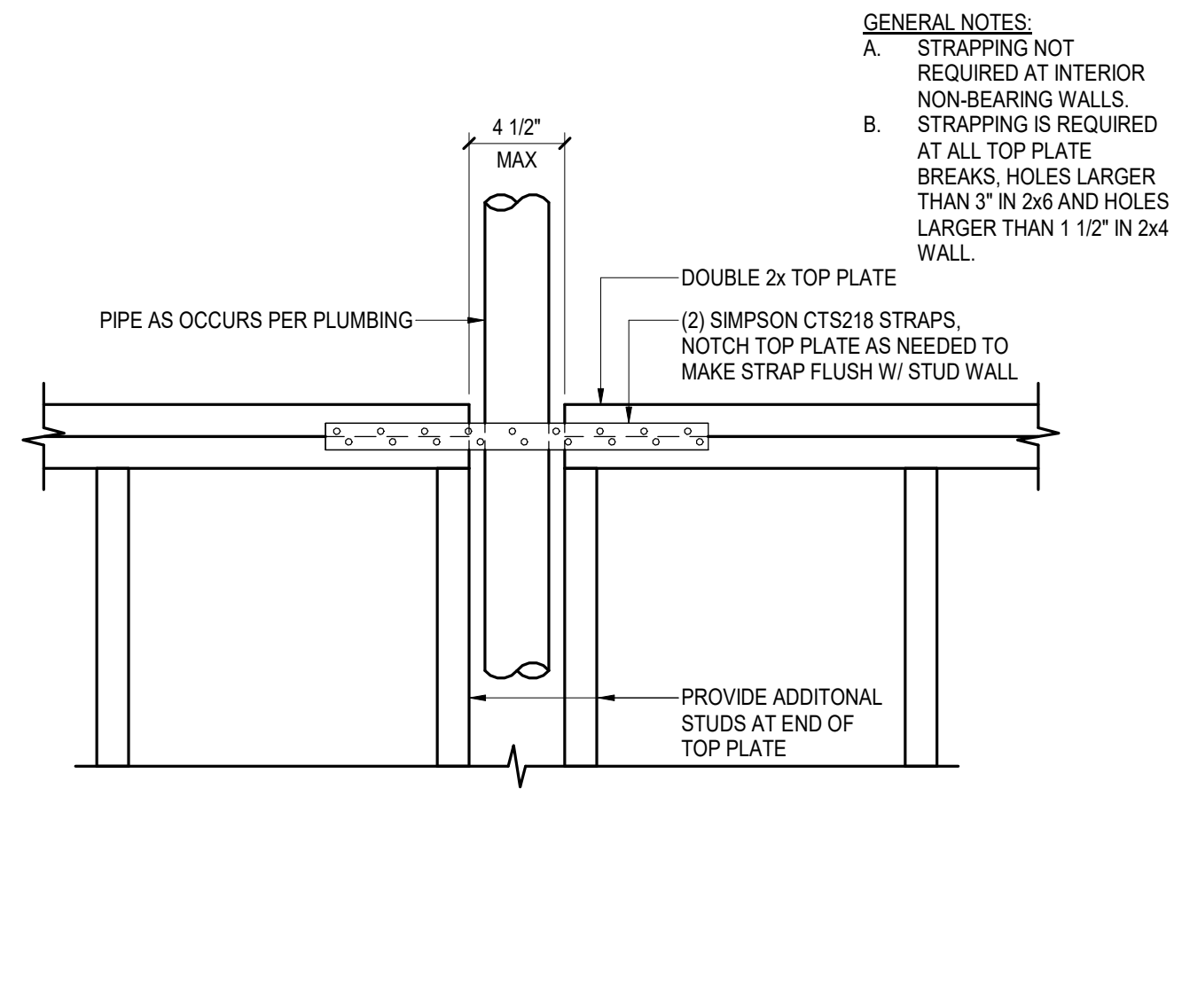
2 WALL OPENING SCHEDULE

SCALE: NTS



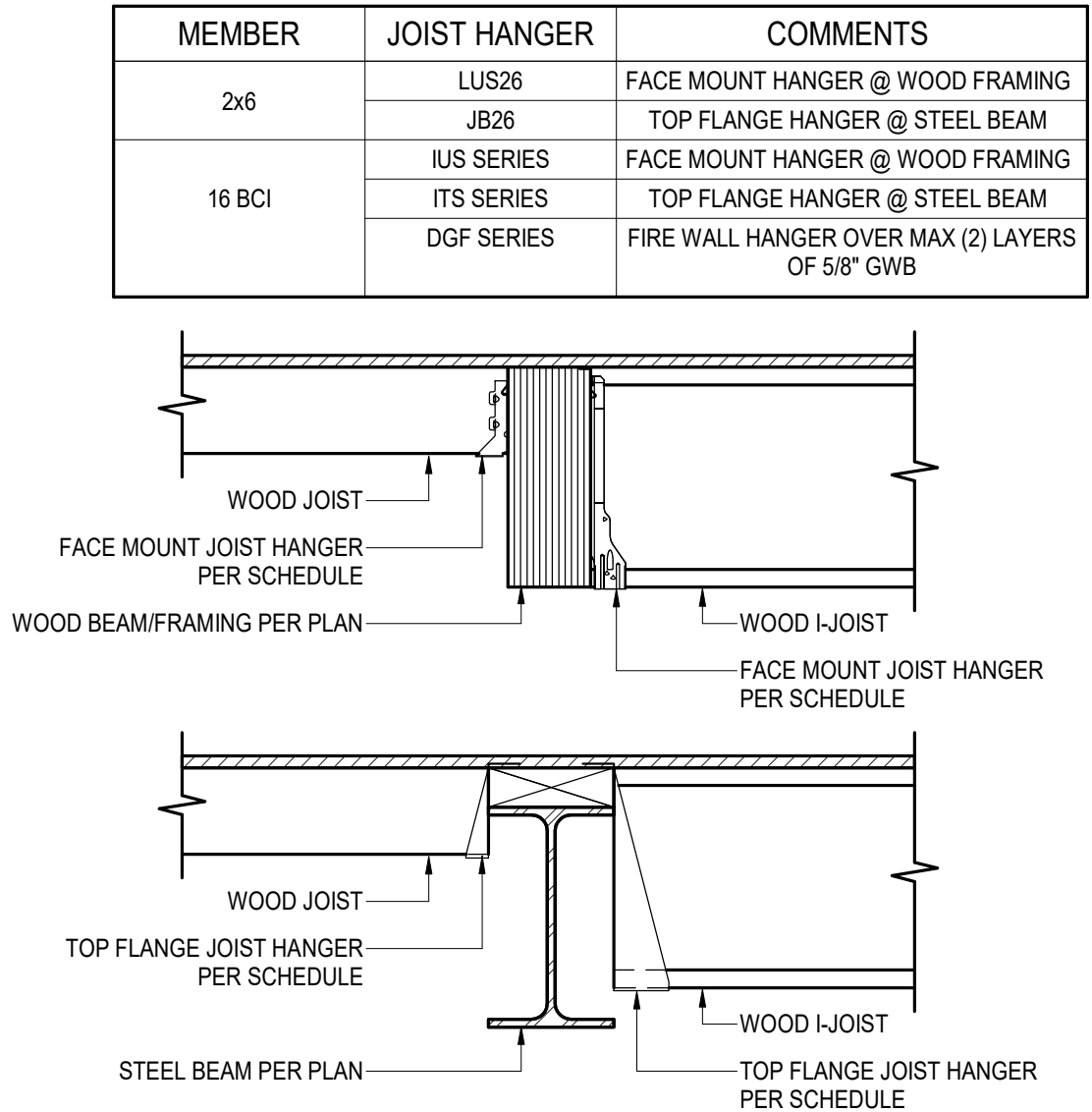
5 TYPICAL DRILLED HOLES IN SOLID SAWN WOOD FRAMING

SCALE: NTS



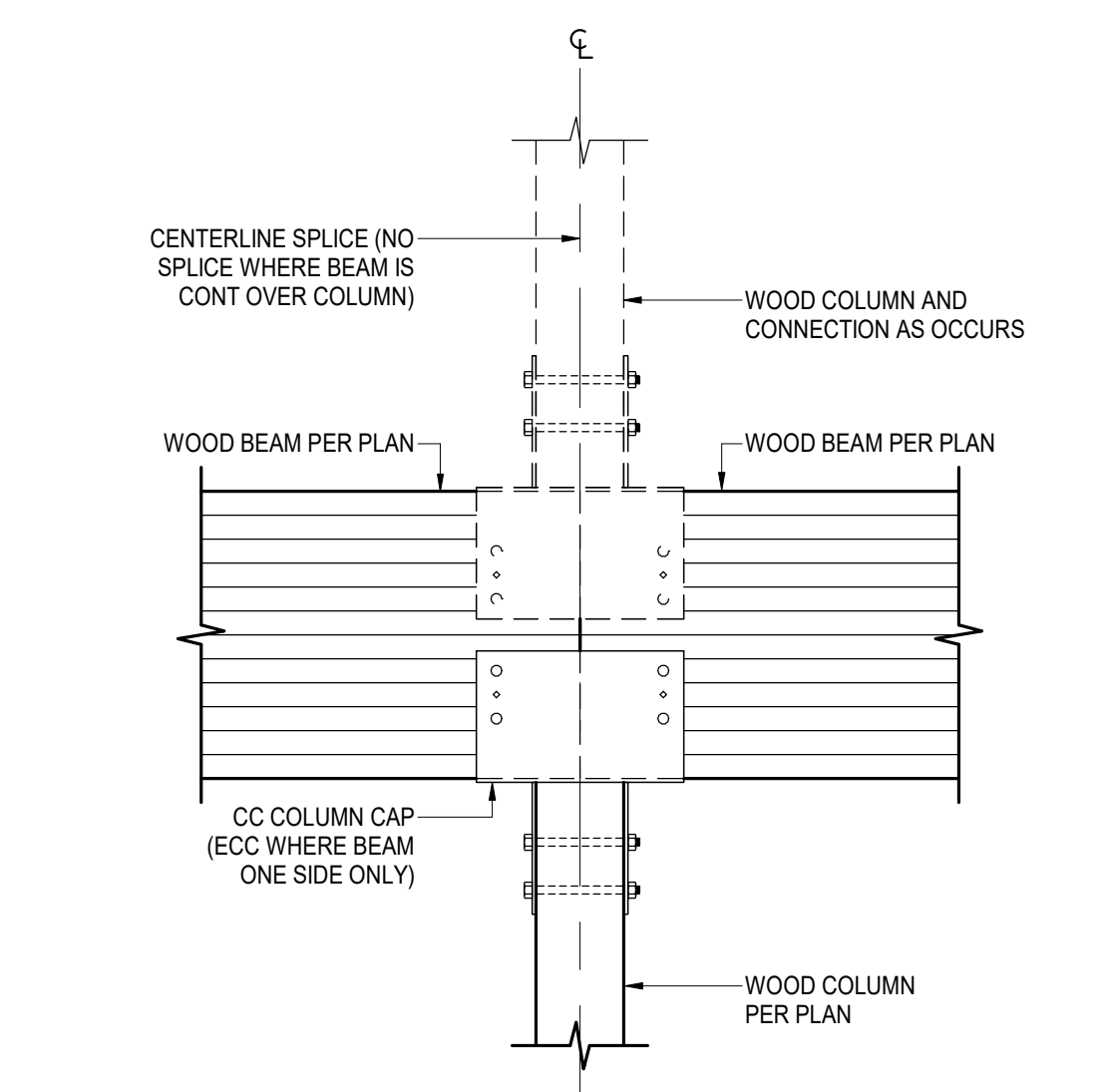
10 TYPICAL TOP PLATE PATCHING FOR MULTIPLE PIPES

SCALE: NTS



3 TYPICAL JOIST HANGER SCHEDULE

SCALE: NTS

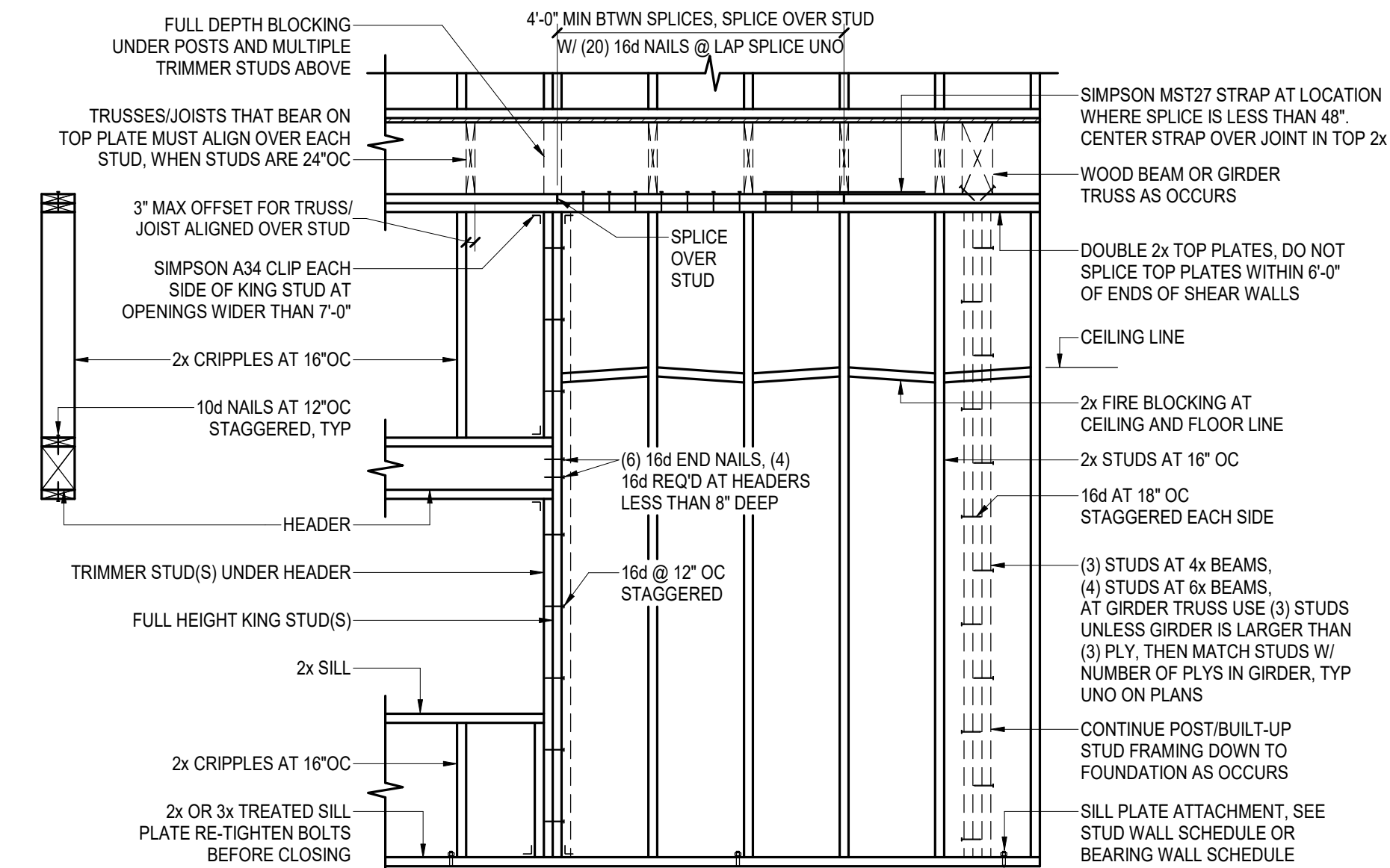


7 TYPICAL WOOD BEAM AT WOOD COLUMN

SCALE: NTS

BEARING WALL SCHEDULE			
WALL	TYPE	LEVEL	STUDS & SPACING
EXTERIOR	TYPICAL SINGLE LEVEL	1	PER PLAN
	TYPICAL MULTI LEVEL	1	PER PLAN
INTERIOR	CORRIDOR / BEARING LINE	3 - 2	PER PLAN
	MULTI LEVEL	1	PER PLAN

NOTES:
A. ALL WALLS NOT INDICATED ARE TO BE 2x STUDS AT 16\"/>

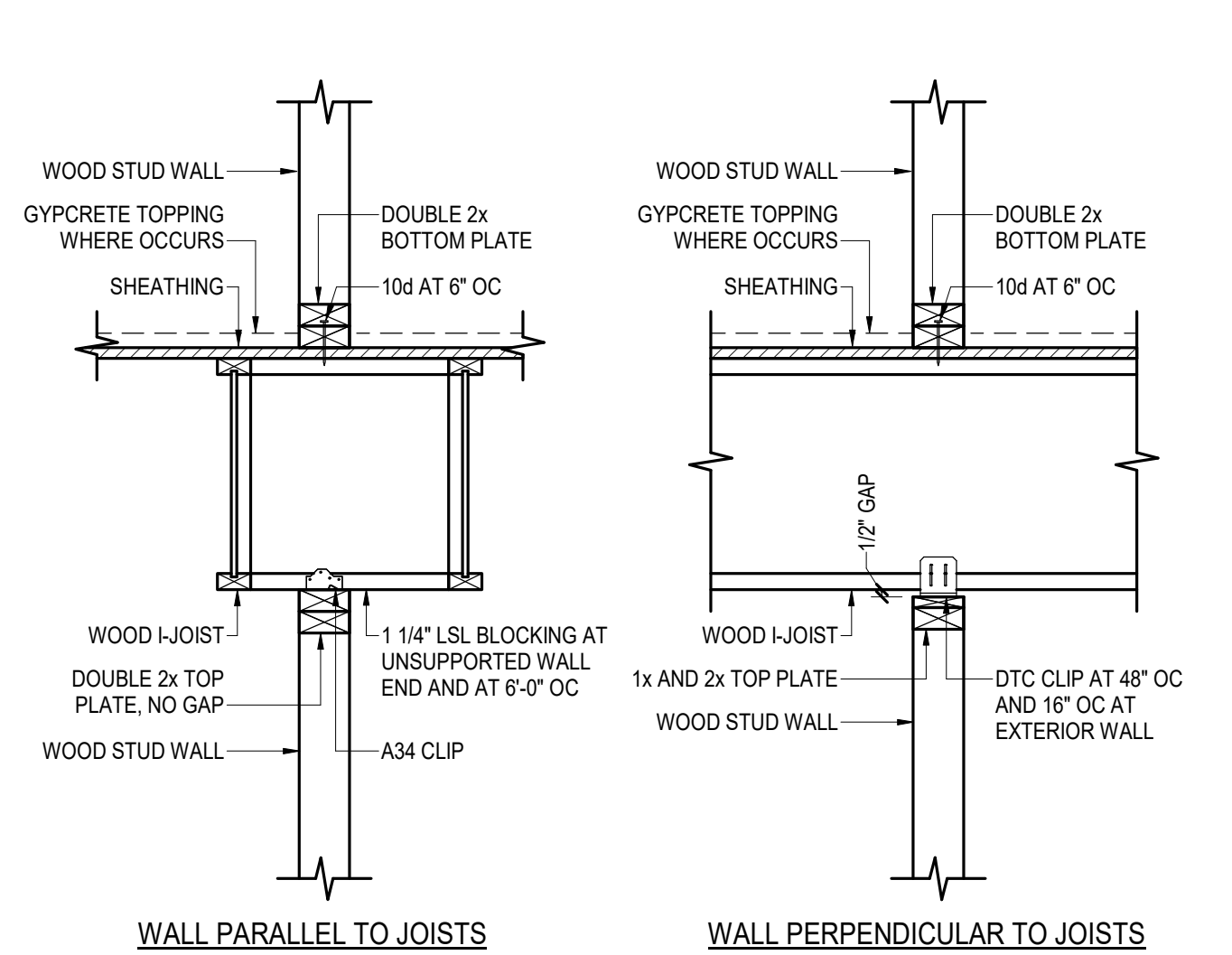


11 TYPICAL WOOD STUD EXTERIOR/BEARING WALL SCHEDULE

SCALE: NTS

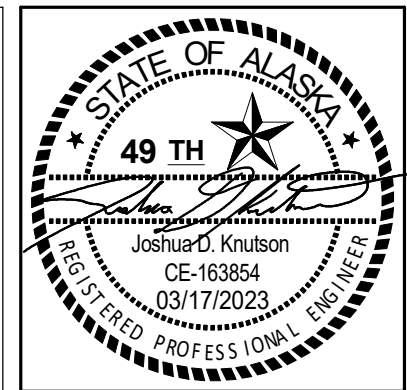
4 COORIDOR WOOD STUD WALL AT PLUMBING

SCALE: NTS

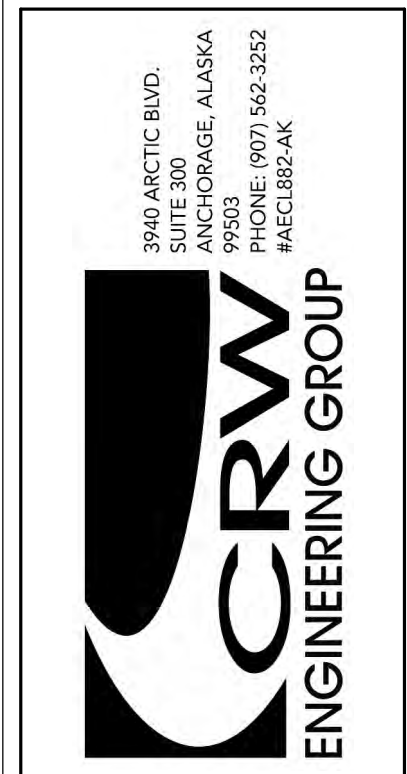


8 TYPICAL NON-BEARING WALL SECTION

SCALE: NTS



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SCHEDULES & TYP DETAILS -
WOOD FRAMING

SHEET NO.
S6.05

HALF SCALE WHEN PRINTED AT 11x17

SHEAR WALL (SW) SCHEDULE

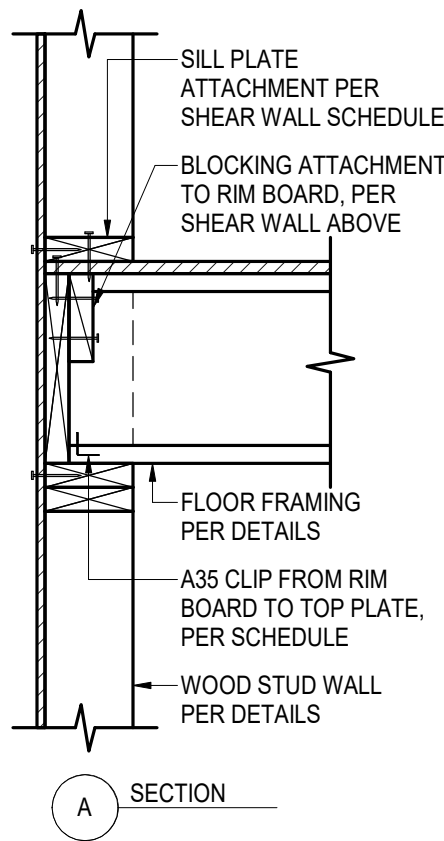
NOTES:

- SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION.
- WHERE SHEATHING IS REQUIRED ON BOTH FACES OF WALL AND NAIL SPACING IS LESS THAN 6" OC EACH FACE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR COMMON FRAMING MEMBER SHALL BE 3x OR THICKER AND NAILS ON EACH FACE SHALL BE STAGGERED.
- WHERE 8d NAILS SPACED AT 2" OC OR WHERE 10d NAILS ARE SPACED AT 3" OC OR LESS, FRAMING MEMBER SHALL BE 3x OR THICKER AND NAILS SHALL BE STAGGERED.
- (2) 2x STUDS STITCH-NAILED WITH (2) ROWS OF 16d NAILS AT 12" OC STAFFERED MAY BE SUBSTITUTED FOR 3x STUDS, BLOCKING OR SILL PLATES NOT AT FOUNDATION.
- MAXIMUM STUD SPACING IS 24" OC.
- ORIENT PANELS HORIZONTALLY OR VERTICALLY. ALL PANEL EDGES SHALL BE BACKED WITH 2x FRAMING (3x AS REQUIRED). BLOCK BETWEEN STUDS AT HORIZONTAL PANEL EDGES, UNO.
- EDGE ATTACHMENT SPACING APPLIES TO ALL STUDS AT PANEL EDGES, TOP AND BOTTOM AND BLOCKING PANEL EDGES. LOCATE NAILS 3/8" MINIMUM FROM EDGES.
- NAILS SHALL BE COMMON OR GALVANIZED (HOT DIPPED OR TUMBLED) BOX NAILS.
- INSTALL 3"x3"x1/4" STEEL PLATE WASHERS AT ALL FOUNDATION ANCHORS.
- SILL PLATE FRAMING ATTACHMENT ALSO APPLIES TO FRAMING ATTACHMENT ABOVE WALL TO WALL TOP PLATE, UNO.
- STRAPPING REFERS TO HORIZONTAL STRAP AT HEADER AND SILL OF OPENINGS. SEE STRAP MFR'S SPECIFICATIONS FOR INSTALLATION INFORMATION.
- STRAP LENGTH = ROUGH OPENING WIDTH + 2x (JAMB STUD WIDTH) + 2x (END LENGTH).
- STRAPS MAY BE INSTALLED ON INSIDE OR OUTSIDE FACE OF WALL, ON TOP OF SHEATHING OR UNDERNEATH SHEATHING.

KEYED NOTES:

- A. CONTRACTOR'S OPTION TO USE ALTERNATE SILL PLATE SHOWN IN PARENTHESES () WITH ALTERNATE ANCHOR BOLT SPACING SHOWN IN PARENTHESES ().
- B. INSTALL 3x OR (2) 2x AT ALL SHEATHING PANEL JOINTS. FASTEN (2) 2x AT PANEL JOINTS TOGETHER WITH (2) 10d NAILS AT 4" OC, 2x4 FLAT BLOCKING IS PERMITTED.
- C. INSTALL 3x AT SHEATHING PANEL JOINTS.

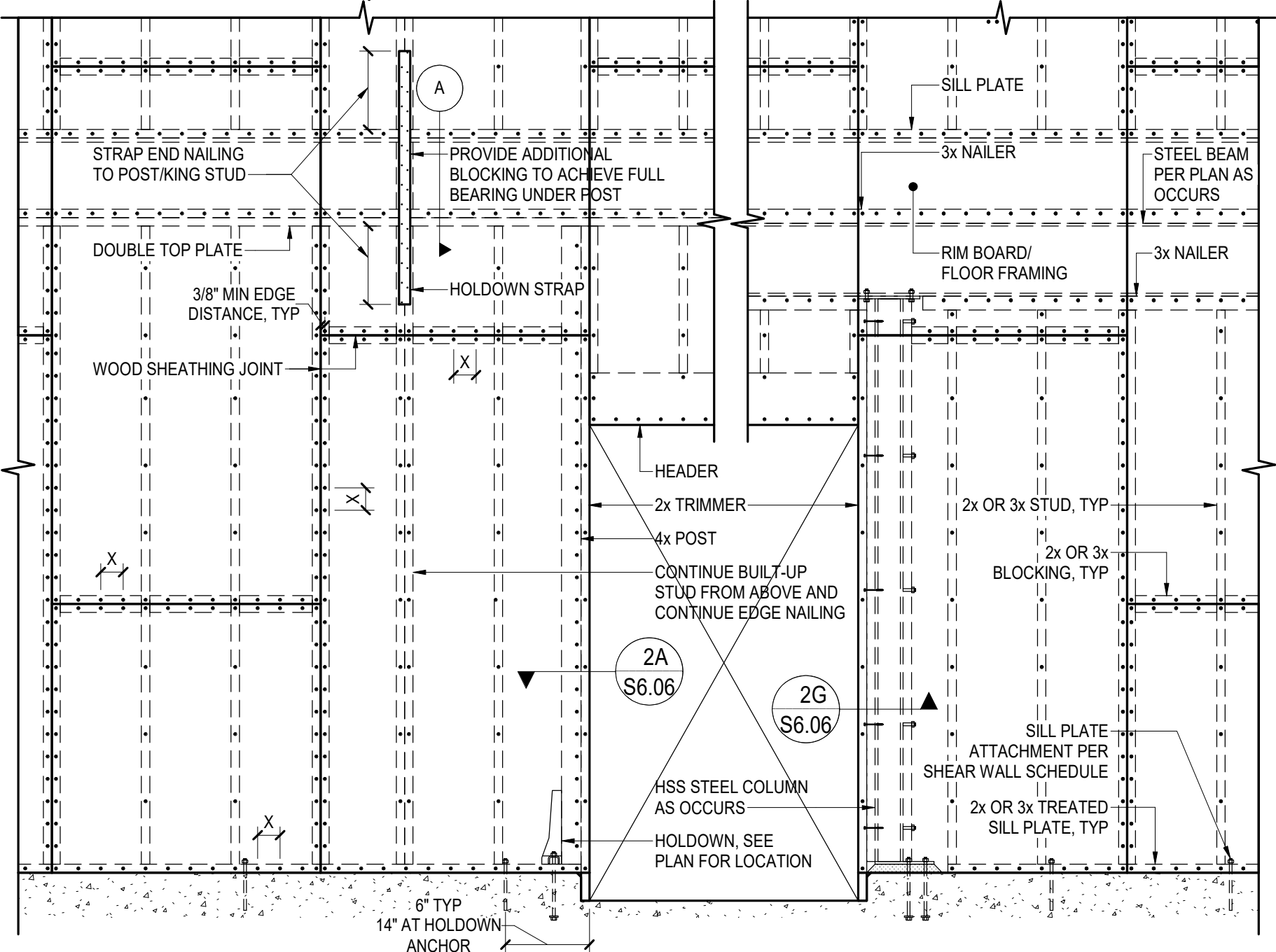
MARK	SHEATHING MATERIAL AND ATTACHMENT				SILL PLATE AND ATTACHMENT			STRAPPING AT OPENING (UNO)				REMARKS
	SHEATHING TYPE	SHEATHING THICKNESS	NUMBER OF FACES	EDGE ATTACHMENT	SILL PLATE	FOUNDATION ATTACHMENT	FRAMING ATTACHMENT	STRAP TYPE	END LENGTH	ATTACHMENT TO FRAMING	BLOCKING SIZE	
SW6	WSP	7/16"	1	8d NAILS AT 6" OC	2x	5/8" DIA ANCHORS AT 48" OC	10d NAILS AT 5" OC	---	---	---	---	---
SW4	WSP	7/16"	1	8d NAILS AT 4" OC	3x	5/8" DIA ANCHORS AT 40" OC	16d NAILS AT 3" OC	---	---	---	---	NOTE A, NOTE B
SW3	WSP	7/16"	1	8d NAILS AT 3" OC	3x	5/8" DIA ANCHORS AT 32" OC	(2) 16d NAILS AT 5" OC	---	---	---	---	NOTE A, NOTE B
SW2	WSP	7/16"	1	8d NAILS AT 2" OC	3x	5/8" DIA ANCHORS AT 24" OC	(2) 16d NAILS AT 4" OC	---	---	---	---	NOTE A, NOTE B
SW44	WSP	7/16"	2	8d NAILS AT 4" OC	3x	5/8" DIA ANCHORS AT 20" OC	(2) 16d NAILS AT 3" OC	---	---	---	---	NOTE C
SW33	WSP	7/16"	2	8d NAILS AT 3" OC	3x	5/8" DIA ANCHORS AT 16" OC	(2) 16d NAILS AT 2" OC	---	---	---	---	NOTE C



NOTES:

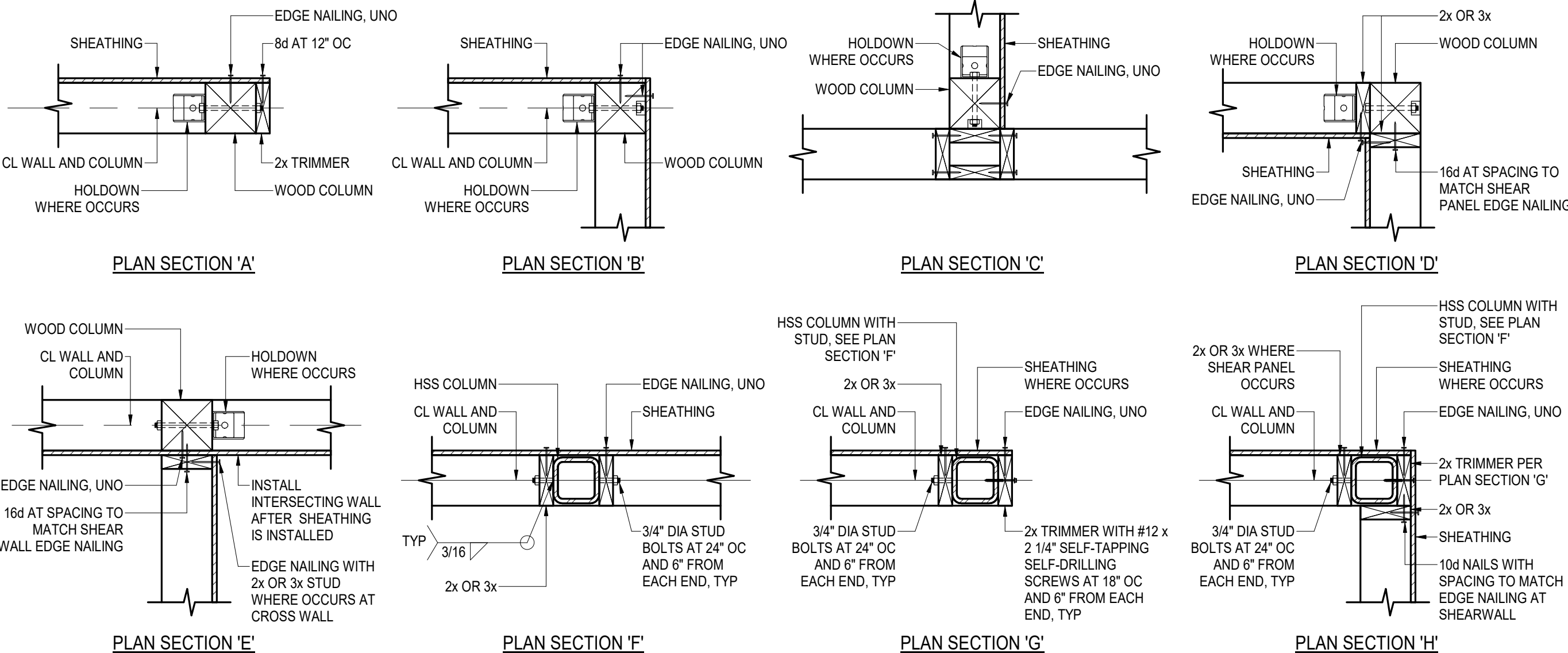
- INDIVIDUAL PIECES OF WOOD STRUCTURAL PANEL SHALL BE NOT LESS THAN 2'-0" IN LEAST DIMENSION NOR 8 SQFT IN AREA.
- RE-TIGHTEN BOLTS BEFORE CLOSING IN.
- FOR ADDITIONAL INFORMATION SEE 11/S6.05.
- PROVIDE FURRING OR BACKING OF THICKNESS AS REQUIRED TO MAINTAIN A COMMON WALL PLANE AT ALL WOOD STUD WALL SURFACES WICH ARE ONLY PARTIALLY SHEATHED WITH WOOD SHEATHING. COORDINATE AND ADJUST HEAD, JAMB AND SILL DETAILS AS REQUIRED FOR PROPER OVERALL WALL THICKNESS.
- "X" INDICATES EDGE NAILING AT SHEAR WALLS.

SHEAR WALL A35 SCHEDULE	
MARK	SIMPSON A35 SPACING
SW6	23" OC
SW4	15" OC
SW3	11" OC
SW2	9" OC
SW44	7" OC
SW33	5" OC
SW22	4" OC



1 SHEAR WALL SCHEDULE

SCALE: NTS

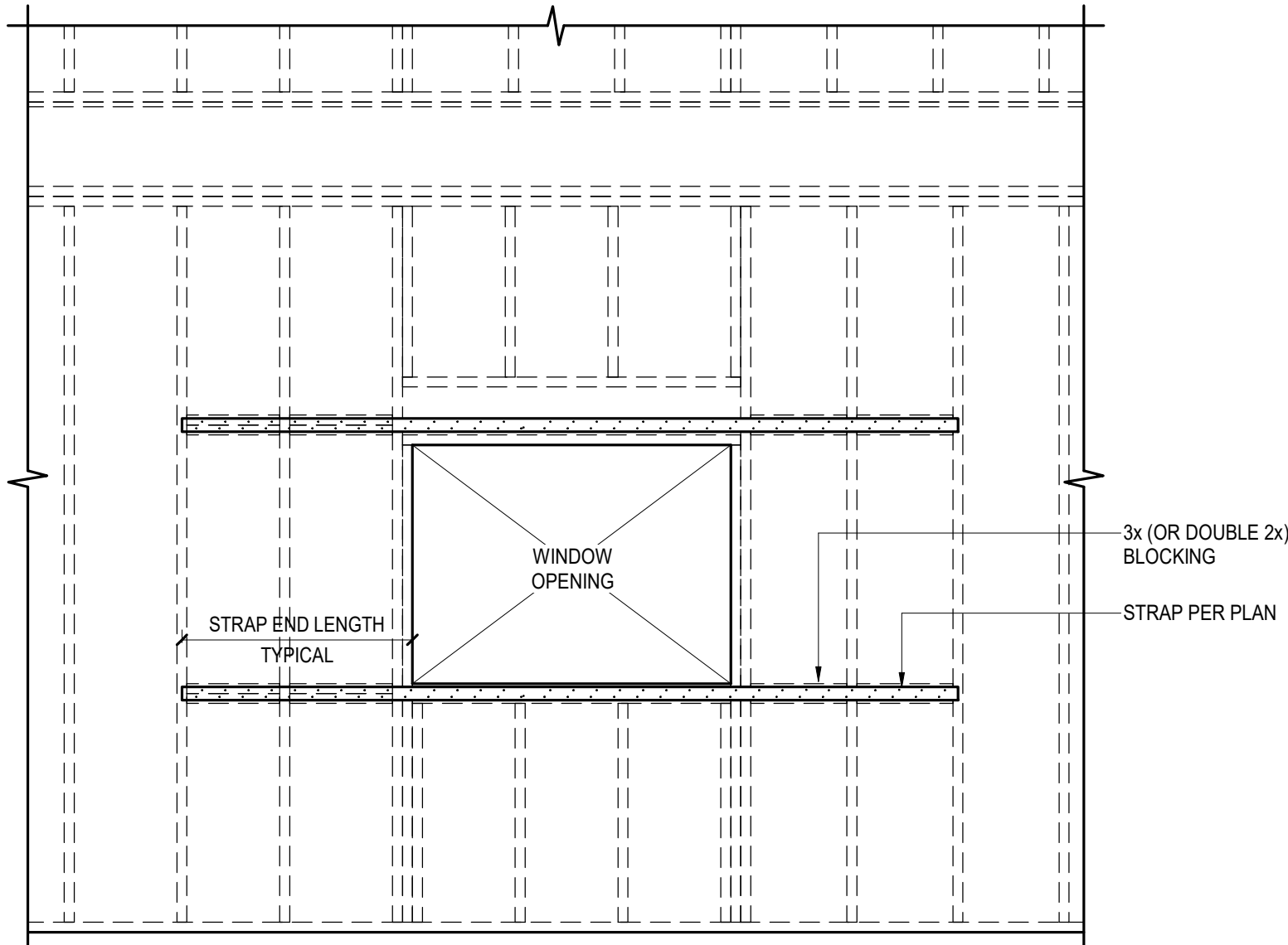


2 TYPICAL PLAN SECTIONS AT HSS COLUMNS AND WOOD COLUMNS AT WOOD SHEAR WALLS

SCALE: NTS

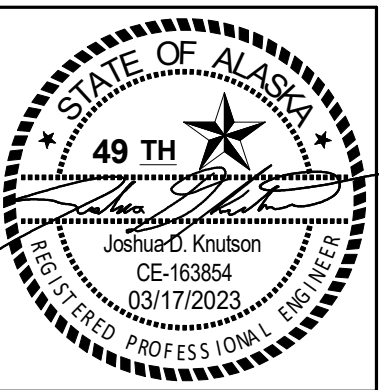
3 TYPICAL SHEAR WALL FORCE TRANSFER STRAPPING

SCALE: NTS



GENERAL NOTES:

- A. FOR INFORMATION SHOWN BUT NOT SPECIFIED SEE 11/S6.05 AND 11/S6.06.



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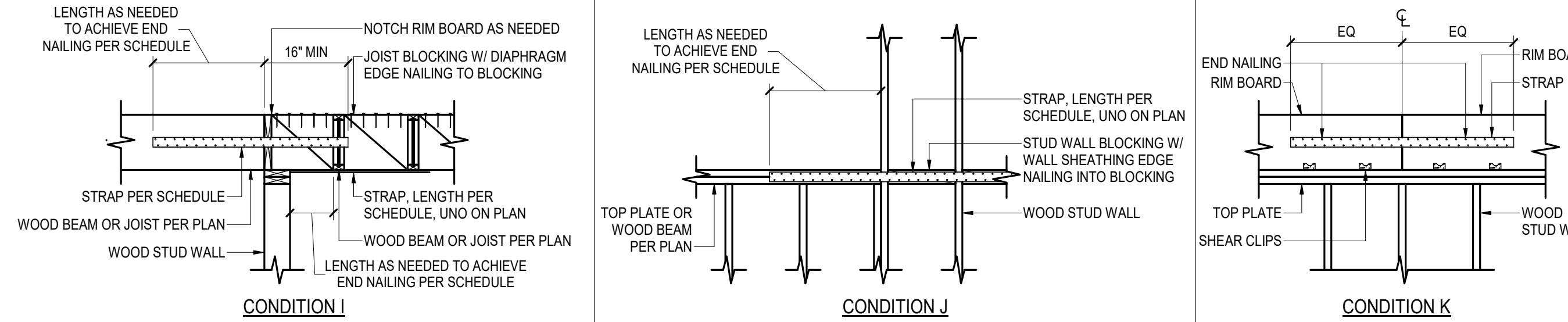
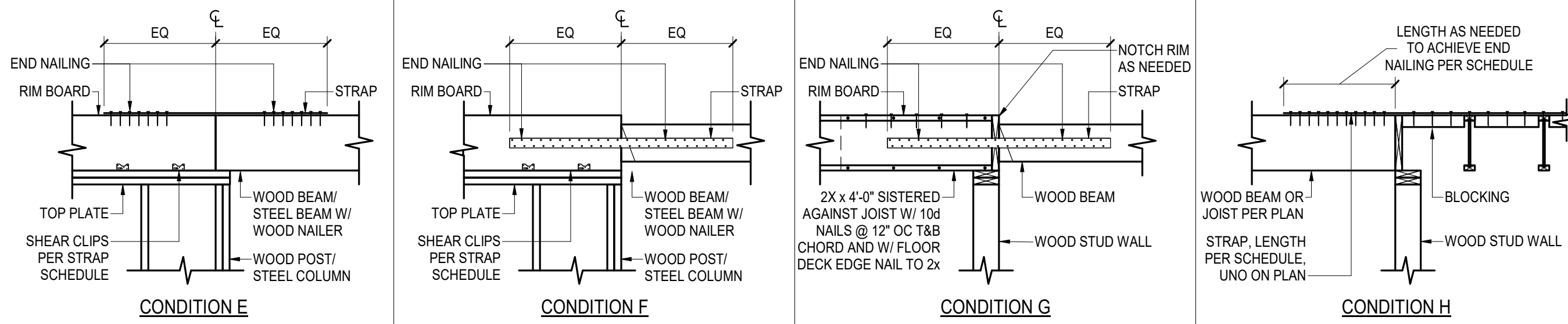
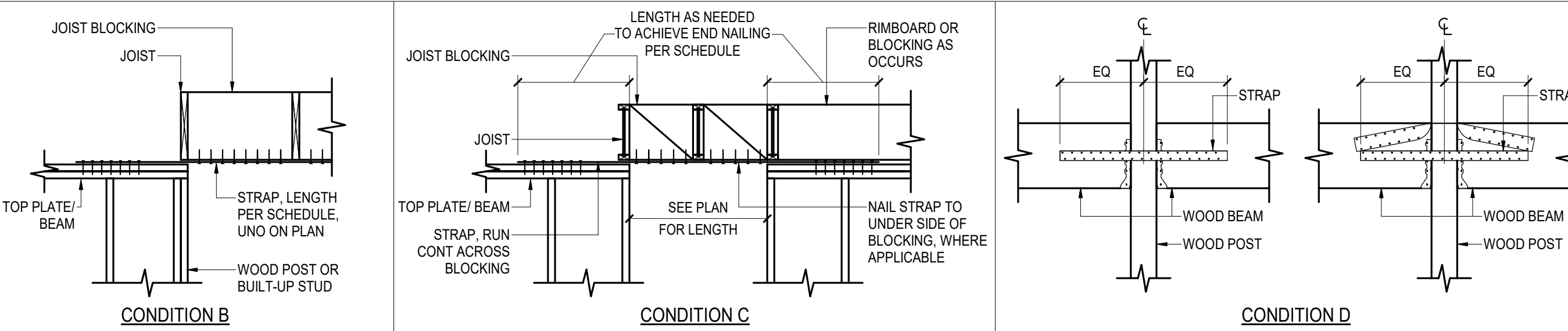
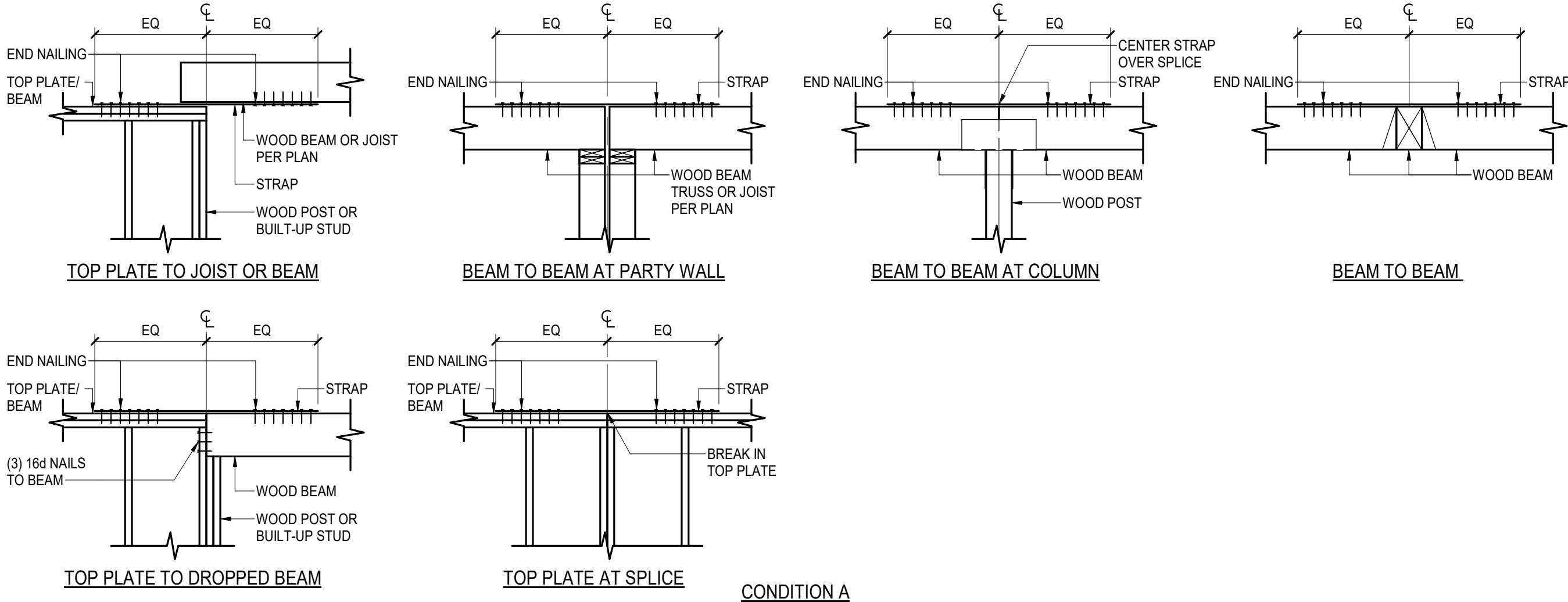
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SHEAR WALLS & HOLDOWNS

SHEET NO.
S6.06

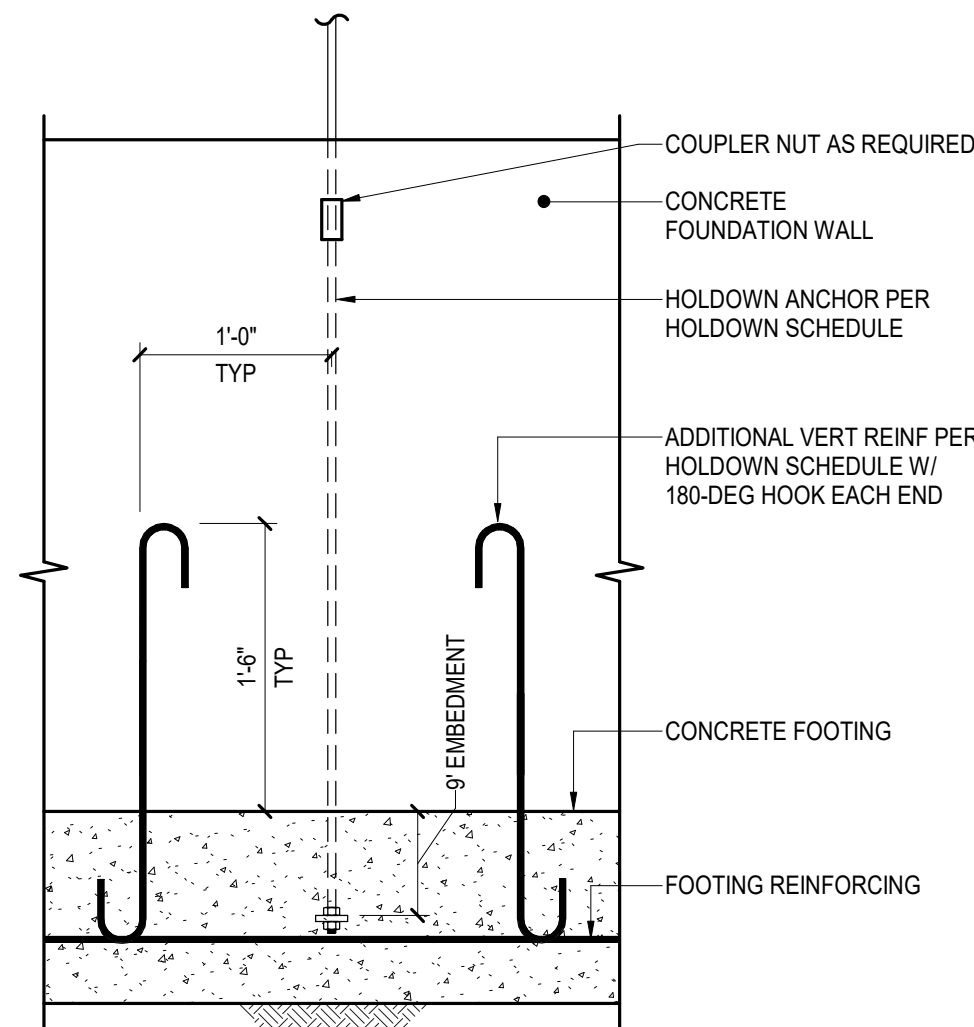
STRAP (ST) SCHEDULE							
NOTES: 1. SEE TYPICAL DETAILS FOR MORE INFORMATION. 2. SEE MFR'S SPECIFICATIONS FOR MORE INFORMATION. 3. STRAPS MAY BE APPLIED ON TOP OF OR UNDERNEATH SHEATHING.							
MARK	CONDITION	STRAP TYPE	TOTAL LENGTH	END LENGTH	ATTACHMENT TO FRAMING	BLOCKING SIZE	REMARKS
ST1A	A	SIMPSON CS16	PER PLAN	13"	(22) 10d NAILS, EACH END	2x BLOCKING AS REQUIRED	---
ST1E	E	SIMPSON CS16	PER PLAN	13"	(22) 10d NAILS, EACH END	2x BLOCKING AS REQUIRED	---
ST2A	A	SIMPSON CS14	PER PLAN	16"	(30) 10d NAILS, EACH END	2x BLOCKING AS REQUIRED	---



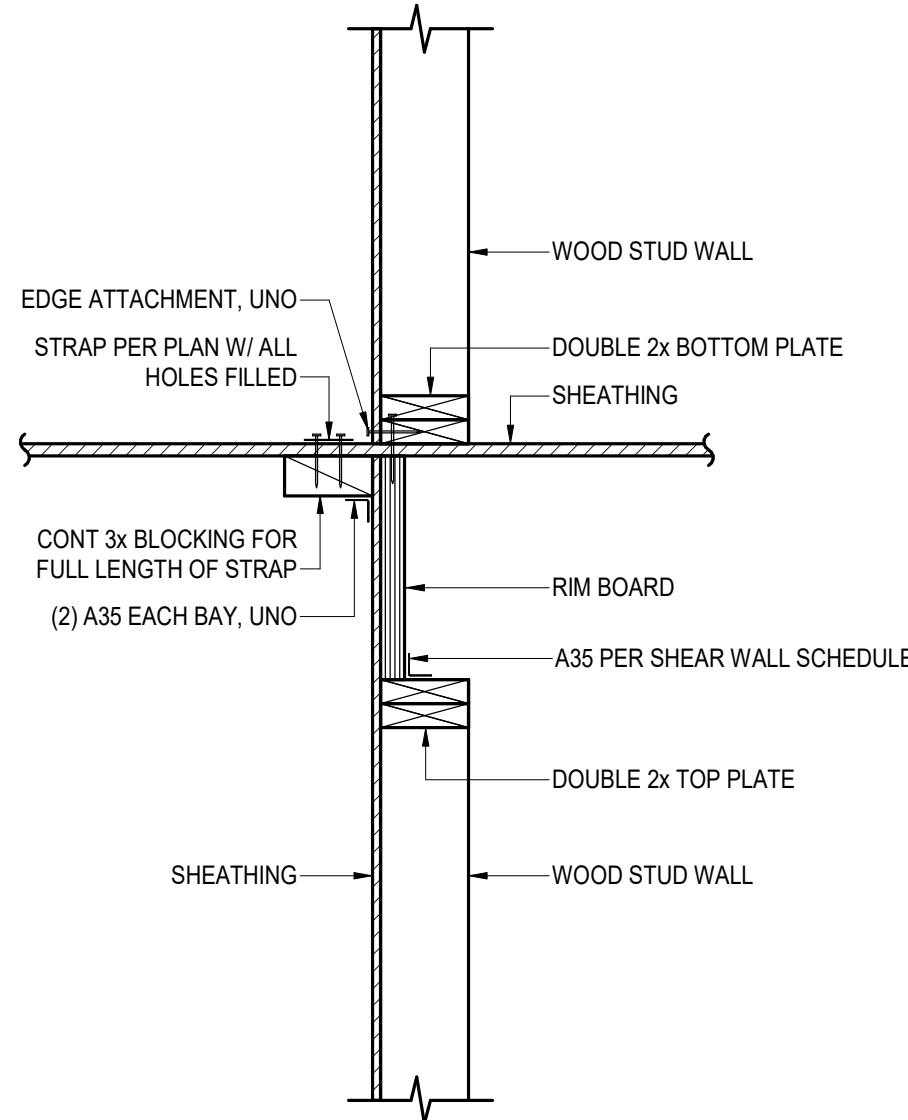
1 TYPICAL WOOD STRAP SCHEDULE
SCALE: NTS

HOLDOWN SCHEDULE					
NOTES: 1. AT STRAP HOLDOWNS, SEE MFR'S SPECIFICATIONS FOR DEFINITION OF CLEAR SPAN DIMENSIONS. 2. SEE TYPICAL DETAILS FOR SHARED HOLDOWN CONNECTION AT INTERSECTING SHEAR WALLS.					
KEYED NOTES: A. (2) 10d NAILS AT 4" OC. B. (2) ROWS OF 10d NAILS STAGGERED AT 2" OC.					
MARK	HOLDOWN TYPE	CONNECTION TO STUDS	BUILT-UP STUD CONNECTION AT EACH PLY	CONNECTION AT FOUNDATION	REMARKS
CS16	SIMPSON CS16 STRAP	(20) 10d NAILS AT 2x MEMBER	---	---	STRAP LENGTH = 22" + CLEAR SPAN
CS14	SIMPSON CS14 STRAP	(26) 10d NAILS AT 2x MEMBER	---	---	STRAP LENGTH = 30" + CLEAR SPAN
(2) CS16	(2) SIMPSON CS16 STRAP	(20) 10d NAILS EACH AT (2) 2x MEMBER	NOTE A	---	STRAP LENGTH = 22" + CLEAR SPAN
(2) CS14	(2) SIMPSON CS14 STRAP	(26) 10d NAILS EACH AT (2) 2x MEMBER	NOTE A	---	STRAP LENGTH = 30" + CLEAR SPAN
CMST14	SIMPSON CMST14 STRAP	(66) 10d NAILS AT (2) 2x MEMBER	NOTE A	---	STRAP LENGTH = 60" + CLEAR SPAN
(2) CMST14	(2) SIMPSON CMST14 STRAP	(66) 10d NAILS EACH AT (4) 2x MEMBER	NOTE A	---	STRAP LENGTH = 60" + CLEAR SPAN
CMST12	SIMPSON CMST12 STRAP	(86) 10d NAILS AT (2) 2x MEMBER	NOTE A	---	STRAP LENGTH = 78" + CLEAR SPAN
HDU5	SIMPSON HDU5-SDS2.5	(14) 1/4"x2 1/2" SDS SCREWS AT (2) 2x MEMBER	NOTE A	5/8" DIA THREADED ROD ANCHOR	---
HDU8	SIMPSON HDU8-SDS2.5	(20) 1/4"x2 1/2" SDS SCREWS AT (3) 2x MEMBER	NOTE B	7/8" DIA THREADED ROD ANCHOR	---
HDU11	SIMPSON HDU11-SDS2.5	(30) 1/4"x2 1/2" SDS SCREWS AT 6x6 MEMBER	---	1" DIA THREADED ROD ANCHOR	---
HDU14	SIMPSON HDU14-SDS2.5	(36) 1/4"x2 1/2" SDS SCREWS AT 6x6 MEMBER	---	1" DIA THREADED ROD ANCHOR	HEAVY-HEX ANCHOR NUT REQUIRED

2 HOLDOWN SCHEDULE
SCALE: NTS



3 TYPICAL HOLDOWN ANCHOR AT CONCRETE FOUNDATION WALL
SCALE: NTS



4 TYPICAL DRAG STRAP DETAIL
SCALE: NTS



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394



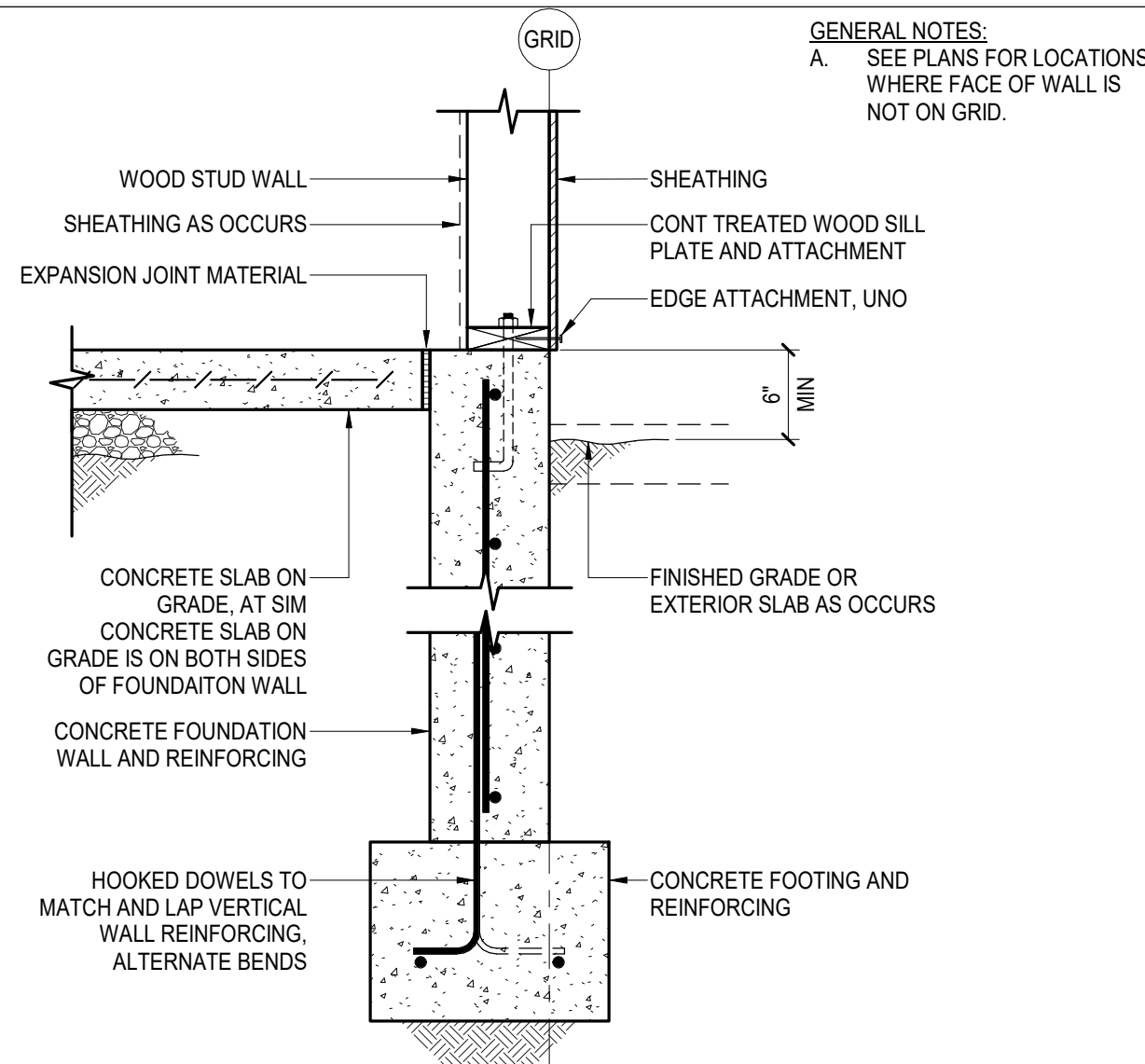
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

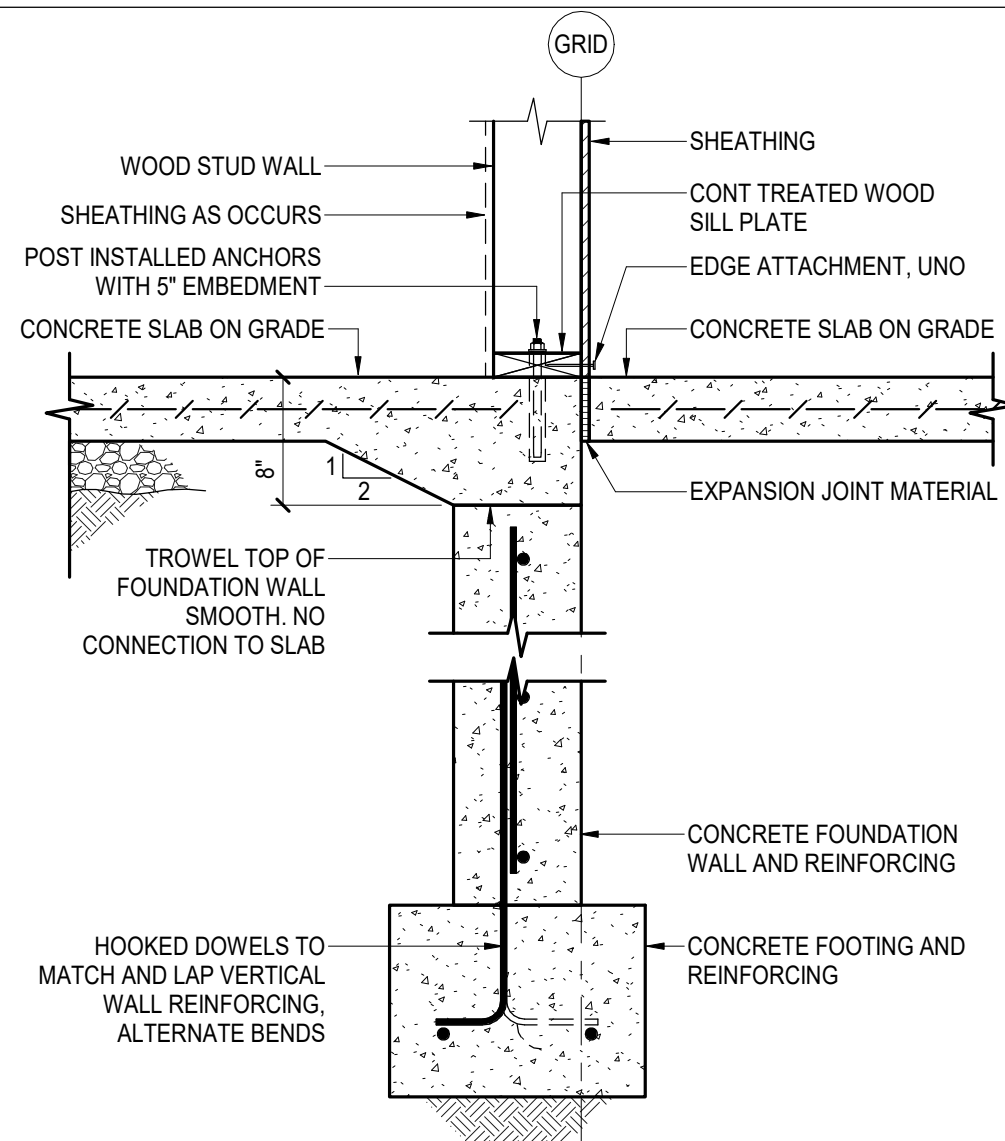
JOB NO.	77006.00
DATE	2023.03.08
DRAWN	MEH
REVIEWED	JKR

SHEET NAME
SCHEDULES & TYP DETAILS -
SHEAR WALLS & HOLDOWNS

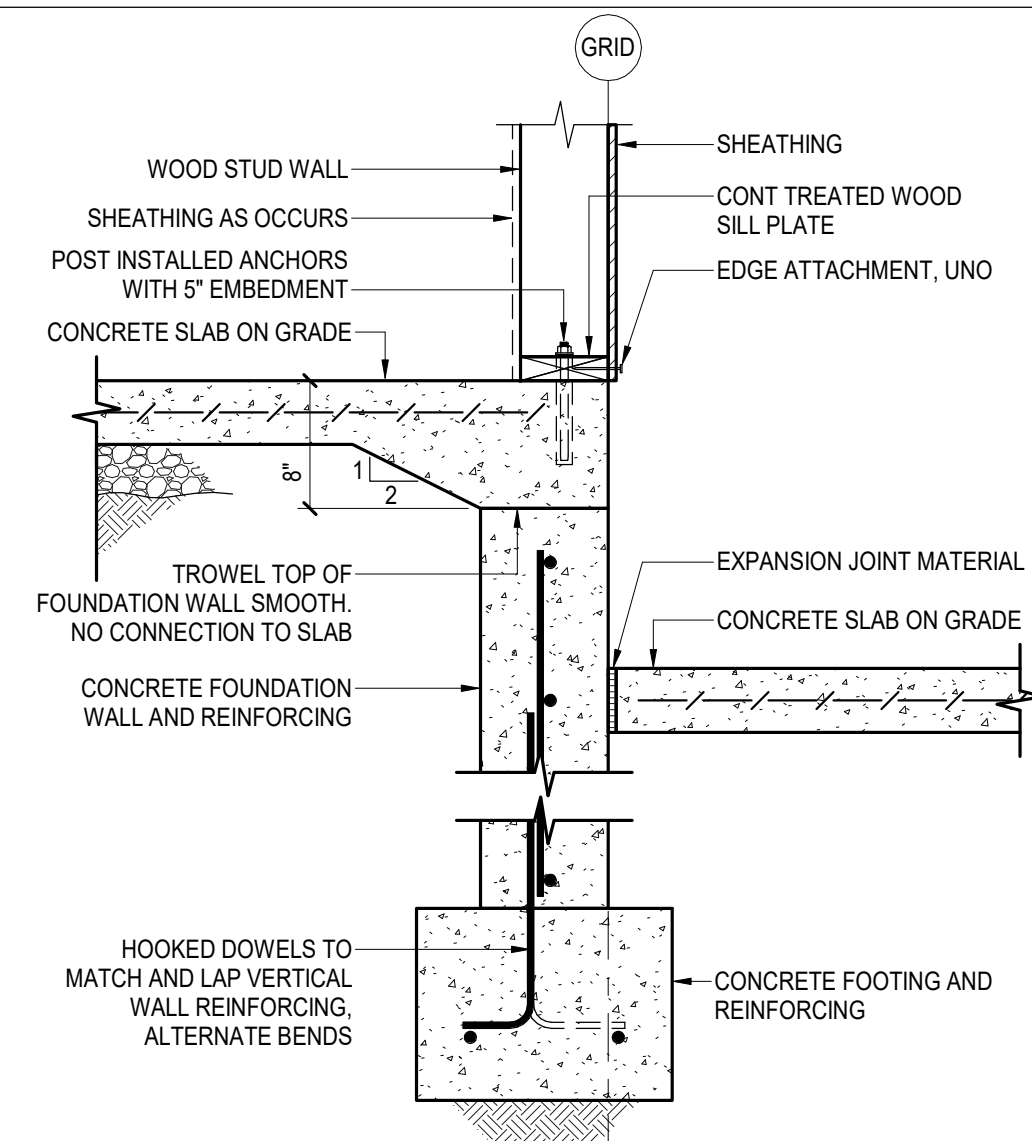
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S6.07



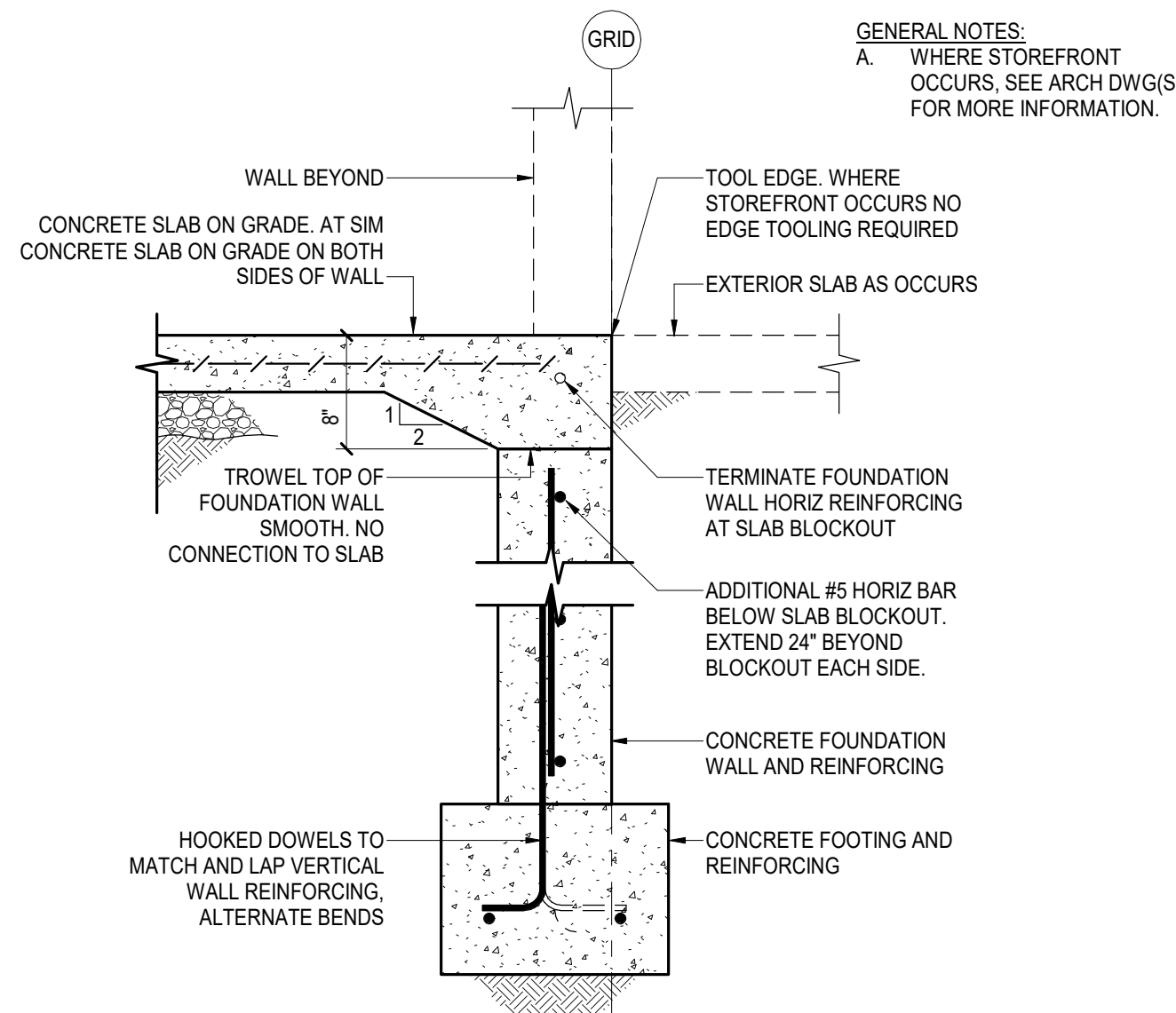
1 WOOD STUD WALL AT CONCRETE FOUNDATION
SCALE: NTS



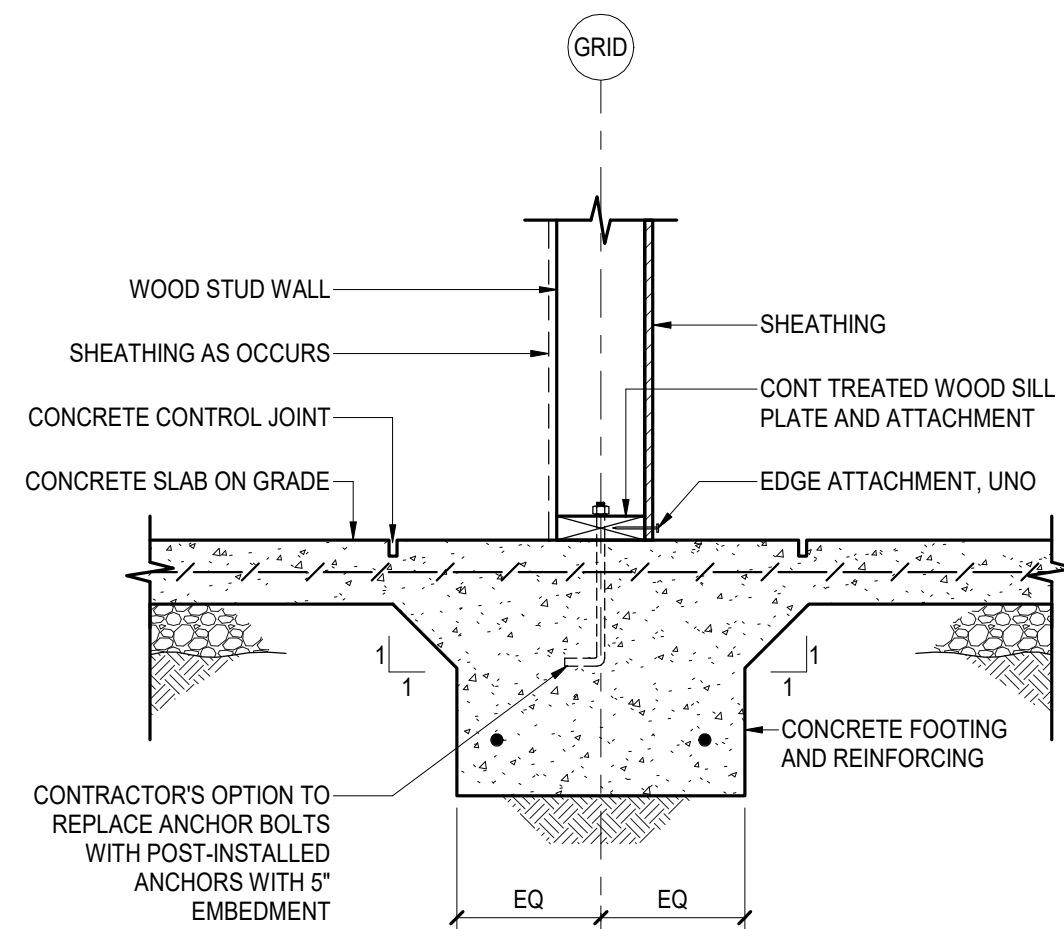
2 WOOD STUD WALL AT CONCRETE FOUNDATION
SCALE: NTS



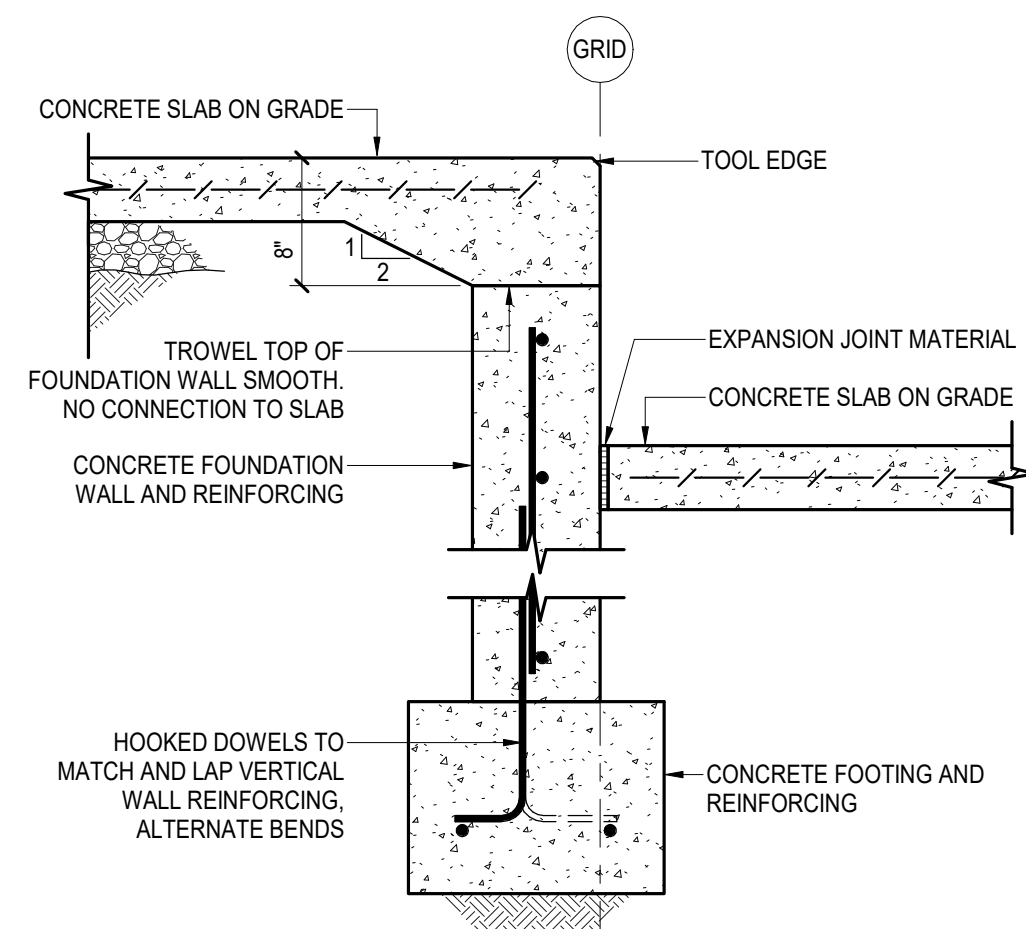
3 WOOD STUD WALL AT CONCRETE FOUNDATION
SCALE: NTS



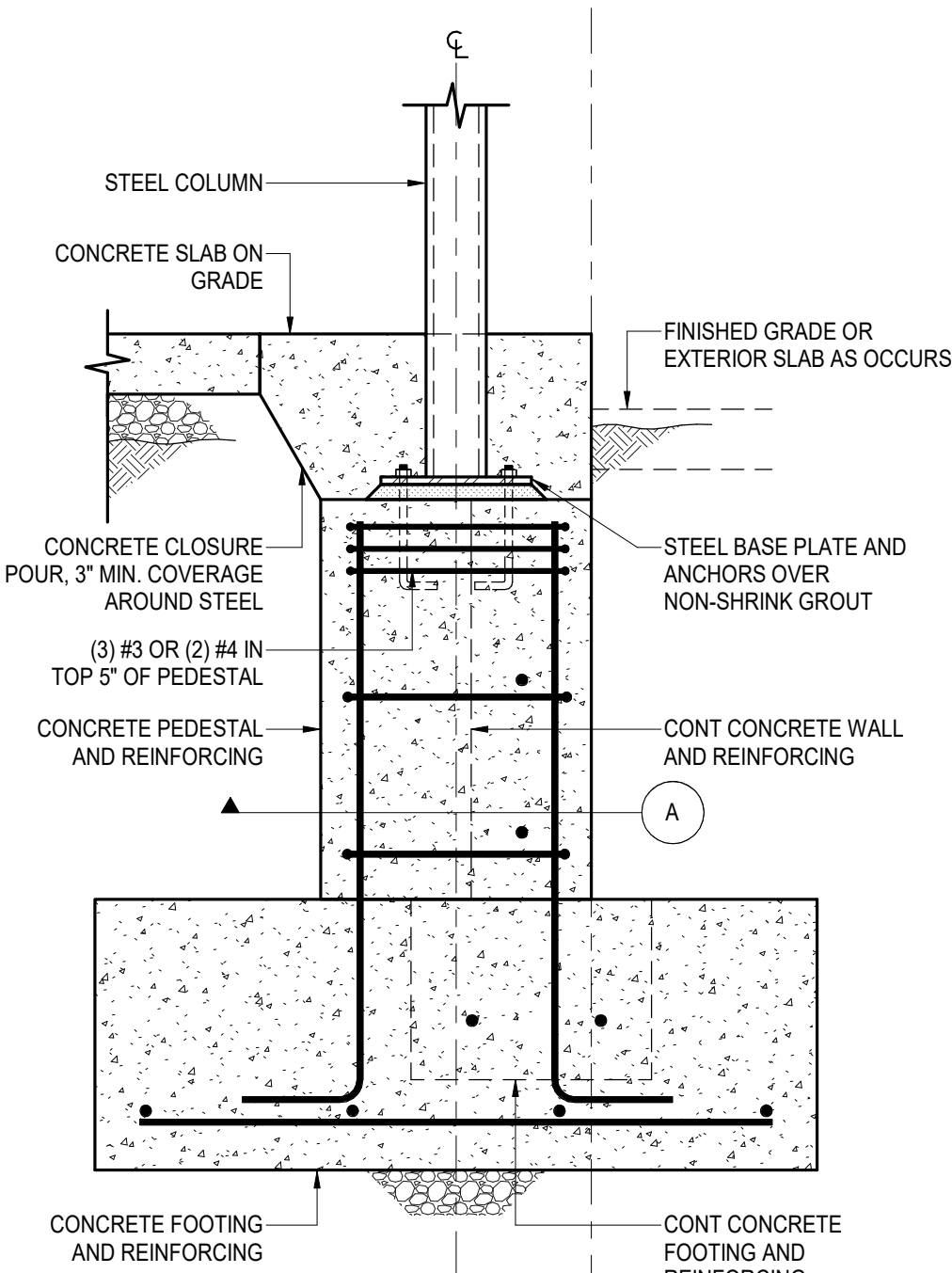
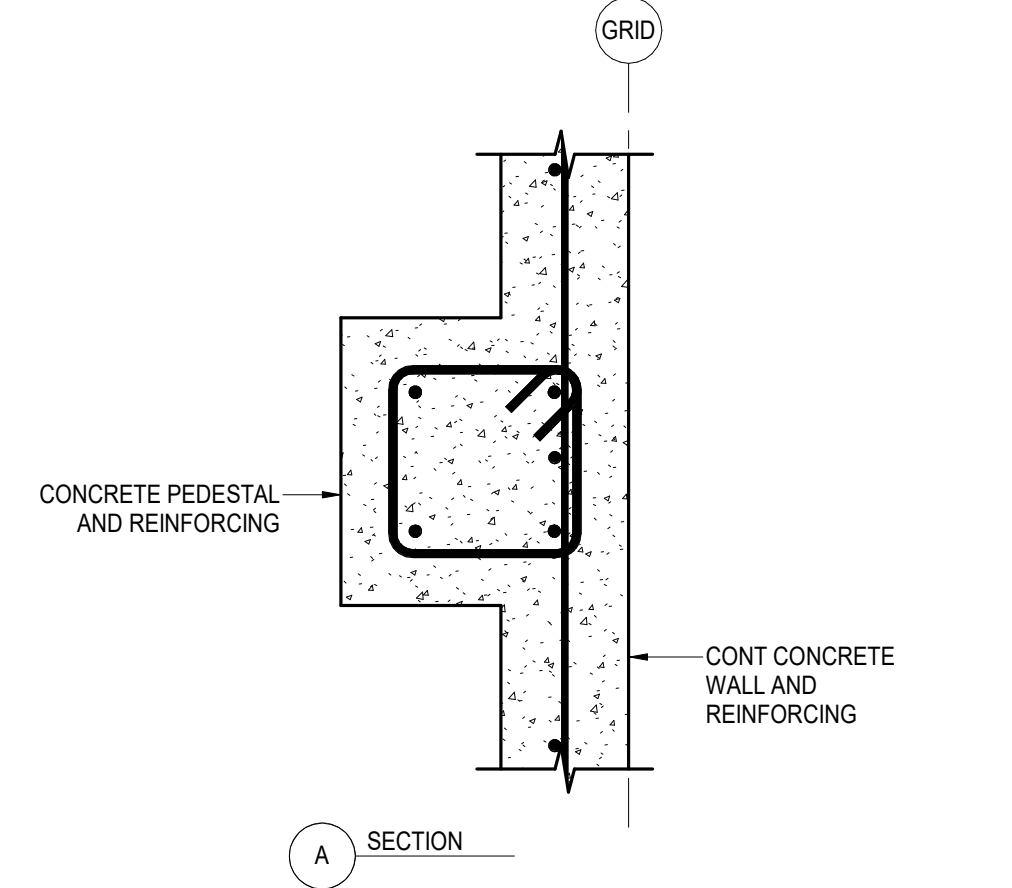
5 WALL OPENING AT CONCRETE FOUNDATION
SCALE: NTS



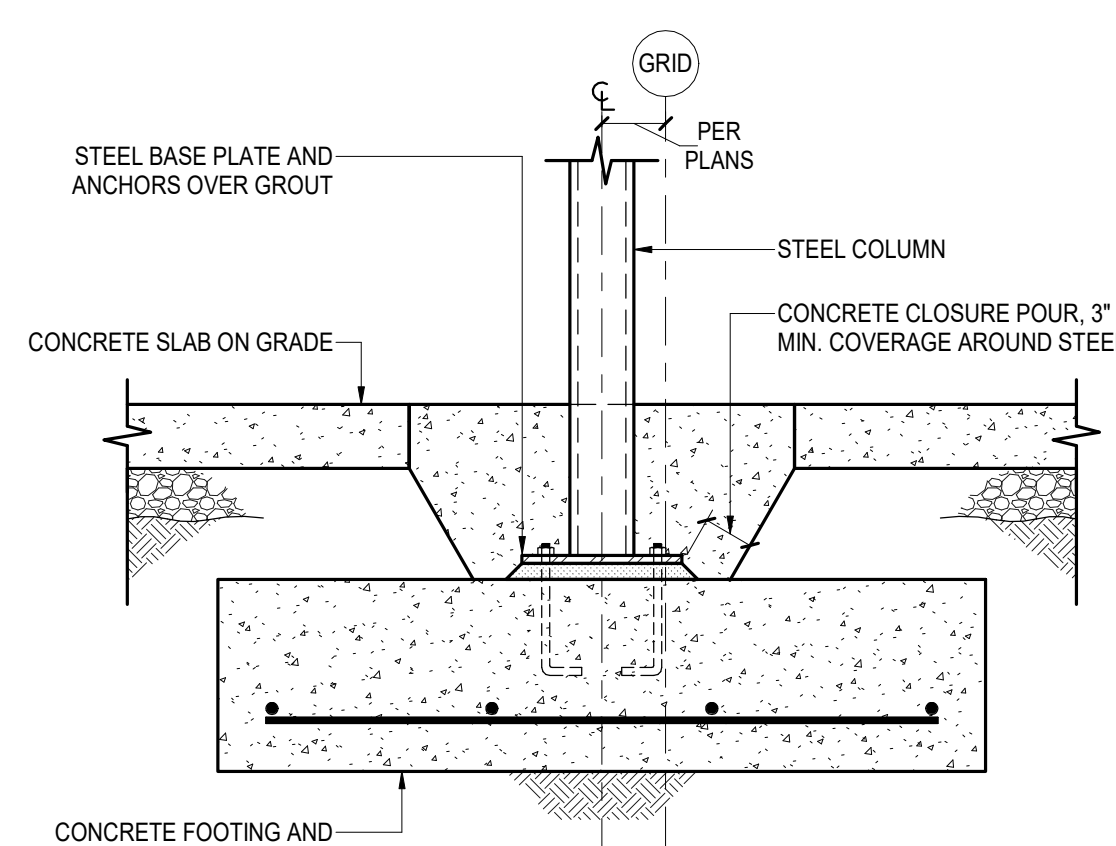
6 INTERIOR WOOD STUD WALLS AT CONCRETE FOOTING
SCALE: NTS



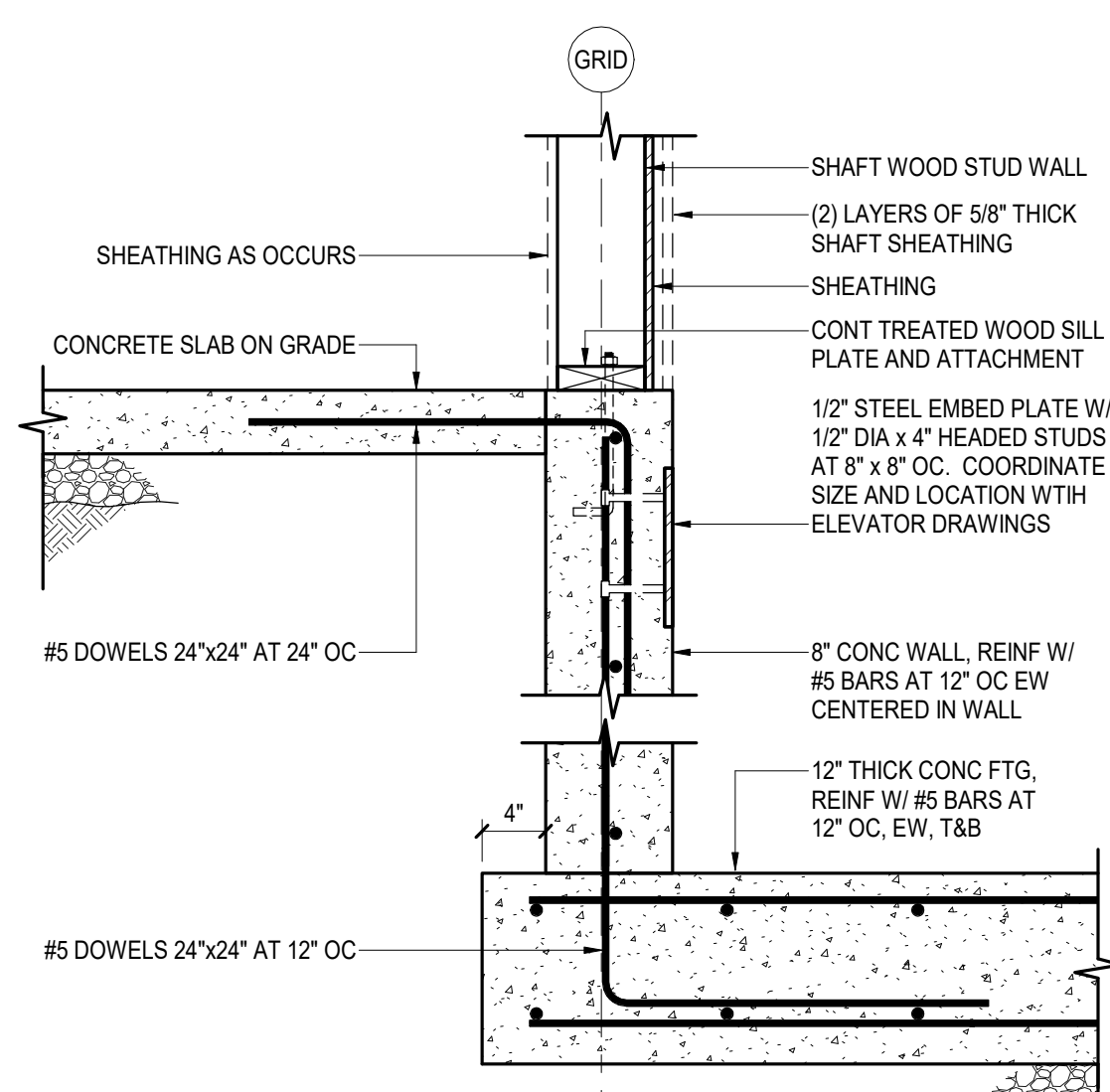
7 CONCRETE SLAB AT CONCRETE FOUNDATION
SCALE: NTS



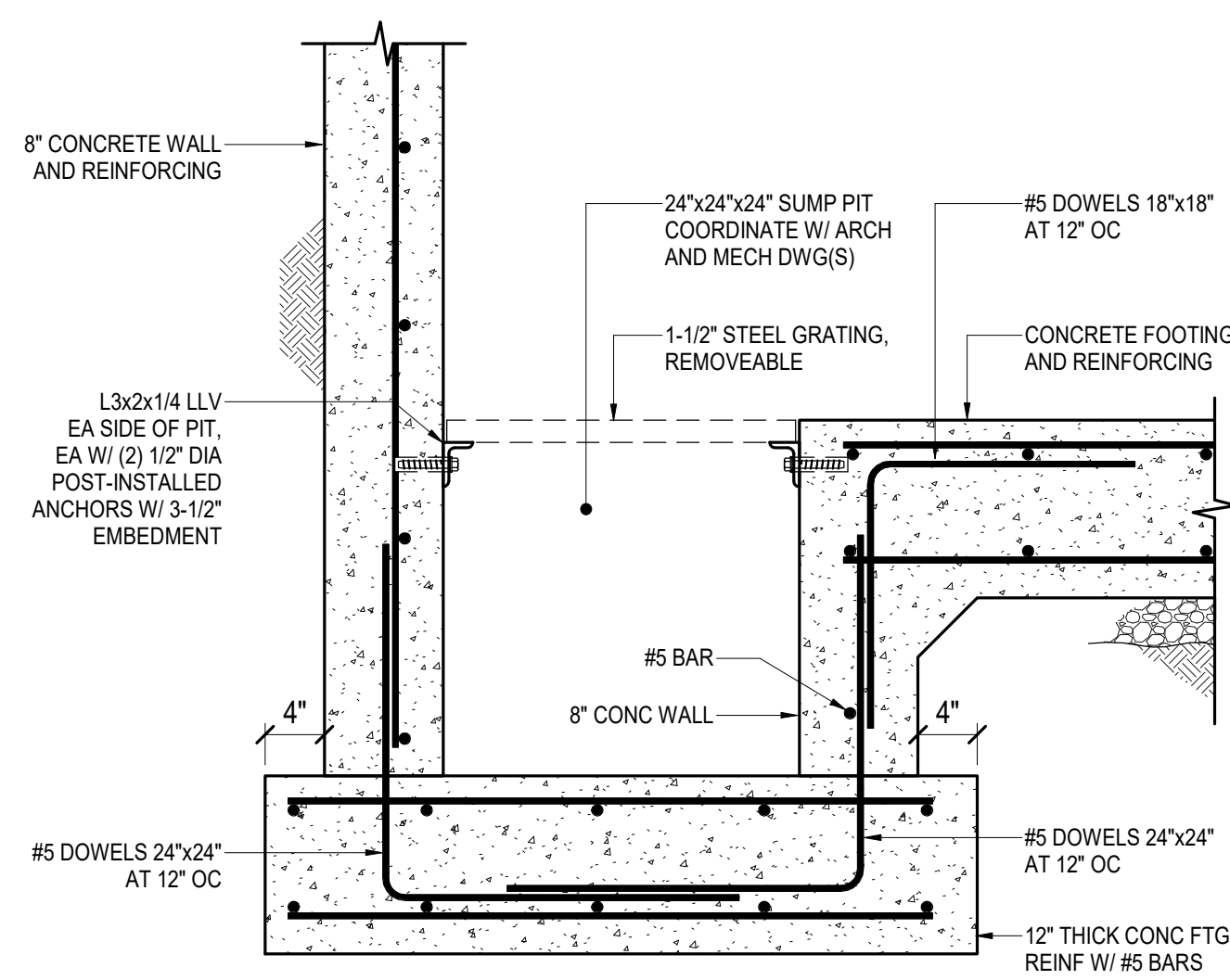
11 STEEL COLUMN AT CONCRETE PEDESTAL
SCALE: NTS



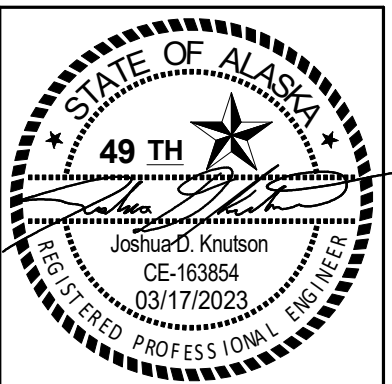
8 STEEL COLUMN AT CONCRETE FOOTING
SCALE: NTS



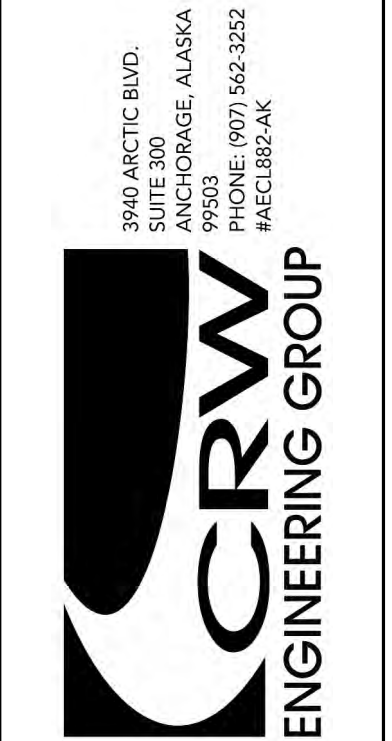
9 WOOD STUD WALL AT CONCRETE PIT
SCALE: NTS



10 ELEVATOR SUMP PIT
SCALE: NTS



CERTIFICATE OF AUTHORIZATION NO. SPARK DESIGN, LLC #AEC1394



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

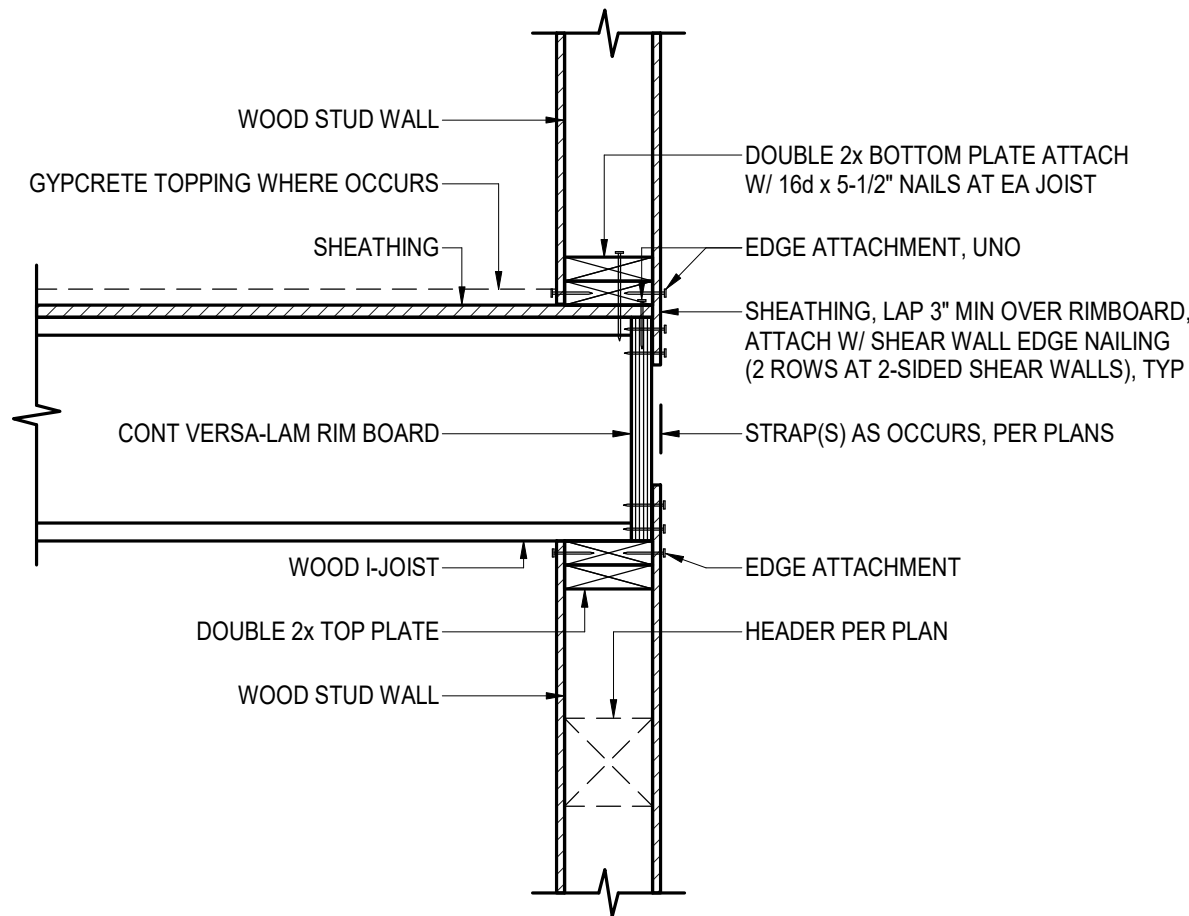
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	77006.00
DATE	2023.03.08
DRAWN	MEH
REVIEWED	JKD

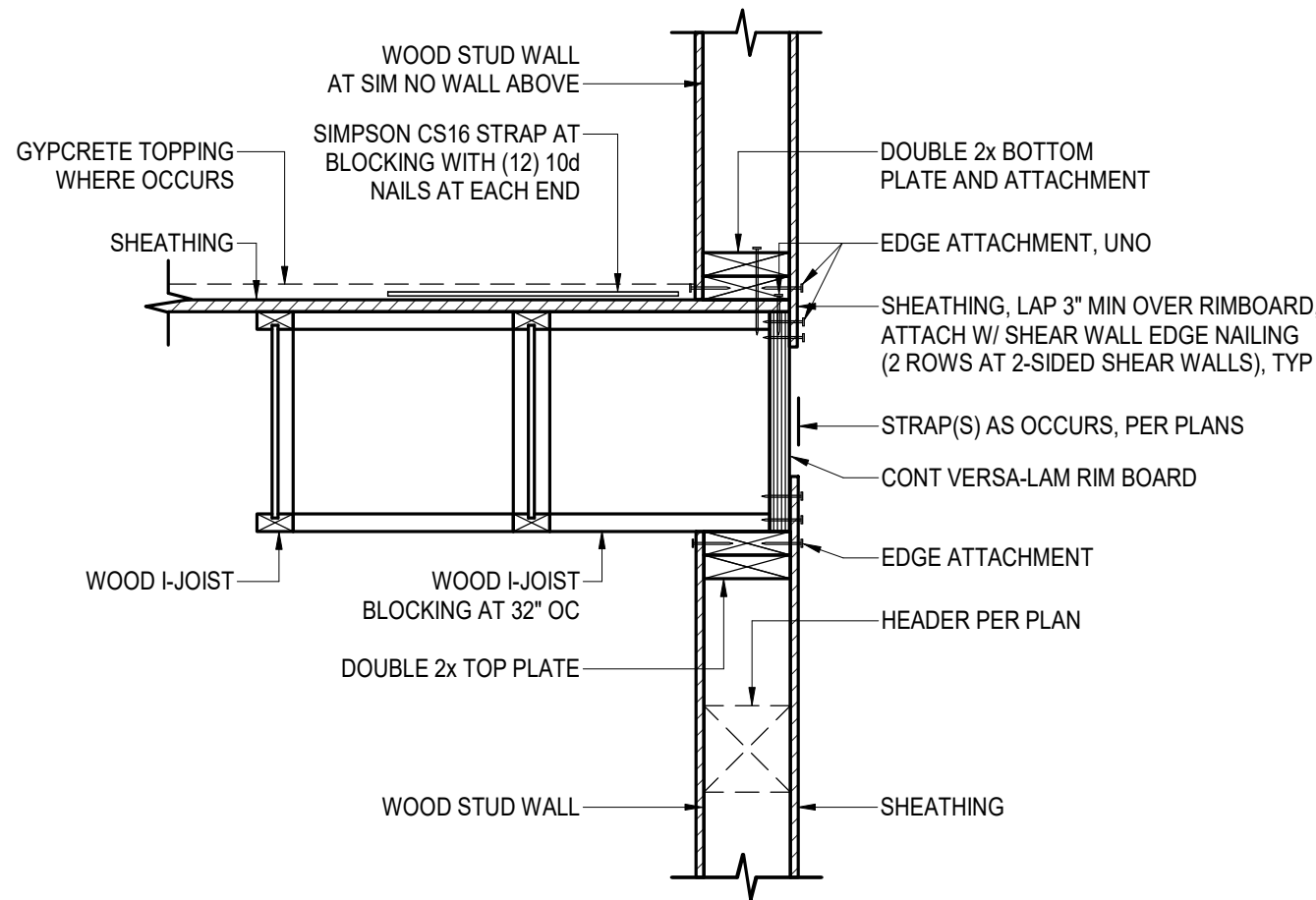
SHEET NAME
FOUNDATION DETAILS

SHEET NO.
S6.11

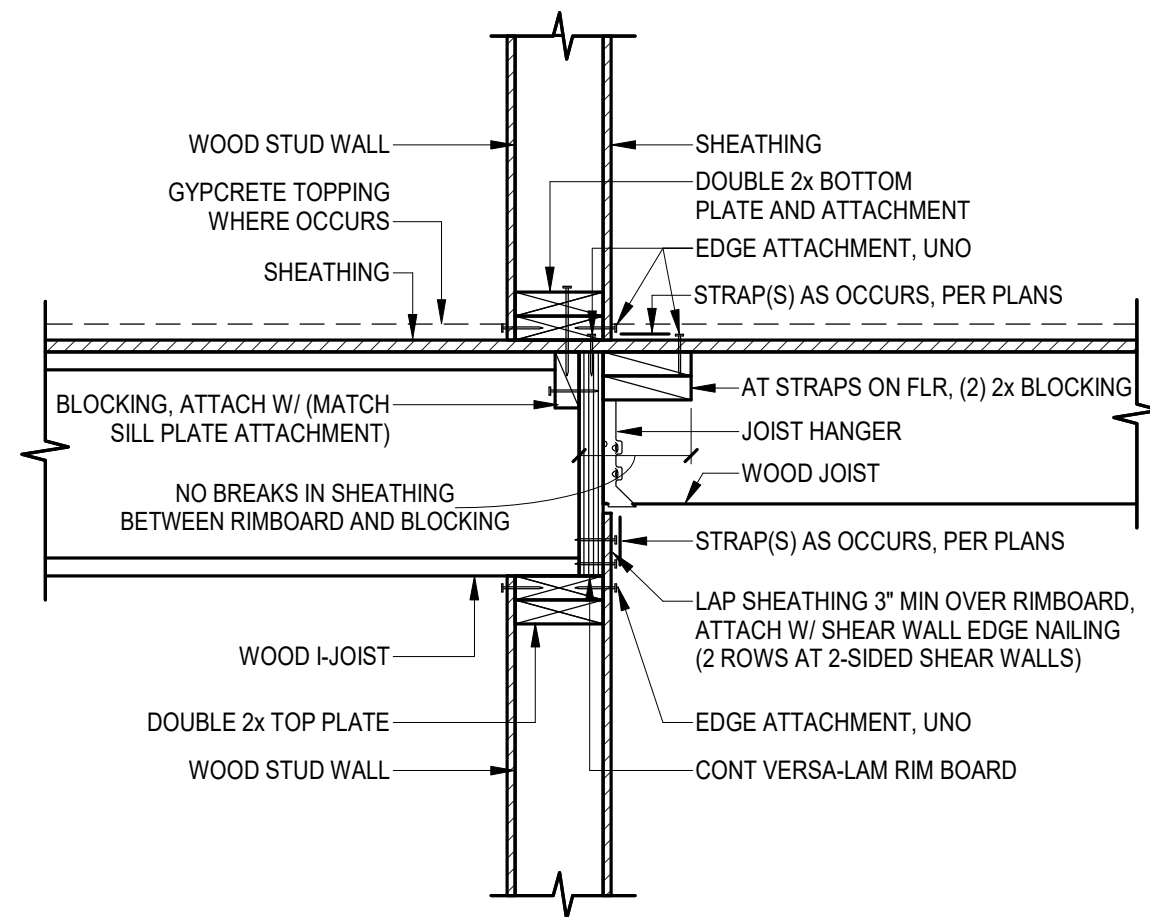
GENERAL NOTES:
A. AT SIM, JOIST ARE SAWN LUMBER.



1 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS

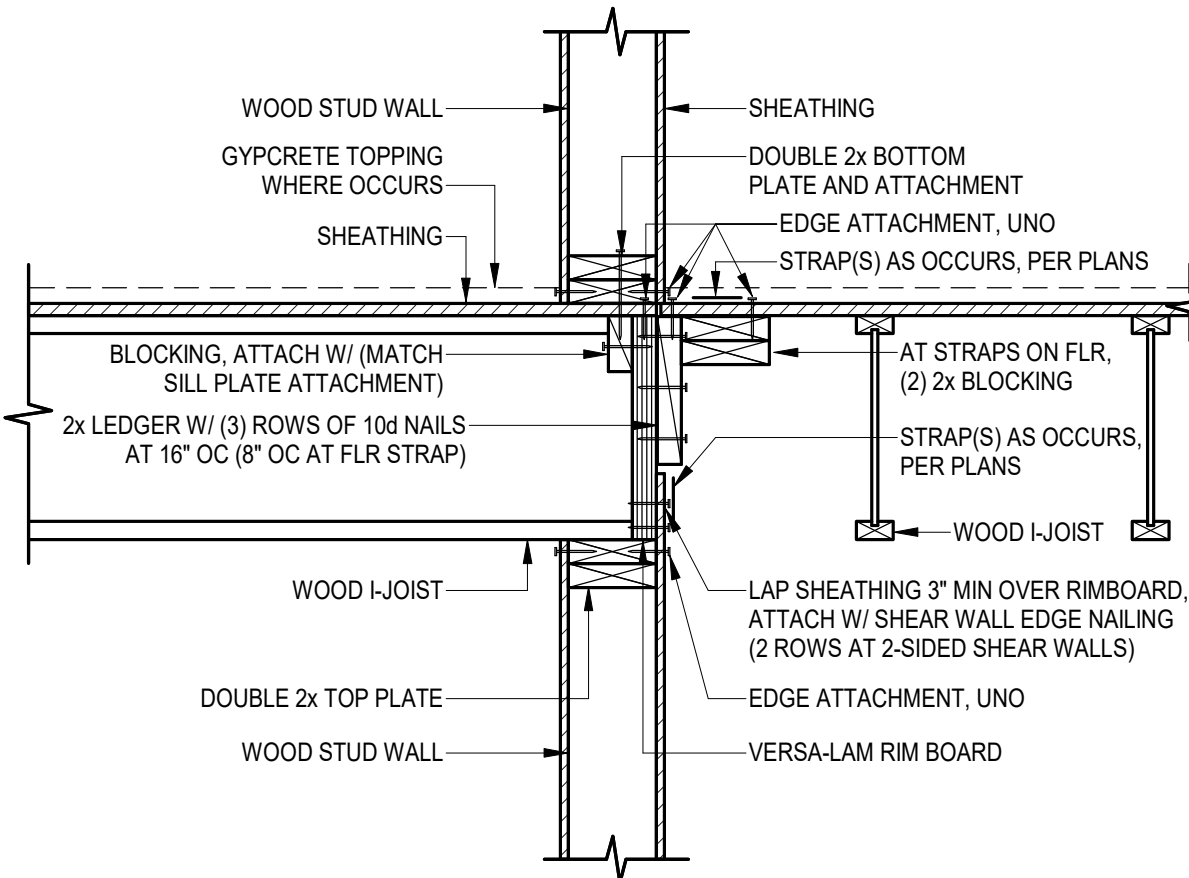


2 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS

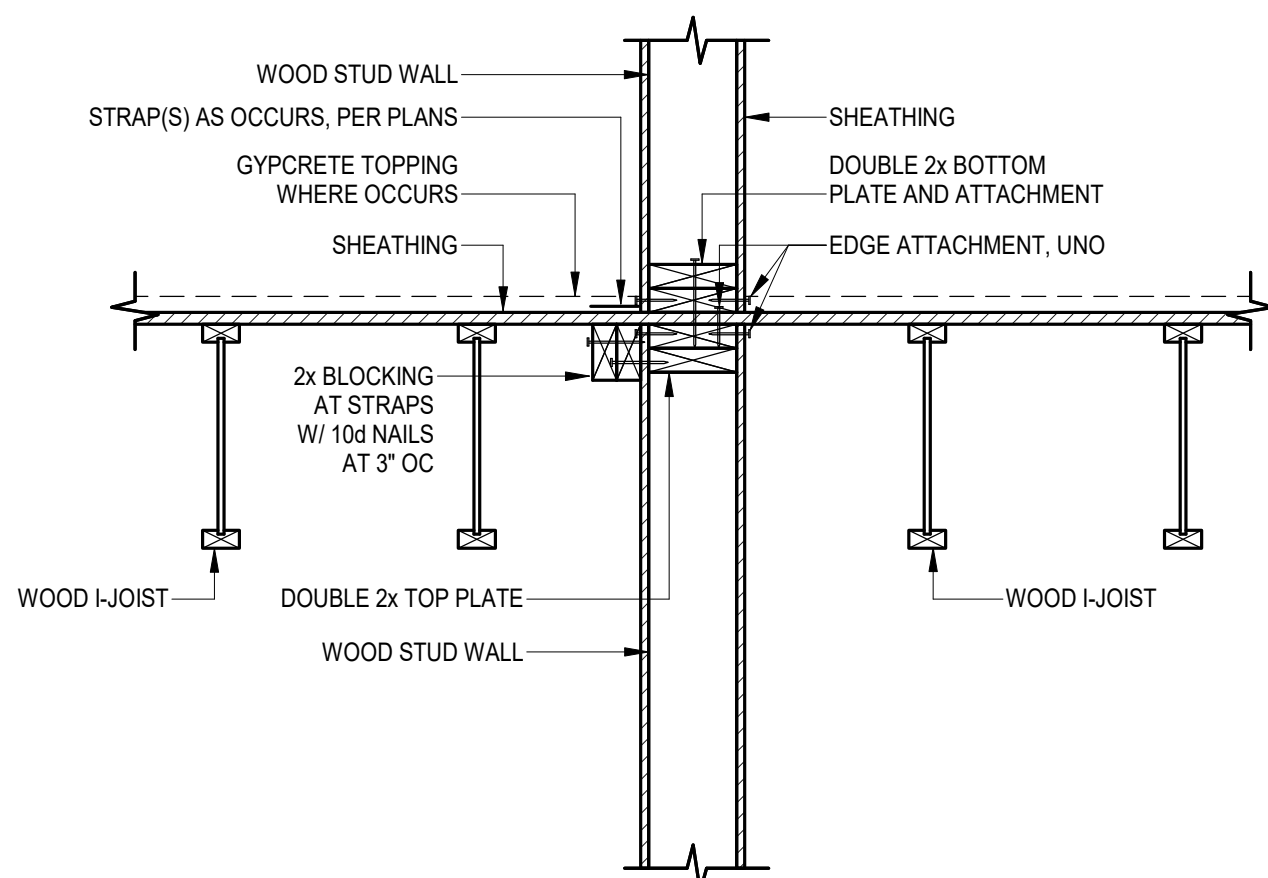


3 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS

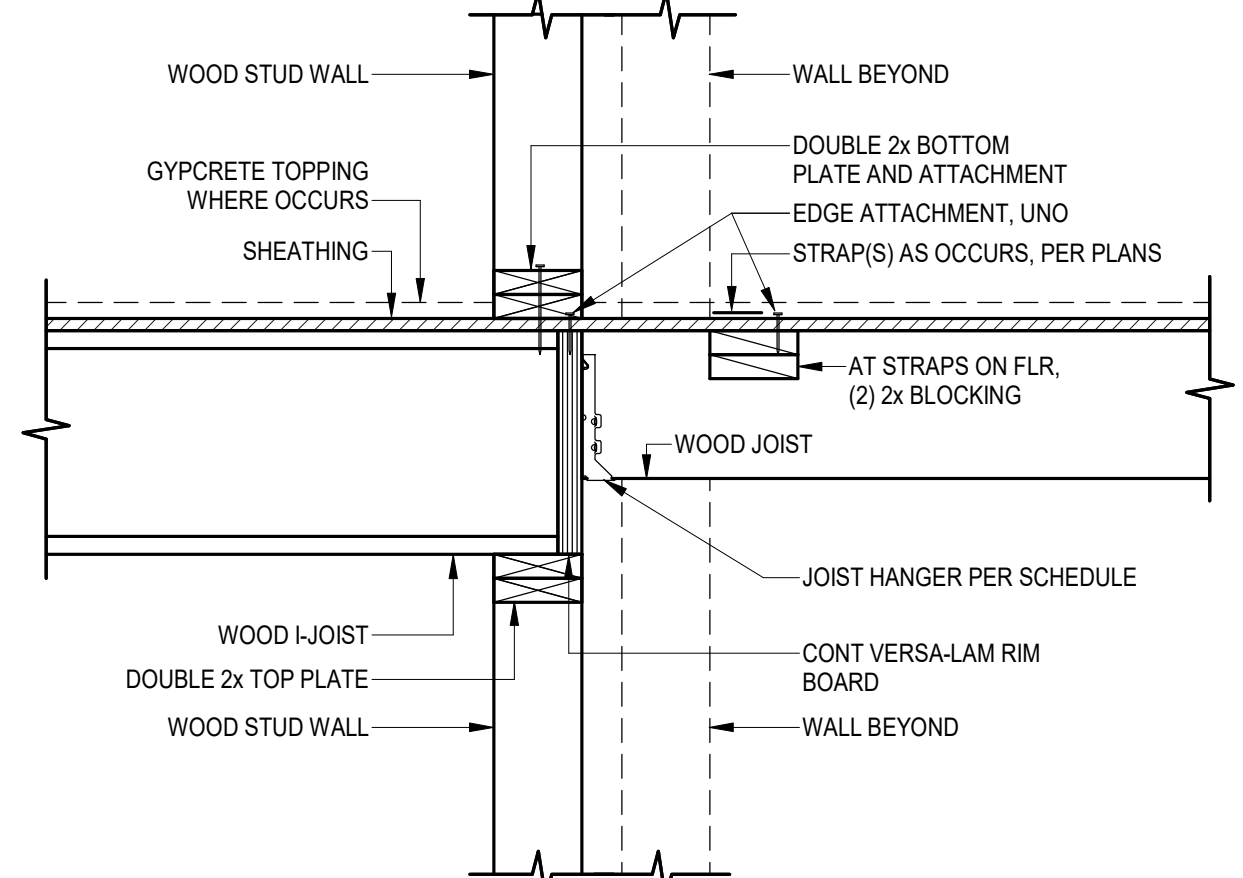
GENERAL NOTE:
A. AT SIM, RIMBOARD AND JOISTS FRAMING INTO WALL ARE SAWN LUMBER



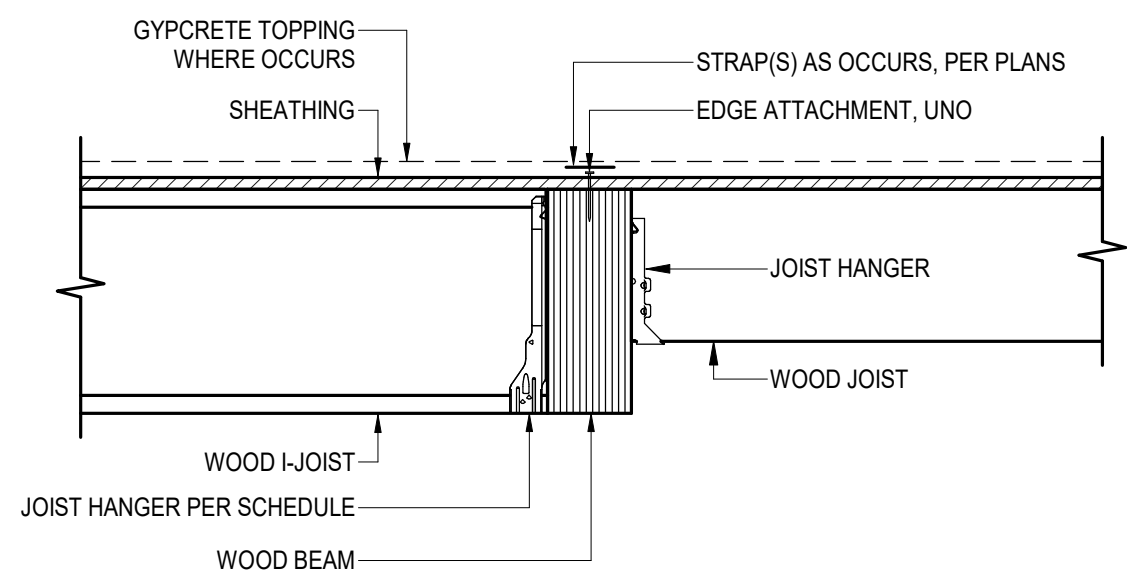
4 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



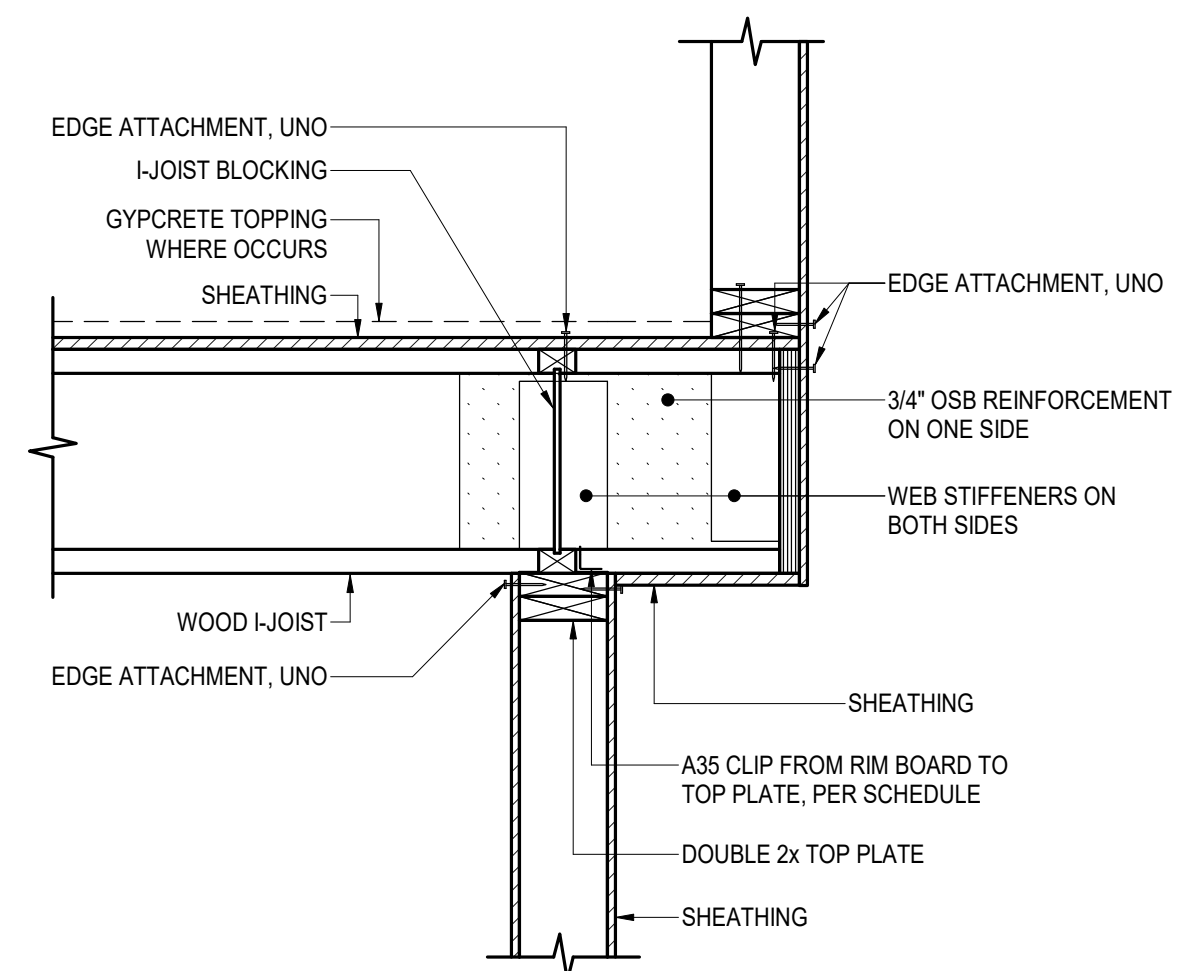
5 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



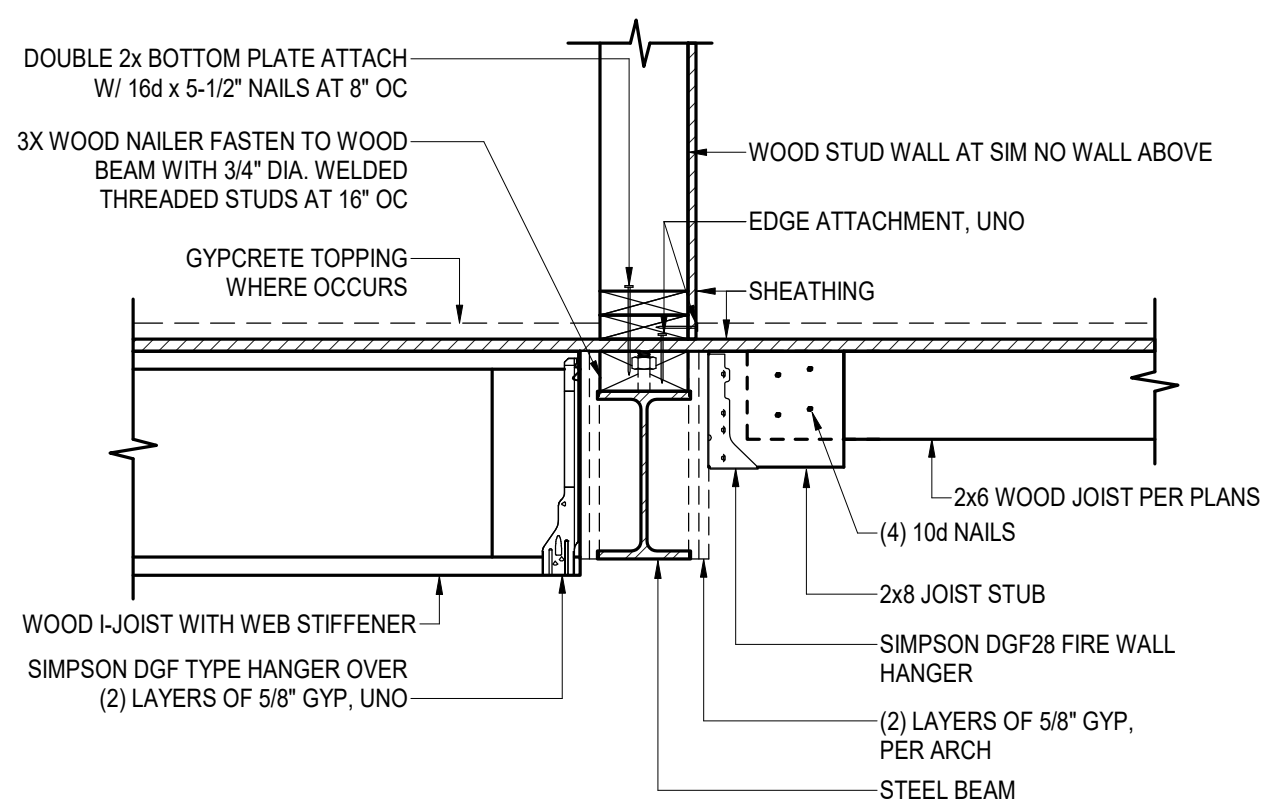
6 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



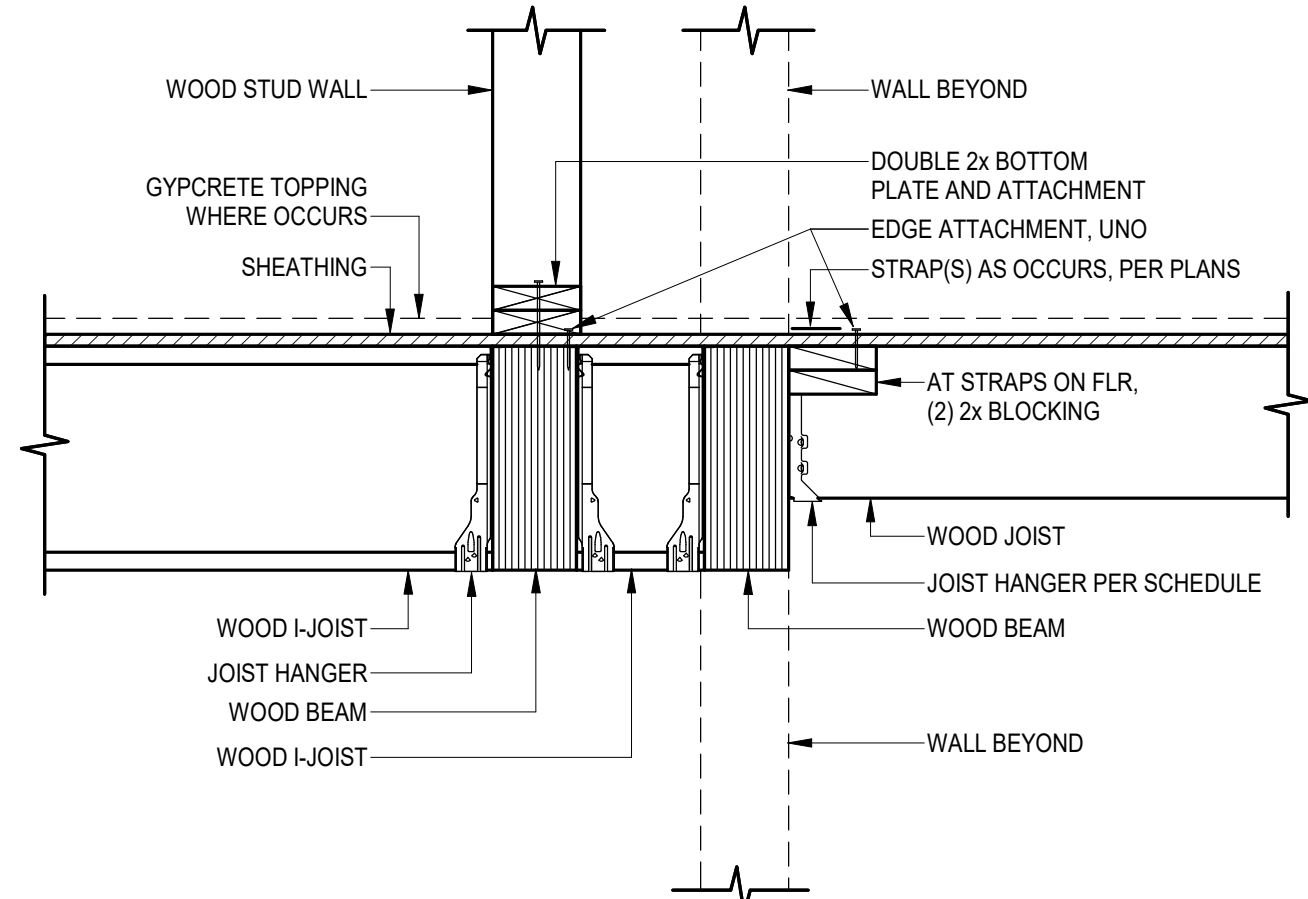
7 WOOD I-JOIST AT WOOD BEAM
SCALE: NTS



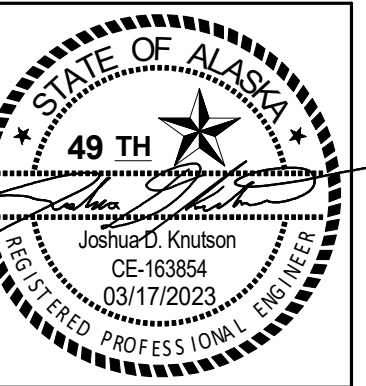
8 WOOD I-JOISTS AT WOOD STUD WALL
SCALE: NTS



9 WOOD I-JOISTS AT STEEL BEAM
SCALE: NTS



10 WOOD I-JOIST AT WOOD BEAM
SCALE: NTS



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394

3442 ARCTIC BLVD.
ANCHORAGE, ALASKA 99503
PHONE (907) 562-3252
#AECL862AK



COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

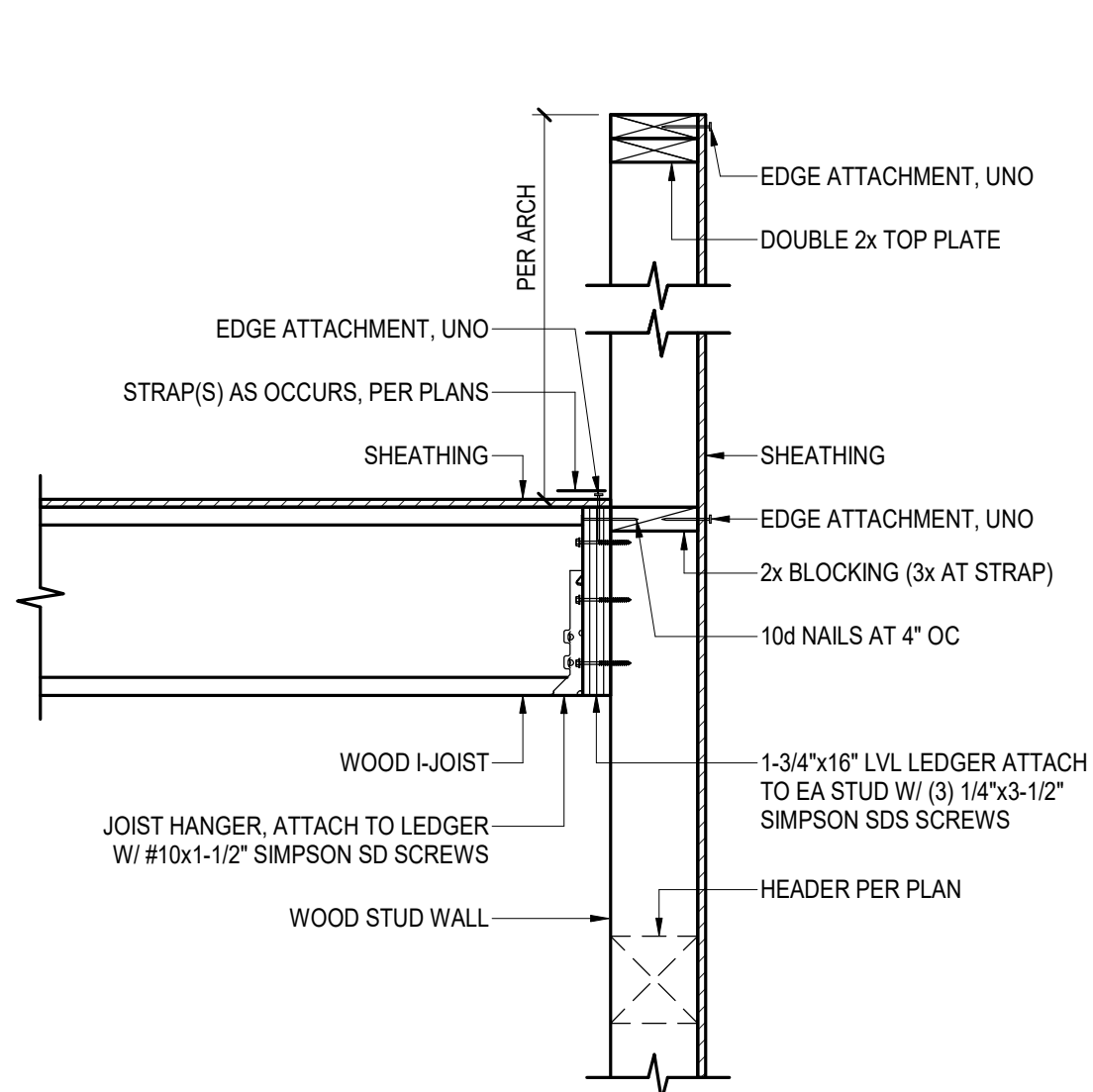
REVISION SCHEDULE

#	DESCRIPTION	DATE

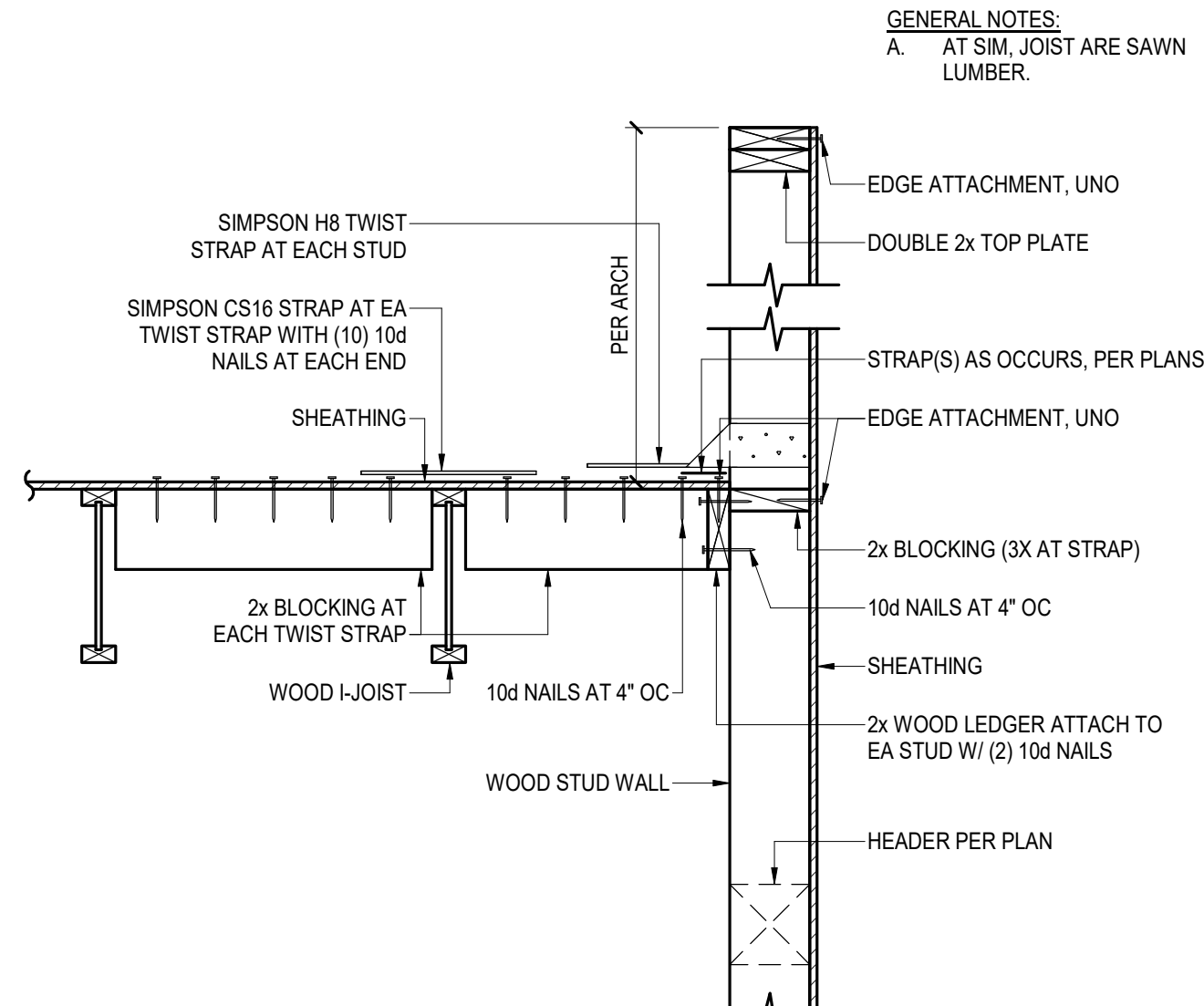
JOB NO. 77006.00
DATE 2023.03.08
DRAWN MEH
REVIEWED JDK

SHEET NAME
FRAMING DETAILS

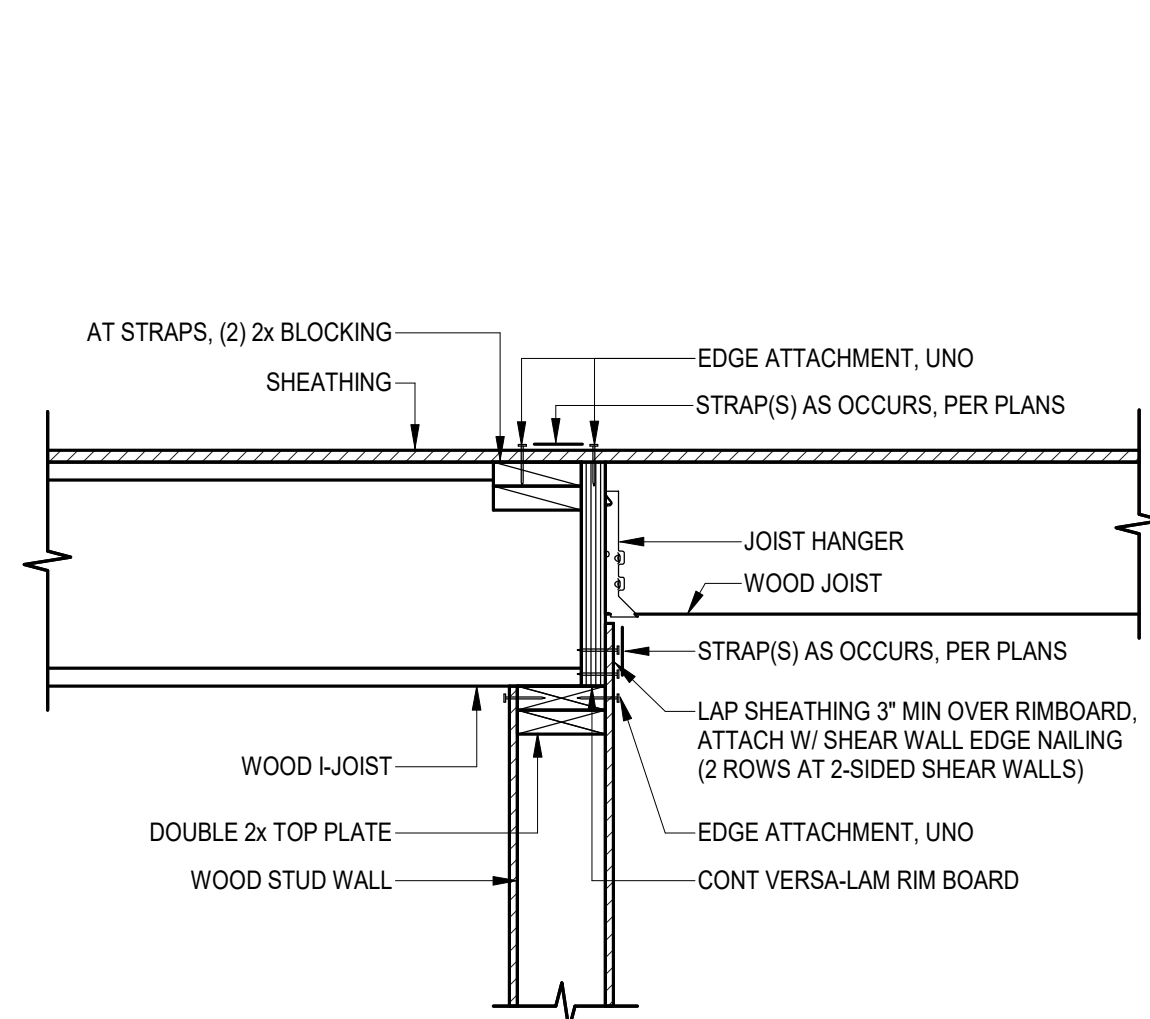
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S6.21



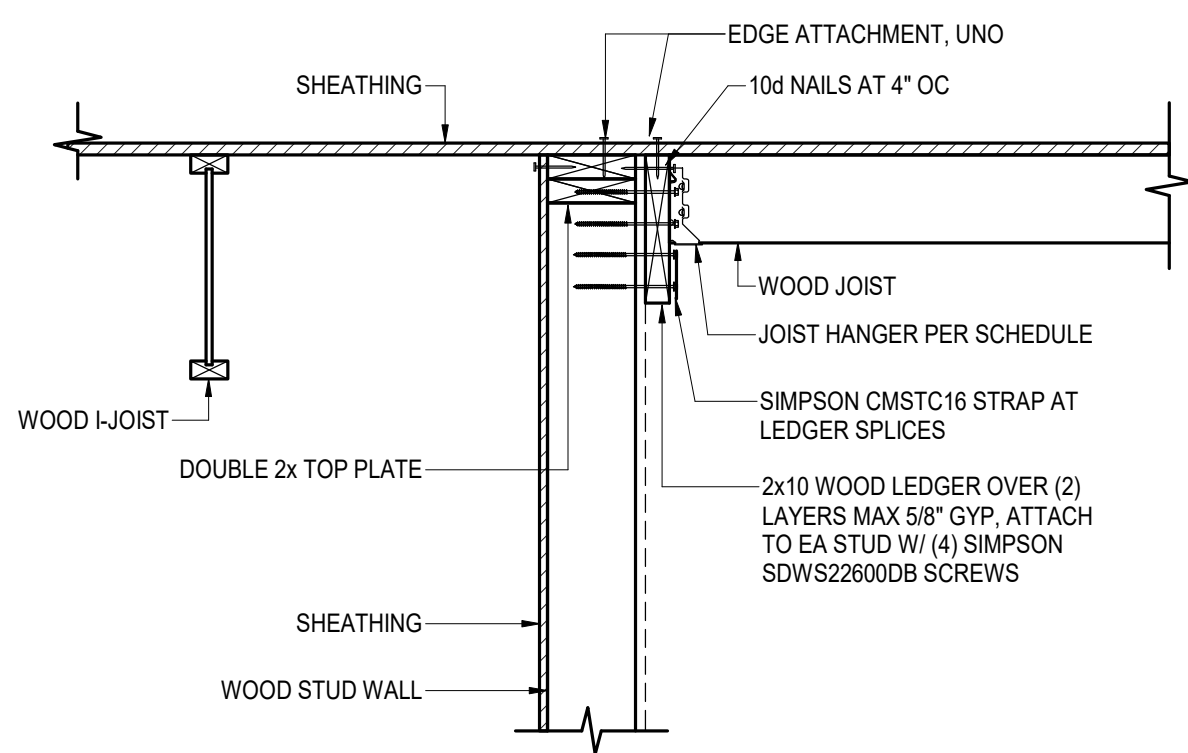
1 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



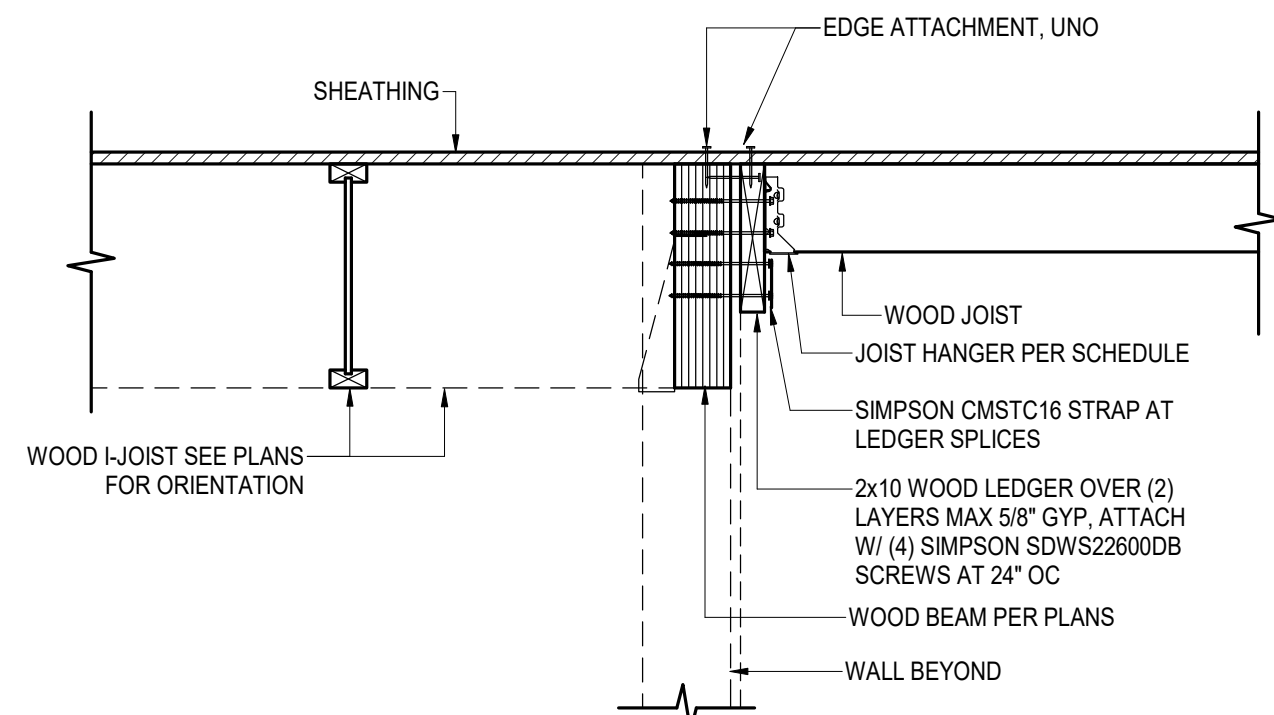
2 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



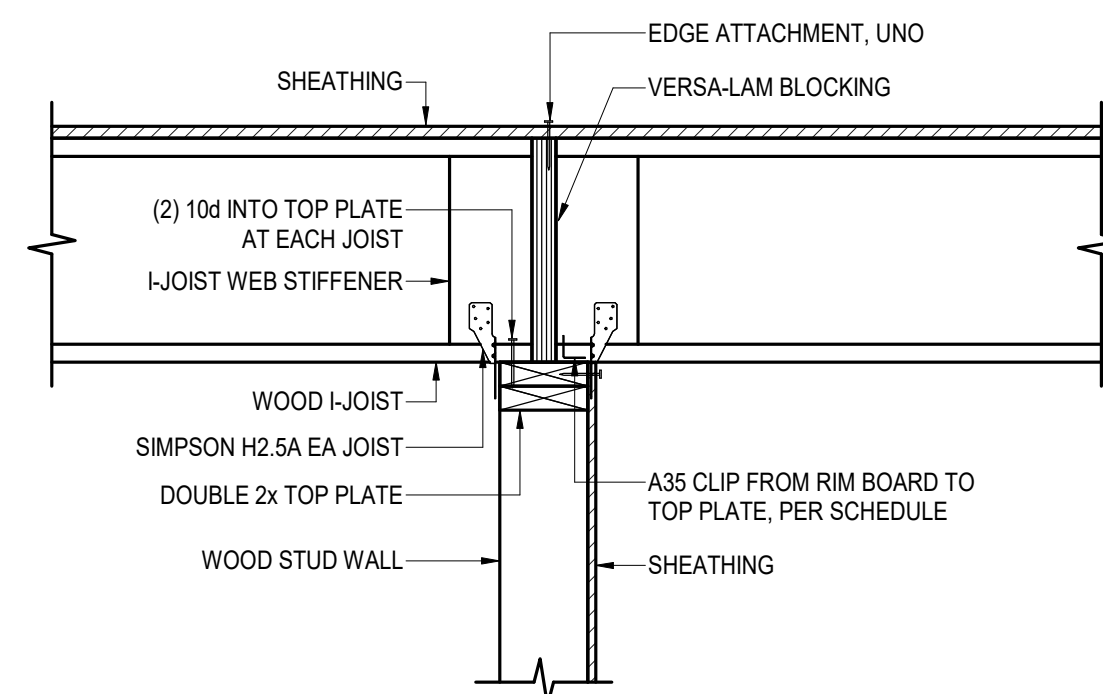
3 WOOD I-JOIST AT WOOD STUD WALL
SCALE: NTS



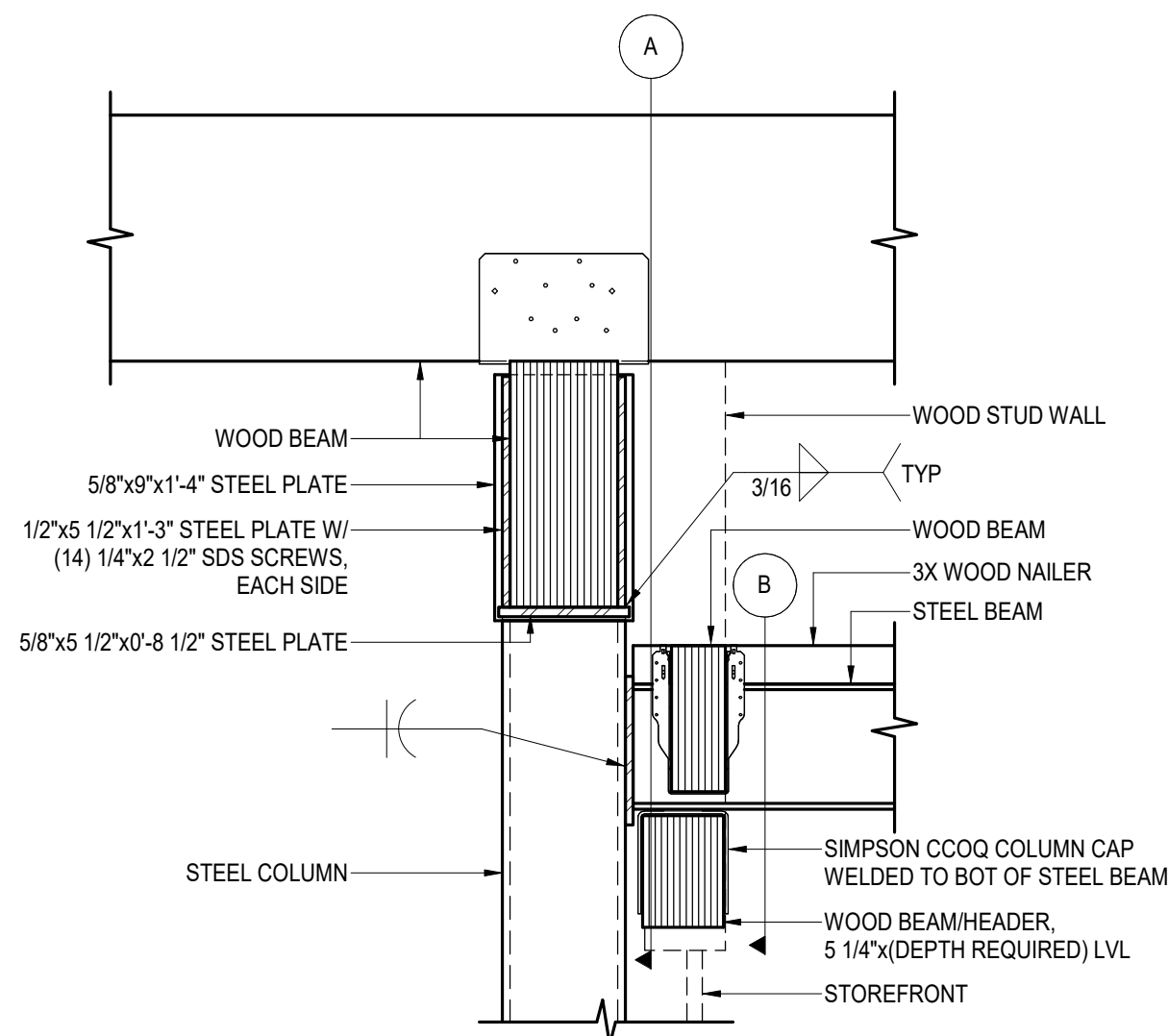
4 WOOD JOIST AT WOOD STUD WALL
SCALE: NTS



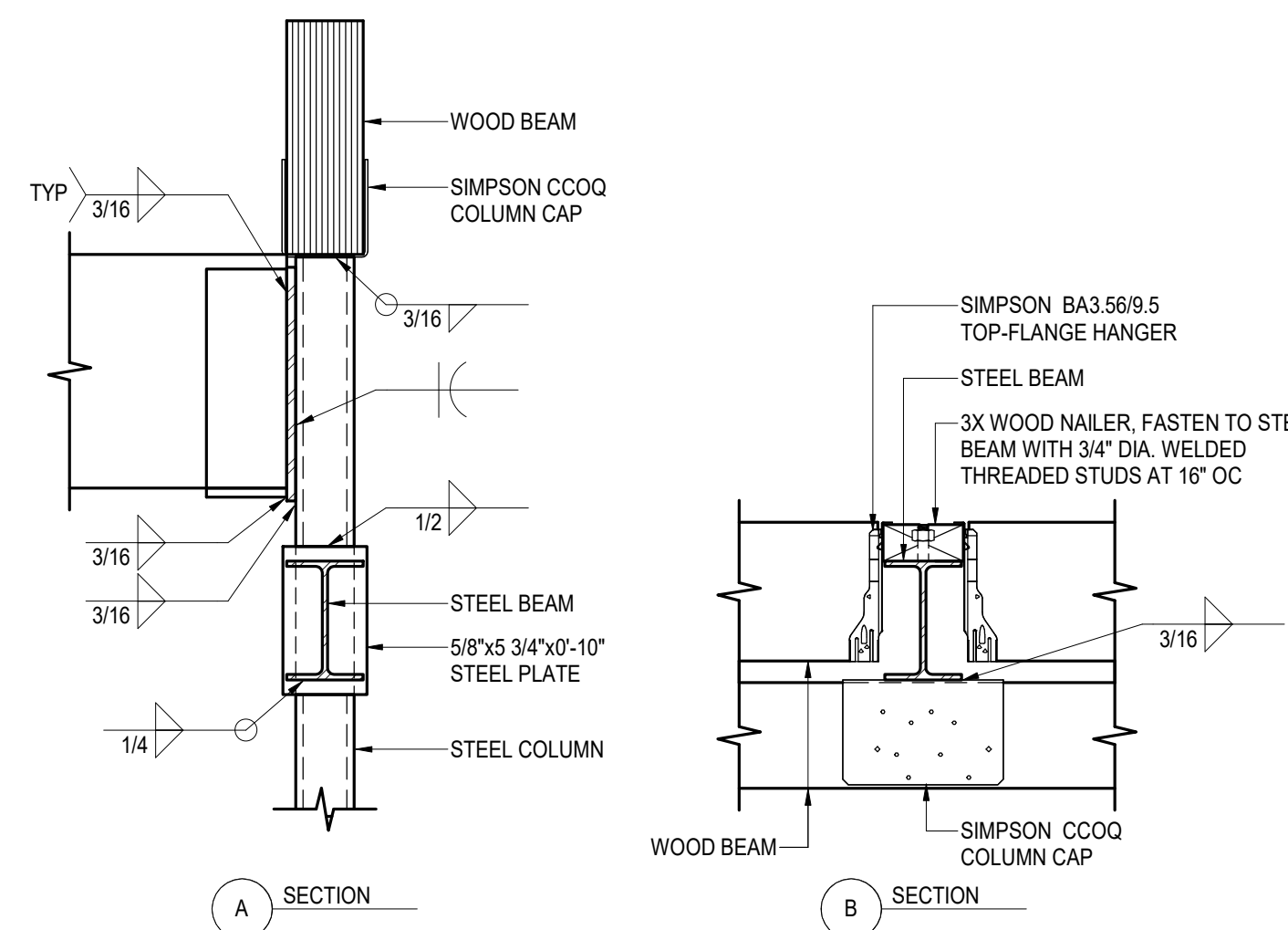
5 WOOD JOIST AT WOOD BEAM/STUD WALL
SCALE: NTS



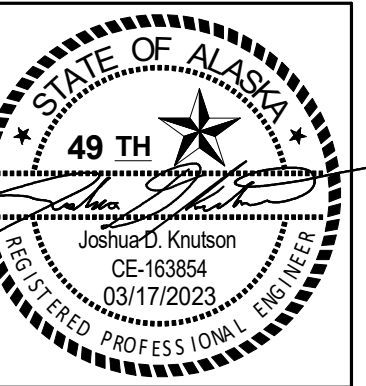
6 WOOD I-JOIST AT WOOD STUD WALL (NON-SHEAR)
SCALE: NTS



8 WOOD I-JOIST AT WOOD BEAM
SCALE: NTS



SECTION



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394

3940 ARCTIC BLVD.
ANCHORAGE, ALASKA
99503
PHONE (907) 562-3252
#AECL392AK



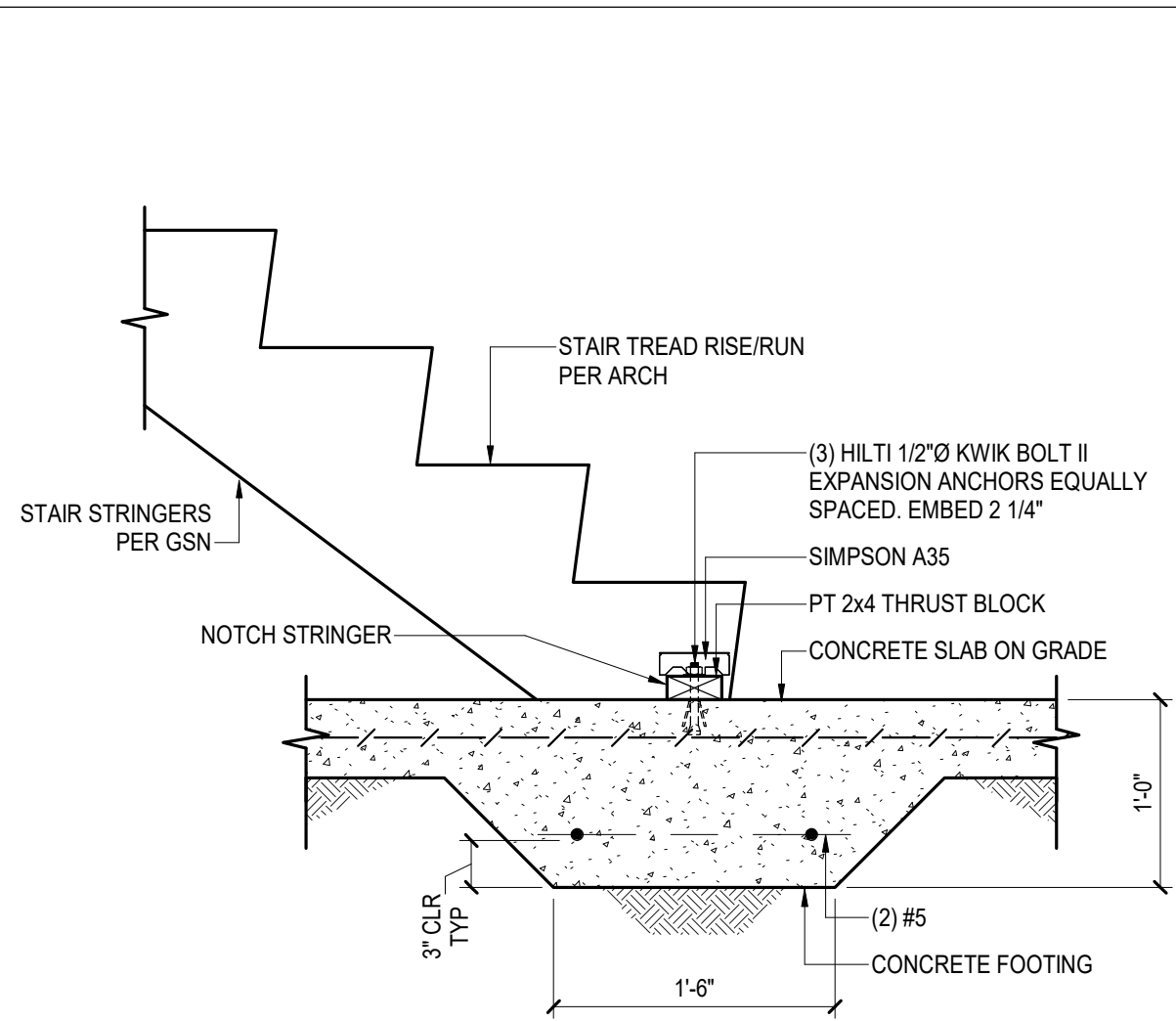
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

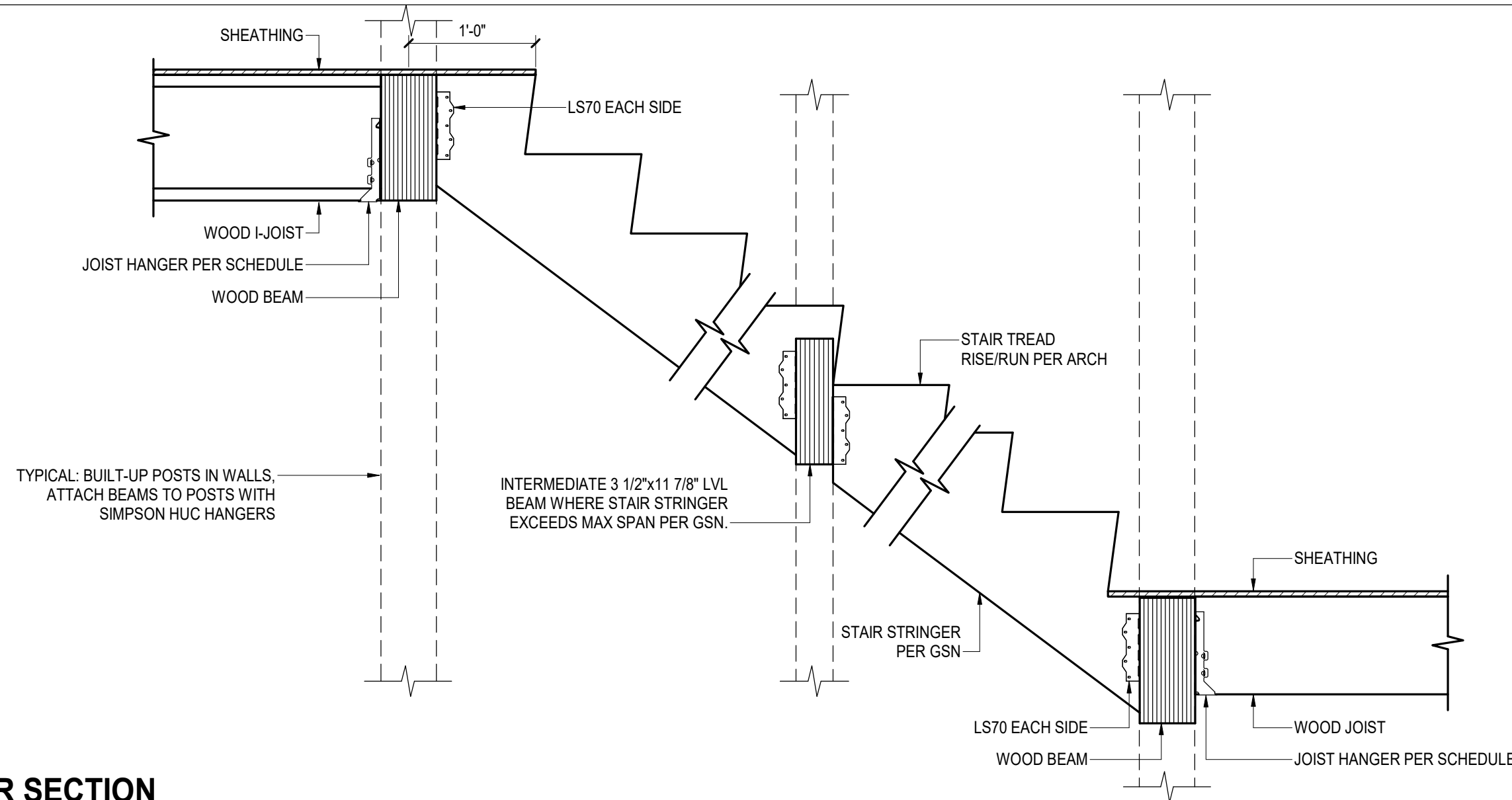
JOB NO. 77006.00
DATE 2023.03.08
DRAWN MEH
REVIEWED JDK

SHEET NAME
FRAMING DETAILS

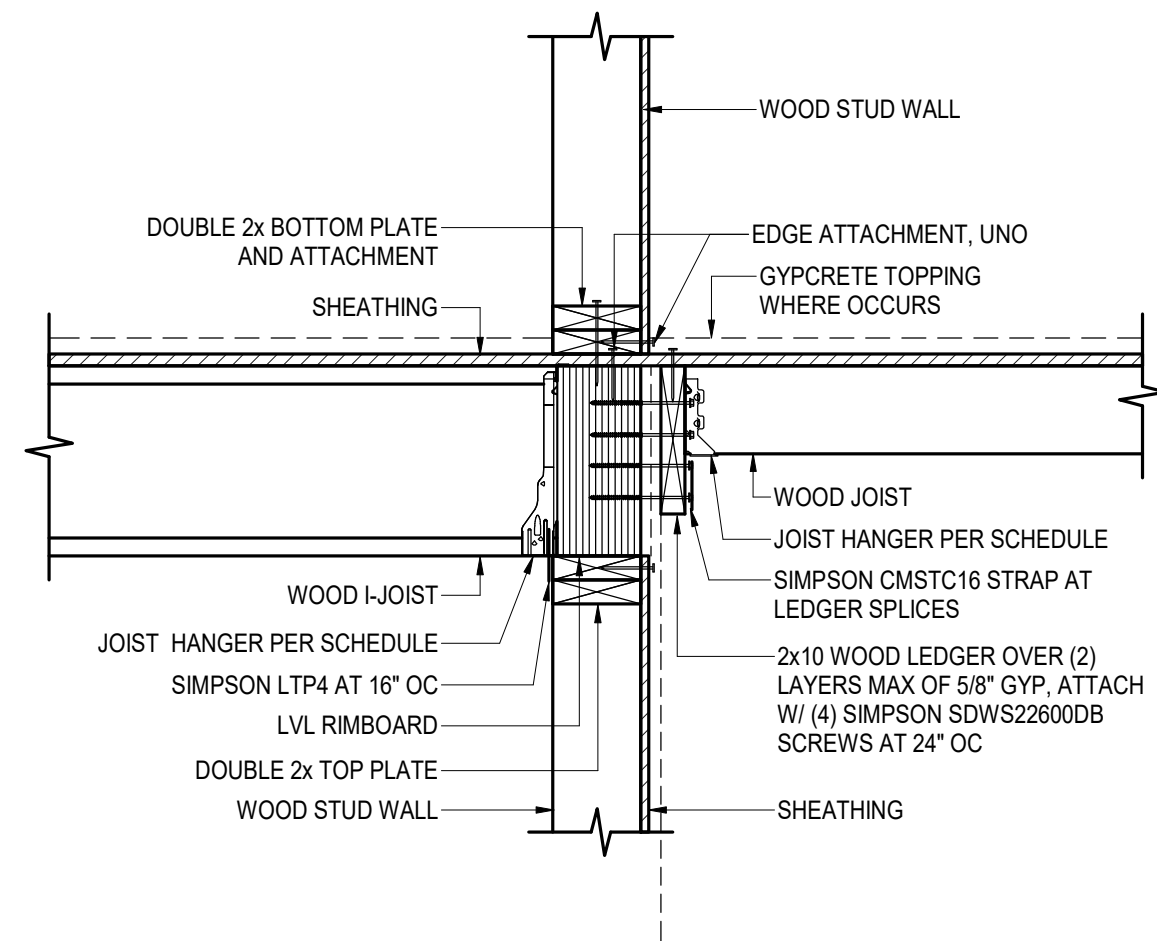
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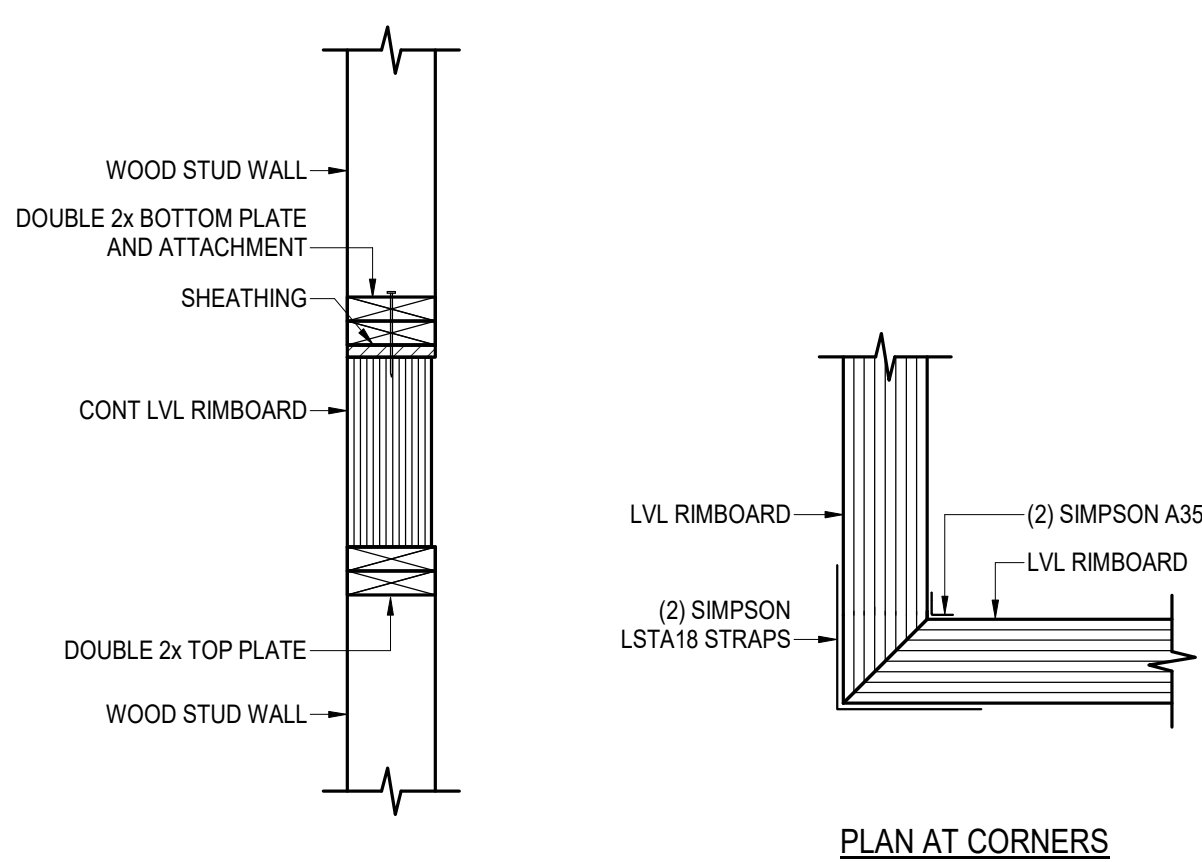
1 WOOD STAIR STRINGER AT SLAB ON GRADE
SCALE: NTS



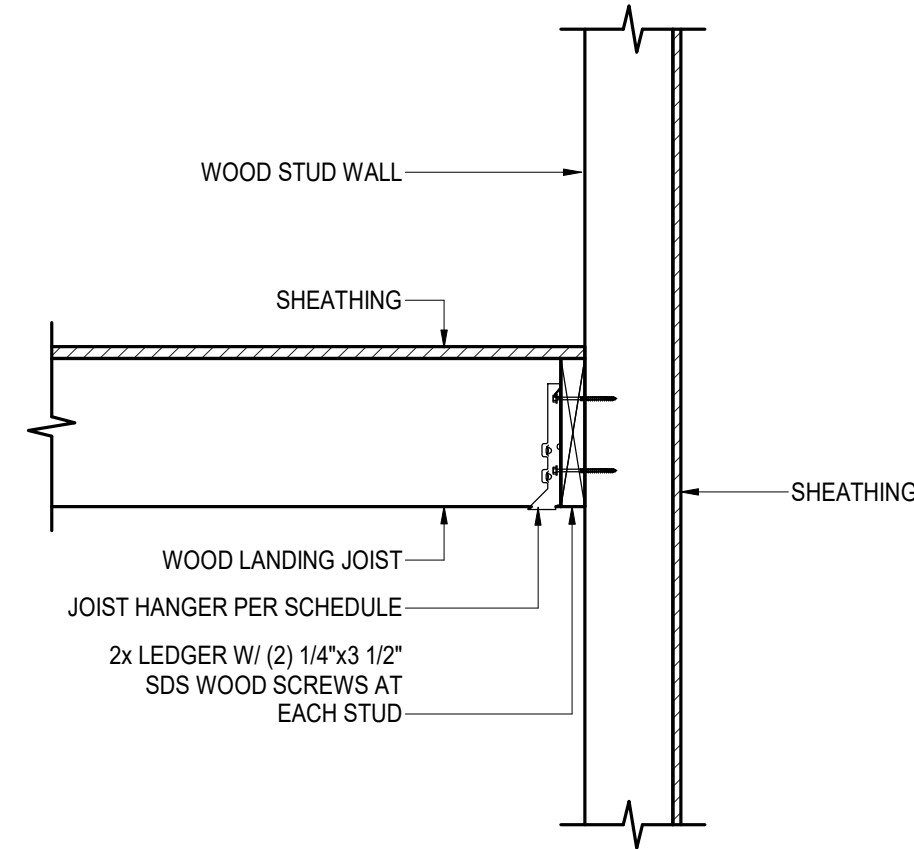
2 STAIR SECTION
SCALE: NTS



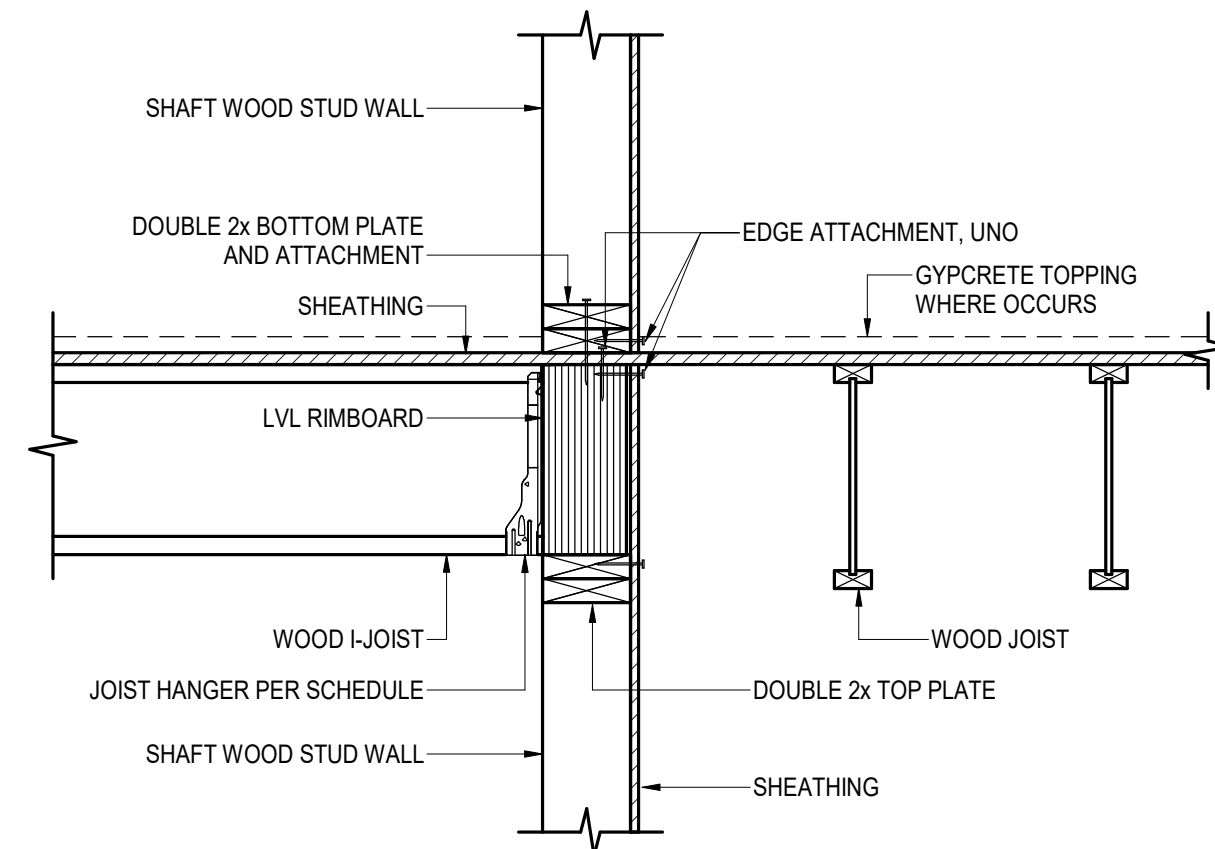
4 WOOD JOIST AT STAIR SHAFT WALL
SCALE: NTS



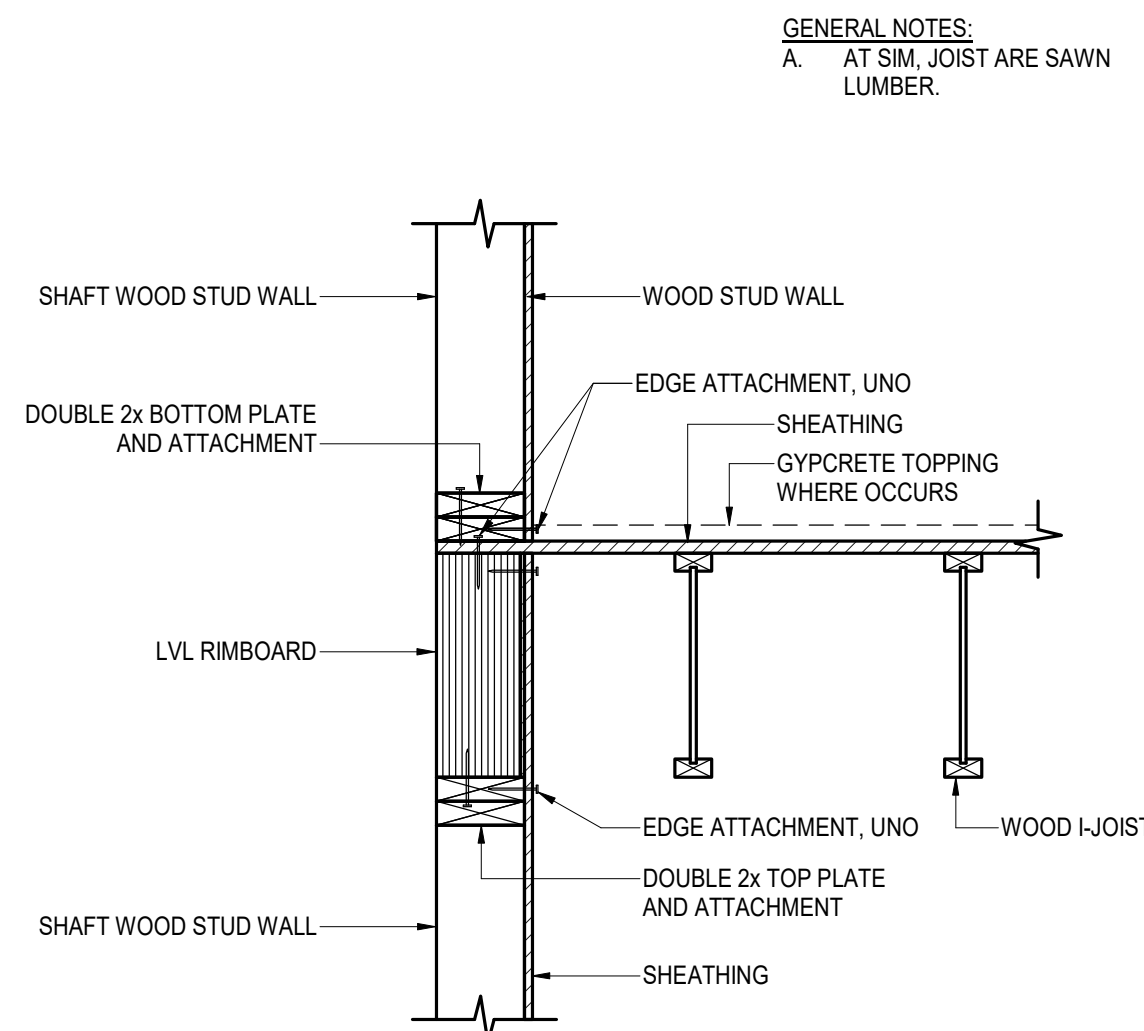
5 SECTION AT EXTERIOR WALL AND SHAFT CORNERS
SCALE: NTS



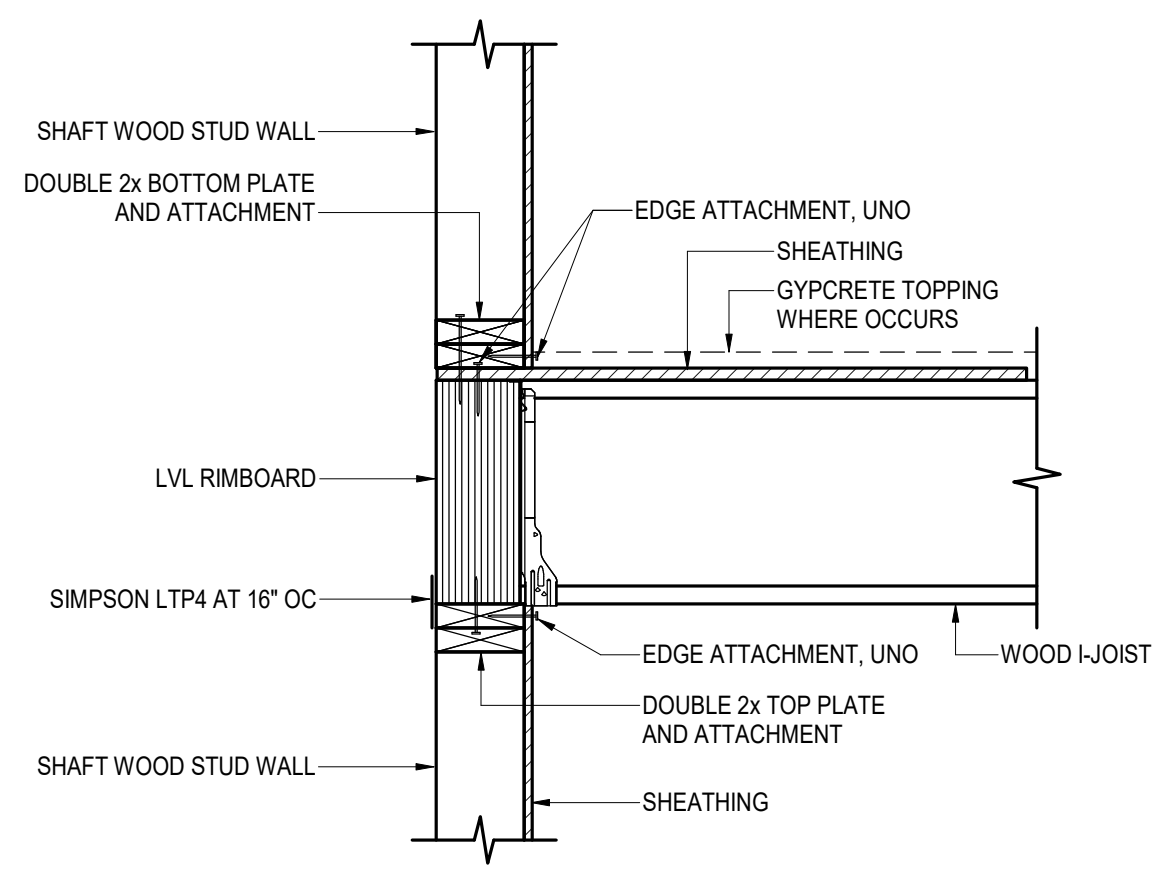
6 STAIR SECTION AT LANDING
SCALE: NTS



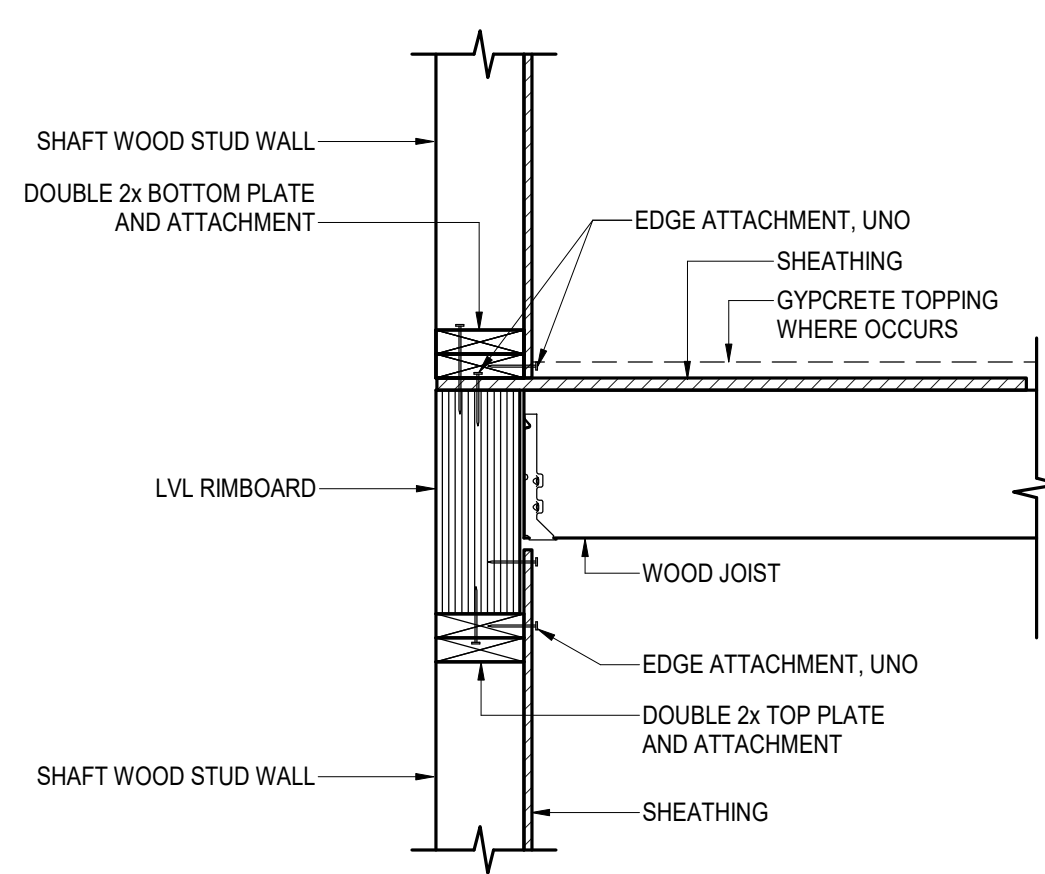
7 WOOD JOIST AT STAIR SHAFT WALL
SCALE: NTS



8 WOOD JOIST AT ELEVATOR SHAFT WALL
SCALE: NTS

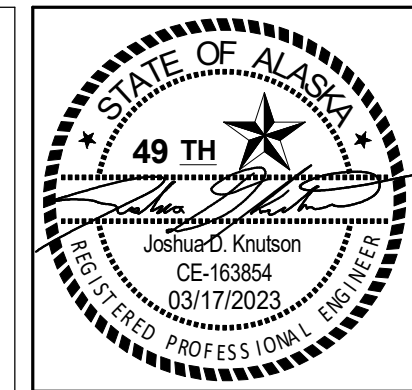


9 WOOD JOIST AT ELEVATOR SHAFT WALL
SCALE: NTS



10 WOOD JOIST AT ELEVATOR SHAFT WALL
SCALE: NTS

GENERAL NOTES:
A. AT SIM JOIST ARE SAWN LUMBER.



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394



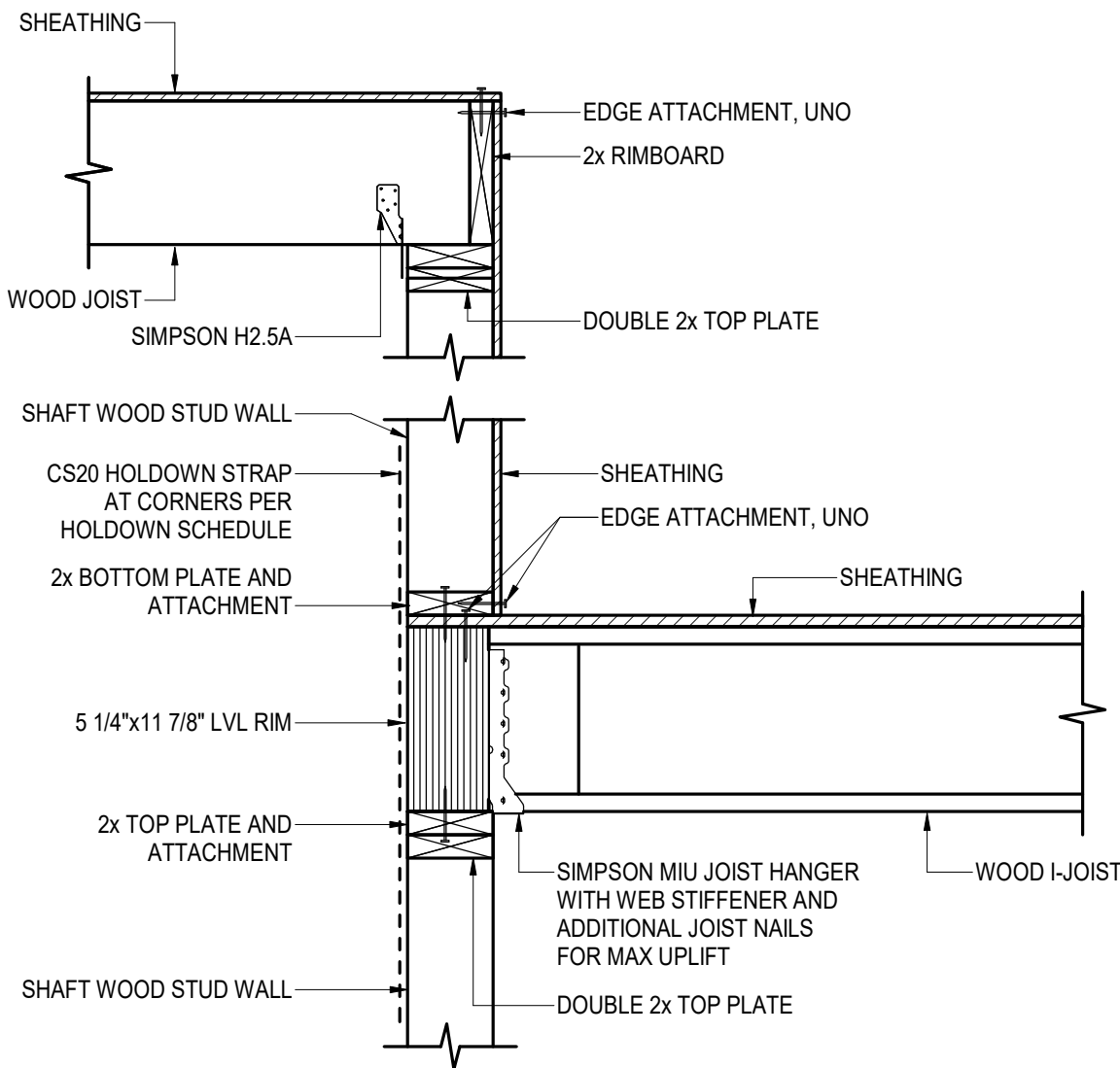
COOK INLET HOUSING AUTHORITY
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ANCHORAGE, ALASKA

REVISION SCHEDULE		
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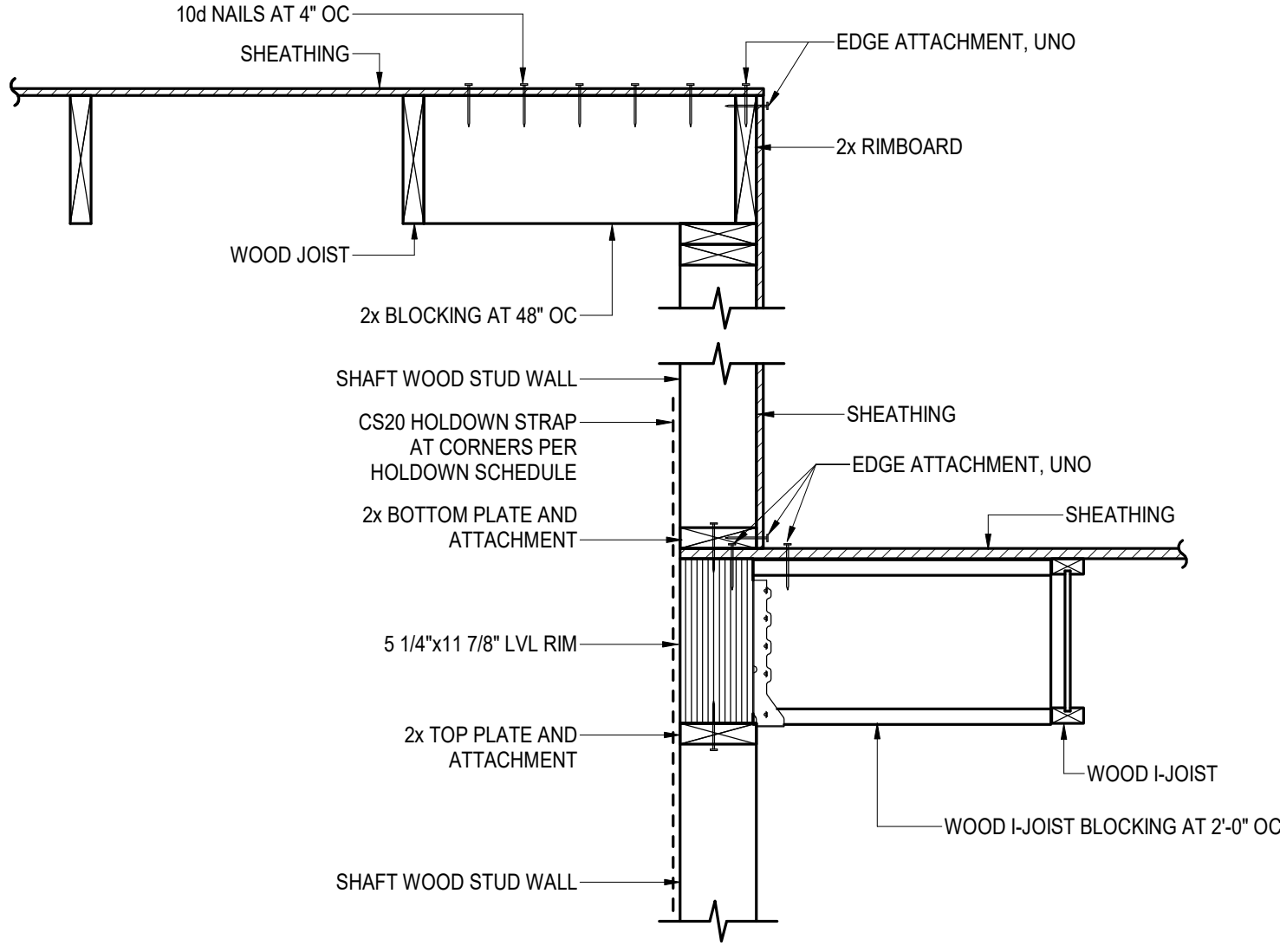
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DRAWN	MEH
REVIEWED	JDK

SHEET NAME
STAIR & ELEVATOR SHAFT
DETAILS

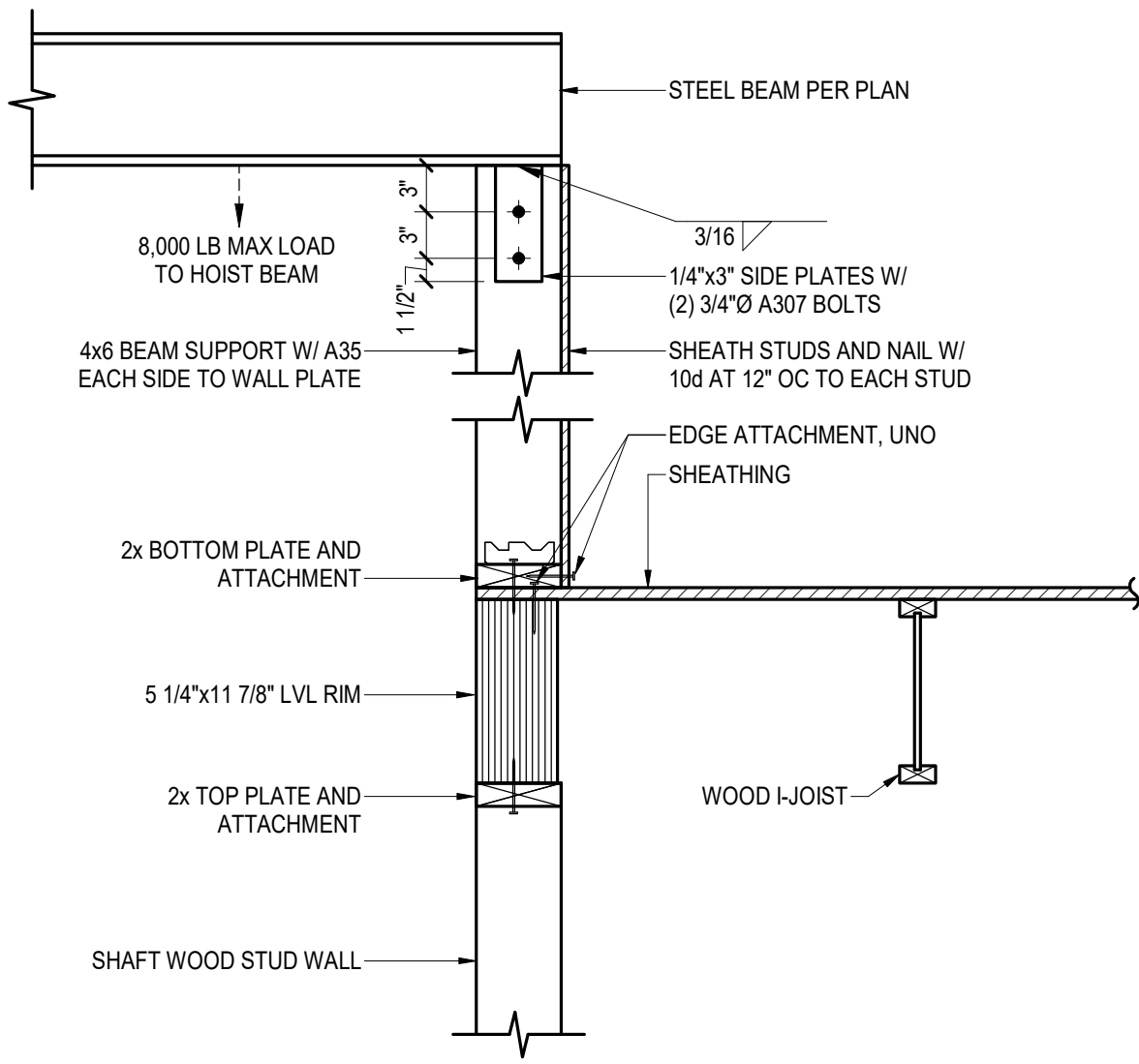
SHEET NO.
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1 WOOD JOIST AT ELEVATOR SHAFT WALL
SCALE: NTS

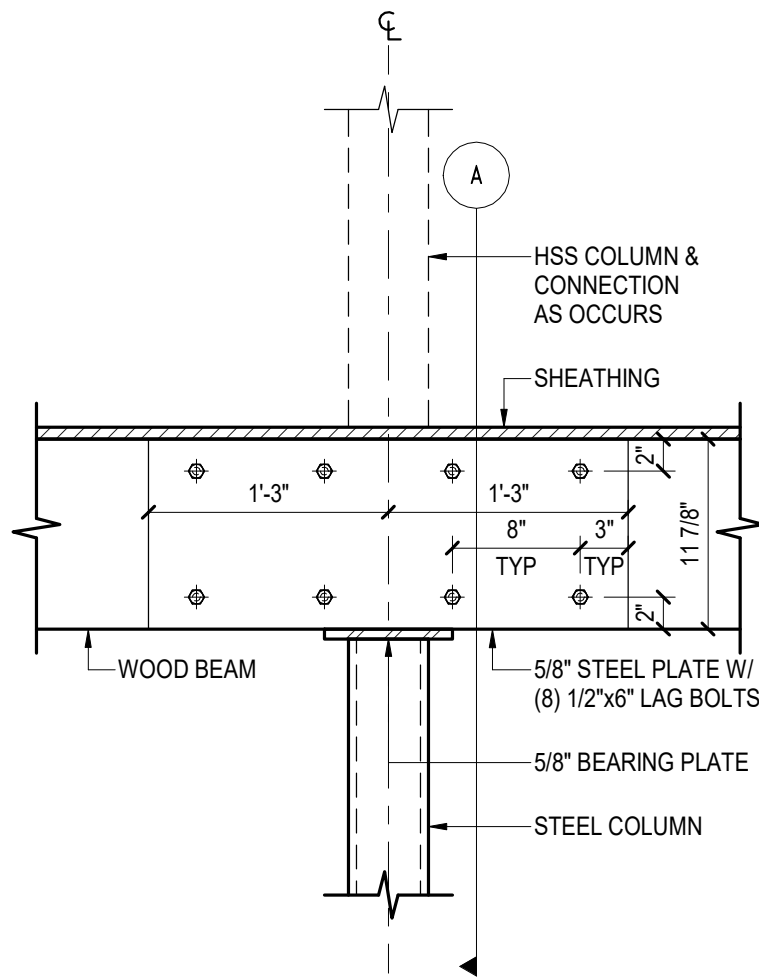


2 WOOD JOIST AT ELEVATOR SHAFT WALL
SCALE: NTS

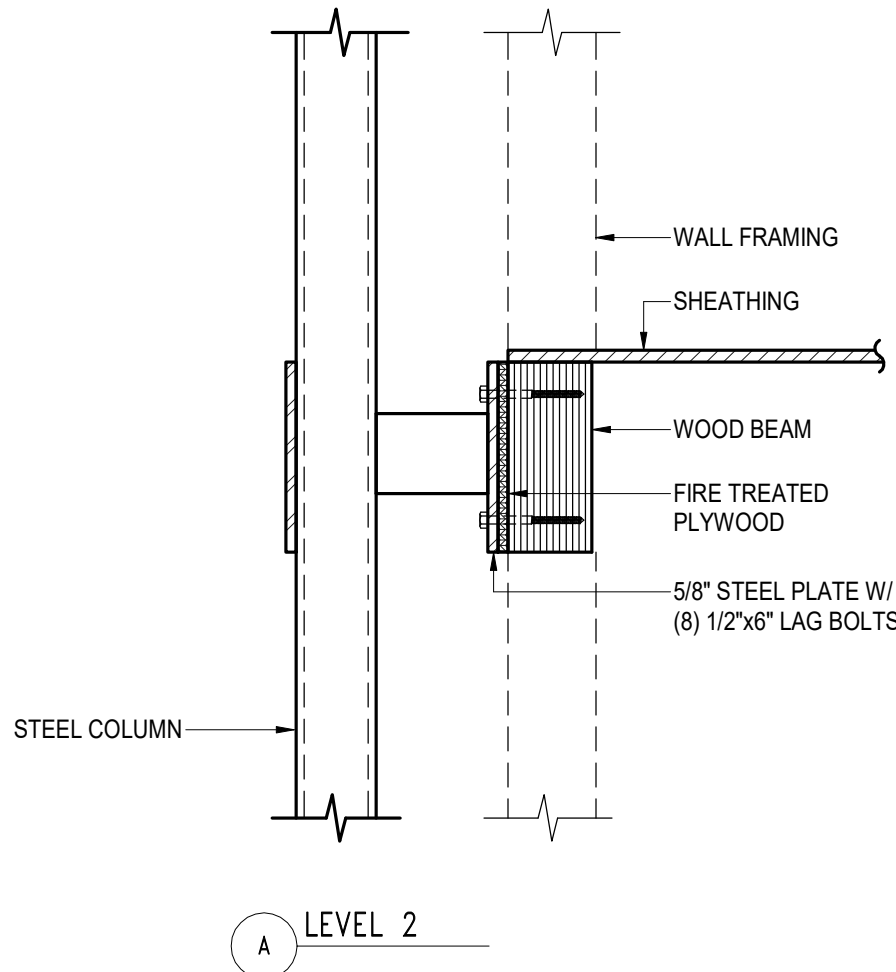


3 ELEVATOR SHAFT AT ELEVATOR HOIST BEAM
SCALE: NTS

GENERAL NOTE:
A. WALL SHEATHING/GWB NOT SHOWN
FOR CLARITY. COORDINATE WITH
ARCHITECTURAL.



4 WOOD BEAM AT ELEVATOR SHAFT STEEL COLUMN
SCALE: NTS



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COOK INLET HOUSING AUTHORITY
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ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. 77006.00
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DRAWN MEH
REVIEWED JDK

SHEET NAME
STAIR & ELEVATOR SHAFT
DETAILS

SHEET NO.
S6.24

PIPING LEGEND

	WASTE
	VENT PIPING
	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATED
	SEE ABBREVIATIONS FOR MEDIA
	PIPE UP
	PIPE DOWN
	TEE UP
	TEE DOWN
	CAP
	UNION
	DIRECTION OF FLOW
	BALL VALVE
	GATE VALVE
	GAS SHUT-OFF VALVE
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	CHECK VALVE
	BALANCE VALVE
	REDUCED PRESSURE BACKFLOW PREVENTER
	PRESSURE REDUCING VALVE
	FLEXIBLE PIPING CONNECTOR
	PRESSURE/TEMPERATURE RELIEF VALVE
	HOSE BIBB
	PUMP
	CLEANOUT
	METER
	FILTER
	WATER HAMMER ARRESTOR
	THERMOMETER
	PRESSURE GAUGE W/ ISOLATION COCK
	STRAINER W/ BLOWDOWN
	PIPE GUIDE
	PIPE ANCHOR
	FLOOR CLEANOUT
	FLOOR DRAIN
	FLOOR SINK

DUCTWORK LEGEND

	THERMOSTAT
	SENSOR
	THERMOSTAT OR SENSOR WITH GUARD
	SUPPLY AIR UP & DOWN
	RETURN AIR UP & DOWN
	EXHAUST AIR UP & DOWN
	VOLUME DAMPER
	MOTORIZED CONTROL DAMPER
	SOUND LINED DUCTWORK
	DUCT SIZE - EXTERIOR INSULATED (1ST FIGURE-SIDE SHOWN) (2ND FIGURE-SIDE NOT SHOWN)
	EXTERNALLY INSULATED DUCTWORK
	TURNING VANES
	FLEXIBLE DUCT
	FIRE DAMPER
	FIRE SMOKE DAMPER

LOGIC

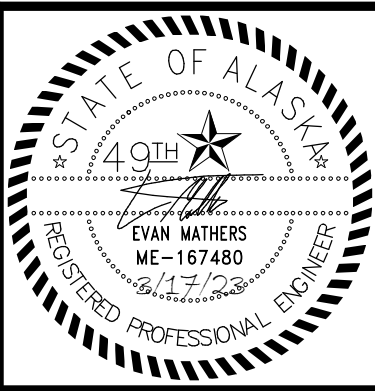
	POINT OF CONNECTION
	DETAIL NUMBER
	SHEET LOCATED ON
	DIRECTION OF VIEW
	SECTION NUMBER
	SHEET LOCATED ON
	RADIATION DESIGNATOR
	LENGTH
	GPM
	SHEET NOTES
	NECK SIZE
	CFM
	DIFFUSER OR GRILLE TYPE

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT	DIM	DIMENSION	HOA	HAND-OFF-AUTO	PHC-X	PREHEAT COIL DESIGNATOR
ABV	ABOVE	DN	DOWN	HP	HORSEPOWER	PSI	POUNDS PER SQUARE INCH
AC-X	AIR CONDITIONING UNIT DESIGNATOR	DWG	DRAWING	HW	HOT WATER	PSIG	POUNDS PER SQUARE INCH GAUGE
ADA	AMERICANS WITH DISABILITIES ACT GUIDELINES	(E)	EXISTING EQUIPMENT DESIGNATOR	HWC	HOT WATER CIRCULATED	PW	PUMPED WASTE
AD	ACCESS DOOR	E/A	EXHAUST AIR	HWCP-X	HOT WATER CIRC PUMP DESIGNATOR	R/A	RETURN AIR
AF	AIR FOIL	EAT	ENTERING AIR TEMPERATURE	HWG-X	HOT WATER GENERATOR DESIGNATOR	RD-X	ROOF DRAIN DESIGNATOR
AFF	ABOVE FINISHED FLOOR	EFF	EFFICIENCY	IBC	INTERNATIONAL BUILDING CODE	RH-X	RANGE HOOD DESIGNATOR
AFG	ABOVE FINISHED GRADE	EF-X	EXHAUST FAN DESIGNATOR	IN	INCHES	RL	RAINLEADER
AFMS	AIR FLOW MONITORING STATION	EGT	ENTERING GLYCOL TEMPERATURE	INS.	INSULATION	RPM	REVOLUTIONS PER MINUTE
AHAP	AS HIGH AS POSSIBLE	ENT	ENTERING	L-X	LOUVER DESIGNATOR	SA-X	SOUND ATTENUATOR DESIGNATOR
AHU-X	AIR HANDLING UNIT DESIGNATOR	ESP	EXTERNAL STATIC PRESSURE	LAT	LEAVING AIR TEMPERATURE	S/A	SUPPLY AIR
AL	ALUMINUM	ERV-X	ENERGY RECOVERY VENTILATOR DESIGNATOR	LAV	LAVATORY	SCFM	STANDARD CUBIC FEET PER MINUTE
AMPS	AMPERES	ET-X	EXPANSION TANK DESIGNATOR	LF	LINEAL FEET	SP	STATIC PRESSURE
APD	AIR PRESSURE DROP	EXIST	EXISTING	LGT	LEAVING GLYCOL TEMPERATURE	SP-X	SUMP PUMP DESIGNATOR
ARCH	ARCHITECTURAL	EXH	EXHAUST	LWT	LEAVING WATER TEMPERATURE	SQ	SQUARE
AS-X	AIR SEPARATOR DESIGNATOR	F	FAHRENHEIT	MAX	MAXIMUM	T/A	TRANSFER AIR
B-X	BOILER DESIGNATOR	FC	FORWARD CURVE	MBH	THOUSAND BTUH	TEMP	TEMPERATURE
BDD	BACKDRAFT DAMPER	FCO	FLOOR CLEAN OUT	MCA	MINIMUM CIRCUIT AMPACITY	TOD	TOP OF DUCT
BLDG	BUILDING	FD-X	FLOOR DRAIN DESIGNATOR	MFR	MANUFACTURER	TSP	TOTAL STATIC PRESSURE
BOD	BOTTOM OF DUCT	FIN	FINISHED	M/A	MAKEUP AIR	T'STAT	THERMOSTAT
BP-X	BOILER CIRC PUMP DESIGNATOR	FLA	FULL LOAD AMPS	MIN/MIN.	MINIMUM	TTL	TOTAL
BTUH	BRITISH THERMAL UNIT/HOUR	FLR	FLOOR	MOD	MOTOR OPERATED DAMPER	TYP/TYP.	TYPICAL
CAP	CAPACITY	FPM	FEET PER MINUTE	MTD	MOUNTED	UH-X	UNIT HEATER DESIGNATOR
CFM	CUBIC FEET PER MINUTE	FS-X	FLOOR SINK DESIGNATOR	NAT.	NATURAL	UPC	UNIFORM PLUMBING CODE
CH-X	CHILLER DESIGNATOR	FT	FEET	NC	NOISE CRITERIA	V	VENT
CIRC	CIRCULATING/CIRCULATION	G	NATURAL GAS	N.C.	NORMALLY CLOSED	VAC	VOLT-AC
CLG	CEILING	GA	GAUGE	NO.	NUMBER	VEL	VELOCITY
CONT	CONTINUED	GAL	GALLONS	N.O.	NORMALLY OPEN	VDC	VOLT-DC
C.O./CO	CLEANOUT	GALV	GALVANIZED	NTS	NOT TO SCALE	VTR	VENT THRU ROOF
CONN	CONNECTION	GPH	GALLONS PER HOUR	O/A	OUTSIDE AIR	W	WASTE
CP-X	CIRCULATION PUMP DESIGNATOR	GPM	GALLONS PER MINUTE	O.D.	OUTSIDE DIAMETER	W/	WITH
CU-X	CONDENSING UNIT DESIGNATOR	GT-X	GLYCOL TANK DESIGNATOR	OC	ON CENTER	W/O	WITHOUT
CU	COPPER	GTD	GLYCOL TEMPERATURE DROP	OD	OUTSIDE DAMPER	W.C.	WATER COLUMN
CUH-X	CABINET UNIT HEATER DESIGNATOR	HB-X	HOSE BIBB DESIGNATOR	OD-X	OVERFLOW DRAIN DESIGNATOR	WCO	WALL CLEAN OUT
CW	COLD WATER	H-X	HEATING COIL DESIGNATOR	OL	OVERFLOW RAINLEADER	WG	WATER GAUGE
dB	DECIBELS	HD	HEAD	P-X	PLUMBING FIXTURE DESIGNATOR	WH-X	WATER HEATER DESIGNATOR
DEG	DEGREE	HGR	HEATING GLYCOL RETURN	PD	PRESSURE DROP	WHA	WATER HAMMER ARRESTOR
DIA	DIAMETER	HGS	HEATING GLYCOL SUPPLY	PG/P.G.	PROPYLENE GLYCOL	WPD	WATER PRESSURE DROP
				PH	PHASE	YCO	YARD CLEAN OUT

GENERAL NOTES

- BRANCH PIPING TO INDIVIDUAL PLUMBING FIXTURES SHALL EQUAL THE SIZE REQUIRED BY THE PLUMBING FIXTURES SCHEDULE UNLESS OTHERWISE INDICATED.
- PROVIDE CLEANOUTS ON ALL INDIVIDUAL SINK, WASHER BOX, AND LAVATORY RISERS.
- DO NOT ROUTE ANY PIPING IN EXTERIOR WALLS UNLESS OTHERWISE INDICATED.
- SLOPE ALL WASTE PIPING LESS THAN 4" NOT LESS THAN 1/4" PER FOOT. SLOPE 4" AND LARGER WASTE PIPING NOT LESS THAN 1/8" PER FOOT.
- SLOPE RAINLEADER PIPING AT NOT LESS THAN 1/8" PER FOOT.
- PROVIDE WATER HAMMER ARRESTOR SHOCK-TROL DEVICES AT EACH FIXTURE'S SEPARATE WATER CONNECTION, SIZE AND LOCATION AS REQUIRED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE ACCESS DOORS OF APPROPRIATE SIZE AS REQUIRED TO ALL EQUIPMENT AND VALVES LOCATED ABOVE HARD LID CEILINGS OR WITHIN WALLS REQUIRING ACCESS.
- MINIMUM WASTE PIPE SIZE UNDER SLAB SHALL BE 2". PLUMBING FIXTURES WITH A 1-1/2" OR SMALLER WASTE CONNECTION SIZE WHICH DO NOT CONNECT INTO A 2" OR LARGER WASTE PIPE ABOVE SLAB SHALL TRANSITION TO A 2" WASTE PIPE ABOVE SLAB. IF A RISER CLEANOUT IS REQUIRED, CLEANOUT SHALL BE MINIMUM OF 2" IN SIZE.
- COORDINATE EXACT LOCATIONS OF ALL FLOOR DRAINS, FLOOR SINKS, FLOOR CLEANOUTS, AND RISERS WITH ARCHITECTURAL FURNISHINGS, AND EQUIPMENT AS REQUIRED TO AVOID CONFLICTS.
- BRANCH PIPING TO INDIVIDUAL TERMINAL HEATING UNITS SHALL BE 3/4" UNLESS OTHERWISE INDICATED.
- INSTALL THERMOSTATS ON WALLS AT APPROXIMATE LOCATIONS INDICATED AFTER INSTALLATION OF FURNISHINGS. COORDINATE FINAL LOCATION AS REQUIRED SO THAT FURNISHINGS DO NOT COVER OR BLOCK ACCESS TO THERMOSTATS. DO NOT INSTALL ANY THERMOSTATS BEHIND DOORS.
- BRANCH DUCTWORK TO INDIVIDUAL DIFFUSERS SHALL EQUAL THE DIFFUSER NECK SIZE UNLESS OTHERWISE INDICATED.
- COORDINATE FINAL GRILLE AND DIFFUSER LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN AND LIGHTING.
- VOLUME DAMPERS LOCATED ABOVE HARD LID CEILING SHALL BE PROVIDED WITH REMOTE OPERATORS OR ACCESS PANELS.
- PIPING PENETRATIONS MAY BE ROUTED THROUGH LVL ACCORDING TO MFR INSTRUCTIONS.
- EXHAUST SHALL BE ROUTED TO TERMINATE MIN 3' HORIZONTALLY FROM OPERABLE WINDOWS.



CERTIFICATE OF AUTHORIZATION NO. SPARK DESIGN, LLC #AECL1384

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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	EMMANUEL
REVIEWED	EMM

SHEET NAME
MECHANICAL LEGEND & ABBREVIATIONS

SHEET NO.
M001

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MOUNTING	CW	HW	WASTE	VENT	TRAP	BASIS OF DESIGN	MODEL	COLOR/FINISH	REMARKS
P-1	WATER CLOSET	FLOOR	1/2"	--	3"	2"	--	KOHLER	K-3619-0	WHITE	ELONGATED BOWL, CLOSED SEAT WITH COVER, INSULATED TANK, COMFORT HEIGHT, LEFT OR RIGHT TRIP LEVER AS REQUIRED
P-1A	WATER CLOSET - ADA	FLOOR	1/2"	--	3"	2"	--	KOHLER	K-3619-0	WHITE	ELONGATED BOWL, CLOSED SEAT WITH COVER, INSULATED TANK, ADA HEIGHT, LEFT OR RIGHT TRIP LEVER AS REQUIRED FOR ADA COMPLIANCE
P-1B	WATER CLOSET - ADA PUBLIC	FLOOR	1/2"	--	3"	2"	--	KOHLER	K-3619-0	WHITE	ELONGATED BOWL, SPLIT RIM SEAT, INSULATED TANK, ADA HEIGHT, LEFT OR RIGHT TRIP LEVER AS REQUIRED FOR ADA COMPLIANCE
P-2	LAVATORY	COUNTER	1/2"	1/2"	1-1/2"	1-1/4"	1-1/4"	KOHLER	K-2351-8-0	WHITE	DELTA FAUCET 22C821 WITH METAL POP UP DRAIN, SINGLE HOLE FAUCET, LAMINAR OUTLET
P-2A	LAVATORY - ADA	COUNTER	1/2"	1/2"	1-1/2"	1-1/4"	1-1/4"	KOHLER	K-2351-8-0	WHITE	DELTA FAUCET 22C821 WITH METAL POP UP DRAIN, SINGLE HOLE FAUCET, LAMINAR OUTLET, AND ADA LEVER HANDLE
P-2B	LAVATORY - ADA PUBLIC	WALL	1/2"	1/2"	1-1/2"	1-1/4"	1-1/4"	KOHLER	K2005	WHITE	DELTA FAUCET 22C821 WITH METAL GRID STRAINER, SINGLE HOLE FAUCET, LAMINAR OUTLET, ADA LEVER HANDLE, AND ASSE 1070 TEMEPRING VALVE FOR HW SUPPLY, PROVIDE INSUALTION ON HW/CW/W AND ANGLE STOPS FOR ADA
P-3	SINK - KITCHEN SINGLE BOWL	COUNTER	1/2"	1/2"	2"	1-1/2"	2"	ELKAY	ECTSRAD 25226TBG	STAINLESS	ELKAY LK5000 SINGLE HOLE FAUCET WITH PULL OUT SPRAY AND GRID STRAINER, PROVIDE WITH DISHWASHER AIR GAP
P-3A	SINK - KITCHEN SINGLE BOWL - ADA	COUNTER	1/2"	1/2"	2"	1-1/2"	2"	ELKAY	ECTSRAD 25226TBG	STAINLESS	ELKAY LK5000 SINGLE HOLE FAUCET WITH PULL OUT SPRAY AND GRID STRAINER, PROVIDE WITH DISHWASHER AIR GAP
P-3B	SINK - KITCHEN DOUBLE BOWL	COUNTER	1/2"	1/2"	2"	1-1/2"	2"	ELKAY	ECTSRAD 33226TBG	STAINLESS	ELKAY LK5000 SINGLE HOLE FAUCET WITH PULL OUT SPRAY AND GRID STRAINER, PROVIDE WITH DISHWASHER AIR GAP
P-3C	SINK - KITCHEN DOUBLE BOWL - ADA	COUNTER	1/2"	1/2"	2"	1-1/2"	2"	ELKAY	ECTSRAD 33226TBG	STAINLESS	ELKAY LK5000 SINGLE HOLE FAUCET WITH PULL OUT SPRAY AND GRID STRAINER, PROVIDE WITH DISHWASHER AIR GAP
P-4	SHOWER/BATH	FLOOR	1/2"	1/2"	2"	1-1/2"	2"	EVERFAB	TS6032A1	WHITE	ONE PIECE TUB/SHOWER STALL, ADA COMPLIANT WITH FOUR (4) 18" HORIZONTAL GRAB BARS, 18" VERTICAL GRAB BAR, CURTAIN ROD, SHOWER DRAIN, PROVIDE WITH MOEN 52236GBM15 HANDHELD SHOWER WITH 36" GRAB BAR, SHOWER VALVE, AND DIVERTER TUB SPOUT
P-4A	SHOWER/BATH - ADA	FLOOR	1/2"	1/2"	2"	1-1/2"	2"	EVERFAB	TS6032A1	WHITE	ONE PIECE TUB/SHOWER STALL, ADA COMPLIANT WITH FOUR (4) 18" HORIZONTAL GRAB BARS, FOLDING SEAT, 18" VERTICAL GRAB BAR, CURTAIN ROD, SHOWER DRAIN, PROVIDE WITH MOEN 52236GBM15 HANDHELD SHOWER WITH 36" GRAB BAR, SHOWER VALVE, AND DIVERTER TUB SPOUT
P-5	JANITORS SINK	FLOOR	1/2"	1/2"	3"	2"	3"	FIAT	MSB-2424	WHITE	FIAT FAUCET 830-AA, 832-AA HOSE AND BRACKET, E-77-AA VINYL BUMPERGUARD, AND 889-CC MOP HANGER
HB-1	HOSE BIBB - EXTERIOR	WALL	3/4"	3/4"	--	--	--	WOODFORD	65	--	FROST PROOF, WITH TEE HANDLE AND VACUUM BREAKER
HB-2	HOSE BIBB - INTERIOR	WALL	3/4"	3/4"	--	--	--	FIAT	830-AA	--	MOUNT EXPOSED WITH SCREW ON VACUUM BREAKER
FD-1	FLOOR DRAIN	FLOOR	1/2"	--	2"	1-1/2"	2"	JR SMITH	2005-A	--	WITH TRAP PRIMER CONNECTION
RD-1	ROOF DRAIN	ROOF	--	--	3"	--	--	SIOUX CHIEF	867-A3	--	WITH SUMP RECEIVER AND EXTENSION IF REQUIRED
OD-1	ROOF DRAIN - OVERFLOW	ROOF	--	--	3"	--	--	SIOUX CHIEF	867-A3	--	WITH SUMP RECEIVER AND EXTENSION IF REQUIRED
OD-2	ROOF DRAIN - OVERFLOW	ROOF	--	--	3"	--	--	SIOUX CHIEF	867-A3	--	INSTALL FOR 2" OVERFLOW INLET HEIGHT, WITH SUMP RECEIVER AND EXTENSION IF REQUIRED
WB-1	WASHER BOX	WALL	1/2"	1/2"	2"	1-1/2"	2"	SIOUX CHEF	PER CONTRACTOR	--	WITH WATER HAMMER ARRESTORS AND QUARTER TURN VALVES
RB-1	REFRIGERATOR BOX	WALL	1/2"	--	--	--	--	SIOUX CHEF	PER CONTRACTOR	--	WITH WATER HAMMER ARRESTOR AND QUARTER TURN VALVE
DS-1	DOWNSPOUT	WALL	--	--	4"	--	--	JR SMITH	1770	BRONZE	WITH BIRDSCREEN

WATER HEATER SCHEDULE

SYMBOL	MFGR	MODEL	STORAGE CAPACITY (GAL)	RECOVERY @ 100 DEG RISE	FUEL TYPE	INPUT MBH	FLA	VOLTS	HZ	PH	REMARKS
WH-2	AO SMITH	BTH-500	119.0	562	NATURAL GAS	499	5 A	120	60 Hz	1	97% EFFICIENT, WITH MODULATING BURNER AND POWERED ANODES, PROVIDE WITH CONDENSATE NEUTRILIZER
WH-1	AO SMITH	BTH-500	119.0	562	NATURAL GAS	499	5 A	120	60 Hz	1	97% EFFICIENT, WITH MODULATING BURNER AND POWERED ANODES, PROVIDE WITH CONDENSATE NEUTRILIZER

TEMPERING VALVE SCHEDULE

SYMBOL	MFGR	MODEL	INLET SIZE	OUTLET SIZE	TEMPERATURE RANGE (DEG F)	SET POINT (DEG F)	FLOW RATE (GPM)	PRESS. DROP (PSI)	REMARKS
TV-1	POWERS	LFIS150VL	1 1/2"	1 1/2"	39-180	120	50	5.00	ELECTRONIC MIXING VALVE, ASSE 1017 RATED, PROVIDE WITH WALL MOUNTED CABINET. (120V, 20VA)

EXPANSION TANK SCHEDULE

SYMBOL	MFGR	MODEL	FUNCTION	MEDIUM	MATERIAL	TANK VOLUME		DIMENSIONS		LABEL	REMARKS
						TOTAL (GAL)	ACCEPTANCE (GAL)	DIA	HEIGHT		
ET-1	TACO	CA90-125	HEATING WATER	WATER	STEEL/ HEAVY DUTY BUTYL	23.0	23	20"	29 1/8"	ASME	PRECHARGE TP 20PSI, PROVIDE WITH SIGHT GLASS
ET-2	TACO	CBX15-125B	HEATING GLYCOL	50% P.G.	STEEL/ HEAVY DUTY BUTYL	4.0	2	14"	15"	ASME	PRECHARGE TO 12PSI, PROVIDE WITH SIGHT GLASS
ET-3	TACO	PAX130-150BP	DOMESTIC WATER	WATER	STEEL/ HEAVY DUTY BUTYL	34.0	19	16"	52"	NSF	PRECHARGE TO INCOMING WATER PRESSURE, PROVIDE WITH SIGHT GLASS

GLYCOL MIX TANK SCHEDULE

SYMBOL	MFGR	MODEL	FUNCTION	MEDIUM	MATERIAL	TANK	DIMENSIONS		POWER		REMARKS
						CAPACITY (GAL)	FLOW	WPD	EWT	LWT	
GT-1	AXIOM	MF200	GLYCOL MAKE-UP	50% P.G.	PLASTIC	6.6	11.75"L x 11.75"W x16"H	120	1	1	INTEGRAL PUMP, WITH CORD AND PLUG, LOW LEVEL ALARM, PROVIDE WITH MOUNTING SHELF, 50 W POWER REQUIRED

AIR SEPARATOR SCHEDULE

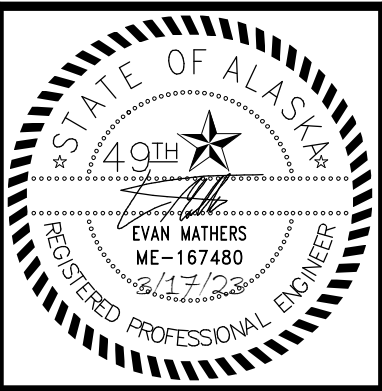
SYMBOL	MFGR	MODEL	SIZE	CONNECTION	GPM	REMARKS
AS-1	SPIROTHERM	VDT 300 FAM	3"	FLANGED	86.1	AIR/WATER SEPERATOR WITH MAGNET
AS-2	SPIROTHERM	VDT 200 FAM	2"	FLANGED	31	AIR/WATER SEPERATOR WITH MAGNET

HEAT EXCHANGER SCHEDULE

SYMBOL	MFGR	MODEL	TYPE	AREA SERVED	HOT SIDE					COLD SIDE					REMARKS
					MEDIUM	FLOW (GPM)	WPD (PSI)	EWT DEG F	LWT DEG F	MEDIUM	FLOW (GPM)	WPD (PSI)	EGT DEG F	LGT DEG F	
HX-1	TACO	TB80X30	BRAZED PLATE	GLYCOL SYSTEM	WATER	18.0	5.10	160	140	50% P.G.	20.0	6.50	130	150	WITH WALL MOUNTING BRACKET

BASEBOARD SCHEDULE

SYMBOL	MFGR	MODEL	# ROWS	ELEMENT		MATERIAL	FPF	GPM	MEDIUM	EWT DEG F	LWT DEG F	BTUH/LF	FINISH	REMARKS
				SIZE										
BB-1	SUNTEMP	NST HIGH OUTPUT 800	1	3/4", 3.375"x3.25"		ALUMINUM	60	PER PLANS	WATER	160	140	530	PER ARCH	VANE DAMPER ON ENCLOSURE
BB-2	STERLING	JVA-S14-C3/4-35	1	3/4", 3.25"x3.25"		ALUMINUM	50	PER PLANS	WATER	160	140	590	PER ARCH	SLOPE TOP ENCLOSURE
BB-3	STERLING	JVB-2PM-C3/4-435	2	3/4", 3.625"x4.25"		ALUMINUM	50	PER PLANS	WATER	160	140	1240	PER ARCH	PEDESTAL STYLE ENCLOSURE



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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
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SHEET NAME
MECHANICAL SCHEDULES

SHEET NO.
M002

BOILER SCHEDULE

SYMBOL	MFGR	MODEL	MEDIUM	FUEL	GROSS INPUT (MBH)	NET AHRI OUTPUT (MBH)	BURNER POWER DATA			LABEL	REMARKS
							VOLTS	Hz	PH		
B-1	LOCHINVAR	FTX500N	WATER	N.G.	500	425	120	60	1	ASME	STAINLESS STEEL HEAT EXCHANGER, DIRECT VENT WITH INTEGRAL LOW WATER CUT-OFF AND HIGH LIMIT CONTROLLER, PROVIDE WITH CONDENSATE NEUTRILIZER AND 50 PSI T&P RELIEF VALVE
B-2	LOCHINVAR	FTX500N	WATER	N.G.	500	425	120	60	1	ASME	STAINLESS STEEL HEAT EXCHANGER, DIRECT VENT WITH INTEGRAL LOW WATER CUT-OFF AND HIGH LIMIT CONTROLLER, PROVIDE WITH CONDENSATE NEUTRILIZER AND 50 PSI T&P RELIEF VALVE

PUMP SCHEDULE

SYMBOL	MFGR	MODEL	FUNCTION	PUMP			MOTOR DATA					REMARKS
				MEDIUM	GPM	HEAD FT	HP	WATTS	VOLTS	Hz	PH	
BP-1A	TACO	0026E	BOILER CIRCULATION	WATER	28	9	--	120	120	60	1	INLINE ECM CIRCULATOR
BP-1B	TACO	0026E	BOILER CIRCULATION	WATER	28	9	--	120	120	60	1	INLINE ECM CIRCULATOR
CP-1A	TACO	VR30H	HEATING LOOP CIRCULATION	WATER	68.1	45	--	1550	208	60	1	INLINE ECM CIRCULATOR
CP-1B	TACO	VR30H	HEATING LOOP CIRCULATION	WATER	68.1	45	--	1550	208	60	1	INLINE ECM CIRCULATOR
CP-2	TACO	VR15M	HOT SIDE HX-1	WATER	18	29	--	480	120	60	1	INLINE ECM CIRCULATOR
CP-3	TACO	VR15M	ERV-1 COILS	50% P.G.	31	23	--	480	120	60	1	INLINE ECM CIRCULATOR
HWCP-1	TACO	009-SF5	HOT WATER CIRC	WATER	6	12	0.125	--	120	60	1	STAINLESS STEEL INLINE CIRCULATOR
SP-1	LIBERTY	ELV-280	ELEVATOR SUMP	WATER	30	15	0.5	--	120	60	1	PROVIDE WITH OILTECTOR CONTROL PANEL, REMOTE ALARM, 5FT CORD AND PLUG CONNECTION FOR PUMP

UNIT HEATER SCHEDULE

SYMBOL	MFGR	MODEL	CAPACITY MBH	GPM	MEDIUM	EGT DEG F	LGT DEG F	WPD (FT HD)	CFM	MOTOR DATA				REMARKS
										HP	VOLTS	Hz	PH	
UH-1	MODINE	HC-24	11.6	1.7	WATER	160	140	0.80	370	1/25	120	60	1	HORIZONTAL THROW UNIT HEATER, SIDE INLET & OUTLET PIPE CONNECTIONS.
UH-2	MODINE	HC-63	32.5	4.7	WATER	160	140	0.60	1,120	1/12	120	60	1	HORIZONTAL THROW UNIT HEATER, SIDE INLET & OUTLET PIPE CONNECTIONS.

CABINET UNIT HEATER SCHEDULE

SYMBOL	MFGR	MODEL	CAPACITY MBH	GPM	MEDIUM	EWT DEG F	LWT DEG F	WPD (FT HD)	ROWS	CFM	MOTOR DATA				REMARKS
											HP	WATTS	VOLTS	PH	
CUH-1	SLANT FIN	TK70	3.6	1	WATER	160	140	0.34	1	72	--	37	120	1	WITH RMK RECESSED WALL MOUNT KIT
CUH-2	SLANT FIN	TK70	3.6	PER PLANS	WATER	160	140	0.34	1	72	--	37	120	1	WITH RMK RECESSED WALL MOUNT KIT
CUH-3	MODINE	CW 003	15.7	2.3	WATER	160	140	0.30	1	330	1/30	0	120	1	CEILING MOUNTED - EXPOSED, HEATING CAPACITY CORRECTED FOR 160F EWT
CUH-4	MODINE	CW 004	27.9	3.6	WATER	160	140	3.50	2	450	1/20	0	120	1	WALL RECESSED MOUNTED, HEATING CAPACITY CORRECTED FOR 160F EWT
CUH-5	MODINE	CW 002	13.7	1.5	WATER	160	140	1.10	2	250	1/30	0	120	1	WALL RECESSED MOUNTED, HEATING CAPACITY CORRECTED FOR 160F EWT
CUH-6	MODINE	CW 012	74.8	10.9	WATER	160	140	3.70	2	1,240	1/20 (2)	0	120	1	CEILING RECESSED MOUNTED, HEATING CAPACITY CORRECTED FOR 160F EWT
CUH-7	MODINE	CW 002	6.8	0.8	WATER	160	140	0.20	1	250	1/30	0	120	1	CEILING MOUNTED - EXPOSED, HEATING CAPACITY CORRECTED FOR 160F EWT

HEATING COIL SCHEDULE

SYMBOL	MFGR	MODEL	CFM	AIR P.D. IN. WC.	FACE VEL. FPM	EAT DEG F	LAT DEG F	GPM	MEDIUM	EGT DEG F	LGT DEG F	WPD FT HD	REMARKS
PHC-1	TRANE	PER MFGR	1,660	0.18	500	-23	35	11.8	50% P.G.	150	130	0.66	SIDE CONNECTIONS
HC-1	TRANE	PER MFGR	1,660	0.16	500	37	75	18.6	50% P.G.	150	130	4.03	SIDE CONNECTIONS

ERV UNIT SCHEDULE

SYMBOL	MFGR	MODEL	ESP (IN WC)	AIRFLOW (CFM)	VOLTAGE	PHASE	FAN HORSEPOWER	REMARKS
ERV-1	RENEWAIRE	HE2X1NH	1.50	1660	208	1	2 @ 2HP	WITH BYPASS ECONOMIZER, E/A AND BYPASS DAMPERS, FUSED DISCONNECT, INTEGRAL VFD'S IN EACH FAN, PROVIDE PREMIUM CONTROLS PACKAGE

RANGE HOOD SCHEDULE

SYMBOL	MFGR	MODEL	SERVICE	DIMENSIONS	DUCT DIMENSIONS	MOUNTING	CFM	SONES	AMPS	VOLTS	Hz	PH	FINISH	REMARKS
RH-1	BROAN	BKDEG1	STOVE	30" WIDE	3-1/4" x 10"	CABINET	160	<7	0.65	120	60	1	PER ARCH	WITH 1 STAGE LIGHT, AND 2-STAGE FAN WITH SWITCHES ON UNIT
RH-1A	BROAN	BKDEG1	STOVE	30" WIDE	3-1/4" x 10"	CABINET	160	<7	0.65	120	60	1	PER ARCH	ADA, WITH 1 STAGE LIGHT, AND 2-STAGE FAN WITH REMOTE SWITCHES AT COUNTER

AIR INLET/OUTLET SCHEDE

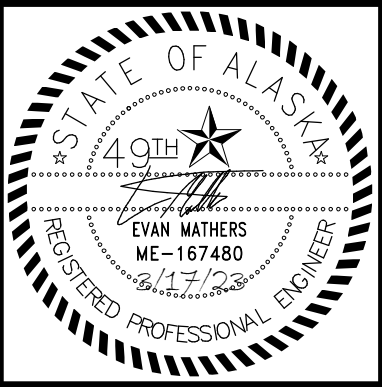
SYMBOL	MFGR	MODEL	TYPE	USE	MATERIAL	FINISH	CFM	FACE SIZE (IN)	NC	THROW	REMARKS
A	TITUS	OMNI	LAY-IN	S/A	STEEL	PER ARCH	PER PLANS	PER PLANS	<25	4-WAY	FRAME FOR CEILING TYPE AS REQUIRED
B	TITUS	ML-38	SLOT	S/A	ALUMINUM	PER ARCH	PER PLANS	PER PLANS	<25	2-WAY	FRAME FOR CEILING TYPE AS REQUIRED, 3/4"SLOT, TWO (2) SLOTS 48" LONG
C	TITUS	TMR	ROUND	S/A	STEEL	PER ARCH	PER PLANS	PER PLANS	<25	360 DEG	PROVIDE WITH OBD, FRAME FOR WALL MOUNTING AS REQUIRED
D	TITUS	50F	CEILING	R/A	ALUMINUM	PER ARCH	PER PLANS	PER PLANS	<25	--	FRAME FOR CEILING TYPE AS REQUIRED
E	INVI AIR	RL1801100	CEILING	R/A	ALUMINUM	PER ARCH	PER PLANS	PER PLANS	<25	--	FRAME FOR CEILING TYPE AS REQUIRED, WITH INTEGRAL LIGHT, COORDINATE WITH ELECTRICAL (120V)
F	TITUS	TBD-30	SLOT	R/A	STEEL	PER ARCH	PER PLANS	PER PLANS	<25	--	FRAME FOR CEILING TYPE AS REQUIRED, 3/4" SLOT, ONE (1) SLOT, 48" LONG
G	TITUS	350FL	WALL	R/A	ALUMINUM	PER ARCH	PER PLANS	PER PLANS	<25	1-WAY	FRAME FOR WALL MOUNTING AS REQUIRED, 3/4" BLADE SPACING, BLADES PARALLEL TO LONG DIMENSION

FAN SCHEDULE

SYMBOL	MFGR	MODEL	TYPE	SERVICE	CFM	TSP IN W.C.	MOTOR DATA				DRIVE	SONES	LABEL	REMARKS
							HP	VOLTS	Hz	PH				
EF-1	GREENHECK	G-095-6VG117XQD	DOWNBLAST	TRASH CHUTE	200	0.63	1/6	120	60	1	DIRECT	11	UL	PROVIDE WITH BALANCED BACKDRAFT DAMPER, VARI-GREEN MOTOR, UNIT MOUNTED SPEED CONTROLLER TO BE USED FOR BALANCING

LOUVER SCHEDULE

SYMBOL	MFGR	MODEL	SERVICE	MATERIAL	FINISH	SIZE	REMARKS
L-1	RUSKIN	ELF6375X	O/A	ALUMINUM	PER ARCH	36W X 26H	HORIZONTAL DRAINABLE BLADES AT 37.5 DEG, 1" BIRDSCREEN, COLOR SELECTED BY ARCHITECT
L-2	RUSKIN	ELF6375X	E/A	ALUMINUM	PER ARCH	36W X 26H	HORIZONTAL DRAINABLE BLADES AT 37.5 DEG, 1" BIRDSCREEN, COLOR SELECTED BY ARCHITECT



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COOK INLET HOUSING AUTHORITY

BREWSTERS MULTI-FAMILY HOUSING

ANCHORAGE, ALASKA

REVISION SCHEDULE		
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JOB NO.	M2169
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DRAWN	EMMANISK
REVIEWED	EMM

SHEET NAME
MECHANICAL SCHEDULES

SHEET NO.
M003

SPECIFICATIONS

SECTION 21 00 00 - FIRE SUPPRESSION
PROVIDE A COMPLETE WET AUTOMATIC FIRE SPRINKLER SYSTEM, HYDRAULICALLY CALCULATED TO PROTECT THE ENTIRE FACILITY, COMPLETE AND IN OPERATING ORDER. FIRE PROTECTION SYSTEM SHALL BE IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, APPLICABLE CODES AND STANDARDS, AS WELL AS THE AUTHORITY HAVING JURISDICTION. SPRINKLERS SHALL BE INSTALLED THROUGHOUT ALL AREAS OF THE BUILDING, INCLUDING OUTSIDE ROOF CANOPIES, UTILIZING SYSTEMS COMPATIBLE WITH THE SPECIFIC APPLICATION. A DRY SYSTEM SHALL BE PROVIDED IN THE TRASH CHUTE AND REFUSE ROOM.

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL, DESIGNERS NICET CERTIFICATION, SHOP DRAWINGS, AND HYDRAULIC CALCULATIONS.
- B. MATERIALS:
- WET FIRE SPRINKLER PIPING:
 - BLACK STEEL PIPING, ASTM A135 SCHEDULE 10 OR ASTM A795 SCHEDULE 40, UL LISTED OR FM APPROVED FOR FIRE SPRINKLER SERVICE.
 - PIPING MAY BE ROLL-GROOVED, THREADED, FLANGED, OR WELDED FOR CONNECTION. ALL THREADED PIPING SHALL BE SCHEDULE 40. NO PLAIN-END FITTING CONNECTIONS ARE ALLOWED.
 - DRY/PRE-ACTION SPRINKLER PIPING - GALVANIZED SCHEDULE 40 STEEL PIPING WITH GALVANIZED THREADED OR GROOVED CONNECTIONS, UL OR FM LISTED FOR FIRE SPRINKLER SERVICE.
 - FIRE SPRINKLER HEADS:
 - PENDANT IN ALL AREAS WITH RECESSED LIGHTING FLUSH TO THE SUSPENDED CEILING FINISH, PROVIDE RECESSED STANDARD SPRAY PENDANT SPRINKLERS. SPRINKLERS AND ESCUTCHEONS TO BE CHROME FINISH. TYCO TY-FRB OR EQUAL.
 - DRY PENDANT, SIDE WALL SPRINKLERS PROTECTING UNHEATED OR FREEZING AREAS SHALL BE CHROME FINISH; TYCO DS-1 RECESSED OR EQUAL.
- C. INSTALLATION:
- INSTALL PIPING TO CONSERVE BUILDING SPACE AND ROUTE PARALLEL TO BUILDING LINES AND AROUND ACCESS PANELS AND OPENINGS.
 - DRY HEADS AND DRY PIPING TO BE INSTALLED WITHIN TRASH CHUTE/ROOM, NO WET PIPING OR HEADS MAY BE INSTALLED WITHIN SPACE.
 - PROVIDE SEISMIC PROTECTION FOR PIPING IN ACCORDANCE WITH NFPA 13 STANDARDS.
 - DRY SYSTEM PIPING SHALL BE INSTALLED SLOPED TO ALLOW FULL SERVICE AND COMPLETE DRAINAGE OF ENTIRE SYSTEM.
 - HYDROSTATICALLY TEST THE ENTIRE SYSTEM IN ACCORDANCE WITH NFPA 13 STANDARDS.
 - TEST ALL SYSTEM ALARMS.
 - PERFORM MAIN DRAIN TEST.

SECTION 22 05 00: 23 05 00 - COMMON WORK RESULTS FOR MECHANICAL

PLANS - THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM. THE DRAWINGS ARE PARTLY DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF PIPING AND DUCTS UNLESS SPECIFICALLY DIMENSIONED. CONTRACTOR IS TO COORDINATE PIPING, DUCTWORK, SPRINKLER HEADS, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL PLANS TO AVOID CONFLICTS. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITY REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, STANDARDS, OR MANUFACTURER'S INSTRUCTIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS. MAINTAIN CODE MINIMUM MECHANICAL SERVICE TO ALL AREAS IMPACTED BY WORK WHERE STILL OCCUPIED BY THE OWNER.

STANDARDS, CODES, AND REGULATIONS - ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL FIRE CODE (IFC), UNIFORM PLUMBING CODE (UPC), INTERNATIONAL ENERGY CONSERVATION CODE (IECC), INTERNATIONAL FUEL GAS CODE (IFGC), AND NATIONAL ELECTRIC CODE (NEC) AS AMENDED BY THE MUNICIPALITY OF ANCHORAGE. SHEET METAL WORK SHALL BE DONE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS.

ELECTRICAL WORK - ALL ELECTRICAL WORK IS TO BE PERFORMED BY A LICENSED ELECTRICIAN AND IN ACCORDANCE WITH NEC STANDARDS.

PERMITS - THE CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND FEES.

SUBMITTALS - SUBMITTALS SHALL BE IN ELECTRONIC FORM. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION. SUBMIT ON ALL SCHEDULED EQUIPMENT AND ALL MATERIALS AND EQUIPMENT AS NOTED IN THE SPECIFICATIONS.

MATERIALS - ALL MATERIALS OTHER THAN OWNER SUPPLIED SHALL BE NEW AND UNUSED. INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND IN THE BEST PRACTICE OF THE CRAFT. OBTAIN OWNER APPROVAL OF ALL PRODUCTS PRIOR TO ORDERING OR INSTALLING ANY PART OF ANY SYSTEM.

EQUIPMENT SUBSTITUTIONS - ALL EQUIPMENT LISTED AND SCHEDULED ARE REPRESENTATIVE OF THE STANDARD OF QUALITY AND PERFORMANCE REQUIRED. "OR EQUAL" SUBSTITUTIONS WILL BE CONSIDERED IF SUBSTITUTE DATA SHEETS ARE SUBMITTED AND ARE SHOWN TO BE OF EQUAL OR BETTER QUALITY, INCLUDING EFFICIENCY OF PERFORMANCE, AND SIZE AND WEIGHT. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL SUBSTITUTIONS.

WORKMANSHIP - INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, AND THIRD PARTY LISTINGS WHERE APPLICABLE.

WARRANTY - ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM PROJECT COMPLETION AND OWNER ACCEPTANCE. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE WARRANTY PERIOD.

EQUIPMENT INSTALLATION AND ACCESS - INSTALL ALL EQUIPMENT WHERE NOTED ON THE DRAWINGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE MISCELLANEOUS APPURTENANCES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS INCLUDING ACCESSORIES, SUPPORTS AND CONTROL CONNECTIONS REQUIRED FOR COMPLETE AND OPERATING SYSTEMS. MAINTAIN MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES AND PROVIDE WORKABLE ACCESS TO ALL SERVICEABLE AND/OR OPERABLE EQUIPMENT.

TEST AND START-UP - TEST ALL PLUMBING AND PIPING SYSTEMS WITH 60 PSIG FOR ONE HOUR BEFORE FILLING AND IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE (UPC). FILL ALL HEATING PIPING WITH TRISODIUM PHOSPHATE SOLUTION AND OPERATE FOR SEVERAL HOURS AT NORMAL OPERATING TEMPERATURE BEFORE FLUSHING AND FILLING WITH HEATING FLUID.

OPERATION AND MAINTENANCE MANUAL - PROVIDE THE OWNER WITH AN OPERATING AND MAINTENANCE MANUAL. TO INCLUDE DATA CUTSHEETS MARKED WITH THE SPECIFIC ITEM USED, MANUFACTURER'S SPECIFICATIONS, OPERATING AND MAINTENANCE INSTRUCTIONS, WARRANTY INFORMATION ON EACH PIECE OF EQUIPMENT, RECORD DRAWINGS WITH INSTALLED LOCATIONS NOTED, SOURCE OF SUPPLY FOR SPARE PARTS AND SERVICE. OPERATION AND MAINTENANCE MANUAL SHALL BE IN ELECTRONIC FORM AND SHALL BE SUBMITTED FOR REVIEW. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION.

RECORD DRAWINGS - PROVIDE ACCURATE PROJECT RECORD DRAWINGS, SHOWN IN RED INK ON A CLEAN SET OF PRINTS. SHOWING ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING INSTALLATION OF THE WORK. SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL MECHANICAL WORK THAT IS PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN. SUBMIT ORIGINAL COPY TO OWNER AT THE COMPLETION OF WORK AND PRIOR TO SUBSTANTIAL COMPLETION INSPECTION. PROVIDE ELECTRONIC COPY OF UPDATED CONTROLS SHOP DRAWINGS INCLUDING PLANS, PANEL WIRING DIAGRAMS, AND SEQUENCES OF OPERATIONS TO ACCURATELY REFLECT INSTALLED CONDITIONS.

SEISMIC RESTRAINT - ALL PIPING, DUCTWORK, AND EQUIPMENT INSTALLED UNDER THIS PROJECT SHALL BE SEISMICALLY RATED AND RESTRAINED FOR A SEISMIC EVENT IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE IBC AND ASCE 7 AS AMENDED BY THE MUNICIPALITY OF ANCHORAGE. THE CONTRACTOR SHALL PROVIDE A DEFERRED SUBMITTAL FOR REVIEW TO THE MUNICIPALITY OF ANCHORAGE PLAN REVIEW DEPARTMENT FOR SEISMIC RESTRAINT DESIGN WITH CALCULATIONS AND SHOP DRAWINGS. SEISMIC RESTRAINT CALCULATIONS AND SHOP DRAWINGS SHALL INCLUDE A STRUCTURAL ENGINEERS STAMP AND SIGNATURE PRIOR TO INSTALLATION.

SECTION 22 05 29: 23 05 29 - HANGERS & SUPPORTS FOR PIPING & EQUIPMENT

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
- PIPE HANGERS AND SUPPORTS
 - HANGERS FOR PIPES 1/2" TO 1-1/2" - MALLEABLE IRON OR CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING FOR STEEL PIPE, COPPER SWIVEL FOR COPPER PIPE.
 - HANGERS FOR PIPES 2" TO 4" - CARBON STEEL, ADJUSTABLE CLEVIS.
 - MULTIPLE OR TRAPEZE HANGERS - STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
 - WALL SUPPORTS FOR PIPES 1/2" TO 3" - CAST IRON HOOK.
 - WALL SUPPORTS FOR PIPES 4" AND LARGER - WELDED STEEL BRACKET, WROUGHT STEEL CLAMP W/ ADJUSTABLE STEEL YOKE AND CAST IRON ROLL.
- C. INSTALLATION
- DESIGNED AND INSTALLED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE (UPC) FOR DOMESTIC WASTE, VENT, AND WATER PIPING.
 - INSTALL HVAC PIPE HANGERS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) AND ANSI/MSS-SP-69 AND 89.
 - INSTALLED AS PER THE MANUFACTURER'S INSTRUCTIONS. PROVIDE SEISMIC SUPPORT FOR ALL PIPING AND EQUIPMENT IN ACCORDANCE WITH IBC.

SECTION 22 05 53: 23 05 53 - IDENTIFICATION FOR PIPING AND EQUIPMENT

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
- COLORING SCHEME IN ACCORDANCE WITH ANSI A13.1, SETON OPTI-CODE OR EQUAL.
- C. INSTALLATION:
- LABEL ALL EQUIPMENT WITH HEAT RESISTANT LAMINATED PLASTIC LABELS HAVING ENGRAVED LETTERING 1/2" HIGH. LABEL CEILING ADJACENT TO ACCESS LOCATION FOR ALL EQUIPMENT LOCATED ABOVE CEILING.

- IDENTIFY PIPING AND DUCTWORK TO INDICATE CONTENTS AND FLOW DIRECTION USING PIPE MARKERS OR BY A LABELED SLEEVES IN LETTERS READABLE FROM FLOOR AT LEAST ONCE IN EACH ROOM AND AT INTERVALS OF NOT MORE THAN 20' APART AND ON EACH SIDE OF PARTITION PENETRATIONS.

SECTION 22 07 00: 23 07 00 - INSULATION

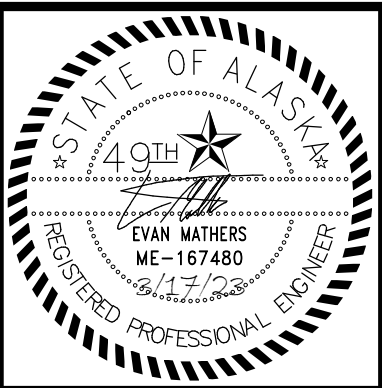
- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
- PIPING INSULATION - GLASS FIBER, RIGID, MOLDED, NON-COMBUSTIBLE INSULATION; ANSI/ASTM C547; 'K' VALUE OF 0.24 AT 75 DEG F, RATED TO 850 DEG F, VAPOR RETARDER JACKET OF KRAFT PAPER BONDED TO ALUMINUM FOIL; JOHNS MANVILLE "MICRO-LOK" OR EQUAL. COMPLETE WITH VAPOR BARRIER JACKET AND PLASTIC COVERS FOR FITTINGS.
 - INTERIOR DUCTWORK INSULATION - FSK DUCT WRAP: FLEXIBLE GLASS FIBER; ANSI/ASTM C553; COMMERCIAL GRADE; 'K' VALUE OF 0.27 AT 75 DEG F. JOHNS MANVILLE "800 SERIES SPIN-GLAS" OR EQUAL.
 - RIGID FIBER BOARD, INSULATION - ANSI/ASTM C612, 'K' VALUE OF 0.24 AT 75 DEG F, 3.0 LB./CU. FT. DENSITY, 0.00035 INCH FOIL SCRIM FACING. CERTAINTED "CERTAPRO COMMERCIAL BOARD" OR EQUAL.
 - PVC JACKETING - ONE PIECE FITTING COVERS AND JACKETING MATERIALS, PRE-MOLDED TYPE. JOHNS MANVILLE "ZESTON 2000" OR APPROVED EQUAL. JOHNS MANVILLE "PERMA-WELD" SOLVENT WELDING ADHESIVE.
 - EQUIPMENT INSULATION - REUSABLE THERMAL INSULATION COVERS: 2" THERMAL INSULATING WOOL, 2.4 LB./CU.FT DENSITY, MAXIMUM TEMPERATURE RATING OF 1000 DEG F; INTERIOR/EXTERIOR FABRIC: 17 OZ./SQ.YD. SILICONE COATED FIBERGLASS CLOTH, MAXIMUM TEMPERATURE RANGE OF -80 TO 500 DEG F; SECUREMENT: LACING ANCHORS, 14 GAUGE STAINLESS STEEL WITH 1.5" DIAMETER STAINLESS STEEL SPEED WASHERS; SEWING THREAD; KEVLAR/STAINLESS STEEL S-110 NATURAL WITH STAINLESS STEEL CORE, ALL BLANKET SEAMS TO BE SINGLE SEWN LOCK STITCH INTERIOR SEAMS, SIX TO NINE STITCHES PER INCH; DRAWCORD: 0.125" DIAMETER #4 ULTRA-STRENGTH POLYESTER.
- C. INSTALLATION
1. PIPING
- INSULATE ALL HEATING AND DOMESTIC WATER PIPING WITH PRE-FORMED FIBERGLASS INSULATION, COMPLETE WITH FACTORY VAPOR BARRIER AND PVC JACKETING FOR FITTINGS. PVC JACKETING TO BE PROVIDED FOR ALL PIPING BELOW 10' AFF IN FINISHED SPACES OR IN MECHANICAL ROOMS.
 - INSULATE ALL DOMESTIC COLD WATER PIPING SIZE 1-1/4" AND SMALLER WITH 1/2" INSULATION, SIZE 1-1/2" AND LARGER WITH 1" INSULATION.
 - INSULATE ALL DOMESTIC HOT WATER PIPING SIZE 1-1/4" AND SMALLER WITH 1" INSULATION, SIZE 1-1/2" AND LARGER WITH 1-1/2" INSULATION.
 - INSULATE ALL HYDRONIC HEATING PIPING SIZE 1-1/4" AND SMALLER WITH 1" INSULATION, SIZE 1-1/2" AND LARGER WITH 1-1/2" INSULATION.
 - PROVIDE 2" INSULATION ON VTR ABOVE ROOF, PROVIDE METAL JACKETING SEALED WEATHERTIGHT.
2. DUCTWORK
- PROVIDE 1" FIBERGLASS INSULATION ON ALL EXHAUST DUCTWORK WITHIN 5' OF EXTERIOR OPENINGS.
 - PROVIDE 1" FIBERGLASS INSULATION ON ALL EXHAUST AND OUTDOOR AIR DUCTWORK LOCATED WITHIN THE MECHANICAL ROOM.
 - INSTALL DUCT FIRE WRAP IN ACCORDANCE WITH MANUFACTURER INSTALLATION INSTRUCTIONS. LAP ALL SEAMS AND PROVIDE BANDING AS NECESSARY TO ACHIEVE UL LISTED ASSEMBLY.
3. EQUIPMENT
- PROVIDE REUSABLE THERMAL INSULATION COVERS FOR HX-1 AND AS-1.
4. INSTALL ALL INSULATION MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND ALL APPLICABLE BUILDING CODES AND INDUSTRY STANDARDS.

SECTION 22 10 00 - PLUMBING PIPING

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.
- B. MATERIALS:
- WASTE PIPING, BELOW GRADE - CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
 - WASTE PIPING, ABOVE GRADE:
 - CAST IRON PIPE - CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: CISPI 310, NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
 - FORCED WASTE PIPING:
 - POLYVINYL CHLORIDE (PVC), SCHEDULE 80, ASTM D1785, GRADE 1, CELL CLASSIFICATION 1245B. FITTINGS: SCHEDULE 80 ASTM D4267 SOCKETS. JOINTS: SOLVENT SOCKET WELD, FLANGED JOINTS SHALL BE PROVIDED AT UNIONS, VALVES, AND EQUIPMENT CONNECTIONS.
 - COPPER TUBING - ASTM B88, TYPE L, HARD DRAWN. FITTINGS: ASME B16.18 CAST BRONZE OR ASME B16.22 WROUGHT COPPER. JOINTS: ASTM B32, LEAD FREE SOLDER, WATER SOLUBLE FLUX OR VIEGA PRO PRESS, OR APPROVED EQUAL.

- DOMESTIC WATER PIPING,
 - COPPER TUBING - ASTM B88, TYPE L, HARD DRAWN. FITTINGS: ASME B16.18 CAST BRONZE OR ASME B16.22 WROUGHT COPPER. JOINTS: ASTM B32, LEAD FREE SOLDER, WATER SOLUBLE FLUX OR VIEGA PRO PRESS, OR APPROVED EQUAL.
- STORM WATER PIPING, BELOW GRADE:
 - CAST IRON PIPE - ASTM A74 SERVICE WEIGHT. FITTINGS: CAST IRON. HUB-AND-SPIGOT, CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKETS. CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
- STORM WATER PIPING, ABOVE GRADE:
 - CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: NEOPRENE GASKETS AND STAINLESS STEEL CLAMP-AND-SHIELD ASSEMBLIES.
- CONDENSATE PIPING - PVC PIPING MEETING ASTM D1785, SCHEDULE 40. FITTINGS: PVC. JOINTS: ASTM D2466/D2467, SOLVENT WELD WITH ASTM D2855 SOLVENT CEMENT.
- BALL VALVES:
 - SIZES 2" AND SMALLER - LEAD FREE BRONZE TWO-PIECE BODY, FULL PORT, FORGED LEAD FREE BRASS BALL, TEFLON SEATS AND ADJUSTABLE PACKING, LEVER HANDLE. SOLDER, THREADED, OR PRESS-FIT ENDS.
 - SIZES 2-1/2" AND LARGER - CAST STEEL TWO-PIECE BODY, FULL PORT CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE. FLANGED, SOLDER, THREADED, OR PRESS-FIT ENDS.
- SPRING LOADED CHECK VALVES:
 - SIZES 2" AND SMALLER - LEAD FREE BRONZE, SPRING LOADED WITH PTFE SEAT. SOLDER, SCREWED, OR PRESS FIT ENDS.
 - SIZES 2-1/2" AND LARGER - IRON BODY, BRONZE TRIM, SPRING LOADED, RENEWABLE COMPOSITION DISC. WAFER OR FLANGED ENDS.
- DIELECTRIC CONNECTIONS - IAPMO/UPC LISTED, STEEL-TO-PLASTIC DIELECTRIC WATERWAY DESIGN. THERMOPLASTIC-LINED STEEL NIPPLE WITH EXTERNAL ELECTRICAL CONTINUITY. RATED FOR CONTINUOUS USE AT TEMPERATURES UP TO 225°F AND FOR PRESSURES UP TO 300 PSI. DIELECTRIC UNIONS ARE NOT PERMITTED.
- WATER HAMMER ARRESTORS - BARREL-FABRICATED OF TYPE "L" HARD DRAWN COPPER WITH CAP OF COPPER OR FREE TURNING BRASS. INTERIOR PISTON MACHINED OF LOW LEAD C69300 ECO BRASS OR POLY-CARBONATE DOW CALIBRE 2061-15 MFR. O-RING SEALS OF EPDM WITH DOW-CORNING SILICONE COMPOUND #111 SEAL LUBRICANT FDA LISTED FOR USE IN POTABLE WATER SYSTEMS. TEMPERATURE RANGE: 32°F TO + 212°F. OPERATING PRESSURE: DESIGNED TO OPERATE ON ALL DOMESTIC AND COMMERCIAL SYSTEMS. NORMAL OPERATING PRESSURE 0 TO 200 P.S.I.G., MAX SPIKE PRESSURE 400 P.S.I.G. PRECISION PLUMBING PRODUCTS (PPP) MODELS "SC-500A THROUGH SC-2000F" OR EQUAL.
- PRESSURE RELIEF VALVES - BRONZE BODY, TEFLON SEAT, STEEL STEMS AND SPRINGS, AUTOMATIC, DIRECT PRESSURE ACTUATED, CAPACITIES ASME CERTIFIED AND LABELED, NPT ENDS.
- BALANCE VALVE - STRAIGHT PATTERN, 400 PSIG MAX WORKING PRESSURE, NSF 61 LEAD FREE BRASS BODY, 304 STAINLESS STEEL BALL, GLASS AND CARBON FILLED TFE SEAT RINGS, BRASS AND EPT CHECK VALVES, EPDM STEM O-RING, PLASTIC WHEEL HANDLE FOR SHUT-OFF SERVICE. LOCKSHIELD KEY CAP WITH SET SCREW MEMORY BONNET FOR BALANCING. NPT OR SWEAT ENDS. BELL & GOSSETT "CIRCUIT SETTER PLUS" OR APPROVED EQUAL.
- CLEANOUTS, INTERIOR FINISHED FLOOR AREAS - CAST IRON, TWO-PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, BRONZE PLUG, ADJUSTABLE ROUND NICKEL BRONZE DEPRESSED COVER. J.R. SMITH "MODEL 4021" OR APPROVED EQUAL.
- TRAP PRIMERS:
 - MANUAL - BRASS VALVE BODY, CONTAINS NO SPRINGS OR DIAPHRAGMS. DISTRIBUTION UNIT SHALL BE BRASS FITTINGS WITH COPPER WATER RESERVOIR, CLEAR PLASTIC COVER, TAPPINGS FOR UP TO FOUR DRAIN TAPS. 3 PSI ACTIVATION PRESSURE. PRECISION PLUMBING PRODUCTS "PRIME-RITE PR-500" OR APPROVED EQUAL.

- A. INSTALLATION
- ALL NEW PORTIONS OF THE DOMESTIC WATER PIPING SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 609 OF THE UPC.
 - TEST ALL NEW PORTIONS OF PIPING IN ACCORDANCE WITH THE UPC.
 - INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
 - PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
 - INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
 - PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
 - INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
 - PROVIDE 3/4" DRAIN VALVES AT EQUIPMENT AND PIPING LOW POINTS FOR DRAINING OF SYSTEM.



CERTIFICATE OF AUTHORIZATION NO.
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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. M2169
DATE 2023.03.08
DRAWN EMM/NSK
REVIEWED EMM

SHEET NAME
MECHANICAL SPECIFICATIONS

SHEET NO.
M004

HALF SCALE WHEN PRINTED AT 11x17

SECTION 23.05.93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

- A. SUBMITTALS: SUBMIT QUALIFICATIONS, NEBB CERTIFICATIONS OR 5 YEARS DOCUMENTED PROJECT EXPERIENCE OF SIMILAR OR GREATER MAGNITUDE, EQUIPMENT CALIBRATIONS, PRELIMINARY AND FINAL BALANCING REPORTS.
- B. MATERIALS:
1. BALANCING INSTRUMENTS AS NECESSARY TO COMPLETE WORK TO MEASURE AT LEAST THE FOLLOWING: AIR VELOCITY, STATIC PRESSURE, RPM, TEMPERATURE, AND FLOW.
- C. EXECUTION:
1. THE CONTRACTOR SHALL BALANCE AIR AND HYDRONIC SYSTEMS ACCORDING TO NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) RECOMMENDED PROCEDURES AND CONTRACT DOCUMENTS, AND TO THE SATISFACTION OF THE OWNER.
2. FLOWS ARE TO BE BALANCED TO WITHIN 10% OF INDICATED FLOWS, PER AMERICAN AIR BALANCING COUNCIL (AABC) RECOMMENDED METHODS.

SECTION 23.09.00 - INSTRUMENTATION AND CONTROL FOR HVAC

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
1. THERMOMETERS:
1. STEM TYPE - 9 INCH SCALE, UNIVERSAL ADJUSTABLE ANGLE, RED APPEARING MERCURY; LENS FRONT TUBE, CAST ALUMINUM CASE WITH METALLIC FINISH AND CLEAR LEXAN WINDOW. EXTENDED BRASS STEM, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 2 PERCENT OF SCALE ACCURACY TO ASTM E77. SCALE CALIBRATED IN BOTH DEGREES F AND DEGREES C. TRERICE "BX9" OR APPROVED EQUAL.
2. THERMOSTATS:
1. PROGRAMMABLE, DIGITAL - DIGITAL 24VAC, 7-DAY PROGRAMMING, DIGITAL DISPLAY, MENU-DRIVEN, PRECISE TEMPERATURE CONTROL (+/- 1°F), BATTERY POWERED, 40°F TO 85°F SET POINT ADJUSTMENT RANGE HONEYWELL FOCUSPRO 6000.
2. GUARDS - LOCKING, CLEAR ACRYLIC, COMPLETE WITH BASE PLATE. ALL GUARDS SHALL BE KEYED ALIKE.
3. PRESSURE GAUGES - 4-1/2" DIAMETER CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURBON TUBE, ROTARY BRONZE MOVEMENT, BRASS SOCKET, SILICONE FLUID DAMPENING BLACK FIGURES ON WHITE BACKGROUND, 1% MID-SCALE ACCURACY, CALIBRATED IN PSI. TRERICE "600CB" OR APPROVED EQUAL.
4. CONTROL VALVES - SELECT VALVES TO FAIL SAFE IN THE HEATING POSITION UNLESS NOTED OTHERWISE. SELECT VALVES TO HAVE EQUAL PERCENTAGE PORTS FOR MODULATING SERVICE. SIZE VALVE OPERATORS TO CLOSE VALVES AGAINST PUMP SHUT OFF HEAD. SIZE MODULATING VALVES FOR 3 TO 5 PSI DROP. FOR 2-POSITION OPEN/CLOSE SERVICE, VALVE SHALL BE LINE-SIZED.
- C. INSTALLATION:
1. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE W/ MANUFACTURERS INSTRUCTIONS.
2. ALL WIRING SHALL BE PER THE NEC. PROVIDE PROPER GROUNDING OF ALL CONTROL WIRING.
3. PROVIDE TWO PRESSURE GAUGES PER PUMP, INSTALLING TAPS BEFORE STRAINERS AND ON SUCTION AND DISCHARGE OF PIPE. PIPE TO GAUGE WITH ISOLATION VALVE TO EACH TAPPING.
4. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SOCKETS WITH SHORT COUPLING. SELECT BULB LENGTH TO REACH CENTERLINE OF PIPE.
5. ALL INSTRUMENTS SHALL BE PROVIDED WITH SCALE RANGES ACCORDING TO LARGEST PRESSURE IN SYSTEM SERVED.
6. INSTALL ALL GAUGES AND THERMOMETERS IN LOCATIONS WHERE THEY ARE EASILY READ.
7. LOCATE THERMOSTAT GUARDS IN ALL PUBLIC AREAS.
8. ALL CONTROLLERS, TRANSMITTERS, SWITCHES, THERMOSTATS, GAUGES, AND DEVICES WITH ADJUSTABLE SETPOINTS SHALL BE PERMANENTLY TAGGED WITH IDENTIFICATION COORDINATED WITH THE CONTROL DRAWINGS.

SECTION 23.11.23 - FACILITY NATURAL GAS PIPING

- A. SUBMITTALS: SUBMIT ON PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.
- B. MATERIALS:
1. ABOVE GRADE PIPING - STEEL PIPE, ASTM A53, SCHEDULE 40 BLACK. FITTINGS: ANSI/ASME B16.3, MALLEABLE IRON, OR ASTM A234. STEEL WELDING TYPE. JOINTS: VEIGA MEGAPRESS-G OR SCREWED FOR PIPE 2" AND SMALLER AND IF LOW PRESSURE. IF MEDIUM PRESSURE, OUTSIDE BUILDING, OR 2-1/2" AND LARGER: ANSI/AWS D1.1, WELDED. GAS COCKS:
1. SIZES 2" AND SMALLER - BRONZE BODY, BRONZE TAPERED PLUG, NON-LUBRICATED, TEFLON PACKING, THREADED OR PRESS-FIT ENDS..
3. BALL VALVES:
1. SIZES 2" AND SMALLER - BRONZE, TWO-PIECE BODY, FULL PORT, FORGED BRASS CHROME PLATED BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLED, SOLDER, THREADED, OR PRESS FIT ENDS.
2. SIZE 2-1/2" AND LARGER - CAST STEEL, TWO-PIECE BODY, FULL PORT CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE, FLANGED, THREADED, OR PRESS-FIT ENDS.

- C. INSTALLATION
1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
2. PROVIDE CLEARANCE FOR ACCESS TO VALVES AND FITTINGS.
3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
4. PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
5. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
6. INSTALL HANGERS AND SUPPORTS IN ACCORDANCE WITH MSS-SP-89 AND 89.
7. TEST ALL PIPING IN ACCORDANCE WITH IFGC AND UPC REQUIREMENTS.

SECTION 23.21.13 - HYDRONIC PIPING

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.
- B. MATERIALS:
1. COPPER TUBING - ASTM B88, TYPE L, HARD DRAWN. FITTINGS: ANSI/ASME B16.18 CAST BRONZE OF ASME B16.22 WROUGHT COPPER. JOINTS: ASTM B32. SOLDER, GRADE 95TA OR ANSI/AWS A5.8, BCUP SILVER BRAZE; FLUX: ASTM B813 OR VIEGA PRO PRESS SYSTEM.
2. PEX TUBING - TUBING SHALL BE HIGH DENSITY CROSS-LINKED POLYETHYLENE (PEX) MANUFACTURED IN ACCORDANCE WITH ASTM F877. ALL TUBING SHALL BE FULLY CROSS-LINKED TO THE SPECIFIED STANDARD PRIOR TO SHIPMENT FROM MANUFACTURE. TUBING SHALL BE RATED FOR NOT LESS THAN 180°F WORKING TEMPERATURE AND 100 PSIG WORKING PRESSURE. TUBING SHALL HAVE A CO-EXTRUDED OXYGEN DIFFUSION BARRIER CAPABLE OF LIMITING OXYGEN DIFFUSION THROUGH THE TUBE TO NO GREATER THAN 0.10/GM3/DAY AT 104 DEG F WATER TEMPERATURE, IN ACCORDANCE WITH DIN 4726. FITTINGS SHALL BE MANUFACTURED OF BRASS AND SHALL BE SUPPLIED BY THE TUBING MANUFACTURER AS PART OF A PROVEN CATALOGED SYSTEM. TUBE COUPLINGS EMBEDDED WITHIN THE THERMAL MASS SHALL BE BRASS COMPRESSION TYPE WITH RIBBED INSERT AND COMPRESSION SLEEVES AS SUPPLIED BY THE TUBING MANUFACTURER.
3. BALL VALVES:
1. SIZES 2" AND SMALLER - BRONZE TWO-PIECE BODY, FULL PORT, FORGED BRASS, CHROME PLATED BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE. SOLDER, THREADED, OR PRESS-FIT ENDS.
2. SIZES 2-1/2" AND LARGER - CAST STEEL TWO-PIECE BODY, FULL PORT CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE. FLANGED, SOLDER, THREADED, OR PRESS-FIT ENDS.
4. SPRING LOADED CHECK VALVES - IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING, RENEWABLE COMPOSITION DISC. SCREWED, WAFER, OR FLANGED ENDS.
5. FLANGES, UNIONS, AND COUPLINGS - BRONZE UNIONS FOR COPPER PIPE, SOLDERED JOINTS.
6. RELIEF VALVES - BRONZE BODY, TEFLON SEAT, STAINLESS STEEL STEM AND SPRINGS. AUTOMATIC, DIRECT PRESSURE ACTUATED, CAPACITIES ASME CERTIFIED AND LABELED.
- A. INSTALLATION:
1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
2. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
4. PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
5. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
6. PROVIDE 3/4" DRAIN VALVES AT EQUIPMENT AND PIPING LOW POINTS FOR DRAINING OF SYSTEM.
7. PRIOR TO FLUSHING SYSTEM, VERIFY SYSTEM IS COMPLETE. THOROUGHLY FLUSH AND CLEAN THE SYSTEM. DRAIN ALL LOW POINTS AND REMOVE AND CLEAN ANY STRAINER BASKETS. UPON COMPLETION OF FLUSHING, FEED HEATING MEDIUM INTO SYSTEM THROUGH MAKE-UP LINE WITH PRESSURE REGULATOR WHILE VENTING HIGH POINTS. SET INITIAL FILL PRESSURE TO 5 PSIG. ADJUST PRESSURE AS NECESSARY TO ACHIEVE 20 PSIG FOR MAIN BUILDING HEATING LOOP, AND 12 PSIG FOR THE GLYCOL SYSTEM DURING SYSTEM OPERATION.

SECTION 23.21.16 - HYDRONIC SPECIALTIES

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
1. GLYCOL - PROVIDE HEAVY DUTY PREMIXED HYDRONIC GRADE PROPYLENE ANTIFREEZE AT A RATE OF 50% WATER TO 50% GLYCOL FOR A -29 DEGREES F PROTECTION OR BETTER. SUPPLY PRE-MIXED GLYCOL-WATER SOLUTION WITH INHIBITORS, DOWFROST "HD" OR EQUAL. MIXING CONCENTRATED GLYCOL WITH SITE WATER IS NOT ACCEPTABLE. PROVIDE GLYCOL TEST AT FINAL COMPLETION. ADD 100% GLYCOL AS NECESSARY TO ACHIEVE SPECIFIED 50/50 CONCENTRATION. PROVIDE ADDITIONAL GLYCOL SOLUTION AS REQUIRED TO SET HYDRONIC SYSTEM PRESSURE.
2. AIR VENTS:
1. MANUAL TYPE - DISK TYPE VENT WITH BUILT-IN CHECK VALVE FOR MANUAL OR AUTOMATIC OPERATION. DISCS REPLACEABLE WITHOUT DRAINING SYSTEM. 1/8 INCH SHANK. RATED AT 50 PSI; HOFFMAN "MODEL 508" OR APPROVED EQUAL.
2. FLOAT TYPE: MAINTENANCE FREE SOLID BRASS CONSTRUCTION, CONTINUOUS AIR VENTING, 150 PSIG STANDARD WORKING PRESSURE, 240° F MAXIMUM TEMPERATURE, 1/2 INCH MALE THREAD AT VENT POINT FOR PRESSURE TESTING OR REMOTE VENTING, 1/2 OR 3/4 INCH FEMALE THREADED CONNECTIONS. PROVIDE WITH MINI BALL VALVE FOR ISOLATION. TACO "409 VENT", SPIROTHERM "SPIROTOP VTP" OR APPROVED EQUAL.
3. STRAINERS:
1. SIZE 2" AND SMALLER - SCREWED BRASS OR IRON BODY FOR 175 PSIG WORKING PRESSURE, Y PATTERN WITH 1/32 INCH STAINLESS STEEL PERFORATED SCREEN.
2. SIZES 2-1/2" TO 4" - FLANGED IRON BODY FOR 175 PSIG WORKING PRESSURE, Y-PATTERN WITH 3/64 INCH STAINLESS STEEL PERFORATED SCREEN.
4. BALANCE VALVES - ANGLE OR STRAIGHT PATTERN, INSIDE SCREW GLOBE VALVE FOR 125 PSIG WORKING PRESSURE, WITH BRONZE BODY AND INTEGRAL UNION FOR SCREWED CONNECTIONS, RENEWABLE COMPOSITION DISC, PLASTIC WHEEL HANDLE FOR SHUT-OFF SERVICE, AND LOCKSHIELD KEY CAP FOR BALANCING SERVICE. BELL & GOSSETT "CIRCUIT SETTER PLUS" OR APPROVED EQUAL.
5. FLOW CONTROL VALVES - BRASS OR BRONZE BODY WITH UNION ON INLET AND OUTLET, TEMPERATURE AND PRESSURE TEST PLUG ON INLET AND OUTLET, BLOWDOWN/BACKFLUSH DRAIN, OUTLET BALL VALVE. AUTOMATIC FLOW CONTROL VALVE CARTRIDGES SHALL AUTOMATICALLY CONTROL FLOW RATES WITH +/- 5% ACCURACY OVER AN OPERATING PRESSURE DIFFERENTIAL OF AT LEAST 14 TIMES THE MINIMUM REQUIRED FOR CONTROL. FOUR OPERATING PRESSURE RANGES SHALL BE AVAILABLE WITH THE MINIMUM RANGE REQUIRING LESS THAN 3 PSI TO ACTUATE THE MECHANISM. GRISWOLD CONTROLS "ISOLATOR" OR APPROVED EQUAL.
- C. INSTALLATION:
1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
2. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
4. PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
5. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
6. PROVIDE 3/4" DRAIN VALVES AT EQUIPMENT AND PIPING LOW POINTS FOR DRAINING OF SYSTEM.

SECTION 23.31.00 - HVAC DUCTS AND CASINGS

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL
- B. MATERIALS:
1. DUCTWORK:
1. GALVANIZED STEEL - ASTM A653/A653M GALVANIZED SHEET, LOCK-FORMING QUALITY, ASTM A90/90M G90 ZINC COATING.
2. FASTENERS - RIVETS, BOLTS, OR SHEET METAL SCREWS.
2. FLEXIBLE DUCTS:
1. NON-INSULATED - UL 181, COATED SPRING STEEL WIRE PERMANENTLY BONDED TO A COATED WOVEN FIBERGLASS COVER. 16" W.G. POSITIVE AND 1.0" W.G. NEGATIVE. PRESSURE RATING FOR SIZES 2"-10" DIAMETER. THERMAFLEX "S-TL" OR APPROVED EQUAL.
3. SINGLE WALL, ROUND SPIRAL DUCT - UL 181, CLASS 1, ROUND SPIRAL LOCKSEAM, GALVANIZED STEEL. DUCT SIZE GAUGES PER SMACNA STANDARDS..
- C. INSTALLATION:
1. LOW PRESSURE DUCTWORK - FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND ASHRAE HANDBOOKS, EXCEPT AS INDICATED. SEAL ALL DUCT SEAMS AND JOINTS AIRTIGHT. USE TURNING VANES IN ALL SQUARE ELBOWS AND FLAT OVAL ELBOWS. INSTALL VOLUME DAMPERS WHERE SHOWN ON THE DRAWINGS. ALL SHEET METAL WORK TO BE CONSTRUCTED, INSTALLED, TESTED AND BALANCED IN ACCORDANCE WITH SMACNA STANDARDS. SUPPORT LOW PRESSURE DUCTWORK PER SMACNA GUIDELINES.
2. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH SHEET METAL SCREWS.

SECTION 23.33.00 - AIR DUCT ACCESSORIES

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL
- B. MATERIALS:
1. DAMPERS:
1. BACKDRAFT - MULTI-BLADE, PARALLEL ACTION, GRAVITY BALANCED, 16-GAUGE GALVANIZED STEEL OR EXTRUDED ALUMINUM, CENTER PIVOTED BLADES OF 6" WIDTH MAX, VINYL BLADE SEALS, EXTERNAL LINKAGE AND TIE BAR, STEEL BALL BEARINGS. GREENHECK "EM" SERIES OR APPROVED EQUAL.
2. MANUAL BALANCING - DIFFERENTIAL PRESSURE RATING OF 1" W.G., VELOCITY RATING OF 2,000 FPM. DAMPER FRAME AND SLEEVE SHALL BE OF ONE-PIECE DESIGN, 20 GAUGE GALVANIZED STEEL, SINGLE BLADE. GREENHECK "MBDR-50" OR APPROVED EQUAL.
3. INSULATED CONTROL - DIFFERENTIAL PRESSURE RATING OF 8" W.G., VELOCITY RATING OF 3,000 FPM, LEAKAGE OF 3 CFM/FT2 AT 1" W.G. DIFFERENTIAL STATIC PRESSURE. DAMPER FRAME AND SLEEVE SHALL BE OF ONE-PIECE DESIGN, DAMPER FRAME SHALL BE INSULATED WITH POLYSTYROFOAM, 16 GAUGE GALVANIZED STEEL, MULTI-BLADES, INSULATED THERMALLY BROKEN AIRFOIL, OPPOSED, STEEL AXLES, EXTERNAL BLADE-TO-BLADE LINKAGE, SILICONE OR EPDM BLADE AND JAMB SEALS. GREENHECK "ICD-45" OR APPROVED EQUAL.
4. FIRE - FABRICATED IN ACCORDANCE WITH UL-555, 3-HR FIRE RESISTANCE RATING, 15-GAUGE GALVANIZED STEEL FRAME, STAINLESS STEEL CLOSURE SPRING, 165°F REPLACEABLE FUSIBLE LINK FOR AUTOMATIC CLOSURE. GREENHECK "FD-350" OR APPROVED EQUAL.
5. COMBINATION FIRE & SMOKE - DIFFERENTIAL PRESSURE RATING OF 8" W.G., VELOCITY RATING OF 3,000 FPM, FABRICATED IN ACCORDANCE WITH NFPA 90A, UL-555, AND UL-555S. 3-HR FIRE RESISTANCE RATING, DYNAMIC, 350°F TEMPERATURE RATING, 16-GAUGE GALVANIZED STEEL FRAME, MULTI-BLADE, OPPOSED, AIRFOIL, SILICONE BLADE SEALS, CONCEALED FRAME LINKAGE, HEAT-ACTUATED QUICK DETECTION TEMPERATURE RELEASE, 165°F FUSIBLE LINK RELEASE TEMPERATURE, MODULATING OPEN/CLOSE. GREENHECK "FSD-331" OR APPROVED EQUAL.
2. FLEXIBLE DUCT CONNECTIONS - UL AND NFPA 701 LISTED FIRE RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC, MINIMUM DENSITY 30 OZ. PER SQ. YD, 3" WIDTH, CRIMPED INTO METAL EDGING STRIP. DURO-DYNE "NEOPRENE FLEXIBLE DUCT CONNECTOR" OR APPROVED EQUAL.
3. TURNING VANES - AIR FOIL, DOUBLE WIDTH, GALVANIZED, 2" INSIDE RADIUS.
- C. INSTALLATION:
1. INSTALL COMPONENTS IN ACCORDANCE WITH NFPA 90A AND SMACNA DUCT CONSTRUCTION STANDARDS.
2. INSTALL 12"X12" ACCESS DOORS DOWNSTREAM OF AUTOMATIC CONTROL DAMPERS, ADJACENT TO FIRE, SMOKE, COMBINATION FIRE-SMOKE DAMPERS FOR RESET OF FUSIBLE LINKS, AND DOWNSTREAM OF EACH VAV BOX. ACCESS DOORS SHALL BE INSTALLED UPSTREAM AND DOWNSTREAM OF EACH HEATING COIL.
3. INSTALL TEMPORARY DUCT TEST HOLES AS REQUIRED FOR TESTING AND BALANCING. CAP ALL HOLES WITH NEOPRENE OR THREADED PLUGS.
4. INSTALL FIRE AND COMBINATION FIRE-SMOKE DAMPERS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ACCESS AND IDENTIFICATION PER THE IMC. PROVIDE WITH AN APPROVED MEANS OF ACCESS, LARGE ENOUGH TO PERMIT INSPECTION AND MAINTENANCE OF THE DAMPER AND ITS OPERATING PARTS. ACCESS POINTS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A LABEL HAVING LETTERS NOT LESS THAN 1/2" HEIGHT READING: FIRE/SMOKE DAMPER OR FIRE DAMPER.

SECTION 23.51.00 - BREECHINGS, CHIMNEYS, & STACKS

- A. SUBMITTALS: SUBMIT PRODUCT DATA, SHOP DRAWINGS, AND STACK SIZING CALCULATIONS FOR APPROVAL.
- B. MATERIALS:
1. HIGH EFFICIENCY CONDENSING BOILER VENTING - UL 1738 LISTED FOR USE WITH CATEGORY II, III, AND IV APPLIANCES. ULC-S636-95 LISTED FOR GAS VENTING, MODULAR SYSTEM. AL-294C STAINLESS STEEL. INNER SHELL, 20 GAUGE, WELDED. 304 OR 316 STAINLESS STEEL. OUTER SHELL, WELDED. MINIMUM 1" AIR SPACE BETWEEN INNER AND OUTER SHELLS. MINIMUM 1" LOW CONDUCTIVITY CERAMIC FIBER INSULATION BETWEEN INNER AND OUTER SHELLS.
2. HIGH EFFICIENCY CONDENSING BOILER VENTING - LISTED FOR USE WITH CATEGORY II AND IV APPLIANCES. ULC-S636 LISTED FOR GAS VENTING. MODULAR SYSTEM. RIGID PIPE CONSTRUCTED OF 2.2 MILLIMETER (MIN.) THICK POLYPROPYLENE. 0-INCH CLEARANCE TO COMBUSTIBLES FOR EXHAUST TEMPERATURES UP TO 194°F.
3. HIGH EFFICIENCY WATER HEATER VENTING - POLYPROPYLENE, LISTED FOR USE WITH CATEGORY II AND IV GAS BURNING APPLIANCES.
4. CONDENSING NATURAL GAS EQUIPMENT - CHLORINATED POLYVINYL CHLORIDE (CPVC), SCHEDULE 80, TYPE IV, GRADE 1, MANUFACTURED IN COMPLIANCE WITH ASTM F441 AND STORED INDOORS. LISTED FOR USE BY EQUIPMENT MFRG.
- C. INSTALLATION:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. NO PVC SCH 40 VENTS ARE PERMITTED.



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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE

#	DESCRIPTION	DATE
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JOB NO. M2169
DATE 2023.03.08
DRAWN EMM/NSK
REVIEWED EMM

SHEET NAME
MECHANICAL SPECIFICATIONS

SHEET NO.
M005

HALF SCALE WHEN PRINTED AT 11x17

SEQUENCE OF OPERATIONS

GENERAL REQUIREMENTS: CONTROL SEQUENCES SHALL BE ACCOMPLISHED THROUGH USE OF STANDALONE DIGITAL/ELECTRONIC CONTROLLERS.

THE CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERATIONAL CONTROL SYSTEM AS REQUIRED BY THE SEQUENCE OF OPERATION. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, POWER, WIRING, CONDUIT, CONTROLLERS, ACTUATORS, AND ASSOCIATED CONTROL COMPONENTS FOR A COMPLETE AND OPERATIONAL SYSTEM.

WATER HEATER (WH-1, WH-2, TV-1, HWCP-1)
INTEGRAL CONTROLS SHALL MODULATE WH-1 AND WH-2 BURNERS TO MAINTAIN A TANK TEMPERATURE OF 140°F (INITIAL SETTING, ADJUSTABLE) TV-1 SHALL BE SET TO HAVE AN OUTPUT WATER TEMPERATURE OF 120°F. HWCP-1 SHALL RUN CONTINUOUSLY.

GLYCOL TANK (GT-1)
INTEGRAL CONTROLS SHALL CYCLE PUMP AS NEEDED TO MAINTAIN A SYSTEM PRESSURE OF 12 PSI (INITIAL SETTING, ADJUSTABLE). ON LOW GLYCOL LEVEL LOCAL ALARM SHALL ACTIVATE.

ELEVATOR SUMP PUMP (SP-1)
INTEGRAL CONTROLS SHALL CYCLE SUMP PUMP TO MAINTAIN WATER LEVEL. TRIGGER ALARM ON REMOTE PANEL ON HIGH WATER ALARM.

BASEBOARD (BB-1,2,3)
ON CALL FOR HEAT FROM SPACE THERMOSTAT, CONTROL VALVE SHALL CYCLE TO MAINTAIN SPACE THERMOSTAT SETPOINT.

UNIT HEATERS (UH-1,2)
ON CALL FOR HEAT FROM SPACE THERMOSTAT, CONTROL VALVE SHALL CYCLE AND FAN SHALL RUN IN SEQUENCE TO MAINTAIN SPACE THERMOSTAT SETPOINT.

CABINET UNIT HEATERS (CUH-1,3,4,5,6)
ON CALL FOR HEAT FROM SPACE THERMOSTAT, CONTROL VALVE SHALL CYCLE AND FAN SHALL RUN IN SEQUENCE TO MAINTAIN SPACE THERMOSTAT SETPOINT.

CABINET UNIT HEATERS (CUH-2)
INTEGRAL TEMPERATURE SENSOR SHALL CYCLE FAN ON HWS TEMPERATURES ABOVE 120°F.

HYDRONIC HEATING SYSTEM (B-1, B-2, BP-1A, BP-1B, CP-1A, CP-1B)
BOILERS AND BOILER CIRCULATION PUMPS SHALL BE CONTROLLED BY INTEGRAL CONTROLLER TO MAINTAIN SUPPLY HEADER TEMPERATURE BASED ON OUTSIDE AIR TEMPERATURE RESET UPON CALL FOR HEAT. SEE BELOW FOR INITIAL SETPOINTS (ADJUSTABLE)

O/A TEMPERATURE (°F)	HEADER TEMPERATURE (°F)
65	120
35	160

BOILERS SHALL BE CASCADED TOGETHER WITH B-1 DESIGNATED AS THE LEADER CONTROL AND B-2 BEING MEMBER CONTROL. BOILERS SHALL RUN WITH EFFICIENCY OPTIMIZATION CONTROL TO FIRE BOILERS IN THE MOST EFFICIENT MANNER DEPENDING ON LOAD. CONTROLS SHALL DISABLE BOILERS AND BOILER CIRCULATION PUMPS ON OUTSIDE AIR TEMPERATURES OF 65°F (INITIAL SETTING, ADJUSTABLE) AND HIGHER. INTEGRAL HIGH LIMIT CONTROLLER SHALL DISABLE BOILERS ABOVE 210°F. INTEGRAL LOW WATER CUT OFF SHALL DISABLE BOILERS, PROVIDE MANUAL RESET.

ON TEMPERATURES BELOW 62°F (INITIAL SETTING, ADJUSTABLE) BUILDING CIRCULATION PUMPS SHALL RUN CONTINUOUSLY IN A LEAD-LAG CONFIGURATION, TO BE CONTROLLED BY PUMP INTEGRAL CONTROLS, IF LEAD PUMP FAILS TO START, LAG PUMP SHALL RUN AND AN ALARM SHALL BE TRIGGERED, PROVIDE MANUAL RESET. LEAD PUMP DESIGNATION SHALL CYCLE EVERY WEEK. INTEGRAL PUMP VFD SHALL MODULATE PUMPS AS REQUIRED TO MAINTAIN A DIFFERENTIAL PRESSURE, AS DETERMINED DURING BALANCING. ADJUST PUMP SETPOINT AS REQUIRED DURING BALANCE TO OBTAIN FLOW REQUIRMENTS FOR ALL HEATING TERMINAL UNITS.

ACTIVATION OF EITHER BOILER EMERGENCY SHUTDOWN SHALL DISABLE BOILERS.

AIRSIDE HEATING (ERV-1, PHC-1, HC-1, HX-1, CP-2, CP-3)
ERV-1 EXHAUST AND SUPPLY FANS SHALL OPERATE CONTINUOUSLY. O/A AND E/A CONTROL DAMPERS SHALL BE OPEN. PREHEAT COIL, PHC-1 CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE EXHAUST AIR TEMPERATURE 5°F (INITIAL SETTING ADJUSTABLE) ABOVE THE DEWPOINT. DEWPOINT SHALL BE CALCULATED FROM HUMIDITY AND TEMPERATURE SENSORS IN THE RETURN DUCT. HEATING COIL, HC-1 CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN A LEAVING AIR TEMPERATURE BETWEEN 75°F AND 65°F (ADJUSTABLE) BASED ON OUTDOOR RESET. SEE BELOW FOR INITIAL SETPOINTS.

O/A TEMPERATURE (°F)	SUPPLY TEMPERATURE (°F)
65	65
45	75

ON OUTDOOR AIR TEMPERATURES ABOVE 65°F (INITIAL SETTING, ADJUSTABLE) PHC-1 AND HC-1 CONTROL VALVES SHALL BE CLOSED, ERV-1 R/A DAMPER SHALL BE CLOSED, AND ERV-1 BYPASS DAMPER SHALL BE OPEN.

WHEN PHC-1 OR HC-1 CONTROL VALVE IS OPEN MORE THEN 5%, HEAT EXCHANGER SYSTEM SHALL RUN. HOT SIDE CIRCULATION PUMP, CP-2 SHALL BE ON FOR A PERIOD OF 5 MINUTES (INITIAL SETTING, ADJUSTABLE) BEFORE THE START OF COLD SIDE CIRCULATION PUMP, CP-3. PUMPS SHALL RUN UNTIL BOTH HEATING COIL CONTROL VALVES ARE CLOSED.

ON A SUPPLY AIR TEMPERATURE OF 40°F (INITIAL SETTING, ADJUSTABLE) OR LOWER, TRIGGER AN AIRSIDE FREEZE ALARM. TURN OFF ERV-1 FANS, SHUT O/A AND E/A CONTROL DAMPERS, CYCLE PHC-1 AND HC-1 FULL ON FOR FIVE MINUTES (INITIAL SETTING, ADJUSTABLE), PROVIDE AUTOMATIC RESET.

ON HWR TEMPERATURE FROM HX-1 OF 100°F (INITIAL SETTING, ADJUSTABLE) OR LOWER, TRIGGER A HYDRONIC FREEZE ALARM. TURN OFF ERV-1 FANS, SHUT O/A AND E/A CONTROL DAMPERS, CYCLE PHC-1 AND HC-1 FULL ON FOR FIVE MINUTES (INITIAL SETTING, ADJUSTABLE), PROVIDE AUTOMATIC RESET.

IF MORE THEN 5 FREEZE ALARMS (EITHER AIRSIDE OR HYDRONIC) ARE TRIGGERED IN A 24 HOUR PERIOD, REQUIRE MANUAL RESET.

RANGE HOOD (RH-1, 1A)
FAN AND LIGHT SHALL BE CONTROLLED FROM HOOD OR REMOTE COUNTER MOUNTED SWITCHES.

ROOFTOP EXHAUST FAN (EF-1)
FAN SHALL RUN CONTINUOUSLY, SPEED CONTROLLER ONLY TO BE USED FOR BALANCING.



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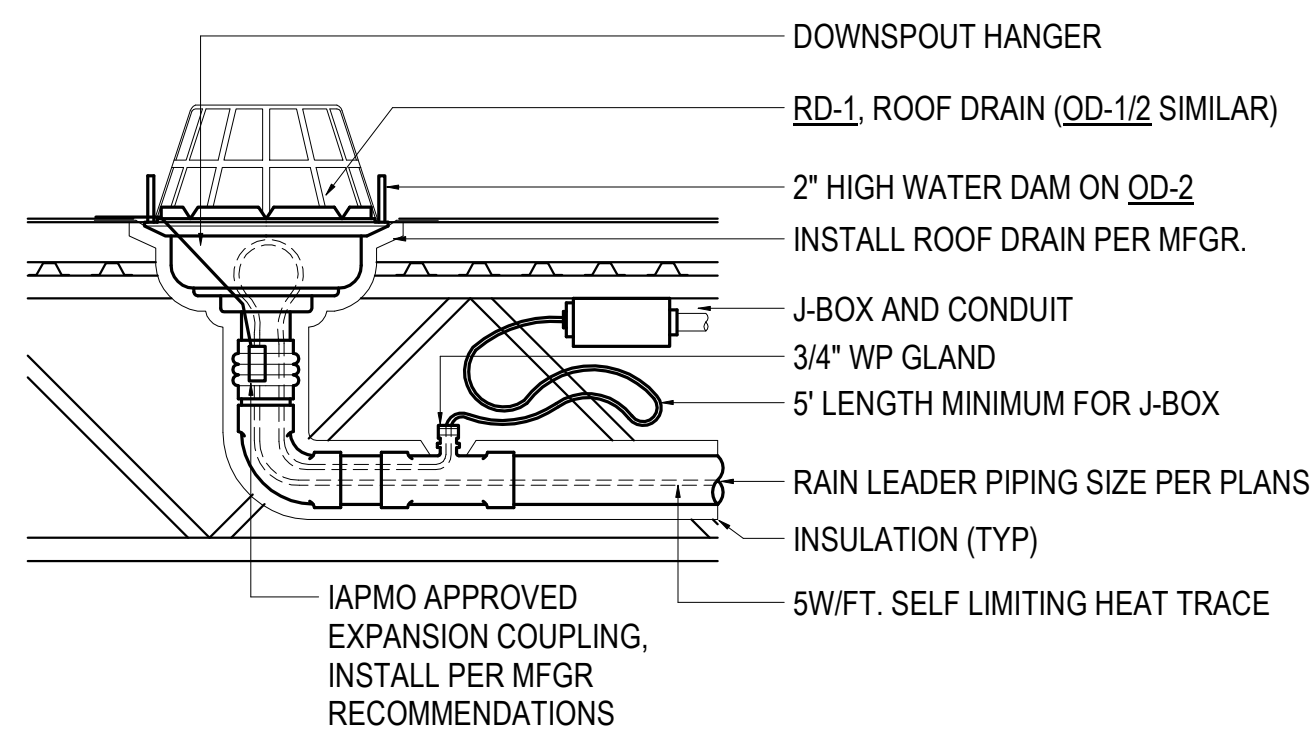
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

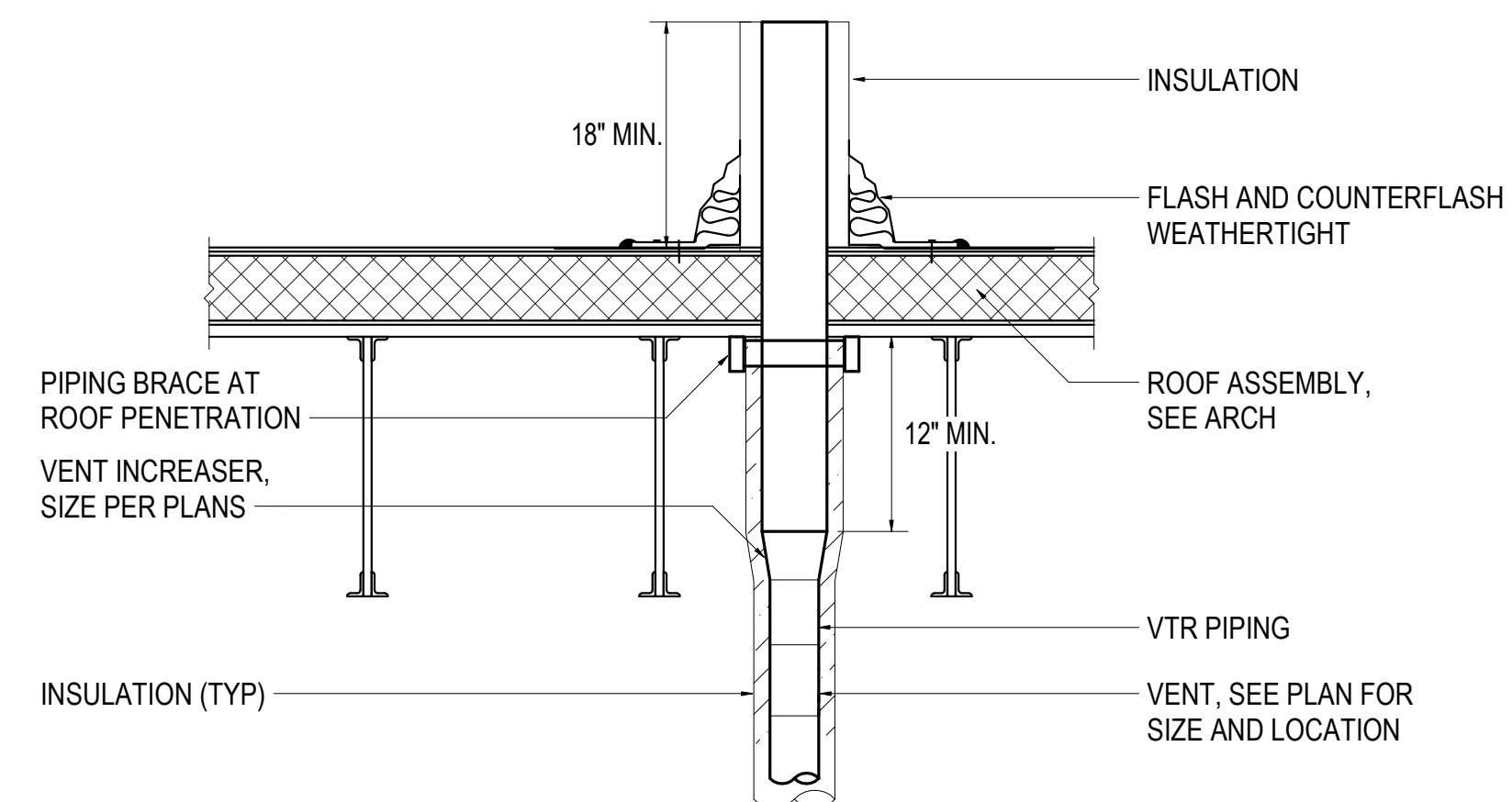
JOB NO.	M2169
DATE	2023.03.08
DRAWN	EMMANISK
REVIEWED	EMM

SHEET NAME
MECHANICAL SEQUENCE OF OPERATIONS

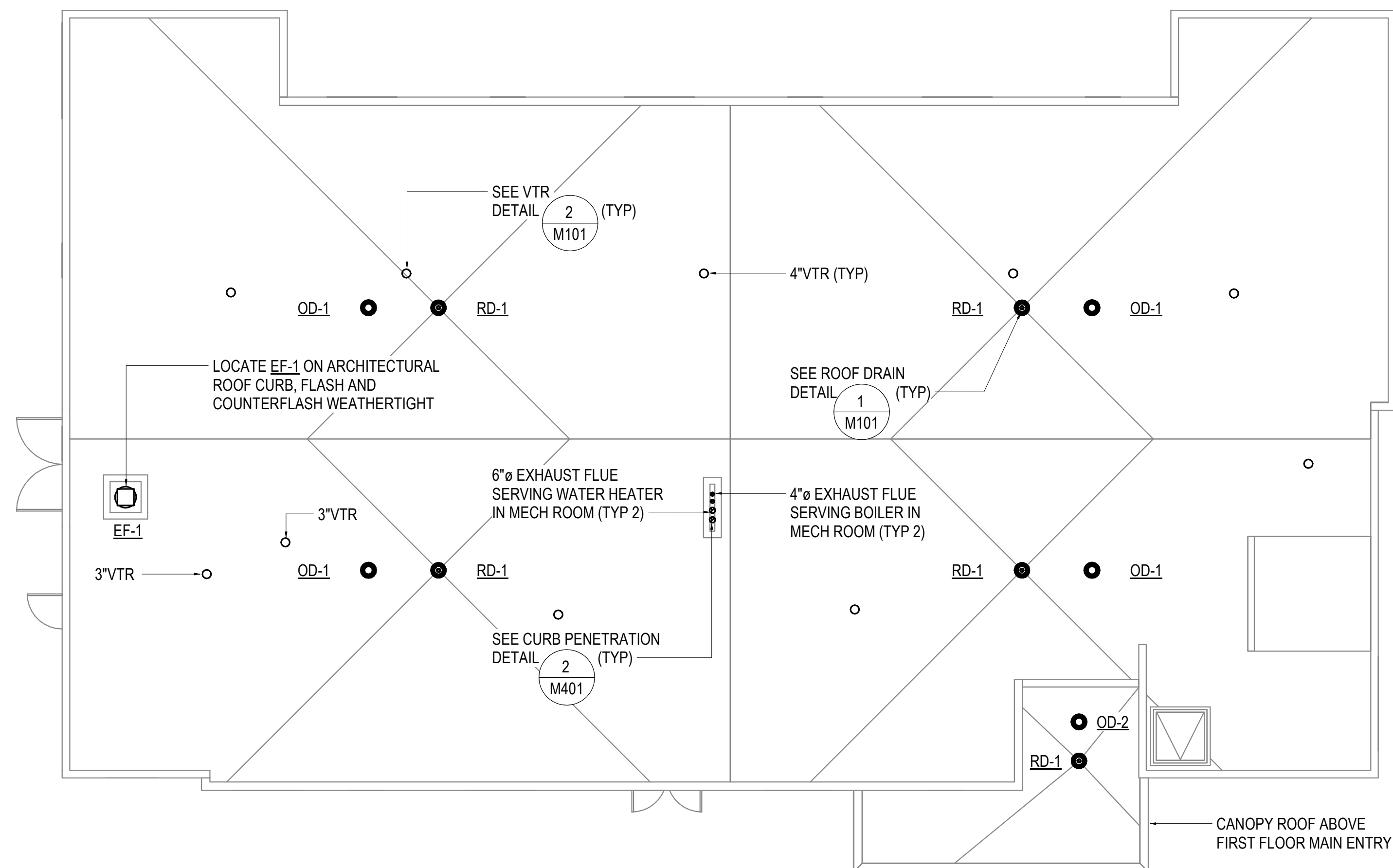
SHEET NO.
M006



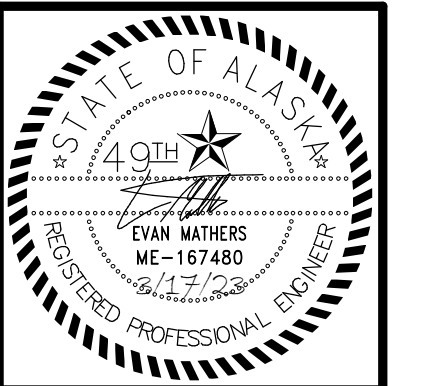
1 ROOF/OVERFLOW DRAIN DETAIL



2 VENT THROUGH ROOF DETAIL



3 MECHANICAL ROOF PLAN
1/8" = 1'-0"



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COOK INLET HOUSING AUTHORITY
 BREWSTERS MULTI-FAMILY HOUSING
 ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. M2169
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SHEET NAME
 MECHANICAL ROOF PLAN

SHEET NO.
 M101



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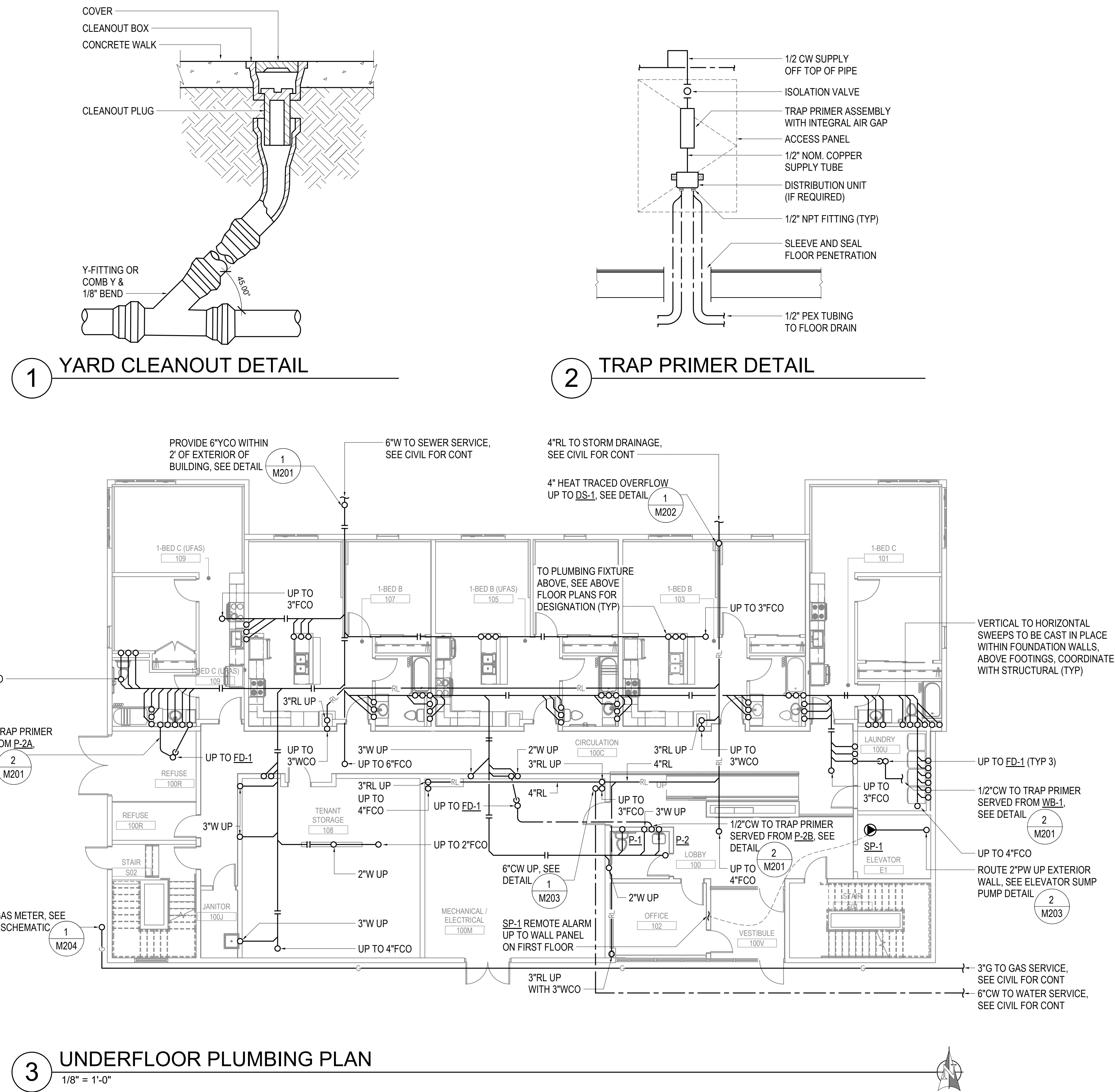
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

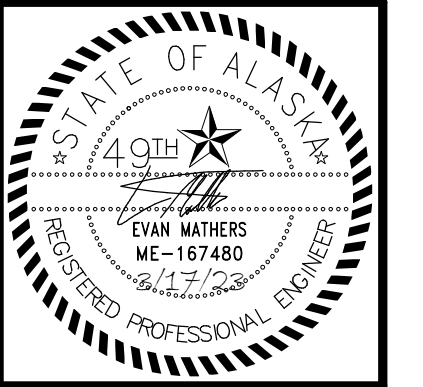
REVISION SCHEDULE		
#	DESCRIPTION	DATE
JOB NO.	M2169	
DATE	2023.03.08	
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REVIEWED	EMM	

SHEET NAME
UNDERFLOOR PLUMBING PLAN

SHEET NO.

M201





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ANCHORAGE, ALASKA

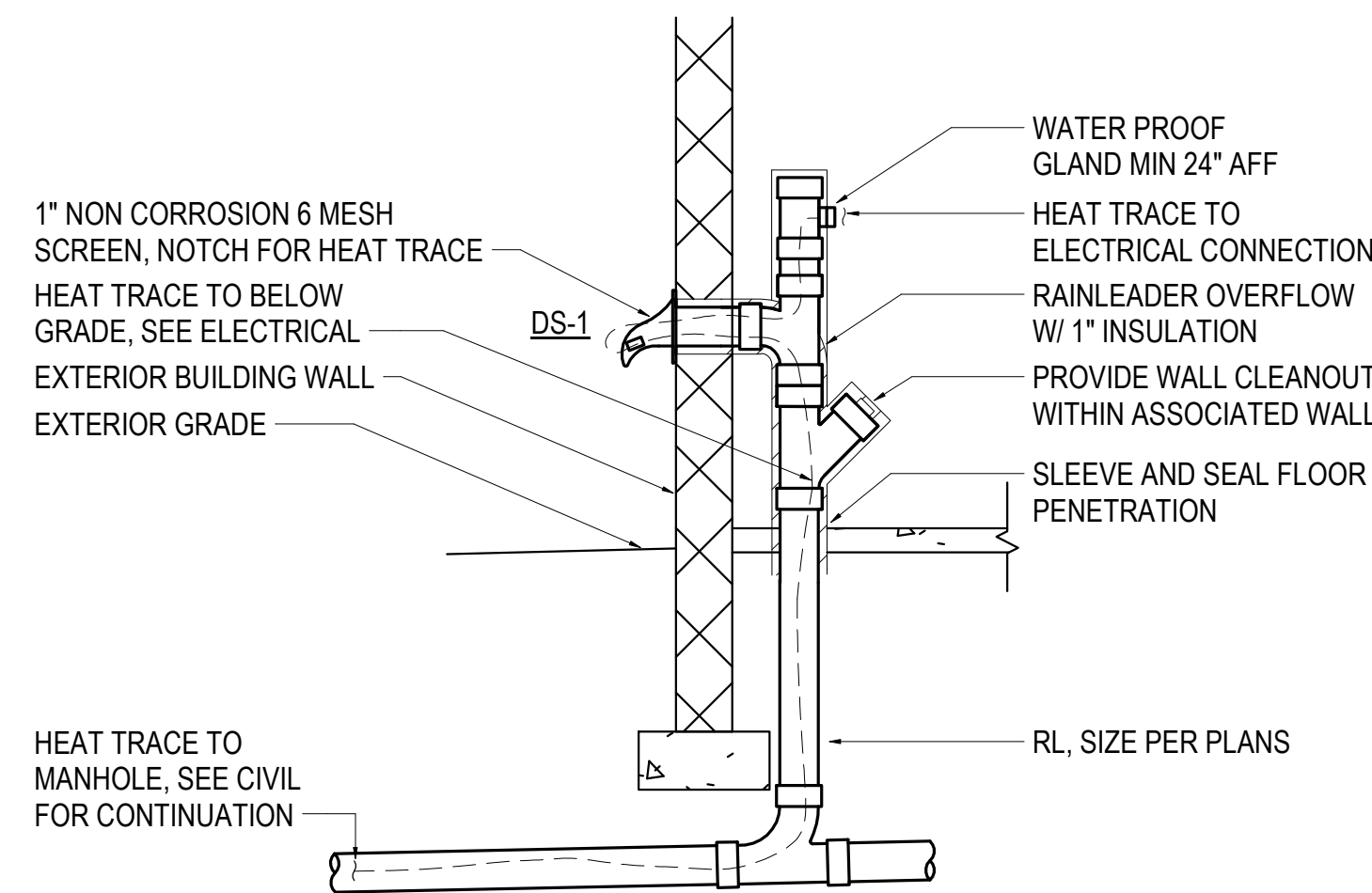
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	EMMANISK
REVIEWED	EMM

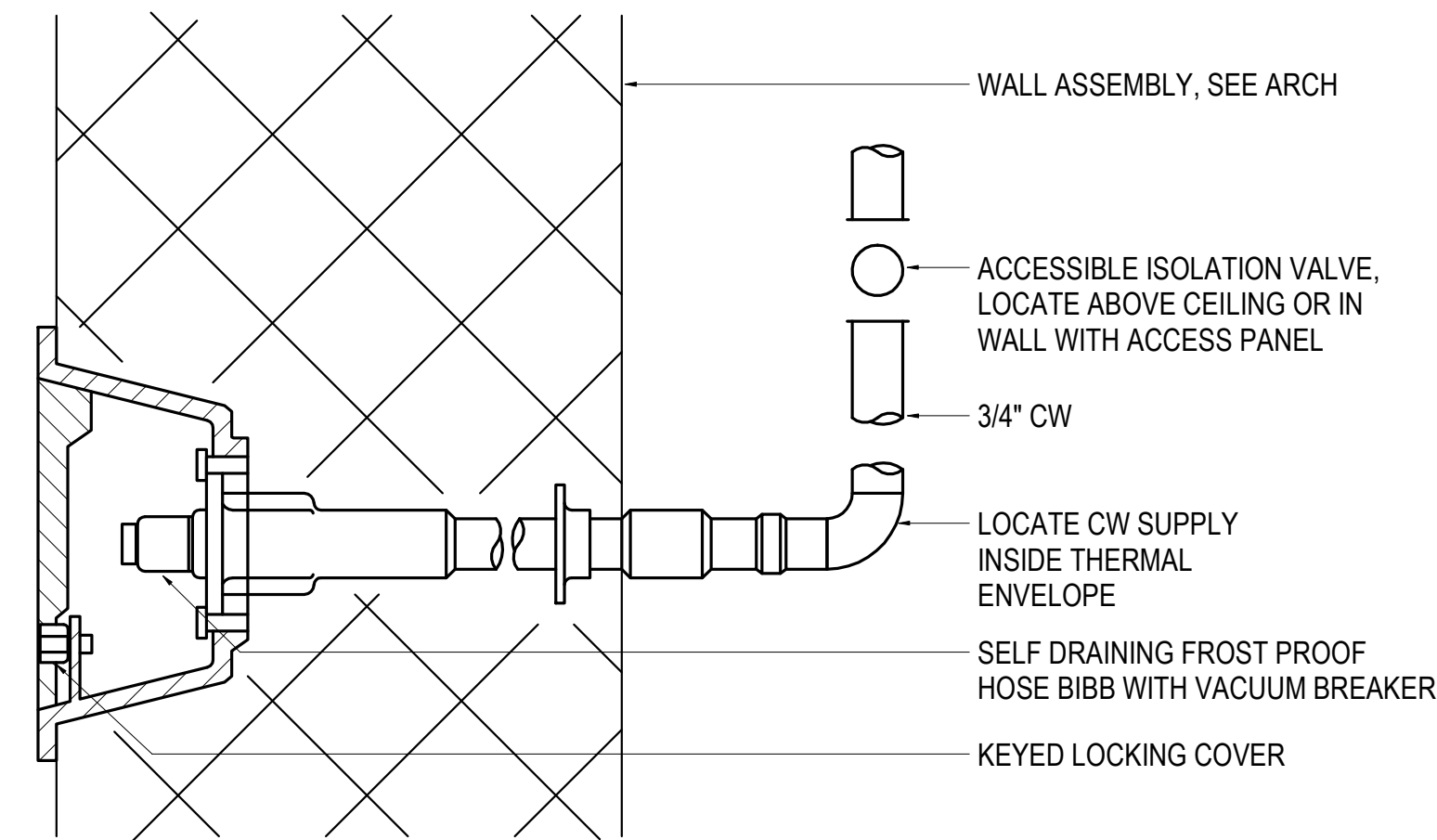
SHEET NAME
FIRST FLOOR PLUMBING PLAN

SHEET NO.
M202

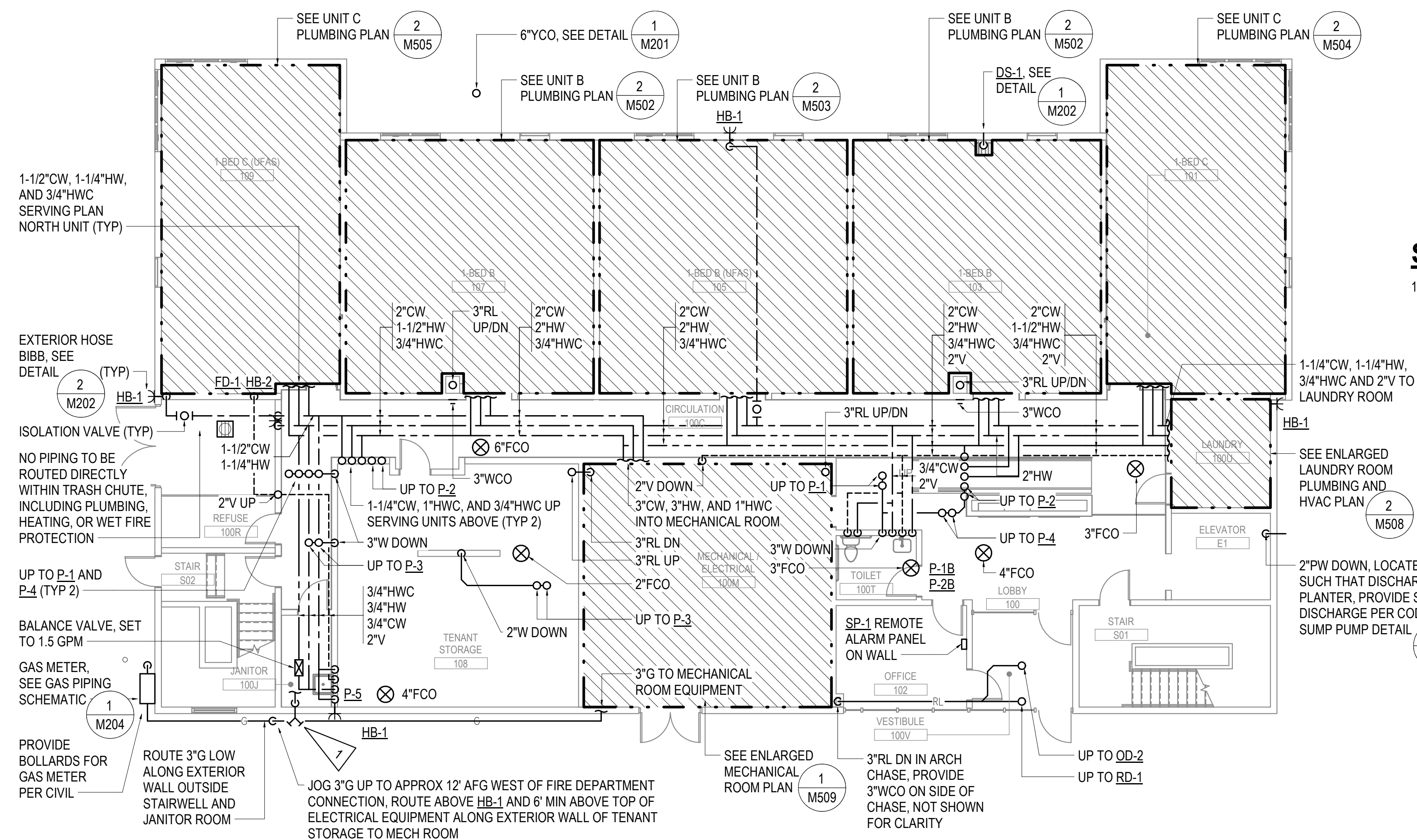
HALF SCALE WHEN PRINTED AT 11x17



1 RAINLEADER OVERFLOW DETAIL



2 EXTERIOR HOSE BIBB DETAIL

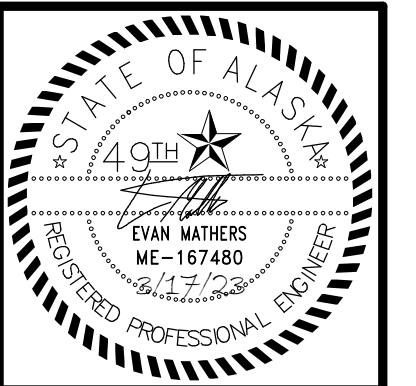
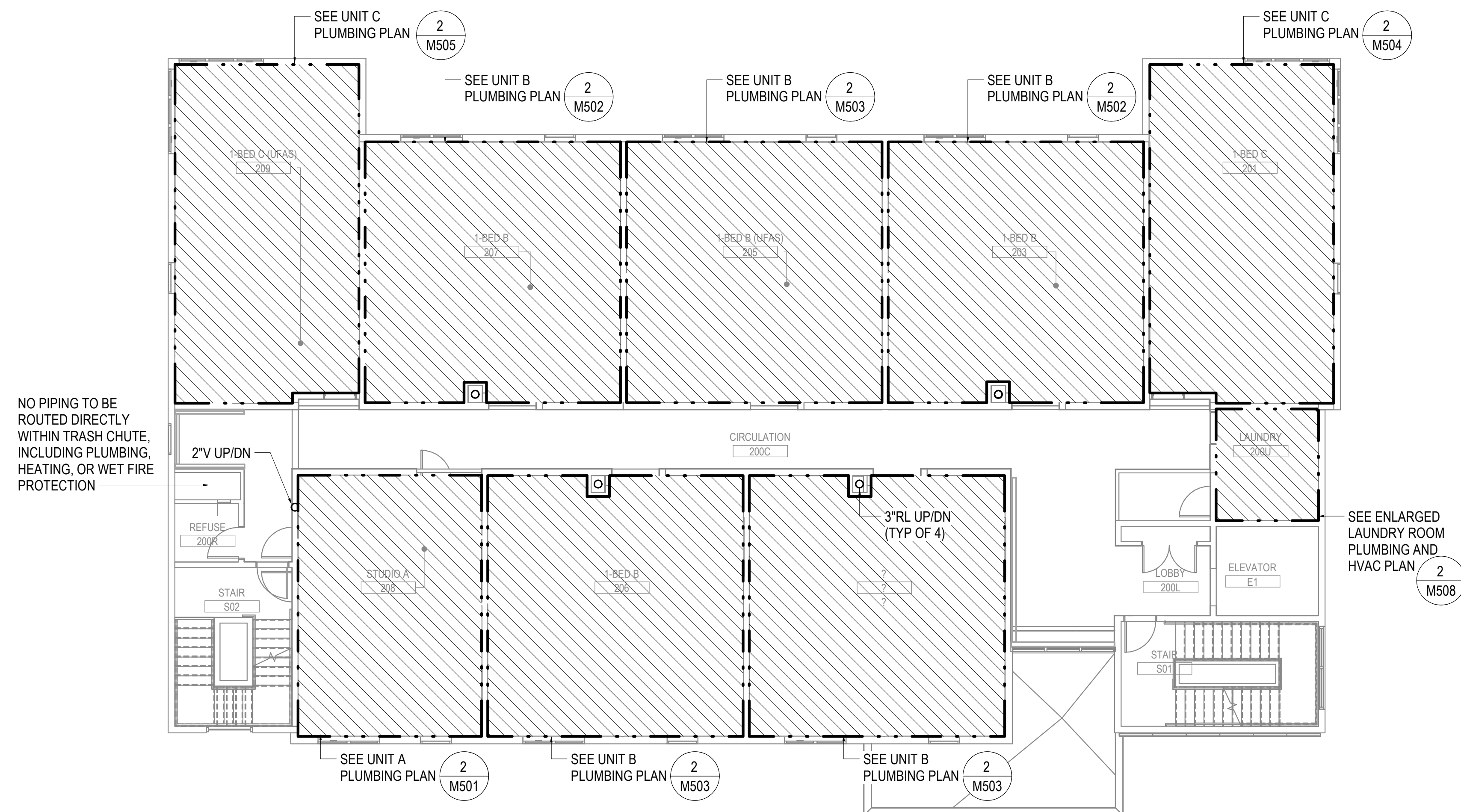
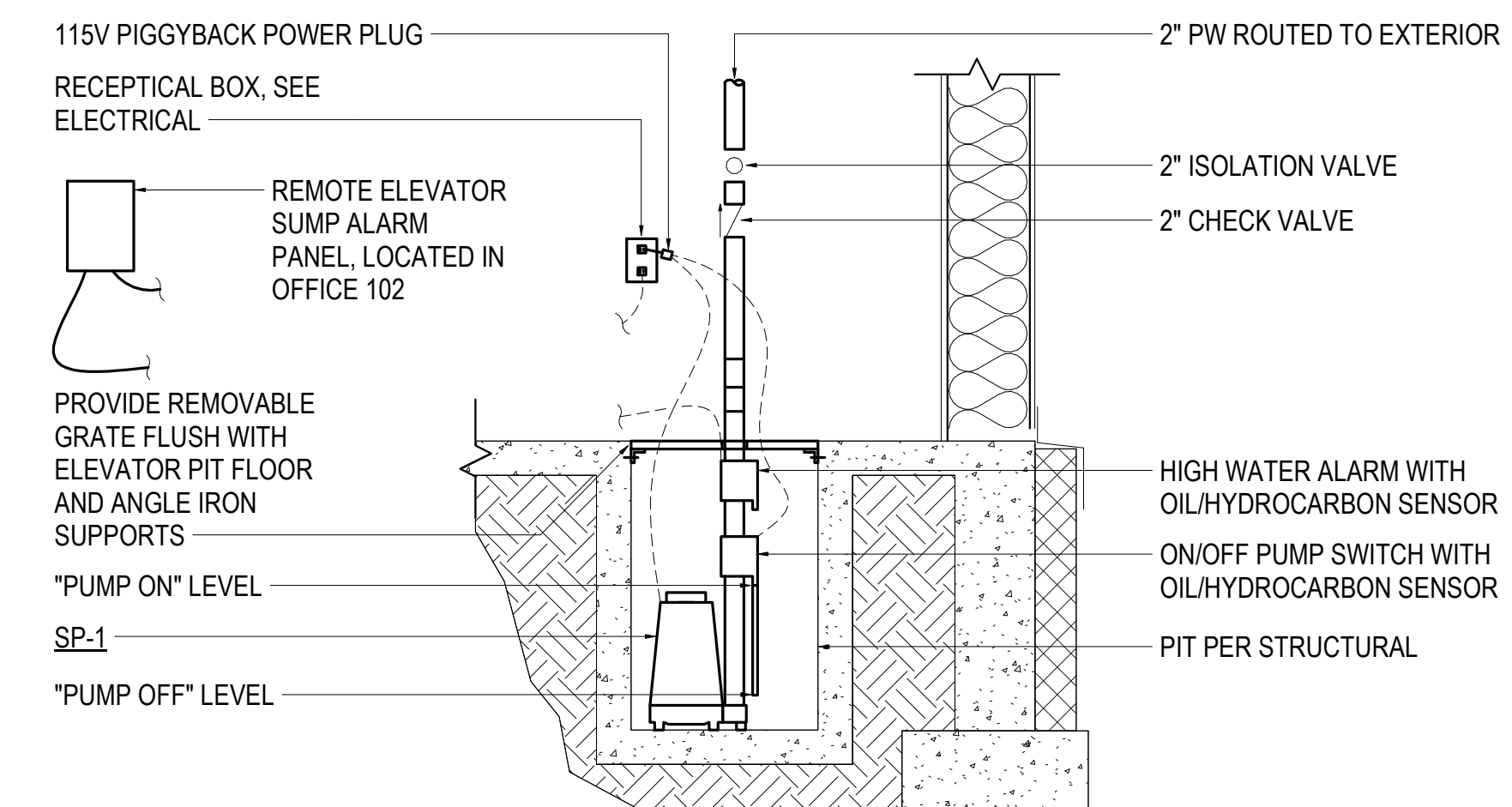
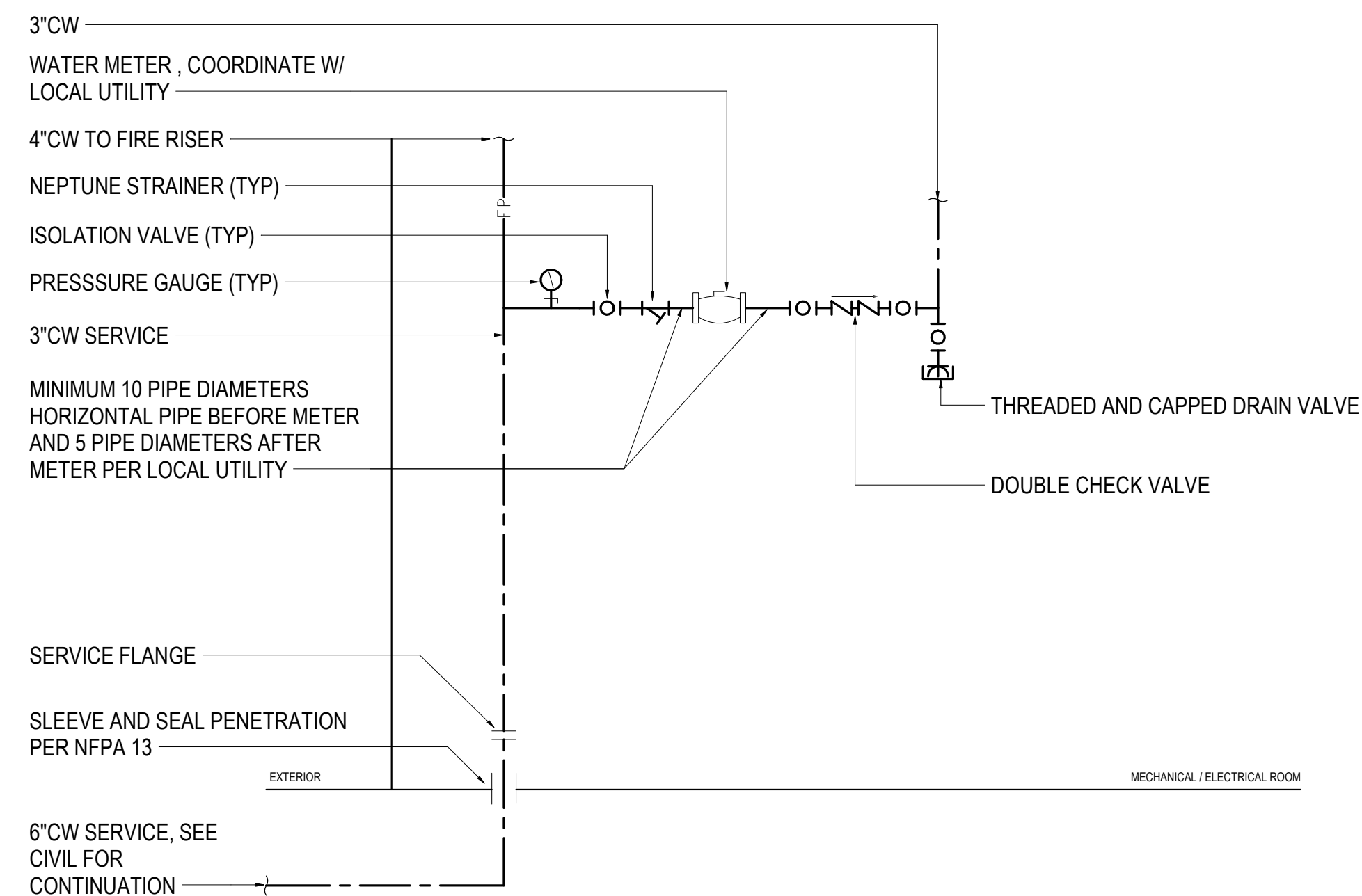


3 FIRST FLOOR PLUMBING PLAN
1/8" = 1'-0"

SHEET NOTES

- FIRE DEPARTMENT CONNECTION, COORDINATE WITH FIRE PROTECTION AS REQUIRED. ROUTE VERTICAL PIPING EXPOSED IN CORNER OF JANITOR 100J.





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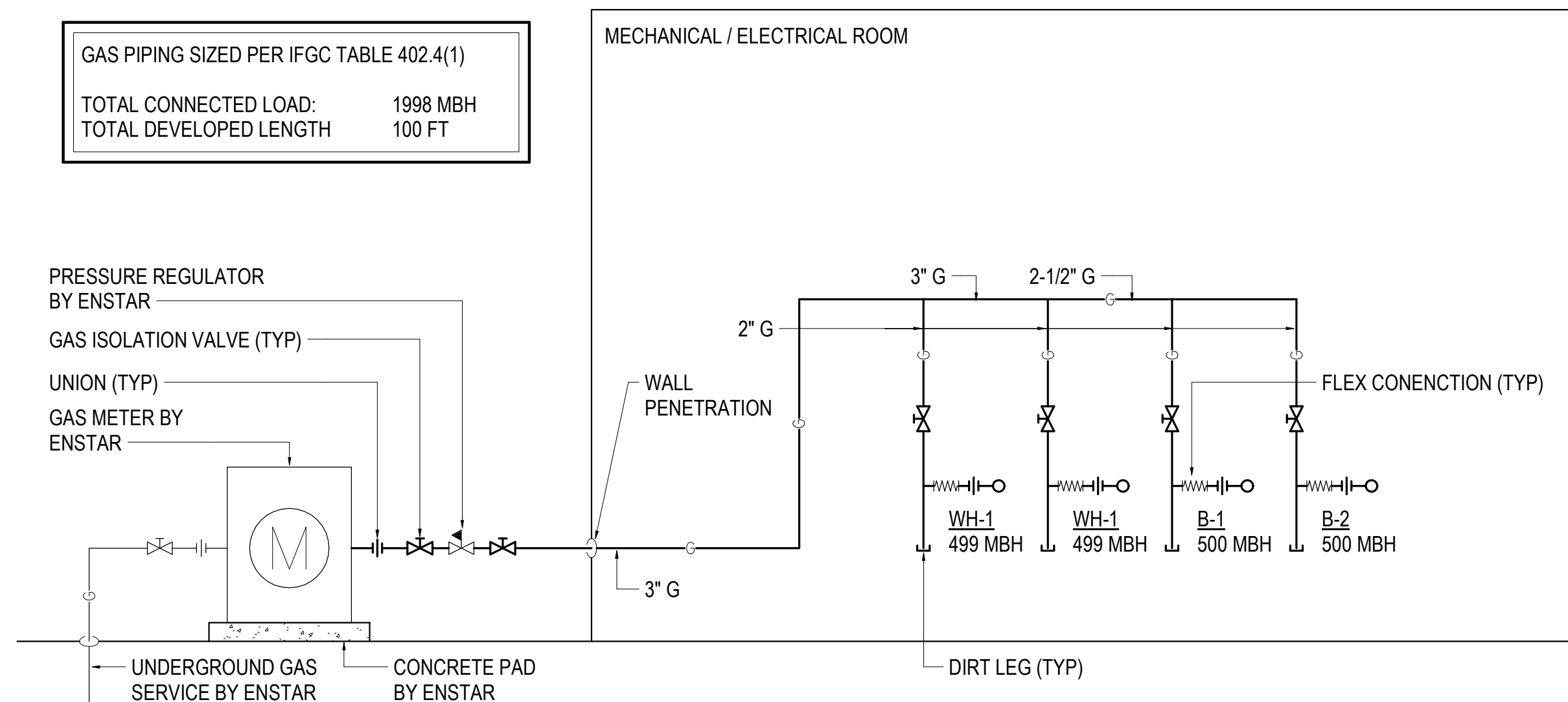
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

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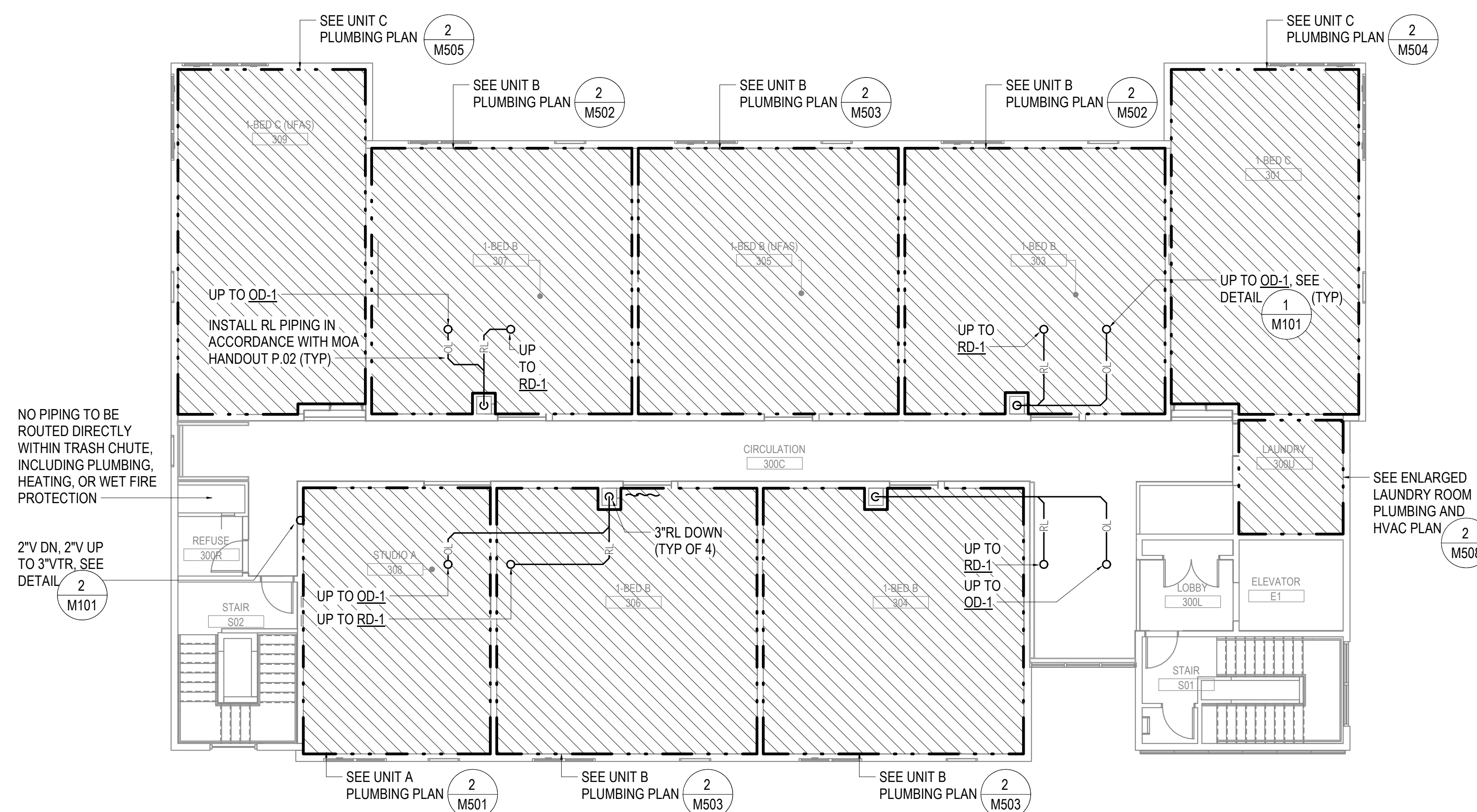
JOB NO.	M2169
DATE	2023.03.08
DRAWN	EMM/NSK
REVIEWED	EMM

SHEET NAME
SECOND FLOOR PLUMBING PLAN

SHEET NO.

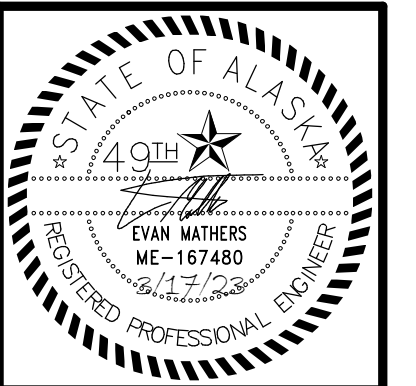


1 GAS PIPING SCHEMATIC



2 THIRD FLOOR PLUMBING PLAN

1/8" = 1'-0"



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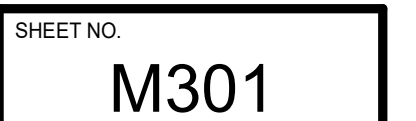
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

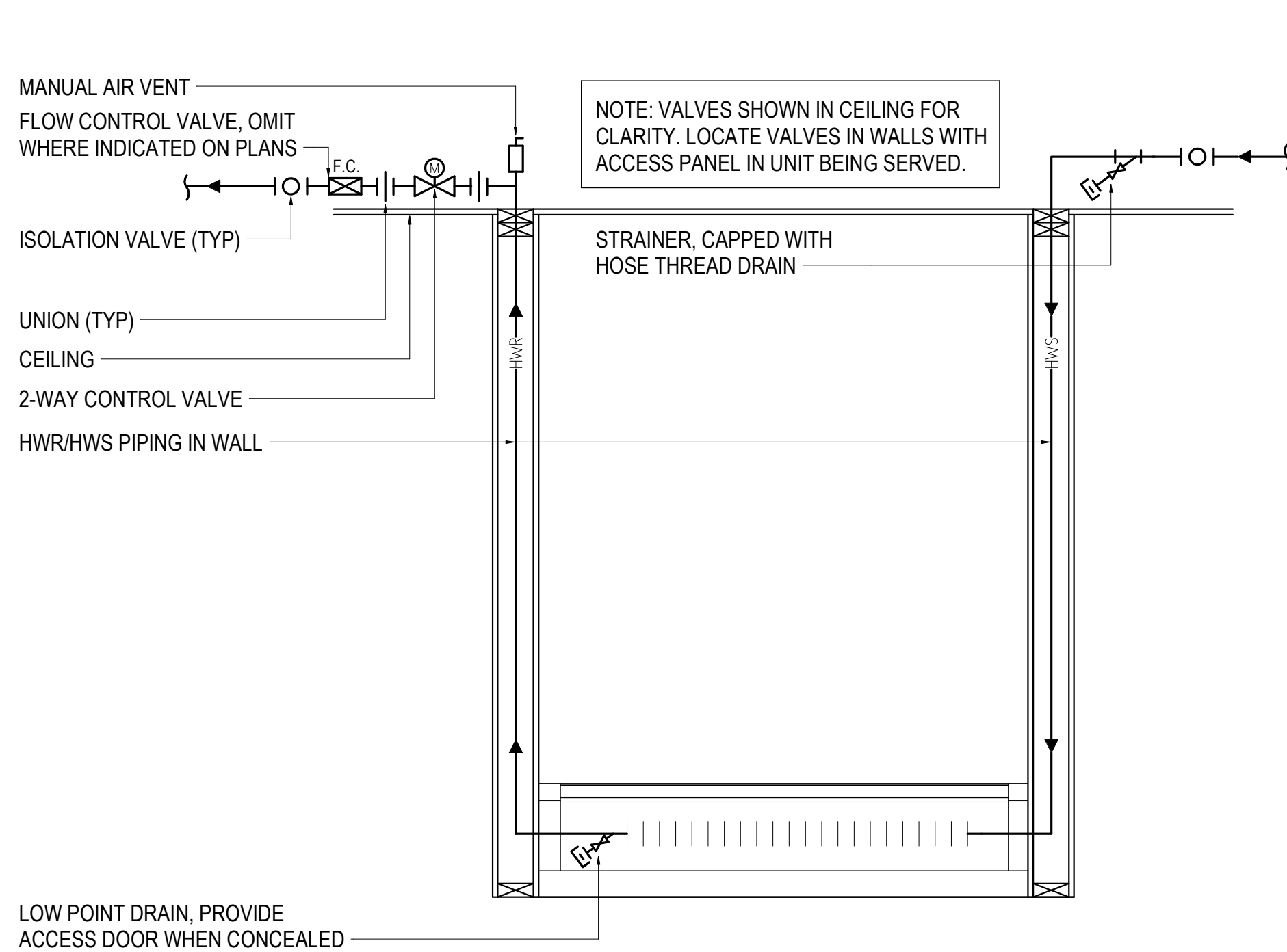
REVISION SCHEDULE		
#	DESCRIPTION	DATE

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DATE 2023.03.08
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REVIEWED EMM

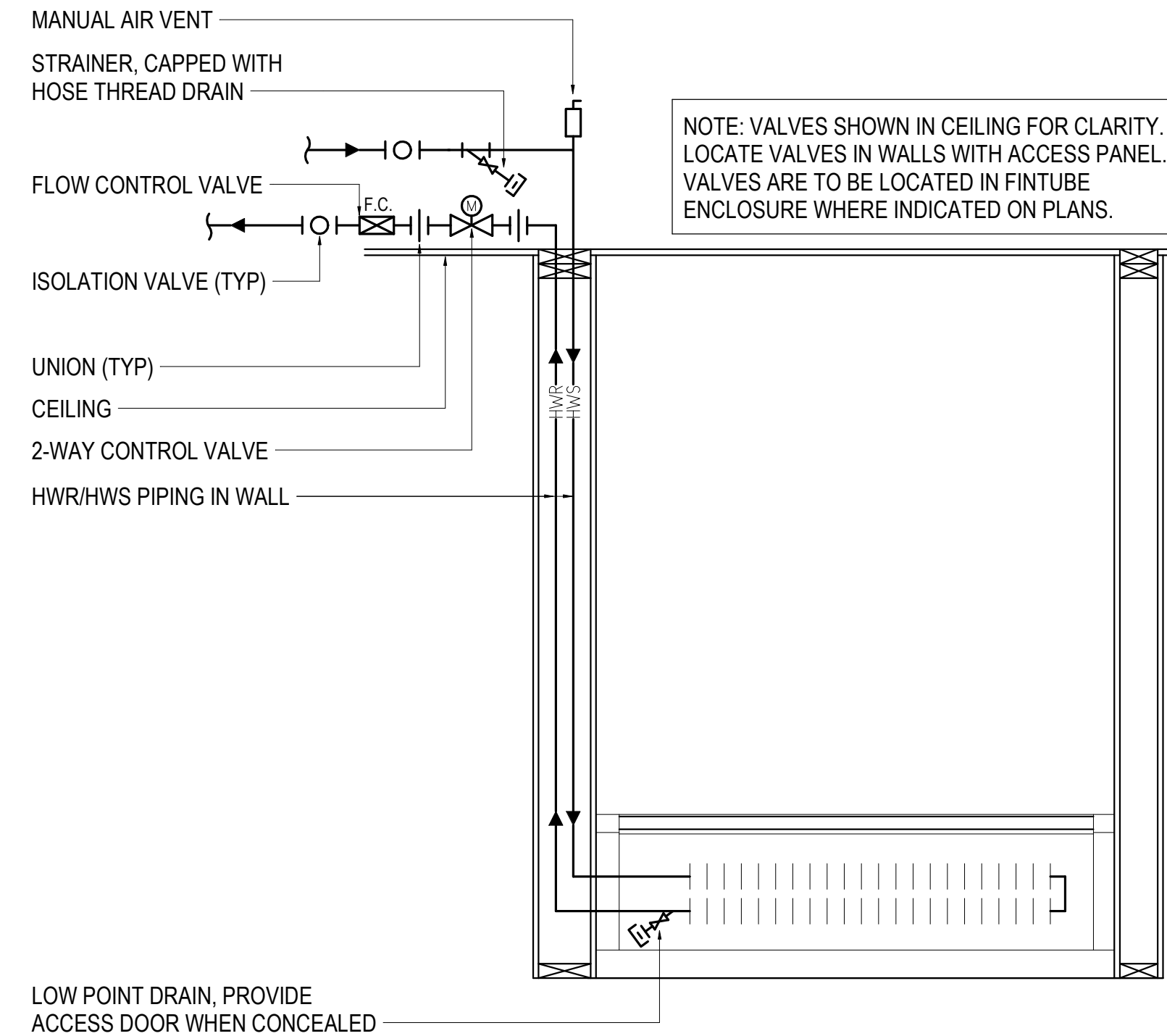
SHEET NAME
THIRD FLOOR PLUMBING PLAN

SHEET NO.
M204

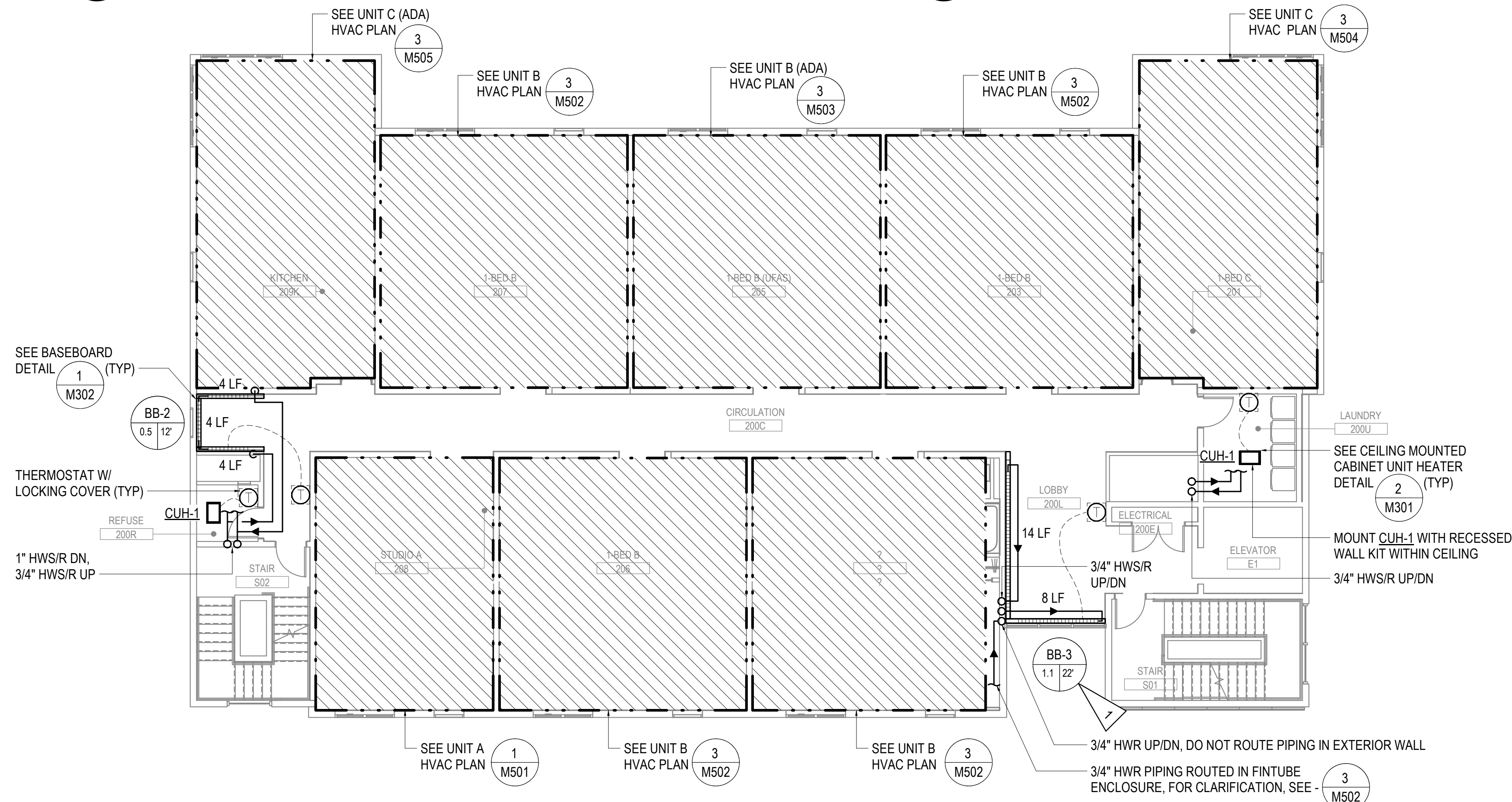




1 BASEBOARD DETAIL



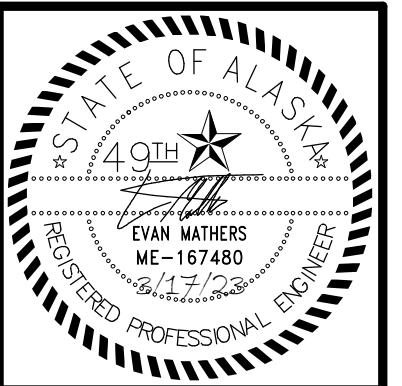
2 BASEBOARD DETAIL



3 SECOND FLOOR HEATING PLAN
1/8" = 1'-0"

SHEET NOTES

- ROUTE PIPING THROUGH BOTH ROWS OF PEDESTAL ELEMENT IN CONFIGURATION SHOWN.



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#	DESCRIPTION	DATE

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DATE	2023.03.08
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SHEET NAME
SECOND FLOOR HEATING PLAN

SHEET NO.
M302



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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
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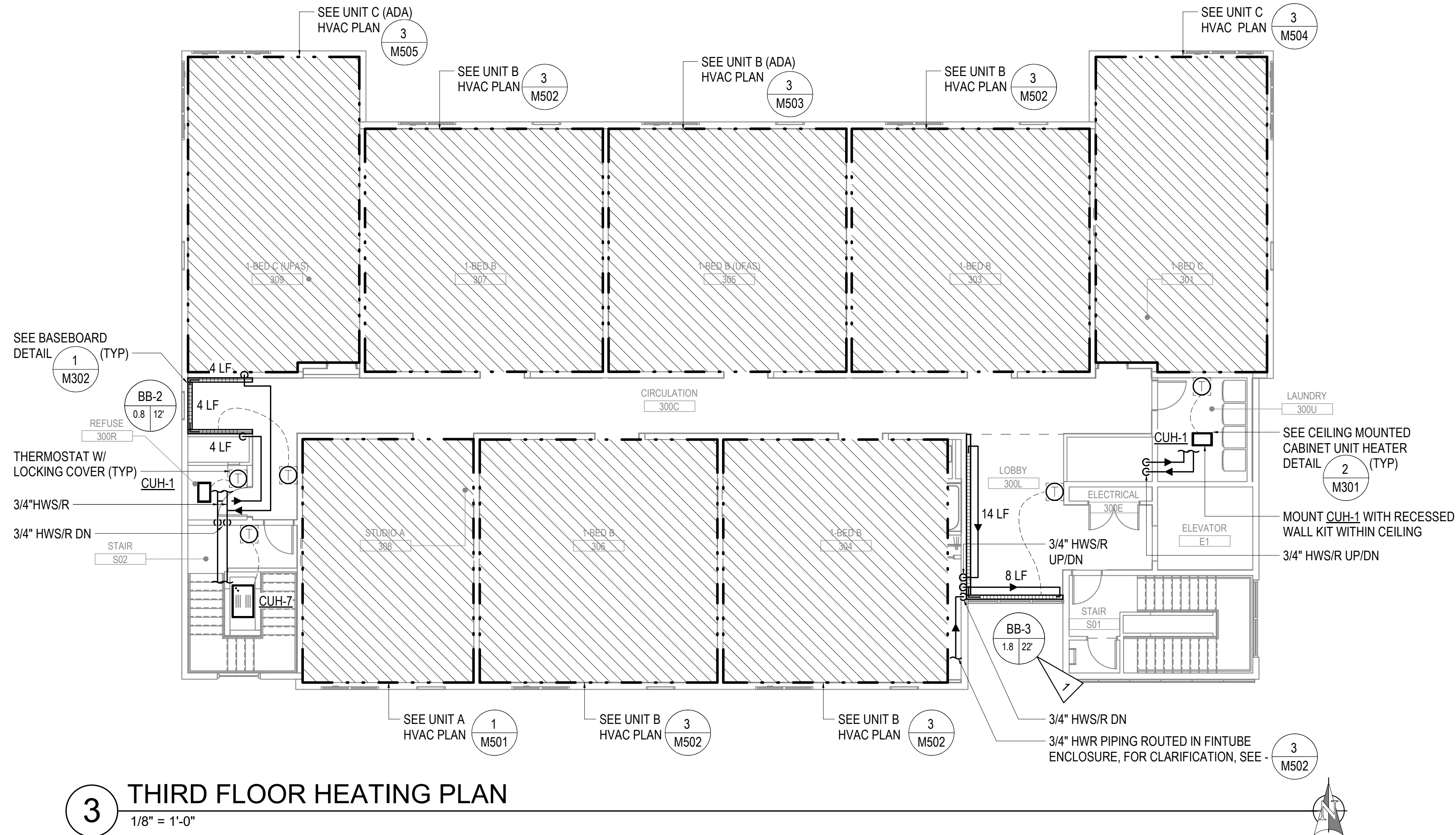
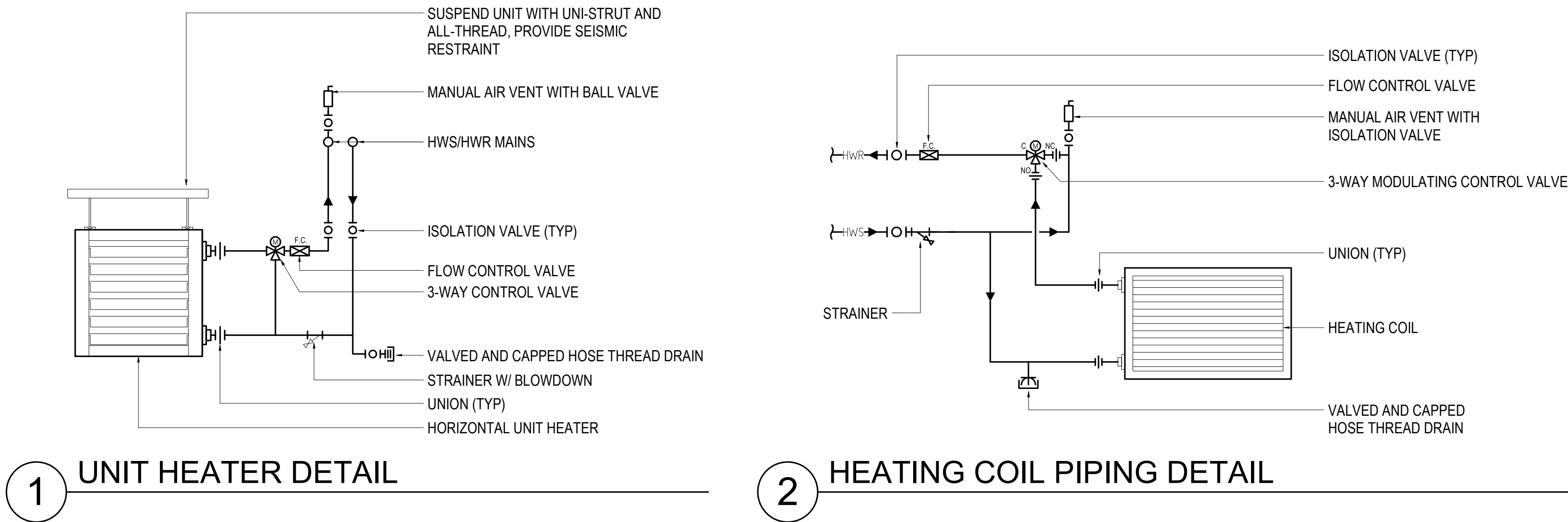
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. M2169
DATE 2023.03.08
DRAWN EMM/NSK
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SHEET NAME
THIRD FLOOR HEATING PLAN

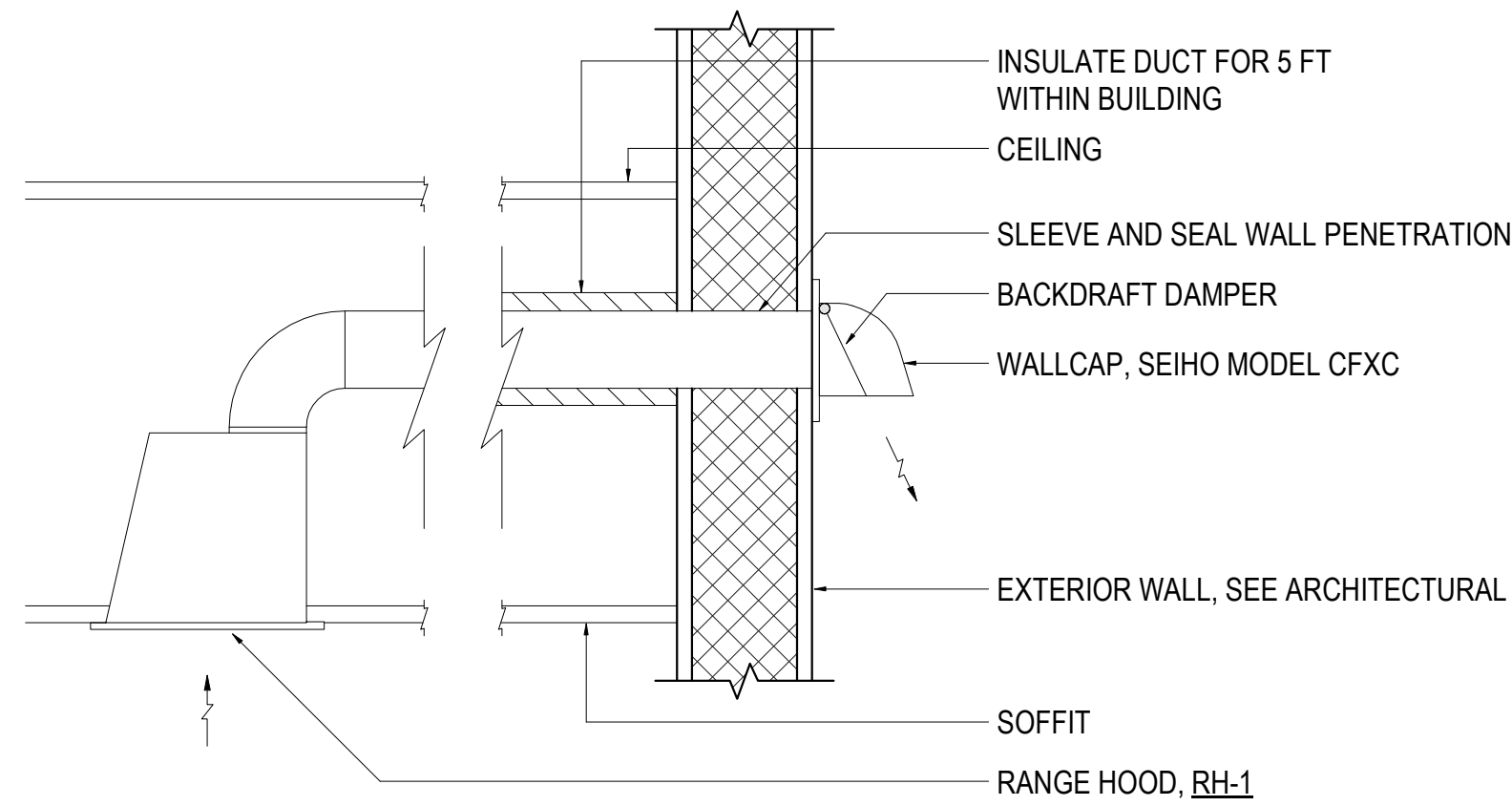
SHEET NO.
M303

HALF SCALE WHEN PRINTED AT 11x17

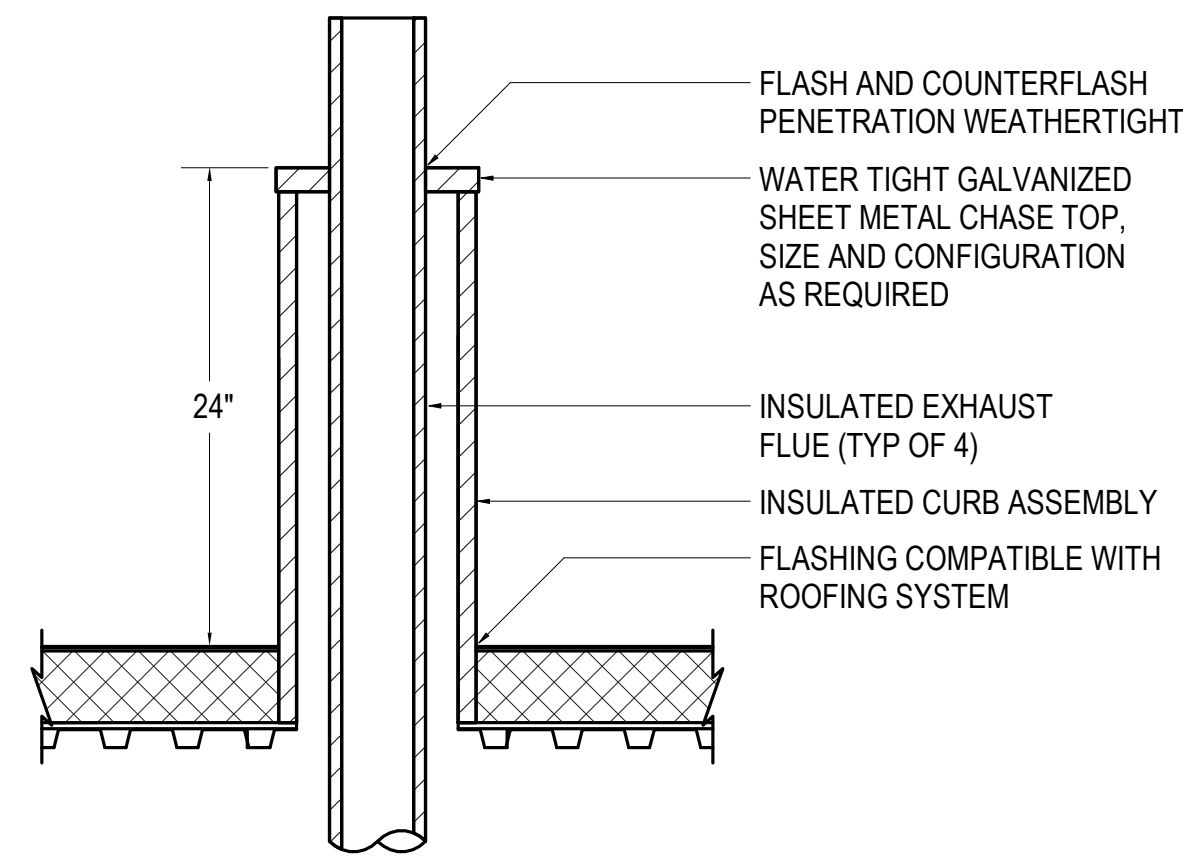


SHEET NOTES

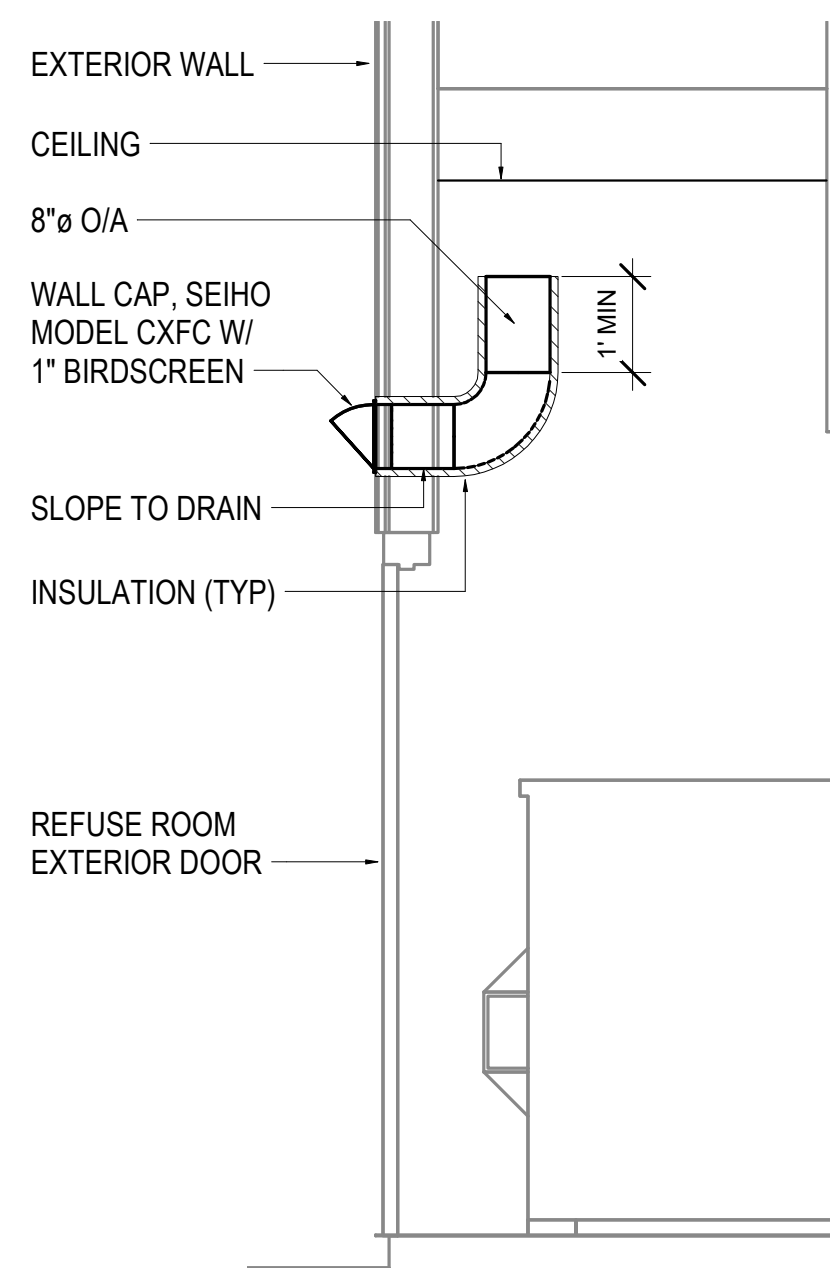
1. ROUTE PIPING THROUGH BOTH ROWS OF PEDESTAL ELEMENT IN CONFIGURATION SHOWN.



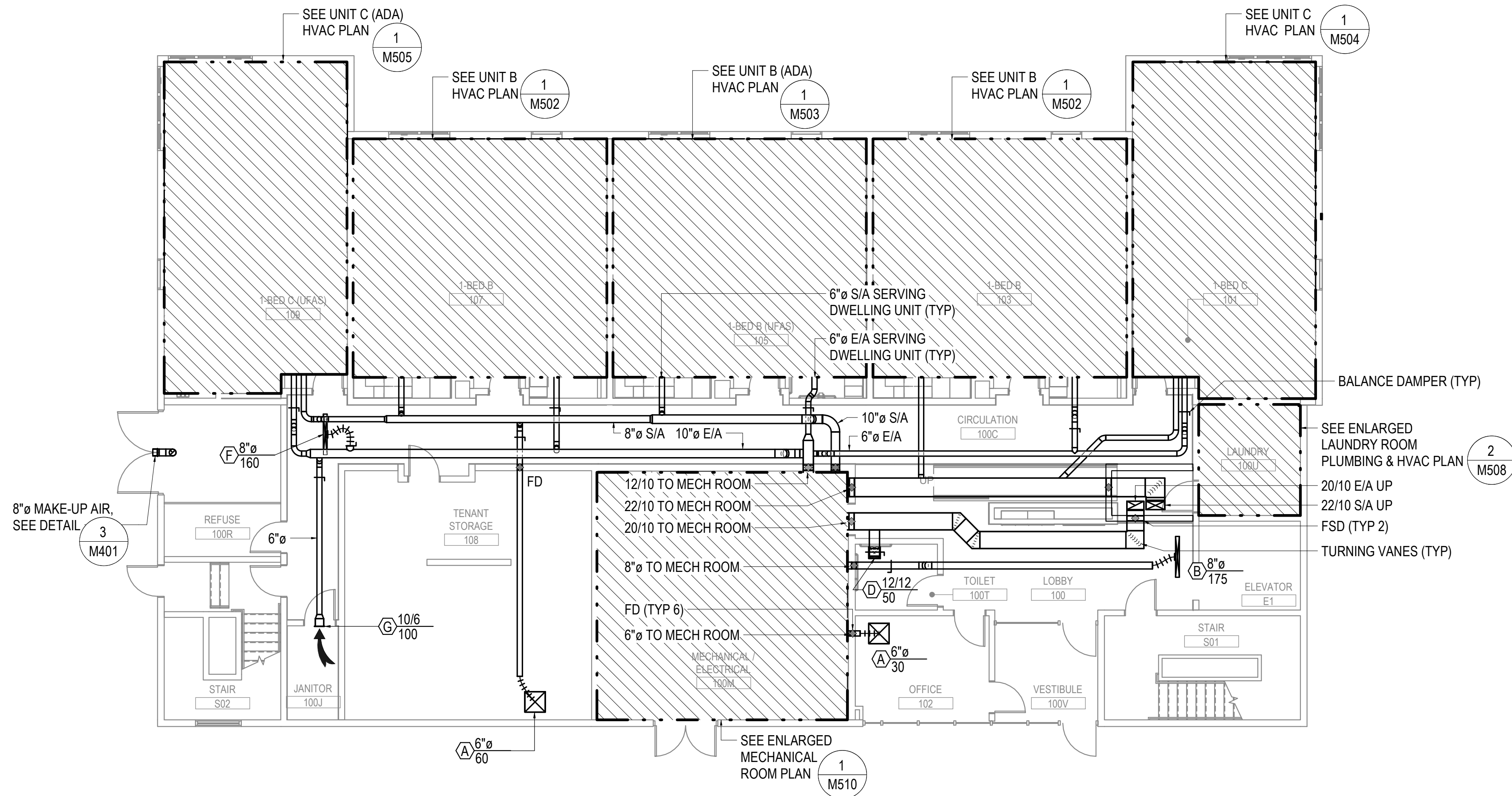
1 RANGE HOOD EXHAUST WALL CAP W/ BDD DETAIL



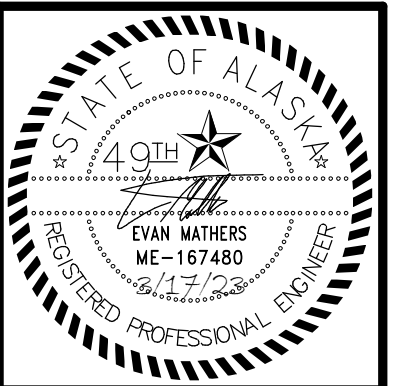
2 INSULATED ROOF CURB DETAIL



3 MAKE-UP AIR DUCT DETAIL



4 FIRST FLOOR VENTILATION PLAN
1/8" = 1'-0"



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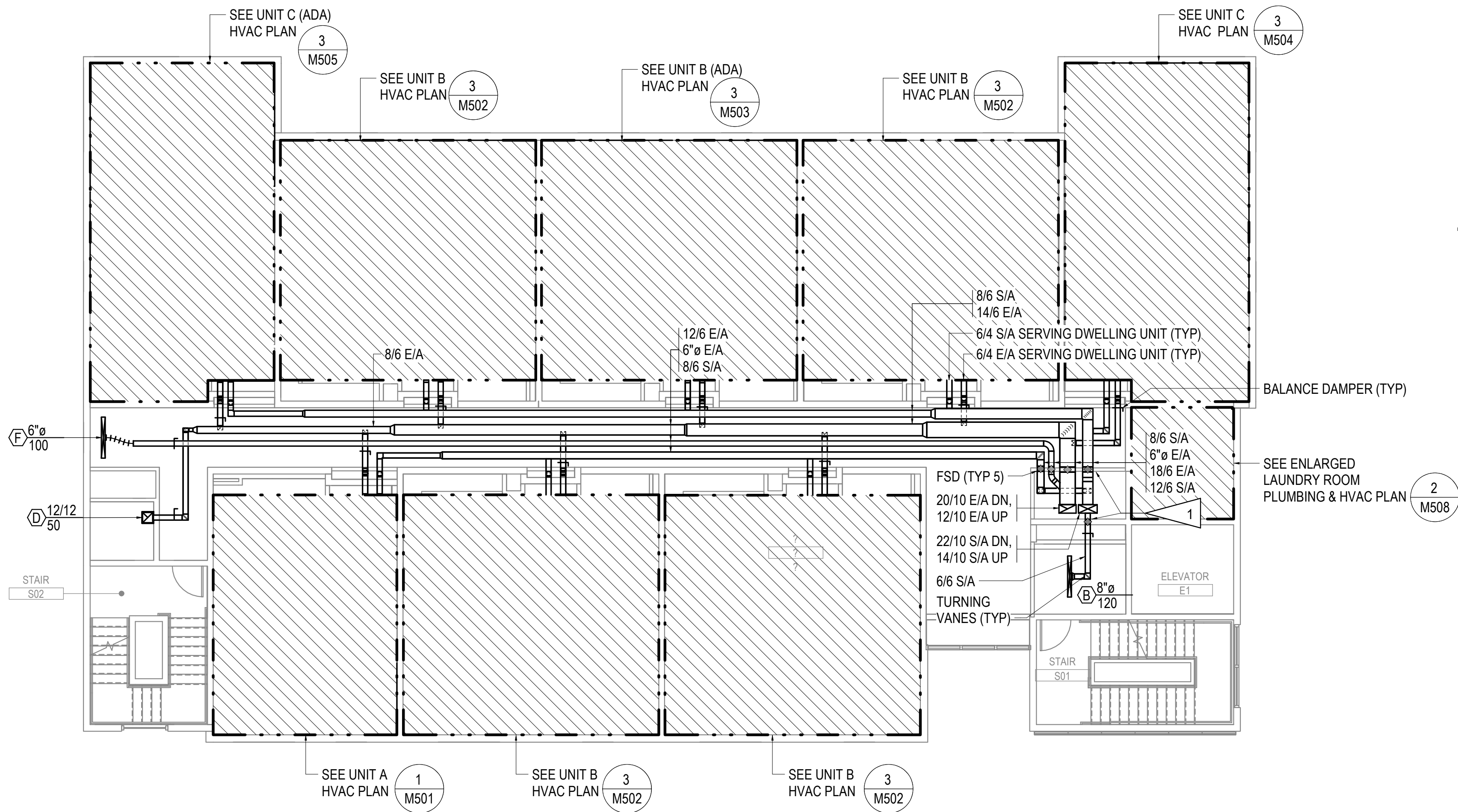
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
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#	DESCRIPTION	DATE

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SHEET NAME
FIRST FLOOR VENTILATION PLAN

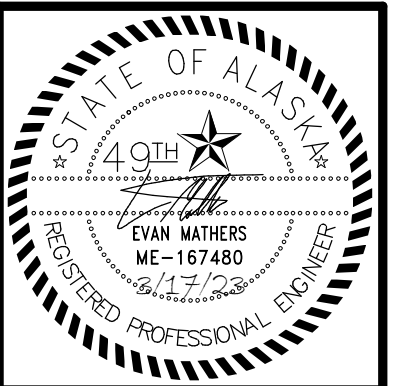
SHEET NO.
M401



1 SECOND FLOOR VENTILATION PLAN
1/8" = 1'-0"

SHEET NOTES

1. TRANSITION DUCTWORK OUT OF SHAFT UNDER STRUCTURAL HEADER INTO CORRIDOR AS NECESSARY (TYP 5)



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SHEET NAME
SECOND FLOOR VENTILATION
PLAN

SHEET NO.
M402



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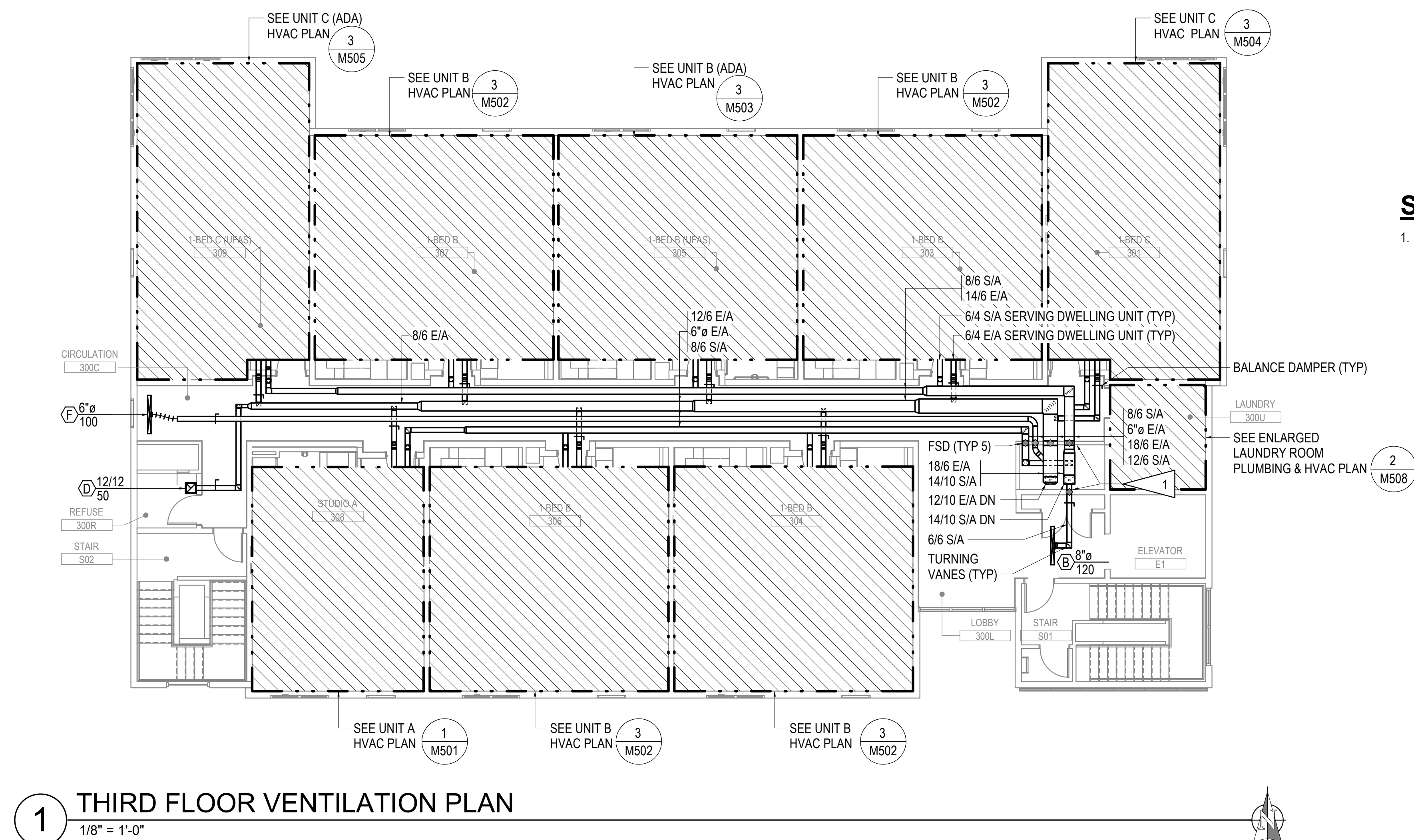
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	EMM/NSK
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SHEET NAME
THIRD FLOOR VENTILATION PLAN

SHEET NO.

M403



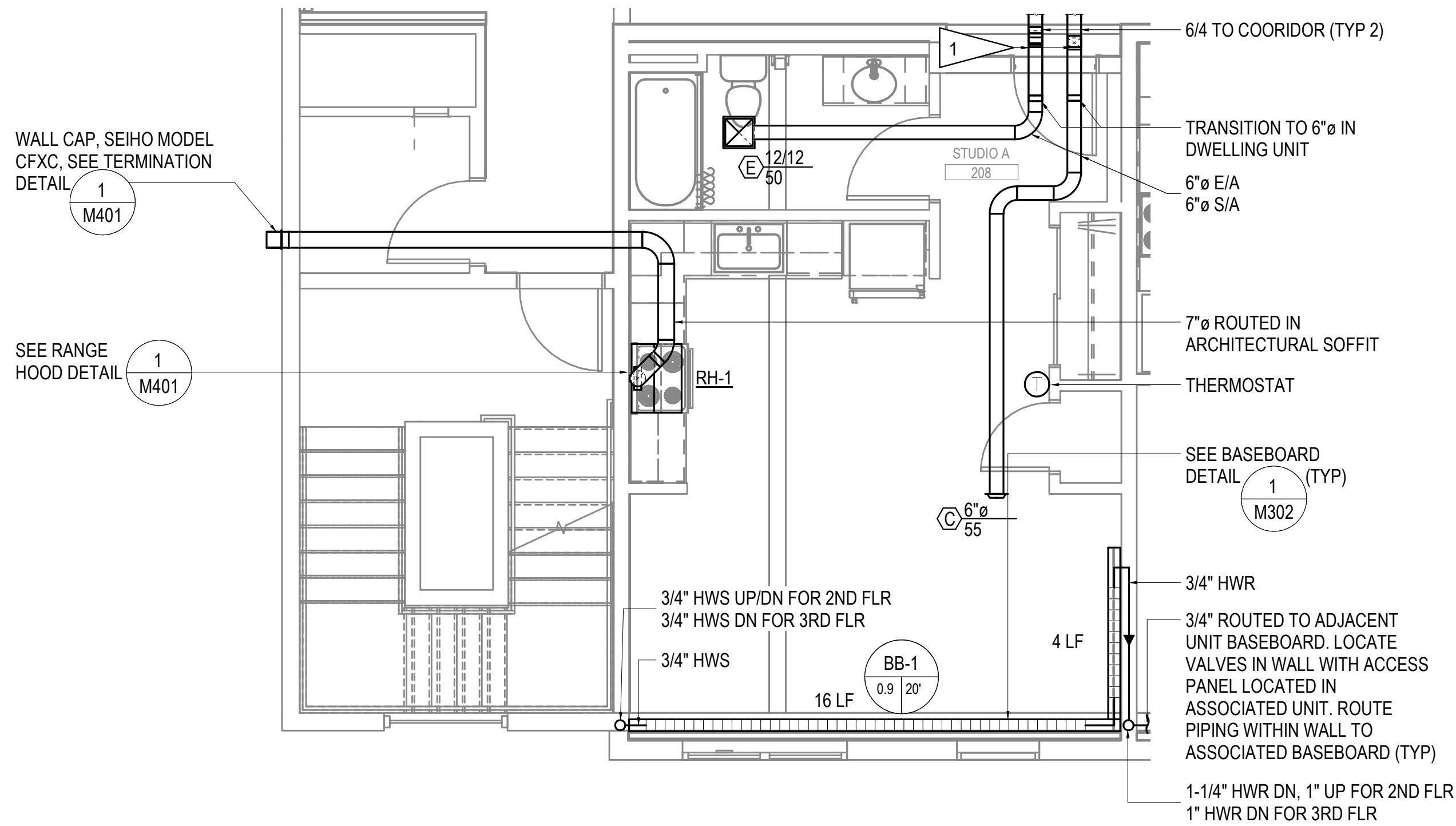
PERMIT DOCUMENTS HALF SCALE WHEN PRINTED AT 11x17

WALL CAP, SEIHO MODEL
CFXC, SEE TERMINATION
DETAIL

1
M401

SEE RANGE
HOOD DETAIL

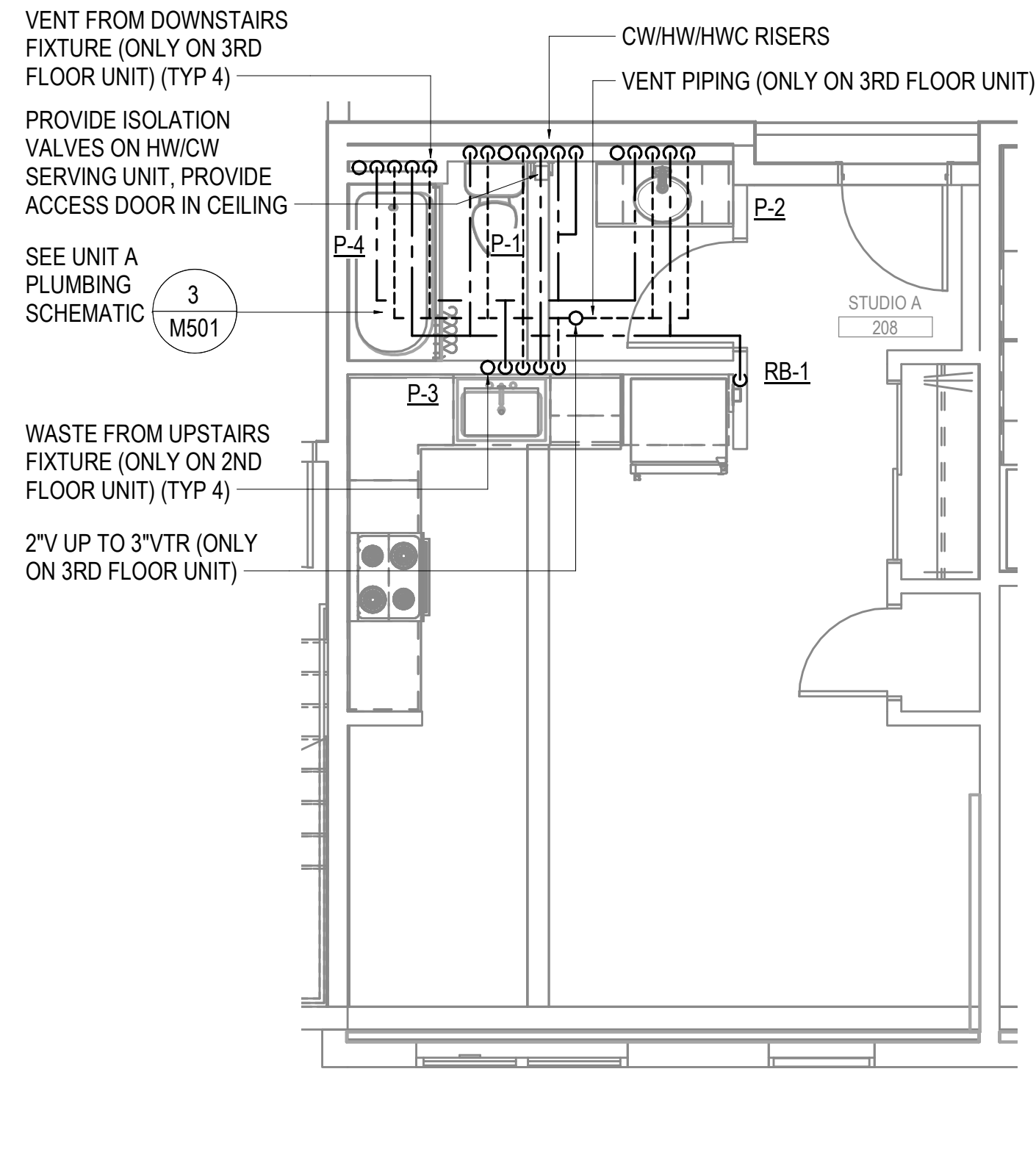
1
M401



1

UNIT A ENLARGED HVAC PLAN - 2ND & 3RD FLR

1/4" = 1'-0"



2

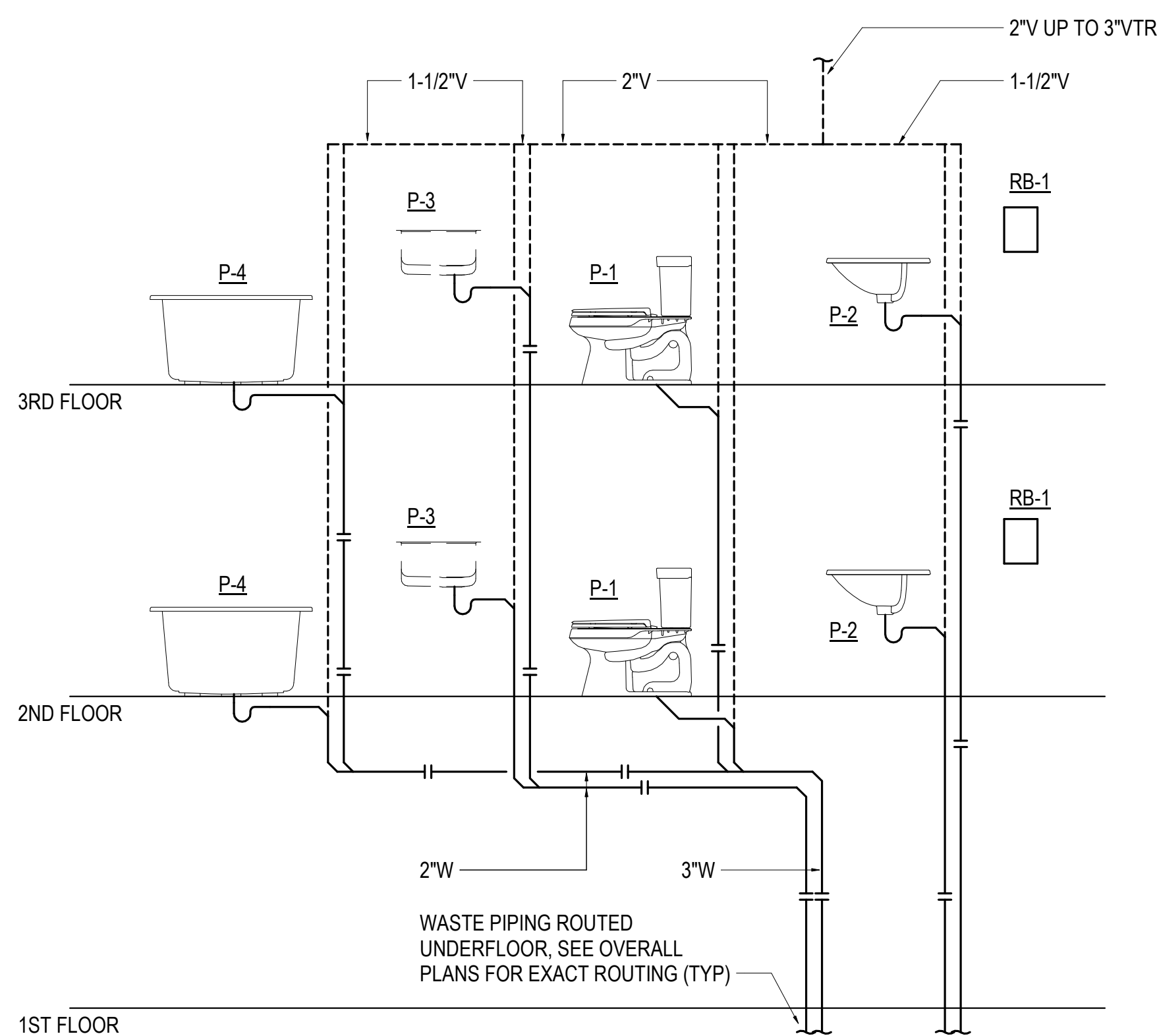
UNIT A ENLARGED PLUMBING PLAN

1/4" = 1'-0"



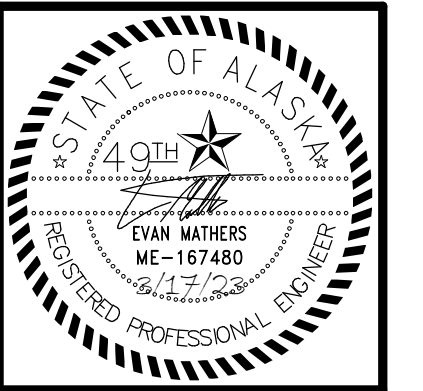
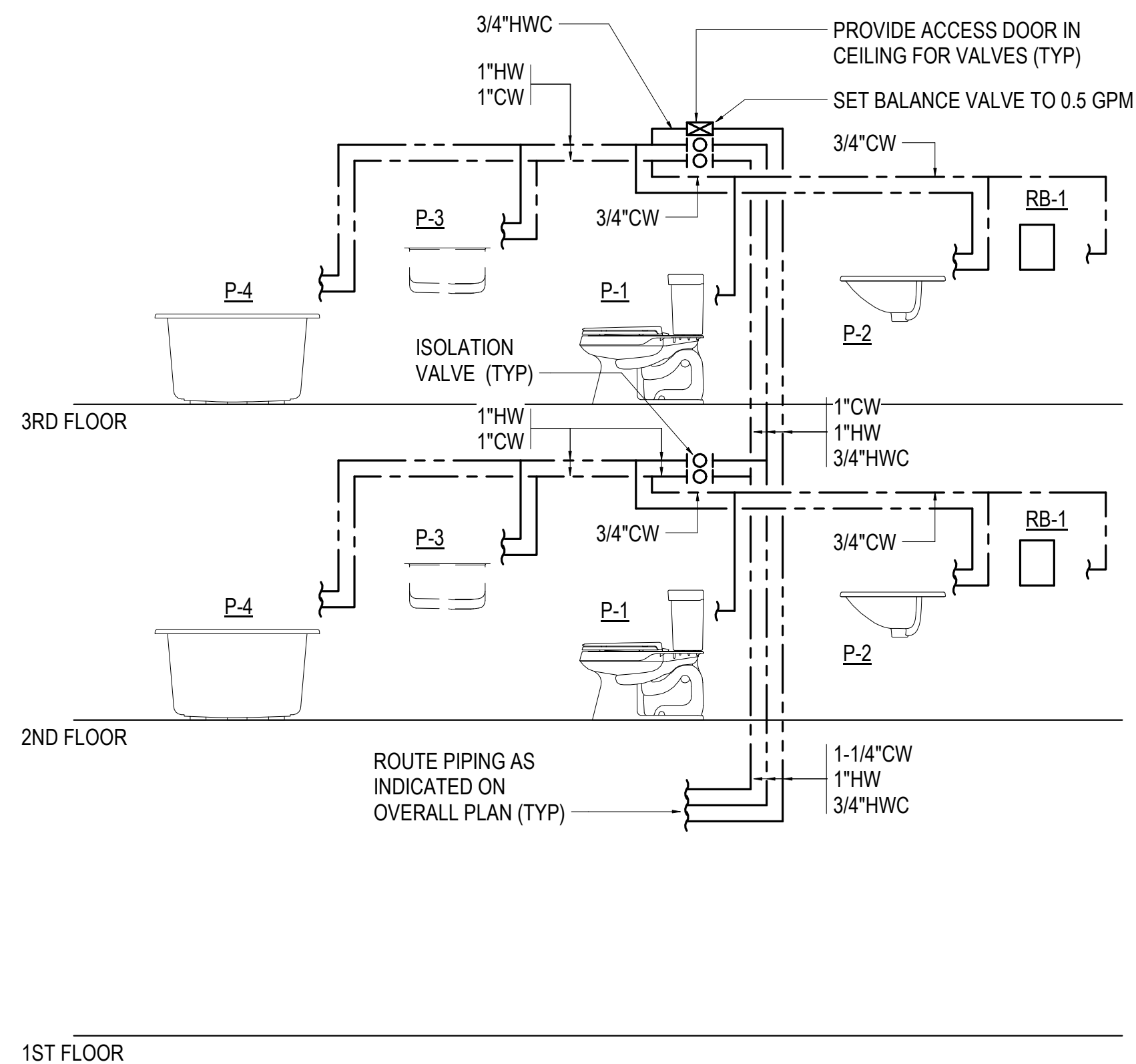
SHEET NOTES

1. OFFSET DUCTWORK AS NECESSARY IN SOFFIT ABOVE ENTRY DOOR TO ROUTE FROM CORRIDOR TO UNIT.



3

UNIT A PLUMBING SCHEMATIC



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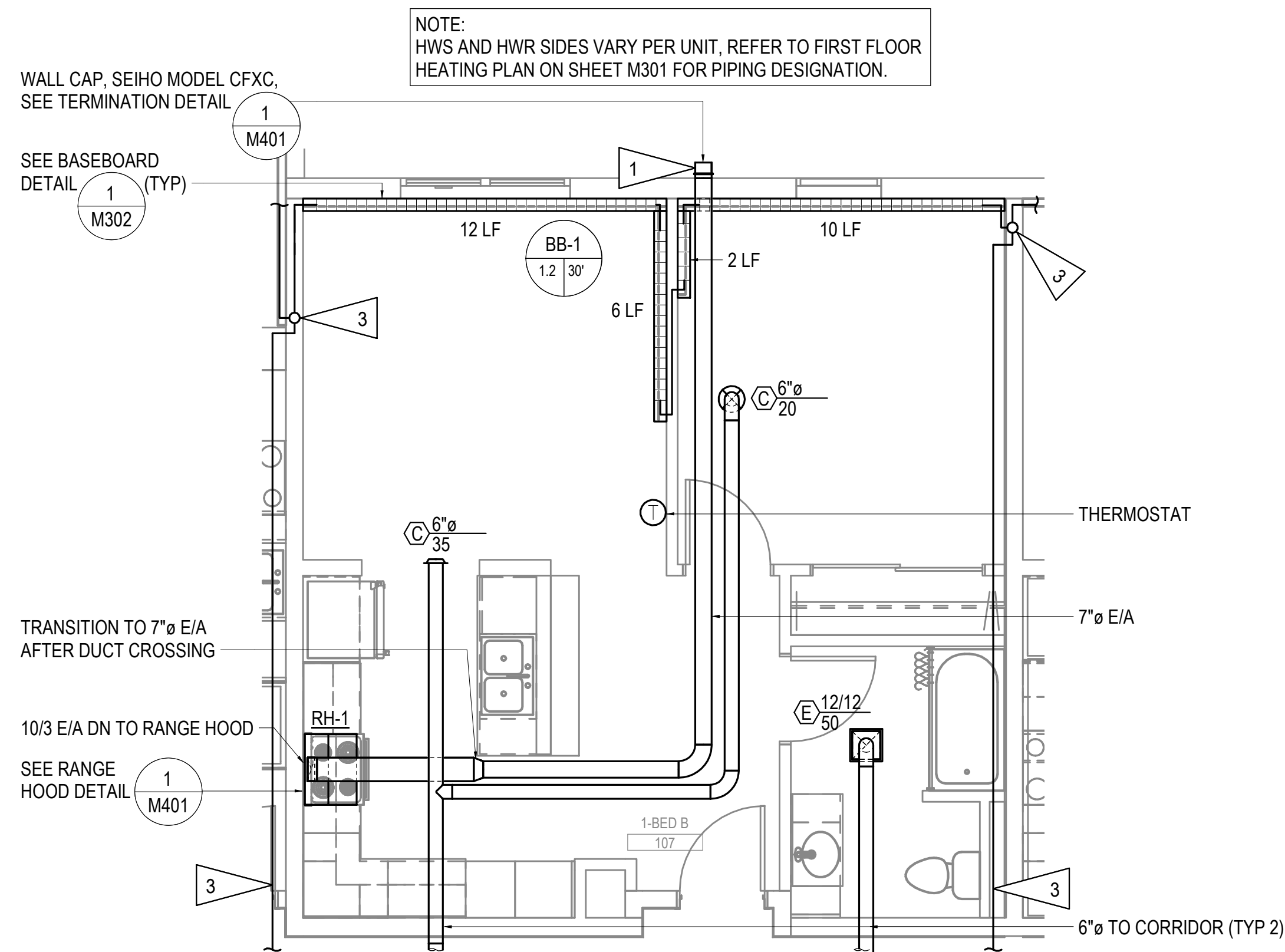
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
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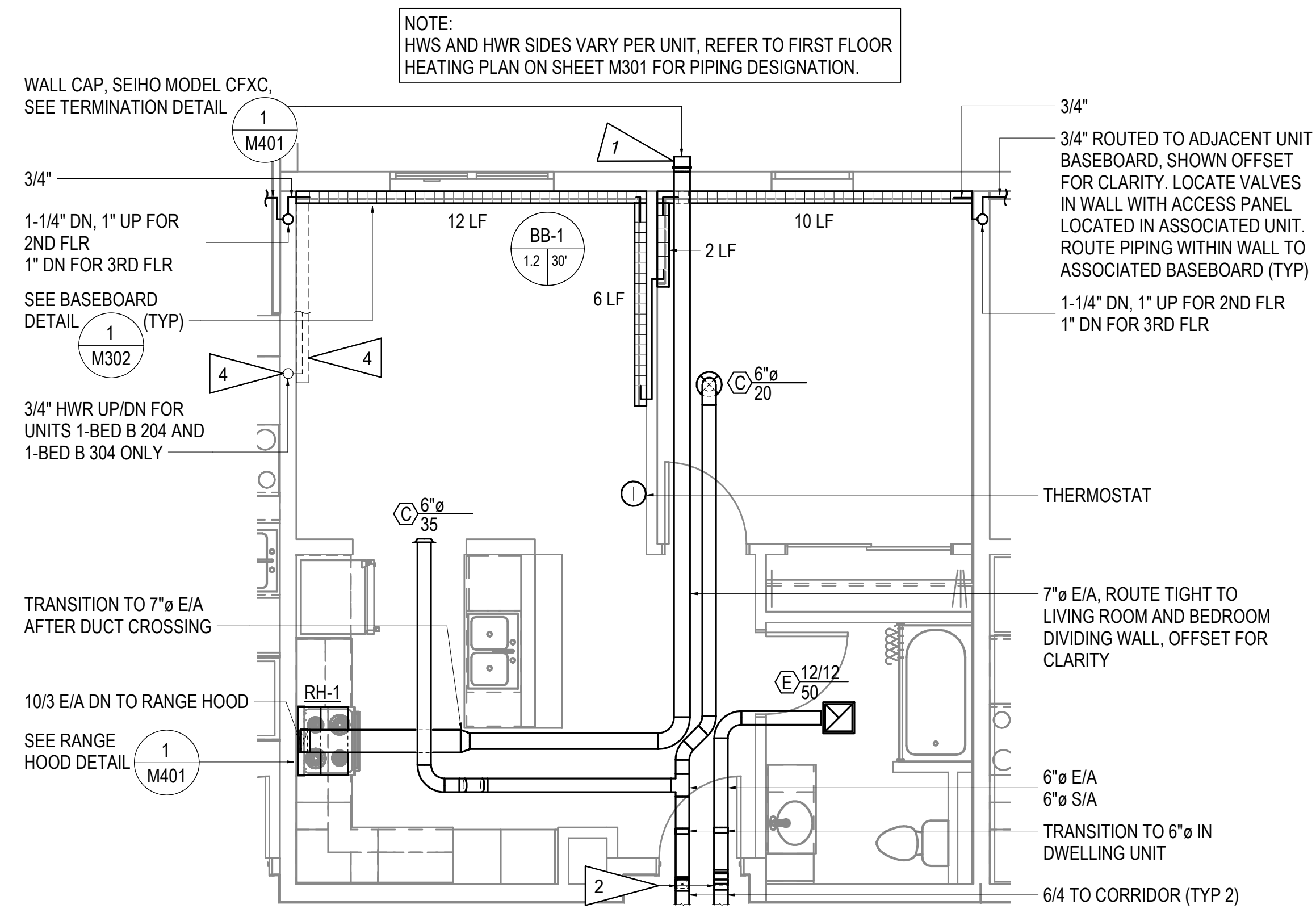
SHEET NAME
UNIT A ENLARGED PLANS

SHEET NO.

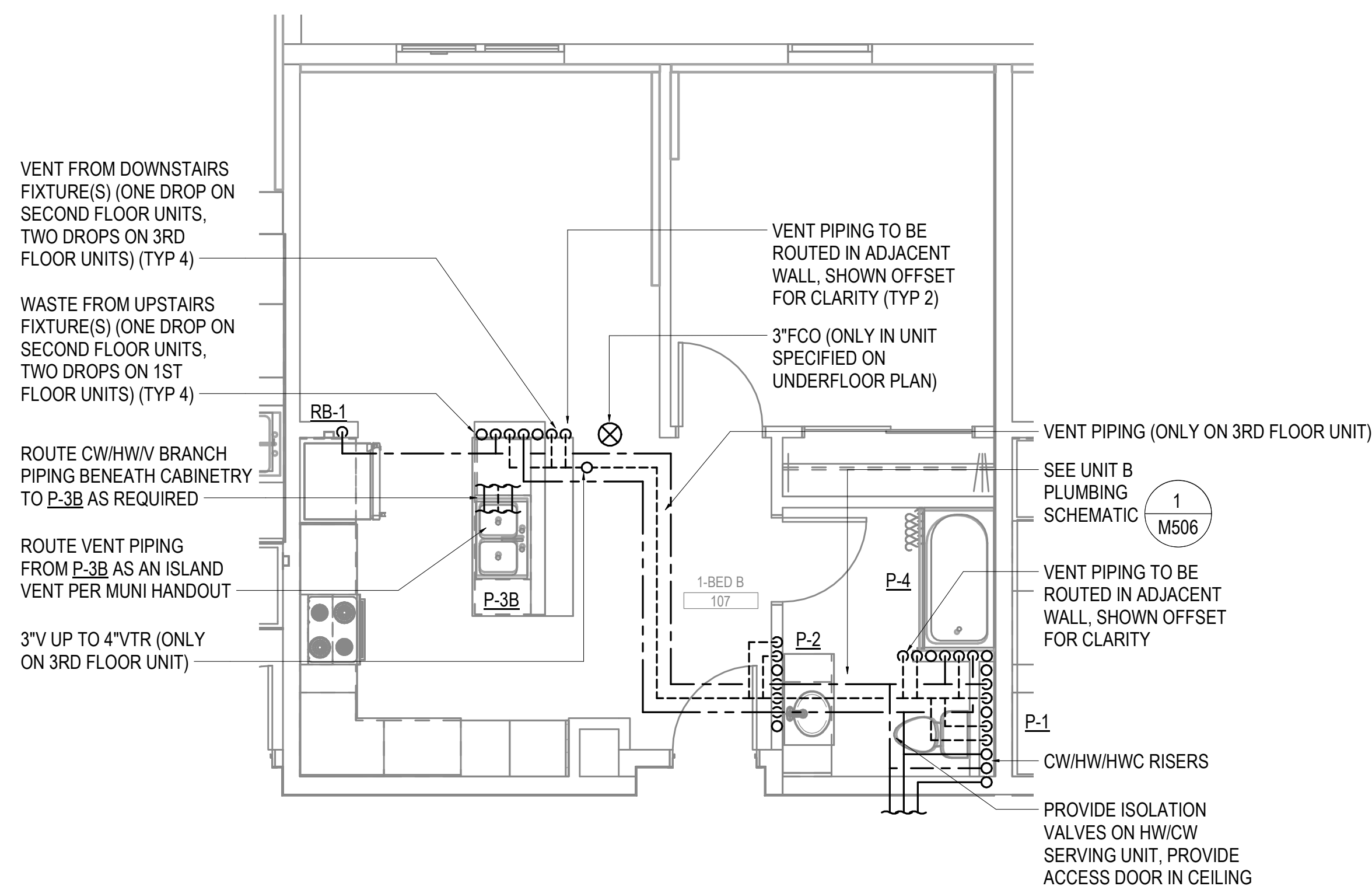
M501



1 UNIT B ENLARGED HVAC PLAN - 1ST FLR
1/4" = 1'-0"



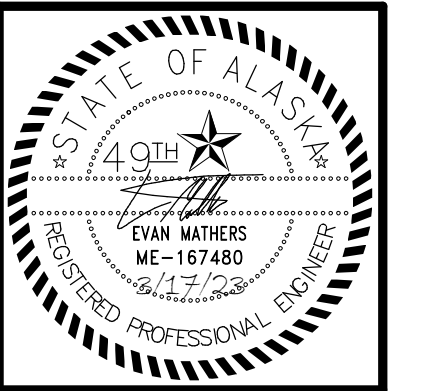
3 UNIT B ENLARGED HVAC PLAN - 2ND & 3RD FLR
1/4" = 1'-0"



2 UNIT B ENLARGED PLUMBING PLAN
1/4" = 1'-0"

SHEET NOTES

- MINIMUM 3' DISTANCE FROM EXHAUST OUTLET TO OPERABLE WINDOW OPENINGS.
- OFFSET DUCTWORK AS NECESSARY IN SOFFIT ABOVE ENTRY DOOR TO ROUTE FROM CORRIDOR TO UNIT.
- SEE ADJACENT UNIT ENLARGED PLAN FOR PIPE ROUTING, SIZE, AND DESIGNATION.
- FOR UNITS 1-BED B 204 AND 1-BED B 304 ONLY, PROVIDE PIPE ROUTING AS INDICATED TO AVOID ROUTING PIPING IN EXTERIOR WALL. ROUTE PIPE CONCEALED IN BB-1 FINITUBE ENCLOSURE, FINITUBE ELEMENT IS NOT REQUIRED.



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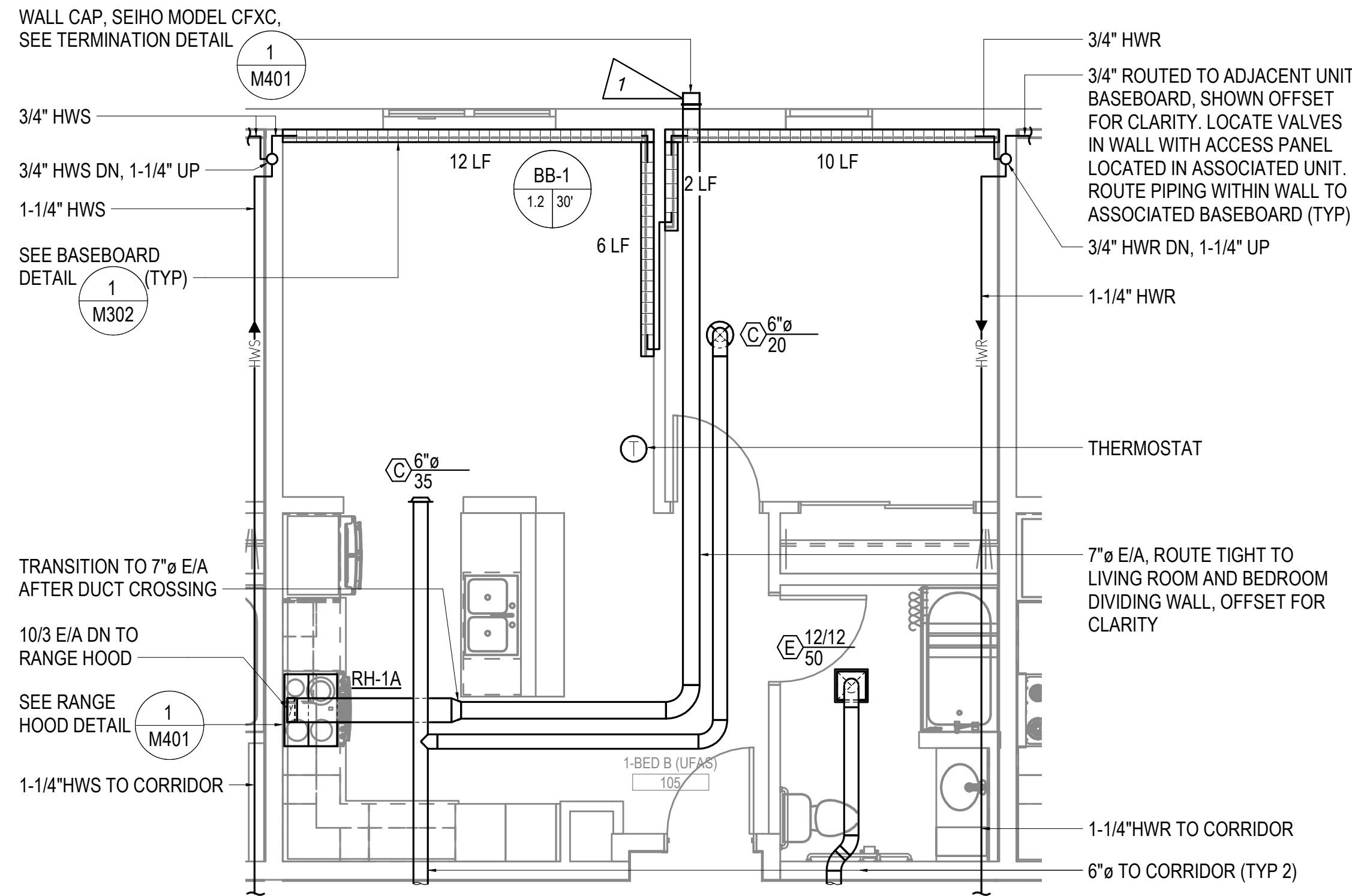
COOK INLET HOUSING AUTHORITY
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#	DESCRIPTION	DATE

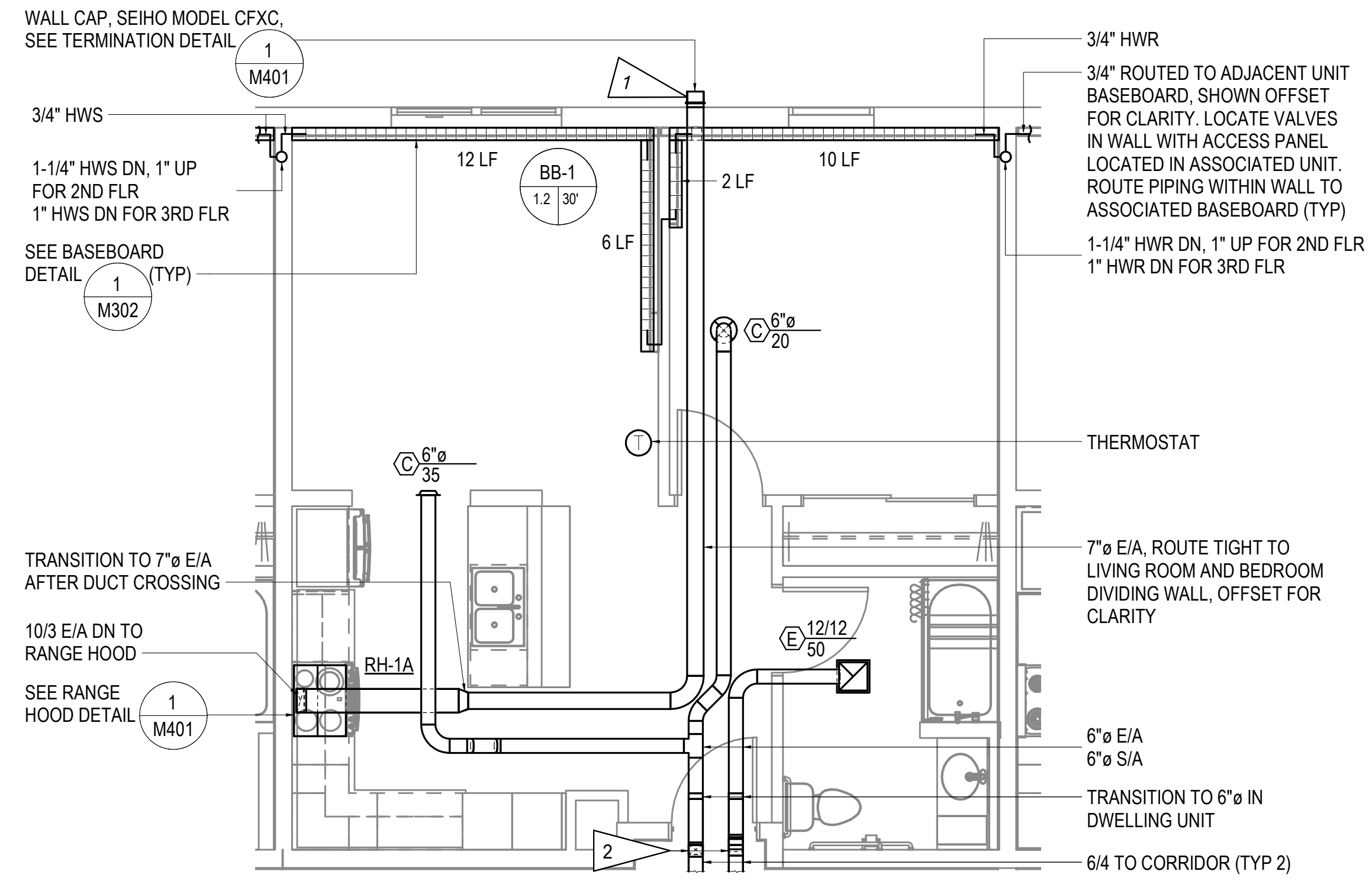
JOB NO. M2169
DATE 2023.03.08
DRAWN EMM/NSK
REVIEWED EMM

SHEET NAME
UNIT B ENLARGED PLANS

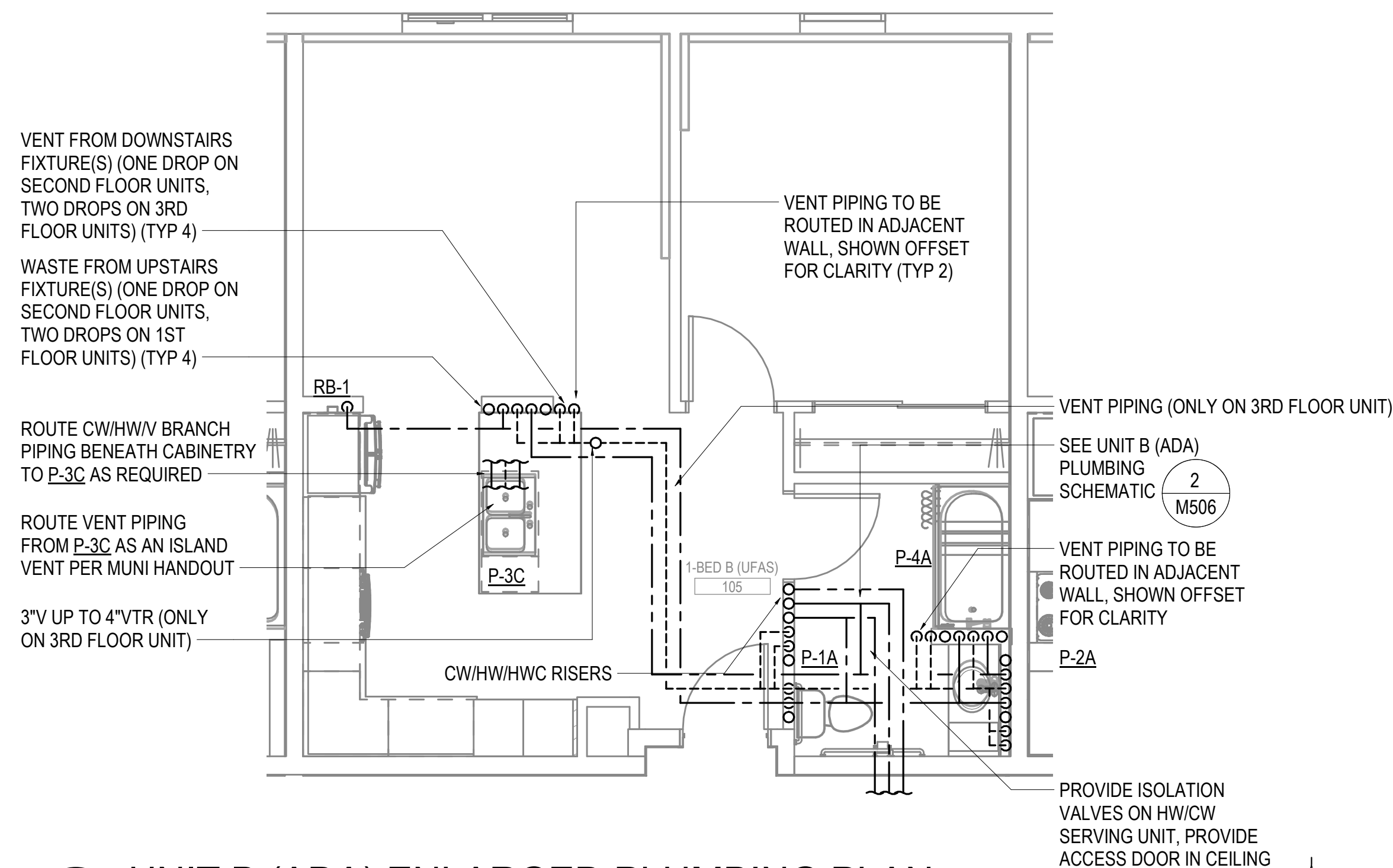
SHEET NO.
M502



1 UNIT B (ADA) ENLARGED HVAC PLAN - 1ST FLR
1/4" = 1'-0"



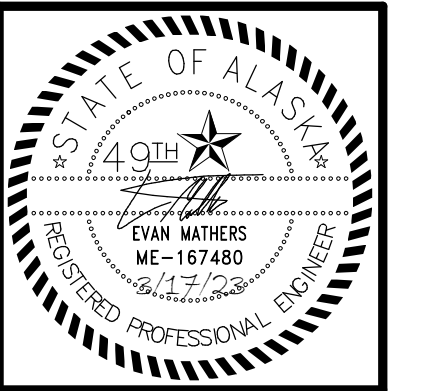
3 UNIT B (ADA) ENLARGED HVAC PLAN - 2ND & 3RD FLR
1/4" = 1'-0"



2 UNIT B (ADA) ENLARGED PLUMBING PLAN
1/4" = 1'-0"

SHEET NOTES

- MINIMUM 3' DISTANCE FROM EXHAUST OUTLET TO OPERABLE WINDOW OPENINGS.
- OFFSET DUCTWORK AS NECESSARY IN SOFFIT ABOVE ENTRY DOOR TO ROUTE FROM CORRIDOR TO UNIT.



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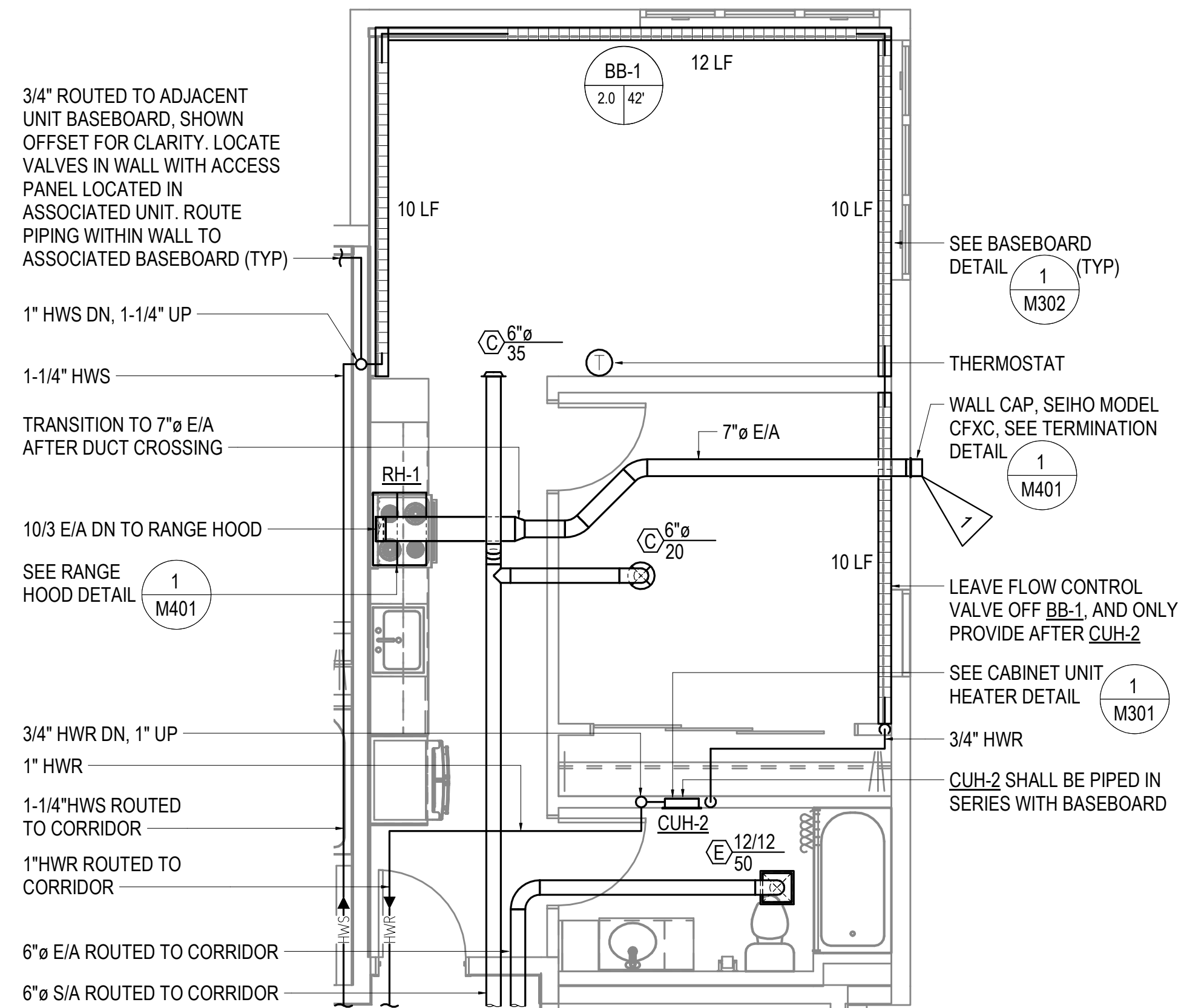
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
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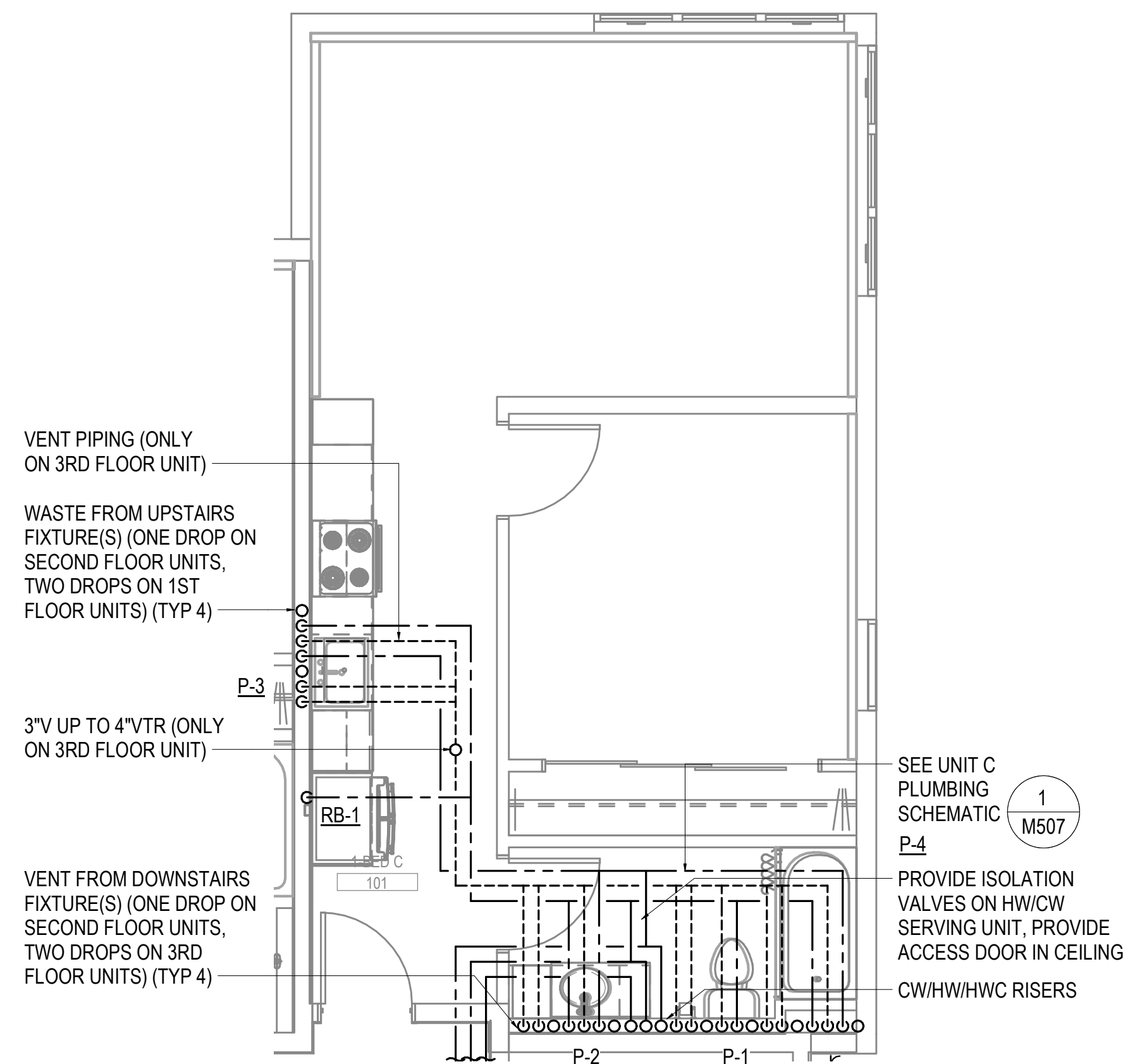
JOB NO. M2169
DATE 2023.03.08
DRAWN EMMANSK
REVIEWED EMM

SHEET NAME
UNIT B (ADA) ENLARGED PLANS

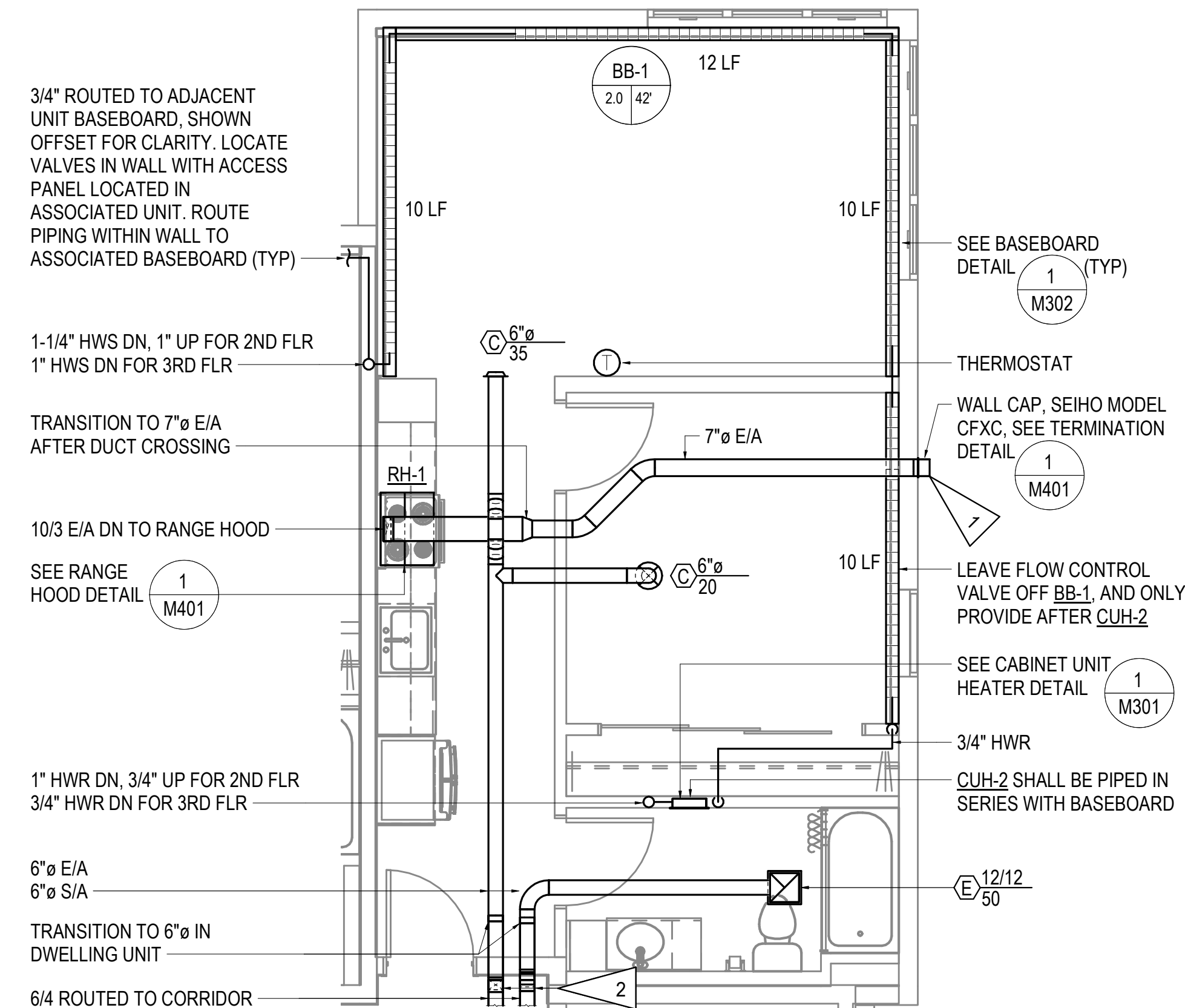
SHEET NO.
M503



1 UNIT C ENLARGED HVAC PLAN - 1ST FLR
1/4" = 1'-0"



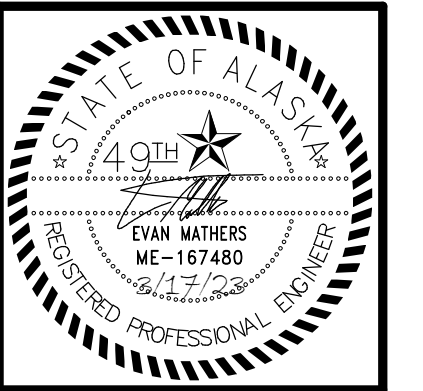
2 UNIT C ENLARGED PLUMBING PLAN
1/4" = 1'-0"



3 UNIT C ENLARGED HVAC PLAN - 2ND & 3RD FLR
1/4" = 1'-0"

SHEET NOTES

- MINIMUM 3' DISTANCE FROM EXHAUST OUTLET TO OPERABLE WINDOW OPENINGS.
- OFFSET DUCTWORK AS NECESSARY IN SOFFIT ABOVE ENTRY DOOR TO ROUTE FROM CORRIDOR TO UNIT.



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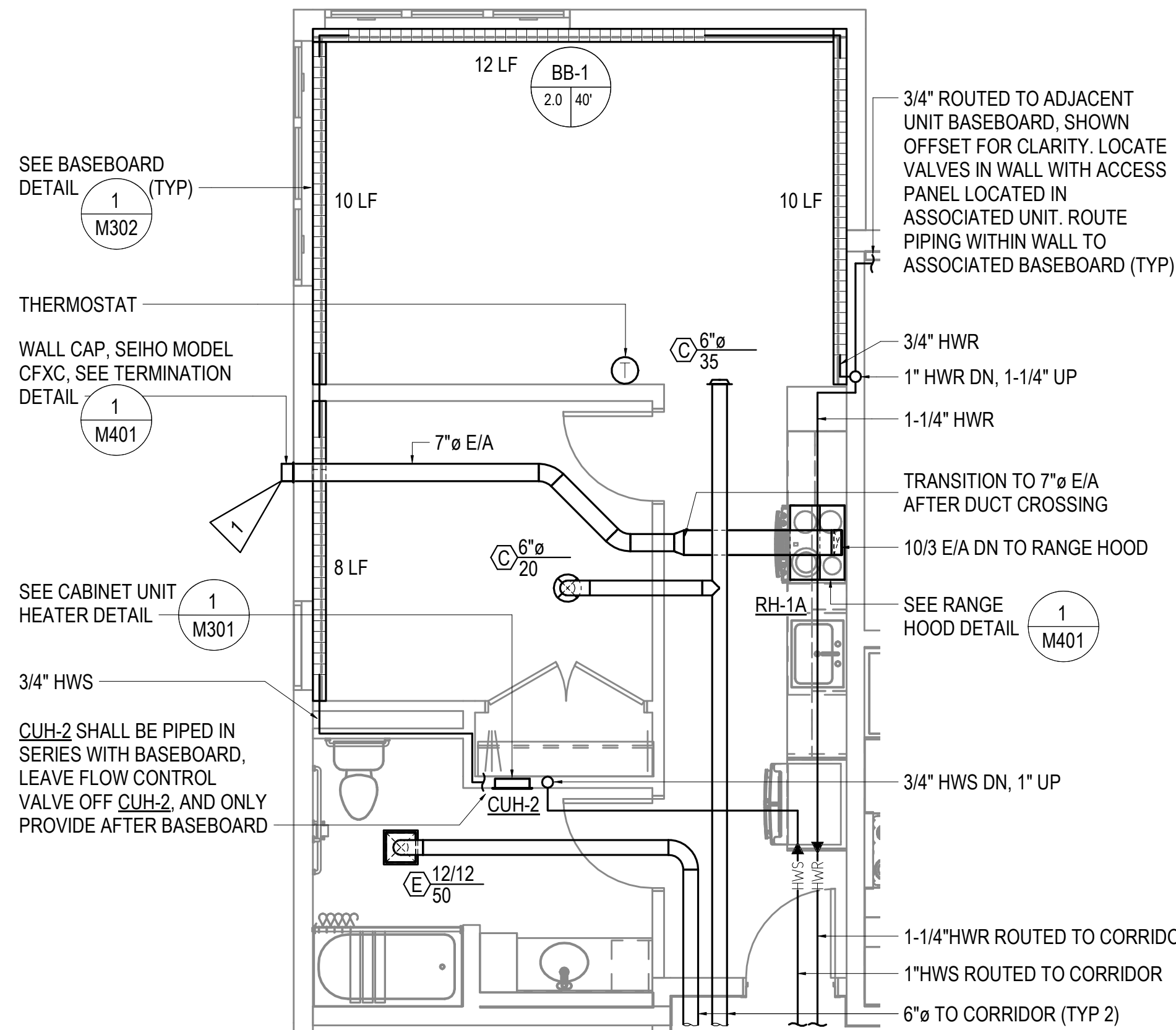
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
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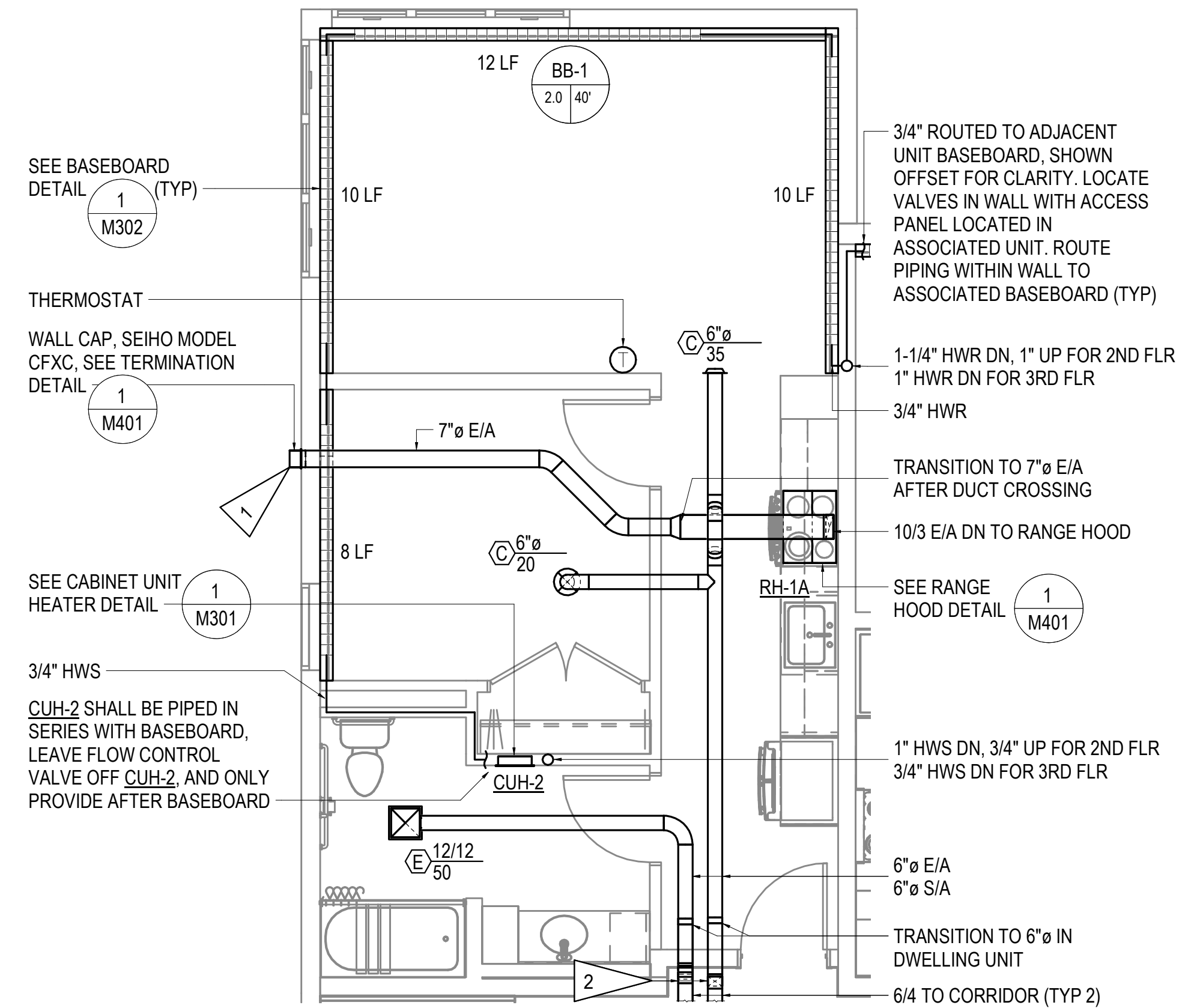
JOB NO. M2169
DATE 2023.03.08
DRAWN EMMANSK
REVIEWED EMM

SHEET NAME
UNIT C ENLARGED PLANS

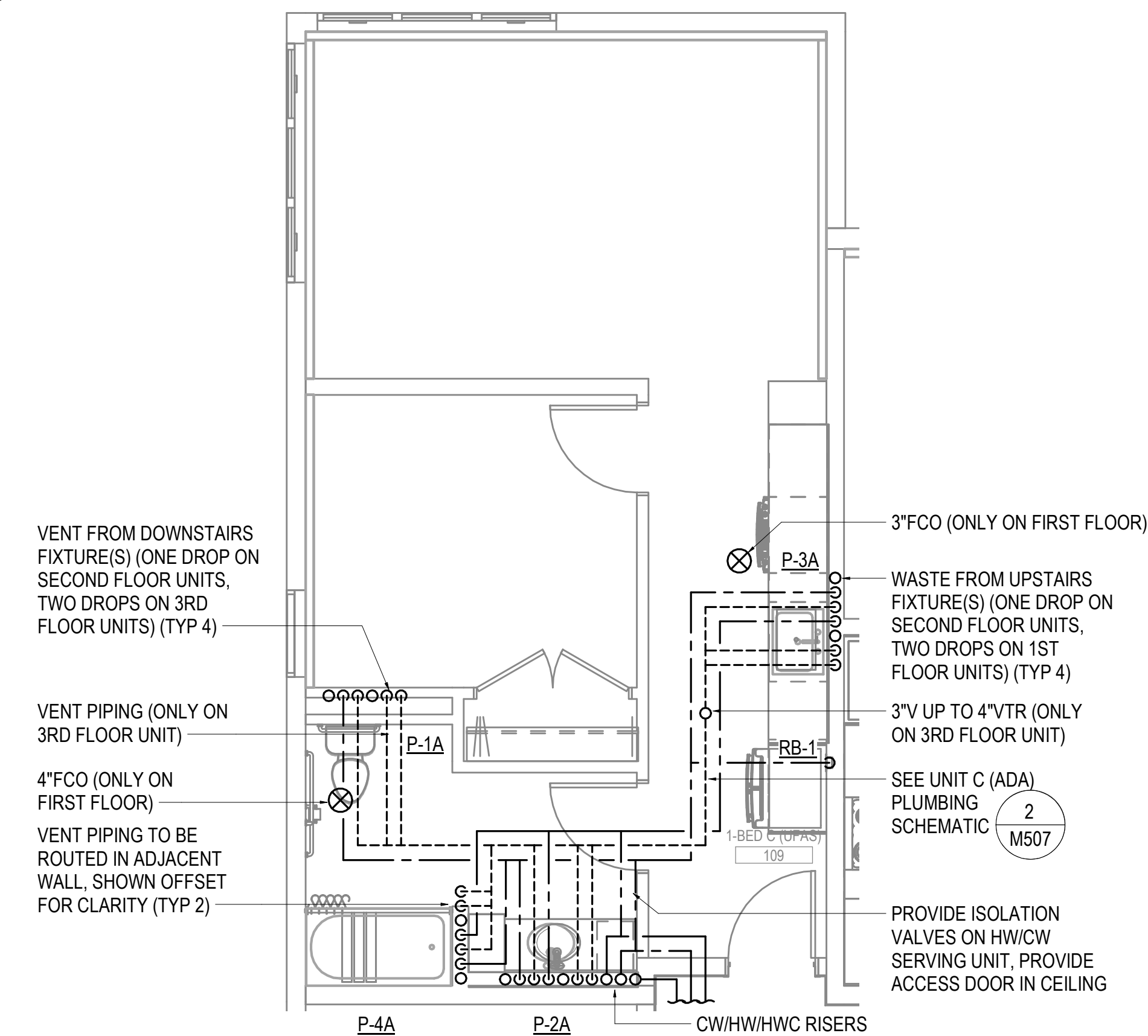
SHEET NO.
M504



1 UNIT C (ADA) ENLARGED HVAC PLAN - 1ST FLR
1/4" = 1'-0"



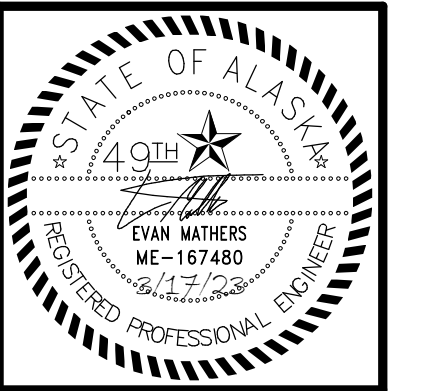
3 UNIT C (ADA) ENLARGED HVAC PLAN - 2ND & 3RD FLR
1/4" = 1'-0"



2 UNIT C (ADA) ENLARGED PLUMBING PLAN
1/4" = 1'-0"

SHEET NOTES

- MINIMUM 3' DISTANCE FROM EXHAUST OUTLET TO OPERABLE WINDOW OPENINGS.
- OFFSET DUCTWORK AS NECESSARY IN SOFFIT ABOVE ENTRY DOOR TO ROUTE FROM CORRIDOR TO UNIT.



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REVISION SCHEDULE		
#	DESCRIPTION	DATE

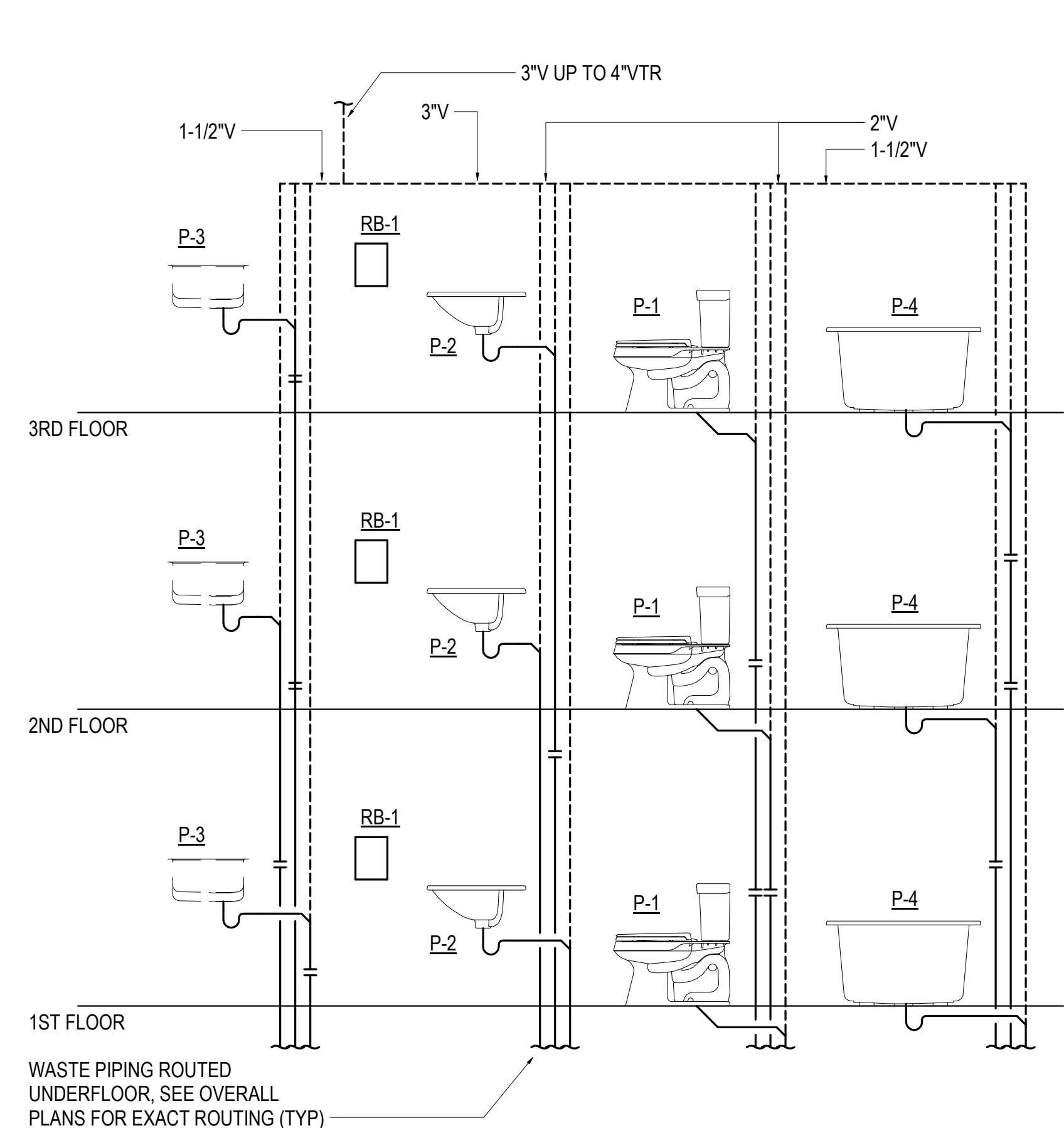
JOB NO. M2169
DATE 2023.03.08
DRAWN EMMANSK
REVIEWED EMM

SHEET NAME
UNIT C (ADA) ENLARGED PLANS

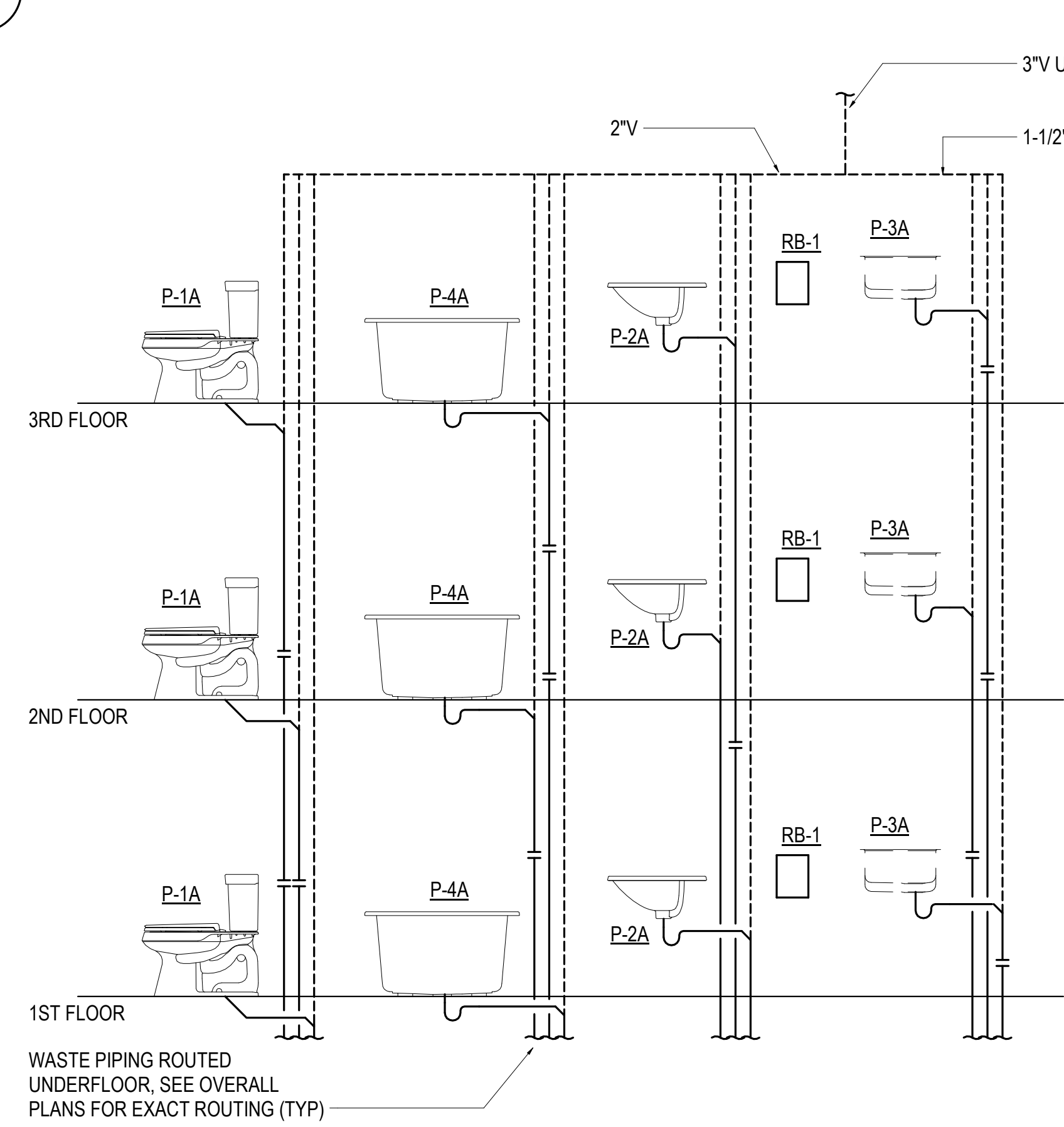
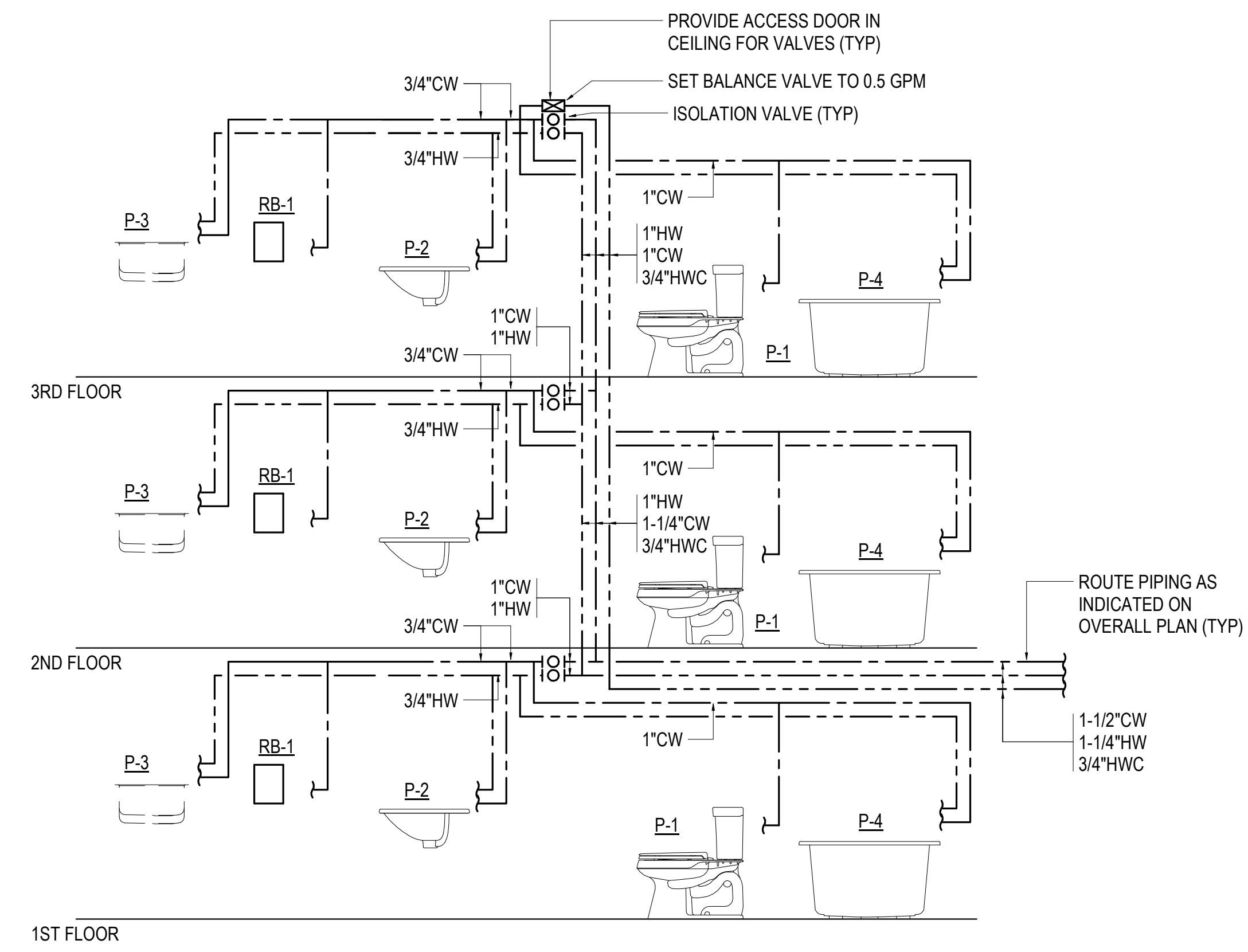
SHEET NO.

M505

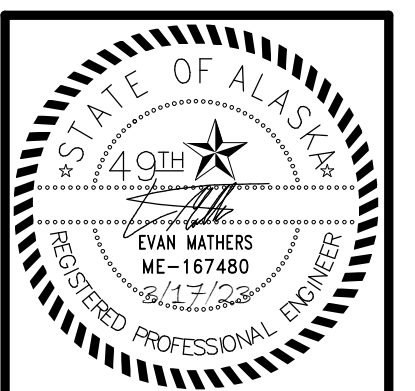
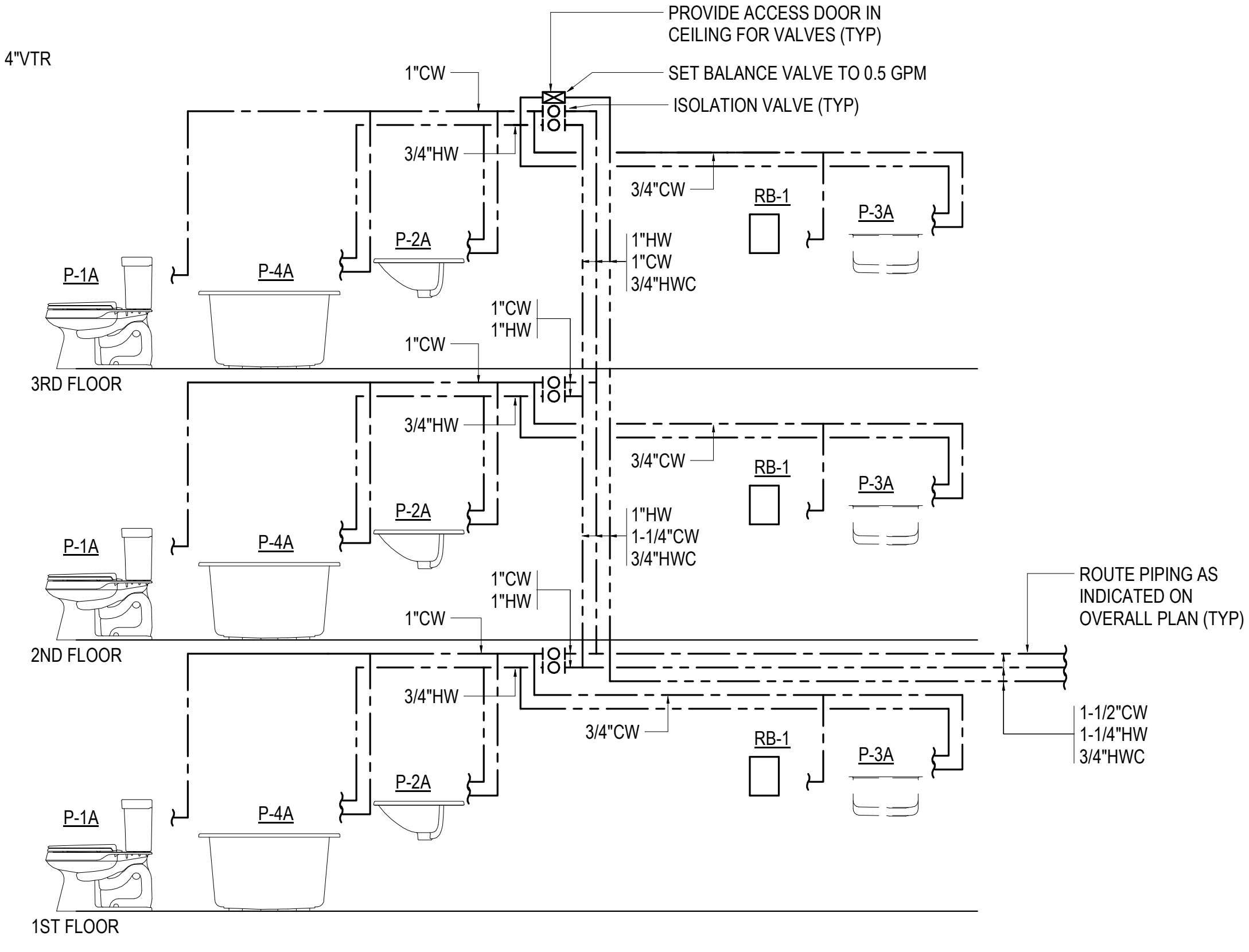




1 UNIT C PLUMBING SCHEMATIC



2 UNIT C (ADA) PLUMBING SCHEMATIC



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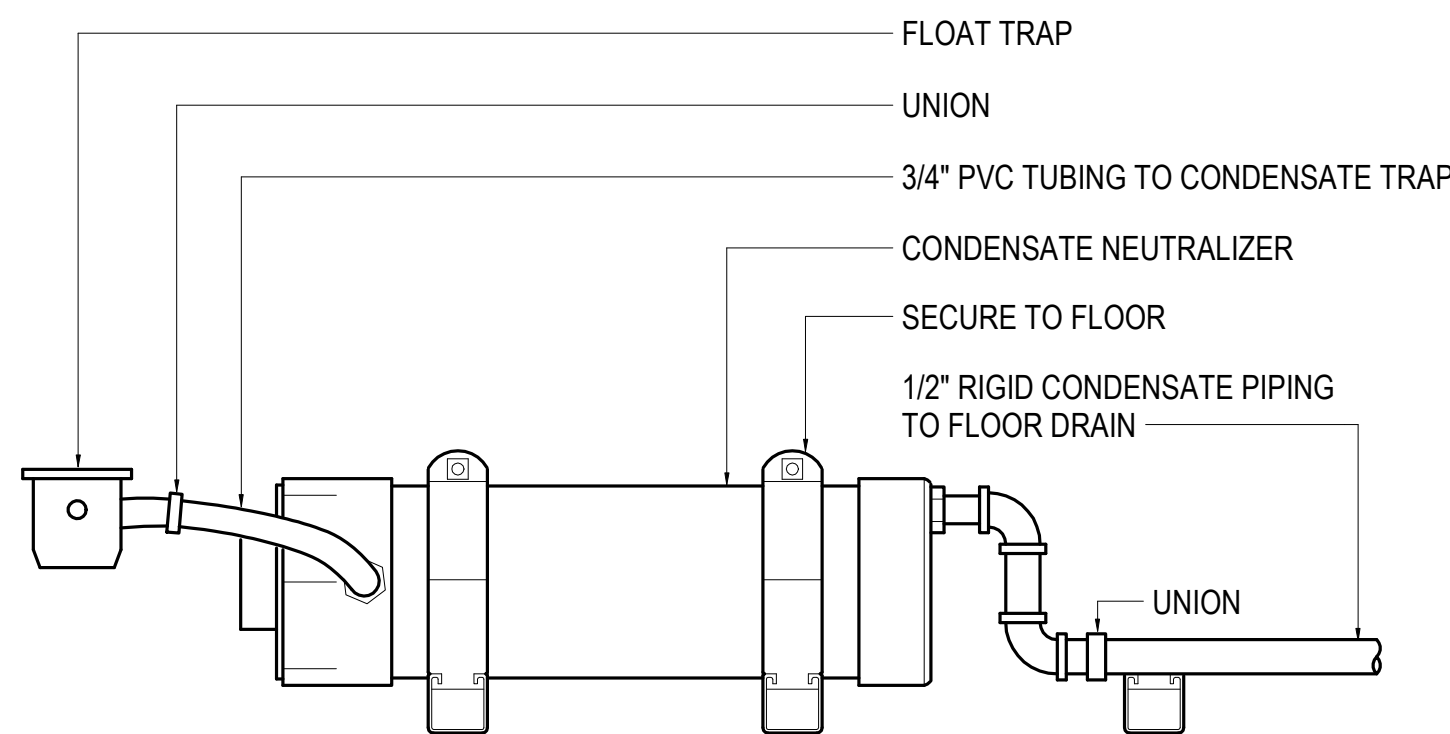
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

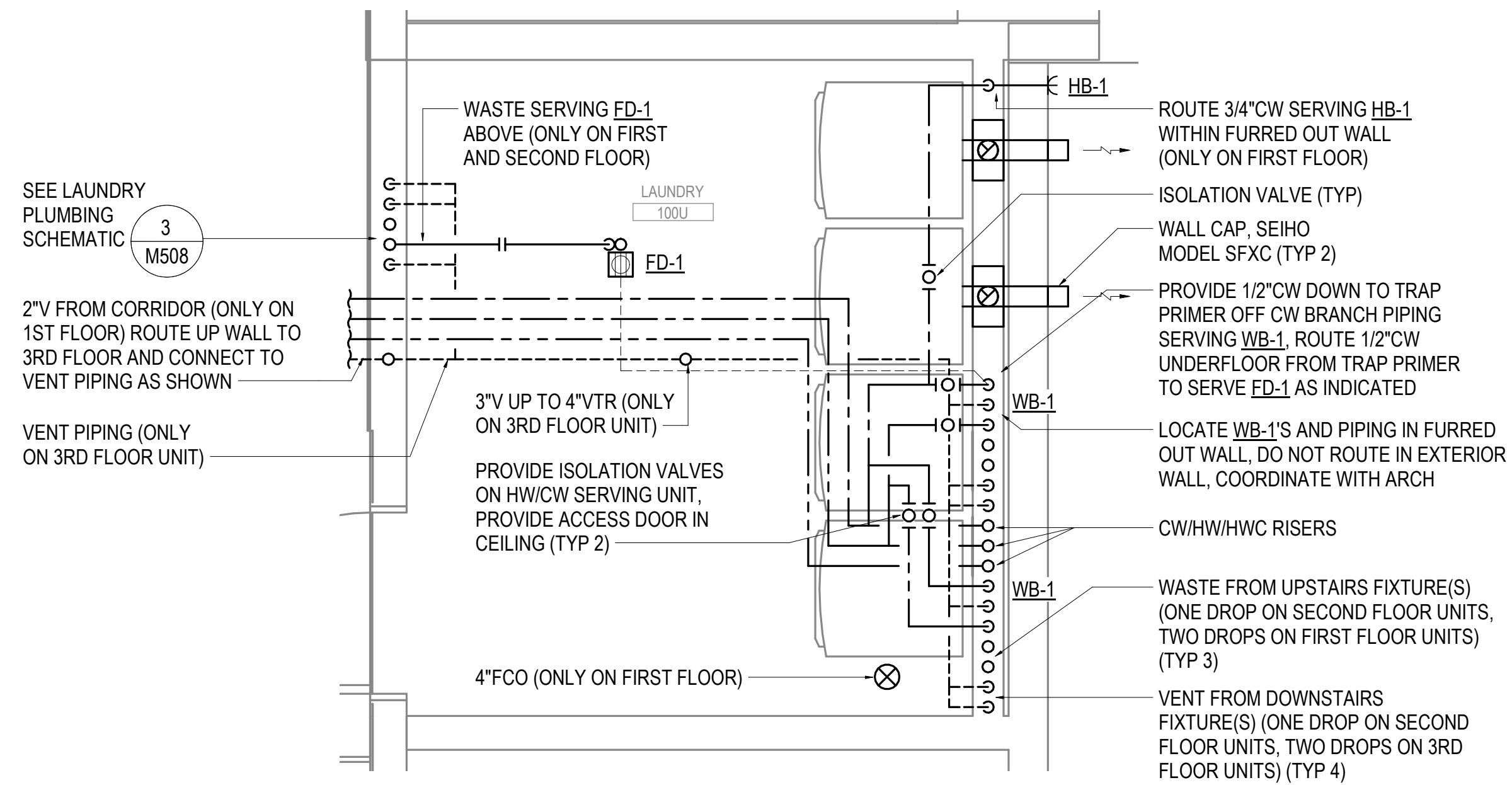
JOB NO. M2169
DATE 2023.03.08
DRAWN EMM
REVIEWED EMM

SHEET NAME
UNIT C PLUMBING SCHEMATICS

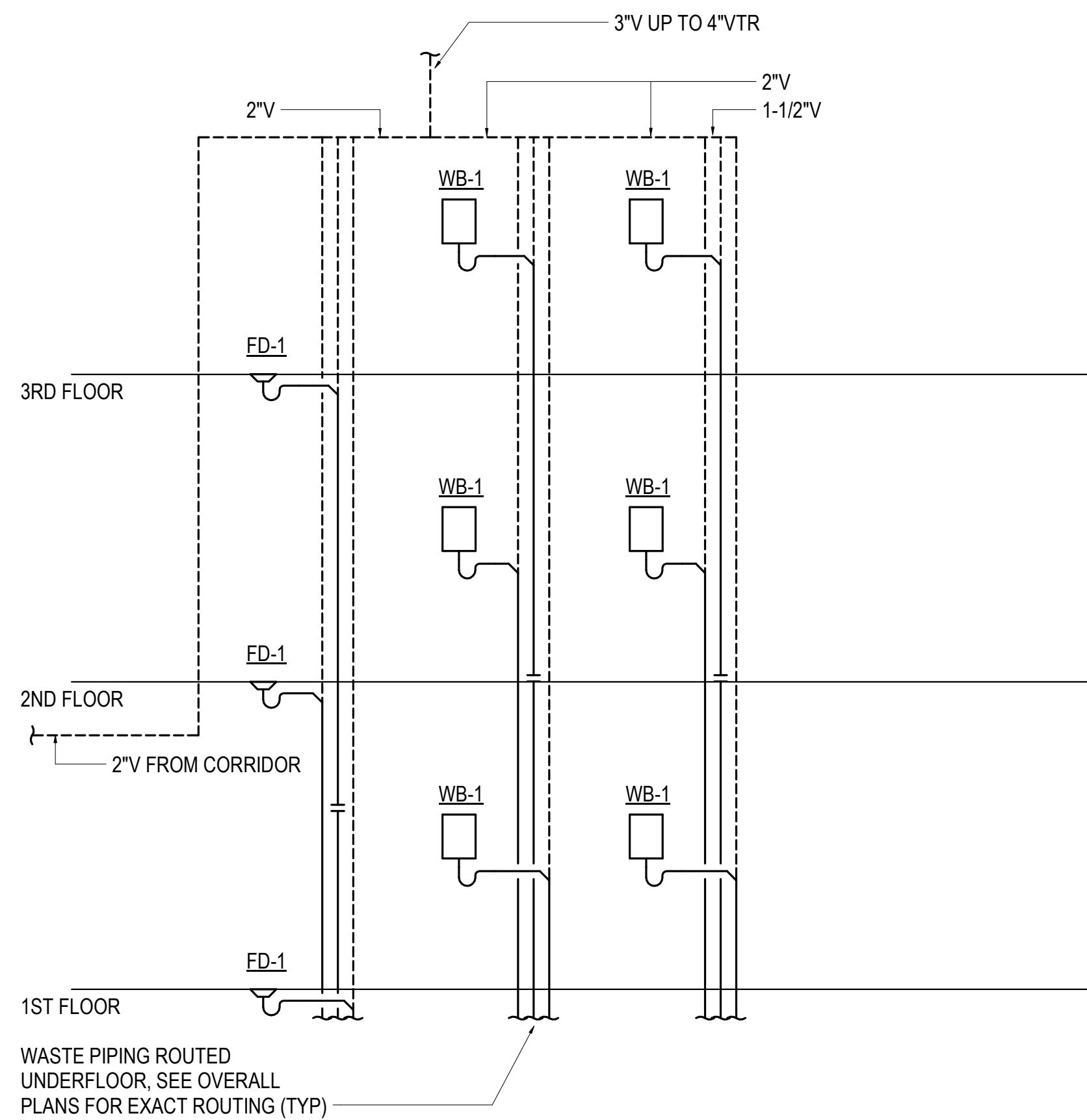
SHEET NO.
M507



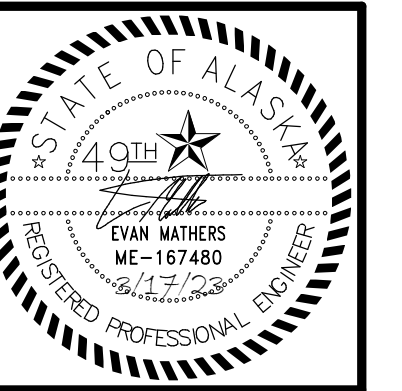
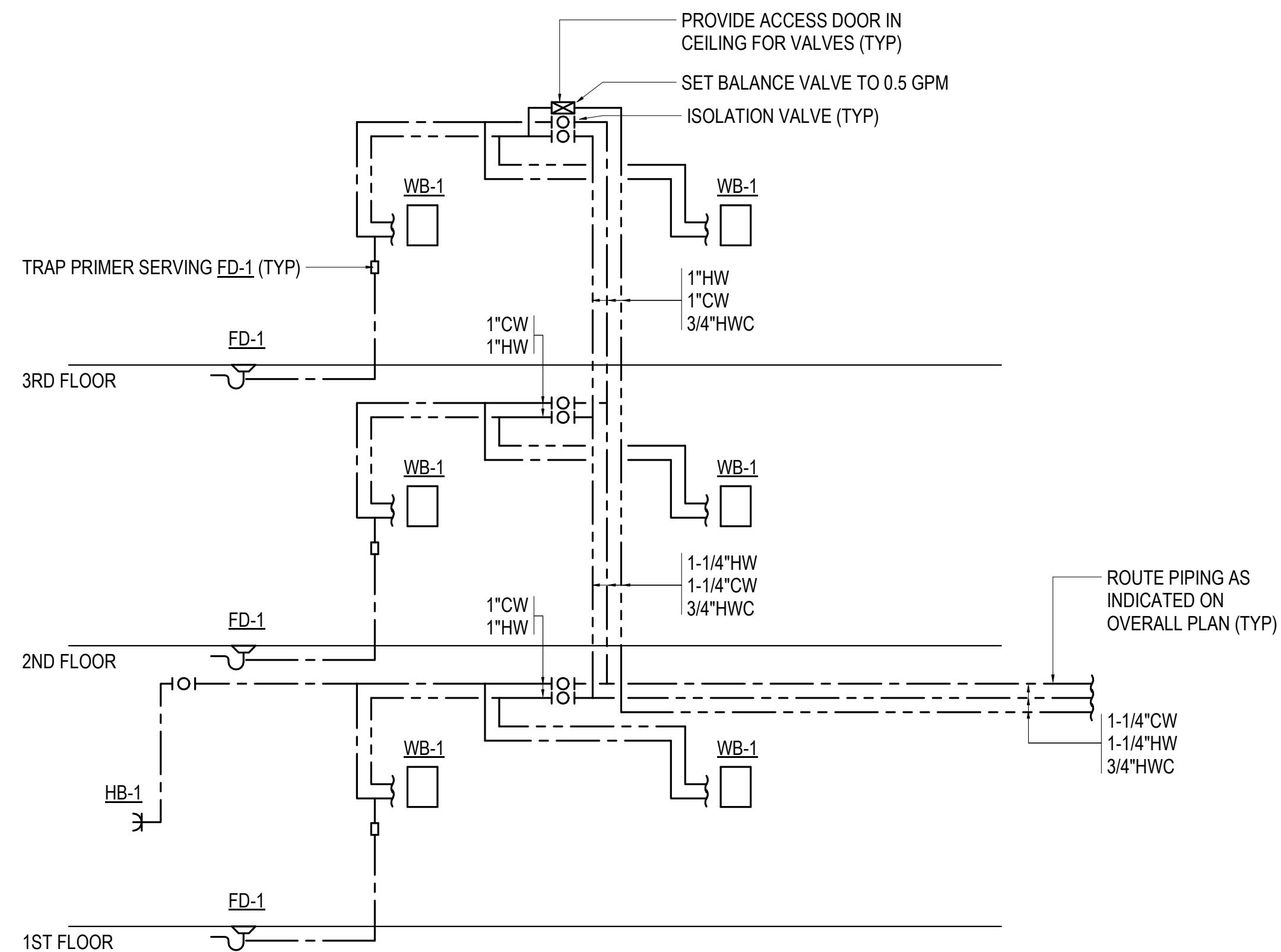
1 PH NEUTRALIZER AT BOILER/WATER HEATER DETAIL



2 LAUNDRY ROOM PLUMBING AND VENT ENLARGED PLAN
1/2" = 1'-0"



3 LAUNDRY ROOM PLUMBING SCHEMATIC



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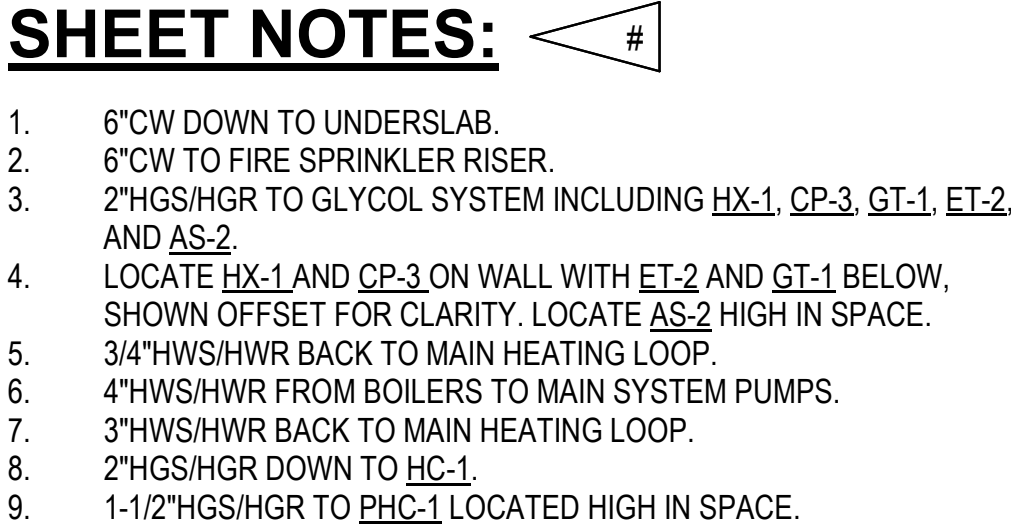
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ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. M2169
DATE 2023.03.08
DRAWN EMMANSK
REVIEWED EMM

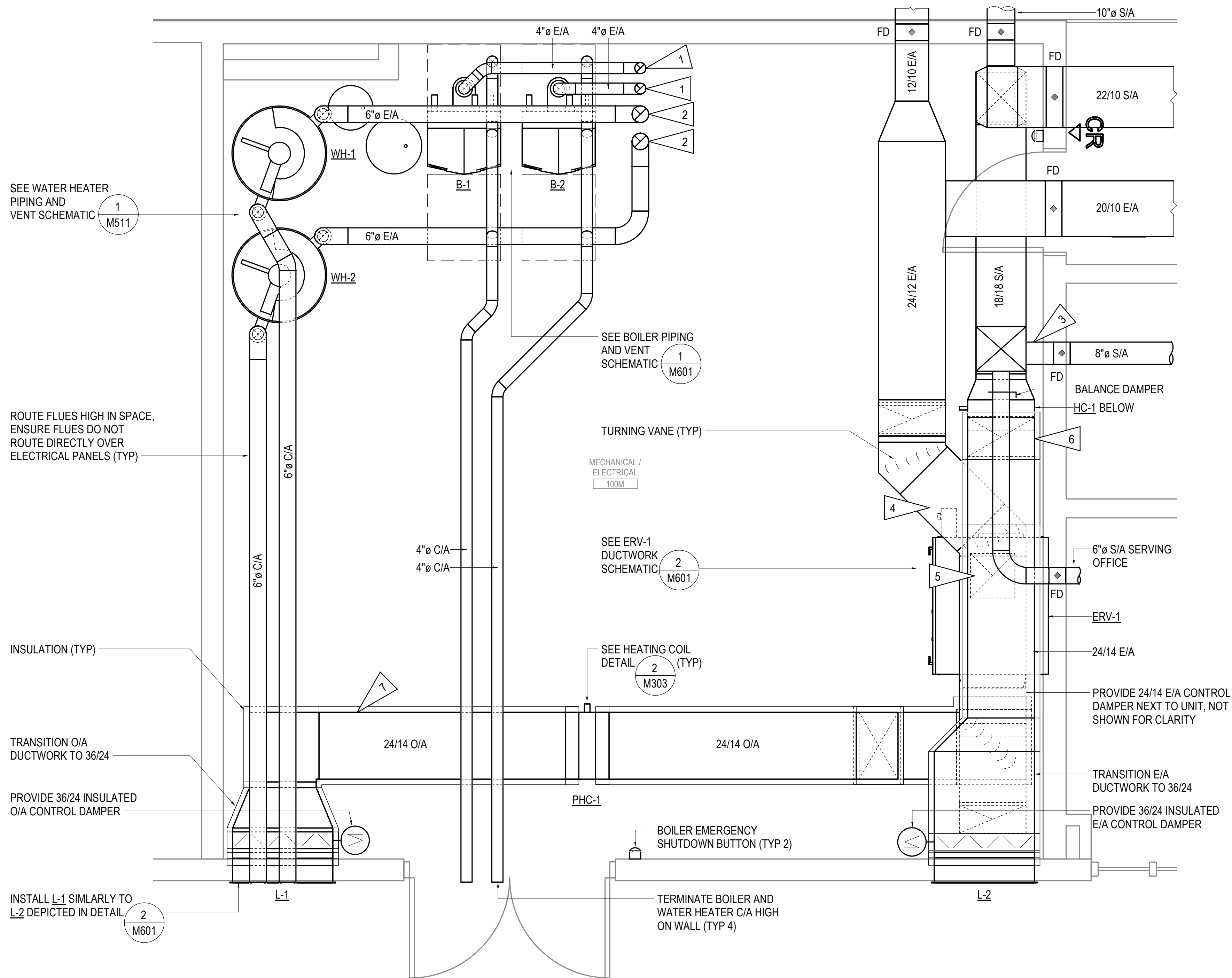
SHEET NAME
LAUNDRY ROOM ENLARGED
PLAN, SCHEMATIC, AND DETAIL

SHEET NO.
M508



SHEET NO.

M509



- SHEET NOTES:**
- 4" EXHAUST FLUE UP THROUGH CHASE ABOVE TO ROOF.
 - 6" EXHAUST FLUE UP THROUGH CHASE ABOVE TO ROOF.
 - 8" S/A DOWN TO 18" S/A.
 - TRANSITION 24/10 E/A UP AND AROUND S/A DUCTWORK AS REQUIRED.
 - CONNECT E/A DUCT TO 16/16 BYPASS CONNECTION, PROVIDE 16/16 CONTROL DAMPER AND FLEXIBLE CONNECTION AT BYPASS.
 - ROUTE 24/14 E/A FROM HIGH IN SPACE, DOWN AND INTO ERV-1.
 - ROUTE 24/14 O/A HIGH IN SPACE. COORDINATE WITH ELECTRICAL PANEL CLEARANCES ON PLAN SOUTH AND PLAN WEST WALLS.

1 MECHANICAL ROOM ENLARGED VENTILATION PLAN
1/2" = 1'-0"



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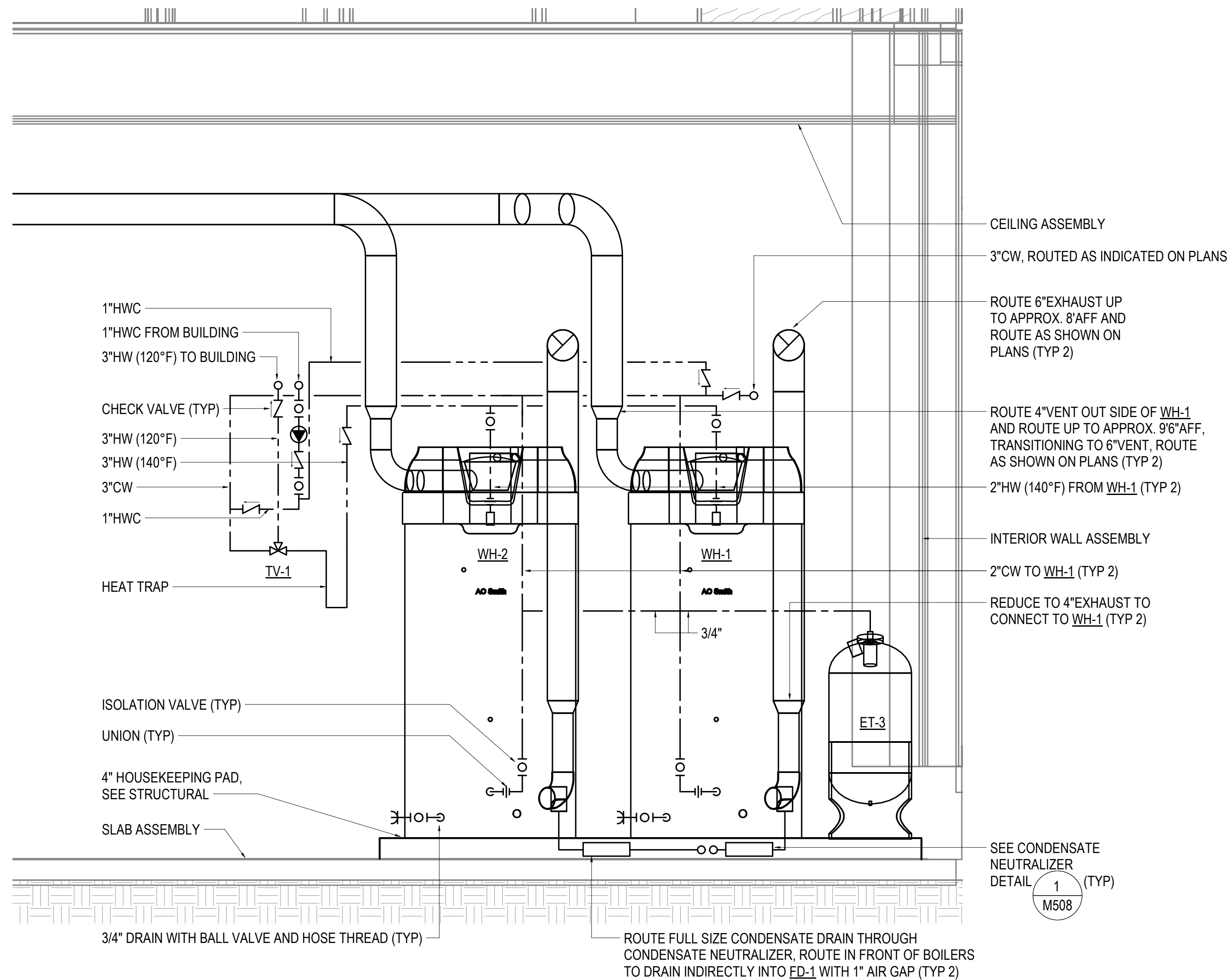
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REVISION SCHEDULE		
#	DESCRIPTION	DATE

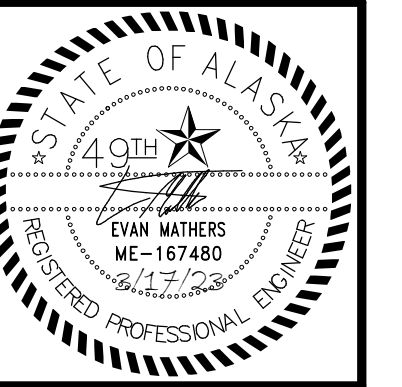
JOB NO. M2169
DATE 2023.03.08
DRAWN EMMANSK
REVIEWED EMM

SHEET NAME
MECHANICAL ROOM VENTILATION
ENLARGED PLAN

SHEET NO.
M510



1 WATER HEATER PIPING AND VENT SCHEMATIC



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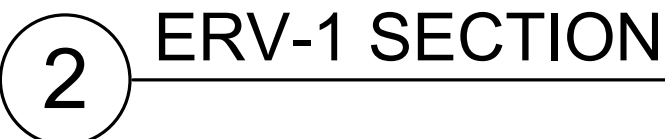
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REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO. M2169
DATE 2023.03.08
DRAWN EMM
REVIEWED EMM

SHEET NAME
DOMESTIC WATER SCHEMATIC

SHEET NO.
M511



SHEET NO.

M601



CERTIFICATE OF AUTHORIZATION NO.
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BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT,TEH

SHEET NAME
ELECTRICAL LEGEND

SHEET NO.
E0.00

HALF SCALE WHEN PRINTED AT 11x17

ELECTRICAL LEGEND					
	ROUND LIGHT FIXTURE - PENDANT OR SURFACE MTD CLG, EM		SPECIAL PURPOSE OUTLET		FIRE ALARM HORN (WALL, CLG MOUNTED)
	LIGHT FIXTURE - SURFACE MTD ON WALL, EM		JUNCTION BOX		FIRE ALARM HORN/STROBE LIGHT (WALL, CLG MOUNTED)
	LIGHT FIXTURE - RECESSED DOWNLIGHT, EM		EMERGENCY PUSHBUTTON SWITCH		FIRE ALARM STROBE LIGHT (WALL, CLG MOUNTED)
	EMERGENCY EXIT SIGN - SURFACE MTD CLG		PUSHBUTTON		HEAT DETECTOR 135° & RATE OF RISE (OR FIXED °F IF NOTED)
	EMERGENCY EXIT SIGN - SURFACE MTD WALL		MOTOR (SIZED AS SHOWN)		PHOTOELECTRIC SMOKE DETECTOR
	LINEAR LIGHT FIXTURE - RECESSED MTD		FRACTIONAL HORSEPOWER MOTOR STARTER		DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
	LINEAR LIGHT FIXTURE - SURFACE MTD CLG		DISCONNECT SWITCH		NOTE TAG (No. INDICATES NOTE)
	LINEAR LIGHT FIXTURE - WALL MTD, EM		DISCONNECT SWITCH (FUSED)		EQUIPMENT TAG (No. INDICATES TYPE)
	STRIPLIGHT - PENDANT OR SURFACE MTD CLG, EM		COMBINATION DISCONNECT/MAGNETIC MOTOR STARTER	AFF	ABOVE FINISHED FLOOR
	STRIPLIGHT - WALL MTD, EM		TELEPHONE OUTLET	AFG	ABOVE FINISHED GRADE
	POLE MOUNTED AREA LIGHT - OUTDOORS, WEATHERPROOF		TELECOMMUNICATIONS OUTLET (2-PORT)	AIC	AMPERES INTERRUPTING CAPACITY
	FIXTURE TAG (LETTER INDICATES TYPE)		COMBINATION TELEPHONE AND TELEVISION OUTLET	C	CONDUIT
\$	SINGLE POLE SWITCH		TELEVISION OUTLET	CLG	DENOTES ITEM LOCATED ON THE CEILING
\$ _s	SINGLE POLE SWITCH (LOWER CASE LETTER INDICATES SWITCHING)		DOOR POSITION CONTACT	CO	CARBON MONOXIDE DETECTOR
\$ ₃	THREE WAY SWITCH		ELECTRIC DOOR LOCK	EGC	EQUIPMENT GROUNDING CONDUCTOR
\$ ₀	DIMMER SWITCH		CONTROL RELAY	EM	DENOTES EMERGENCY POWER
\$ _p	PILOT LIGHT SWITCH		PROXIMITY CARD READER	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
\$ _{os}	OCCUPANCY SENSOR WALL SWITCH (DUALTECH)		INTERCOM - ENTRANCE STATION	K	KELVIN
	OCCUPANCY SENSOR - CEILING MOUNTED (DUALTECH)		INTERCOM - UNIT STATION	LED	LIGHT EMITTING DIODE
	PHOTOCELL		THERMOSTAT	LF	LOW FREQUENCY
	CONDUIT, CONCEALED		CLOSED CIRCUIT TELEVISION CAMERA (CEILING MOUNTED)	LM	LUMENS
	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)		CLIENT WORKSTATION	MLO	MAIN LUGS ONLY
	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)		MONITOR	NEC	NATIONAL ELECTRICAL CODE
	PANEL		ACCESS CONTROL PANEL	NTS	NOT TO SCALE
	DUPLEX RECEPTACLE		FIRE ALARM CONTROL PANEL	SB	SOUNDER BASE
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER		FIRE ALARM REMOTE ANNUNCIATOR PANEL	TTB	TELECOM TERMINAL BACKBOARD
	USB DUAL CHARGER AND RECEPTACLE		EMERGENCY TRANSFER DEVICE	TYP	TYPICAL
	DUPLEX RECEPTACLE ON GFCI CIRCUIT BREAKER		FIRE ALARM PULL STATION	UON	UNLESS OTHERWISE NOTED
	QUADRAPLEX RECEPTACLE		SPRINKLER ALARM BELL	WP	WEATHERPROOF

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Corporate No.: AECC0442



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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT,TEH

SHEET NAME
LIGHTING SCHEDULES

SHEET NO.
E0.01

HALF SCALE WHEN PRINTED AT 11x17

1 LIGHT FIXTURE SCHEDULE

TYPE	LOCATION	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	LUMINAIRE DESCRIPTION	MOUNTING		LAMPS	BALLAST/DRIVER	TOTAL INPUT WATTS
				TYPE	HEIGHT			
A	AS SHOWN	JLC TECH #TBSL-MN-4-24-D-U-W #TBSL-DIM-HP-X-UNV	4' LINEAR T-BAR FIXTURE WITH DIFFUSING LENS, AND WHITE FINISH. 'X' DENOTES DRIVER WATTAGE WHICH MAY VARY, FIELD COORDINATE 24DC POWER SUPPLIES WATTAGE AND CONTROL WIRING AS REQUIRED.	INTEGRAL	CEILING	4,000K 2,277LM	120-277V DRIVER 0-10V DIMMING	32
B	AS SHOWN	GOTHAM #EVO6-40/10-AR-MD-LSS-MVOLT-GZ10	6" LED RECESSED DOWNLIGHT WITH WET LISTING AND SEMI SPECULAR FINISH.	RECESSED	CEILING	4,000K 994LM	120/277V 0-10V DIMMING	10
C	AS SHOWN	LITHONIA LIGHTING #CSS-L48-AL03-MVOLT-SWW3-80CRI (#HC36-M12)	4' LINEAR STRIP LIGHT WITH SWITCHABLE LUMEN OUTPUT, SWITCHABLE COLOR TEMPERATURE, AND WHITE FINISH. PROVIDE CHAIN HANGERS FOR PENDANT MOUNTED UNITS.	SURFACE/WALL/ PENDANT	CEILING/AS NOTED	4,000K 4,206LM	120/277V	36
D	AS SHOWN	LITHONIA LIGHTING #WL4-40L-EZ1-LP840-N100-NES7ADCX-DIM50	4' STAIRWELL FIXTURE WITH INTEGRAL OCCUPANCY SENSOR AND PHOTOCELL. SEE LIGHTING CONTROL SCHEDULE FOR STAIRWELL CONTROL.	WALL	8'-0" AFF	4,000K 4,325LM 90CRI	120/277V 0-10V DIMMING DOWN TO 1%	40
F	AS SHOWN	KUZCO LIGHTING #WS14935-BK	35-1/2" WIDE 'CHUTE' VANITY FIXTURE WITH WHITE ACRYLIC DIFFUSER AND BLACK TEXTURED POWDER COAT FINISH. PROVIDE WITH LUTRON #DVL-153P DIMMER WHERE DENOTED ON PLANS.	WALL	ABOVE MIRROR	3,000K 784LM 90CRI	120V	15
F1	TYPE 'B' UFAS DWELLING UNITS	KUZCO LIGHTING #WS14923-BK	23-1/2"" WIDE 'CHUTE' VANITY FIXTURE WITH WHITE ACRYLIC DIFFUSER AND BLACK TEXTURED POWDER COAT FINISH. PROVIDE WITH LUTRON #DVL-153P DIMMER WHERE DENOTED ON PLANS.	WALL	ABOVE MIRROR	3,000K 642LM 90CRI	120V	13
G	DWELLING UNITS	LITHONIA LIGHTING #CPANL-1X4-AL01-SWW7-M4 #DCMK 14	1'X4' FLAT PANEL LED WITH SWITCHABLE LUMENS, SATIN WHITE LENS AND WHITE FRAME. PROVIDE WITH SURFACE MOUNTING KIT AS SPECIFIED.	SURFACE	CEILING	3,500K 4,597LM	120/277V 0-10V DIMMING	41
G1	LAUNDRY	LITHONIA LIGHTING #CPANL-2X4-AL06-SWW7-M2	2'X4' FLAT PANEL LED WITH SWITCHABLE LUMENS, SATIN WHITE LENS AND WHITE FRAME.	RECESSED	CEILING	3,500K 4,363LM	120/277V 0-10V DIMMING	35.7
H	EXTERIOR	AXIS LIGHTING #WBRLED-500-80-40-S-4-W-UNV-DP-1-D	4'X4' LINEAR EXTERIOR RECESSED FIXTURE WITH FLUSH SATIN LENS, FLANGELESS MOUNTING, AND WET LISTING. CONFIRM MOUNTING TYPE SPECIFIED WITH FINAL CANOPY DETAILS PRIOR TO ORDERING.	RECESSED	CANOPY	4,000K 2,002LM	120/277V 0-10V DIMMING DOWN TO 1%	22
I	DWELLING UNITS	JUNO LIGHTING #JSF-13IN-18LM-30K-90CRI-MVOLT ZT-WH	SLIM FORM SURFACE MOUNT WITH 13" DIAMETER AND WHITE FINISH.	SURFACE	CEILING	3,000K 1,800LM 90CRI	120/277V 0-10V DIMMING	20
J	TYPE 'B' DWELLING UNITS	KUZCO LIGHTING #ISSA PD418006MB	ALUMINUM ARCHITECTURAL PENDANT LIGHT WITH FROSTED ACRYLIC DIFFUSER AND MATTE BLACK FINISH.	PENDANT	6'-0" AFF	3,000K 385LM 90CRI	120V	11
K	DWELLING UNITS	JUNO LIGHTING #JSBT-6IN-30K-90CRI-WL-MW-M6	6" LED TAPERED LOW-PROFILE DOWNLIGHT WITH WHITE FINISH.	SURFACE	CEILING	3,000K 990LM 90CRI	120V	15
L	OFFICE	LITHONIA LIGHTING #2BLT4-60L-ADP-GZ10-LP840	2'X4' LED TROFFER, SMOOTH REFLECTOR AND CURVED RIBBED DIFFUSER.	RECESSED	CEILING	4,000K 6,112LM	120/277V 0-10V DIMMING	48
M	LOBBY 200L, 300L	KELVIX LED STRIP #PJ35K-24V CHANNEL #CH-506-A POWER SUPPLY #25HE-24V	LINEAR LED STRIP TAPE LIGHT. PROVIDE WITH MOUNTING CHANNEL AND 25 WATT CLASS 2 POWER SUPPLY.	SURFACE	CEILING	3,500K 88LM/FT	120V	0.9W/FT
S1	SITE	LITHONIA LIGHTING #DSX0 LED-P1-40K-80CRI-BLC3-MVOLT-WBA-DBLXD	D-SERIES SIZE 0' LED AREA LIGHT WITH A TYPE III BACKLIGHT CONTROL DISTRIBUTION AND A BLACK FINISH.	WALL	21'-0" AFF	4,000K 3,485LM	120/277V	33
S2	SITE	LITHONIA LIGHTING #DSX0 LED-P1-40K-80CRI-BLC3-MVOLT-SPA-DBLXD #SSS-21'-4C-DM19-VD-DBLXD	SAME AS TYPE S1 EXCEPT POLE MOUNTED ON 4" SQUARE POLE WITH BLACK FINISH.	POLE	21'-0" AFF	4,000K 3,485LM	120/277V	33
S3	SITE	LITHONIA LIGHTING #DSX0 LED-P1-40K-80CRI-T1S-MVOLT-WBA-HS-DBLXD	D-SERIES SIZE 1' LED WALL LIGHT WITH A 350mA DRIVE CURRENT, TYPE II SHORT DISTRIBUTION, HOUSE-SIDE SHIELD, AND A BLACK FINISH.	WALL	21'-0" AFF	4,000K 1,520LM 70CRI	120/277V	13
EM	EXTERIOR	LITHONIA LIGHTING #AFF-OEL-DBLBXD-UVOLT-LTP-SDRT-WT-CW	AFFINITY EMERGENCY EXTERIOR LIGHT WITH LITHIUM PHOSPHATE BATTERY, SELF-DIAGNOSTICS, COLD WEATHER LISTING, A WIDE THROW AND BLACK TEXTURED HOUSING.	WALL	10'-0"A AFF	4,000K 635LM	120-347V	12
EX	AS SHOWN	LITHONIA LIGHTING #EDG-1/2-RMR-EL-SD	RED LED EXIT SIGN WITH SELF DIAGNOSTICS, NICKEL-CADMIUM BATTERY, AND BRUSHED ALUMINUM FINISH. NUMBER OF FACES AND MOUNTING TYPE AS SHOWN ON PLANS.	AS SHOWN	AS SHOWN	N/A	120-277V	3

SHEET NOTES: #

1. ALL FIXTURE TYPES, COLORS, AND FINISHES ARE TO BE REVIEWED AND APPROVED BY THE OWNER REPRESENTATIVE/PROJECT MANAGER PRIOR TO ORDERING.

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ELECTRICAL SPECIFICATIONS:

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

- A.

SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
- B.

STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.
- C.

DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ARCHITECT. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.
- D.

RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.
- E.

WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.
- F.

SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- G.

OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.
- H.

WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.
- I.

PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.
- J.

REFERENCE SYMBOLS: THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.
- K.

PENETRATION OF FIRE BARRIERS: ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC ARTICLE 300.21 AND THE FOLLOWING:

1.

ALL HOLES OR VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS OR CEILING SHALL BE SEALED WITH AN ASBESTOS-FREE INTUMESCENT FIRE STOPPING MATERIAL CAPABLE OF EXPANDING 8 TO 10 TIMES WHEN EXPOSED TO TEMPERATURES 250 DEGREES F OR HIGHER.

2.

MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS MADE BY STEEL, GLASS, PLASTIC AND SHALL BE CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E814, UL 1479 AND THE UL FIRE RESISTANCE DIRECTORY REQUIREMENTS FOR THROUGH-PENETRATION FIRESTOP DEVICES (XHCR).

3.

THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE TIME-RATED FLOOR, WALL OR CEILING ASSEMBLY.

4.

INSTALL FIRE STOPPING MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

4.

0-10V DIMMING/POWER MC CABLE (TYPE MC-PCS), SIZE #12 THROUGH #10 AWG WITH 16-2 CONTROL CABLES: SOLID COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, RATED 90° C DRY, 75° WET, INSULATED GREEN GROUNDING CONDUCTOR, AND GALVANIZED STEEL OR ALUMINUM ARMOR OVER MYLAR.
- C.

INSTALLATION:

1.

COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/208V CONDUCTORS BLACK, RED, BLUE, AND WHITE.

2.

DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.

3.

USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.

4.

INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED. PROVIDE XHHW-2 FOR FEEDERS AND IN EXTERIOR LOCATIONS. TYPE MC CABLE MAY BE USED FOR BRANCH CIRCUIT WIRING IN DRY, INTERIOR LOCATIONS OTHER THAN HOMERUNS. HOMERUNS SHALL BE BUILDING WIRE IN RACEWAY. METAL CLAD CABLE USED FOR BRANCH CIRCUIT WIRING FROM A LIGHT SWITCH OR LIGHTING CONTROL STATION TO THE LIGHT FIXTURE SHALL INCLUDE A NEUTRAL CONDUCTOR. METAL CLAD CABLE USED FOR BRANCH CIRCUIT WIRING TO LED FIXTURES THAT HAVE 0-10V DIMMING CAPABILITY SHALL BE TYPE MC-PCS.

5.

AT THE CONTRACTOR'S OPTION, PORTIONS OF THE FIRE ALARM WIRING IN DRY, CONCEALED LOCATIONS MAY BE INSTALLED IN FIRE ALARM METAL CLAD CABLE.

26 05 26 - GROUNDING AND BONDING

- A.

SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.
- B.

MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.
- C.

INSTALLATION:

1.

PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.

2.

MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR #6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN #6 AWG.

3.

BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- A.

SUBMITTALS: PROVIDE STRUCTURALLY ENGINEERED SHOP DRAWINGS (STAMPED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA) FOR SEISMIC RESTRAINT OF ALL ELECTRICAL EQUIPMENT REQUIRED BY THE INTERNATIONAL BUILDING CODE (IBC), CHAPTERS 16, 17. STRUCTURAL DESIGN SHALL BE BASED ON THE SEISMIC USE CATEGORY AND SEISMIC DESIGN CATEGORY AS DESIGNATED IN THESE CHAPTERS.
- B.

MATERIAL: SUPPORT CHANNEL SHALL BE GALVANIZED OR PAINTED STEEL. HARDWARE SHALL BE CORROSION RESISTANT.
- C.

INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO RESIST LATERAL EARTHQUAKE FORCES. PROVIDE SAFETY CHAINS FOR LIGHT FIXTURES, SUPPORTED FROM T-BAR OR OTHER CEILING SUSPENSION SYSTEM, CAPABLE OF SUPPORTING A MINIMUM OF 200 POUNDS. ATTACH SAFETY CHAINS AT EACH CORNER OF FIXTURE CONNECTED SUCH THAT FIXTURE WILL NOT DROP BELOW A HEIGHT OF 7'-6" IN THE EVENT OF A CEILING SUSPENSION SYSTEM FAILURE. INSTALLATION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH THE SEISMIC STRUCTURAL ENGINEER'S DRAWINGS AND DETAILED IN ACCORDANCE WITH SEISMIC GUIDELINES.

26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- A.

SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B.

MATERIALS:

1.

RIGID STEEL CONDUIT: ANSI C80.1. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT.

2.

INTERMEDIATE METAL CONDUIT (IMC): GALVANIZED STEEL. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; USE FITTINGS AND CONDUIT BODIES SPECIFIED ABOVE FOR RIGID STEEL CONDUIT.

3.

ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE. PROVIDE FACTORY ELBOWS ON SIZES 1-1/2" AND LARGER.

4.

FLEXIBLE METAL CONDUIT: FS WW-C-566; STEEL, FULL WALL OR REDUCED WALL THICKNESS. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.

5.

LIQUIDTIGHT FLEXIBLE CONDUIT: FLEXIBLE METAL CONDUIT WITH PVC JACKET. FITTINGS AND CONDUIT BODIES: ANSINEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.

6.

RIGID NONMETALLIC CONDUIT: NEMA TC 2; SCHEDULE 40 PVC, RATED FOR 90° C CABLE.

7.

PROVIDE GALVANIZED OR CADMIUM PLATED, ONE PIECE PRESSED STEEL OUTLET BOXES 4 INCH SQUARE OR OCTAGONAL, 1-1/2 INCHES DEEP MINIMUM SIZE FOR USE IN INTERIOR AREAS.

8.

FOR TELECOMMUNICATIONS SYSTEMS, OUTLET BOXES SHALL BE 4 INCHES SQUARE, 2-1/4 INCHES DEEP MINIMUM.

9.

PROVIDE CAST ALUMINUM OR FERALLOY TYPE BOXES WITH GASKETED COVER, THREADED HUBS AND NEMA 3R RATING FOR USE IN EXTERIOR OR WET LOCATIONS.

- C.

INSTALLATION:

1.

INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE, EXCEPT CONDUIT FOR SPECIAL SYSTEMS SHALL BE 3/4" MINIMUM. IN SLAB ABOVE GRADE, EXPOSED OUTDOOR LOCATIONS, WET INTERIOR LOCATIONS, BRANCH CIRCUITS 60 AMPERES OR LARGER, AND FEEDERS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT.

2.

EXPOSED DRY INTERIOR LOCATIONS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT. ELECTRICAL METALLIC TUBING MAY BE USED EXPOSED WHEN INSTALLED ON THE CEILING, A MINIMUM OF TEN FEET ABOVE THE FLOOR OR WHERE NOT SUBJECT TO PHYSICAL DAMAGE. EMT MAY ALSO BE USED FOR CONCEALED, DRY, INTERIOR LOCATIONS.

3.

MOTOR AND EQUIPMENT CONNECTIONS SHALL BE SHORT EXTENSIONS OF FLEXIBLE METAL CONDUIT TO ALLOW FOR VIBRATION. LIQUIDTIGHT FLEXIBLE CONDUIT AND FITTINGS SHALL BE USED FOR THESE CONNECTIONS IN DAMP OR WET LOCATIONS.

4.

INSTALL RACEWAYS PER THE LATEST NECA (NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION) STANDARDS.

5.

PAINT ALL EXPOSED CONDUIT IN FINISHED AREAS TO MATCH SURFACE TO WHICH IT IS ATTACHED OR CROSSES. CLEAN GREASY OR DIRTY CONDUIT PRIOR TO PAINTING IN ACCORDANCE WITH PAINT MANUFACTURER'S INSTRUCTIONS.

6.

INSTALL RACEWAYS LEVEL AND SQUARE TO A TOLERANCE OF 1/8 INCH PER 10 FEET. ROUTE EXPOSED RACEWAYS AND RACEWAYS ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS, CEILING, STRUCTURAL MEMBERS AND ADJACENT PIPING.

7.

ALL CONDUIT FOR THE TELECOMMUNICATIONS DISTRIBUTION SYSTEM SHALL BE INSTALLED WITH NO MORE THAN 270 DEGREES OF BENDS BETWEEN PULLBOXES. PULL BOXES SHALL NOT BE USED IN LIEU OF CONDUIT BENDS. CONDULETS (LB FITTINGS) SHALL NOT BE INSTALLED IN ANY TELECOMMUNICATIONS RACEWAY.

8.

PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

9.

INSTALL FITTINGS AND FLEXIBLE METAL CONDUIT TO ACCOMMODATE 3-AXIS MOVEMENTS WHERE RACEWAY CROSSES SEISMIC JOINTS. INSTALL FITTINGS DESIGNED AND LISTED TO ACCOMMODATE EXPANSION AND CONTRACTION WHERE RACEWAY CROSSES CONTROL AND EXPANSION JOINTS.

10.

DO NOT INSTALL BOXES BACK-TO-BACK IN WALLS. PROVIDE A MINIMUM 6 INCH SEPARATION FOR MINIMUM SOUND TRANSMISSION.

11.

USE MULTIPLE-GANG BOXES WHERE MORE THAN ONE DEVICE ARE MOUNTED TOGETHER; DO NOT USE SECTIONAL BOXES.

12.

SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

13.

COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES AND BACKSPASHES.

26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

- A.

SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B.

MATERIALS:

1.

NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.

2.

TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINO SERIES OR EQUAL LABEL PRINTER.

3.

WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.
- C.

INSTALLATION:

1.

GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.

2.

CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE. LABEL FEEDER CONDUITS AND SPARE CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.

3.

JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER. MARK ALL FIRE ALARM SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS WITH "FA." MARK WITH INDELIBLE RED MARKER. MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.

4.

WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

5.

DEVICE PLATES: LABEL EACH RECEPTACLE DEVICE PLATE OR POINT OF CONNECTION DENOTING THE PANELBOARD NAME AND CIRCUIT NUMBER. INSTALL LABEL ON THE TOP OF EACH PLATE.

26 05 80 - HEATING CABLES AND MATS

- A.

SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B.

MATERIALS:

1.

OUTSIDE PIPE: NOT USED.

2.

INSIDE PIPE OR DRAIN: UNLESS OTHERWISE NOTED ON PLANS, HEAT TRACE SHALL BE RATED 5 WATTS PER FOOT, 120V, SELF-REGULATING TYPE, WITH PARALLEL CIRCUIT DESIGN, #16 AWG TIN-COATED COPPER BUS WIRING, TIN PLATED COPPER BRAID, FLUOROPOLYMER OUTER JACKET, AND 20-YEAR LIFE. RAYCHEM #BTV SERIES, NELSON #LT SERIES, OR APPROVED EQUAL. PROVIDE HIGHER WATTAGE RATINGS AS SHOWN ON PLANS. INSTALL HEAT TRACE IN PIPING CHANNEL OR AS SHOWN ON PLANS.

3.

ACCESSORIES: PROVIDE ALL POWER CONNECTION AND END TERMINATION KITS AS RECOMMENDED BY THE HEAT TRACE MANUFACTURER FOR A COMPLETE AND OPERABLE SYSTEM.

- INSTALLATION:

1.

INSTALL HEAT TRACE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

2.

FIELD VERIFY THE REQUIRED HEAT TRACE TYPE AND LENGTHS ARE AS SCHEDULED ON THE PLANS PRIOR TO ORDERING ANY EQUIPMENT OR PERFORMING ANY WORK. NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.

3.

TEST PROPER OPERATION OF EACH HEAT TRACE CIRCUIT AFTER INSTALLATION.

4.

PROVIDE LOCKABLE DISCONNECT FOR CIRCUIT FEEDING HEAT TRACE IN ACCORDANCE WITH NEC 427.55.

5.

INSTALL SIGNAGE NOT EXCEEDING 20FT ON PIPING CONTAINING HEAT TRACE IN ACCORDANCE WITH NEC 427.13.

26 05 83 – WIRING CONNECTIONS

- A.

SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B.

MATERIALS:

1.

STRAIGHT-BLADE ATTACHMENT PLUG: NEMA WD 1.

2.

LOCKING-BLADE ATTACHMENT PLUG: NEMA WD 5.

3.

ATTACHMENT PLUG CONFIGURATION: MATCH RECEPTACLE CONFIGURATION AT OUTLET PROVIDED FOR EQUIPMENT.

4.

CORD CONSTRUCTION: OIL-RESISTANT THERMOSET INSULATED TYPE SO MULTICONDUCTOR FLEXIBLE CORD WITH IDENTIFIED EQUIPMENT GROUNDING CONDUCTOR, SUITABLE FOR EXTRA HARD USAGE IN DAMP LOCATIONS.

5.

CORD SIZE: SUITABLE FOR CONNECTED LOAD OF EQUIPMENT AND RATING OF BRANCH CIRCUIT OVERCURRENT PROTECTION.
- C.

INSTALLATION:

1.

OBTAIN AND REVIEW SHOP DRAWINGS, PRODUCT DATA, MANUFACTURER'S WIRING DIAGRAMS, AND MANUFACTURER'S INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER OTHER SECTIONS. DETERMINE CONNECTION LOCATIONS AND REQUIREMENTS. SEQUENCE ROUGH-IN OF ELECTRICAL CONNECTIONS TO COORDINATE WITH INSTALLATION OF EQUIPMENT. SEQUENCE ELECTRICAL CONNECTIONS TO COORDINATE WITH START-UP OF EQUIPMENT.

2.

USE WIRE AND CABLE WITH INSULATION SUITABLE FOR TEMPERATURES ENCOUNTERED IN HEAT-PRODUCING EQUIPMENT.

3.

MAKE CONDUIT CONNECTIONS TO EQUIPMENT THAT IS SUBJECT TO VIBRATION OR MOVEMENT USING FLEXIBLE CONDUIT. USE LIQUIDTIGHT FLEXIBLE CONDUIT IN DAMP OR WET LOCATIONS.

4.

INSTALL PRE-FINISHED CORD SET WHERE CONNECTION WITH ATTACHMENT PLUG IS INDICATED OR SPECIFIED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS, OR USE ATTACHMENT PLUG WITH SUITABLE STRAIN-RELIEF CLAMPS.

5.

PROVIDE SUITABLE STRAIN-RELIEF CLAMPS FOR CORD CONNECTIONS TO OUTLET BOXES AND EQUIPMENT CONNECTION BOXES.

6.

MAKE WIRING CONNECTIONS IN CONTROL PANEL OR IN WIRING COMPARTMENT OF PRE-WIRED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROVIDE INTERCONNECTING WIRING WHERE REQUIRED.

7.

INSTALL DISCONNECT SWITCHES, CONTROLLERS, CONTROL STATIONS, AND CONTROL DEVICES SUCH AS LIMIT SWITCHES AND TEMPERATURE SWITCHES AND CONNECT WITH CONDUIT AND WIRING AS INDICATED IN THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.

26 09 23 – LIGHTING CONTROL DEVICES

- A.

SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B.

MATERIALS:

1.

MANUFACTURERS: WATTSTOPPER, SENSOR SWITCH, HUBBELL OR EQUAL.

2.

OCCUPANCY SENSOR WALL SWITCH: UL LISTED, DUAL TECHNOLOGY (PIR/ULTRASONIC OR MICROPHONICS), SELF-LEARNING, PROGRAMMABLE TIME SETTINGS, ADJUSTABLE SENSITIVITY, SUITABLE FOR INSTALLATION IN A SINGLE GANG BOX, LINE VOLTAGE OR LOW VOLTAGE, WHITE FINISH, 600W MINIMUM RATING, PROVIDE ONE OR TWO BUTTONS OR INTEGRAL DIMMER WHERE NOTED ON PLANS.

3.

CEILING MOUNTED OCCUPANCY SENSOR: UL LISTED, 120/277V DUAL TECHNOLOGY (PIR/ULTRASONIC OR MICROPHONICS), SELF-LEARNING, PROGRAMMABLE TIME SETTINGS, ADJUSTABLE SENSITIVITY, LINE VOLTAGE (120/277V) OR LOW VOLTAGE (12-24VDC), WHITE FINISH, PROVIDE MINIMUM WATTAGE RATING OR ADDITIONAL POWER PACKS AS REQUIRED TO CONTROL THE LOADS INDICATED ON THE PLANS. PROVIDE ULTRASONIC OR MICROPHONIC ONLY IN RESTROOMS WITH PARTITION STALLS.

4.

POWER PACKS: WHERE LOW VOLTAGE (12-24VDC) DEVICES ARE USED, PROVIDE POWER PACKS AS RECOMMENDED BY THE MANUFACTURER FOR THE LOADS SERVED.

5.

EXTERIOR PHOTOCELLS: PROVIDE DUSK-TO-DAWN LIGHTING CONTROL WITH A DELAY ACTION. FULLY ENCLOSED WEATHERPROOF HOUSING, SONIC-WELDED POLYCARBONATE CASE AND LENS TO SEAL OUT MOISTURE, RATED FOR MOUNTING ON BUILDING EXTERIOR AND -20°F TEMPERATURE OPERATION.
- C.

INSTALLATION:

1.

INSTALL WALL OCCUPANCY SENSOR SWITCHES 48 INCHES ABOVE FLOOR. FIELD ADJUST OCCUPANCY SENSORS FOR PROPER OPERATION IN THE SPACE. PROVIDE MASKING ON INFRARED LENS TO RESTRICT FIELD OF VIEW IF NECESSARY TO PREVENT UNWANTED SWITCHING FROM ADJACENT SPACES SUCH AS HALLWAYS.

2.

COORDINATE WITH OWNER FOR FINAL LIGHTING CONTROL SEQUENCES AND TIMER SETTINGS.

3.

LOCATE POWER PACKS AND SIMILAR DEVICES IN CONCEALED, ACCESSIBLE AREAS.

4.

FIELD LOCATE PHOTOCELL FOR PROPER OPERATION AND ADJUST TO TURN FIXTURES ON AT DUSK AND OFF AT DAWN.

26 05 19 - WIRE AND CABLE

- A.

SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B.

MATERIALS:

1.

ALL CONDUCTORS SHALL BE COPPER OR ALUMINUM AA-8000 SERIES ALLOY WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG. MINIMUM ALUMINUM CONDUCTOR SIZE SHALL BE #2 AWG.

2.

CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE #18 AWG.

3.

TYPE MC CABLE: SOLID COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, RATED 90° C, INSULATED GREEN GROUNDING CONDUCTOR, AND GALVANIZED STEEL ARMOR OVER MYLAR. MC CABLE USED FOR FIRE ALARM WIRING SHALL BE COLORED RED AND LISTED FOR FIRE ALARM USE.



CERTIFICATE OF AUTHORIZATION NO.
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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT,TEH

SHEET NAME
ELECTRICAL SPECIFICATIONS

SHEET NO.
E0.02

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MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
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ELECTRICAL SPECIFICATIONS:

26 21 00 – LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

- A. SUMMARY: THIS SECTION INCLUDES EQUIPMENT AND COORDINATION WITH LOCAL UTILITY TO OBTAIN PERMANENT ELECTRICAL SERVICE FOR THE FACILITY. THIS WILL INVOLVE COORDINATING WITH THE UTILITY TO INSTALL A NEW UNDERGROUND LINE TO FEED THE FACILITY. SEE POWER ONE-LINE DIAGRAM FOR SERVICE SIZE AND CONFIGURATION.

B. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

C. MATERIALS:

1. RESIDENTIAL METERING: MULTI-METERING SHALL BE FURNISHED, AND WALL MOUNTED AT LOCATIONS AS SHOWN ON THE DRAWINGS. METERING SHALL BE UL LISTED AND SHALL MEET THE REQUIREMENTS OF 2015 EDITION OF CHUGACH ELECTRIC ASSOCIATION - ELECTRIC SERVICE REQUIREMENTS. METERING SHALL BE LISTED FOR SERVICE EQUIPMENT. ENCLOSURES SHALL BE CONSTRUCTED OF FORMED AND WELDED, CODE GAUGE STEEL, WITH A GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEANED GALVANIZED STEEL. NEMA TYPE 3R. ALL COMPARTMENTS CONTAINING UNMETERED CIRCUITS SHALL BE PROVIDED W/SEALING MEANS. ALL COMPONENTS SHALL BE FACTORY ASSEMBLED AND ALL CURRENT CARRYING PARTS SHALL BE PLATED BUS BARS. ALL BUSSING MUST BE COMPLETE FROM THE MAIN DISCONNECT TO THE METER SOCKET AND TO THE CIRCUIT BREAKER. SOCKETS SHALL BE RATED 200 AMPERE CONTINUOUS DUTY. METER SOCKET JAWS MUST BE SPRING REINFORCED AND FRONT REMOVABLE.

2. HOUSE METERING: FURNISHED AND INSTALLED BY THE UTILITY COMPANY.

a. CURRENT TRANSFORMER CABINET: NEMA 3R, UL 414 LISTED, MINIMUM SIZE AS REQUIRED BY THE LOCAL UTILITY. ALL CURRENT TRANSFORMER CABINETS AND COMPARTMENTS SHALL HAVE HINGED FRONT COVER ACCESS TO THE CURRENT TRANSFORMERS. THE HINGED FRONT COVER SHALL BE LOCKABLE AND SHALL ACCEPT A PADLOCK WITH A SHACKLE DIAMETER OF NOT LESS THAN 5/16 INCH. CURRENT TRANSFORMER CABINETS FOR SERVICES FROM 201 AMPERES TO 800 AMPERES SHALL HAVE ¼ X 20 MOUNTING STUDS ON THE ENCLOSURE BODY SPACED TO ACCEPT A CURRENT TRANSFORMER MOUNTING BASE.

b. TRANSFORMER RATED METER BASE: NEMA 3R, 13-TERMINAL AND/OR 6-TERMINAL, TRANSFORMER RATED 20 AMPERES, 600 VOLTS WITH MOUNTING PROVISIONS TO ACCOMMODATE A COVERED TEST SWITCH WITH TEST SWITCH COVER SEALING PROVISIONS. THE TEST SWITCH MOUNTING PROVISIONS SHALL ACCEPT A 10 POLE COVERED TEST SWITCH WITH A BASE DIMENSION OF 9.5 INCHES IN WIDTH AND A DEPTH (THE DIMENSION FROM THE REAR EDGE OF THE TEST SWITCH BASE TO THE TOP OF THE COVER SEALING STUD) OF NO LESS THAN 3.375 INCHES. THE LOWER COVER OF THE METER SOCKET SHALL SEAT FULLY WITH A COVERED TEST SWITCH IN PLACE. MEET REQUIREMENTS OF NEMA STANDARDS FOR WATTHOUR METER SOCKETS-NEMA E117-1978 (SIMILAR TO EUSERC DRAWING NO. 339). THE UTILITY COMPANY WILL FURNISH AND INSTALL THE TEST SWITCH AND CT WIRING.

3. METERS AND CURRENT TRANSFORMER: PROVIDED BY UTILITY.

D. INSTALLATION:

1. MAKE ARRANGEMENTS WITH UTILITY COMPANY TO OBTAIN PERMANENT ELECTRIC SERVICE TO THE PROJECT.

2. METER SOCKETS SHALL BE INSTALLED WITH THE CENTERLINE OF THE SOCKET OPENING NO MORE THAN 72 INCHES AND NO LESS THAN 60 INCHES ABOVE FINISHED GRADE. THE METER SOCKET SHALL BE INSTALLED WITH A MINIMUM 10 INCHES OF SIDE CLEARANCE TO EACH SIDE OF THE SOCKET. ON CURRENT TRANSFORMER RATED METER SOCKETS, THE CONDUIT CONNECTING THE METER SOCKET AND THE CURRENT TRANSFORMER CABINET SHALL BE RIGID STEEL OR IMC AND HAVE A MINIMUM DIAMETER OF 1 INCH, SHALL NOT BE LONGER THAN 25 FEET, SHALL HAVE NO ACCESS POINTS (JUNCTION BOXES, CONDULETS, ETC.), AND SHALL CONNECT TO THE METER SOCKET AT A FACTORY SUPPLIED KNOCKOUT LOCATED BELOW THE TEST SWITCH MOUNTING PROVISIONS.

3. ALL SERVICE ENTRANCE EQUIPMENT SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING: WARNING - ARC FLASH AND SHOCK HAZARD - APPROPRIATE PPE REQUIRED.
- 26 24 16 – PANELBOARDS AND LOAD CENTERS
- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIAL:

1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL.

2. PROVIDE DEAD-FRONT CIRCUIT BREAKER PANELBOARDS AND LOAD CENTERS WITH BUS SIZE, SHORT CIRCUIT RATING, NUMBER AND SIZE OF BRANCH CIRCUITS AS SHOWN ON THE DRAWINGS. BUSSING SHALL BE COPPER. CABINETS SHALL BE 6 INCHES DEEP BY 20 INCHES AND 3 1/2 INCHES BY 14 INCHES WIDE MINIMUM FOR PANEL AND LOAD CENTER RESPECTIVELY. PROVIDE WITH FLUSH OR SURFACE FRONTS, AS NOTED ON THE DRAWINGS, WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE AND FLUSHLOCK. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL. MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES. PROVIDE UL CLASS A GROUND FAULT INTERRUPTER CIRCUIT BREAKERS FOR GFCI AND ARC-FAULT CIRCUIT BREAKERS FOR AFCI CIRCUITS AS INDICATED ON THE DRAWINGS.

C. INSTALLATION:

1. INSTALL PANELBOARDS AND LOAD CENTERS PLUMB WITH TOP OF CABINET 6'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON THE DRAWINGS.

2. PROVIDE TYPED CIRCUIT DIRECTORIES FOR EACH PANELBOARD AND LOAD CENTER. STUB 3 EMPTY ONE INCH CONDUITS TO ACCESSIBLE LOCATION ABOVE CEILING OUT OF EACH RECESSED PANELBOARD AND LOAD CENTER.

4. ALL PANELBOARDS AND LOAD CENTERS SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING: WARNING - ARC FLASH AND SHOCK HAZARD - APPROPRIATE PPE REQUIRED.

26 27 26 - WIRING DEVICES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. WALL SWITCHES: SWITCHES FOR LIGHTING CIRCUITS SHALL BE NEMA WD1 AND FEDERAL SPECIFICATION FS W-S-896 AC GENERAL USE SNAP SWITCH WITH TOGGLE HANDLE, RATED 20 AMPERES AND 120-277 VOLTS AC. HANDLE: WHITE NYLON.

2. RECEPTACLES: CONVENIENCE AND STRAIGHT BLADE RECEPTACLES SHALL BE NEMA AND FEDERAL SPECIFICATION FS W-C-596, TYPE 5-20R, WHITE NYLON FACE. SPECIFIC USE RECEPTACLES SHALL BE NEMA WD1 OR WD5; AS REQUIRED TO MATCH LOAD SERVED, BLACK PHENOLIC FACE. GFCI RECEPTACLES SHALL BE 20A, DUPLEX CONVENIENCE RECEPTACLE WITH INTEGRAL CLASS 'A' GROUND FAULT CURRENT INTERRUPTER AND LOCKOUT FEATURE. TAMPERPROOF RECEPTACLES SHALL BE UL 498. WEATHER-RESISTANT RECEPTACLES SHALL BE LISTED TO THE WEATHER-RESISTANT SUPPLEMENT OF UL 498 AND COMPLY WITH THE REQUIREMENTS OF NEC 406.9.

3. WALL DIMMERS FOR 0-10V LED CIRCUITS: UL 1472; NEMA WD 1; DECORA-STYLE, COMMERCIAL GRADE PRESET WALL DIMMER SWITCH, 0-10V CONTROL FOR LED DRIVERS WITH NO POWER PACK REQUIRED TO SWITCH LINE VOLTAGE LOAD (8 A, 120-277 V); ADJUSTABLE HIGH-END AND LOW-END TRIM. COLOR: WHITE. HANDLE: PADDLE SWITCH FOR ON/OFF OPERATION WITH SMALL, DISCRETE, CAPTIVE LINEAR SLIDE FOR DIMMER ADJUSTMENT. PROVIDE SINGLE POLE UNLESS OTHERWISE INDICATED ON PLANS. DIMMER SHALL BE FULLY COMPATIBLE WITH ALL LOADS CONNECTED FOR SMOOTH, FLICKER-FREE DIMMING OPERATION.

4. WALL PLATES: DECORATIVE COVER PLATES IN FINISHED AREAS SHALL BE 430 OR 302 STAINLESS STEEL. WEATHERPROOF COVER PLATES SHALL BE GASKETED STAINLESS STEEL WITH HINGED GASKETED DEVICE COVERS. DEVICE PLATES FOR WET LOCATION RECEPTACLES SHALL BE "IN USE" TYPE. PROVIDE 1/2 INCH RAISED, SQUARE, GALVANIZED OR CADMIUM PLATED, PRESSED STEEL COVER PLATE SUPPORTING DEVICES INDEPENDENT OF THE OUTLET BOX FOR ALL EXPOSED WORK.

C. INSTALLATION:

1. UNLESS OTHERWISE NOTED ON THE DRAWINGS, INSTALL RECEPTACLES 18 INCHES ABOVE FINISH FLOOR, 4 INCHES ABOVE COUNTERS AND BACKSPASHES WITH GROUNDING POLE ON BOTTOM. UNLESS OTHERWISE NOTED DIMENSIONS ARE TO CENTERLINE OF OUTLET.

2. INSTALL WALL SWITCHES AND DIMMERS 48 INCHES ABOVE FLOOR, OFF POSITION DOWN.

3. INSTALL GALVANIZED STEEL PLATES ON OUTLET BOXES AND JUNCTION BOXES IN UNFINISHED AREAS, ABOVE ACCESSIBLE CEILINGS, AND ON SURFACE-MOUNTED OUTLETS.

26 28 19 - ENCLOSED SWITCHES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL

2. FUSIBLE SWITCH ASSEMBLIES: NEMA KS 1; TYPE HD; QUICK-MAKE, QUICK-BREAK, HEAVY-DUTY LOAD INTERRUPTER ENCLOSED KNIFE SWITCH WITH EXTERNALLY OPERABLE HANDLE INTERRUPTED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION. HANDLE LOCKABLE IN OFF POSITION. ENCLOSURE SHALL BE NEMA KS 1; TYPE 1, 3R OR 4 AS INDICATED ON DRAWINGS. FUSES SHALL BE CLASS RK1; RK5; DUAL ELEMENT, CURRENT LIMITING, TIME DELAY, ONE-TIME FUSES, 600V, WITH AN INTERRUPTING RATING OF 200,000 RMS AMPERES.

3. NONFUSIBLE SWITCH ASSEMBLIES: SAME CRITERIA AS ABOVE WITHOUT THE FUSES.

C. INSTALLATION:

1. INSTALL DISCONNECT SWITCHES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FIELD LOCATE FINAL LOCATION OF DISCONNECTS TO ALLOW READY ACCESS AND NEC 110.26 WORKING CLEARANCES WHERE APPLICABLE.

2. ALL FUSED DISCONNECTS SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM, THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING: WARNING - ARC FLASH AND SHOCK HAZARD - APPROPRIATE PPE REQUIRED.

26 29 13 – ENCLOSED CONTROLLERS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL

2. MANUAL AND FRACTIONAL MOTOR STARTERS: NEMA ICS 2, AC GENERAL PURPOSE CLASS A, MANUALLY OPERATED UNIT WITH NUMBER OF POLES AS REQUIRED BY THE LOAD SERVED, FULL-VOLTAGE CONTROLLER FOR FRACTIONAL HORSEPOWER INDUCTION MOTORS, WITH THERMAL OVERLOAD UNIT, RED PILOT LIGHT, AND TOGGLE OPERATOR.

3. MAGNETIC MOTOR STARTERS: NEMA ICS 2; AC GENERAL-PURPOSE CLASS A, FULL VOLTAGE STARTING, NON-REVERSING TYPE MAGNETIC CONTROLLER FOR INDUCTION MOTORS RATED IN HORSEPOWER. PROVIDE BI-METAL THERMAL OVERLOAD RELAY. PROVIDE 120V COIL OPERATING VOLTAGE AND 120V CONTROL POWER TRANSFORMER WITH VA CAPACITY AS REQUIRED BY THE LOAD SERVED IN EACH MOTOR STARTER. COMBINE MOTOR STARTERS IN COMMON ENCLOSURE WITH MOTOR CIRCUIT PROTECTOR THAT HAS INTEGRAL INSTANTANEOUS MAGNETIC TRIP IN EACH POLE. INCLUDE TWO FIELD CONVERTIBLE CONTACTS IN ADDITION TO SEAL-IN CONTACT, RED LED LIGHT, AND HAND/OFF/AUTO SELECTOR SWITCH IN FRONT COVER. INCLUDE A THREE-PHASE POWER MONITOR IN EACH MAGNETIC STARTER CONNECTED TO SHUT DOWN THE MOTOR ON LOSS OF ANY PHASE, PHASE REVERSAL, OR LOW VOLTAGE ON ANY PHASE. POWER MONITOR SHALL AUTOMATICALLY RESET AND RESTART MOTOR WHEN PHASE AND VOLTAGE CONDITIONS RETURN TO NORMAL. PROVIDE OVERSIZE STARTER ENCLOSURES AS REQUIRED TO INSTALL POWER MONITOR.

C. INSTALLATION

1. SELECT AND INSTALL HEATER ELEMENTS IN MOTOR STARTERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.

2. FIELD ADJUST THE TRIP SETTINGS OF ALL MOTOR STARTER MAGNETIC TRIP ONLY CIRCUIT BREAKERS TO APPROXIMATELY 11 TIMES MOTOR FULL LOAD CURRENT. DETERMINE FULL LOAD CURRENT FROM MOTOR NAMEPLATE FOLLOWING INSTALLATION.

3. AFTER FINAL CONNECTIONS ARE MADE, CHECK AND CORRECT THE ROTATION OF ALL MOTORS.

4. MOTOR STARTING EQUIPMENT SHALL BE LISTED FOR USE AND PROPERLY SIZED FOR OPERATION WITH THE MOTORS SPECIFIED BY MECHANICAL.

1. SELECT AND INSTALL HEATER ELEMENTS IN MOTOR STARTERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.

2. FIELD ADJUST THE TRIP SETTINGS OF ALL MOTOR STARTER MAGNETIC TRIP ONLY CIRCUIT BREAKERS TO APPROXIMATELY 11 TIMES MOTOR FULL LOAD CURRENT. DETERMINE FULL LOAD CURRENT FROM MOTOR NAMEPLATE FOLLOWING INSTALLATION.

3. AFTER FINAL CONNECTIONS ARE MADE, CHECK AND CORRECT THE ROTATION OF ALL MOTORS.

4. MOTOR STARTING EQUIPMENT SHALL BE LISTED FOR USE AND PROPERLY SIZED FOR OPERATION WITH THE MOTORS SPECIFIED BY MECHANICAL.

26 29 16 - ENCLOSED CONTACTORS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL

2. LIGHTING CONTACTORS: NEMA ICS 2; MECHANICALLY HELD, 2-WIRE CONTROL WITH 120VAC COIL, 30A RATED CONTACTS, NUMBER OF POLES AS INDICATED ON THE PLANS, 4-POLES MINIMUM. ENCLOSURE SHALL BE NEMA TYPE 1. PROVIDE HAND/OFF/AUTO SWITCH, 2-POLE RELAY FOR 1-POLE CONTROL AND A RED PILOT LIGHT.

C. INSTALLATION:

1. INSTALL CONTACTORS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2. FIELD LOCATE TO ALLOW READY ACCESS AND WHERE THE EVENTUAL VIBRATION AND NOISE THEY WILL PRODUCE WILL NOT BE OBJECTIONABLE TO BUILDING OCCUPANTS.

3. PROVIDE PERMANENT LABEL TO CLEARLY INDICATE PURPOSE OF THE CONTACTOR.

26 50 00 - LIGHTING FIXTURES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. LUMINAIRES: PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC. ALL LIGHTING EQUIPMENT INSTALLED IN LAY-IN TYPE CEILINGS SHALL BE PROVIDED WITH SAFETY CHAINS, CAPABLE OF SUPPORTING 200 POUNDS, SECURELY FASTENED TO THE LIGHT FIXTURE AND THE BUILDING STRUCTURE SO THAT NO PART OF THE FIXTURE WILL DROP BELOW A HEIGHT OF 7'-6" ABOVE THE FLOOR IN THE EVENT OF A CEILING SUSPENSION SYSTEM FAILURE.

2. LED DRIVERS: PROVIDE UL LISTED POWER SUPPLY AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS. POWER SUPPLY SHALL BE INTEGRAL TO THE LUMINAIRE UNLESS OTHERWISE NOTED ON THE PLANS. POWER SUPPLY SHALL OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS AND SHALL BE LISTED FOR STARTING AND OPERATING THE LAMPS AT 75F AVERAGE INDOOR TEMPERATURE AND -20 F WHERE INSTALLED OUTDOORS.

3. LED DIMMING DRIVERS: PROVIDE UL LISTED 0-10V DIMMING BALLAST AS RECOMMENDED BY THE LED FIXTURE MANUFACTURER FOR OPERATION OF THE SPECIFIED LED LAMPS, FULLY COMPATIBLE WITH THE DIMMING SYSTEM OR DIMMING SWITCH CONTROLLING THE FIXTURE. DRIVER SHALL BE INTEGRAL TO THE FIXTURE AND CAPABLE OF DIMMING THE LUMINAIRE TO 20% OUTPUT MINIMUM UNLESS OTHERWISE SCHEDULED ON THE PLANS. POWER SUPPLY SHALL BE DUAL VOLTAGE (120/277V) WHERE AVAILABLE AND OPERATE AT THE SUPPLY VOLTAGE INDICATED ON THE PLANS.

4. LED LAMPS: UNLESS OTHERWISE SCHEDULED ON THE PLANS, PROVIDE NOMINAL 4000K, WITH MINIMUM 75CRI AND A MINIMUM L70 LAMP LIFE OF 50,000 HOURS.

5. LED EMERGENCY DRIVERS: UL LISTED, FACTORY INSTALLED, SELF-CONTAINED EMERGENCY POWER SUPPLY AS RECOMMENDED BY THE LUMINAIRE MANUFACTURER, WITH MINIMUM WATTAGE, VOLTAGE AND AMPERE RATINGS SUITABLE OF AUTOMATICALLY OPERATING THE SPECIFIED FIXTURE AT 90 MINUTES UNDER LOSS OF UTILITY POWER. 120/277V INPUT.

6. EMERGENCY INVERTERS: UL 924 COMPLIANT, FULL OUTPUT EMERGENCY LIGHTING INVERTER CAPABLE OF OPERATING THE LAMPS AT ≥90% LUMEN OUTPUT FOR 90 MINUTES WITH FIELD SELECTABLE 120 OR 277 VOLT INPUT AND OUTPUT, WITH PURE SINUSOIDAL WAVE OUTPUT SUITABLE FOR USE WITH LED LUMINAIRES, MAINTENANCE FREE LEAD CALCIUM BATTERIES, LOW VOLTAGE BATTERY DISCONNECT, TEST BUTTON, LED INDICATORS, WITH MINIMUM WATTAGE AS INDICATED ON PLANS.

7. LIGHT POLES: AS SCHEDULED ON PLANS.

8. EMERGENCY TRANSFER DEVICES: MULTIPLE FIXTURE UNIT: U.L. LISTED, RELAY CONTROLLED LOCAL CONTROL BYPASS DEVICE. THE DEVICE SHALL TURN ON EMERGENCY EGRESS LIGHTING FIXTURES, REGARDLESS OF THE POSITION OF LOCAL CONTROLS, UPON THE LOSS OF NORMAL POWER. THE EQUIPMENT SHALL BE HOUSED IN AN ENCLOSURE UL LISTED FOR INSTALLATION FOR INDOOR DAMP LOCATIONS, AND SHALL BE RATED FOR ANY TYPE OF LIGHTING LOAD UP TO 20 AMPERES AT 120V OR 277V.

C. INSTALLATION:

1. PENDANT LUMINAIRES SHALL BE INSTALLED PLUMB AND LEVEL.

2. INSTALL RECESSED LUMINAIRES TO PERMIT REMOVAL FROM BELOW. USE PLASTER FRAMES IN HARD CEILINGS.

3. SUPPORT LUMINAIRES IN SUSPENDED CEILINGS FROM STRUCTURE ABOVE USING A MINIMUM OF (4) ANCHORS IN ACCORDANCE WITH SECTION 26 05 29.

4. PROVIDE LUMINAIRE DISCONNECTING MEANS IN BALLAST/DRIVER CHANNEL OF EACH LIGHT FIXTURE. WHERE THE LUMINAIRE IS FED FROM A MULTI-WIRE BRANCH CIRCUIT, PROVIDE MULTI-POLE DISCONNECT TO SIMULTANEOUSLY BREAK ALL SUPPLY CONDUCTORS TO THE BALLAST, INCLUDING THE GROUNDED CONDUCTOR.

5. LUMINAIRE POLE BASES: SIZE AND CONSTRUCTED AS INDICATED ON DRAWINGS. PROJECT ANCHOR BOLTS 2 INCHES MINIMUM ABOVE BASE. INSTALL POLES ON BASES PLUMB; PROVIDE DOUBLE NUTS FOR ADJUSTMENT AND POLE BASE COVERS. AFTER ADJUSTING OF POLE TO BE VERTICAL, PACK GROUT UNDER POLE BASE TO PROVIDE FULL CONTACT WITH THE FOUNDATION.

6. AIM ALL LUMINAIRES AND EMERGENCY LIGHTING UNITS THAT HAVE ADJUSTABLE LAMPS OR LENSES.

7. TEST OPERATION OF ALL EMERGENCY LIGHTS BY SIMULATING A POWER OUTAGE FOR 90 MINUTES. CONFIRM THAT ALL EMERGENCY LIGHTING IS OPERATIONAL AND MEETS THE REQUIREMENTS OF NEC 700.12(A). CORRECT ALL DEFICIENCIES PRIOR TO SUBSTANTIAL COMPLETION.

8. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS, WHERE A LUMINAIRE IS POWERED FROM AN EMERGENCY SOURCE (INTENDED FOR GENERAL ILLUMINATION) AND IS LOCATED IN A ROOM OR AREA WITH NORMAL LIGHTING, PROVIDE A EMERGENCY ENERATOR TRANSFER DEVICE OR OTHER UL924 LISTED DEVICE TO ALLOW THE LUMINAIRE TO BE SWITCHED WITH THE NORMAL LIGHTING IN THE ROOM OR AREA.

27 10 00 - STRUCTURED CABLING

A. SUMMARY: THIS SECTION INCLUDES REQUIREMENTS FOR THE DESIGN AND INSTALLATION OF A TELECOMMUNICATIONS CABLING SYSTEM INCLUDING COMMUNICATIONS CABLE, EQUIPMENT RACKS, PATCH PANELS, TELECOMMUNICATIONS JACKS, RACEWAYS, ETC. AS REQUIRED FOR A COMPLETE AND FUNCTIONAL TELECOMMUNICATIONS CABLING SYSTEM. QUALITY ASSURANCE: ALL PRODUCTS SHALL BE OF ONE MANUFACTURER'S STRUCTURED CABLING SYSTEM. THE MANUFACTURER SHALL BE A COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED WITH A MINIMUM 5 YEARS DOCUMENTED EXPERIENCE. THE INSTALLER SHALL BE A COMPANY SPECIALIZING IN PERFORMING THIS TYPE OF WORK WITH A MINIMUM 3 YEARS DOCUMENTED EXPERIENCE AND MANUFACTURER'S CERTIFICATION TO INSTALL THE PRODUCT. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS: ANSI/TIA 568-B.1-3, ANSI/TIA 569-A, AND TIA/EIA 607.

B. SUBMITTALS: SUBMIT PRODUCT DATA AND DETAILED SHOP DRAWINGS FOR APPROVAL.

C. MATERIALS:

1. TELECOMMUNICATIONS BACKBOARD – BACKBOARD SHALL BE .75" THICK ACX PLYWOOD, 4'X8' OR AS INDICATED ON THE DRAWINGS. PROVIDE CABLE MANAGEMENT RINGS AND CABLE SUPPORT STRAPS FOR ALL CABLES ROUTED ON BACKBOARD. PROVIDE SIEMON #S66B3-50 OR APPROVED EQUAL 50-PAIR TYPE 66 BLOCK WITH #S20A CABLE MANAGEMENT FOR CROSS-CONNECT WITH INCOMING TELEPHONE UTILITY CABLE. PROVIDE ORTRONICS #OR-30200145 OR APPROVED EQUAL WALL-MOUNTED TYPE 110 WIRING BLOCK WITH 100-PAIR CAPACITY AND STANDOFF LEGS FOR CROSS-CONNECT OF INTRA-BUILDING TELEPHONE BACKBONE CABLES. PROVIDE CHATSWORTH #40153-012 OR APPROVED EQUAL WALL-MOUNTED, SOLID COPPER, 12 INCH BY 4 INCH BY .25 INCH THICK BUSBAR WITH TWO INSULATORS AND STANDOFF BRACKETS ON BACKBOARD.

2. WALL RACKS: CHATSWORTH #113608-718 OR APPROVED EQUAL, 51-INCH HIGH, 18-INCH DEEP, SIDE-HINGED STEEL WALL RACK WITH LOCKING LATCH PIN, 26 RACK-MOUNT UNITS OF USABLE SPACE, POWDER COAT PAINT FINISH, AND VERTICAL CABLE MANAGEMENT ON HINGE SIDE OF RACK. THE WALL RACK SHALL BE CAPABLE OF SUPPORTING 150 POUNDS AND SHALL OPEN TO 180 DEGREES. PROVIDE WITH CHATSWORTH #RACK-MOUNTED GROUNDING KIT (MOUNTED ON THE EQUIPMENT RACK), AND ONE TRIPPL-LITE #1S0BAR12-20ULTRA OR APPROVED EQUAL RACK-MOUNTED SURGE PROTECTIVE OUTLET STRIP MOUNTED AT BASE OF RACK.

3. UTP TELECOMMUNICATION CABLE: PLENUM-RATED CL2P, CATEGORY 6, 4 PAIR, 24 AWG, SOLID COPPER CONDUCTOR TELECOMMUNICATIONS CABLE. SUPERIOR ESSEX "DATAGAIN" CMP OR APPROVED EQUAL.

4. UTP TELECOMMUNICATIONS JACK: RJ-45, CATEGORY 6, T568A/B, 8P8C, SINGLE, WHITE FINISH, TELECOMMUNICATIONS JACK WITH FLUSH EXIT WITH SINGLE-GANG FACEPLATES WITH FINISH TO MATCH JACK. ORTRONICS "TRACJACK CLARITY 6" #OR-TJ600 OR APPROVED EQUAL UTP MODULAR PATCH PANEL: HIGH DENSITY, CATEGORY 6 MODULAR PATCH PANEL (24 OR 48-PORT) WITH HORIZONTAL CABLE MANAGEMENT PANELS (ONE ABOVE AND BELOW EACH PATCH PANEL). ORTRONICS CLARITY 6 SERIES OR EQUAL.

6. PATCH CABLES - ALL PATCH CABLES SHALL BE FACTORY MANUFACTURED TO MATCH THE APPLICABLE CABLE/CONNECTIVITY SOLUTION (I.E. THE SUPERIOR ESSEX/ORTRONICS SYSTEM SHALL USE ORTRONICS MANUFACTURED PATCH CORDS, ETC.). PROVIDE 7-FOOT CATEGORY 6 PATCH CABLES WITH WHITE OR IVORY JACKET FOR CROSS-CONNECT BETWEEN THE TELEPHONE PATCH PANEL AND THE TELECOMMUNICATIONS PATCH PANELS. PROVIDE ONE PATCH CABLE FOR EACH PORT IN ALL THE TELEPHONE PATCH PANELS. PROVIDE 7-FOOT CATEGORY 6 PATCH CABLES WITH BLUE JACKET FOR INSTALLATION BETWEEN NETWORK EQUIPMENT IN THE RACK AND DEDICATED DATA PORTS IN THE TELECOMMUNICATIONS PATCH PANELS. PROVIDE ONE PATCH CABLE FOR EACH PORT IN ALL THE TELECOMMUNICATIONS PATCH PANELS. PROVIDE 9-FOOT LONG CATEGORY 6 PATCH CABLE WITH WHITE OR IVORY JACKET FOR INSTALLATION BETWEEN THE DATA JACKS IN EACH TELECOMMUNICATIONS OUTLET AND THE OWNER-PROVIDED COMPUTERS. PROVIDE ONE PATCH CABLE FOR EACH DATA JACK IN ALL THE TELECOMMUNICATIONS OUTLETS, PLUS 25% ADDITIONAL CABLES FOR FUTURE EXPANSION OR REPLACEMENT CABLES.

7. VOICE BACKBONE CABLE - PROVIDE SUPERIOR ESSEX #18-XXX-XX OR APPROVED EQUAL PLENUM-RATED CL2P RISER-RATED CL2. CATEGORY 3, 24 AWG, SOLID COPPER CONDUCTOR MULTI-PAIR TELEPHONE BACKBONE CABLE. (XX IN PART NUMBERS = PAIR COUNT, AS SHOWN ON DRAWINGS). CABLE SUPPORT: ALL CABLES NOT INSTALLED IN CONDUIT SHALL BE SUPPORTED USING J-HOOKS. CADDY CABLECAT SERIES OR APPROVED EQUAL, WITH A MINIMUM J-HOOK SIZE EQUIVALENT TO CADDY #CAT32 OR APPROVED EQUAL. SIZE ALL J-HOOKS TO SUPPORT THE QUANTITY OF CABLES INSTALLED, PLUS A MINIMUM OF 25% SPARE CAPACITY.

D. INSTALLATION:

1. UNLESS OTHERWISE NOTED, ALL CABLES SHALL BE INSTALLED IN CONDUIT FROM THE TELECOMMUNICATIONS JACK TO THE SPACE ABOVE THE ACCESSIBLE CEILING AND IN CONDUIT THROUGH INACCESSIBLE AREAS. SUPPORT CABLES INSTALLED IN CEILING SPACES WITH J-HOOKS ANCHORED TO THE ROOF STRUCTURE. MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE 4 FEET, MAXIMUM NUMBER OF CABLES ON EACH SUPPORT SHALL BE 25. CABLES SHALL BE ROUTED A MINIMUM OF 5 INCHES FROM POWER LINES 2 KVA OR LESS, 12 INCHES FROM LIGHT FIXTURES, 36 INCHES FROM POWER LINES 5 KVA OR GREATER, 40 INCHES FROM TRANSFORMERS AND MOTORS. STORE A MAXIMUM OF 12 INCHES OF SLACK CABLE AT EACH OUTLET AND A MINIMUM OF 10 FEET OF SLACK CABLE AT EACH RACK. CABLE JACKET SHALL BE MAINTAINED TO WITHIN .5 INCH OF JACK AND TWISTS SHALL BE MAINTAINED TO WITHIN .25 INCH OF TERMINATION POINT. COMPLY WITH CABLE MANUFACTURERS MAXIMUM PULLING TENSION AND MINIMUM BEND RADIUS REQUIREMENTS. DO NOT STRETCH, STRESS, TIGHTLY COIL, BEND OR CRIMP CABLES. CABLES SHALL BE ROUTED SO THAT CABLE LENGTHS DO NOT EXCEED 90 METERS PER ANSI/TIA/EIA REQUIREMENTS. PERFORM END-TO-END TESTS OF EACH CABLE AFTER INSTALLATION AND TERMINATION TO SHOW COMPLIANCE WITH ANSI/TIA REQUIREMENTS.

2. EACH UTP CABLE SHALL BE TESTED FOR COMPLIANCE WITH ANSI/TIA 568-B.1 AND ANSI/TIA 568B.2 CATEGORY 6 STANDARDS AFTER INSTALLATION USING A FLUKE #DTX OR APPROVED EQUAL TESTER. [EACH FIBER OPTIC CABLE SHALL BE INITIALLY TESTED WITH A LIGHT SOURCE AND POWER METER, PER ANSI/TIA-526-14A. MEASURED RESULTS SHALL BE PLUS/MINUS 1DB OF SUBMITTED LOSS BUDGET CALCULATIONS.] PROVIDE TEST RESULTS FOR ALL TESTS NOTED ABOVE IN THE FORM OF PRINTOUTS FROM THE TEST EQUIPMENT AND PROVIDE AN ELECTRONIC COPY OF THE TEST DATA FOR EACH CABLE. WHERE ANY PORTION OF THE SYSTEM DOES NOT MEET THE SPECIFICATIONS, THE CONTRACTOR SHALL CORRECT THE DEVIATION AND REPEAT ANY APPLICABLE TESTING AT NO ADDITIONAL COST TO THE OWNER. ACCEPTANCE OF THE TELECOMMUNICATIONS SYSTEM SHALL BE BASED ON THE RESULTS OF THE ABOVE TESTS, FUNCTIONALITY, AND THE RECEIPT OF DOCUMENTATION.

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BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CS2
REVIEWED	XPT,TEH

SHEET NAME
ELECTRICAL SPECIFICATIONS

SHEET NO.
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RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
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PERMIT DOCUMENTS

ELECTRICAL SPECIFICATIONS:

28 10 00 – ACCESS CONTROL

- SUMMARY: THIS SECTION INCLUDES A PROXIMITY CARD ACCESS CONTROL SYSTEM.
- SUBMITTALS: SUBMIT PRODUCT DATA AND DETAILED SHOP DRAWINGS FOR APPROVAL SHOWING LAYOUT OF ALL CARD READERS, DOOR CONTACT SWITCHES, POWER SUPPLIES, HEADEND EQUIPMENT, CONDUIT/WIRING PATHWAYS, ETC. INCLUDE RISER DIAGRAMS AND WIRING DIAGRAMS INCLUDING A DOOR CONNECTION DIAGRAM FOR EACH UNIQUE TYPE OF DOOR.
- QUALIFICATIONS: THE ACCESS CONTROL SYSTEM SHALL BE ASSEMBLED AND INSTALLED BY A SECURITY SYSTEMS INTEGRATOR. THE SECURITY SYSTEMS INTEGRATOR SHALL HAVE A MINIMUM OF THREE YEARS DOCUMENTED EXPERIENCE ASSEMBLING AND INSTALLING THESE TYPES OF SYSTEMS.
- MATERIALS:
 - PROVIDE COMPLETE COMPLETE CARD ACCESS SYSTEMS CONSISTING OF CARD READERS AT DOORS SHOWN ON PLANS, DOOR CONTACT SWITCHES, POWER SUPPLIES, AND HEAD END EQUIPMENT. INCLUDE ALL ACCESSORIES, CABLES AND EQUIPMENT CONNECTIONS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
 - CARD READERS: UL294, PROXIMITY CARD READER WITH 2.4GHZ, 13.56 MHZ AND 125 KHZ CREDENTIAL COMPATIBILITY, 1.6"-4" READ RANGE, 12VDC, EAL 5+ CERTIFIED SECURITY ELEMENT HARDWARE, -31F TO 150F OPERATING TEMPERATURE, BLACK HOUSING, AND LED INDICATOR LIGHT. PROVIDE WITH SINGLE GANG MOUNTING UNLESS OTHERWISE NOTED. PROVIDE MULLION MOUNTING WHERE INDICATED ON PLANS. [PROVIDE WITH INTEGRAL KEYPAD], HID #SIGNO SERIES OR EQUAL. PROVIDE OWNER WITH 50 BLANK COMPATIBLE CARDS.
 - DOOR CONTROLLERS: INTELLIGENT SYSTEM CONTROLLER – LENEL LNL-X22220 OR EQUAL
 - INTERFACE MODULE: DUAL READER INTERFACE MODULE – LENEL LNL-1320 OR EQUAL.
 - NETWORK POWER DISTRIBUTION MODULE: ALTRONICS #LINQ8PD OR EQUAL.
 - DOOR CONTACTS: RECESSED STEEL DOOR CONTACT WITH WIRE LEADS, 1" DIAMETER, DPDT, WHITE, 1/2 INCH GAP SIZE. UTC #1076D-N OR EQUAL.
 - SOFTWARE: LENEL ONGUARD V7.6 OR EQUAL.
 - WIRE AND CABLE: PLENUM RATED CABLE AS RECOMMENDED BY THE MANUFACTURER.
- INSTALLATION:
 - INSTALL AND TEST IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - INSTALL WIRING IN RACEWAY (3/4 INCH MINIMUM SIZE) IN CONCEALED OR EXPOSED AREAS. WIRING ABOVE ACCESSIBLE CEILINGS MAY BE INSTALLED IN J-HOOK PATHWAYS ON 48" CENTERS MAX.
 - WIRING SPLICES ARE TO BE AVOIDED TO THE EXTENT POSSIBLE, AND IF NEEDED THEY MUST BE MADE ONLY IN JUNCTION BOXES AND SHALL BE CRIMP CONNECTED. WIRE NUT-TYPE CONNECTIONS ARE NOT ACCEPTABLE.
 - LABELING: PROVIDE RIVETED NAMEPLATE ON ALL HEADEND EQUIPMENT. PROVIDE LABEL ON EACH SECURITY FIELD DEVICE, DENOTING DEVICE ADDRESS. INSTALL WIRE MARKER FOR EACH CABLE AT CABINETS, PULL BOXES, JUNCTION BOXES, AND EACH LOAD CONNECTION. WIRE ID NUMBER TO MATCH AT EACH END.
 - INSTALL 1-FOOT CABLE SERVICE LOOP FOR ALL SECURITY SYSTEM CABLE AT THE LAST J-HOOK NEAREST THE RACEWAY DOWN TO THE DEVICE, OR AS NEAR AS POSSIBLE TO THE DEVICE WHEN J-HOOKS ARE NOT INSTALLED.
 - DOOR CONTACTS: SECURE THE MAGNET SIDE OF RECESSED DOOR CONTACTS IN THE DOOR, USING METAL MOUNTING BRACKETS AS REQUIRED. MAGNET SHALL NOT BE MOUNTED ON A WOOD SPACER BLOCK TO MAKE IT FLUSH WITH THE TOP OF THE DOOR
 - DEMONSTRATION: DEMONSTRATE PROPER OPERATION OF ALL SECURITY FUNCTIONS, SCHEDULES AND DOOR OPERATION.
 - TRAINING: FURNISH 4 HOURS OF INSTRUCTION EACH FOR TWO PERSONS, TO BE CONDUCTED AT PROJECT SITE WITH MANUFACTURER'S REPRESENTATIVE.

28 23 00 – VIDEO SURVEILLANCE

- SUMMARY: THIS SECTION INCLUDES A NEW VIDEO SURVEILLANCE SYSTEM IN THE FACILITY COMPLETE WITH INTERIOR IP CAMERAS, NETWORK VIDEO RECORDER (NVR) SERVER, CLIENT WORKSTATION & MONITOR, DATA EQUIPMENT STORAGE RACK, AND VIDEO MANAGEMENT SYSTEM SOFTWARE. ALL CAMERAS SHALL BE CONNECTED TO THE NVR SERVER AND SURVEILLANCE SHALL BE ACCESSIBLE VIA NETWORK CONNECTION FROM REMOTE LOCATIONS.
- SUBMITTALS: SUBMIT PRODUCT DATA AND DETAILED SHOP DRAWINGS FOR APPROVAL.
- MATERIALS:
 - VIDEO APPLIANCE: ALL-IN-ONE 24TB VIDEO STORAGE HARD DRIVE WITH PRE-LOADED VIDEO MANAGEMENT SOFTWARE, 24-PORT POE SWITCH AND CLIENT WORKSTATION. AVIGILON #VIDEO APPLIANCE OR APPROVED EQUAL.
 - INDOOR IP FIXED DOME CAMERA: CEILING MOUNTED, WHITE, 4.0 MEGAPIXEL, IP COLOR CAMERA. AVIGILON #2.0C-H5A-D01 OR APPROVED EQUAL.
 - GENERAL HARDWARE AND MOUNTS: AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
 - VIDEO FIELD CABLE: AS RECOMMENDED BY THE SECURITY INTEGRATOR
 - WIRE AND CABLE: PER SECTION 27 10 00 EXCEPT WITH GREEN JACKET.
 - UTP COMPONENTS: PER SECTION 27 10 00.
- INSTALLATION:
 - INSTALL AND TEST WIRING PER SECTION 27 10 00.
 - NO WIRING OTHER THAN THAT DIRECTLY ASSOCIATED WITH THE VIDEO SURVEILLANCE SYSTEM SHALL BE PERMITTED IN VIDEO SURVEILLANCE SYSTEM CONDUITS AND PATHWAYS.
 - COORDINATE ALL FINAL CAMERA LOCATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN AND AVOID CONFLICTS WITH EXISTING EQUIPMENT AND OBJECTS THAT MAY OBSTRUCT THE FIELD OF VIEW OR, IN THE CASE OF LIGHT FIXTURES, MAY AFFECT THE CAMERA PERFORMANCE AND QUALITY OF THE VIDEO IMAGE.
 - COORDINATE ALL CAMERA, OUTLET BOX, AND CONDUIT LOCATIONS TO AVOID CONFLICTS WITH MECHANICAL PIPING AND DUCTWORK, STRUCTURAL MEMBERS, AND OTHER MATERIALS ABOVE THE ACCESSIBLE CEILINGS AND ALONG THE ENTIRE CABLE PATHWAY.
 - ANY CAMERA THAT IS LOCATED SO THAT CAMERA PERFORMANCE OR FIELD OF VIEW IS ADVERSELY AFFECTED SHALL BE RELOCATED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 - LABEL ALL VIDEO SURVEILLANCE SYSTEM JUNCTION BOXES. FOR JUNCTION BOXES ABOVE CEILINGS, MARK THE BOX COVER WITH "IP VIDEO" USING PERMANENT BLACK MARKER. FOR JUNCTION BOXES IN FINISHED AREAS, MARK THE INSIDE OF THE COVER.

- FIXED CAMERAS: THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO OBTAIN THE DESIRED FIELD OF VIEW FOR EACH NEW CAMERA. THIS INCLUDES, BUT IS NOT LIMITED TO, ADJUSTING CAMERA AIMING POINT, WHITE BALANCE, BACKLIGHT COMPENSATION, AGC, IRIS CONTROL, VIEWING ANGLE, AND ADJUSTING VARI-FOCAL LENSES.
- VMS SOFTWARE: THE CONTRACTOR SHALL COMPLETELY CONFIGURE EACH VIDEO INPUT FOR CAMERA TITLE, FRAME RATE, RESOLUTION, COMPRESSION, MOTION DETECTION, ALARMS, PRE/POST EVENT RECORDING, MACROS, AND ALL OTHER FEATURES OF THE SOFTWARE. THE SOFTWARE SHALL BE INITIALLY CONFIGURED FOR A COMPLETE AND OPERABLE SYSTEM TO THE OWNER'S SATISFACTION.
- INSTALL AND TEST IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- TRAINING: FURNISH 6 HOURS OF INSTRUCTION EACH FOR TWO PERSONS, TO BE CONDUCTED AT PROJECT SITE WITH MANUFACTURER'S REPRESENTATIVE.

28 46 00 – FIRE DETECTION AND ALARM

- SUMMARY: THIS SECTION INCLUDES CONTRACTOR DESIGNED AND INSTALLED ADDRESSABLE FIRE ALARM AND SMOKE DETECTION SYSTEM. THIS IS A PERFORMANCE TYPE SPECIFICATION DESCRIBING THE MINIMUM ACCEPTABLE FIRE ALARM SYSTEM. THE CONTRACTOR SHALL DESIGN AND INSTALL THE FIRE ALARM AND SMOKE DETECTION SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 72 AND ADAG. THE FIRE ALARM DEVICES ON THE DRAWINGS ARE SHOWN IN SUGGESTED LOCATIONS. THE FINAL LOCATIONS OF ALL DEVICES SHALL BE SOLELY DETERMINED BY THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH NFPA 72 AND ADAG.
- SUBMITTALS: SUBMIT PRODUCT DATA AND SHOP DRAWINGS FOR APPROVAL.
- MATERIALS:
 - MANUFACTURER: AUTOCALL, EST, NOTIFIER, SIEMENS, SIMPLEX OR EQUAL.
 - CONTROL PANEL: MODULAR CONSTRUCTION TYPE WITH A POWER SUPPLY ADEQUATE TO SERVE ALL CONNECTED DEVICES, SUPERVISED DETECTION CIRCUITS WITH ALARM AND TROUBLE INDICATIONS FOR EACH ZONE, SUPERVISED SIGNAL CIRCUITS OF SUFFICIENT CAPACITY FOR THE SIGNAL DEVICES CONNECTED TO THE SYSTEM, AUXILIARY RELAYS AS REQUIRED TO PROVIDE ACCESSORY FUNCTIONS SHOWN ON THE ONE-LINE, A BATTERY OPERATED EMERGENCY POWER SUPPLY WITH CAPACITY FOR OPERATING THE SYSTEM IN A SUPERVISORY MODE FOR 24 HOURS FOLLOWED BY AN ALARM MODE FOR 5 MINUTES, AN ALARM HORN, TROUBLE ACKNOWLEDGE/ALARM SILENCE SWITCH, LAMP TEST SWITCH, AND A RESET SWITCH.
 - MANUAL PULL STATION: FLUSH MOUNTED, SINGLE ACTION ADDRESSABLE MANUAL STATION, WITH BREAKGLASS ROD.
 - CEILING MOUNTED SMOKE DETECTOR: ADDRESSABLE, NFPA 72, PHOTOELECTRIC TYPE WITH ADJUSTABLE SENSITIVITY, PLUG-IN BASE, AND VISUAL INDICATION OF DETECTOR ACTUATION, SUITABLE FOR MOUNTING ON 4-INCH OUTLET BOX.
 - HEAT DETECTOR: ADDRESSABLE COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE, RATED 135° F, AND TEMPERATURE RATE OF RISE OF 15° F. PROVIDE HERMETICALLY SEALED UNITS FOR USE IN DAMP AND OUTDOOR LOCATIONS. PROVIDE FIXED TEMPERATURE DEVICES RATED 200° F WHERE INDICATED. HEAT DETECTORS IN THE ELEVATOR MACHINE ROOMS SHALL HAVE BOTH A LOWER TEMPERATURE RATING AND A HIGHER SENSITIVITY AS COMPARED TO THE SPRINKLER HEAD IN THE ROOM.
 - FIRE ALARM STROBE LIGHTS: NFPA 72 COMPLIANT, FLUSH WALL OR CEILING MOUNTED, SELF-SYNCHRONIZING, XENON, FIRE ALARM STROBE LAMP AND FLASHER WITH FLASHRATE OF ONE FLASH PER SECOND, COMPLYING WITH THE REQUIREMENTS OF ADAG. PROVIDE RED LETTERED FIRE ON CLEAR LENS. THE STROBE SHALL BE FIELD-SELECTABLE TO PROVIDE 15, 30 75, OR 110 CANDELA SYNCHRONIZED FLASH OUTPUTS.
 - FIRE ALARM HORN: ANSI S3.41 AND NFPA 72 COMPLIANT, FLUSH MOUNTED FIRE ALARM HORN WITH ADJUSTABLE SOUND OUTPUT LEVEL. SOUND RATING: 87 DBA (REVERBERANT) AT 10 FEET ON THE "HIGH" SETTING AND 82 DBA (REVERBERANT) AT 10 FEET ON THE "LOW" SETTING. PROVIDE MINIMUM SOUND PRESSURE LEVEL OF 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL IN EVERY OCCUPIED SPACE WITHIN THE BUILDING. PROVIDE INTEGRAL FIRE ALARM STROBE LIGHT AS SPECIFIED ABOVE WHERE INDICATED ON THE DRAWINGS.
 - FIRE ALARM MULTI-TONE HORN WITH 520 HZ LOW FREQUENCY OUTPUT: UL LISTED 464 AND NFPA 72 COMPLIANT, FLUSH WALL OR CEILING MOUNTED FIRE ALARM MULTI-TONE HORN WITH 520 HZ LOW FREQUENCY OUTPUT.
 - FIRE ALARM MULTI-TONE HORN/STROBE WITH 520 HZ LOW FREQUENCY OUTPUT: UL LISTED 464, UL 1971, ANSI A117.1, AND NFPA 72 COMPLIANT, FLUSH WALL MOUNTED FIRE ALARM MULTI-TONE HORN/STROBE WITH 520 HZ LOW FREQUENCY OUTPUT.
 - REMOTE ANNUNCIATOR: PROVIDE UL LISTED, SUPERVISED, REMOTE ALPHA-NUMERIC ANNUNCIATOR WITH BACK-LIT LIQUID CRYSTAL DISPLAY CAPABLE OF PROVIDING FIRE ALARM SYSTEM INFORMATION ON ANY EVENT RECORDED BY THE FIRE ALARM SYSTEM WITH A MINIMUM 40 ALPHA-NUMERIC CHARACTER DISPLAY OF A CUSTOM MESSAGE CORRESPONDING TO THE EVENT. THE ANNUNCIATOR SHALL HAVE FOUR LED'S INDICATING NORMAL, ALARM, SUPERVISORY AND TROUBLE CONDITIONS. MOUNT A MINIMUM 1/16" SCALE FACILITY MAP NEXT TO THE ANNUNCIATOR IN A FRAME WITH A CLEAR ACRYLIC COVER. MAP SHALL BE LABELED TO CORRESPOND TO THE INFORMATION DISPLAYED AT THE REMOTE ANNUNCIATOR.
 - WIRELESS RADIO FIRE ALARM MONITORING PANEL: PROVIDE AN ELECTRICALLY SUPERVISED, U.L. 864 LISTED WIRELESS RADIO ALARM COMMUNICATOR TO BE INSTALLED ADJACENT TO THE FIRE ALARM CONTROL CABINET. COMMUNICATOR SHALL BE CAPABLE OF TRANSMITTING AN ALARM CONDITION, A TROUBLE CONDITION, A SUPERVISORY ALARM OR A SPRINKLER SYSTEM WATER FLOW ALARM OVER MULTIPLE RADIO FREQUENCY PATHWAYS ACCROSS THE MESH RADIO TO A CENTRAL STATION RECEIVER. COMMUNICATOR SHALL BE LISTED FOR USE WITH THE INSTALLED SYSTEM.
 - FIRE ALARM SYSTEM POWER BRANCH CIRCUITS: BUILDING WIRE AS SPECIFIED IN SECTION 26 05 19.
 - NOTIFICATION APPLIANCE CIRCUITS: MINIMUM #12 AWG COPPER BUILDING WIRE, AS SPECIFIED IN SECTION 26 05 19.
 - INITIATING AND SIGNALING LINE CIRCUITS: TWISTED, SHIELDED OR UNSHIELDED FIRE ALARM CABLE AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER. MINIMUM SIZE #16 AWG.

- INSTALLATION:
 - THE COMPLETE FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
 - INSTALL MANUAL PULL STATIONS WITH THE OPERATING HANDLE 48 INCHES ABOVE THE FLOOR. INSTALL AUDIBLE AND VISUAL SIGNAL DEVICES 80 INCHES ABOVE THE FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.
 - MAKE ALL CONNECTIONS TO DOOR RELEASE DEVICES, ELEVATOR CONTROL PANELS, SPRINKLER FLOW SWITCHES, SPRINKLER VALVE TAMPER SWITCHES, SPRINKLER WATER TANK ALARM SENSORS, FIRE PUMP CONTROLLER, AND DUCT SMOKE DETECTORS.
 - DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER THE CONSTRUCTION CLEAN UP OF ALL TRADES IS COMPLETE AND FINAL. PROTECTIVE DUST COVERS SHALL BE INSTALLED ON ALL DETECTORS PRIOR TO FINAL CLEAN-UP.
 - FIELD LOCATE REMOTE VISUAL INDICATORS AND TEST/RESET STATIONS FOR DUCT DETECTORS IN AN ACCESSIBLE LOCATION.
 - PROVIDE TWO DEDICATED TELEPHONE LINES FOR CONNECTION OF THE DIGITAL ALARM COMMUNICATOR.
 - COORDINATE WITH OWNER TO ARRANGE A 24 HOUR MONITORING SERVICE FOR DIGITAL ALARM COMMUNICATOR THAT MEETS THE REQUIREMENTS OF NFPA 72 AND THE AUTHORITY HAVING JURISDICTION.
 - TEST IN ACCORDANCE WITH NFPA 72 AND LOCAL FIRE DEPARTMENT REQUIREMENTS. PROVIDE A COMPLETED NFPA 72 INSPECTION AND TESTING FORM FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUAL AT THE COMPLETION OF TESTING AND COMMISSIONING THE FIRE ALARM SYSTEM.
 - INSTALL FIRE ALARM WIRING IN A DEDICATED RACEWAY SYSTEM PER SECTION 26 05 33.



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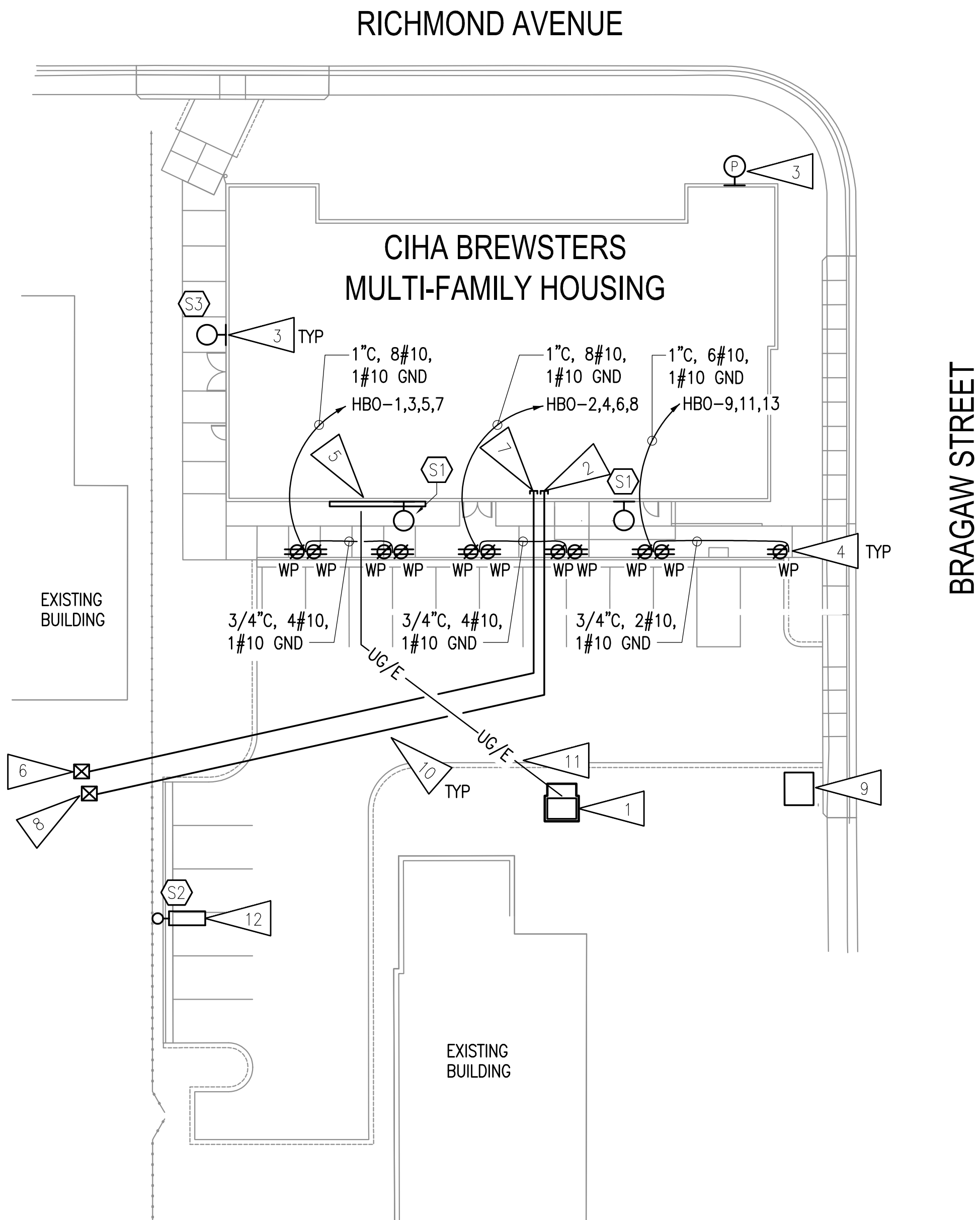
COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT,TEH

SHEET NAME
ELECTRICAL SPECIFICATIONS

SHEET NO.
E0.04



1 ELECTRICAL SITE PLAN
1"=20'-0"

SITE LIGHTING ANALYSIS
MULTI-FAMILY BUILDING PARKING

MINIMUM ILLUMINATION LEVEL: FOOTCANDLES	REQUIRED: 0.2 FC	DESIGNED: 0.3 FC
AVERAGE ILLUMINATION LEVEL: FOOTCANDLES	REQUIRED: 0.4 FC	DESIGNED: 0.75 FC
UNIFORMITY RATIO, MAX/MIN:	REQUIRED: 20:1	DESIGNED: 8.0:1
UNIFORMITY RATIO, AVG/MIN:	REQUIRED: 10:1	DESIGNED: 2.5:1

THE PARKING AREA LIGHTING MEETS THE LEVEL OF ILLUMINATION, UNIFORMITY RATIOS AND MINIMUM LUMEN INTENSITIES SPECIFIED IN THE ILLUMINATION GUIDELINES SET BY THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA, AND THE MUNICIPALITY OF ANCHORAGE TITLE 21, SECTION 21.07.100, IN ADDITION, THE LIGHTING IS DESIGNED TO PREVENT GLARE TO MOTORISTS ON PUBLIC STREETS AND TO RESIDENTS OF ADJOINING PROPERTIES IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

GENERAL NOTES:

- FIELD COORDINATE WITH CHUGACH ELECTRIC ASSOCIATION (CEA), ANCHORAGE COMMUNICATIONS SERVICE, INC. (ACS), AND GENERAL COMMUNICATIONS INC. (GCI) FOR LOCATION OF UTILITY TRANSFORMER, TELEPHONE, AND CABLE VAULTS PRIOR TO ROUGH-IN.
- FIELD COORDINATE WITH ENSTAR UTILITY FOR GAS METER LOCATION AND MAINTAIN 3'-0" CLEARANCE BETWEEN THE GAS METER AND ELECTRICAL GROUNDING SYSTEM.
- PROVIDE CONDUIT, WIRES, AND OTHER APPURTENANCES AS REQUIRED TO PROVIDE POWER CONNECTION FROM ELECTRICAL SOURCE TO BUILDING EQUIPMENT, LIGHTS, RECEPTACLES, ETC. PANELS AND CIRCUIT ASSIGNMENTS AS INDICATED ON PLANS.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND MAKE ADJUSTMENTS AS REQUIRED TO AVOID ANY CONFLICTS PRIOR TO ROUGH-IN.
- SHOWN LOCATIONS FOR NEW ELECTRICAL SERVICE ENTRANCE GEAR AND COMMERCIAL CABLE/TELECOMMUNICATIONS SERVICE GEAR IS PROPOSED. EXACT LOCATIONS WILL BE SHOWN AFTER COORDINATION WITH UTILITY COMPANIES IS COMPLETE.
- SEE 1/E5.0 FOR PANEL LOCATIONS.
- ADDITIONAL SITE LIGHTING TO BE SHOWN PRIOR TO 100% SUBMITTAL.
- CONNECT EXTERIOR LIGHTING SHOWN ON THIS SHEET TO PANEL '1HA' CIRCUIT 1.

SHEET NOTES #

- PROPOSED LOCATION FOR UTILITY PAD MOUNT TRANSFORMER.
- PROVIDE 4" PVC SCHEDULE 40 WITH PULL WIRE FOR GCI SERVICE (PHONE AND INTERNET VIA CABLE LINE). STUB 3" ABOVE FINISH GRADE BELOW TT&B AND THE OTHER END AT GCI CABLE PEDESTAL. PROVIDE END CAPS AND MARK GCI AT BOTH ENDS. COORDINATE WITH GCI REPRESENTATIVE FOR CABLE VAULT/PEDESTAL LOCATION PRIOR TO ROUGH-IN. SEE 1/E5.00.
- CONTROL SITE LIGHTING VIA NORTH ORIENTED BUILDING MOUNTED PHOTOCELL. SEE FIRST FLOOR LIGHTING PLAN FOR ADDITIONAL FIXTURES ON CIRCUIT CONTROLLED BY PHOTOCELL. SEE 2/E6.01 FOR DETAILS.
- RECEPTACLES FOR HEADBOLT HEATER. SEE 2/E6.00 FOR DETAILS.
- ELECTRICAL SERVICE ENTRANCE GEAR, SEE 1/E3.00.
- PROPOSED APPROXIMATE LOCATION OF ACS VAULT/PEDESTAL.
- PROVIDE 4" PVC SCHEDULE 40 WITH PULL WIRE FOR ACS SERVICE (PHONE AND INTERNET VIA CABLE LINE). STUB 3" ABOVE FINISH GRADE BELOW TT&B AND THE OTHER END AT GCI CABLE PEDESTAL. PROVIDE END CAPS AND MARK ACS AT BOTH ENDS. COORDINATE WITH ACS REPRESENTATIVE FOR CABLE VAULT/PEDESTAL LOCATION PRIOR TO ROUGH-IN. SEE 1/E5.00.
- PROPOSED APPROXIMATE LOCATION OF GCI VAULT/PEDESTAL.
- EXISTING UTILITY VAULT.
- SEE 3/E6.01 FOR CONDUIT TRENCH DETAIL.
- SEE 1/E1.01 FOR CONDUIT AND CONDUCTOR SIZES.
- SEE 1/E6.03 FOR POLE BASE DETAILS.



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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE

#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

SHEET NAME
ELECTRICAL SITE

SHEET NO.
E1.00

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1000 W. Bragaw Street, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
CORPORATE NO.: AECC0442

GENERAL NOTES:

- A. CHUGACH ELECTRIC ASSOCIATED (CEA) WILL PROVIDE PAD-MOUNTED TRANSFORMER, CONCRETE PAD, METERS, NET METERS, CT'S AND SERVICE CONDUCTORS BETWEEN THE TRANSFORMER SECONDARY SIDE TO BUSSED TERMINATION SWITCHBOARD. PROVIDE GROUNDING AND BONDING AT UTILITY COMPANY'S METERING EQUIPMENT.

B. PROVIDE A PROPERLY SIZED NEMA 3R ENCLOSURE FOR METER AND CURRENT TRANSFORMER (CT'S). COORDINATE WITH CEA FOR PROPER SIZE OF BUS BAR DRILLINGS. OFFSET TEST SWITCH PERCH PROVISION, AND OTHER REQUIREMENTS PRIOR TO ORDERING.

C. FIELD COORDINATE WITH CEA FOR MOUNTING HEIGHT OF CT'S CABINET, METER ENCLOSURE, ETC. PRIOR TO ROUGH-IN.

D. CONTRACTOR SHALL GROUND THE FRAME OF ALL MOTORS, ELEVATOR MOTOR, CONTROLLERS, AND METAL ENCLOSURES, FOR ALL ELECTRICAL EQUIPMENT.
- E. PROVIDE SIGNAGE WITH THE AVAILABLE FAULT CURRENT AT ALL SWITCHGEAR AND PANELS IN ACCORDANCE WITH NEC 110.24(A) AND 408.6.

F. CONTRACTOR TO FILE AN INTERCONNECTING APPLICATION WITH CEA PRIOR TO STARTING.

G. CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO CEA PRIOR TO THE INSTALLATION AND BURIAL OF THE CONDUIT BETWEEN THE SWITCHBOARDS. CEA WILL INSPECT THE INSTALLATION PRIOR TO BACKFILL.

H. ELEVATOR: BASIS OF DESIGN IS BASED ON OTIS HYDROFIT 3510, HYDRAULIC ELEVATOR AND OTIS ELEVATOR MACHINE-ROOMLESS GEN2.

I. SEE E3 SERIES FOR PANEL LOCATIONS.
- J. ELEVATOR BRANCH CIRCUIT FEEDER IS SIZED PER NEC TABLE 430.22(E) FOR AN INTERMITTENT DUTY ELEVATOR USING A CONTINUOUS RATED MOTOR.

K. SIGNAGE OF AIC RATING PER NEC 408.6.

SHEET NOTES:

1. SEE SHEET E1.05 FOR PHOTOVOLTAIC (PV) SYSTEMS REQUIREMENTS. PROVIDE COPPER CONDUCTORS FOR PV FEEDER.

2. IF ELEVATOR SHAFT IS SPRINKLERED, PROVIDE SHUNT TRIP BREAKER TO INTERLOCK WITH ELEVATOR CONTROLS AND FIRE ALARM PANEL. CONNECT SHUNT TRIP BREAKER TO OPEN UPON ACTIVATION OF HEAT DETECTOR IN ELEVATOR SHAFT. COORDINATE BREAKER SIZE WITH ELEVATOR MANUFACTURER.

3. BI-DIRECTIONAL METERS ARE REQUIRED FOR HOUSE SERVICE.

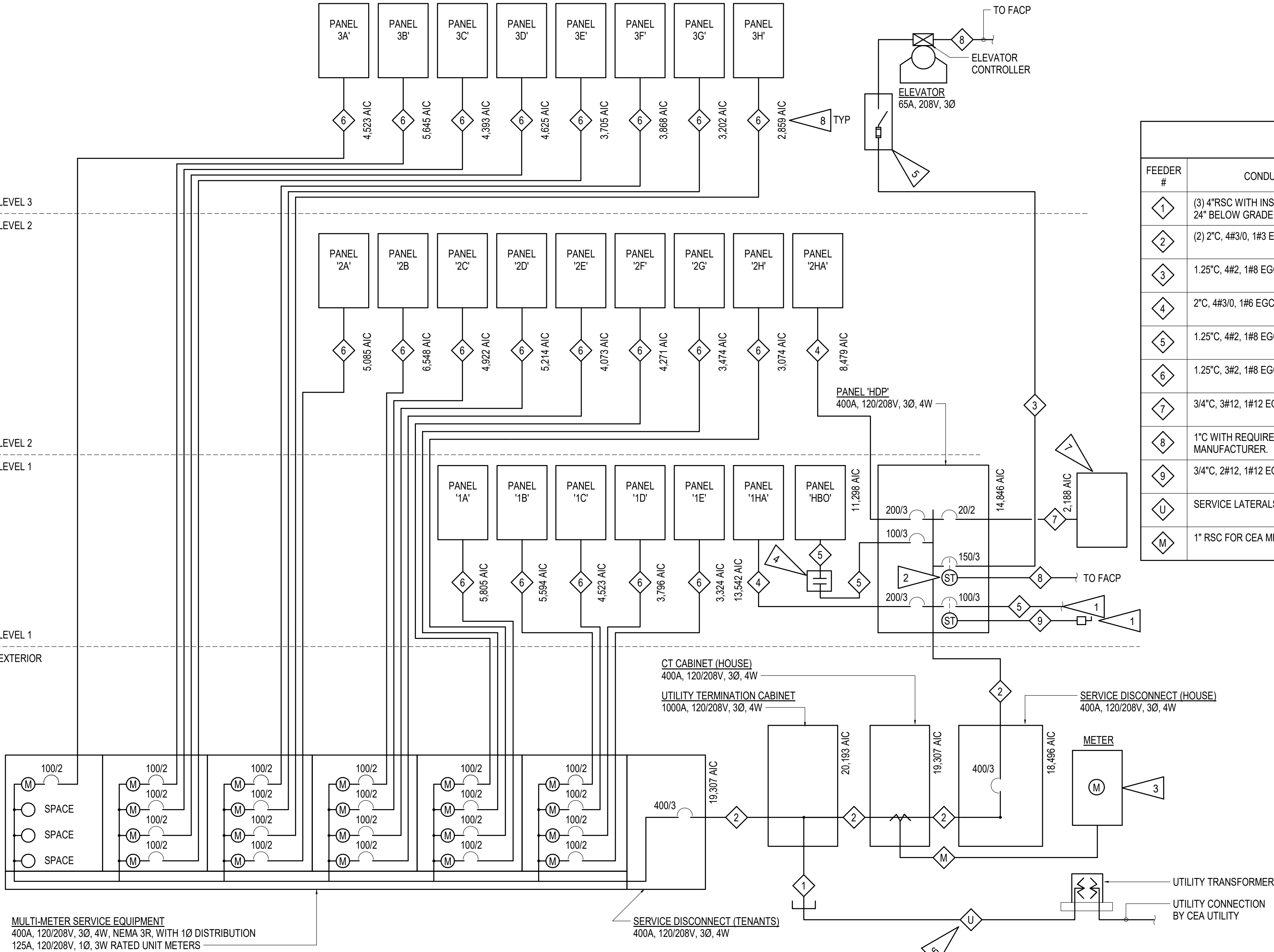
4. SEE 3/E6.00 FOR HEADBOLT HEATER CONTACTOR DETAIL .

5. PROVIDE A 200A, 3P FUSED DISCONNECT SWITCH WITH 115A RK1 FUSES OR EQUIVALENT, PER OTIS MANUFACTURER REQUIREMENTS, FOR ELEVATOR CONNECTION. SEE 1/E3.02.

6. SERVICE LATERALS PROVIDED BY CEA UTILITY.

7. EM LIGHTING INVERTER, MYERS POWER PRODUCTS, INC. ILLUMINATOR SERIES 1.5 KW MODEL # 3-IE-1-S-BA2002-Z OR APPROVED EQUAL, 208V, 1Ø INPUT VIA TWO NORMALLY "ON" BRANCH CIRCUITS BREAKERS.

8. PANEL CALCULATED AIC.



1 ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



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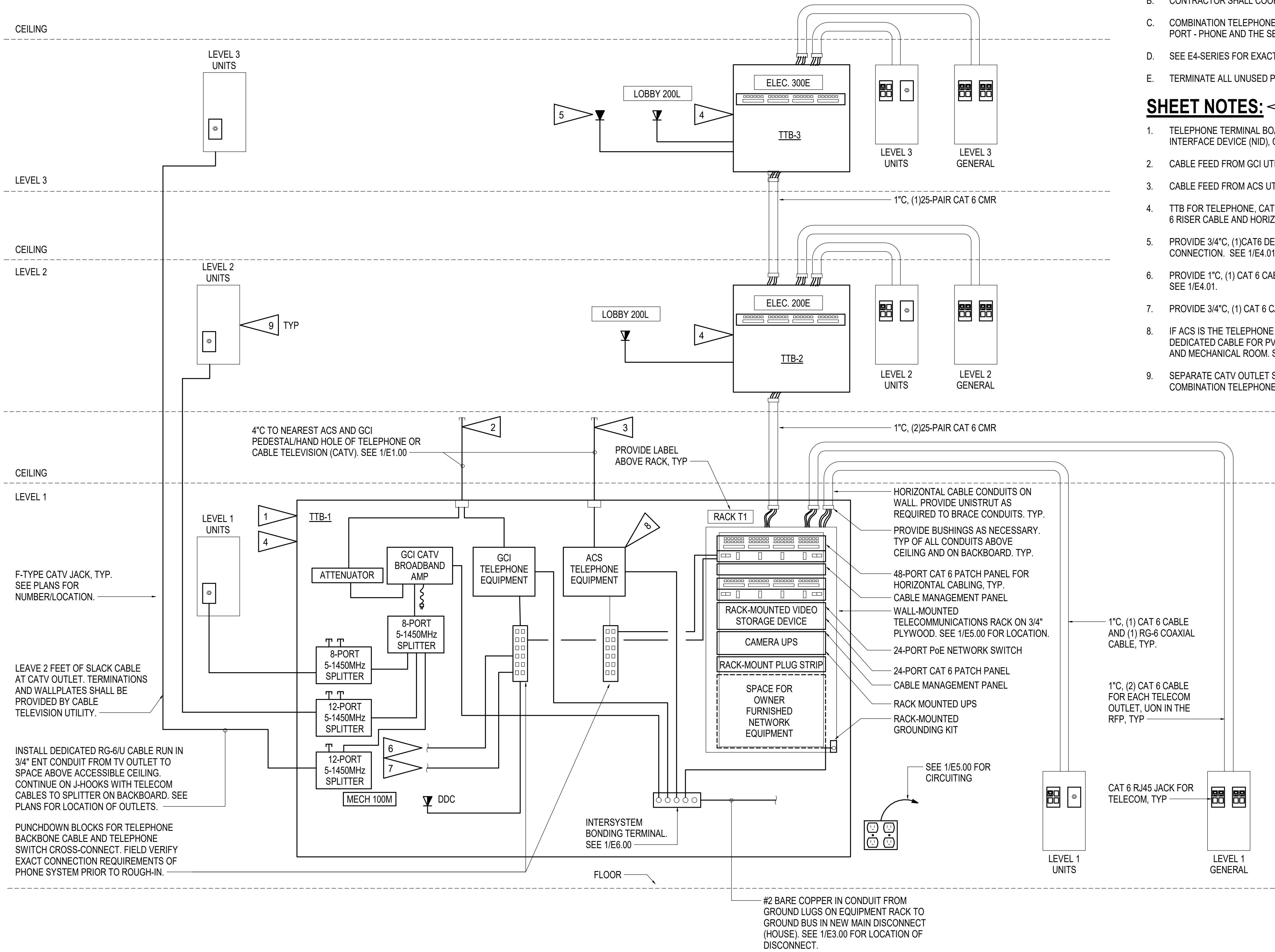
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SHEET NAME
ELECTRICAL ONE-LINE DIAGRAM

SHEET NO.
E1.01

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1000 W. 11TH AVE., SUITE 200 - ANCHORAGE, AK 99503 - (907) 276-0521
CORPORATE NO.: AECC0442

1 TELEPHONE AND CABLE/DIGITAL TELEVISION DISTRIBUTION DIAGRAM
NOT TO SCALE



GENERAL NOTES:

- A. COORDINATE WITH GCI AND ACS FOR STANDARD REGULATIONS AND REQUIREMENTS PRIOR TO ROUGH-IN.
- B. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICTS.
- C. COMBINATION TELEPHONE AND TELEVISION OUTLET CONSISTS OF 2-PORTS. THE FIRST PORT - PHONE AND THE SECOND PORT - TELEVISION. SEE E4.02 FOR LOCATIONS.
- D. SEE E4-SERIES FOR EXACT NUMBER AND LOCATION OF TELEPHONE CABLE TV EQUIPMENT.
- E. TERMINATE ALL UNUSED PORTS IN THE CATV SPLITTERS WITH A 75 OHM 1/4 WATT TYPE 'F'.

SHEET NOTES:

- 1. TELEPHONE TERMINAL BOARD (TTB) FOR GCI AND ACS HEAD-END EQUIPMENT (i.e. NETWORK INTERFACE DEVICE (NID), CAT 6 EQUIPMENT, ETC.) SEE 1/E5.00 FOR LOCATION.
- 2. CABLE FEED FROM GCI UTILITY, SEE 1/E1.00.
- 3. CABLE FEED FROM ACS UTILITY, SEE 1/E1.00.
- 4. TTB FOR TELEPHONE, CAT 6 AND VIDEO INTERCOM EQUIPMENT. SEE E5.00. TERMINATE CAT 6 RISER CABLE AND HORIZONTAL CABLES TO 110 PUNCH DOWN BLOCKS AT TTB-1.
- 5. PROVIDE 3/4\"/>



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ANCHORAGE, ALASKA

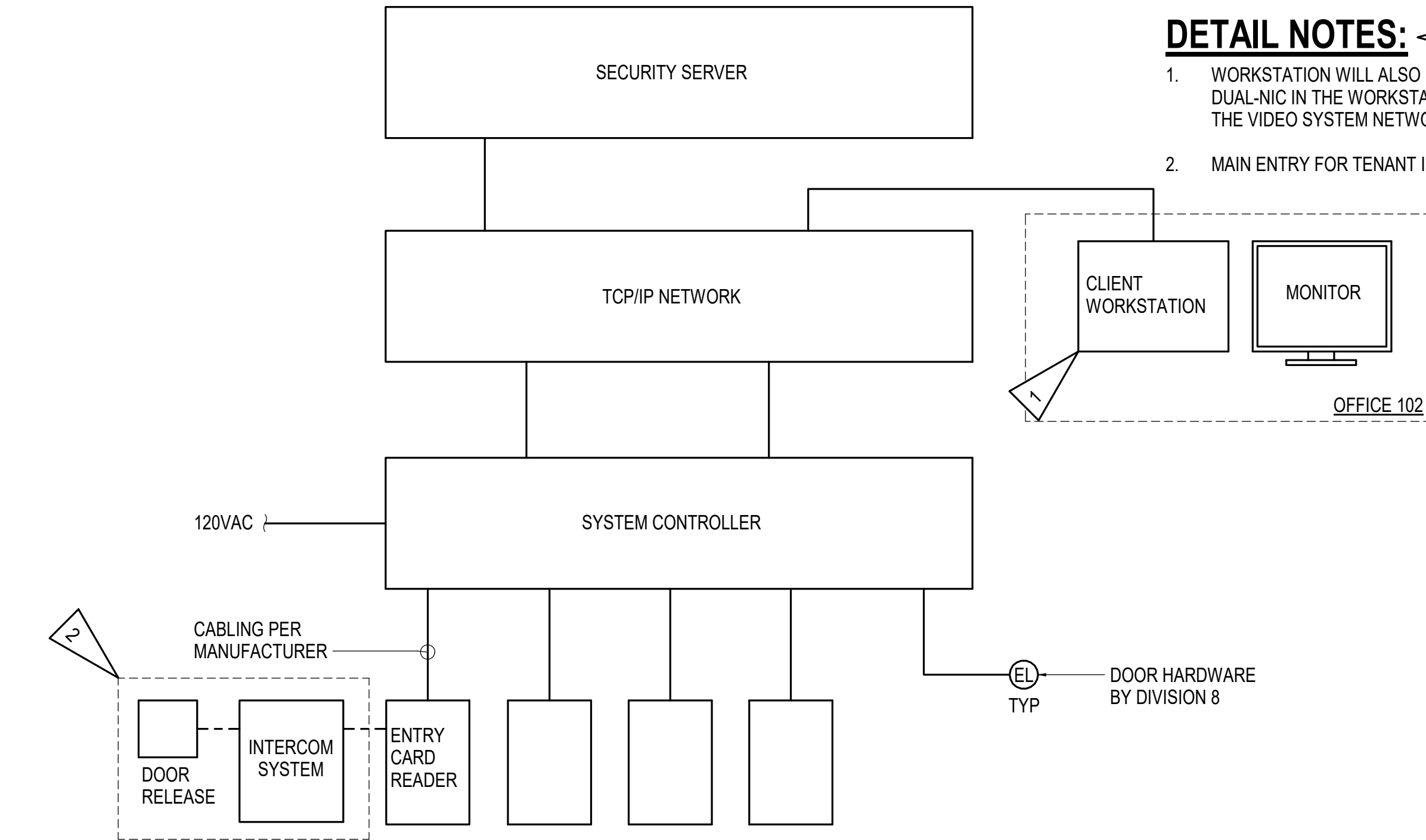
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JOB NO.	M2169
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SHEET NAME
TELEPHONE AND CABLE/DIGITAL
TV DISTRIBUTION DIAGRAM

SHEET NO.
E1.02

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1001 Newhall Drive, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042



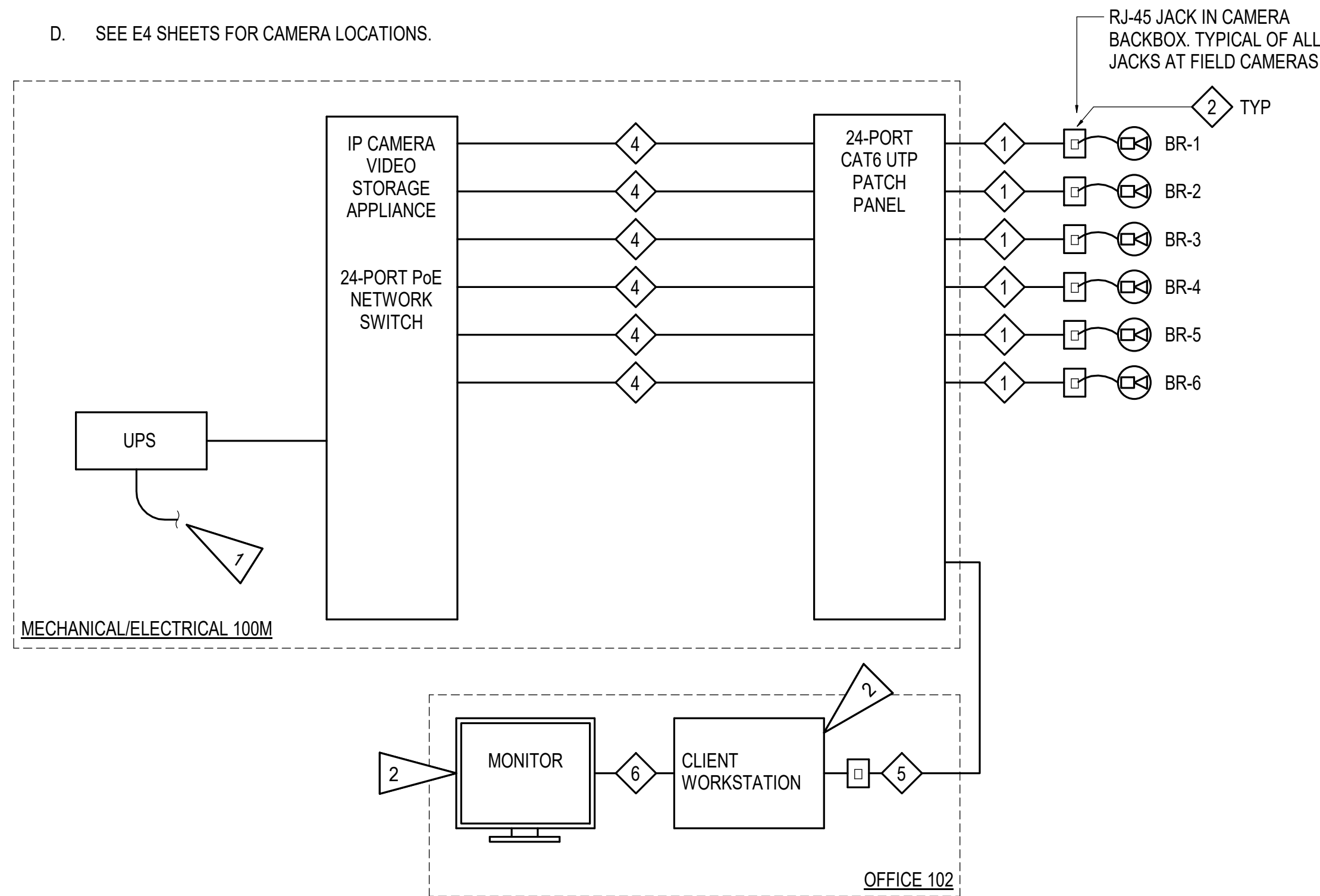
1 ACCESS CONTROL RISER DIAGRAM
NO SCALE

GENERAL NOTES:

- COORDINATE WITH IP CAMERA MANUFACTURER FOR INSTRUCTIONS AND RECOMMENDATIONS PRIOR TO ROUGH-IN.
- PROVIDE CONDUIT, WIRE, AND OTHER ACCESSORIES AS REQUIRED FOR A COMPLETE AND FUNCTIONAL IP CAMERA SYSTEM.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICTS.
- SEE E4 SHEETS FOR CAMERA LOCATIONS.

DETAIL NOTES: #

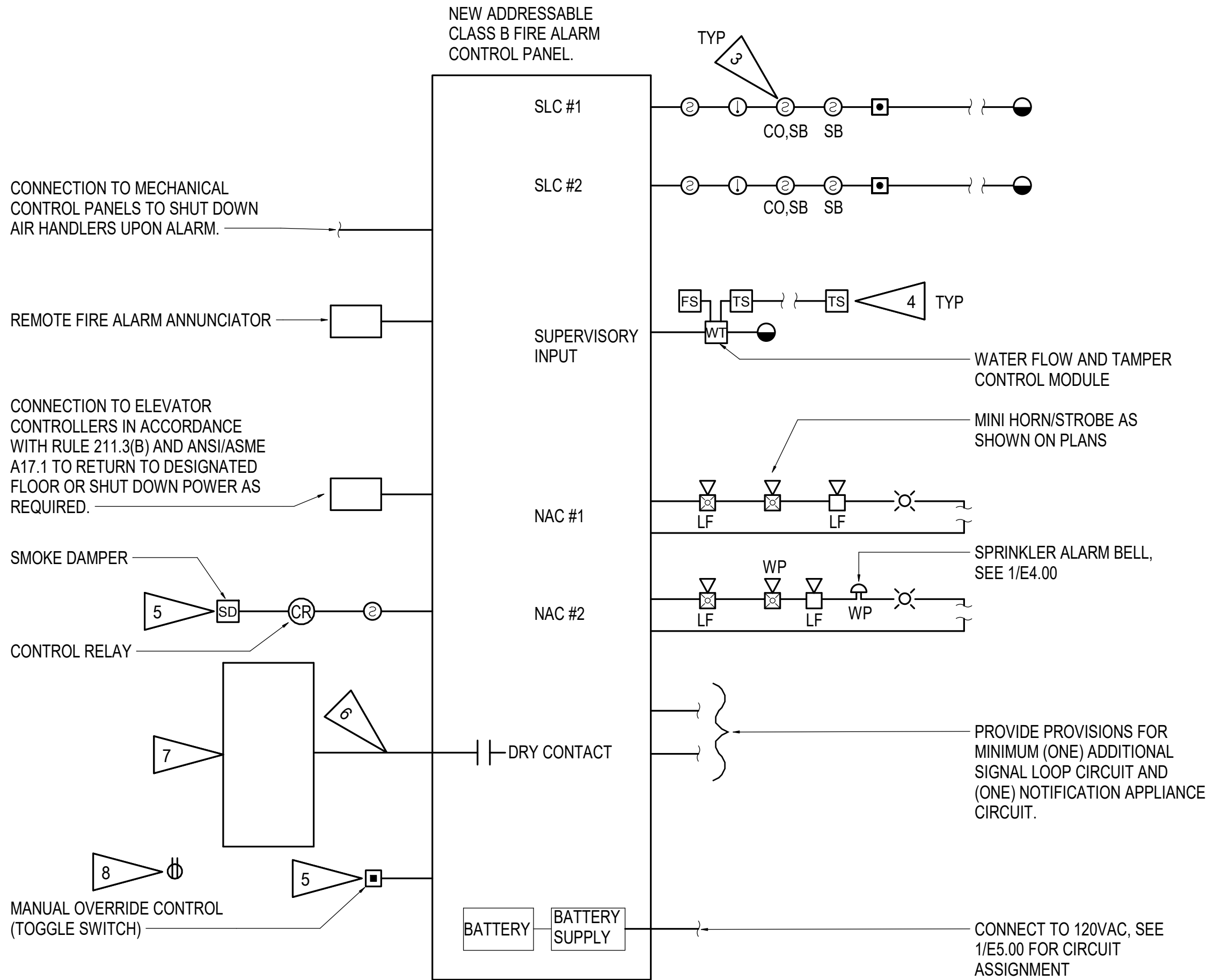
- PLUG EQUIPMENT INTO PLUG STRIP IN CABINET. SEE 1/E5.00 FOR LOCATION.
- EQUIPMENT IS OWNER FURNISHED OWNER INSTALLED.



2 VIDEO SYSTEM RISER DIAGRAM
NO SCALE

CAMERA SYSTEM CABLE SCHEDULE					
(ALL CABLES SPECIFIED IN SECTION 28 23 00)					
CABLE TAG	DESCRIPTION	CABLE TAG	DESCRIPTION	CABLE TAG	DESCRIPTION
1	CAMERA PoE CABLE, CAT 6 UTP	3	GIGABIT ETHERNET UPLINK PATCH CORD, CAT6 UTP	5	NETWORK HORIZONTAL CABLE, CAT6 UTP
2	CAMERA FIELD PATCH CORD, CAT6 UTP, LENGTH AS REQUIRED.	4	CROSS-CONNECT PATCH CORD, CAT6 UTP	6	NEW MONITOR CABLE, HDMI

IP SYSTEM CAMERA SCHEDULE				
CAMERA DESIGNATION	CAMERA LOCATION (SEE PLANS)	INTENDED COVERAGE AREA	CAMERA LENS FOCAL LENGTH	MOUNTING
BR-1	STAIR S2 - LEVEL 1	STAIR S2 - LEVEL 1 ENTRY/ECIT	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED
BR-2	REFUSE 100R	REFUSE 100R ENTRY/EXIT	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED
BR-3	CIRCULATION 100C - SOUTH EAST	STAIR S2 ENTRY/EXIT INTO CIRCULATION 100C	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED
BR-4	VESTIBULE 100V	VESTIBULE ENTRY/EXIT	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED
BR-5	LOBBY 100	ELEVATOR E1, AND STAIRWELL S01 ENTRY/EXIT	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED
BR-6	MECHANICAL/ELECTRICAL 100M	MECHANICAL/ELECTRICAL 100M ENTRY/EXIT	WIDE VIEW FIXED FOCAL LENGTH	SURFACE CEILING-MOUNTED



DETAIL NOTES:

- SEE POWER AND SIGNAL SHEETS FOR EXACT NUMBER AND LOCATION OF ALL FIRE ALARM EQUIPMENT, DEVICES, ECT.
- SIZE CONDUIT AND WIRES IN ACCORDANCE WITH FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS AND SPECIFICATIONS.
- COORDINATE INSTALLATION OF SMOKE DETECTORS WITH AIR SUPPLY AND RETURN DIFFUSERS TO MAINTAIN A MINIMUM 36" SEPARATION PER NFPA 72 REQUIREMENTS.
- EXACT NUMBER OF FLOW AND TAMPER SWITCHES TO BE DETERMINED BY SPRINKLER SUPPLIER. FIELD COORDINATE WITH SPRINKLER INSTALLER PRIOR TO BIDDING FOR NUMBER AND LOCATION OF SWITCHES.
- CONNECTION TO THE SMOKE DAMPER TO OPEN UPON DETECTION OF SMOKE IN THE ELEVATOR SHAFT WHEN THE SMOKE DETECTOR (IN ELEVATOR SHAFT) GOES OFF OR A MANUAL OVERRIDE CONTROL IS ACTIVATED FOR VENTING SMOKE AND HOT GASES TO THE OUTSIDE AIR VIA CONTROL RELAY INTERFACE BETWEEN THE SMOKE DAMPER AND SMOKE DETECTOR. MANUAL OVERRIDE LOCATED AT THE FACP.
- PROVIDE 1/2"C, 6#18AWG STRANDED COPPER, INSULATED/FIRE RATED 600V CONDUCTORS FOR GUARDIAN WIRELESS FIRE ALARM MONITORING CONNECTION. COORDINATE WITH GUARDIAN FOR REQUIREMENT PRIOR TO ROUGH-IN.
- PROVIDE WIRELESS RADIO FIRE ALARM MONITORING PANEL, AES INTELLINET MODEL # 7788.
- SEE 1/E5.00 FOR CIRCUIT ASSIGNMENTS.

1 FIRE ALARM RISER DIAGRAM

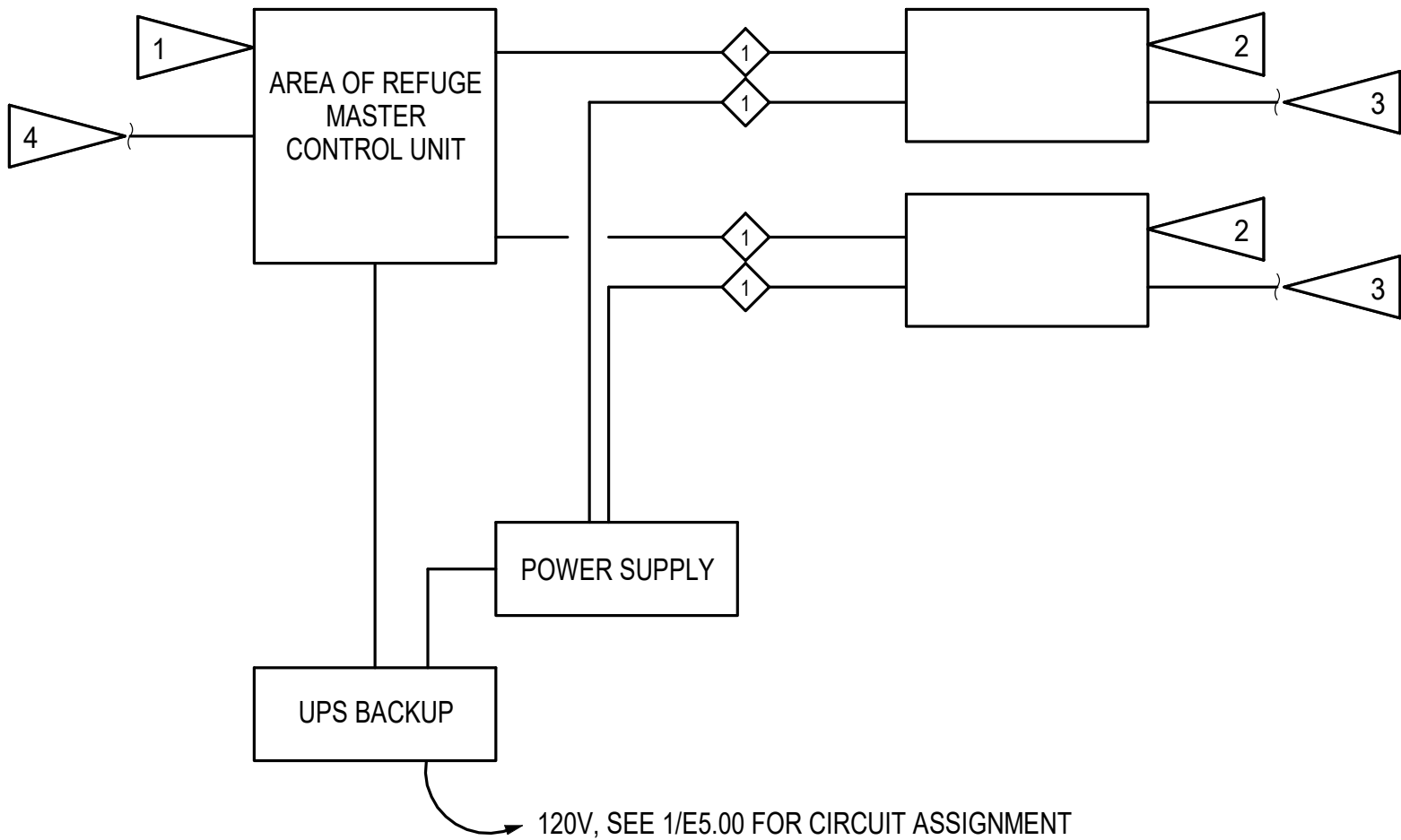
NO SCALE

DETAIL NOTES:

- MASTER CONTROL UNIT LOCATED AT 1ST FLOOR ELEVATOR LANDING. SEE 1/E4.00.
- AREA OF REFUGE CALL STATION (FLUSH-MOUNTED) WITH APPROPRIATE SIGNAGE. LOCATED AT 2ND AND 3RD FLOOR ELEVATOR LANDING. SEE 1/E4.01.
- CONNECT TO FIRE ALARM PANEL FOR NOTIFICATION UPON COMMUNICATION FAILURE.
- PROVIDE DEDICATED TELEPHONE CONNECTION. SEE 1/E1.02.

CABLE SCHEDULE

CABLE #	CONDUIT AND CABLE SIZES
1	3/4"C, 22AWG, 2-PAIR TWISTED SHIELD



2 AREA OF REFUGE SYSTEM RISER DIAGRAM

NOT TO SCALE

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CORPORATE NO.: AECC0412



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JOB NO.	M2169
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SHEET NAME
FIRE ALARM RISER DIAGRAM

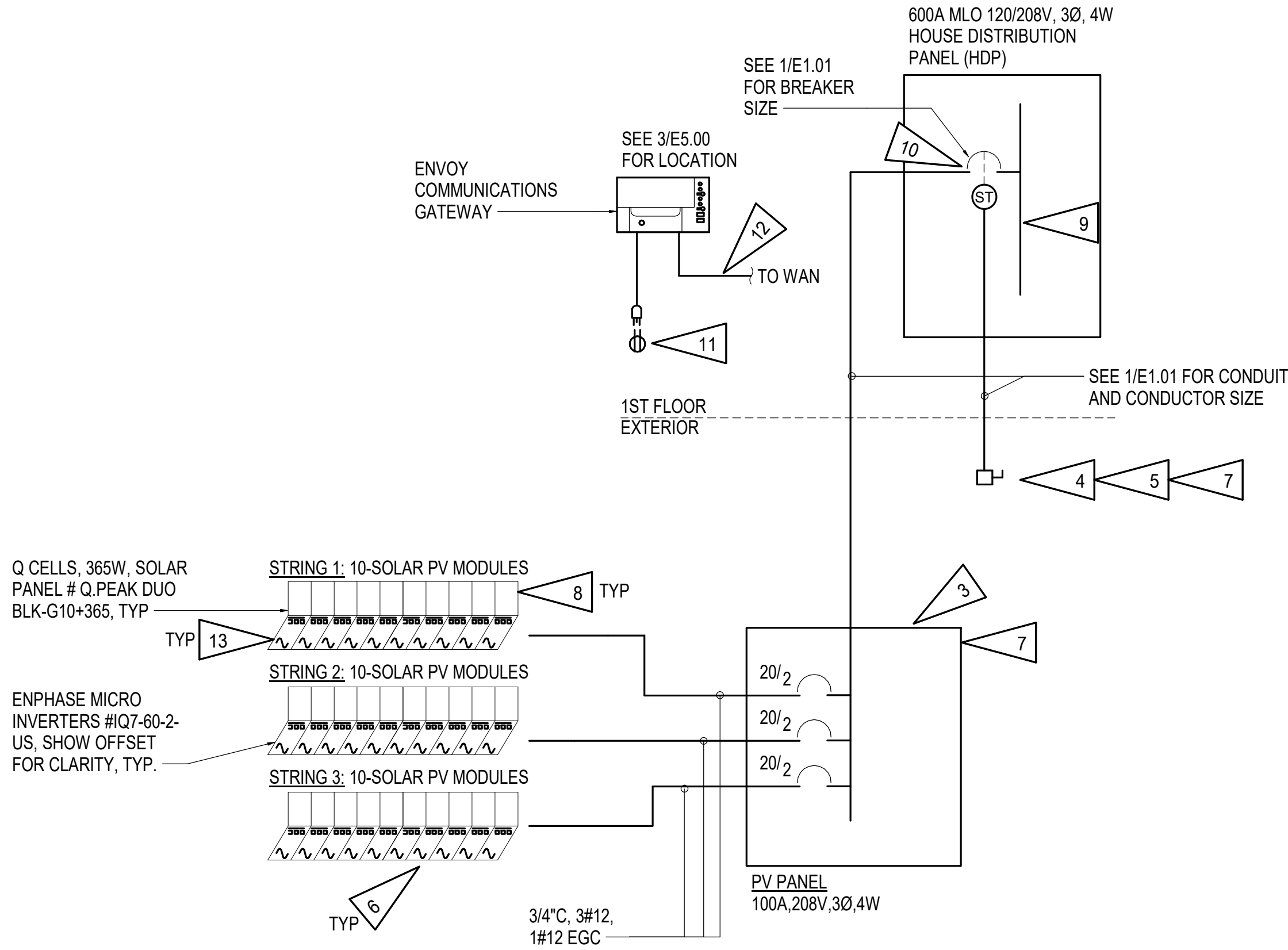
SHEET NO.
E1.04

GENERAL NOTES:

- A. COORDINATE WITH CEA FOR NET METERING REQUIREMENTS.
- B. PROVIDE CONDUIT, WIRES, AND OTHER APPURTENANCES AS REQUIRED TO PROVIDE POWER CONNECTION FROM ELECTRICAL SOURCE TO MECHANICAL EQUIPMENT, RECEPTACLES, ETC. PANELS AND CIRCUIT ASSIGNMENTS TO BE DETERMINED AT A LATER DATE.
- C. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICTS PRIOR TO ROUGH-IN.
- D. FIELD COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR FINAL LOCATIONS, SUPPORTING, AND BRACING PRIOR TO INSTALLING THE SOLAR PHOTOVOLTAIC (PV) SYSTEM.
- E. PV SYSTEM INSTALLER WILL BE RESPONSIBLE FOR THE FURNISHING OF AND INSTALLATION OF ALL RELATED EQUIPMENT, CABLES, ADDITIONAL CONDUITS, PV CIRCUIT COMBINERS, DEFERRED SUBMITTALS, BOXES, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL PV SYSTEM.
- F. AC AND DC SIDE GROUNDING ELECTRODE CONDUCTOR SHALL BE BONDED IN ACCORDANCE WITH NEC 690.47 AND MADE WITH IRREVERSIBLE CONNECTION PER NEC 250.64(C).
- G. BONDING JUMPER REQUIRED TO MAINTAIN CONTINUITY BETWEEN SOURCE OF OUTPUT CIRCUIT GROUNDING CONDUCTOR WHILE PV EQUIPMENT IS REMOVED PER NEC 690.41.
- H. ALL SYSTEMS, INCLUDING SUPPORT FRAME, SHALL BE GROUNDED IN ACCORDANCE WITH NEC 690.43.
- I. CONDUIT SHALL BE USED FOR PV SOLAR SYSTEM.
- J. SOLAR PV SYSTEM: BASE OF DESIGN AND CONFIGURATION IS BASED ON Q CELLS AND ENPHASE MANUFACTURERS.
- K. MICROINVERTER PROVIDED WITH BUILT-IN RAPID SHUTDOWN IN COMPLIANCE WITH NEC 690.12 FOR DC SIDE PROTECTION.

SHEET NOTES:

1. SOLAR PHOTOVOLTAIC (PV) SYSTEM: SOLAR PV MODULE PANELS AND THEIR ASSOCIATED MICROINVERTERS SHALL BE WIRED IN 3 STRINGS CONSISTING OF 10 SOLAR PV MODULE PANELS EACH. THE MICROINVERTERS FOR SOLAR PV MODULE PANELS ARE WIRED IN PARALLEL.
2. SYSTEM OF DESCRIPTION: THE LAYOUT AS SHOWN IS GENERIC. THE CONTRACTOR SHALL PROVIDE A BALANCED LAYOUT PER MANUFACTURER RECOMMENDATIONS. BRANCH POWER CONNECTIONS SHALL BE MADE IN THE MIDDLE OF THE PV CIRCUITS TO ENSURE BALANCED DISTRIBUTION. THE SOLAR PV ARRAY SYSTEM CONSISTS OF (30) 450 WATT PV MODULE PANELS. THE HOUSE ARRAY HAS A CAPACITY OF 13.5KW OR INVERTER AC CAPACITY. OUTPUT FROM MICROINVERTERS SHALL BE COMBINED IN THE AC PANEL, THEN INTERCONNECTED WITH THE GRID POWER IN ACCORDANCE WITH NEC 690.59. THE COMPLETE PV SYSTEM DESCRIBED HEREIN SHALL BE INSTALLED AND COMMISSIONED SUCH THAT IT OPERATES AUTOMATICALLY AS FOLLOWS:
- A. WHEN GRID POWER IS PRESENT, SOLAR POWER RUNS LOADS ON SITE DURING THE DAY.
- B. WHEN GRID POWER FAILS, THE PV SYSTEM SHALL DISCONNECT FROM THE GRID.
- C. THE PV SYSTEM SHALL AUTOMATICALLY RESUME SUPPLYING POWER TO THE GRID WHEN THE PROPER VOLTAGE AND FREQUENCY IS RESTORED AND THERE IS SUFFICIENT SUNLIGHT.
3. SOLAR DISTRIBUTION PANEL. PROVIDE A PLACARD, MINIMUM 1" X 4", WITH UV RESISTANT WHITE LETTERS ON RED BACKGROUND TO READ: "SOLAR PHOTOVOLTAIC POWER SYSTEM EMERGENCY DC DISCONNECT" PER NEC 690.13.
4. PROVIDE A NEMA 3R 30A NON-FUSED DISCONNECT WITH AUXILIARY CONTACTS, SHUNT TRIP AC SOLAR PV DISCONNECT. CONNECT TO OPEN CIRCUIT (IN PANEL "HDP") UPON ACTIVATION OF SHUNT TRIP AC SOLAR PV DISCONNECT. PROVIDE A PLACARD, MINIMUM 1" X 4", WITH UV RESISTANT WHITE LETTERS ON RED BACKGROUND TO READ: "SOLAR PHOTOVOLTAIC POWER SYSTEM AC DISCONNECT" PER NEC 690.13.
5. THE SHUNT TRIP AC SOLAR PV DISCONNECT SHALL ALSO BE LABELED WITH "WARNING! - ELECTRICAL SHOCK HAZARD - DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION" PER NEC 690.13. LABEL SHALL BE UV RESISTANT, AND LETTER SHALL BE CAPITALIZED AND SHALL BE A MINIMUM HEIGHT OF 3/8" WHITE LETTERS ON RED BACKGROUND.
6. MICRO-INVERTERS ARE MOUNTED ON THE BACK OF THE SOLAR PV MODULE PANEL.
7. THE SOLAR PV DISTRIBUTION PANEL AND SOLAR DISCONNECT SWITCH WILL BE LOCATED ADJACENT TO THE BUILDING SERVICE DISCONNECT SWITCH. SEE 1/E1.00 FOR LOCATION.
8. PROVIDE AC POWER CONNECTIONS, ENPHASE Q CABLE #Q-12-RAW-200, CONNECTORS #Q-CONN-M/F AND ACCESSORIES AS REQUIRED. FIELD COORDINATE WITH SOLAR PV SYSTEM INSTALLER FOR EXACT PANEL CONFIGURATION AND MANUFACTURER PRIOR TO ORDERING ENGAGE CABLE SYSTEM AND ACCESSORIES.
9. POINT OF CONNECTION BUSBAR (NEC 705.12): WHERE UTILITY-INTERACTIVE PV INVERTERS ARE CONNECTED TO ANOTHER POWER SYSTEM, THE BUSBAR OF THE CONNECTION POINT PANEL NEEDS TO SIZED PROPERLY TO HANDLE POWER FROM MULTIPLE SOURCES. ONE OF THE ALLOWED METHODS SHALL BE USED TO DETERMINED THE RATINGS OF BUSBARS IN PANELBOARD AS FOLLOW:
- A. PANELBOARD BUS MUST NOT BE LESS THAN THE AMPERE RATING OF THE OVERCURRENT DEVICE PROTECTING (OCPD) THE PANELBOARD BUSBAR PLUS 125% OF INVERTER AC OUTPUT.
- B. IF THE INVERTER AC OUTPUT CIRCUIT BREAKER(S) ARE LOCATED AT THE OPPOSITE END OF THE FEEDER TERMINATION ON THE PANELBOARD BUSBAR, THE AMPERE RATING OF THE OCPD PANELBOARD BUSBAR PLUS 125% OF INVERTER OUTPUTS MUST NOT EXCEED 120% OF THE AMPERE RATING OF PANELBOARD BUSBAR.
- C. THE SUM OF ALL AMPERE RATING OF ALL OCPD IN PANELBOARD SHALL NOT EXCEED THE AMPERE RATING OF PANELBOARD BUSBAR.
- D. METHOD 'B' IS UTILIZED FOR THIS PROJECT.
10. INVERTER OCPD IS SIZED AT 125% OF INVERTER AC OUTPUT RATING PER NEC 705.12(B). THE CIRCUIT BREAKER MUST BE SUITABLE FOR BACKFEED USE AND NOT HAVE "LINE/LOAD" TERMINAL MARKINGS. PER NEC 710.15(F).
11. DUPLEX RECEPTACLE FOR SOLAR ENVOY COMMUNICATIONS GATEWAY CONNECTION. SEE 3/E5.00 FOR LOCATION.
12. PROVIDE WAN CONNECTION FOR REMOTE MONITORING. OWNER WILL PROVIDE SERVICE VIA LOCAL INTERNET SERVICE PROVIDER. COORDINATE CONNECTION REQUIREMENTS AND LOCATION ONCE SERVICE IS ESTABLISHED.
13. PROVIDE DC POWER CONNECTIONS TO SOLAR PANEL. COORDINATE WITH SUNPOWER FOR CONNECTIONS.



1 SOLAR PV SYSTEM 'A' ONE-LINE DIAGRAM
NO SCALE



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SHEET NAME
SOLAR PHOTOVOLTAIC (PV)
SYSTEM AND PV ONE-LINE
DIAGRAM

SHEET NO.
E1.05

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SHEET NAME
AUDIO INTERCOM ONE-LINE
DIAGRAM

SHEET NO.
E1.06

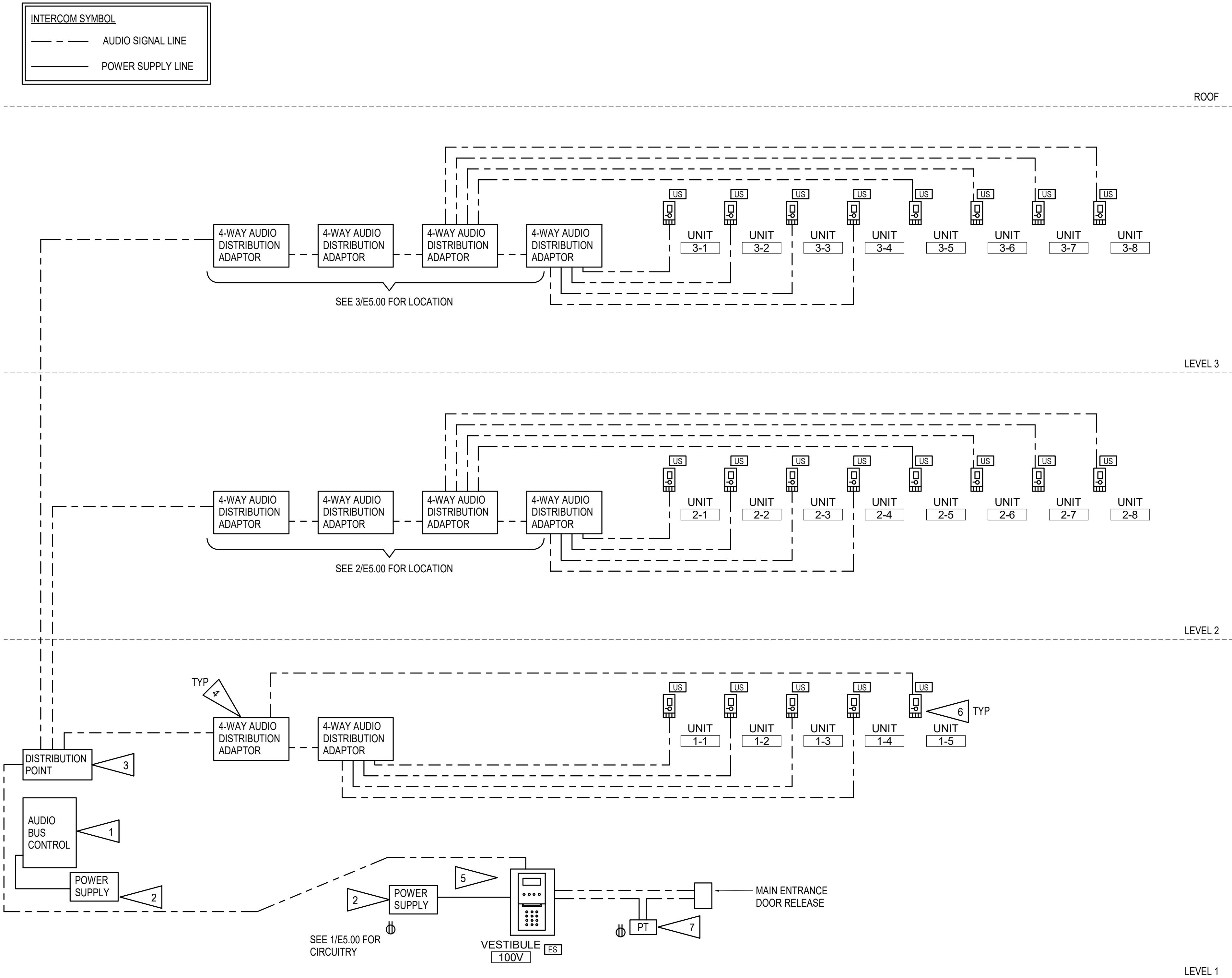
RSA Engineering, Inc.
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Corporate No.: AECC0442

GENERAL NOTES:

- COORDINATE WITH VIDEO INTERCOM MANUFACTURER FOR INSTRUCTIONS, REQUIREMENTS, AND RECOMMENDATIONS FOR WIRE TYPE PRIOR TO ROUGH-IN AND ORDERING.
- PROVIDE CONDUIT, WIRES, AND OTHER APPURTENANCES AS REQUIRED FOR A COMPLETE INSTALLATION OF AUDIO INTERCOM SYSTEM.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICTS.
- SEE E4-SERIES FOR INTERCOM SYSTEM DEVICES.

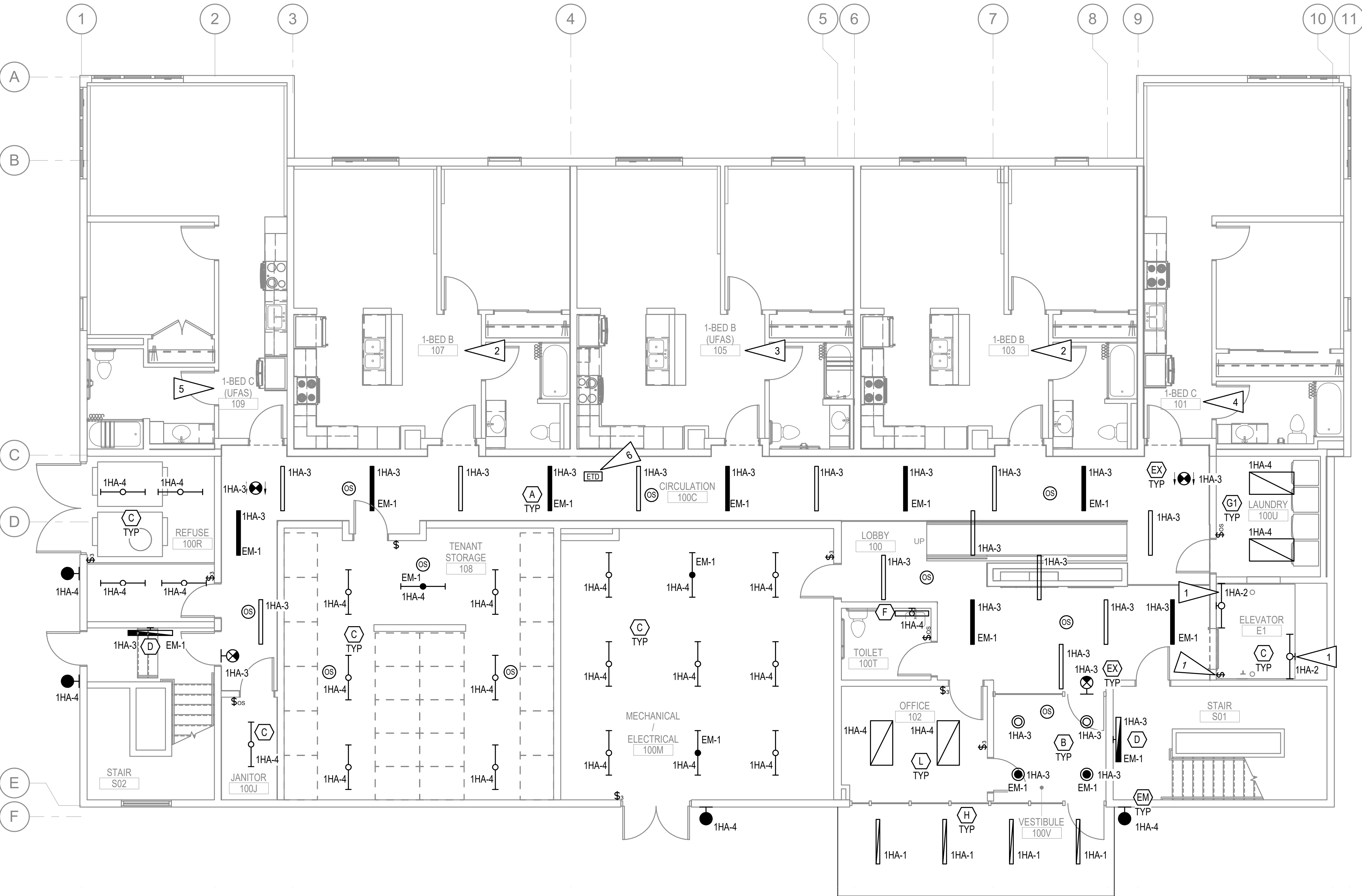
SHEET NOTES:

- AUDIO BUS CONTROL UNIT, AIPHONE #GT-BC OR APPROVED EQUAL. LOCATE IN FIRST FLOOR ELEC 100M. SEE 1/E5.00.
- 125W, 120V POWER SUPPLY WITH CORD AND PLUG FOR VIDEO INTERCOM SYSTEM, AIPHONE #PS-2420UL OR APPROVED EQUAL. LOCATE IN FIRST FLOOR ELEC 100M. SEE 1/E5.00.
- DISTRIBUTION POINT, AIPHONE #R1/R2 OR APPROVED EQUAL. LOCATE IN FIRST FLOOR ELEC 100M. SEE 1/E5.00.
- 4-WAY VIDEO DISTRIBUTION ADAPTOR, AIPHONE #GT-4Z OR APPROVED EQUAL. LOCATE IN FIRST FLOOR ELEC 100M. SEE 1/E5.00.
- AUDIO ENTRANCE STATION WITH DIGITAL DIRECTOR, AND 10-KEY KEYPAD, AIPHONE #GTA-DESB OR APPROVED EQUAL. SEE 1/E4.00.
- AUDIO TENANT STATION, AIPHONE #GT-1A OR APPROVED EQUAL. SEE DETAILS 1, 2, AND 3 ON E4.02.
- PROVIDE DOOR RELEASE CONNECTION BETWEEN AIPHONE SYSTEM AND DOOR HARDWARE. COORDINATE WITH DOOR HARDWARE PRIOR TO ROUGH-IN.



1 INTERCOM ONE-LINE DIAGRAM

NO SCALE



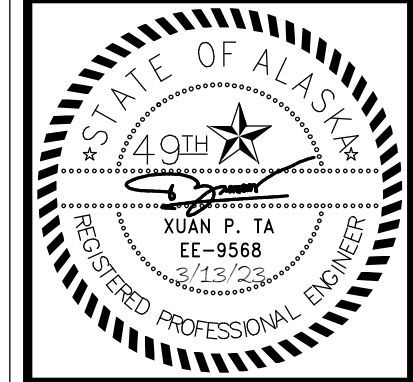
1 LEVEL 1 - LIGHTING PLAN
3/16" = 1'-0"

GENERAL NOTES:

- A. PROVIDE CONDUIT, WIRES, AND OTHER APPURTENANCES AS REQUIRED TO PROVIDE CONNECTION FROM ELECTRICAL SOURCE TO MECHANICAL EQUIPMENT, RECEPTACLES, ETC. PANELS AND CIRCUIT ASSIGNMENTS SHALL BE DETERMINED AT A LATER DATE.
- B. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS PRIOR TO ROUGH-IN.
- C. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL CONDUCTOR.
- D. PROVIDE CONNECTION OF UN-SWITCHED LEG OF LOCAL LIGHTING CIRCUIT TO EMERGENCY LIGHTS AND EXIT SIGNS.
- E. STAIRWAY AND CORRIDOR LIGHTS WILL BE ALWAYS ON. PROVIDE DUAL TECHNOLOGY OCCUPANCY CONTROLLED DIMMING, CEILING MOUNT OCCUPANCY SENSOR, SENSOR SWITCH MODEL #CMR-PDT 9 D OR APPROVED EQUAL. CONNECT SO OCCUPANCY SENSOR WILL PROVIDE 100% LIGHT OUTPUT WHEN OCCUPIED AND WILL AUTOMATICALLY DIM TO 50% AFTER 15-MINUTES OF BEING UNOCCUPIED. STAIRWAY LIGHTS HAVE INTEGRAL PIR OCCUPANCY SENSORS.
- F. OCCUPANCY SENSORS ARE SHOWN TO INDICATE AREAS OF COVERAGE. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL LAYOUT AND DEVICE COUNT PRIOR TO BIDDING.
- G. METALLIC BOXES AND COVER PLATES SHALL BE USED IN FIRE-RESISTANT RATED ASSEMBLIES. OPENINGS AROUND ELECTRICAL PENETRATIONS. INTO OR THROUGH FIRE-RESISTANT-RATED WALLS, FLOOR OR CEILINGS SHOULD BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE-RESISTANT RATING. SEE ARCHITECTURAL DRAWINGS.
- H. PROVIDE ACOUSTICS-PUTTY PAD ON ALL SIDES OF JUNCTION BOXES AND/OR OUTLET BOXES LOCATED ON COMMON WALLS OF DWELLING UNITS.
- I. USE #10 AWG CU CONDUCTORS FOR COMMON AREA LIGHTING CIRCUIT.
- J. SEE E3.02 FOR ROOF LEVEL LIGHTING DEVICES.
- K. ROUTE EXTERIOR FIXTURES THROUGH LIGHTING CONTACTOR IN MECHANICAL/ELECTRICAL 100M, SEE 1/E5.00.
- L. ROUTE EM CIRCUITS THROUGH ETD.

SHEET NOTES: #

- 1. LIGHTS AND SWITCH LOCATED IN ELEVATOR PIT. COORDINATE WITH ELEVATOR SO AS NOT TO INTERFERE WITH ELEVATOR EQUIPMENT. LOCATE SWITCH WITHIN REACH OF ACCESS. WALL MOUNT ELEVATOR PIT LIGHTS 8'-6" AFG.
- 2. SEE 2/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORRED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- 3. SEE 3/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORRED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- 4. SEE 4/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORRED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- 5. SEE 5/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORRED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- 6. INSTALL ETD IN ACCESSIBLE CEILING. COORDINATE EXACT MOUNTING LOCATION OF ETD WITH OTHER TRADES TO AVOID OBSTRUCTIONS.



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DATE	2023.03.08
DRAWN	CS2
REVIEWED	XPT, TEH

SHEET NAME
LEVEL 1 - LIGHTING PLAN

SHEET NO.
E2.00

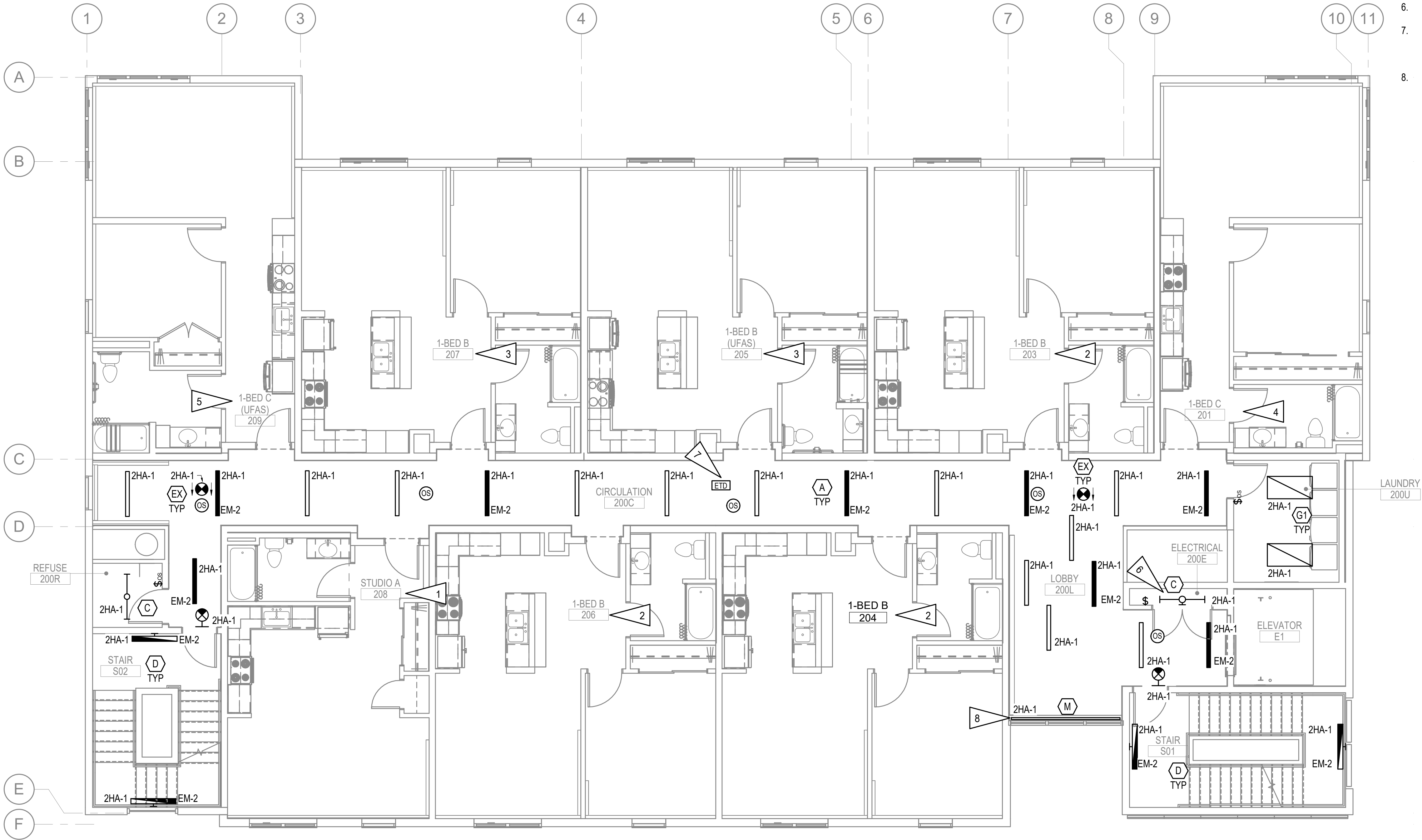
RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1000 Newholloway Drive Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042

GENERAL NOTES:

A. SEE E2.00 FOR GENERAL NOTES.

SHEET NOTES:

- SEE 1/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 2/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 3/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 4/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 5/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- MOUNT LIGHTING FIXTURE ABOVE DOOR.
- INSTALL ETD IN ACCESSIBLE CEILING. COORDINATE EACT MOUNTING LOCATION OF ETD WITH OTHER TRADES TO AVOID OBSTRUCTIONS.
- CONTRACTOR SHALL FIELD CUT LED TAPE LIGHT AND CHANNEL TO FIT ACTUAL COVE DIMENSIONS AND FIELD LOCATE REMOTE POWER SUPPLY ABOVE ACCESSIBLE CEILING.



1 LEVEL 2 - LIGHTING PLAN
3/16" = 1'-0"

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SHEET NAME
LEVEL 2 - LIGHTING PLAN

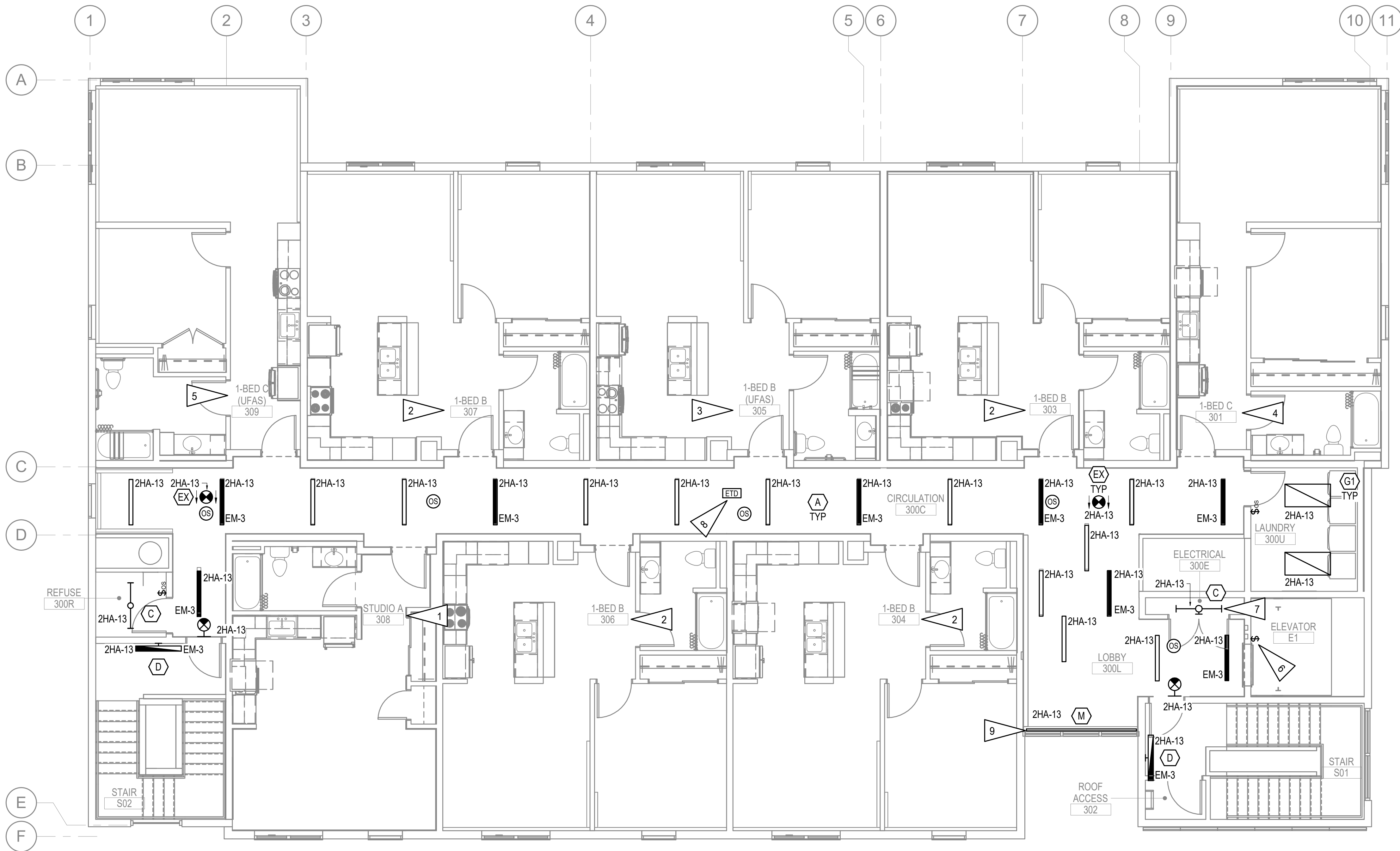
SHEET NO.
E2.01

GENERAL NOTES:

A. SEE E2.00 FOR GENERAL NOTES.

SHEET NOTES: #

- SEE 1/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 2/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 3/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 4/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- SEE 5/E2.03 FOR ENLARGED UNIT LIGHTING PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR LIGHTING EQUIPMENT AS WELL.
- PROVIDE AND INSTALL TYPE 'C' FIXTURE AS SHOWN ON 1/E3.03 AND SWITCH AS SHOWN ON THIS PAGE. CONTINUE TO GFCI RECEPTACLE LOCATED IN ELEVATOR SHAFT. SEE 1/E3.02.
- MOUNT LIGHTING FIXTURE ABOVE DOOR.
- INSTALL ETD IN ACCESSIBLE CEILING. COORDINATE EACT MOUNTING LOCATION OF ETD WITH OTHER TRADES TO AVOID OBSTRUCTIONS.
- CONTRACTOR SHALL FIELD CUT LED TAPE LIGHT AND CHANNEL TO FIT ACTUAL COVE DIMENSIONS AND FIELD LOCATE REMOTE POWER SUPPLY ABOVE ACCESSIBLE CEILING.



1 LEVEL 3 - LIGHTING PLAN
3/16" = 1'-0"

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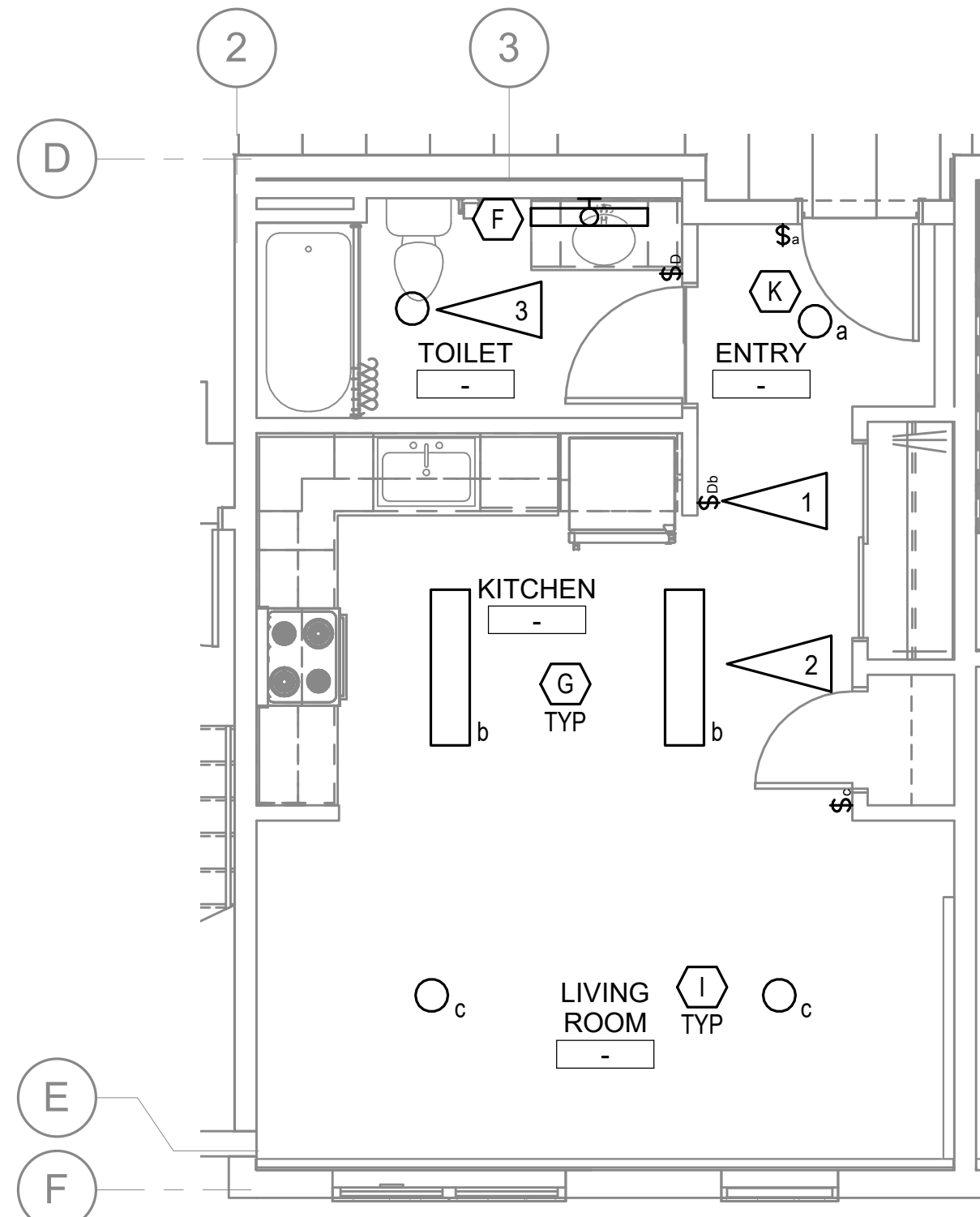
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REVISION SCHEDULE		
#	DESCRIPTION	DATE

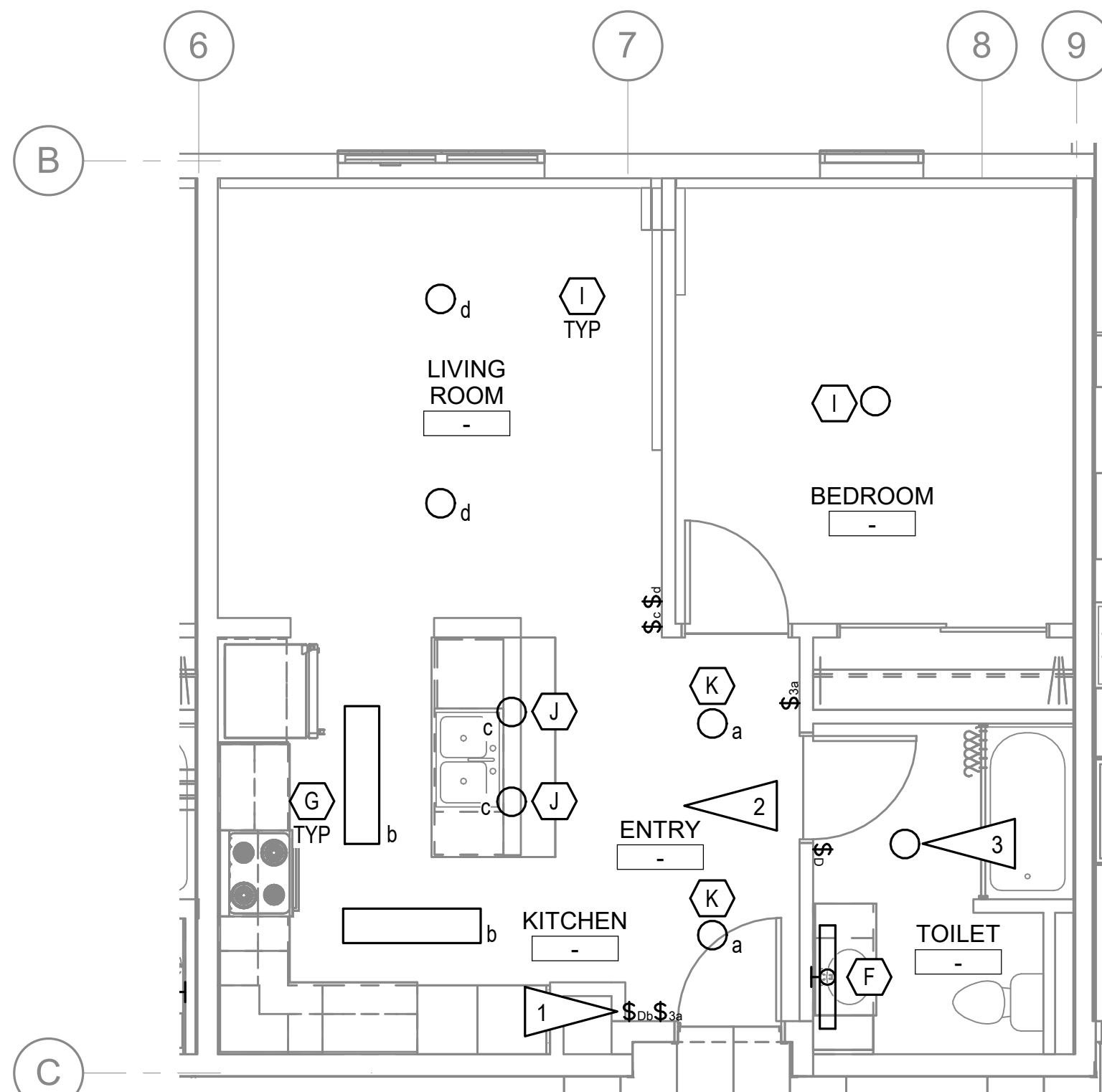
JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

SHEET NAME
LEVEL 3 - LIGHTING PLAN

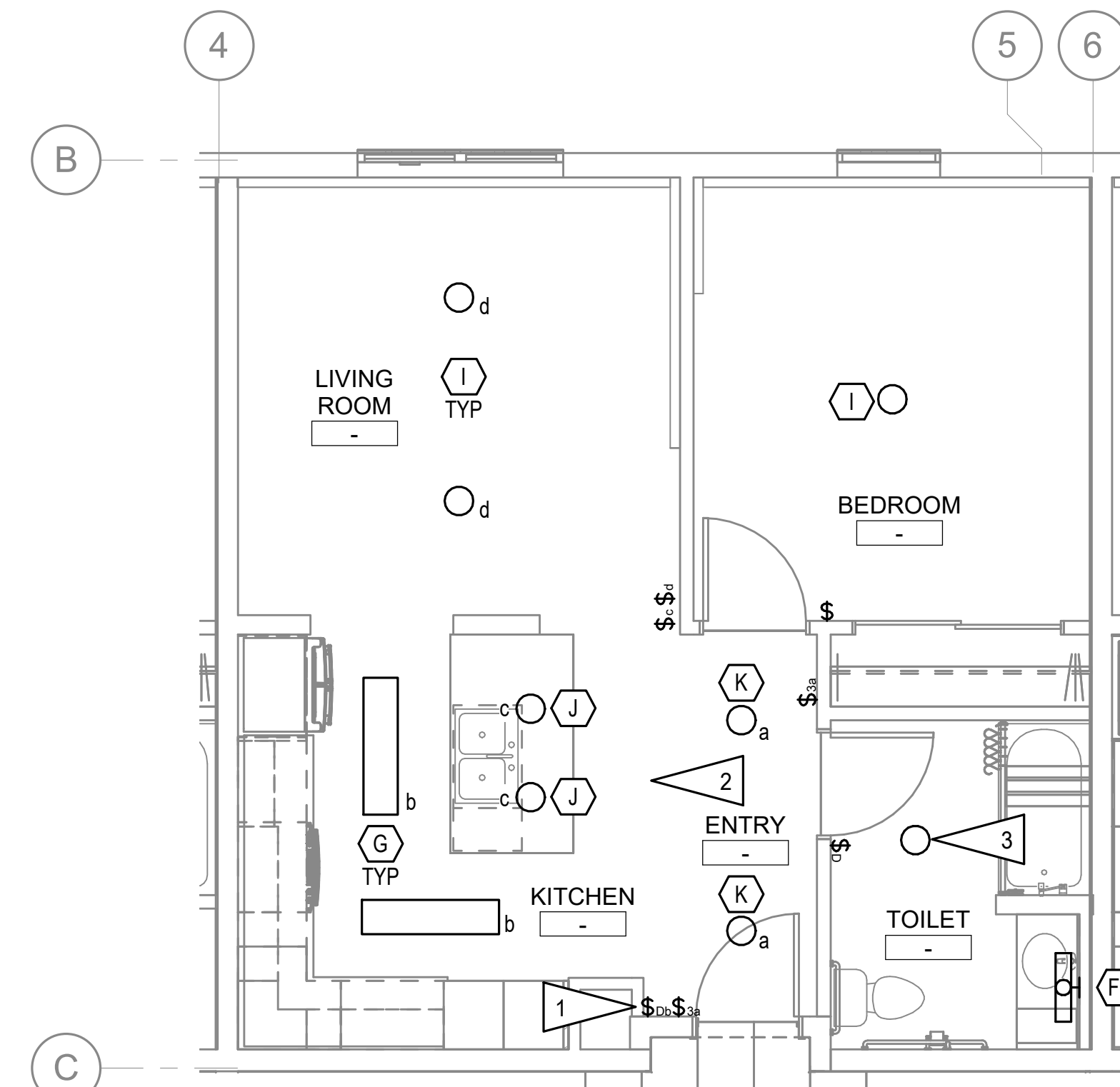
SHEET NO.
E2.02



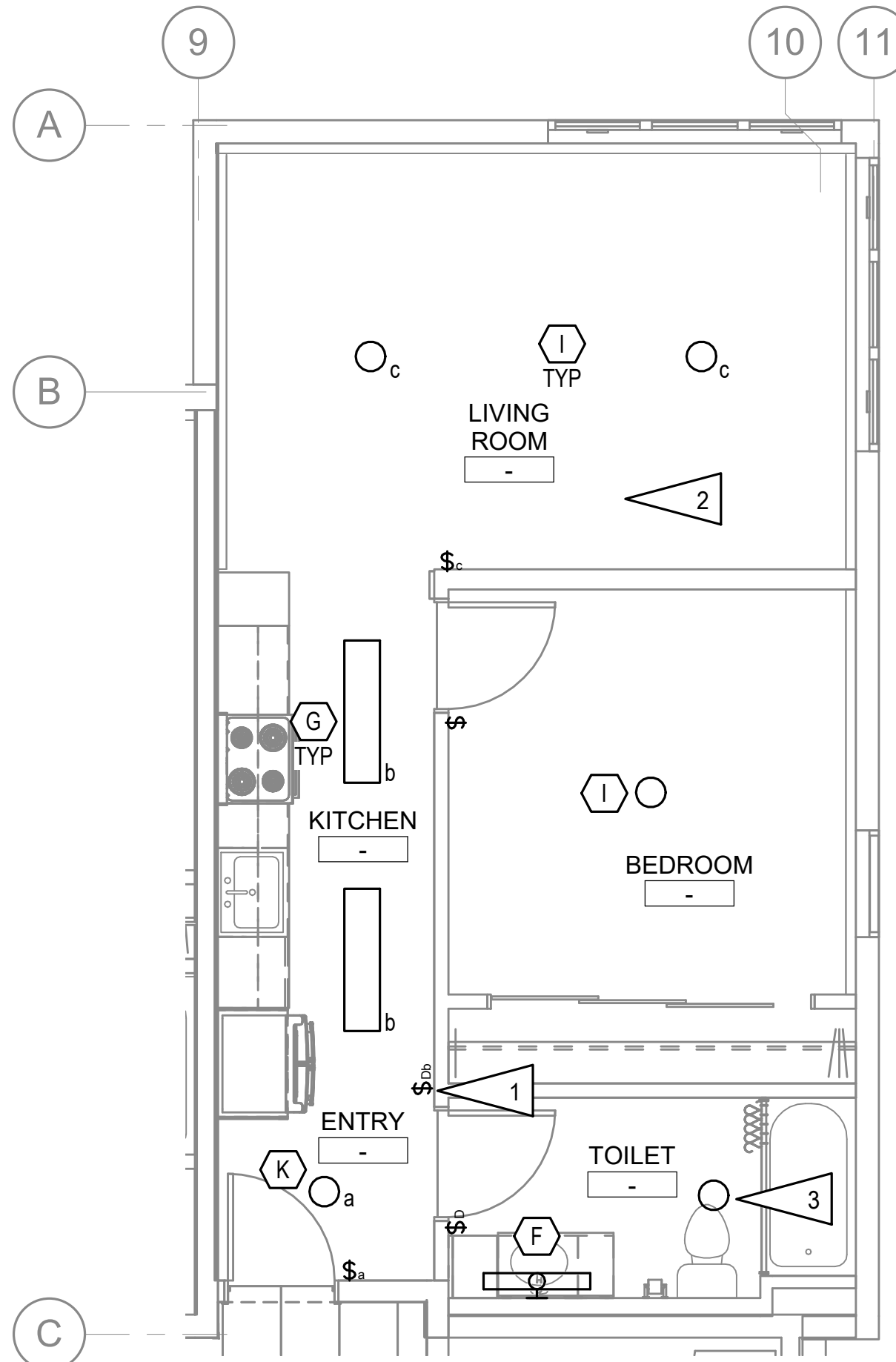
1 ENLARGED TYPE A UNIT LIGHTING PLAN
1/4" = 1'-0"



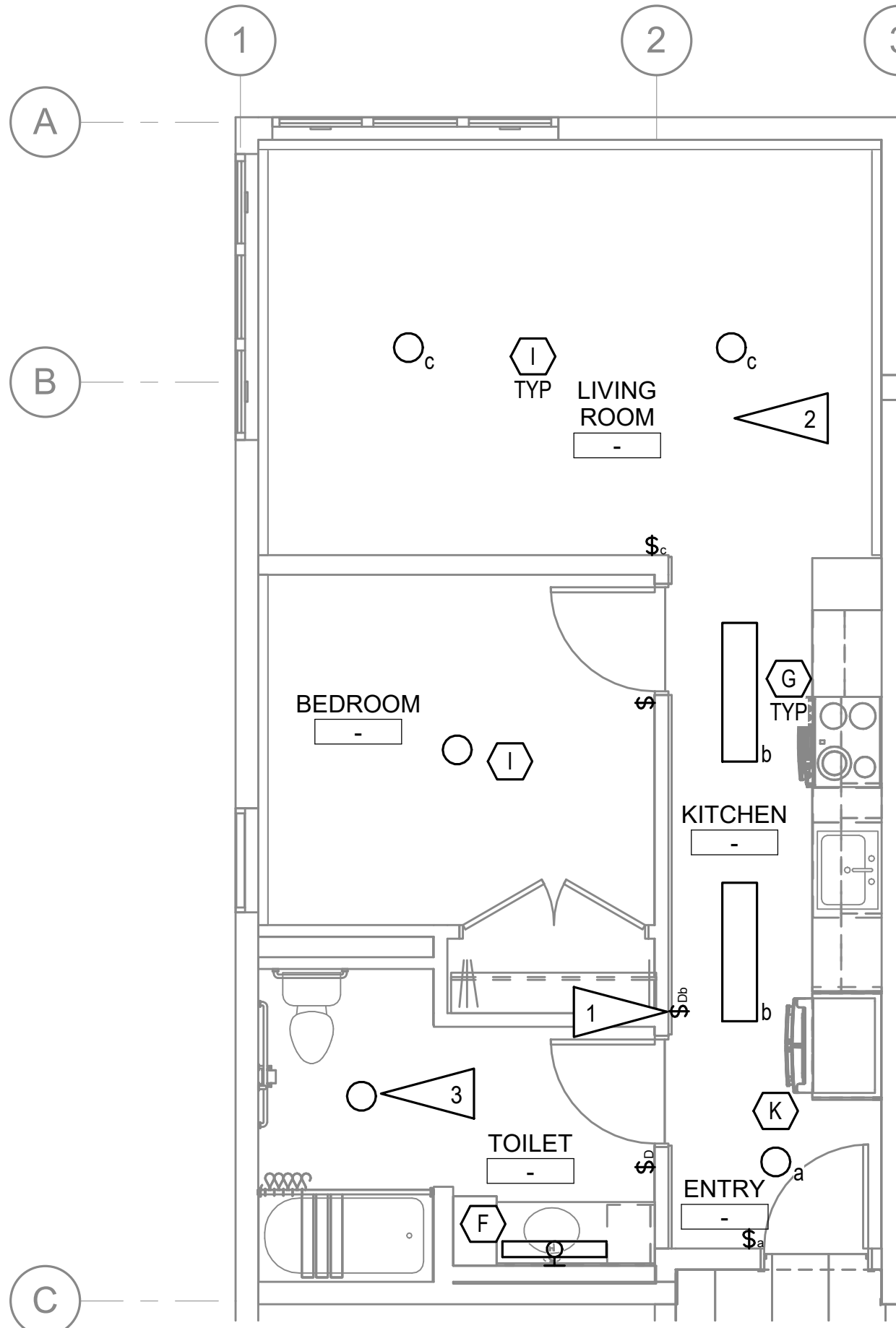
2 ENLARGED TYPE B UNIT - LIGHTING PLAN
1/4" = 1'-0"



3 ENLARGED TYPE B UNIT (UFAS) - LIGHTING PLAN
1/4" = 1'-0"



4 ENLARGED TYPE C UNIT - LIGHTING PLAN
1/4" = 1'-0"



5 ENLARGED TYPE C UNIT (UFAS) - LIGHTING PLAN
1/4" = 1'-0"

GENERAL NOTES:

A. SEE E2.00 FOR GENERAL NOTES.

SHEET NOTES:

1. PROVIDE 0-10V DIMMER SWITCH COMPATIBLE WITH LIGHT FIXTURE.
2. CONNECT LIGHTING TO CIRCUIT OF DWELLING UNIT LOAD CENTER CIRCUIT 1.
3. COMBINATION DIFFUSER/LIGHT UNIT SELECTION SPECIFIED BY MECHANICAL.

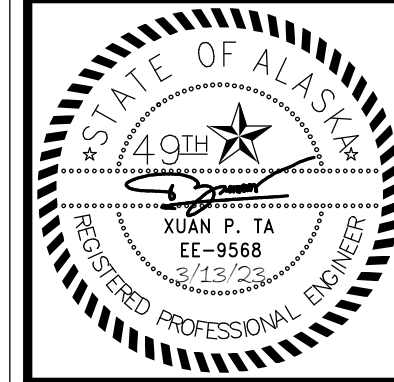
RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1001 E. Highway 12, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
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SHEET NAME
ENLARGED UNITS - LIGHTING
PLANS

SHEET NO.
E2.03



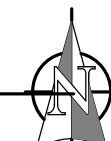
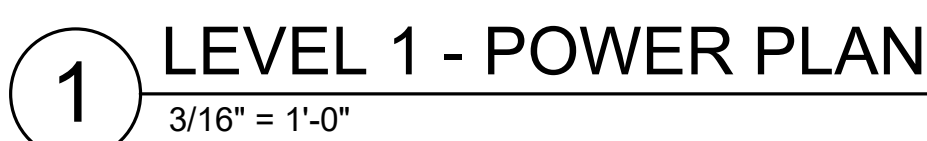
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A.	PROVIDE CONDUIT WIRE AND OTHER ACCESSORIES AS REQUIRED TO PROVIDE CONNECTION FROM ELECTRICAL SOURCES TO MECHANICAL, RECEPTACLES, ETC.	E.	METALLIC BOXES AND COVER PLATES SHALL BE USED IN FIRE-RESISTANT RATED ASSEMBLIES, OPENINGS AROUND ELECTRICAL PENETRATIONS, INTO OR THROUGH FIRE-RESISTANT RATED WALLS, METHODS TO MAINTAIN THE FIRE-RESISTANCE RATING. SEE ARCHITECTURAL DRAWINGS.
B.	CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICTS PRIOR TO ROUGH-IN.	F.	COORDINATE EXACT NEMA PLUG CONFIGURATION FOR ALL SPECIALITY EQUIPMENT CORD AND PLUG CONFIGURATIONS WITH EQUIPMENT SUPPLIER PRIOR TO ORDERING.
C.	PROVIDE DEDICATED NEUTRAL CONDUCTORS FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL CONDUCTOR.	G.	PROVIDE ACOUSTICS-PUTTY PAD ON ALL SIDES OF JUNCTION BOXES AND/OR OUTLET BOXES LOCATED ON COMMON WALLS OF DWELLING UNITS.
D.	FIELD-COORDINATE WITH MECHANICAL EQUIPMENT, PIPING, DUCTWORK, ETC. PRIOR TO ROUGH-IN OF ELECTRICAL DEVICES (SUCH AS COMBINATION DISCONNECT/MAGNETIC MOTOR STARTERS, DISCONNECT SWITCHES, ETC.) TO MAINTAIN WORKING CLEARANCE IN FRONT OF ELECTRICAL DEVICES. PROVIDE STEEL CHANNEL SUPPORT AS REQUIRED FOR MOUNTING ELECTRICAL DEVICES TO THE MECHANICAL EQUIPMENT ENCLOSURE.	H.	PROVIDE REMOTE DRIVERS FOR TYPE 'A' FIXTURES IN ACCESSIBLE CEILING AS REQUIRED. FIELD COORDINATE EXACT MOUNTING LOCATION WITH OWNER/REPRESENTATIVE PRIOR.

1. SEE 2/E3.03 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
2. SEE 3/E3.03 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
3. JUNCTION BOX FOR FIRE ALARM REMOTE ANNUNCIATOR PANEL.
4. JUNCTION BOX FOR ELECTRIC DOOR OPERATOR CONNECTION. COORDINATE WITH ARCHITECTURAL AND SUPPLIED EQUIPMENT FOR EXACT CONNECTION LOCATIONS AND REQUIREMENTS.
5. PROVIDE STOP SWITCH IN ELEVATOR PIT TO REMOVE THE ELECTRIC POWER FROM THE ELEVATOR MOTOR AND BREAKER PER ASME A17.1 SECTION 2.2.6 AND 2.26.2.5. MOUNT SWITCH AT 18" ABOVE FLOOR LEVEL OF LANDING. EMERGENCY SWITCH SHALL BE MANUALLY OPERATED AND CLOSED TYPE. HAVE RED OPERATING HANDLES OR BUTTONS, LABELED "STOP" AND SHALL INDICATE THE "STOP" AND "RUN" POSITIONS. WHEN OPENED, AUDIBLE DEVICE SHALL SOUND PER ASME A17.1 SECTION 2.27.1.2.
6. RECEPTACLE LOCATED IN ELEVATOR PIT. COORDINATE HEIGHT WITH ELEVATOR MANUFACTURER REQUIREMENTS.
7. SIMPLEX RECEPTACLE FOR SP-1, 1/2HP, 120V. FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS PRIOR TO ROUGH-IN.
8. JUNCTION BOX FOR FIRE SMOKE DAMPER CONNECTION. FIELD LOCATE PRIOR TO ROUGH-IN.
9. JUNCTION BOX FOR OVERFLOW SCUPPER DS-1 HEAT TRACE. SEE MECHANICAL FOR INSTALLATION DETAIL. COORDINATE WITH MECHANICAL FOR EXACT LOCATION PRIOR TO ROUGH-IN. ROUTE THROUGH THERMOSTATIC HEAT TRACE CONTROLLER IN MECHANICAL 100M, SEE 1/E5.00.
10. PROVIDE A 30A NEMA 14-30R RECEPTACLE AND 1/2"C, 3#10, 1#10 GND HOMERUN TO PANEL '1HA'.
11. PROVIDE DUPLEX RECEPTACLE FOR DISPLAY. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH OWNER REPRESENTATIVE/PROJECT MANAGER PRIOR TO ROUGH-IN.
12. SEE 4/E3.03 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
13. SEE 5/E3.03 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
14. JUNCTION BOX FOR ROOF/OVERFLOW DRAIN HEAT TRACE BELOW CANOPY ON LEVEL 1. COORDINATE WITH MECHANICAL FOR EXACT LOCATION PRIOR TO ROUGH-IN. SEE MECHANICAL FOR INSTALLATION DETAIL. ROUTE THROUGH ROUTE THROUGH THERMOSTATIC HEAT TRACE CONTROLLER IN MECHANICAL 100M, SEE 1/E5.00.
15. RECEPTACLE FOR SP-1 OILTEMPER CONTROL PANEL AND REMOTE ALARM.



HALF SCALE WHEN PRINTED AT 11x17



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[illegible]

SHEET NAME
LEVEL 1 -POWER PLAN

HEET NO.

E3.00

R S A Engineering, Inc.
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6770 West Fireweed Lane, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AEECC542

GENERAL NOTES:

A. SEE E3.00 FOR GENERAL NOTES.

SHEET NOTES:

1.

SEE 1/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
2.

SEE 2/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
3.

SEE 3/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
4.

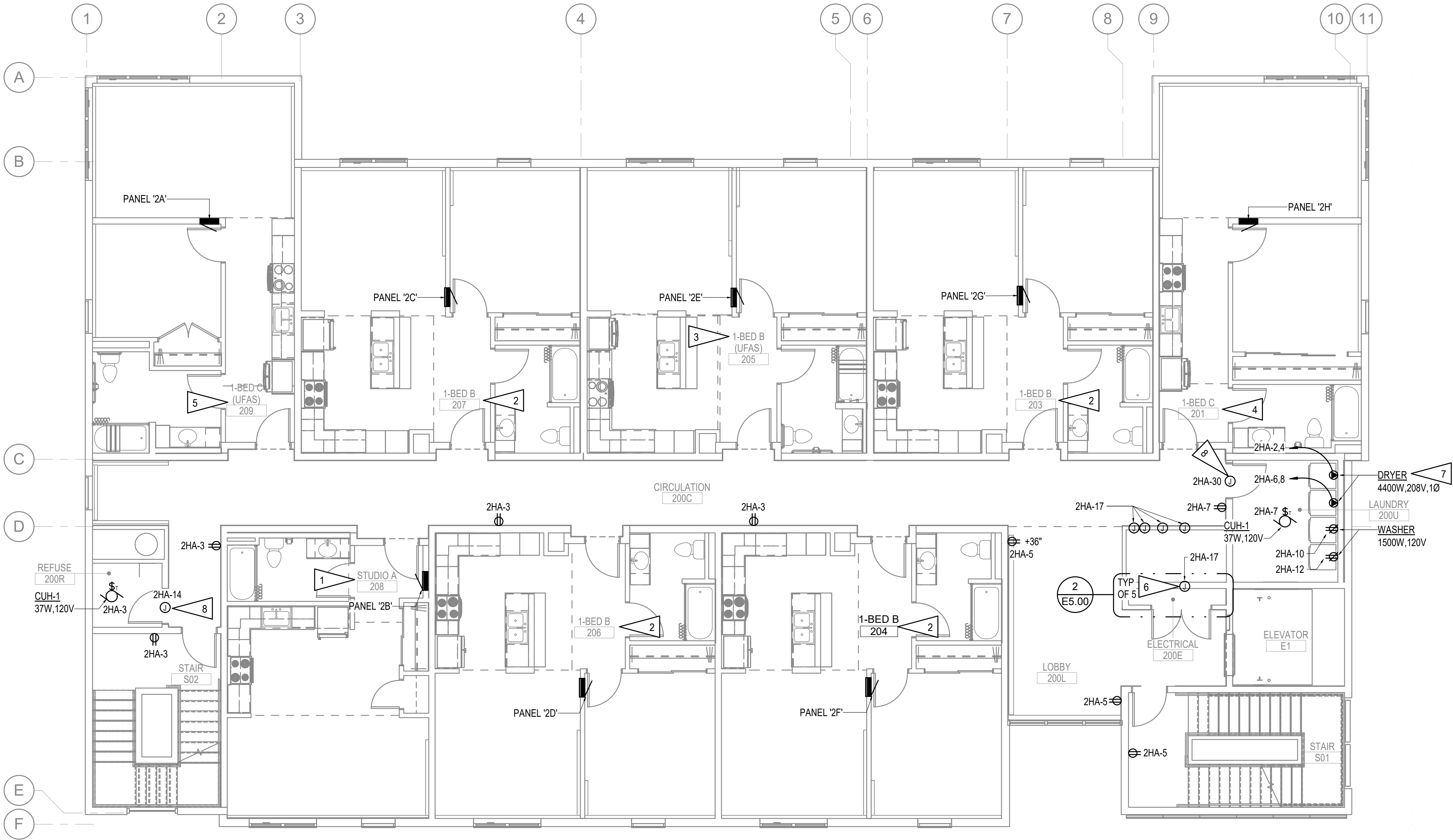
SEE 4/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
5.

SEE 5/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
6.

JUNCTION BOX FOR FIRE SMOKE DAMPER CONNECTION. FIELD LOCATE PRIOR TO ROUGH-IN.
7.

PROVIDE A 30A NEMA 14-30R RECEPTACLE AND 1/2" C, 3#10, 1#10 GND HOMERUN TO PANEL '2HA'.
8.

JUNCTION BOX FOR ELECTRIC DOOR OPERATOR CONNECTION. COORDINATE WITH ARCHITECTURAL AND SUPPLIED EQUIPMENT FOR EXACT CONNECTION LOCATIONS AND REQUIREMENTS.



1 LEVEL 2 - POWER PLAN
3/16" = 1'-0"



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SHEET NAME
LEVEL 2 - POWER PLAN

SHEET NO.
E3.01

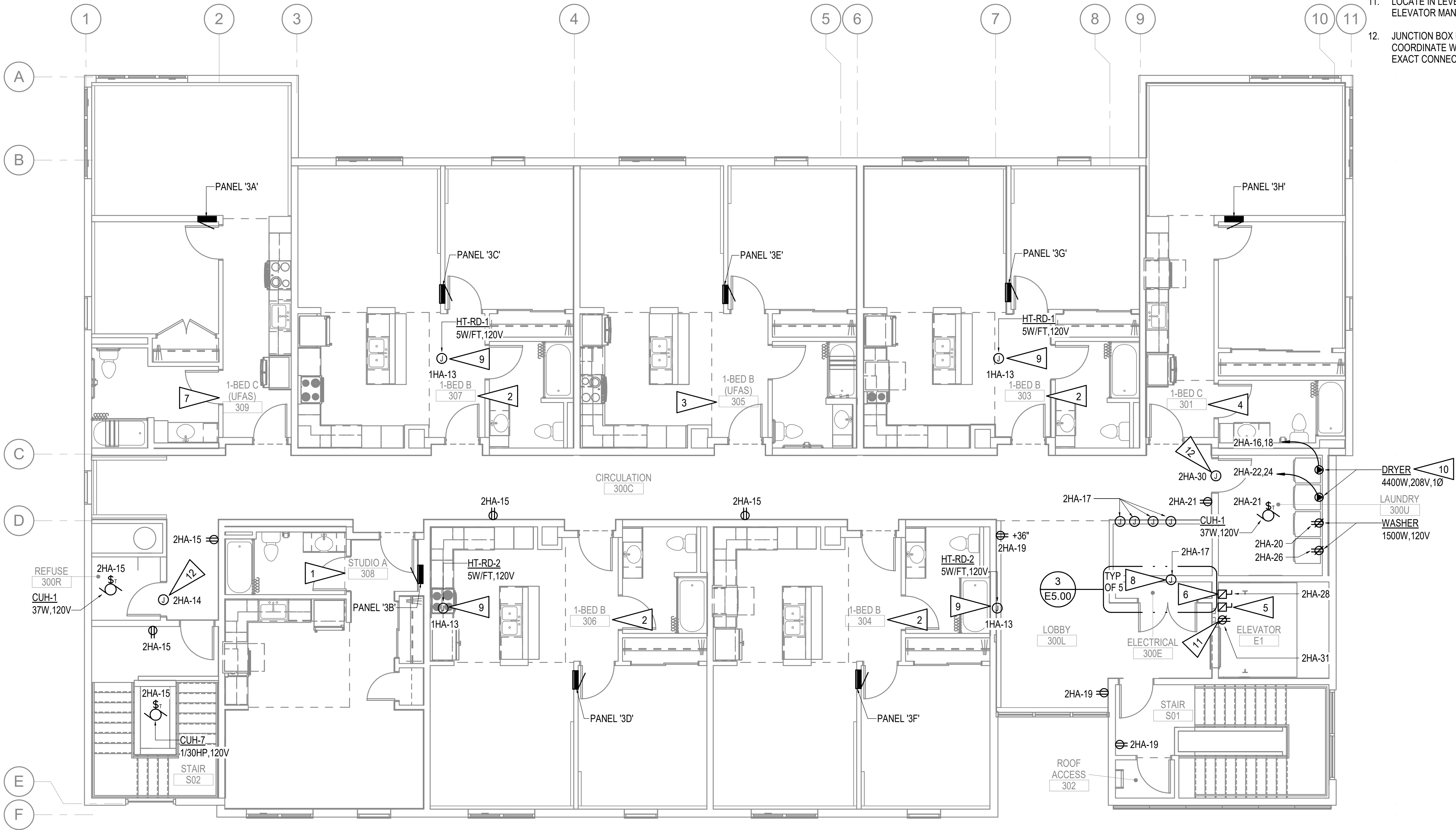
RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1000 West 12th Avenue, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042

GENERAL NOTES:

A. SEE E3.00 FOR GENERAL NOTES.

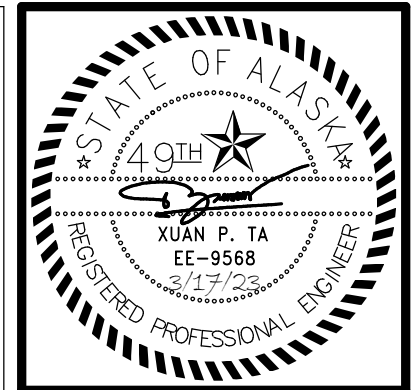
SHEET NOTES:

- SEE 1/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
- SEE 2/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
- SEE 3/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
- SEE 4/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
- LEVEL 3 - ELEVATOR SHAFT: PROVIDE CONNECTION FOR MACHINE ROOM-LESS ELEVATOR CONTROLLER. FUSED DISCONNECT SWITCH FOR ELEVATOR CONNECTION. CONTRACTOR TO INSTALL IN THE OTIS ACCESS DOOR SHROUD. SEE 1/E1.01.
- LEVEL 3 - ELEVATOR SHAFT: PROVIDE A 20A, 1P FUSED DISCONNECT SWITCH WITH A 15A FUSE FOR ELEVATOR CAR LIGHTS, AUXILIARY LIGHTING POWER SOURCE, AND VENTILATION. CONTRACTOR SHALL INSTALL IN THE OTIS ACCESS DOOR SHROUD.
- SEE 5/E3.04 FOR ENLARGED UNIT POWER PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR POWER EQUIPMENT AS WELL.
- JUNCTION BOX FOR FIRE SMOKE DAMPER CONNECTION. FIELD LOCATE PRIOR TO ROUGH-IN.
- JUNCTION BOX FOR ROOF/OVERFLOW DRAIN HEAT TRACE BELOW ROOF DECK ON LEVEL 3. COORDINATE WITH MECHANICAL FOR EXACT LOCATION PRIOR TO ROUGH-IN. SEE MECHANICAL FOR INSTALLATION DETAIL. ROUTE THROUGH ROUTE THROUGH THERMOSTATIC HEAT TRACE CONTROLLER IN MECHANICAL 100M, SEE 1/E5.00.
- PROVIDE A 30A NEMA 14-30R RECEPTACLE AND 1/2"C, 3#10, 1#10 GND HOMERUN TO PANEL '2HA'.
- LOCATE IN LEVEL 3 ELEVATOR SHAFT. FIELD COORDINATE WITH ELEVATOR MANUFACTURER FOR LOCATION PRIOR TO ROUGH-IN.
- JUNCTION BOX FOR ELECTRIC DOOR OPERATOR CONNECTION. COORDINATE WITH ARCHITECTURAL AND SUPPLIED EQUIPMENT FOR EXACT CONNECTION LOCATIONS AND REQUIREMENTS.



1 LEVEL 3 - POWER PLAN
3/16" = 1'-0"

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#	DESCRIPTION	DATE

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DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

SHEET NAME	LEVEL 3 - POWER PLAN
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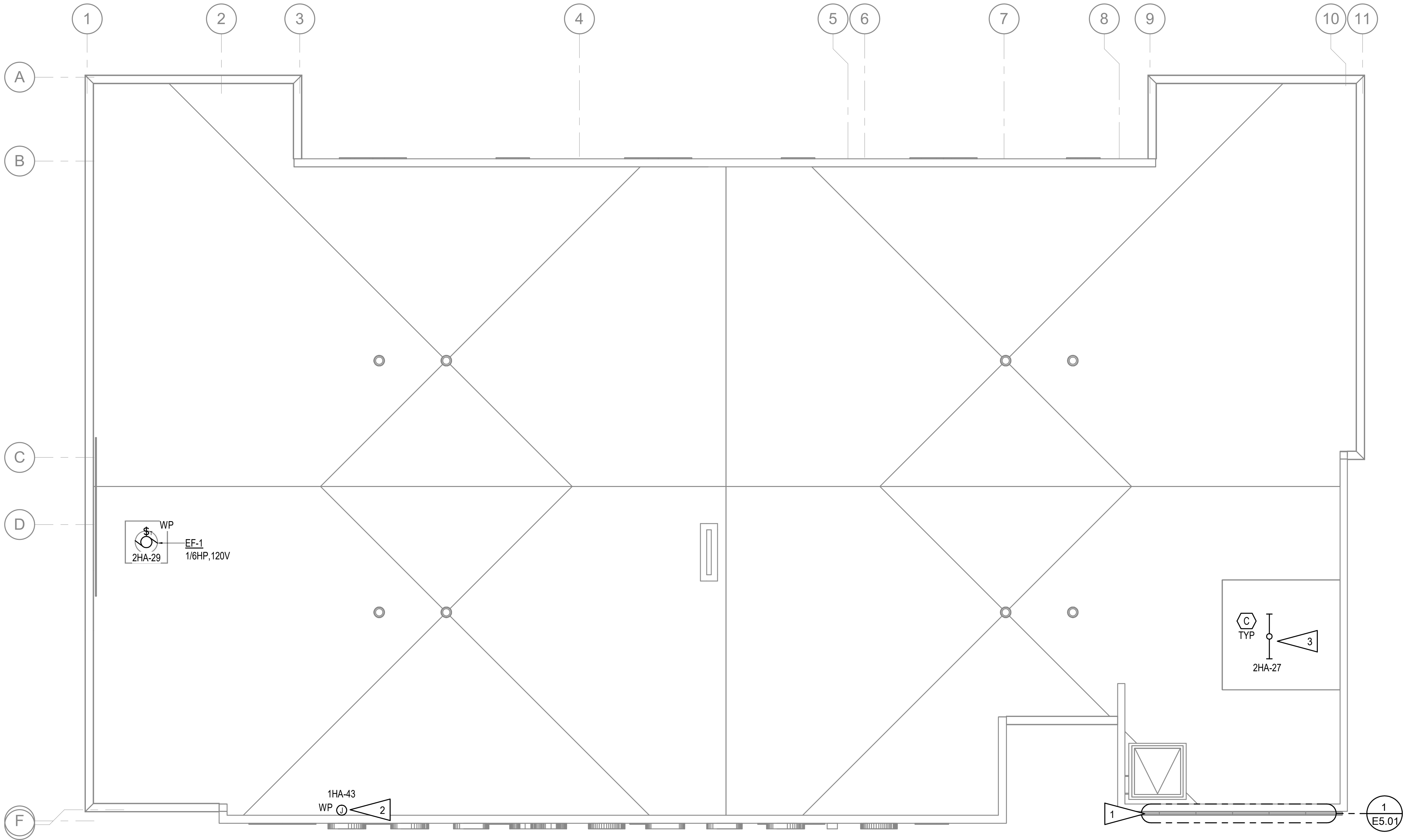
SHEET NO.	E3.02
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GENERAL NOTES:

A. SEE E3.00 FOR GENERAL NOTES.

SHEET NOTES:

1. WALL-MOUNTED SOLAR PV MODULE PANELS. SEE 1/E1.05 AND 1/E5.01.
2. BUILDING SIGN POWER. COORDINATE EXACT MOUNTING LOCATION WITH OWNER REPRESENTATIVE/PROJECT MANAGER PRIOR TO ROUGH-IN. ROUTE THROUGH LIGHTING CONTACTOR LOCATED IN MECHANICAL/ELECTRICAL 100M, SEE 1/E5.00.
3. SEE 1/E2.02 FOR FIXTURE SWITCH LOCATION.



1 ROOF - ELECTRICAL AND SIGNAL SYSTEM
3/16" = 1'-0"



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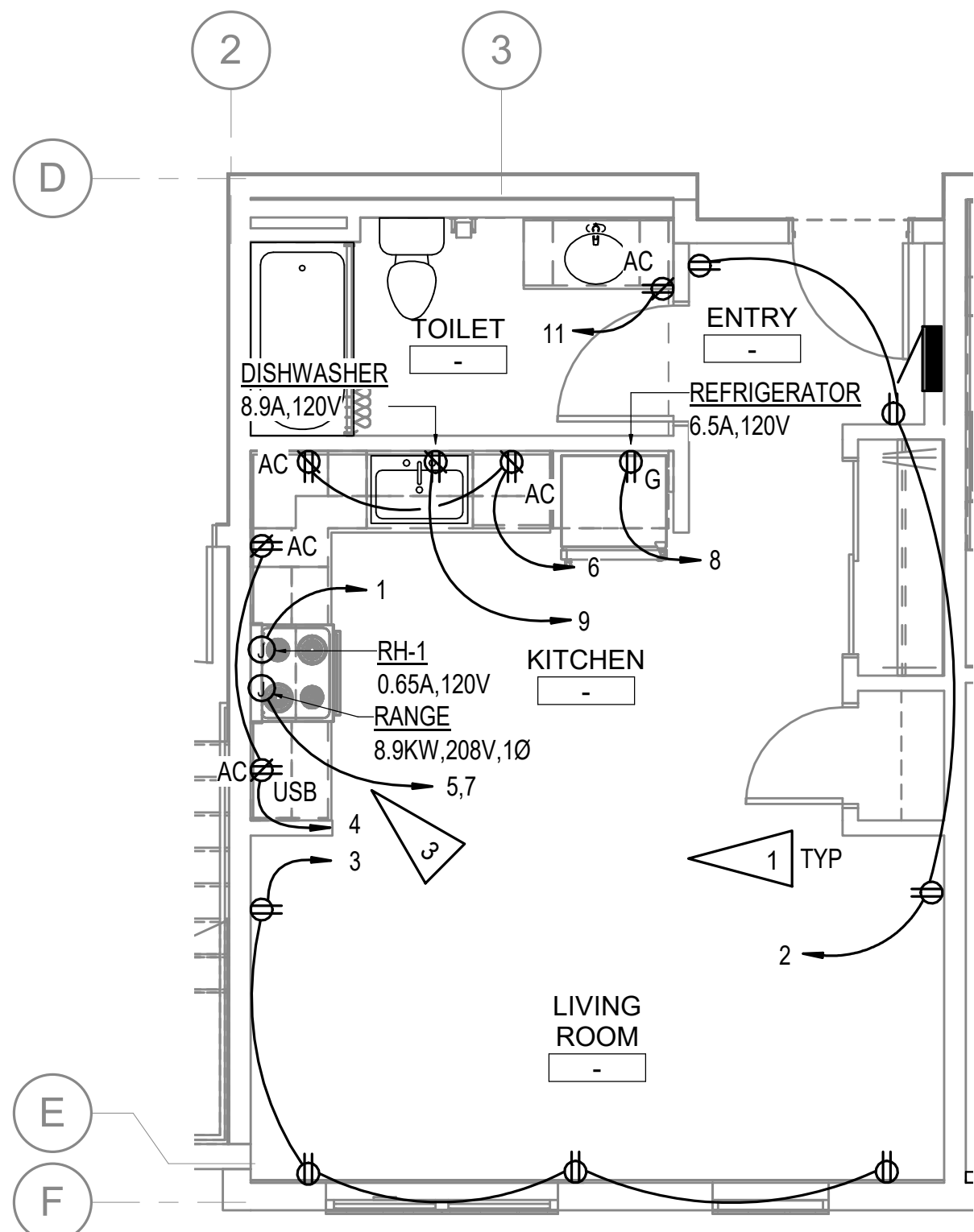
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
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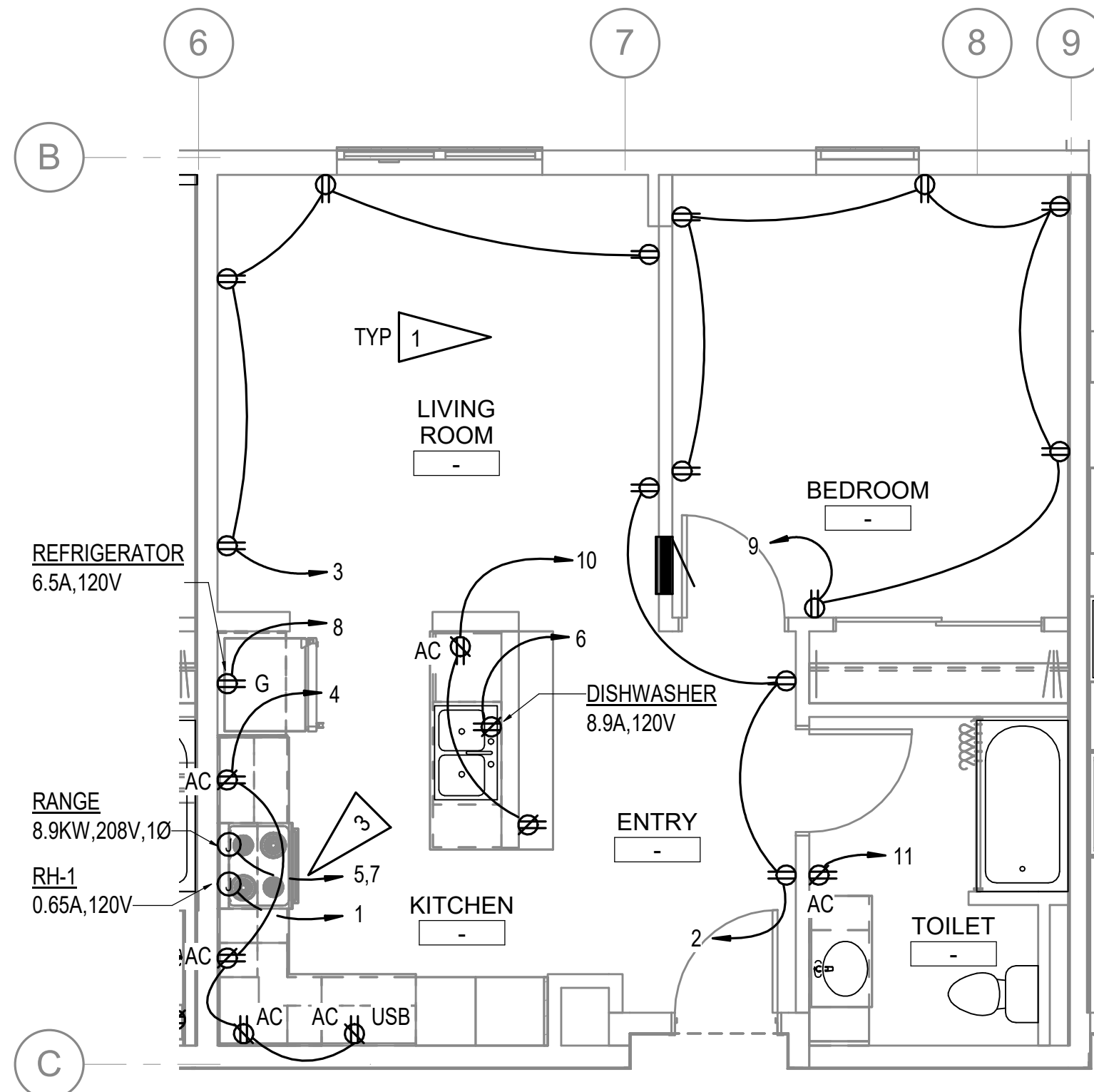
SHEET NAME
ROOF - ELECTRICAL PLAN

SHEET NO.
E3.03

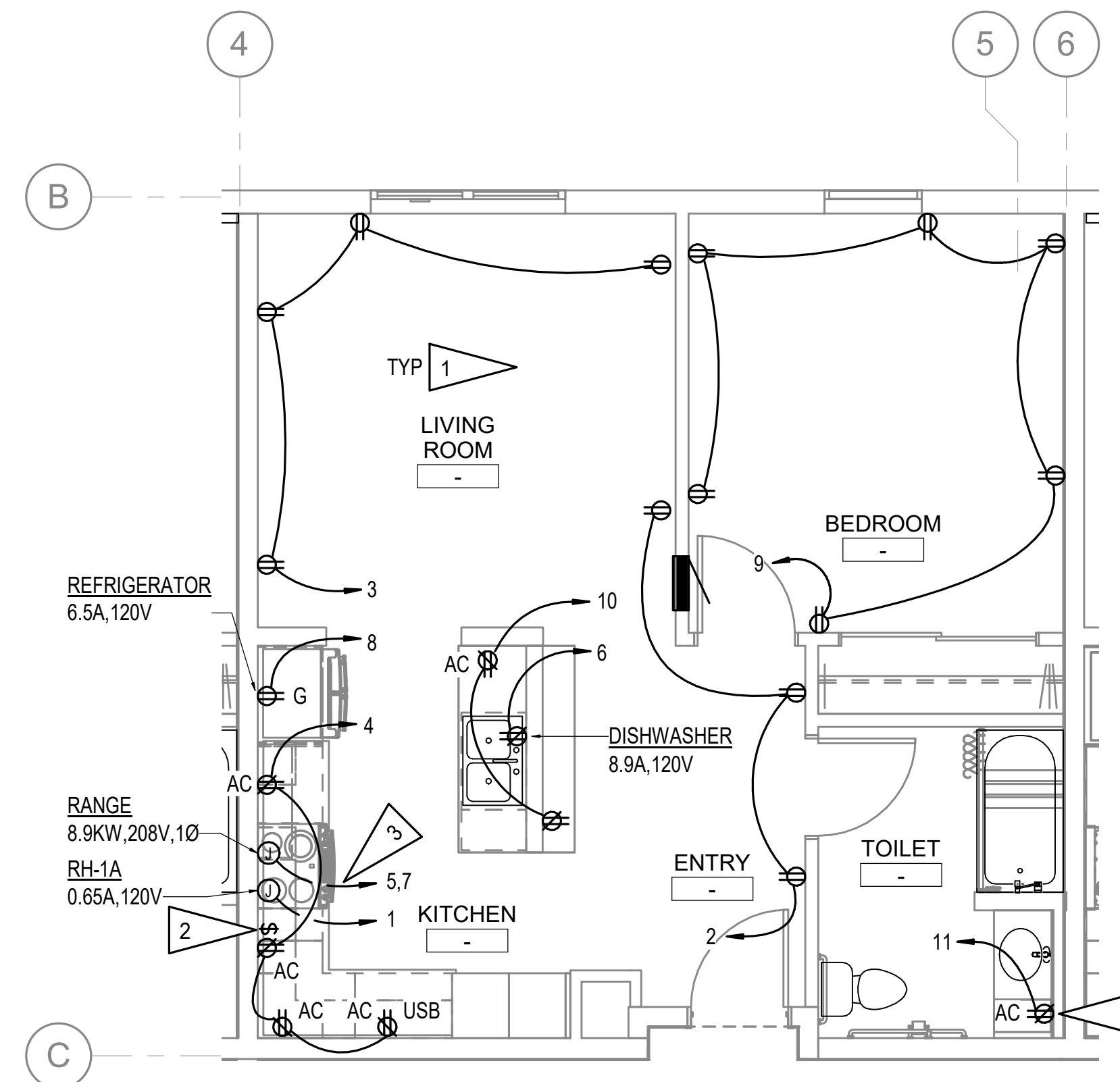
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Corporate No.: AECC0412



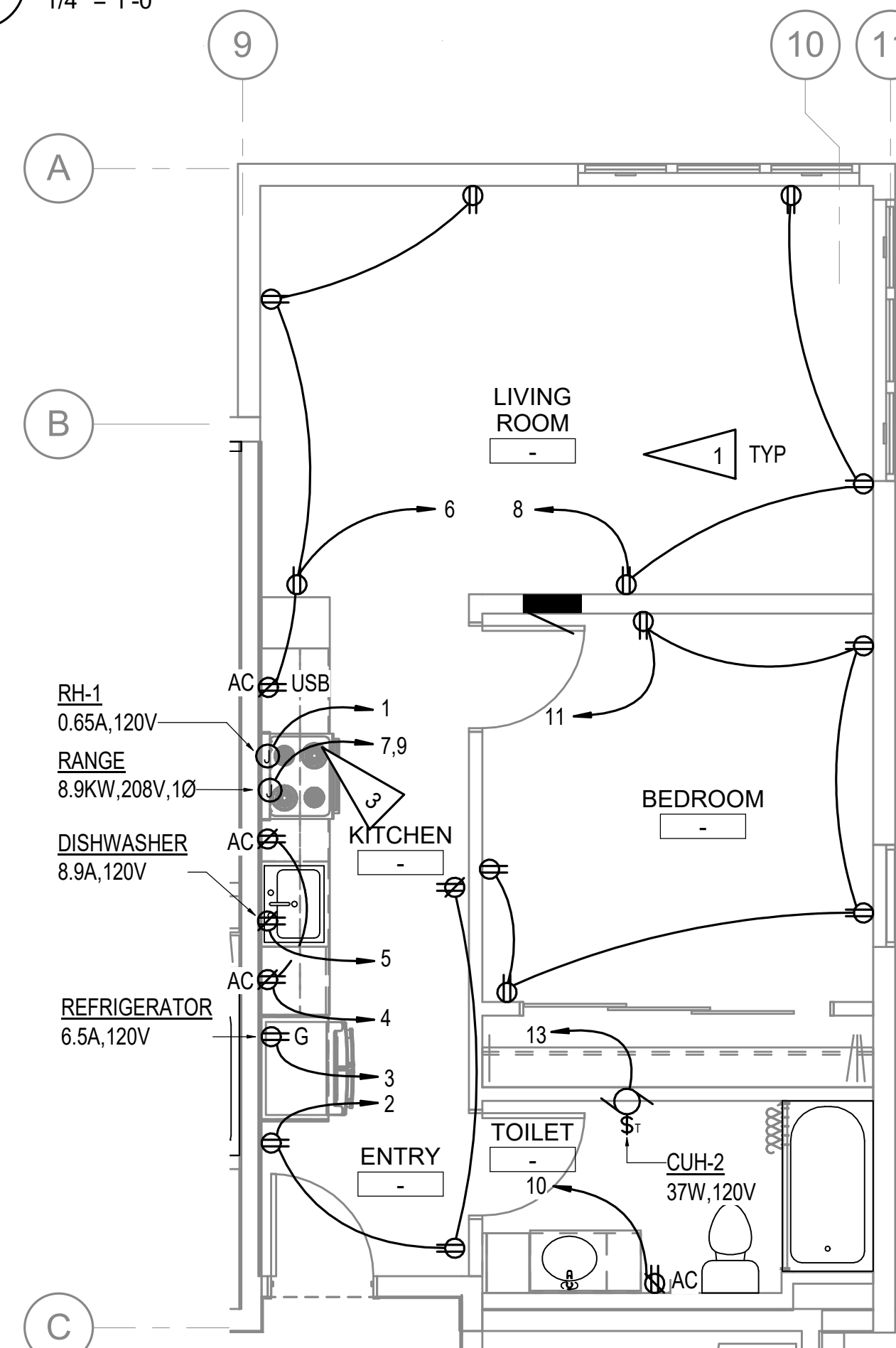
1 ENLARGED TYPE A UNIT - POWER PLAN
1/4" = 1'-0"



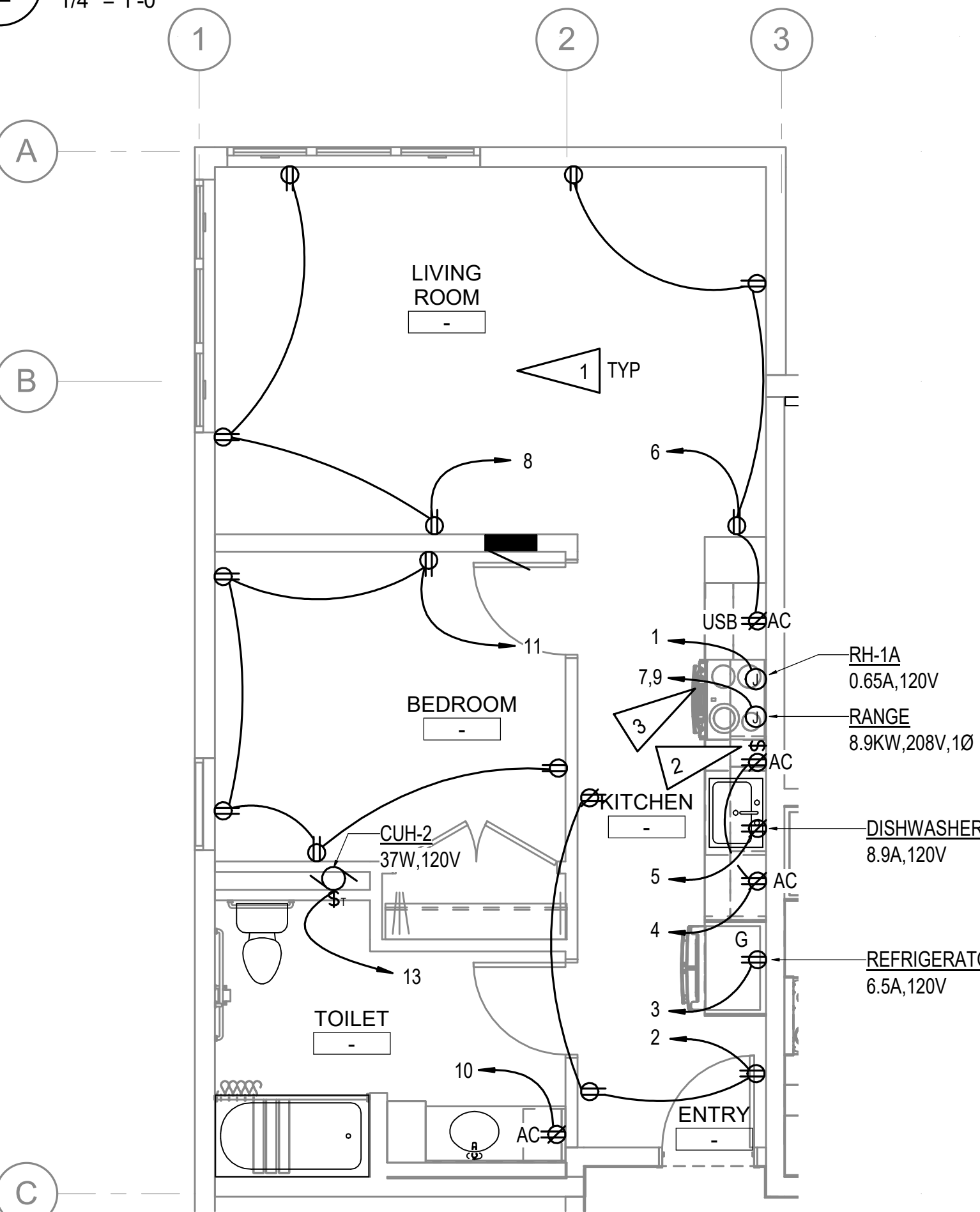
2 ENLARGED TYPE B UNIT - POWER PLAN
1/4" = 1'-0"



3 ENLARGED TYPE B UNIT (UFAS) - POWER PLAN
1/4" = 1'-0"



4 ENLARGED TYPE C UNIT - POWER PLAN
1/4" = 1'-0"



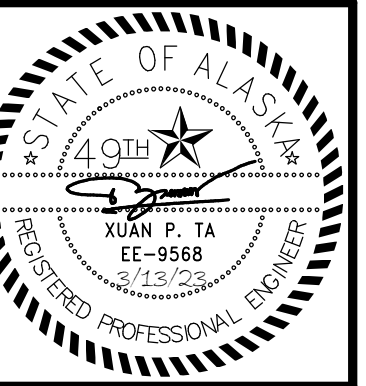
5 ENLARGED TYPE C UNIT (UFAS) - POWER PLAN
1/4" = 1'-0"

GENERAL NOTES:

- SEE E3.00 FOR GENERAL NOTES.
- ALL GENERAL PURPOSE RECEPTACLES IN DWELLING UNITS SHALL BE OF THE TAMPER RESISTANT KIND.
- COORDINATE RECEPTACLE MOUNTING HEIGHT WITH MECHANICAL TO AVOID CONFLICT WITH FINITUBE.
- LOCATIONS OF TYPICAL UNIT LOADCENTER SHOWN FOR REFERENCE. SEE 1/E3.00, 1/E3.01 AND 1E3.02 FOR INDIVIDUAL UNIT LOCATIONS AND NAMES.

SHEET NOTES:

- FIELD-COORDINATE WITH OWNER'S REPRESENTATIVE FOR FINAL DEVICE LOCATION PRIOR TO ROUGH-IN.
- INSTALL AND CONNECT ABOVE COUNTER REMOTE RANGE HOOD SWITCH TO RANGE HOOD IN ACCESSIBLE UNITS ONLY.
- 3/4"C, 3#6, 1#10 GND.
- PROVIDE POWER TO SURFACE MOUNTED RECEPTACLE LOCATED IN BACK OF FULL-HEIGHT CABINET. COORDINATE MOUNTING REQUIREMENTS WITH OWNER/CIHA REPRESENTATIVE AND CASEWORK PRIOR TO ROUGH-IN.



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DATE	2023.03.08
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SHEET NAME
ENLARGED UNITS - POWER PLAN

SHEET NO.
E3.04

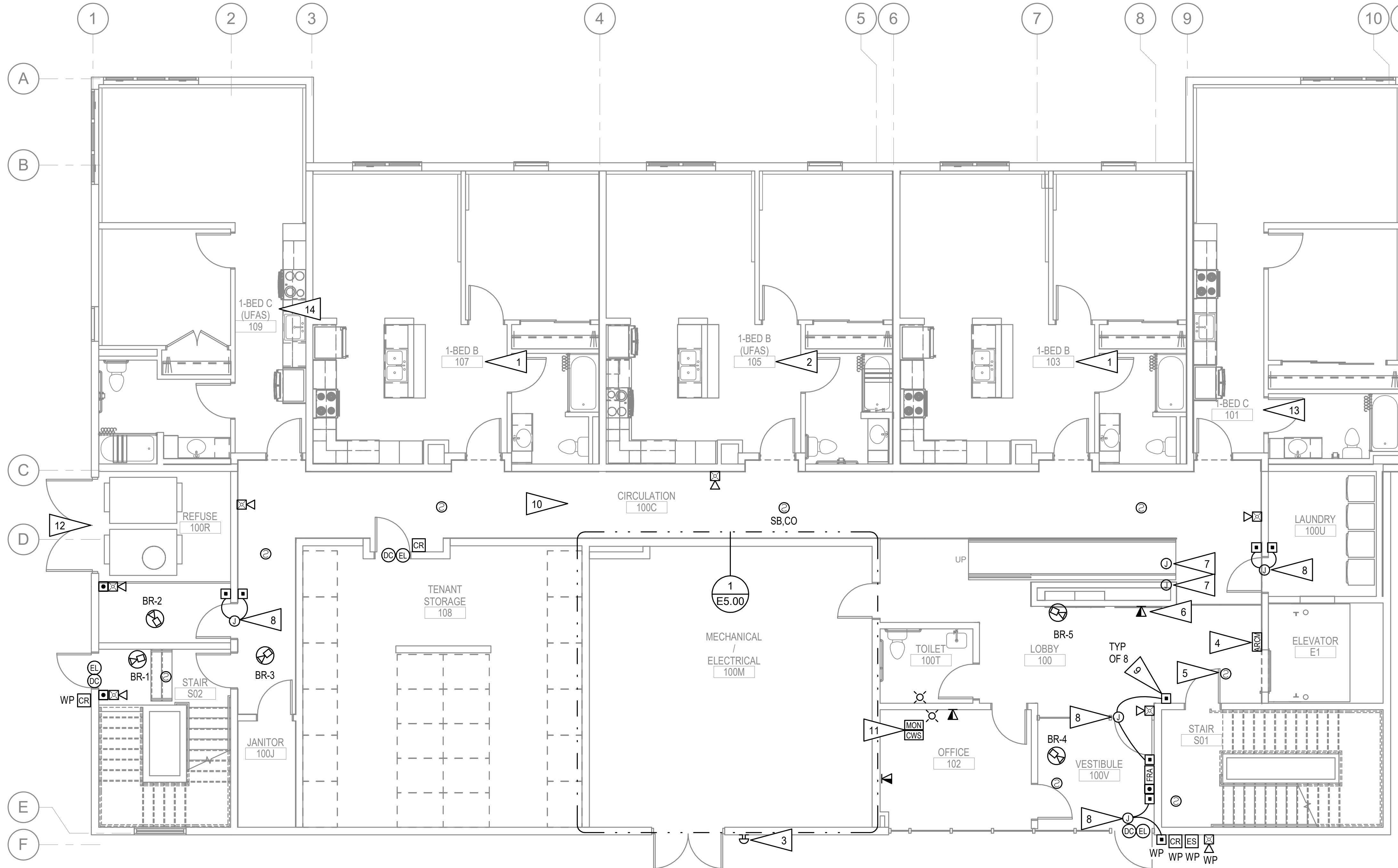
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GENERAL NOTES:

- A. PROVIDE CONDUIT, WIRES, AND OTHER ACCESSORIES AS REQUIRED FOR FIRE ALARM TELEPHONE, CATV, AUDIO DOOR MONITORING, AND CAMERA SURVEILLANCE DEVICE CONNECTIONS TO THE FIRE ALARM CONTROL PANEL, TTB, CATV, VIDEO INTERCOM, AND CAMERA SURVEILLANCE HEAD-END EQUIPMENT.
- B. FIELD COORDINATE WITH MECHANICAL DUCTWORK, SPRINKLER PIPING, SPRINKLER HEADS, AIR DIFFUSERS, ETC. PRIOR TO ROUGH-IN TO AVOID ANY CONFLICTS.
- C. DO NOT LOCATE SMOKE AND HEAT DETECTOR WITHIN 3'-0" OF AIR DIFFUSER.
- D. FIRE ALARM DEVICES ARE SHOWN TO REPRESENT DESIRED COVERAGE. CONTRACTOR IS RESPONSIBLE FOR COVERAGE PER NFPA 72 AND DEVICE COUNT PRIOR TO BID.
- E. METALLIC BOXES AND COVER PLATES SHALL BE USED IN FIRE-RESISTANT RATED ASSEMBLIES. OPENINGS AROUND ELECTRICAL PENETRATIONS, INTO OR THROUGH FIRE-RESISTANT-RATED WALLS, FLOORS OR CEILINGS SHOULD BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE-RESISTANCE RATING. SEE ARCHITECTURAL DRAWINGS.
- F. SEE E4.02 FOR TYPICAL DWELLING UNIT SIGNAL PLANS.
- G. PROVIDE ACOUSTICS-PUTTY-PAD ON ALL SIDES OF JUNCTION BOXES AND/OR OUTLET BOXES LOCATED ON COMMON WALLS OF DWELLING UNITS.
- H. ROUTE ALL SIGNAL, TELECOM, AND CAMERA CABLES TO NEW TELECOM WALL-RACK IN MECHANICAL 100M. SEE 1/E5.00.
- I. SEE 1/E6.01 FOR TYPICAL ACCESS CONTROL/DOOR LOCK DETAIL.
- J. COORDINATE WITH DOOR HARDWARE SUPPLIER FOR CABLING AND POWER REQUIREMENTS PRIOR TO ROUGH-IN.

SHEET NOTES:

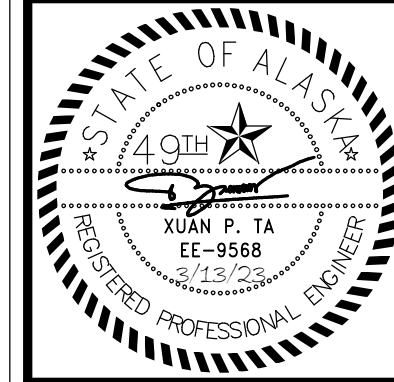
1. SEE 2/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
2. SEE 3/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
3. SPRINKLER ALARM BELL PROVIDED BY SPRINKLER INSTALLER. FIELD COORDINATE FOR LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
4. PROVIDE AREA OF REFUGE MASTER CONTROL STATION AT 1ST FLOOR ELEVATOR LANDING. SEE 2/E1.04 FOR DETAILS.
5. CONNECT TO ELEVATOR CONTROLLER AND SET TO RETURN TO DESIGNATED OR ALTERNATE FLOOR IN ACCORDANCE WITH A17.1 SECTION 2.27.3.2.
6. PROVIDE DATA OUTLET FOR DISPLAY. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH OWNER PRIOR TO ROUGH-IN.
7. JUNCTION BOX FOR FIRE SMOKE DAMPER CONNECTION TO FACP. FIELD LOCATE PRIOR TO ROUGH-IN.
8. JUNCTION BOX FOR AUTOMATIC DOOR OPERATOR.
9. DOOR ACTUATOR PUSHBUTTON.
10. PROVIDE (1) CAT 6 CABLE IN CORRIDOR CEILING WITH 10'-0" COIL FOR FUTURE SECURITY CAMERA.
11. OWNER FURNISHED OWNER INSTALLED CLIENT WORKSTATION AND MONITOR FOR ACCESS CONTROL AND VIDEO SYSTEM MONITORING.
12. PROVIDE (1) CAT 6 CABLE TO INSIDE WALL ABOVE EXIT OF REFUSE 100R WITH 10'-0" COIL FOR FUTURE EXTERIOR SECURITY CAMERA.
13. SEE 4/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.
14. SEE 5/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT MIRROR POWER EQUIPMENT AS WELL.



1 LEVEL 1 - SIGNAL PLAN
3/16" = 1'-0"



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JOB NO.	M2169
DATE	2023.03.08
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SHEET NAME
LEVEL 1 - SIGNAL PLAN

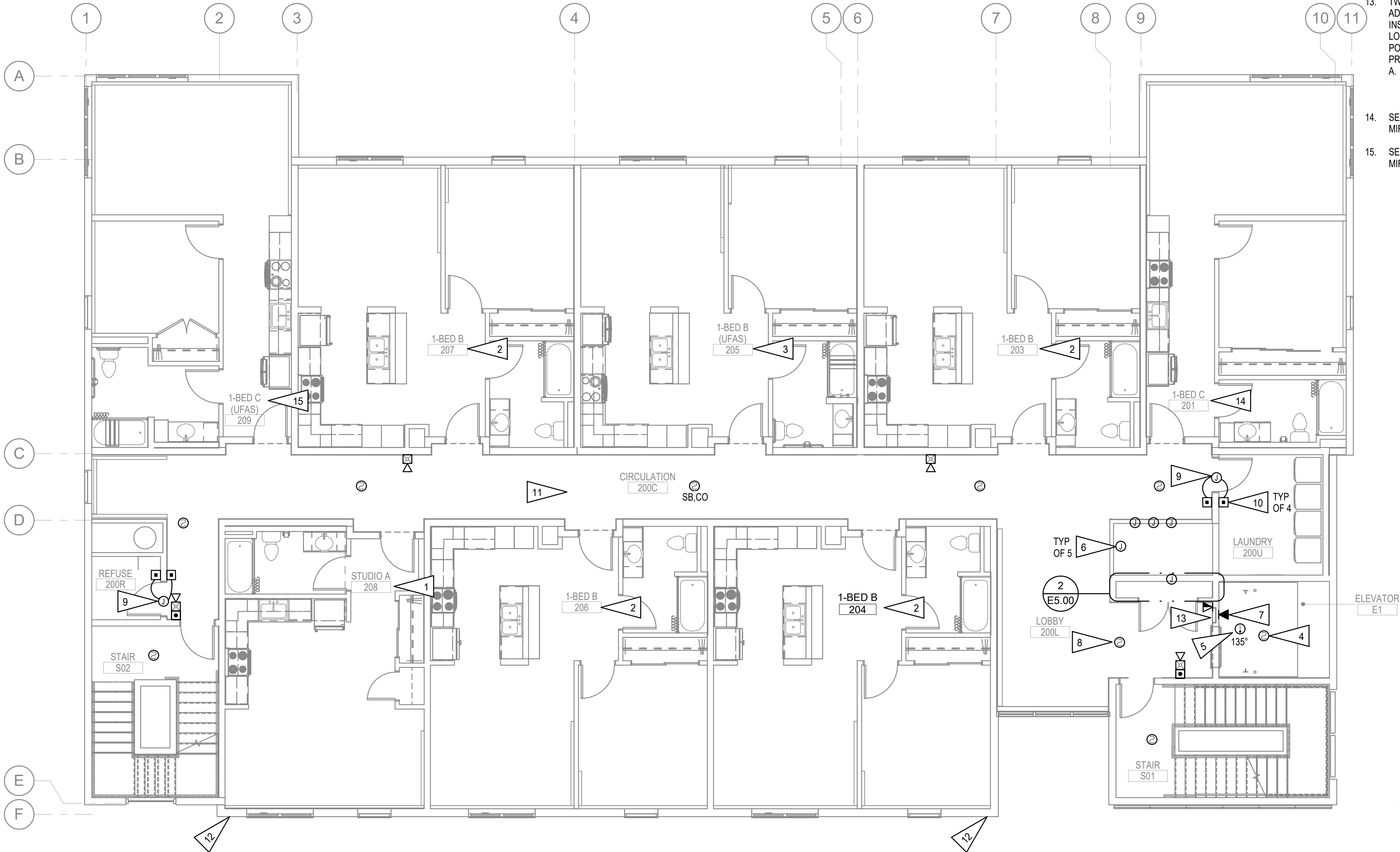
SHEET NO.
E4.00

GENERAL NOTES:

- A. SEE E4.00 FOR GENERAL NOTES.
- B. SIGNAL PLANS FOR LEVELS 2 AND 3 ARE IDENTICAL.

SHEET NOTES:

1. SEE 1/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR SIGNAL EQUIPMENT AS WELL.
2. SEE 2/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR SIGNAL EQUIPMENT AS WELL.
3. SEE 3/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR SIGNAL EQUIPMENT AS WELL.
4. PROVIDE HEAT AND SMOKE DETECTION IN SHAFT.
5. CONNECT DETECTOR TO SHUNT TRIP BREAKER IN 'HDP' FOR ELEVATOR SHUT DOWN. COORDINATE HEAT DETECTION REQUIREMENTS WITH SPRINKLER CONTRACTOR.
6. JUNCTION BOX FOR FIRE SMOKE DAMPER CONNECTION TO FACP. FIELD LOCATE PRIOR TO ROUGH-IN.
7. LEVEL 3 - ELEVATOR SHAFT: TELEPHONE JACK FOR CONNECTION TO ELEVATOR CAR TELEPHONE. ROUTE CABLE TO MAIN TELEPHONE BACKBOARD, TTB-1, AHEAD OF TELEPHONE SWITCH.
8. CONNECT TO ELEVATOR CONTROLLER AND SET TO RETURN TO DESIGNATED OR ALTERNATE FLOOR IN ACCORDANCE WITH A17.1 SECTION 2.27.3.2.
9. JUNCTION BOX FOR AUTOMATIC DOOR OPERATOR.
10. DOOR ACTUATOR PUSHBUTTON.
11. PROVIDE (1) CAT 6 CABLE IN CORRIDOR CEILING WITH 10'-0" COIL FOR FUTURE SECURITY CAMERA.
12. PROVIDE (1) CAT 6 CABLE TO INSIDE WALL ABOVE CEILING ON LEVEL 2 WITH 10'-0" COIL FOR FUTURE EXTERIOR SECURITY CAMERA.
13. TWO-WAY COMMUNICATION: PROVIDE SYSTEM BELOW AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE BASE STATION AND CALL BOX LOCATIONS WITH ARCHITECTURAL PRIOR TO ROUGH-IN. COORDINATE POWER SUPPLY LOCATION WITH MECHANICAL ROOM EQUIPMENT PRIOR TO ROUGH-IN.
- A. CALL STATION: RATH SMARTRESCUE '2100-958SSRC2'. PROVIDE 2 PAIR TWISTED 24-22AWG TO BASE STATION. PROVIDE 1 PAIR 18AWG TO POWER SUPPLY.
14. SEE 4/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR SIGNAL EQUIPMENT AS WELL.
15. SEE 5/E4.02 FOR ENLARGED UNIT SIGNAL PLAN. FOR UNITS THAT HAVE MIRRORED LAY-OUT, MIRROR SIGNAL EQUIPMENT AS WELL.



1 TYPICAL LEVEL 2/3 - SIGNAL PLAN
3/16" = 1'-0"



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BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

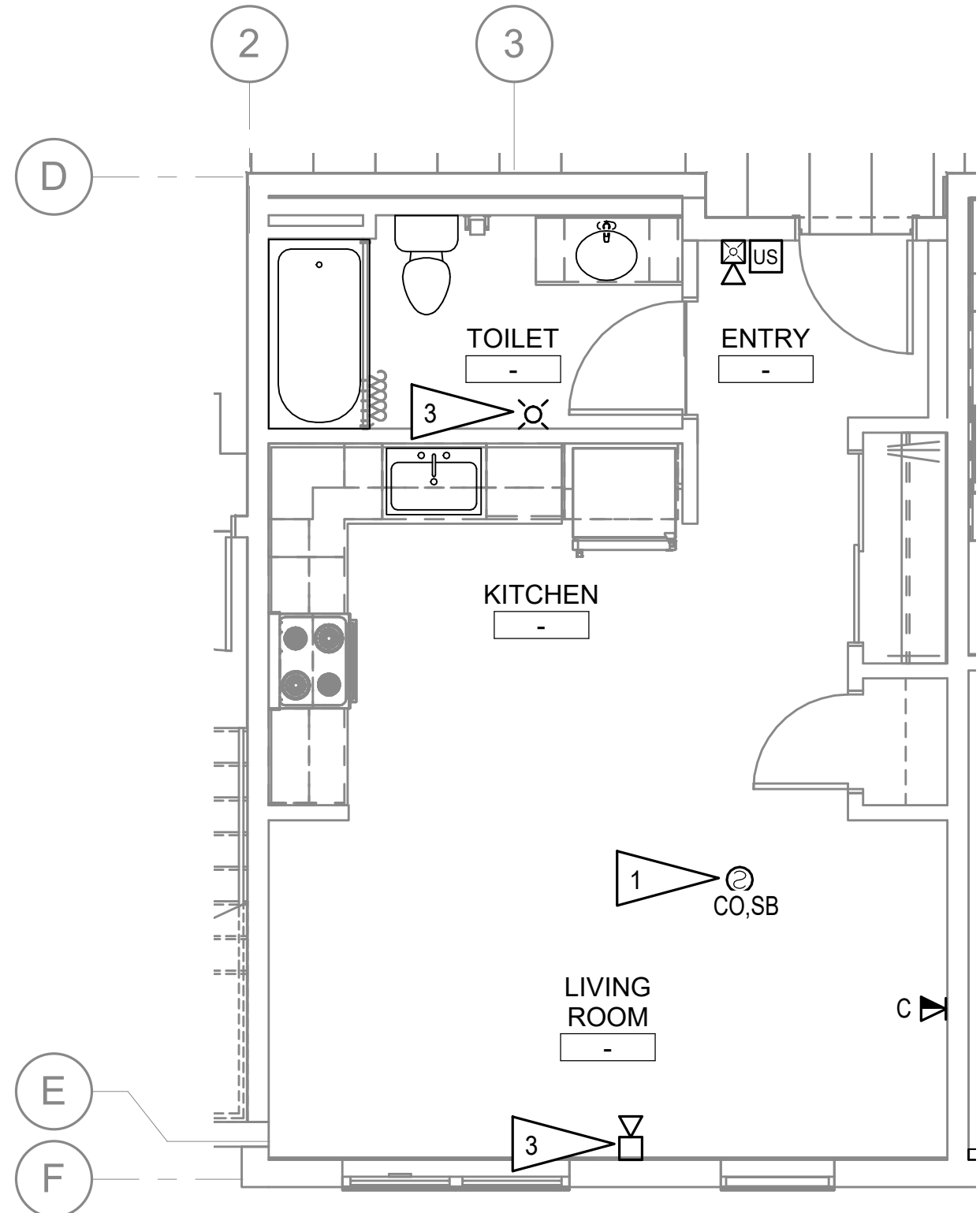
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CS2
REVIEWED	XPT, TEH

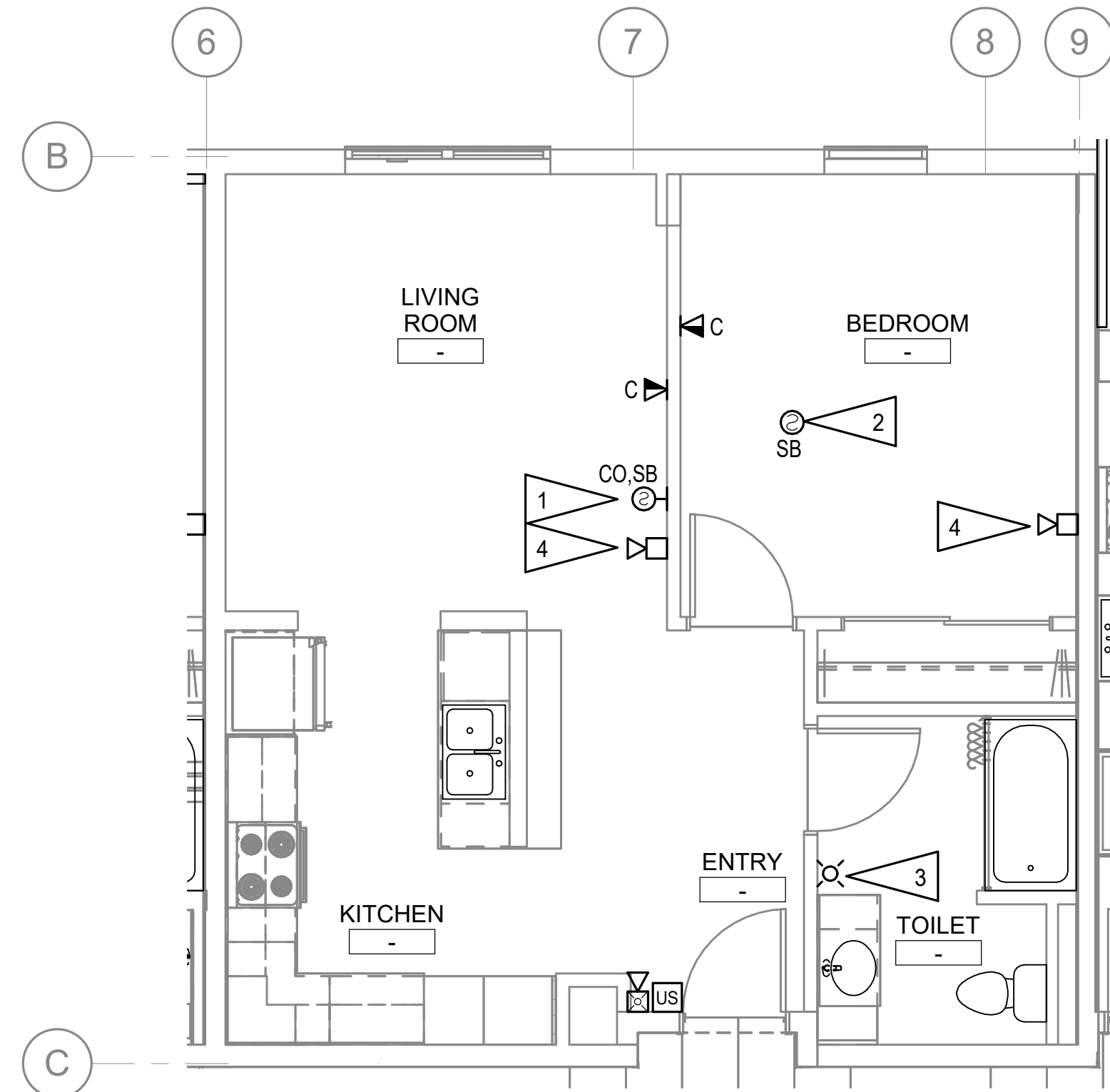
SHEET NAME
TYPICAL LEVEL 2/3 - SIGNAL PLAN

SHEET NO.
E4.01

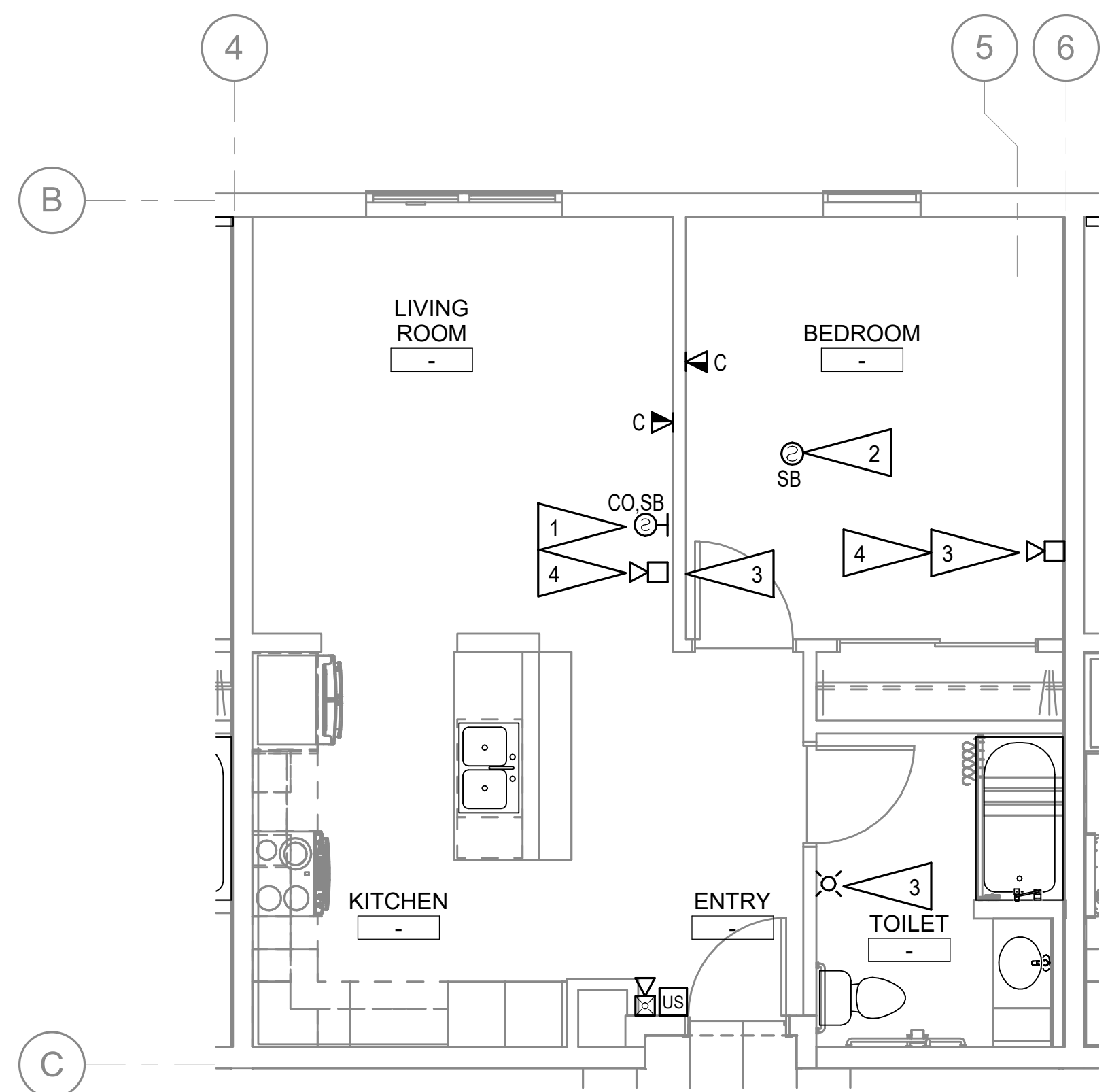
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10701 Newholloway Drive, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042



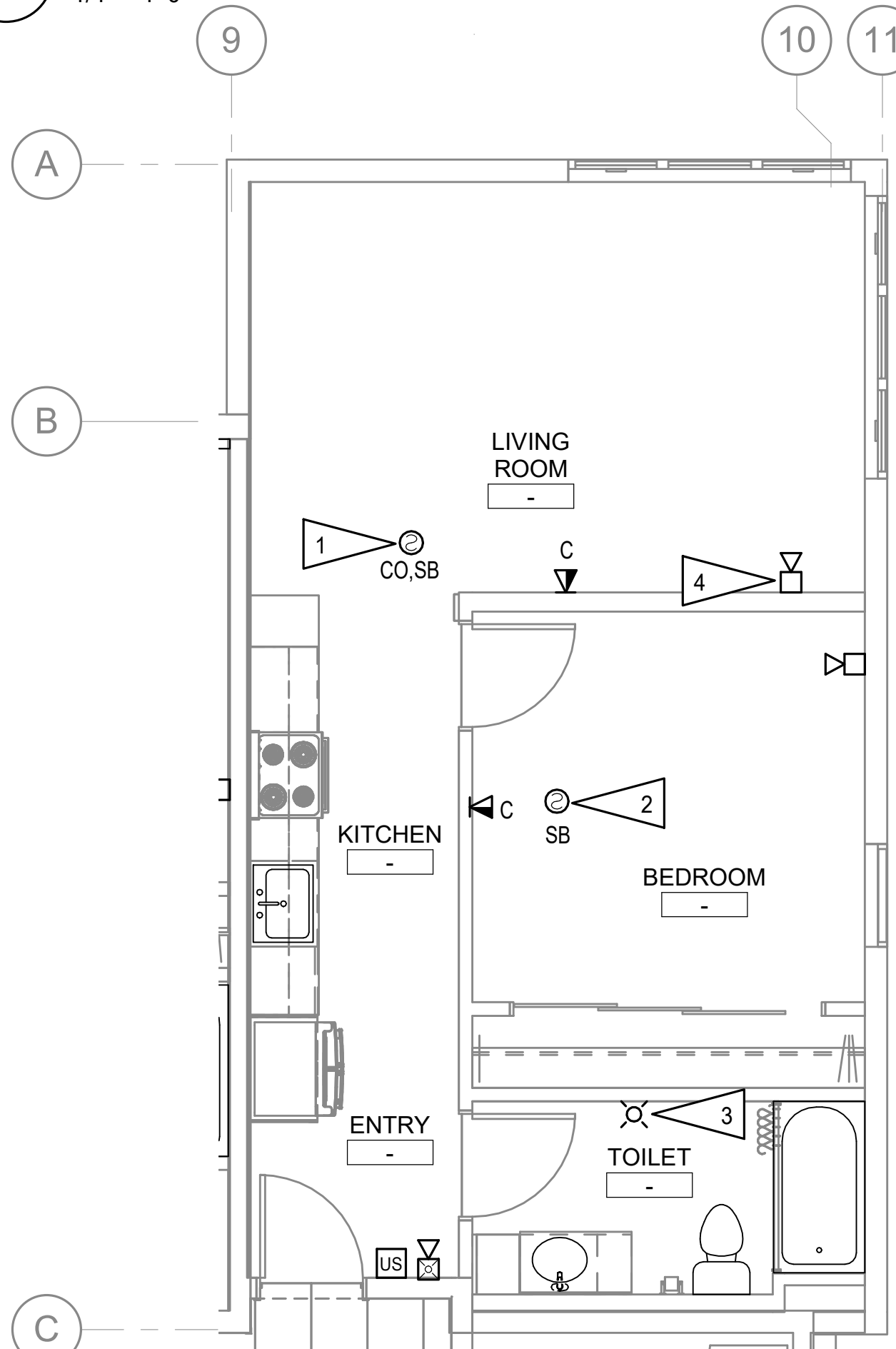
1 ENLARGED TYPE A UNIT - SIGNAL PLAN
1/4" = 1'-0"



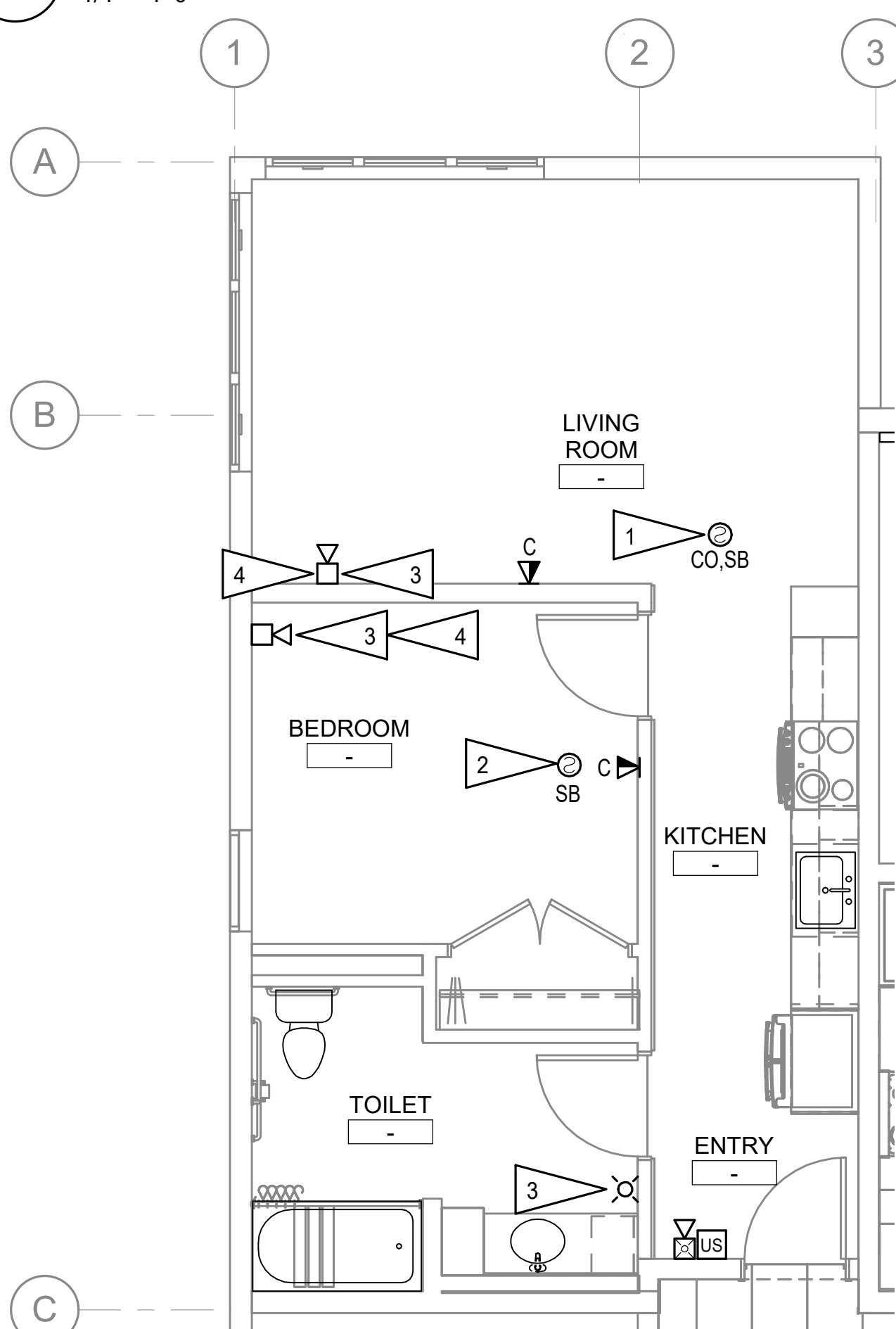
2 ENLARGED TYPE B UNIT - SIGNAL PLAN
1/4" = 1'-0"



3 ENLARGED TYPE B UNIT (UFAS) - SIGNAL PLAN
1/4" = 1'-0"



4 ENLARGED TYPE C UNIT - SIGNAL PLAN
1/4" = 1'-0"



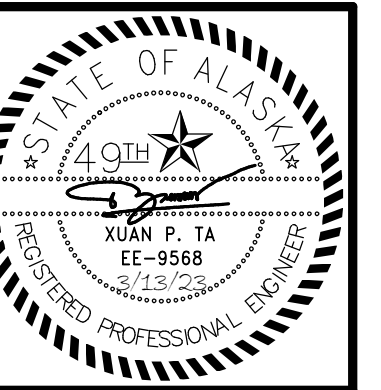
5 ENLARGED TYPE C UNIT (UFAS) - SIGNAL PLAN
1/4" = 1'-0"

GENERAL NOTES:

- SEE E4.00 FOR GENERAL NOTES.
- VERIFY CEILING HEIGHT FOR PROPER STROBE MOUNTING HEIGHT IN BEDROOMS.
- CONNECT CARBON MONOXIDE/SMOKE DETECTOR AND SMOKE DETECTOR(S) IN TANDEM SO WHEN ANY OF THE BEDROOM UNITS SENSE SMOKE, ALL THE BEDROOM UNITS SOUND AN ALARM.
- CARBON MONOXIDE/SMOKE DETECTORS OR SMOKE DETECTORS SHALL BE LISTED FOR WALL-MOUNTING.
- WALL-MOUNTED CARBON MONOXIDE/SMOKE DETECTORS OR SMOKE DETECTORS SHALL BE INSTALLED WITHIN 12" OF CEILING.

SHEET NOTES:

- PROVIDE CARBON MONOXIDE/SMOKE DETECTOR AND CONNECT TO SOUND LOCAL SMOKE DETECTION AND ON A GENERAL ALARM.
- PROVIDE SMOKE DETECTOR AND CONNECT TO SOUND LOCAL SMOKE DETECTION AND ON A GENERAL ALARM.
- PROVIDE FIRE ALARM HORN/STROBE IN LOCATION SHOWN FOR ACCESSIBLE UNITS.
- FIRE ALARM DEVICE WITH 520 Hz LOW FREQUENCY SOUNDER BASE.



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REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
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SHEET NAME
ENLARGED UNITS - SIGNAL PLAN

SHEET NO.
E4.02

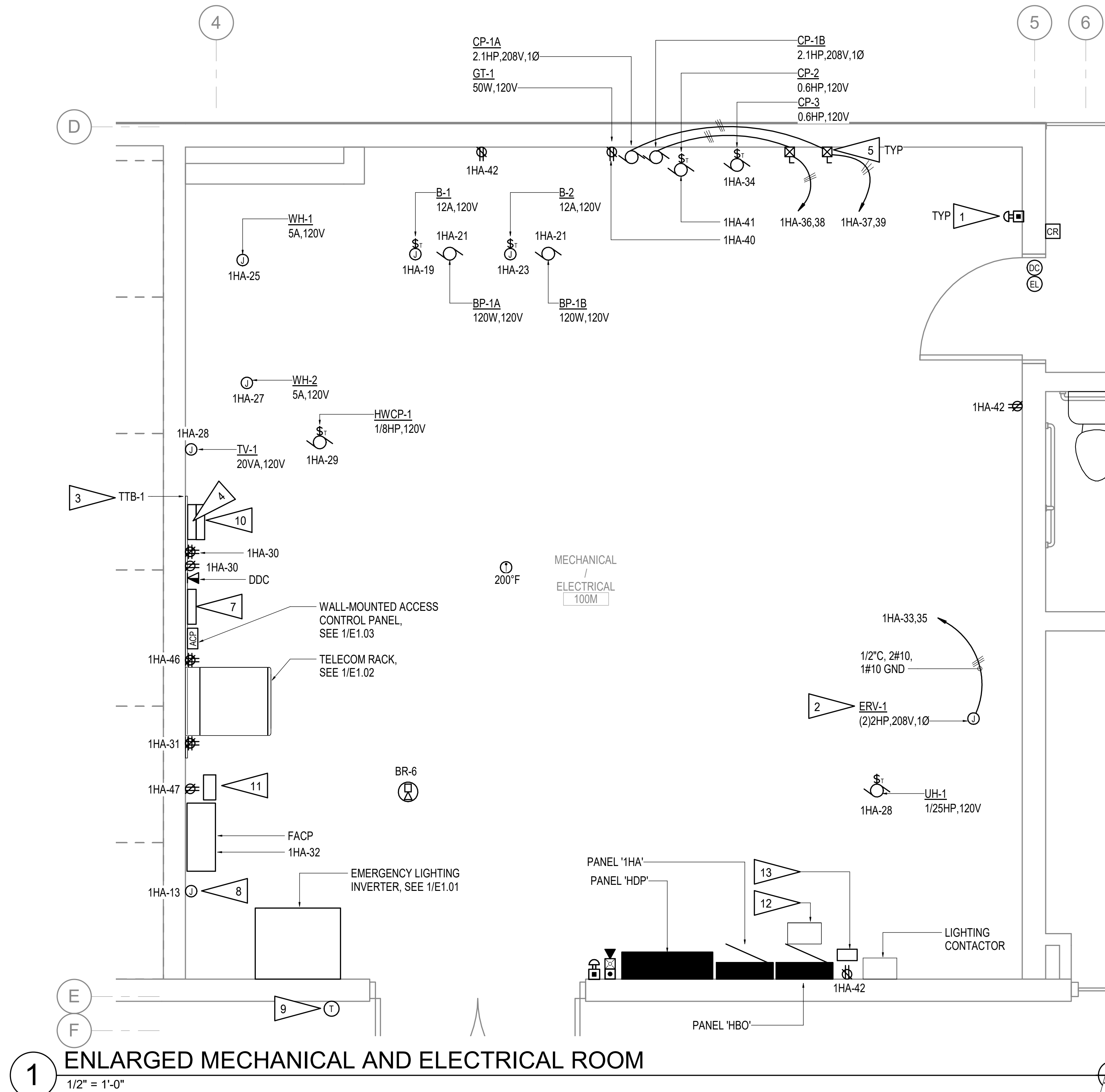
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10701 Highway 200, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: AECC042

A. SEE E3.00 AND E4.00 FOR GENERAL NOTES.

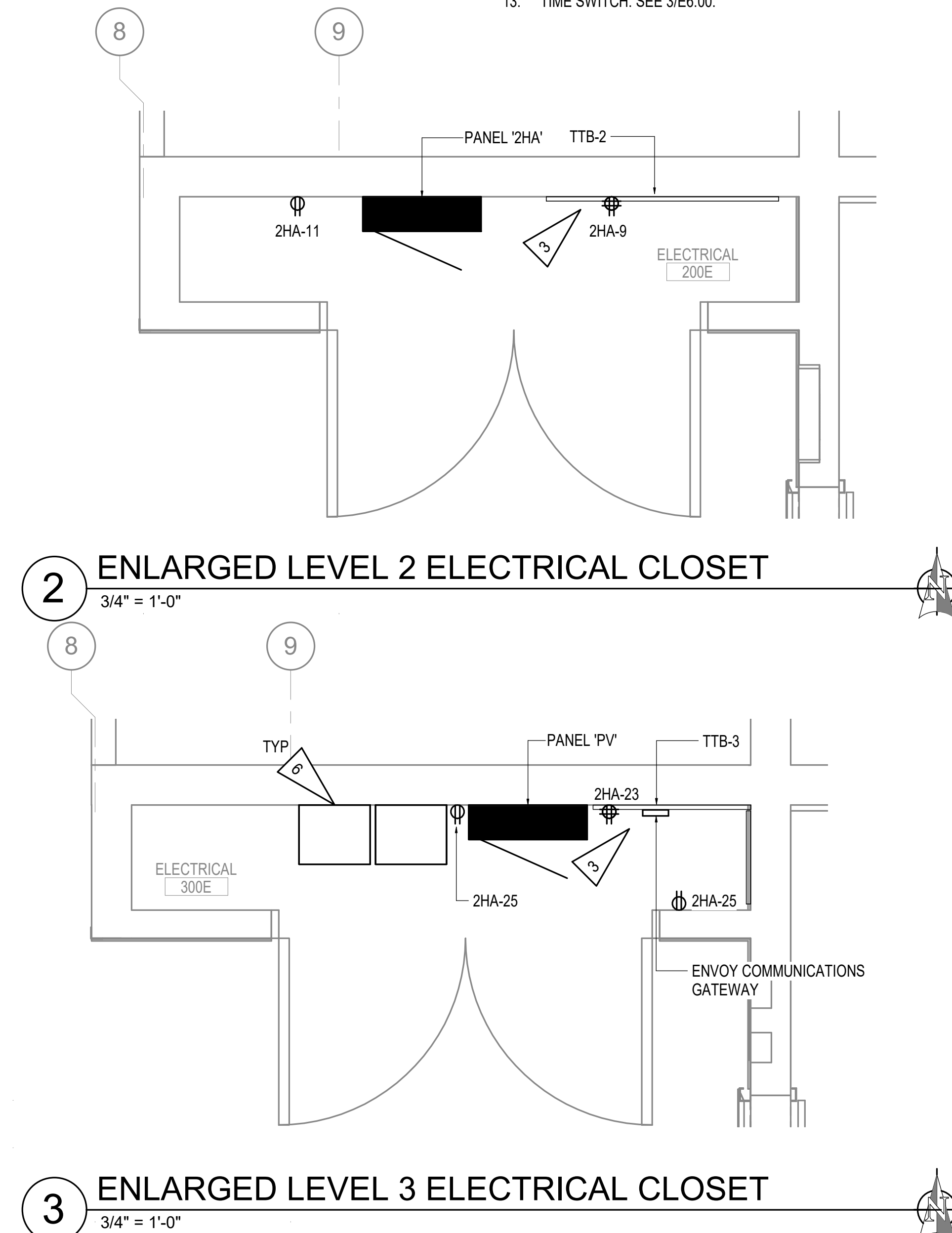
A. SEE E3.00 AND E4.00 FOR GENERAL NOTES.

1. PROVIDE PUSHBUTTON AT MECHANICAL ROOM EXITS FOR BOILER EMERGENCY SHUTOFF. CONNECT TO BOILER SHUNT TRIP BREAKERS AND COORDINATE WITH MECHANICAL PRIOR TO ROUGH-IN.
2. ERV-1 PROVIDED WITH INTEGRAL VFD'S IN EACH AIRSTREAM AND A NON-FUSED DISCONNECT. SEE MECHANICAL SCHEDULES.
3. PROVIDE 3/4" THICK FIRE RESISTANT PLYWOOD BACKBOARD AND MOUNT ON WALL AS SHOWN FOR TELEPHONE, CATV, AND AUDIO INTERCOM HEAD END EQUIPMENT.
4. AUDIO INTERCOM HEADEND EQUIPMENT. RECEPTACLE FOR AUDIO INTERCOM SYSTEM.
5. FIELD COORDINATE WALL MOUNTED MOTOR STARTERS WITH MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.
6. PROPOSED LOCATION OF GRID-TIE INVERTERS IN LIEU OF MICRO INVERTERS.

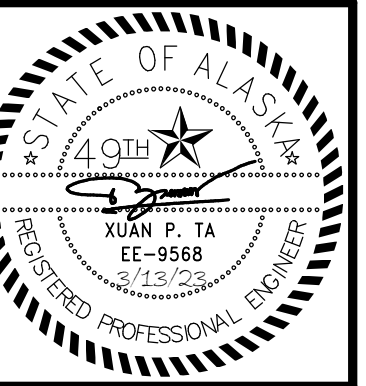
7. TWO-WAY COMMUNICATION: PROVIDE SYSTEM BELOW AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE BASE STATION AND CALL STATION LOCATIONS WITH ARCHITECTURAL PRIOR TO ROUGH-IN. COORDINATE POWER SUPPLY LOCATION WITH MECHANICAL ROOM EQUIPMENT PRIOR TO ROUGH-IN.
 - A. BASE STATION: RATH SMARTRESCUE '2500-PWR24U'. PROVIDE 1 PAIR 18AWG TO EACH CALL BOX.
8. THERMOSTATIC CONTROLLER WITH INTEGRAL EPD AND INDICATOR LIGHT FOR HEAT TRACE CONTROL, RAYCHEM #ECW-GF OR EQUAL. FIELD COORDINATE TEMPERATURE SENSOR LOCATION ON THE EXTERIOR OF BUILDING WITH OWNER/REPRESENTATIVE PRIOR TO ROUGH-IN.
9. THERMOSTATIC SWITCH FOR HEAD BOLTER HEATER CONTACTOR. FIELD COORDINATE EXACT LOCATION WITH OWNER/REPRESENTATIVE PRIOR TO ROUGH-IN.
10. AUDIO BUS CONTROL UNIT AND DISTRIBUTION POINT, SEE E1.06 FOR DETAILS.
11. FIRE ALARM MONITORING PANEL AES INTELINET MODEL #7788 OR APPROVED EQUAL.
12. HEADBOLT HEATER CONTACTOR. SEE 1/E1.01.
13. TIME SWITCH. SEE 3/E6.00.



1 ENLARGED MECHANICAL AND ELECTRICAL ROOM
1/2" = 1'-0"



3 ENLARGED LEVEL 3 ELECTRICAL CLOSET
3/4" = 1'-0"



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ANCHORAGE, ALASKA

REVISION SCHEDULE	
DESCRIPTION	DATE

OB NO.	M2169
DATE	2023.03.08
RAWN	CSZ
VIEWED	XPT,TEH

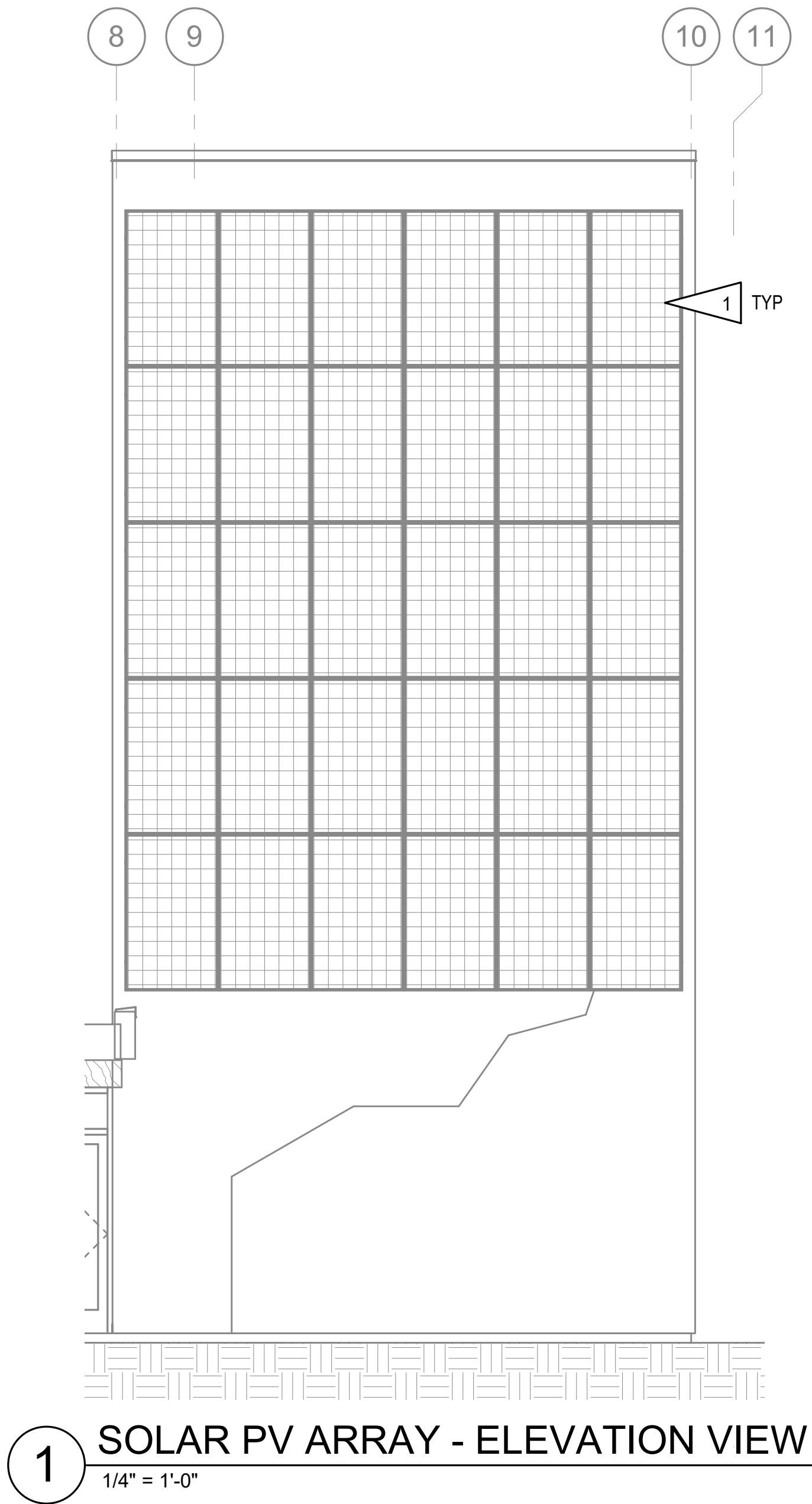
SHEET NAME
 ENLARGED PLANS

HEET NO.

E5.00

R S A Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1760 West Fireweed Lane, Suite 200 - Anchorage, AK 99503 · (907) 276-0521
Corporate No.: AECC542

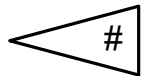
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GENERAL NOTES:

A. SEE E3.00 AND E4.00 FOR GENERAL NOTES.

SHEET NOTES:



1. BUILDING MOUNTED SOLAR PANELS, SEE 1/E1.05.



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BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

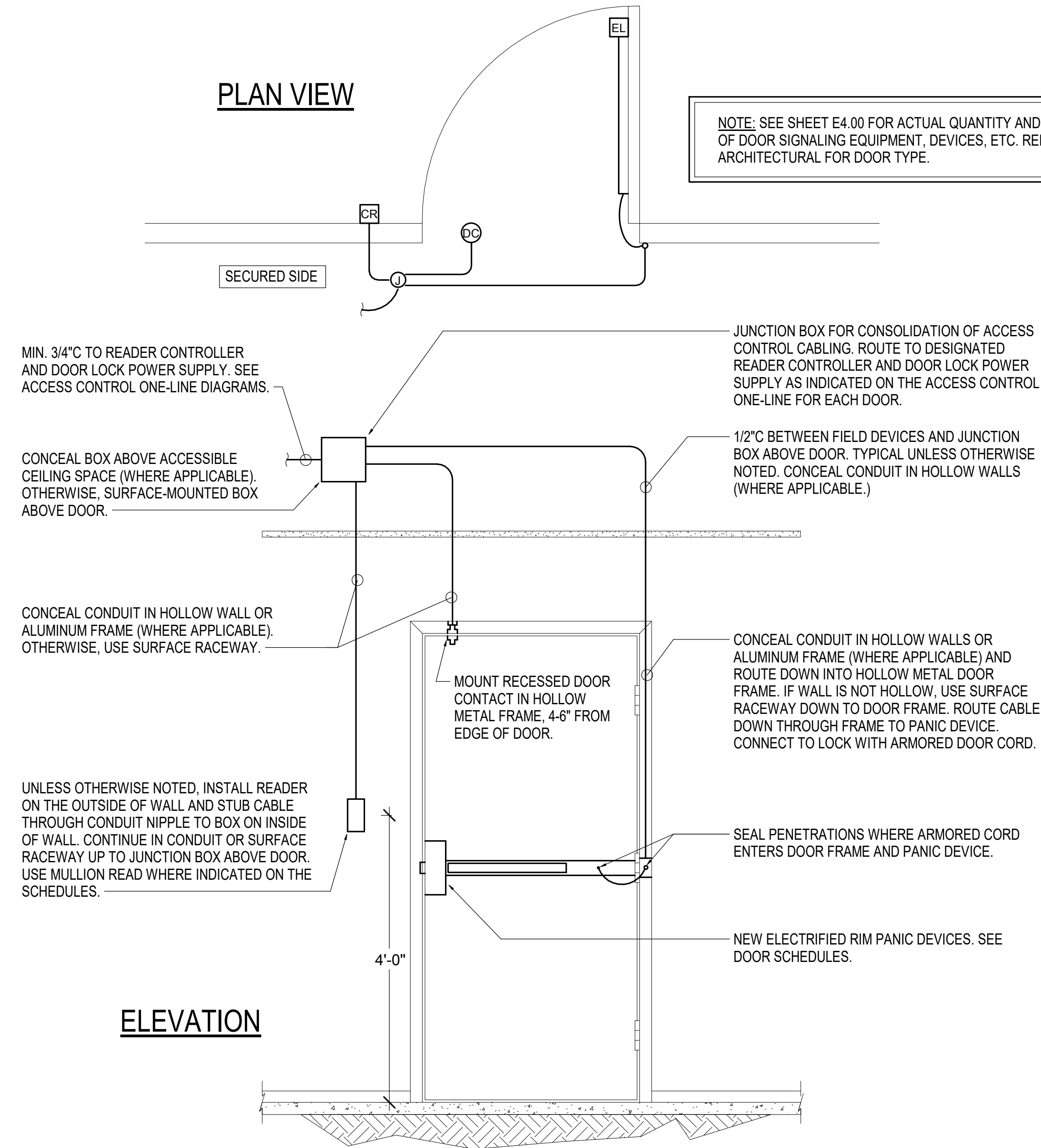
REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

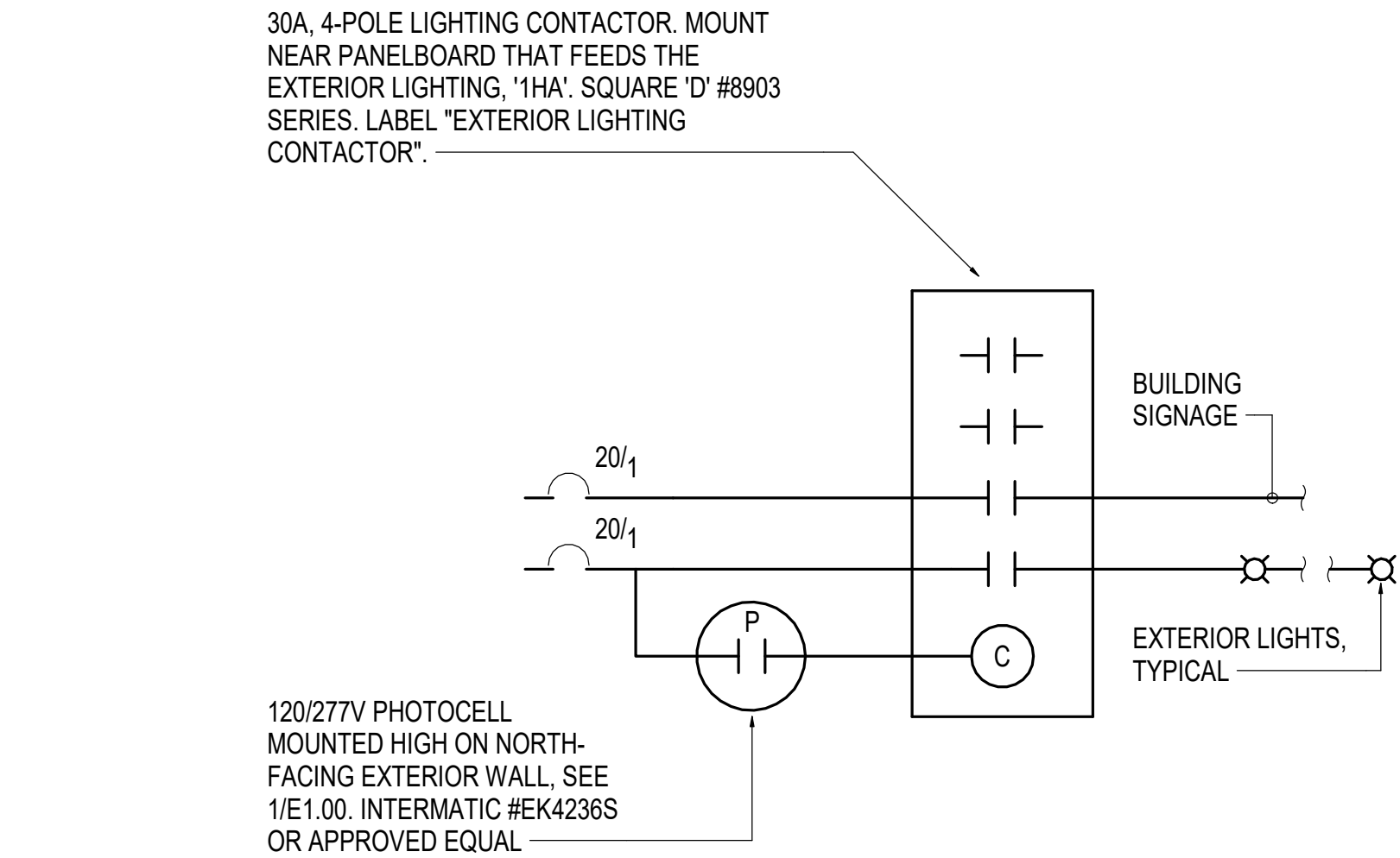
SHEET NAME
ELECTRICAL ELEVATION VIEWS

SHEET NO.
E5.01

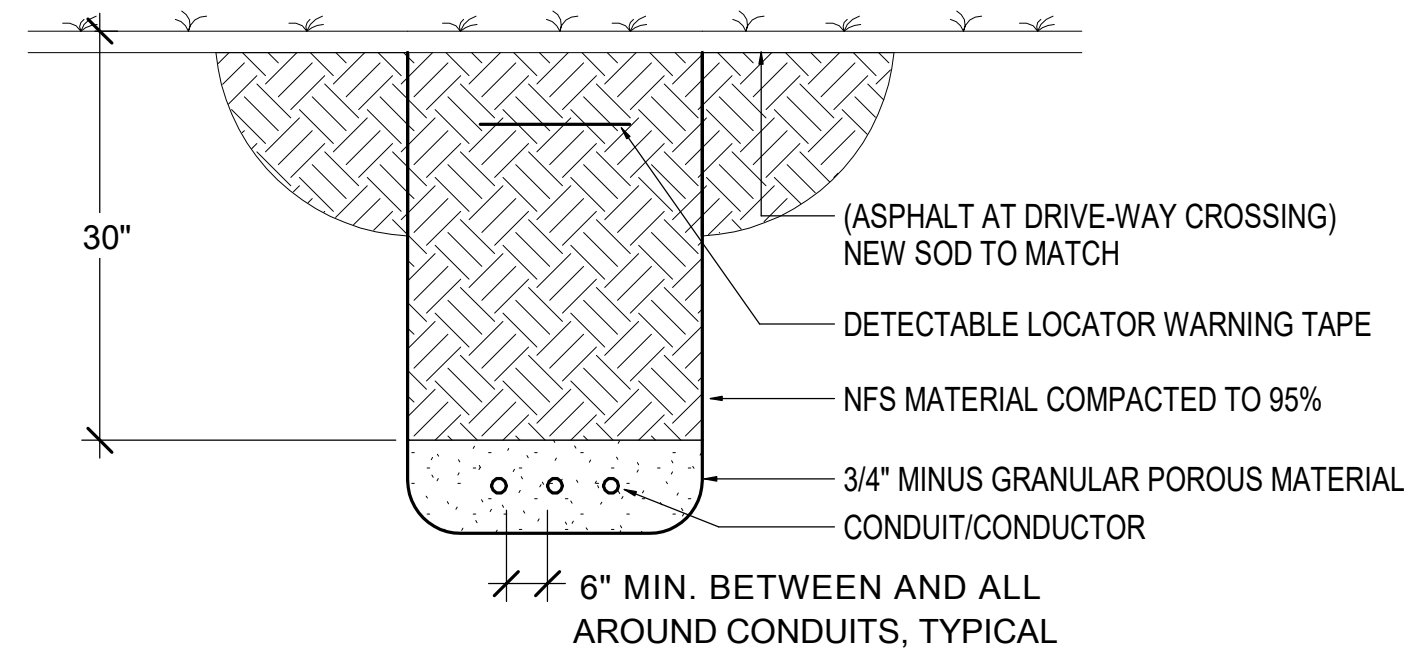
RSA Engineering, Inc.
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CORPORATE NO.: AECC0042



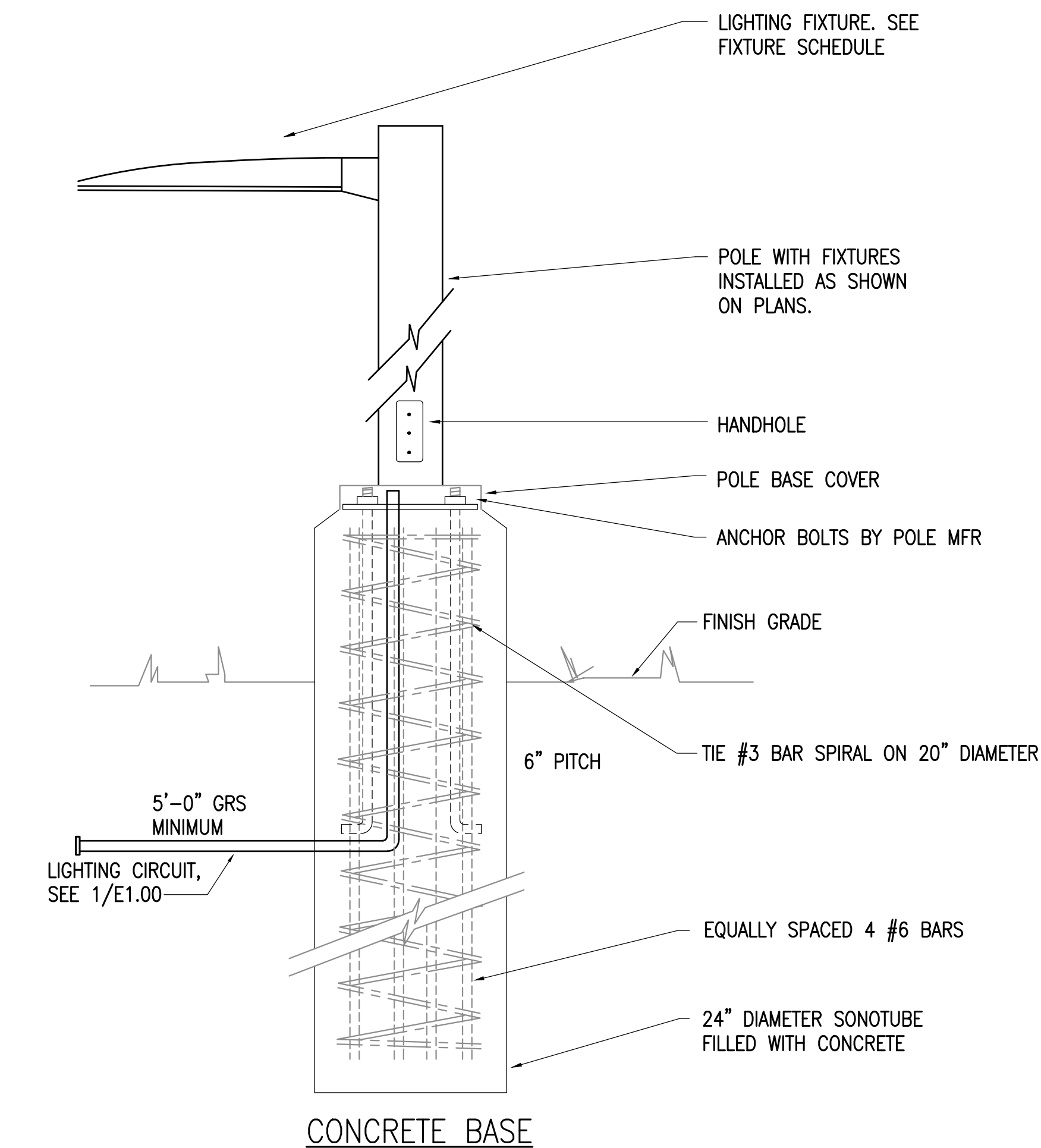
1 ACCESS CONTROL/DOOR LOCK DETAIL
NO SCALE



2 EXTERIOR LIGHTING CONTROL DETAIL
NO SCALE



3 TRENCH DETAIL
NO SCALE



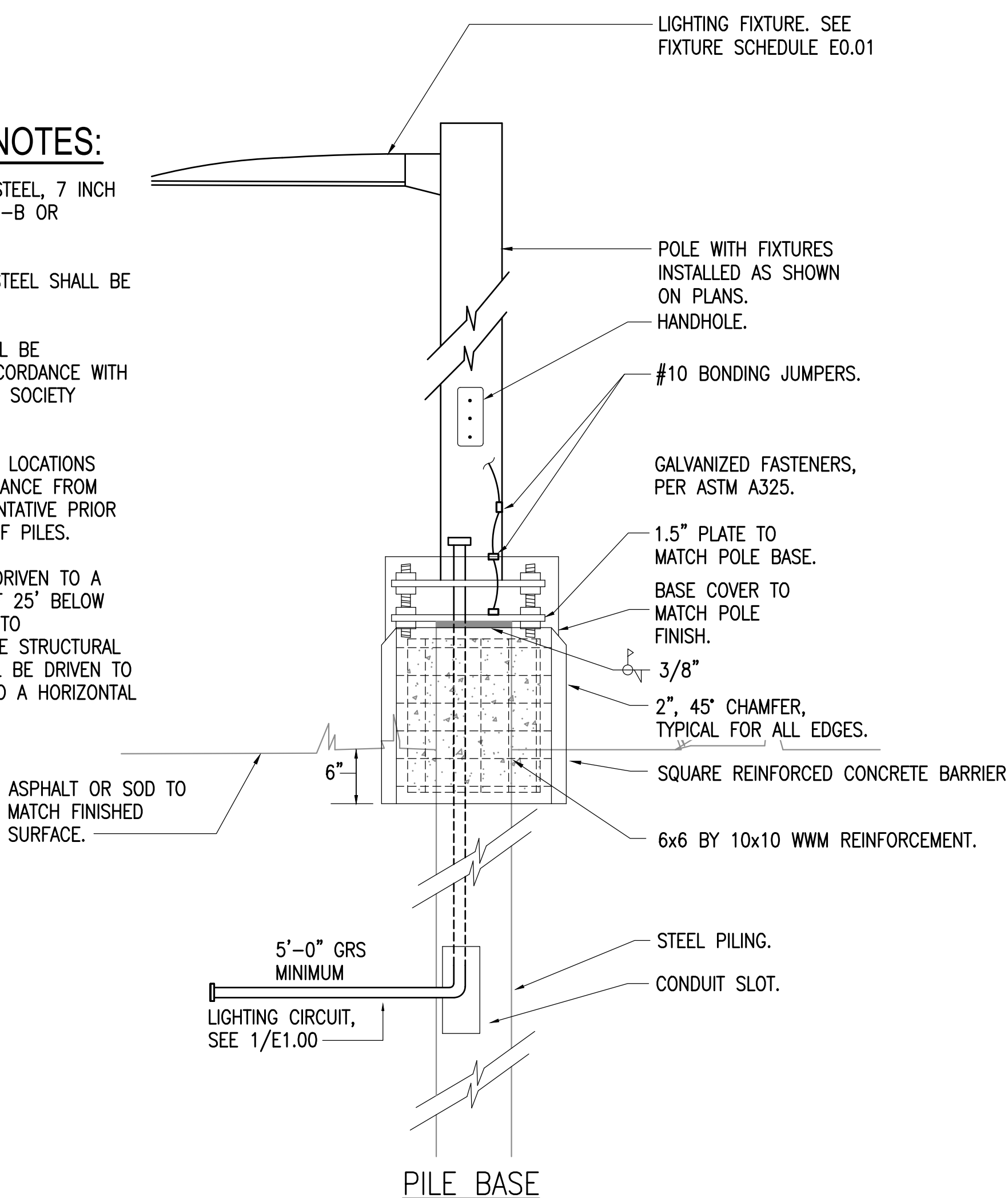
1 POLE BASE DETAIL
NOT TO SCALE

GENERAL NOTES:

- COORDINATE WITH CIVIL FOR DEPTH OF CONCRETE BASE/PILING REQUIRED FOR FOUNDATIONS PER SOIL CONDITIONS.

PILE DETAIL NOTES:

- PILING SHALL BE STEEL, 7 INCH STD. ASTM A53 GR-B OR APPROVED EQUAL.
- ALL STRUCTURAL STEEL SHALL BE ASTM A36.
- ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY D1.1-86.
- VERIFY ALL UTILITY LOCATIONS AND OBTAIN CLEARANCE FROM OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION OF PILES.
- PILING SHALL BE DRIVEN TO A MINIMUM DEPTH OF 25' BELOW FINISHED GRADE INTO SANDY-ROCKY TYPE STRUCTURAL SOIL. PILING SHALL BE DRIVEN TO A VERTICAL AND TO A HORIZONTAL TOLERANCE OF 1".



AT CONTRACTOR'S OPTION, EITHER CONCRETE BASE OR PILE BASE CONFIGURATION MAY BE USED. COORDINATE WITH OWNER/CIVIL PRIOR TO ROUGH-IN.

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Corporate No.: AECC042



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REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

SHEET NAME
ELECTRICAL DETAILS

SHEET NO.
E6.02

PANEL '1HA'																	
MFR/MODEL: SQUARE 'D' TYPE NQ						VOLTS: 120/208V,3PH,4W						ENCLOSURE: NEMA 1				225 A	
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS			MTG: SURFACE	TYPE	SERVICE	AMPS	POLE	CIRC	NOTE		
						A	B	C									
	1	1	20	LTG - EXTERIOR	LTG	200	72			LTG	LTG - ELEVATOR PIT	20	1	2			
	3	1	20	LTG - STAIRS, LEVEL 1	LTG			772	986	LTG	LTG - 100R,J,T,U,M,102,108,EM	20	1	4			
	5	1	20	RECP-100C,100J,100T	RECP					1080	40	15	1	6	a		
	7	1	20	RECP - OFFICE 102	RECP	540	1176					20	1	8	b		
	9	1	20	RECP - EXT, S1, 100V	RECP			900	180			20	1	10			
	11	1	20	RECP - EXTERIOR, S2	RECP					540	674	15	1	12			
c	13	1	20	HT-RD-1,2 &3, HT-DS-1	MISC	400	1073					15	1	14			
	15	1	20	DOOR OPERATOR RM 100V	MISC			1000	2200			30	2	16			
	17	1	20	DOOR OPERATOR RM 100U	MISC					500	2200	30	2	18			
	19	1	20	B-1	MISC	1440	2200					30	2	20			
	21	1	15	BP-1A, 1B	MOTR			240	2200			30	2	22			
	23	1	20	B-2	MISC					1440	1500	20	1	24			
	25	1	15	WH-1	MISC	600	1500					20	1	26			
	27	1	15	WH-2	MISC			600	181			15	1	28			
	29	1	15	HWCP-1	MOTR					168	540	20	1	30	a		
	31	1	20	RECP - TELECOM CABINET	RECP	900	500					20	1	32			
	33	2	35	ERV-1	MOTR			2022	720			15	1	34			
	35	2	35	AA	MOTR					2022	832	25	2	36			
	37	2	25	CP-1B	MOTR	832	832					25	2	38			
	39	2	25	AA	MOTR			832	50			20	1	40			
	41	1	15	CP-2	MOTR					720	720	20	1	42			
	43	1	20	EXTERIOR BUILDING SIGN	MISC	500	500					20	1	44			
	45	1	20	HEADBOLT HEATER CONTACTOR	MISC			500	360			20	1	46			
a	47	1	20	FA MONITORING PANEL	MISC					500	500	20	1	48			
	49	1	-	SPACE								-	1	50			
	51	1	-	SPACE								-	1	52			
	53	1	-	SPACE								-	1	54			
TOTAL V-A						13265		13743		13976		40,984		VA			
TOTAL AMPS						111		115		116		114		A			
1 MINIMUM RECOMMENDED A.I.C. RATING: 22,000																	
CONNECTED LOAD IN KVA (THIS PANEL):						2.03	5.76	12.14	1.01	21.05	0.00	0.00	0.00	41.0 KVA		114 A	
TOTAL CONNECTED LOAD IN KVA:						2.03	5.76	12.14	1.01	21.05	0.00	0.00	0.00	41.0 KVA		114 A	
DEMAND LOAD IN KVA:						2.54	5.76	12.14	1.01	21.05	0.00	0.00	0.00	42.5 KVA		118 A	
PANEL NOTES:																	
a PROVIDE RED HANDLE BREAKER CAPABLE OF BEING LOCKED IN THE 'ON' POSITION.																	
b PROVIDE 6mA GFCI TYPE CIRCUIT BREAKER.																	
c ROUTE THROUGH THERMOSTATIC HEAT TRACE CONTROLLER, SEE 1/E5.00.																	
PANEL OPTIONS: MAIN LUGS ONLY																	

PANEL 'HBO'

MFR/MODEL: SQUARE 'D' TYPE NQ

VOLTS: 120/208V,3PH,4W

ENCLOSURE: NEMA 1

125 A

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS			MTG: SURFACE	SERVICE	AMPS	POLE	CIRC	NOTE	
						A	B	C							
	1	1	20	RECP - HEADBOLT HEATER 1	SPEC	1200	1200			SPEC	RECP - HEADBOLT HEATER 5	20	1	2	
	3	1	20	RECP - HEADBOLT HEATER 2	SPEC		1200	1200		SPEC	RECP - HEADBOLT HEATER 6	20	1	4	
	5	1	20	RECP - HEADBOLT HEATER 3	SPEC			1200	1200	SPEC	RECP - HEADBOLT HEATER 7	20	1	6	
	7	1	20	RECP - HEADBOLT HEATER 4	SPEC	1200	1200			SPEC	RECP - HEADBOLT HEATER 8	20	1	8	
	9	1	20	RECP - HEADBOLT HEATER 9	SPEC		1200				SPACE	-	1	10	
	11	1	20	RECP - HEADBOLT HEATER 10	SPEC			1200			SPACE	-	1	12	
	13	1	20	RECP - HEADBOLT HEATER 11	SPEC	1200					SPACE	-	1	14	
	15	1	-	SPACE							SPACE	-	1	16	
	17	1	-	SPACE							SPACE	-	1	18	
	19	1	-	SPACE							SPACE	-	1	20	
	21	1	-	SPACE							SPACE	-	1	22	
	23	1	-	SPACE							SPACE	-	1	24	
	25	1	-	SPACE							SPACE	-	1	26	
	27	1	-	SPACE							SPACE	-	1	28	
	29	1	-	SPACE							SPACE	-	1	30	
	31	1	-	SPACE							SPACE	-	1	32	
	33	1	-	SPACE							SPACE	-	1	34	
	35	1	-	SPACE							SPACE	-	1	36	
	37	1	-	SPACE							SPACE	-	1	38	
	39	1	-	SPACE							SPACE	-	1	40	
	41	1	-	SPACE							SPACE	-	1	42	
TOTAL V-A						6000		3600	3600	13,200		VA			
TOTAL AMPS						50		30	30	37		A			
1 MINIMUM RECOMMENDED A.I.C. RATING: 22,000															
CONNECTED LOAD IN KVA (THIS PANEL):						0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.20	13.2 KVA	37 A
TOTAL CONNECTED LOAD IN KVA:						0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.20	13.2 KVA	37 A
DEMAND LOAD IN KVA:						0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.20	13.2 KVA	37 A
PANEL NOTES:									PANEL OPTIONS: MAIN LUGS ONLY						

PANEL '2HA'															
MFR/MODEL: SQUARE 'D' TYPE NQ						VOLTS: 120/208V,3PH,4W				ENCLOSURE: NEMA 1				225 A	
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS			MTG: SURFACE	SERVICE	AMPS	POLE	CIRC	NOTE	
						A	B	C							
a	1	1	20	LTG - LEVEL 2	LTG	964	2200			MISC	DRYER - ROOM 200U N.	30	2	2	
	3	1	20	CUH-1, RECP S2, 200C	MISC		757	2200		MISC ^{AA}		30	2	4	
	5	1	20	RECP - LOBBY 200L, S1	RECP			540	2200	MISC	DRYER - ROOM 200U S.	30	2	6	
	7	1	20	RECP - 200C EAST, CUH-1	MISC	217	2200			MISC ^{AA}		30	2	8	
	9	1	20	RECP - TELECOM CABINET	RECP		500	1500		MISC	WASHER - ROOM 200U N.	20	1	10	
	11	1	20	RECP - ELECTRICAL 200E	RECP			180	1500	MISC	WASHER - ROOM 200U S.	20	1	12	
	13	1	20	LTG - LEVEL 3	LTG	884	1000			MISC	DOOR OPERATOR RM 200R & 300R	20	1	14	
	15	1	20	CUH-1,7, RECP S2, 300C	MISC		907	2200		MISC	DRYER - ROOM 300U N.	30	2	16	
	17	1	15	LEVEL 2/3 FIRE SMOKE DAMPERS	MISC			200	2200	MISC ^{AA}		30	2	18	
	19	1	20	RECP - LOBBY 300L, S1	RECP	540	1500			MISC	WASHER - ROOM 300U N.	20	1	20	
	21	1	20	RECP - 300C EAST, CUH-1	MISC		217	2200		MISC	DRYER - ROOM 300U S.	30	2	22	
	23	1	20	RECP - TELECOM CABINET	RECP			500	2200	MISC ^{AA}		30	2	24	
	25	1	20	RECP - ELECTRICAL 300E	RECP	360	1500			MISC	WASHER - ROOM 300U S.	20	1	26	
	27	1	20	LTG - LEVEL 3 ELEVATOR SHAFT	LTG		36	200		LTG	ELEVATOR CAR LIGHTS	20	1	28	
	29	1	15	ROOFTOP - EF-1	MOTR			528	1000	MISC	DOOR OPERATOR RM 200U & 300U	20	1	30	
	31	1	20	RECP-LEVEL 3 ELEVATOR SHAFT	RECP	180					SPARE	20	1	32	
	33	1	-	SPACE							SPARE	20	1	34	
	35	1	-	SPACE							SPACE	-	1	36	
	37	1	-	SPACE							SPACE	-	1	38	
	39	1	-	SPACE							SPACE	-	1	40	
	41	1	-	SPACE							SPACE	-	1	42	
TOTAL V-A						11546		10717		11048		33,311		VA	
TOTAL AMPS						96		89		92		92		A	
<div>1</div> MINIMUM RECOMMENDED A.I.C. RATING: 10,000						LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL):						2.08	2.80	0.53	0.13	27.90	0.00	0.00	0.00	33.3 KVA	92 A
TOTAL CONNECTED LOAD IN KVA:						2.08	2.80	0.53	0.13	27.90	0.00	0.00	0.00	33.3 KVA	92 A
DEMAND LOAD IN KVA:						2.61	2.80	0.53	0.13	27.90	0.00	0.00	0.00	34.0 KVA	94 A
PANEL NOTES: a PROVIDE RED HANDLE BREAKER CAPABLE OF BEING LOCKED IN THE 'ON' POSITION.											PANEL OPTIONS: MAIN LUGS ONLY				

SHEET NOTES: #

1. SEE ONE-LINE 1/E1.01 FOR CALCULATED A.I.C. RATING.

TYPICAL TYPE A UNIT PANEL																	
MFR/MODEL: SQUARE 'D' TYPE QO						VOLTS: 120/240V,1PH,3W				ENCLOSURE: NEMA 1				125 A			
TYPE: PANELBOARD						VOLT-AMPS				MTG: RECESSED							
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE		
a	1	1	20	LIGHTING & RH-1	LTG	263	540			RECP	RECP-ENTRY & KITCHEN EAST	20	1	2	a		
a	3	1	20	RECP-LIVING ROOM	RECP			720	1,500	RECP	RECP-KITCHEN EAST	20	1	4	a		
	5	2	50	RANGE	MISC	4,450	1500			RECP	RECP-KITCHEN NORTH	20	1	6	a		
	7	2	50	^A	MISC			4,450	1,500	MISC	REFRIGERATOR	20	1	8	b		
a	9	1	20	DISHWASHER	MISC	1068					SPARE	20	1	10	a		
a	11	1	20	RECP-TOILET	RECP			180			SPARE	20	1	12	a		
	13	1	-	SPACE							SPACE	-	1	14			
	15	1	-	SPACE							SPACE	-	1	16			
	17	1	-	SPACE							SPACE	-	1	18			
	19	1	-	SPACE							SPACE	-	1	20			
TOTAL V-A						7,821		8,350				16,171		VA			
TOTAL AMPS						65		70				67		A			
1						MINIMUM RECOMMENDED A.I.C. RATING: 10,000											
						LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL		AMPS			
CONNECTED LOAD IN KVA (THIS PANEL):						0.26	4.44	0.00	0.00	11.47	0.00	16.2 KVA		67 A			
TOTAL CONNECTED LOAD IN KVA:						0.26	4.44	0.00	0.00	11.47	0.00	16.2 KVA		67 A			
DEMAND LOAD IN KVA:						0.33	4.44	0.00	0.00	11.47	0.00	16.2 KVA		68 A			
PANEL NOTES:										PANEL OPTIONS:							
a PROVIDE AFCI TYPE CIRCUIT BREAKER										MAIN LUGS ONLY							
b PROVIDE DUAL FUNCTION AFCI/GFCI TYPE CIRCUIT BREAKER																	

TYPICAL TYPE B (UFAS) UNIT PANEL																	
MFR/MODEL: SQUARE 'D' TYPE QO						VOLTS: 120/240V,1PH,3W						ENCLOSURE: NEMA 1					
TYPE: PANELBOARD						VOLT-AMPS						MTG: RECESSED					
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE		
a	1	1	20	LIGHTING & RH-1A	LTG	318	540			RECP	RECP-ENTRY & LIVING RM SE	20	1	2	a		
a	3	1	20	RECP-LIVING ROOM	RECP			720	1,500	RECP	RECP-KITCHEN	20	1	4	a		
	5	2	50	RANGE	MISC	4,450	1068			MISC	DISHWASHER	20	1	6	a		
	7	2	50	^A	MISC			4,450	1,500	MISC	REFRIGERATOR	20	1	8	b		
a	9	1	20	RECP-BEDROOM	RECP	1080	1500			RECP	RECP-KITCHEN ISLAND	20	1	10	a		
a	11	1	20	RECP-TOILET	RECP			180			SPARE	20	1	12	a		
a	13	1	20	SPARE							SPACE	-	1	14			
	15	1	-	SPACE							SPACE	-	1	16			
	17	1	-	SPACE							SPACE	-	1	18			
	19	1	-	SPACE							SPACE	-	1	20			
TOTAL V-A						8,956		8,350		17,306 VA							
TOTAL AMPS						75		70		72 A							
1						MINIMUM RECOMMENDED A.I.C. RATING: 10,000											
						LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL		AMPS			
CONNECTED LOAD IN KVA (THIS PANEL):						0.32	5.52	0.00	0.00	11.47	0.00	17.3 KVA		72 A			
TOTAL CONNECTED LOAD IN KVA:						0.32	5.52	0.00	0.00	11.47	0.00	17.3 KVA		72 A			
DEMAND LOAD IN KVA:						0.40	5.52	0.00	0.00	11.47	0.00	17.4 KVA		72 A			
PANEL NOTES:											PANEL OPTIONS:						
a PROVIDE AFCI TYPE CIRCUIT BREAKER											MAIN LUGS ONLY						
b PROVIDE DUAL FUNCTION AFCI/GFCI TYPE CIRCUIT BREAKER																	

TYPICAL TYPE B UNIT PANEL																	
MFR/MODEL: SQUARE 'D' TYPE QO						VOLTS: 120/240V,1PH,3W				ENCLOSURE: NEMA 1				125 A			
TYPE: PANELBOARD						VOLT-AMPS				MTG: RECESSED							
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE		AMPS	POLE	CIRC	NOTE	
a	1	1	20	LIGHTING & RH-1	LTG	320	540			RECP	RECP-ENTRY & LIVING RM SE		20	1	2	a	
a	3	1	20	RECP-LIVING ROOM	RECP			750	1,500	RECP	RECP-KITCHEN		20	1	4	a	
	5	2	50	RANGE	MISC	4,450	1068			MISC	DISHWASHER		20	1	6	a	
	7	2	50	AA	MISC			4,450	1,500	MISC	REFRIGERATOR		20	1	8	b	
a	9	1	20	RECP-BEDROOM	RECP	1080	1500			RECP	RECP-KITCHEN ISLAND		20	1	10	a	
a	11	1	20	RECP-TOILET	RECP			180			SPARE		20	1	12	a	
a	13	1	20	SPARE							SPACE		-	1	14		
	15	1	-	SPACE							SPACE		-	1	16		
	17	1	-	SPACE							SPACE		-	1	18		
	19	1	-	SPACE							SPACE		-	1	20		
TOTAL V-A						8,958		8,380				17,338		VA			
TOTAL AMPS						75		70				72		A			
<div>1</div> MINIMUM RECOMMENDED A.I.C. RATING: 10,000																	
CONNECTED LOAD IN KVA (THIS PANEL):					LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL			AMPS			
TOTAL CONNECTED LOAD IN KVA:					0.32	5.55	0.00	0.00	11.47	0.00	17.3 KVA			72 A			
DEMAND LOAD IN KVA:					0.32	5.55	0.00	0.00	11.47	0.00	17.3 KVA			72 A			
					0.40	5.55	0.00	0.00	11.47	0.00	17.4 KVA			73 A			
PANEL NOTES:										PANEL OPTIONS:							
a PROVIDE AFCI TYPE CIRCUIT BREAKER										MAIN LUGS ONLY							
b PROVIDE DUAL FUNCTION AFCI/GFCI TYPE CIRCUIT BREAKER																	

TYPICAL TYPE C UNIT PANEL																	
MFR/MODEL: SQUARE 'D' TYPE QO						VOLTS: 120/240V,1PH,3W				ENCLOSURE: NEMA 1				125 A			
TYPE: PANELBOARD						VOLT-AMPS				MTG: RECESSED							
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE		AMPS	POLE	CIRC	NOTE	
a	1	1	20	LIGHTING & RH-1	LTG	283	540			RECP	RECP-ENTRY & KITCHEN EAST		20	1	2	a	
b	3	1	20	REFRIGERATOR	MISC			1,500	1,500	RECP	RECP-KITCHEN SOUTH		20	1	4	a	
a	5	1	20	DISHWASHER	MISC	1,068	1500			RECP	RECP-KITCHEN/LIVING		20	1	6	a	
	7	2	50	RANGE	MISC			4,450	540	RECP	RECP-LIVING ROOM		20	1	8	a	
	9	2	50	^A	MISC	4,450	180			RECP	RECP-TOILET		20	1	10	a	
a	11	1	20	RECP-BEDROOM	RECP			900			SPARE		20	1	12	a	
a	13	1	15	CUH-2	MOTR	37					SPARE		20	1	14	a	
	15	1	-	SPACE							SPACE		-	1	16		
	17	1	-	SPACE							SPACE		-	1	18		
	19	1	-	SPACE							SPACE		-	1	20		
TOTAL V-A						8,058		8,890				16,948		VA			
TOTAL AMPS						67		74				71		A			
<div><div>1</div><div>MINIMUM RECOMMENDED A.I.C. RATING: 10,000</div></div>																	
					LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL			AMPS			
CONNECTED LOAD IN KVA (THIS PANEL):					0.28	5.16	0.04	0.01	11.47	0.00	16.9 KVA			71 A			
TOTAL CONNECTED LOAD IN KVA:					0.28	5.16	0.04	0.01	11.47	0.00	16.9 KVA			71 A			
DEMAND LOAD IN KVA:					0.35	5.16	0.04	0.01	11.47	0.00	17.0 KVA			71 A			
PANEL NOTES:										PANEL OPTIONS:							
a PROVIDE AFCI TYPE CIRCUIT BREAKER										MAIN LUGS ONLY							
b PROVIDE DUAL FUNCTION AFCI/GFCI TYPE CIRCUIT BREAKER																	

SHEET NOTES: #

1. SEE ONE-LINE 1/E1.01 FOR CALCULATED A.I.C. RATING.

TYPICAL TYPE C (UFAS) UNIT PANEL

MFR/MODEL: SQUARE 'D' TYPE QO				VOLTS: 120/240V,1PH,3W				ENCLOSURE: NEMA 1				125 A			
TYPE: PANELBOARD				VOLT-AMPS				MTG: RECESSED							
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	1	20	LIGHTING & RH-1A	LTG	283	540			RECP	RECP-ENTRY & KITCHEN EAST	20	1	2	a
b	3	1	20	REFRIGERATOR	MISC			1,500	1,500	RECP	RECP-KITCHEN SOUTH	20	1	4	a
a	5	1	20	DISHWASHER	MISC	1,068	1500			RECP	RECP-KITCHEN/LIVING	20	1	6	a
	7	2	50	RANGE	MISC			4,450	540	RECP	RECP-LIVING ROOM	20	1	8	a
	9	2	50	^	MISC	4,450	180			RECP	RECP-TOILET	20	1	10	a
a	11	1	20	RECP-BEDROOM	RECP			900			SPARE	20	1	12	a
a	13	1	15	CUH-2	MOTR	37					SPARE	20	1	14	a
	15	1	-	SPACE							SPACE	-	1	16	
	17	1	-	SPACE							SPACE	-	1	18	
	19	1	-	SPACE							SPACE	-	1	20	
TOTAL V-A						8,058		8,890				16,948		VA	
TOTAL AMPS						67		74				71		A	
1 MINIMUM RECOMMENDED A.I.C. RATING: 10,000															
						LTG	RECP	MOTR	LG.MT	MISC	SPEC	TOTAL		AMPS	
CONNECTED LOAD IN KVA (THIS PANEL):						0.28	5.16	0.04	0.01	11.47	0.00	16.9 KVA		71 A	
TOTAL CONNECTED LOAD IN KVA:						0.28	5.16	0.04	0.01	11.47	0.00	16.9 KVA		71 A	
DEMAND LOAD IN KVA:						0.35	5.16	0.04	0.01	11.47	0.00	17.0 KVA		71 A	
PANEL NOTES:										PANEL OPTIONS:					
a PROVIDE AFCI TYPE CIRCUIT BREAKER										MAIN LUGS ONLY					
b PROVIDE DUAL FUNCTION AFCI/GFCI TYPE CIRCUIT BREAKER															

BREWSTERS MULTI-FAMILY HOUSING 21 UNITS LOAD ANALYSIS					
PROJECT: BREWSTERS MULTI-FAMILY HOUSING			VOLTAGE: 208 PHASE: 3		
21-UNIT FEEDER CALCULATION PER NEC 220 PART III					
1. DWELLING UNITS LOAD (SEE TYPICAL TENANT UNIT)					
A. DEMAND GENERAL LIGHT, RECEPTACLE & SMALL APPLIANCE					
(2) STUDIO UNIT A - LIGHTING & SMALL APPLIANCE			12,026	VA	
(13) 1-BEDROOM UNIT B - LIGHTING & SMALL APPLIANCE			85,449	VA	
(6) 1-BEDROOM UNIT C - LIGHTING & SMALL APPLIANCE			38,451	VA	
SUBTOTAL			135,926	VA	
APPLY DEMAND FACTOR PER NEC TABLE 220.42 & 220.52					
UP TO 3,000 VA @ 100% =				3,000	VA
3,001 UP TO 120,000 VA @ 35% =				40,950	VA
NET GENERAL LIGHT, RECEPTACLES, SMALL APPLIANCE LOADS:				43,950	VA
					43,950 VA
B. NUMBER OF HOUSEHOLD ELECTRIC RANGE: 21					
MAXIMUM NUMBER BETWEEN ANY TWO PHASE LEGS = 7					
2 * 7 = 14					
TABLE 220.55, COLUMN C: DEMAND = 36,000 VA					
PER PHASE DEMAND = 36,000 VA / 2 = 18,000 VA					
EQUIVALENT THREE PHASE LOAD = 3*18,000 VA = 54,000 VA					
					54,000 VA
C. APPLIANCE LOAD					
21-DISHWASHERS EACH AT 1,068 VA			22,428	VA	
APPLY 75% DEMAND FACTOR PER NEC 220.53					
22,428 VA * 0.75 =			16,821	VA	16,821 VA
TOTAL APPLIANCE LOAD:				16,821	VA
					16,821 VA
D. MOTOR LOADS					
13-CABINET UNIT HEATERS EACH AT 37VA			4,440	VA	
21-RANGE HOOD FAN/LIGHT UNITS EACH AT 78VA			1,638	VA	6,078 VA
NET COMPUTED 21 UNITS LOAD					120,849 VA
DEMAND PER NEC 215.2(A)(1)					
25% OF 43,950 VA CONTINUOUS LOAD					10,988 VA
GRAND TOTAL					131,837 VA
MINIMUM FEEDER/SERVICE SIZE FOR 120/208 V, THREE-PHASE, FOUR-WIRE SERVICE:					
131,837			VA / (208*1.732) =	366	AMPS
BASED ON THE ABOVE CALCULATION 600A, 120/208V THREE-PHASE FOUR-WIRE SERVICE IS REQUIRED					

BREWSTERS MULTI-FAMILY HOUSING
BUILDING LOAD ANALYSIS

PROJECT: BREWSTERS MULTI-FAMILY HOUSING

VOLTAGE: 208
PHASE: 3

MULTI-FAMILY HOUSING BUILDING FEEDER CALCULATION PER NEC 220 PART III

1. MULTI-FAMILY HOUSE LOAD (SEE MULTI-FAMILY HOUSE LOAD ANALYSIS)

COMPUTED MULTI-FAMILY HOUSE LOAD 108,329 VA

2. 21-UNITS LOAD (SEE 21-UNITS LOAD ANALYSIS)

COMPUTED 21-UNITS LOAD 131,837 VA

TOTAL CALCULATED MIXED USE BUILDING DEMAND LOAD 240,165 VA

MINIMUM FEEDER/SERVICE SIZE FOR 120/208 V, THREE-PHASE, FOUR-WIRE SERVICE:

240,165 VA / (1.732*208) V = 667 A

BASE ON THE ABOVE CALCULATION 1000A, 120/208V, 3-PHASE, 4-WIRE FEEDER IS REQUIRED

BREWSTERS MULTI-FAMILY HOUSING
HOUSE LOAD ANALYSIS

PROJECT: BREWSTERS MULTI-FAMILY HOUSING

VOLTAGE: 208
PHASE: 3

MULTI-FAMILY HOUSE FEEDER CALCULATION PER NEC 220 PART III

GENERAL LIGHTING LOAD

INTERIOR LIGHTING 3,550 VA
EXTERIOR LIGHTING 200 VA
SUBTOTAL 3,750 VA
DEMAND PER NEC 215.2(A)(1): 125%
25% OF CONTINUOUS LOAD
NET GENERAL LIGHTING LOAD 4,688 VA 4,688 VA

RECEPTACLE LOAD: 41 RECEPTACLES EACH @ 180VA

DEMAND PER NEC TABLE 220.44
FIRST 10,000VA OR LESS @ 100% = 7,380 VA
REMAINDER OVER 10,000VA @ 50% = 0 VA
7,380 VA 7,380 VA

MECHANICAL CONTINUOUS LOAD

HWC-P 168 VA
HEAT TRACE 300 VA
SUBTOTAL MECHANICAL CONTINUOUS LOAD 468 VA
DEMAND FACTOR PER NEC 210.20(A)
25% OF CONTINUOUS LOAD
TOTAL MECHANICAL CONTINUOUS LOAD 117 VA 585 VA

MECHANICAL NON-CONTINUOUS LOAD

B-1,2 2,880 VA
EF-1 528 VA
GT-1 50 VA
FSD 400 VA
WH-1,2 1,200 VA
BP-1A,B 240 VA
CP-1A, B 3,328 VA
CP-2,3 1,440 VA
TV-1 20 VA
SP-1 1,176 VA
SUBTOTAL 11,262 VA 11,262 VA

ELEVATOR LOAD - 65A, 208V, 3-PHASE

ELEVATOR CONTROL PANEL 500 VA
25% OF LARGEST MOTOR LOAD 5,854 VA
SUBTOTAL 29,772 VA 29,772 VA

HEATING LOAD

CUH-1,3-7 1,309 VA
ERV-1 4,044 VA
UH-1 161 VA
UH-2 312 VA
SUBTOTAL HEATING CONTINUOUS LOAD 5,825 VA
25% OF CONTINUOUS LOAD 1,456 VA
SUBTOTAL 7,282 VA 7,282 VA

LAUNDRY LOAD

6-CLOTHES WASHERS EACH @ 1500VA 9,000 VA
6-ELECTRIC CLOTHES DRYERS EACH @ 4,400VA
MAXIMUM NUMBER BETWEEN ANY TWO PHASE LEGS = 2
2*2 = 4
TABLE 220.54 DEMAND = (4*4400)*100% = 17,600 VA
PER PHASE DEMAND = 17,600 VA / 2 = 8,800 VA
EQUIVALENT THREE PHASE LOAD = 3*8800 VA
TOTAL LAUNDRY LOAD 26,400 VA 35,400 VA 35,400 VA

MISCELLANEOUS LOAD

11-HEADBOLT HEATER OUTLETS EACH @ 1200VA 10,560 VA
FIRE ALARM SYSTEM CIRCUIT 500 VA
TELECOM SYSTEM CIRCUIT 900 VA
TOTAL MISCELLANEOUS LOAD 11,960 VA 11,960 VA

NET COMPUTED MULTI-FAMILY HOUSE LOAD: 108,329 VA

MINIMUM FEEDER/SERVICE SIZE 120/208V, THREE-PHASE, FOUR-WIRE IS:

108,329 VA / (208*1.732) = 301 AMPS

BASE ON THE ABOVE CALCULATION 400A, 120/208V, 3-PHASE, 4-WIRE FEEDER IS REQUIRED



CERTIFICATE OF AUTHORIZATION NO. SPARK DESIGN, LLC #AECL1394

spark design,llc
architecture • interiors • design-build
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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT,TEH

SHEET NAME
PANEL SCHEDULE AND LOAD
CALCULATIONS

SHEET NO.
E7.02

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
1000 West 10th Avenue, Suite 200 - Anchorage, AK 99503 - (907) 276-0521
Corporate No.: REC00042

BREWSTERS MULTI-FAMILY HOUSING TYPICAL 1 BEDROOM UNIT A LOAD ANALYSIS		
PROJECT: BREWSTERS MULTI-FAMILY HOUSING	VOLTAGE: PHASE:	208 1
1-BR UNIT A FEEDER CALCULATION PER NEC 220.82 FOR DWELLING UNITS		
TYPICAL 1-BEDRRUM UNIT A - TOTAL AREA:	504 SF	
1. GENERAL LIGHTING AND RECEPTACLE LOADS LOAD AT 3 VA/SF	1,513 VA	
2. SMALL APPLIANCES AND LAUNDRY BRANCH CIRCUITS 3 SMALL APPLIANCES EACH AT 1,500 VA	4,500 VA	
3. APPLIANCE LOADS ELECTRIC RANGE DISHWASHER	8,900 VA 1,068 VA	
4. MOTOR LOAD RANGE HOOD FAN/LIGHT SUBTOTAL GENERAL LOAD APPLY DEMAND FACTOR PER NEC 220.82(B) FRIST 10,000 VA AT 100% REMAINDER AT 40%	78 VA 16,059 VA 10,000 VA 2,424 VA	
TOTAL GENERAL CONNECTED LOAD	12,424 VA	
FEEDER AND SERVICE LOAD MINIMUM FEEDER/SERVICE SIZE FOR 120/208 V, SINGLE-PHASE, THREE-WIRE 12,424 VA / 208V = 60 AMPS	12,424 VA	
BASED ON THE ABOVE CALCULATION, 100A 120/208V SINGLE-PHASE, THREE-WIRE SERVICE IS REQUIRED FOR 1-BEDROOM UNIT.		

BREWSTERS MULTI-FAMILY HOUSING TYPICAL 1 BEDROOM UNIT B LOAD ANALYSIS		
PROJECT: BREWSTERS MULTI-FAMILY HOUSING	VOLTAGE: PHASE:	208 1
1-BR UNIT B FEEDER CALCULATION PER NEC 220.82 FOR DWELLING UNITS		
TYPICAL 1-BEDRRUM UNIT B - TOTAL AREA:	691 SF	
1. GENERAL LIGHTING AND RECEPTACLE LOADS LOAD AT 3 VA/SF	2,073 VA	
2. SMALL APPLIANCES AND LAUNDRY BRANCH CIRCUITS 3 SMALL APPLIANCES EACH AT 1,500 VA	4,500 VA	
3. APPLIANCE LOADS ELECTRIC RANGE DISHWASHER	8,900 VA 1,068 VA	
4. MOTOR LOAD CUH-2 RANGE HOOD FAN/LIGHT SUBTOTAL GENERAL LOAD APPLY DEMAND FACTOR PER NEC 220.82(B) FRIST 10,000 VA AT 100% REMAINDER AT 40%	37 VA 78 VA 16,656 VA 10,000 VA 2,662 VA	
TOTAL GENERAL CONNECTED LOAD	12,662 VA	
FEEDER AND SERVICE LOAD MINIMUM FEEDER/SERVICE SIZE FOR 120/208 V, SINGLE-PHASE, THREE-WIRE 12,662 VA / 208V = 61 AMPS	12,662 VA	
BASED ON THE ABOVE CALCULATION, 100A 120/208V SINGLE-PHASE, THREE-WIRE SERVICE IS REQUIRED FOR 1-BEDROOM UNIT.		

BREWSTERS MULTI-FAMILY HOUSING TYPICAL STUDIO UNIT C LOAD ANALYSIS		
PROJECT: BREWSTERS MULTI-FAMILY HOUSING	VOLTAGE: PHASE:	208 1
STUDIO UNIT C FEEDER CALCULATION PER NEC 220.82 FOR DWELLING UNITS		
TYPICAL STUDIO UNIT C - TOTAL AREA:	636 SF	
1. GENERAL LIGHTING AND RECEPTACLE LOADS LOAD AT 3 VA/SF	1,909 VA	
2. SMALL APPLIANCES AND LAUNDRY BRANCH CIRCUITS 3 SMALL APPLIANCES EACH AT 1,500 VA	4,500 VA	
3. APPLIANCE LOADS ELECTRIC RANGE DISHWASHER	8,900 VA 1,068 VA	
4. MOTOR LOAD RANGE HOOD FAN/LIGHT SUBTOTAL GENERAL LOAD APPLY DEMAND FACTOR PER NEC 220.82(B) FRIST 10,000 VA AT 100% REMAINDER AT 40%	78 VA 16,455 VA 10,000 VA 2,582 VA	
TOTAL GENERAL CONNECTED LOAD	12,582 VA	
FEEDER AND SERVICE LOAD MINIMUM FEEDER/SERVICE SIZE FOR 120/208 V, SINGLE-PHASE, THREE-WIRE 12,582 VA / 208V = 60 AMPS	12,582 VA	
BASED ON THE ABOVE CALCULATION, 100A 120/208V SINGLE-PHASE, THREE-WIRE SERVICE IS REQUIRED FOR STUDIO.		



CERTIFICATE OF AUTHORIZATION NO.
SPARK DESIGN, LLC #AECL1394

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COOK INLET HOUSING AUTHORITY
BREWSTERS MULTI-FAMILY HOUSING
ANCHORAGE, ALASKA

REVISION SCHEDULE		
#	DESCRIPTION	DATE

JOB NO.	M2169
DATE	2023.03.08
DRAWN	CSZ
REVIEWED	XPT, TEH

SHEET NAME
LOAD CALCULATIONS

SHEET NO.
E7.03