STRUCTURAL NOTES :

A. GENERAL

1. THE STRUCTURAL NOTES ARE INTENDED TO COMPLEMENT THE PROJECT SPECIFICATIONS WHICH ARE PART OF THE CONSTRUCTION DOCUMENTS. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS SHALL GOVERN OVER THE STRUCTURAL NOTES AND TYPICAL DETAILS.
2. THESE DRAWINGS (AND, WHERE APPLICABLE, ACCOMPANYING WRITTEN SPECIFICATIONS) ARE THE ONLY CONTRACT DOCUMENTS PROVIDED BY ARW ENGINEERS FOR THE PROJECT REPRESENTED HEREIN. NOTHING IN ANY DIGITAL MODEL OR DIGITAL FILE RELATED TO THIS PROJECT SHALL BE TAKEN TO SUPERSEDE ANY INFORMATION SHOWN IN THESE DRAWINGS (INCLUDING, BUT NOT LIMITED TO, DIMENSIONS, SIZES, ETC).
3. THE ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. THE STRUCTURAL DRAWINGS ARE SUPPLEMENTARY TO AND MUST BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND OTHER CONSULTANTS DRAWINGS. ANY DISCREPANCIES OR CONFLICTS BETWEEN THE STRUCTURAL ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW THE MOST STRINGENT REQUIREMENT AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
4. SEE SPECIFICATIONS FOR REQUIRED SUBMITTALS. SUBMITTALS SHALL BE MADE IN A TIMELY MANNER AS INDICATED IN SPECIFICATIONS. REVIEW OF SUBMITTALS BY ARW ENGINEERS IS FOR GENERAL COMPLIANCE ONLY AND IS NOT INTENDED AS APPROVAL. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SIZES, DIMENSIONS, AND ELEVATIONS ON SUBMITTALS AS RELATED TO DESIGN DOCUMENTS. PREPARATION OF SHOP DRAWINGS FOR STRUCTURAL ELEMENTS WILL REQUIRE INFORMATION (I.E. DIMENSIONS, ETC.) FOUND IN THE ARCHITECTURAL, STRUCTURAL, AND OTHER CONSULTANTS DRAWINGS.
5. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE SITE. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON CONTRACT DOCUMENTS, CONTRACTOR SHALL NOTIFY ARCHITECT PRIOR TO FABRICATION OR CONSTRUCTION OF ANY AFFECTED ELEMENTS.
6. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL LOCATIONS AND SIZES OF MECHANICAL EQUIPMENT OR OTHER EQUIPMENT BEFORE FABRICATING AND ERECTING STRUCTURAL ELEMENTS. SIZES AND LOCATIONS THAT DIFFER FROM THOSE SHOWN ON THE CONTRACT DOCUMENTS SHALL BE REPORTED TO ARCHITECT.
7. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE ARCHITECT FOR ARCHITECT AND/OR ENGINEER APPROVAL BEFORE PROCEEDING WITH ANY CHANGES, MODIFICATIONS, OR SUBSTITUTIONS.
8. OBSERVATION VISITS TO THE SITE BY ARW ENGINEERS FIELD REPRESENTATIVES SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.
9. DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS AS NOTED IN THESE DOCUMENTS.
10. TYPICAL OR SIMILAR DETAILS AND SECTIONS SHALL APPLY WHERE SPECIFIC DETAILS ARE NOT SHOWN. TYPICAL OR SIMILAR DETAILS REFER TO THE CONDITION ADDRESSED AND ARE NOT NECESSARILY DETAILS LABELED "TYPICAL" OR "SIMILAR" IN THE PLANS AND DOCUMENTS.
11. DRAWINGS AND DETAILS HAVE BEEN PREPARED WITH THE INTENT TO VISUALLY REPRESENT INFORMATION PROVIDED IN SCALED FORM; HOWEVER CONTRACTOR/SUPPLIERS SHOULD NOT SCALE PLANS OR DETAILS FOR DIMENSIONAL INFORMATION.
12. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SHORING AND BRACING FOR ALL STRUCTURAL ELEMENTS UNTIL THE ENTIRE STRUCTURAL SYSTEM IS COMPLETED. DESIGN OF ALL SHORING AND BRACING IS BY OTHERS AT NO ADDITIONAL COST TO THE OWNER.
13. ENGINEER SHALL NOT BE RESPONSIBLE FOR ACTIVITIES UNDER CONTROL OF THE CONTRACTOR SUCH AS CONSTRUCTION SITE SAFETY, MEANS, METHODS AND SEQUENCING OF CONSTRUCTION. ENGINEER SHALL NOT BE RESPONSIBLE FOR FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS AS PRESCRIBED BY OSHA OR OTHER REGULATORY AGENCIES REGARDLESS OF INDICATIONS IN THESE DOCUMENTS.
14. NOTICE OF COPYRIGHT: THESE STRUCTURAL DRAWINGS ARE HEREBY COPYRIGHTED BY ARW ENGINEERS, ALL RIGHTS RESERVED. THESE DOCUMENTS DEFINE A STRUCTURE AND ARE INSTRUMENTS OF SERVICE. FOR ONE USE ONLY. REPRODUCTION AND DISTRIBUTION OF THESE DRAWINGS IS ONLY ALLOWED AS REQUIRED FOR REGULATORY AGENCIES AND FOR CONVEYANCE OF INFORMATION TO PARTIES INVOLVED IN THE CONSTRUCTION OF THIS PROJECT. THESE DOCUMENTS SHALL NOT BE REPRODUCED OR COPIED, IN PART OR WHOLE BY ANY PARTY OTHER THAN THE PREPARATION OF SHOP DRAWINGS OR OTHER SUBMITTALS.
15. WHERE THE WORD "SHALL" OCCURS IN THESE DRAWINGS AND ANY ACCOMPANYING SPECIFICATIONS, IT IS CONSIDERED A MANDATORY OBLIGATION AND SYNONYMOUS WITH THE PHRASE "HAS DUTY TO".

B. STATEMENT OF SPECIAL INSPECTIONS AND SPECIAL INSPECTIONS

1. THE DESIGNATED SEISMIC/WIND SYSTEMS AND SEISMIC/WIND-FORCE-RESISTING SYSTEMS THAT ARE SUBJECT TO SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.11 AND 1705.12 ARE IDENTIFIED ON THESE DOCUMENTS WITH A CIRCLE 'I.'. ALL OTHER ITEMS REQUIRING SPECIAL INSPECTION ARE IDENTIFIED IN THE SPECIAL INSPECTION SCHEDULE ON SHEETS S003 AND S004.
2. SPECIAL INSPECTIONS AND TESTING ARE TO BE PROVIDED AS REQUIRED BY IBC SECTIONS 1704 THROUGH 1705 AND OTHER APPLICABLE SECTIONS OF THE IBC. THE TYPE AND FREQUENCY OF TESTING AND SPECIAL INSPECTIONS SHALL BE AS NOTED IN THE SPECIAL INSPECTION SCHEDULE, JOB SPECIFICATIONS, AND IN ACCORDANCE WITH IBC SECTION 110 AND CHAPTER 17. CONTRACTOR SHALL COORDINATE AND COOPERATE WITH REQUIRED INSPECTIONS.
3. ALL TESTING AND SPECIAL INSPECTION SHALL BE PROVIDED BY A QUALIFIED INDEPENDENT SPECIAL INSPECTION AGENCY IN ACCORDANCE WITH IBC 1704 AND AS OUTLINED IN THE JOB SPECIFICATIONS. REPORTS OF FINDINGS OR DISCREPANCIES SHALL BE NOTED AND FORWARDED TO THE CONTRACTOR, ARCHITECT, ENGINEERS, AND BUILDING OFFICIAL IN A TIMELY MANNER.
4. STRUCTURAL OBSERVATION VISITS SHALL BE PERFORMED BY A REPRESENTATIVE FROM ARW ENGINEERS IN ACCORDANCE WITH THE CONTRACT AS NEEDED TO OBSERVE THE CONSTRUCTION OF CRITICAL BUILDING ELEMENTS (I.E. FOOTINGS, BRACED FRAMES, MOMENT FRAMES, DRAG STRUTS AND THEIR CONNECTIONS, COLLECTORS, AND FLOOR DIAPHRAGMS). A WRITTEN OBSERVATION REPORTS FOR EACH VISIT SHALL BE SENT DIRECTLY TO THE ARCHITECT FOR DISTRIBUTION TO THE CONTRACTOR AND BUILDING OFFICIAL. STRUCTURAL OBSERVATION VISITS SHALL NEITHER BE CONSTRUED AS SPECIAL INSPECTION NOR APPROVAL OF COMPLETED CONSTRUCTION.
5. IN ACCORDANCE WITH IBC 1704.4, THE CONTRACTOR SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER. THE CONTRACTOR SHALL BE SUBMITTED PRIOR TO THE CONSTRUCTION OF ANY SEISMIC/WIND-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC/WIND SYSTEM, OR COMPONENT IDENTIFIED IN THESE DOCUMENTS WITH A CIRCLE "I.".

C. BASIS OF DESIGN

1. GOVERNING BUILDING CODE : INTERNATIONAL BUILDING CODE (IBC) 2018
   RISK CATEGORY : II
2. SUSPENDED FLOOR LOADS
   a. LIVE LOAD = 100 PSF UNREDUCED (EGRESS AREAS)
   b. LIVE LOAD = 40 PSF REDUCED IN ACCORDANCE WITH 1607.11 (APPARTMENTS)
   c. LIVE LOAD = 60 PSF REDUCED IN ACCORDANCE WITH 1607.11 (BALCONIES)
   d. DEAD LOAD = 20 PSF
3. ROOF LOADS
   a. FLAT-ROOF SNOW LOAD, P_f: 20 PSF
      1. GROUND SNOW LOAD, P_g: 28 PSF
      2. SNOW EXPOSURE FACTOR, C_e: 1.0
      3. SNOW LOAD IMPORTANCE FACTOR, I_s: 1.0
      4. THERMAL FACTOR, C_t: 1.0
      5. SLOPE FACTOR, C_s : 1.0
      6. SNOW DRIFT : SHOWN ON PLANS WHERE APPLICABLE.
   b. LIVE LOAD = 20 PSF
   c. DEAD LOAD = 20 PSF
   d. RAIN INTENSITY, i : 1.5 IN/HR
4. WIND DESIGN
   a. BASIC WIND SPEED (3 SECOND GUST) : 103 MPH
   b. ALLOWABLE STRESS DESIGN WIND SPEED, V_{ASD} : 80 MPH
   c. WIND EXPOSURE : C
   d. INTERNAL PRESSURE COEFFICIENT, G_{CPI} : 0.18
   e. COMPONENT AND CLADDING DESIGN WIND PRESSURE SHALL BE AS REQUIRED PER ASCE 7-16.
5. SEISMIC
   a. SEISMIC IMPORTANCE FACTOR, I_E : 1.0
   b. SITE CLASS : D-DEFAULT
   c. MAPPED SPECTRAL RESPONSE ACCELERATIONS : S_S = 1.526 , S_1 = 0.552
   d. SPECTRAL RESPONSE COEFFICIENTS : S_{DS} = 1.22 , S_{D1} = 0.674
   e. SEISMIC DESIGN CATEGORY : D
   f. BASIC SEISMIC-FORCE-RESISTING SYSTEM : LIGHT-FRAME WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS
   g. DESIGN BASE SHEAR : V_{BSS} = 0.154 Wt , V_{BSN} = 0.154 Wt
   h. SEISMIC RESPONSE COEFFICIENT, C_S : 0.154
   i. RESPONSE MODIFICATION FACTOR, R : 6.5
   j. ANALYSIS PROCEDURE : ELF
6. ANTICIPATED SHRINKAGE AT EACH LEVEL IS TO BE LESS THAN 0.3". TOTAL CUMULATIVE SHRINKAGE AT TOP LEVEL IS ANTICIPATED TO BE LESS THAN 1.00".
7. MAXIMUM AMPLIFIED STORY DRIFT IS 2.4".

D. FOUNDATION

1. GENERAL
   a. DESIGN SOIL PRESSURE : 3000 PSF
   b. SOILS REPORT BY: GORDON GEOTECHNICAL ENGINEERING, INC
      REPORT # : APR. 1, 2016
      DATED : 068-012-16
   c. SOIL PREPARATION UNDER FOUNDATIONS AND SLABS-ON-GRADE SHALL BE IN ACCORDANCE WITH THE SOILS REPORT.
   d. TOP OF FOOTING ELEVATIONS SHOWN ON THE FOOTING AND FOUNDATION PLAN ARE BASED ON PRELIMINARY GRADING INFORMATION AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. STEPS WHERE SHOWN ARE AT APPROXIMATE LOCATIONS. ACTUAL STEP LOCATIONS SHALL BE AT THE CONTRACTOR'S DISCRETION BASED UPON FIELD CONDITIONS. ALL EXTERIOR FOUNDATIONS SHALL BEAR A MINIMUM OF 30 INCHES BELOW LOWEST ADJACENT FINAL GRADE.
   e. ALL WALLS (EXCEPT CANTILEVERED RETAINING WALLS) SHALL BE ADEQUATELY BRACED AGAINST LATERAL MOVEMENT PRIOR TO BACKFILLING. DESIGN AND ERECTION OF BRACING/SHORING SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. BRACING SHALL REMAIN IN PLACE UNTIL SUPPORTING STRUCTURAL ELEMENTS ARE IN PLACE AND HAVE ATTAINED FULL STRENGTH.
   f. UNLESS NOTED OTHERWISE, ALL FOOTINGS AT COLUMNS SHALL BE CENTERED BELOW COLUMNS.
   g. UNLESS NOTED OTHERWISE, ALL FOOTINGS SHALL HAVE VERTICAL FACES FORMED WITH STANDARD FORMING MATERIALS (WOOD, METAL, ETC.) WITH PRIOR APPROVAL OF ARCHITECT AND ENGINEER. CONCRETE FOR FOOTINGS CAN BE PLACED IN EXCAVATED SOIL "FORMS" PROVIDED THAT THE DIMENSIONS ARE INCREASED 3" ON ALL SIDE..

E. CONCRETE

1. ALL CONCRETE MIX DESIGNS SHALL COMPLY WITH THE PROJECT SPECIFICATIONS AND THE REQUIREMENTS LISTED BELOW :
   a. FOOTINGS, GRADE BEAMS, FOUNDATION WALLS :
      1. WHERE THE TOP OF THE ELEMENT IS EXPOSED OR IS LOCATED WITHIN 30" OF THE LOWEST ADJACENT GRADE (EXPOSURE CATEGORY F2) :
         a. 28 DAY COMPRESSIVE STRENGTH : 4500 PSI
         b. MAXIMUM W/C RATIO : 0.45
         c. MAXIMUM AGGREGATE SIZE : 1"
         d. AIR CONTENT : SEE SCHEDULE BELOW
      2. WHERE THE TOP OF THE ELEMENT IS NOT EXPOSED OR IS NOT LOCATED WITHIN 30" OF THE LOWEST ADJACENT GRADE (EXPOSURE CATEGORY F0) :
         a. 28 DAY COMPRESSIVE STRENGTH : 3000 PSI
   b. INTERIOR SLABS ON GRADE (EXPOSURE CATEGORY F0) :
      1. 28 DAY COMPRESSIVE STRENGTH : 3000 PSI
   c. EXTERIOR SLABS (DOCKS, ETC.) (EXPOSURE CATEGORY F2) :
      1. 28 DAY COMPRESSIVE STRENGTH : 4500 PSI
      2. MAXIMUM W/C RATIO : 0.45
      3. MAXIMUM AGGREGATE SIZE : 1"
      4. MINIMUM AIR CONTENT : SEE SCHEDULE BELOW
   d. TOTAL AIR CONTENT FOR CONCRETE EXPOSED TO CYCLES OF FREEZING AND THAWING SHALL BE DETERMINED IN ACCORDANCE WITH THIS SCHEDULE. TOLERANCE ON AIR CONTENT AS DELIVERED SHALL BE +/- 1.5 PERCENT.

NOMINAL MAXIMUM AGGREGATE SIZE, IN.	TARGET AIR CONTENT, PERCENT F1	F2 AND F3
3/8	6	7.5
1/2	5.5	7
3/4	5	6
1	4.5	6
1-1/2	4.5	5.5
2	4	5
3	3.5	4.5

2. WATER USED IN MIXING CONCRETE SHALL CONFORM TO ASTM C1602.
3. NO PIPES, DUCTS, SLEEVES, ETC. SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. NO ALUMINUM PRODUCTS SHALL BE EMBEDDED IN CONCRETE. IF ADDITIONAL OPENINGS THRU STRUCTURAL CONCRETE ELEMENTS MUST BE APPROVED BY THE ENGINEER AND SHALL BE BUILT INTO THE ELEMENT PRIOR TO CONCRETE PLACEMENT.
4. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENTS, ETC. TO BE CAST IN TO CONCRETE, AND FOR EXTENT AND LOCATION OF DEPRESSIONS, CURBS, RAMPS, ETC.
5. UNLESS NOTED OTHERWISE, MINIMUM REINFORCING IN ALL CONCRETE FOUNDATION WALLS SHALL BE AS FOLLOWS:

THICKNESS	TOP & BOTTOM BARS	VERTICAL	HORIZONTAL
8"	(2) #5	#4 AT 12"O.C.	#4 AT 12"O.C.

6. UNLESS NOTED OTHERWISE, CONCRETE SLABS ON EARTH SHALL BE REINFORCED AS FOLLOWS:
   4" THICK - #3 AT 18"O.C. EACH WAY
   REINFORCING SHALL BE CONTINUOUSLY SUPPORTED AT 36"O.C. MAXIMUM SPACING.
7. UNLESS NOTED OTHERWISE, FOR NON-DETAILED OPENINGS IN CONCRETE WALLS LARGER THAN 12" AND SMALLER THAN 24" IN ANY DIRECTION ADD (2) #5 BARS ON ALL SIDES IN ADDITION TO REGULAR WALL REINFORCING AND EXTEND 24" EACH WAY BEYOND OPENING. IF 24" IS NOT AVAILABLE ON EVERY SIDE, NOTIFY STRUCTURAL ENGINEER FOR FURTHER DIRECTION. OPENINGS SHALL HAVE A MINIMUM OF 12" OF CONCRETE ABOVE THE OPENING, TYP.
8. CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE MADE AND LOCATED SO AS TO NOT IMPAIR THE STRENGTH OF THE STRUCTURE AND AS APPROVED BY THE STRUCTURAL ENGINEER. PROVIDE 2 X 4 (SHAPED) KEYWAY IN ALL VERTICAL AND HORIZONTAL JOINTS UNLESS NOTED OR DETAILED OTHERWISE. ALL STEEL REINFORCING SHALL BE CONTINUOUS THROUGH COLD JOINTS UNLESS NOTED OTHERWISE. SEE TYPICAL DETAILS FOR COLD/CONSTRUCTION JOINTS FOR SLABS ON GRADE.
9. WHERE NEW CONCRETE IS PLACED AGAINST PREVIOUSLY HARDENED CONCRETE, THE JOINT SHALL BE CLEAN AND FREE OF LAITANCE. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, CONSTRUCTION JOINTS SHALL BE PREWETTED AND STANDING WATER REMOVED.

F. ANCHOR BOLTS/EMBEDDED BOLTS

1. ALL ANCHOR BOLTS SHALL HAVE ASTM A-563 HEAVY HEX NUT AND ASTM F-436 WASHERS AT STANDARD OR OVERSIZED HOLES PER AISC SPECIFICATION TABLE J3.3. WHERE HOLE SIZES DO NOT COMPLY WITH THE LIMITATIONS FOR OVERSIZED HOLES THE STRUCTURAL ENGINEER SHALL BE NOTIFIED. TENSION TESTING CAN BE REQUIRED AT THE DIRECTION OF THE STRUCTURAL ENGINEER OF RECORD ON THE SPECIAL INSPECTOR.
2. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON THAT HOLE AND SHIFT THE ANCHOR LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM SPACE OF (2) ANCHOR HOLE DIAMETERS OR 1 INCH, WHICH EVER IS LARGER, OF SOUND CONCRETE/MASONRY BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. AT CONTRACTORS OPTION, LOCATE EXISTING REINFORCEMENT PRIOR TO DRILLING/CORING. IF THE ANCHOR OR DOWEL CANNOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
3. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

G. ADHESIVE/MECHANICAL ANCHORS

1. WITHOUT WRITTEN APPROVAL OF THE ENGINEER, CONTRACTOR SHALL NOT SUBSTITUTE POST-INSTALLED ANCHORS WHERE CAST-IN-PLACE ANCHORS ARE SPECIFIED IN THE DRAWINGS.
2. WHERE STRUCTURAL DETAILS SPECIFY SPECIFIC BRANDS AND/OR TYPES OF ADHESIVES OR ANCHORS, SUBSTITUTIONS OF OTHER BRANDS AND/OR TYPES IS NOT ALLOWED, WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
3. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. SUBSTITUTION REQUESTS SHALL INCLUDE AN ICC ESR OR IAPMO REPORT AND SUPPORTING CALCULATIONS INDICATING COMPLIANCE WITH DESIGN INTENT.
4. ALL ADHESIVE/MECHANICAL ANCHORS SHALL BE INSTALLED, INCLUDING HOLE DRILLING AND PREPARATION, IN ACCORDANCE WITH AN APPROVED INDEPENDENT EVALUATION REPORT (ICC-ES, IAPMO, OR APPROVED EQUAL), AS INDICATED BELOW, AND IN ACCORDANCE WITH ALL MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).
5. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION. ADHESIVE ANCHORS SHALL NOT BE FULLY LOADED UNTIL CONCRETE HAS REACHED DESIGN STRENGTH.
6. UNLESS APPROVED BY THE ENGINEER OF RECORD, CONCRETE AND DRILLED ANCHOR HOLES SHALL BE DRY AND FREE OF WATER FOR 24 HOURS PRIOR TO ADHESIVE INSTALLATION. CONTACT THE ENGINEER OF RECORD FOR GUIDANCE IF THE CONTRACTOR CHOOSES TO INSTALL IN WET OR DAMP HOLES.
7. CONCRETE TEMPERATURE AT THE TIME OF INSTALLATION SHALL BE MONITORED BY THE CONTRACTOR. CONTRACTOR SHALL COMPLY WITH ALL MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) RELATIVE TO SUBSTRATE TEMPERATURE.
8. INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY AN APPLICABLE CERTIFICATION PROGRAM. CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM, OR EQUIVALENT IN ACCORDANCE WITH ACI 318-11 D.9.2.2. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. CONTINUOUS SPECIAL INSPECTION SHALL BE PROVIDED FOR THESE ANCHORS.
9. UNLESS NOTED OTHERWISE, ALL ADHESIVE ANCHORS INTO CONCRETE SHALL BE:
   a. HILTI HIT-RE 500V3 (ESR-3814), OR HILTI HIT-HY 200-A (ESR-3187).
   b. SIMPSON SET-3G (ESR-4057), OR AT-XP (ER-0263).
   c. DEWALT PURE 110+ (ESR-3298), OR AC200+ GOLD (ESR-4027-COLD WEATHER).
10. UNLESS NOTED OTHERWISE, ALL ADHESIVE ANCHORS INTO MASONRY SHALL BE:
    a. HILTI HIT-HY 270 (ESR-4143).
    b. SIMPSON SET-XP (ER-0265), OR AT-XP (ER-0281).
    c. DEWALT AC100+ GOLD (ESR-3200).
11. UNLESS NOTED OTHERWISE, ALL MECHANICAL ANCHORS INTO CONCRETE SHALL BE:
    a. HILTI KWIK BOLT TZ (ESR-1917).
    b. SIMPSON STRONG-BOLT 2 (ESR-3037).
12. UNLESS NOTED OTHERWISE, ALL MECHANICAL ANCHORS INTO MASONRY SHALL BE:
    a. HILTI KWIK HUS-EZ (ESR-3056).
    b. SIMPSON STRONG BOLT 2 WEDGE ANCHOR (ER-0240).
    c. DEWALT SCREWBOLT+ (ESR-4042).
13. UNLESS NOTED OTHERWISE, ALL SCREW ANCHORS INTO CONCRETE SHALL BE:
    a. SIMPSON TITEN HD (ESR-2713).
    b. DEWALT SCREWBOLT+ (ESR-3889).
    c. HILTI KWIK HUS-EZ (ESR-3027).
14. UNLESS NOTED OTHERWISE, ALL SCREW ANCHORS INTO MASONRY SHALL BE:
    a. SIMPSON TITEN HD (ESR-1056).
    b. DEWALT SCREWBOLT+ (ESR-1678).
    c. HILTI KWIK HUS EZ (ESR-3056).
15. ALL MASONRY OUTSIDE WITHIN 8" OF THE ANCHOR SHALL BE SOLID GROUTED.
16. THE TESTING LABORATORY WILL PERFORM VISUAL INSPECTION OF ANCHORS AND DOWELS AS SPECIFIED IN THE SPECIAL INSPECTION SCHEDULE AND THE APPROVED INDEPENDENT EVALUATION REPORT. TENSION TESTING CAN BE REQUIRED AT THE DIRECTION OF THE STRUCTURAL ENGINEER OF RECORD OR THE SPECIAL INSPECTOR.
17. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON THAT HOLE AND SHIFT THE ANCHOR LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM SPACE OF (2) ANCHOR HOLE DIAMETERS OR 1 INCH, WHICH EVER IS LARGER, OF SOUND CONCRETE/MASONRY BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. AT CONTRACTORS OPTION, LOCATE EXISTING REINFORCEMENT PRIOR TO DRILLING/CORING. IF THE ANCHOR OR DOWEL CANNOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
18. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

H. REINFORCING STEEL

1. REINFORCING BAR STRENGTH REQUIREMENTS:
   a. ALL REINFORCING BARS SHALL CONFORM TO ASTM STANDARD A-615 GRADE 60 AND ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM STANDARD A-1064 AND SHALL BE SUPPLIED IN FLAT SHEETS, ADEQUATELY TIE AND SUPPORT ALL REINFORCING STEEL AS SPECIFIED BY ACI 117, TO MAINTAIN EXACT REQUIRED POSITION.
2. HEADED SHEAR STUD ASSEMBLIES SHALL CONFORM TO ASTM A1044.
3. STEEL DISCONTINUOUS FIBER REINFORCEMENT SHALL BE DEFORMED AND CONFORM TO ASTM A820 AND SHALL HAVE A LENGTH TO DIAMETER RATIO NOT SMALLER THAN 50 AND NOT GREATER THAN 100.
4. HEADED DEFORMED BARS SHALL CONFORM TO ASTM A970. OBSTRUCTIONS OR INTERRUPTIONS OF THE BAR DEFORMATIONS, IF ANY, SHALL NOT EXTEND MORE THAN 2 BAR DIAMETERS FROM THE BEARING FACE OF THE HEAD.
5. ALL REINFORCING STEEL SHALL BE TIED IN PLACE AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET STABBING OF ANY REINFORCING STEEL IS NOT PERMITTED, UNLESS SPECIFICALLY DETAILED OTHERWISE OR APPROVED BY THE ENGINEER.
6. ALL FIELD BENT DOWELS SHALL BE GRADE 40 WITH SPACING INDICATED REDUCED BY 1/3.
7. UNLESS NOTED OTHERWISE, REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVERAGE :
   a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"
   b. EXPOSED TO EARTH OR WEATHER :
      1. #6 & LARGER ..... 2"
      2. #5 & SMALLER ..... 1-1/2"
   c. NOT EXPOSED TO WEATHER OR EARTH :
      1. SLABS, WALLS, JOISTS, #11 & SMALLER ..... 3/4"
      2. BEAMS, COLUMNS: MAIN REINFORCING OR TIES ..... 1-1/2"
   d. SLAB ON GRADE :
      1. PLACE REINFORCING AT CENTER OF SLAB UNLESS INDICATED OTHERWISE.
8. EXCEPT WHERE NOTED ON PLANS OR DETAILS CONTINUOUS REINFORCEMENT SHALL BE SPLICED AT POINTS OF MINIMUM STRESS BY LAPPING PER THE REBAR LAP SCHEDULE.
9. REINFORCING STEEL MAY BE SPLICED WITH MECHANICAL COUPLERS THAT HAVE A TENSION CAPACITY OF AT LEAST 125% OF THE STRENGTH OF THE BAR. MECHANICAL COUPLERS SHALL BE A POSITIVE CONNECTING TYPE COUPLER, AND SHALL BE INSTALLED IN ACCORDANCE WITH AN APPROVED ICC RESEARCH REPORT. WHERE THESE ARE USED, SPLICES ON ADJACENT BARS SHALL BE STAGGERED AT LEAST 24 INCHES ALONG THE LENGTH OF THE BAR.
10. ALL VERTICAL REINFORCING IN STRUCTURAL ELEMENTS ABOVE SHALL BE SPLICED WITH MATCHING DOWELS EMBEDDED WITHIN THE FOOTINGS OR STRUCTURE BELOW. SPLICE LENGTHS SHALL COMPLY WITH REBAR LAP SCHEDULE. DOWELS INTO FOOTINGS SHALL TERMINATE WITH A STANDARD HOOK, AND SHALL EXTEND TO WITHIN 4" OF THE BOTTOM OF THE FOOTING, BUT NEED NOT EXTEND MORE THAN 20" INTO FOOTING. FOR MASONRY CONSTRUCTION SEE STRUCTURAL NOTE ***P.S.A.***
11. DO NOT SPLICE REINFORCING EXCEPT AS NOTED ON PLANS, WHERE REINFORCING IS WELDED, USE ASTM A-706 REINFORCING.
12. REINFORCING BARS, TIES, AND TENDONS SHALL BE SUPPORTED BY NYLON CONES, PLASTIC-COATED TIE-WIRES, OR PLASTIC-COATED CHAIRS. REINFORCING IN FOOTINGS IS PERMITTED TO BE SUPPORTED ON CONCRETE DOBIES.
13. UNLESS NOTED OTHERWISE, HOOKS, STIRRUPS, TIES, AND OTHER BENDS IN REINFORCING STEEL SHALL MEET THE STANDARDS SET FORTH IN ACI 318/318-14. UNLESS OTHERWISE PERMITTED BY THE ENGINEER, ALL REINFORCEMENT SHALL BE BENT COLD. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT, EXCEPT AS SHOWN ON THESE DRAWINGS OR OTHERWISE PERMITTED BY THE ENGINEER.
14. UNLESS SPECIFICALLY NOTED AND/OR DETAILED IN THE STRUCTURAL DRAWINGS CONDUIT SHALL NOT BE IN CONTACT WITH REINFORCING STEEL.

I. STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING:
   a. ANSI/AISC 360-16 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", WITH "COMMENTARY" AND "SUPPLEMENTS" AS REQUIRED BY BUILDING CODE.
   b. AISC 303-16 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" EXCLUDING THE FOLLOWING SECTIONS: 4.4, 4.4.1, AND 4.4.2
   c. AISI "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
   d. AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
   e. AWS D1.1 AND D1.3, "STRUCTURAL WELDING CODE" (EXCEPT SPECIFIC ITEMS DO NOT APPLY IF THEY CONFLICT WITH AISC).
   f. ANSI/AISC 341-16 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS".
   g. AWS D1.8, "STRUCTURAL WELDING CODE - SEISMIC".
2. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING:
   a. WIDE FLANGE SHAPES AND WT SHAPES - ASTM A992
   b. OTHER SHAPES AND PLATES - ASTM A-36 (UNO)
   c. HOLLOW STRUCTURAL SECTIONS (HSS) - ASTM A-500, GRADE C FOR SQUARE, RECTANGULAR AND ROUND SHAPES (FY = 50 KSI FOR SQUARE AND RECTANGULAR SHAPES AND 46 KSI FOR ROUND SHAPES).
   d. STAINLESS STEEL SHAPES, PLATES, AND FASTENERS – ASTM 304
   e. DEFORMED BAR ANCHORS (DBA) - ASTM A-496, WELDED IN ACCORDANCE WITH AWS D1.1
   f. HEADED STUD ANCHORS (HSA) - ASTM A-108, GRADE 1015 STEEL AND WELDED IN ACCORDANCE WITH AWS D1.1 FOR TYPE "B", USE 3/4" DIAMETER STUDS, UNLESS NOTED OTHERWISE.
   g. THREADED ROD - ASTM A-449.
   h. NON-SHRINK GROUT - ASTM

S. NON-STRUCTURAL DELEGATED DESIGNS AND DEFERRED SUBMITTALS

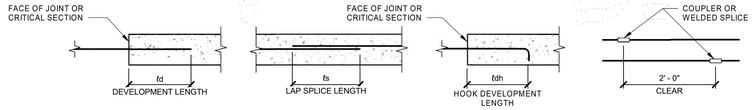
1. NON-STRUCTURAL DELEGATED DESIGNS AND SUBSEQUENT DEFERRED SUBMITTALS ARE FOR ITEMS NOT INCLUDED IN THE STRUCTURAL DELEGATED DESIGN SECTION. THESE ARE ITEMS THAT ARE NOT CRITICAL TO THE OVERALL PERFORMANCE OF THE STRUCTURAL SYSTEM BUT THAT IMPART LOADS AND FORCES TO THE STRUCTURAL SYSTEM.
2. NON-STRUCTURAL DEFERRED SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF THE DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN.
3. ARW ENGINEERS WILL REVIEW NON-STRUCTURAL DEFERRED SUBMITTALS TO VERIFY DESIGN CRITERIA IS COMPLIANT WITH THE APPROVED CONSTRUCTION DOCUMENTS.
4. IF THE STRUCTURAL DRAWINGS INCLUDE LOADS TO ACCOMMODATE NON-STRUCTURAL ELEMENTS, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION INDICATING THAT THE NON-STRUCTURAL ELEMENTS COMPLY WITH THE LOADING CRITERIA PROVIDED HEREIN. SUCH DOCUMENTATION SHALL BEAR THE STAMP AND SIGNATURE OF THE DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN.
5. WHEN THE NON-STRUCTURAL DEFERRED SUBMITTAL INDICATES THAT THE ELEMENT WILL IMPART FORCES IN EXCESS OF LOADS THAT ARE INDICATED ON THE STRUCTURAL DRAWINGS, THE CONTRACTOR SHALL SUBMIT A DETAILED GRAPHICAL REPRESENTATION OF THOSE DESIGN LOADS, INCLUDING MAGNITUDE, AND LOCATION. THE GRAPHIC SHALL BE ACCOMPANIED BY DOCUMENTATION INDICATING THAT THE NON-STRUCTURAL ELEMENT DESIGN COMPLIES WITH THE LOADING CRITERIA PROVIDED HEREIN. THE LETTER SHALL BEAR THE STAMP AND SIGNATURE OF THE DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN.
6. NON-STRUCTURAL DELEGATED DESIGN ITEMS REQUIRING DEFERRED SUBMITTALS SHALL INCLUDE, BUT ARE NOT LIMITED TO :
   a. STRUCTURAL STEEL STAIRS.

T. CONTINUOUS ROD TIE DOWN SYSTEM

1. THE CONTINUOUS ROD TIEDOWN SYSTEM SHALL BE SIMPSON STRONG-TIE® STRONG-ROD™ ANCHOR TIEDOWN SYSTEM FOR SHEARWALL OVERTURNING RESTRAINT.
2. IN A MULTI-STORY SHEARWALL INSTALLATION, THE CONTINUOUS ROD TIEDOWN SYSTEM SHALL BE RESTRAINED BY BEARING PLATES AT EACH STORY OF THE MULTI-STORY SHEARWALL. SHRINKAGE COMPENSATING DEVICES SHALL BE PROVIDED AT EACH RESTRAINT LOCATION.
3. SKIPPING STORIES, WHERE BEARING PLATES ARE OMITTED AT INTERMEDIATE FLOORS THAT RESULT IN MULTIPLE STORIES BEING TIED TOGETHER, IS PROHIBITED.
4. THE COMPUTED ROD ELONGATION OR STRETCH BETWEEN RESTRAINT LOCATIONS, TOGETHER WITH COMPUTED DEFORMATIONS OF SHRINKAGE COMPENSATING DEVICE IN COMPLIANCE WITH ICC-ES AC 316, WITHIN ANY STORY UNDER WORKING STRESS LEVEL (ALLOWABLE STRESS DESIGN) SHORT-TERM DURATION LOADING, SUCH AS WIND OR EARTHQUAKE LOADS, SHALL NOT EXCEED 0.20 INCH OR AS SPECIFIED. ROD ELONGATION OR STRETCH SHALL BE COMPUTED AS THE PRODUCT PL/AE, WHERE P IS THE AXIAL LOAD (LBS.), L IS THE INITIAL ROD LENGTH BETWEEN RESTRAINTS AT THE STORY UNDER CONSIDERATION (INCHES), E IS 29,000,000 (PSI) AND A IS THE NET TENSILE AREA OF THE ROD (IN^2). DEVICE DISPLACEMENT SHALL BE AS SPECIFIED IN THE EVALUATION REPORT INCLUDING ΔR + ΔA (PD/PA).
5. STAMPED CALCULATIONS AND SHOP DRAWINGS MEETING ALL THE ABOVE REQUIREMENTS SHALL BE SUBMITTED AND PROVIDED BY THE MANUFACTURER OF THE CONTINUOUS ROD TIEDOWN SYSTEM FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
6. DRAWINGS PROVIDED BY THE MANUFACTURER SHALL SPECIFY THE PROPRIETARY COMPONENTS OR SYSTEMS.
7. SIMPSON STRONG-TIE WOOD CONNECTORS ARE SPECIFICALLY REQUIRED TO MEET THE STRUCTURAL CALCULATIONS OF THE PLAN. BEFORE SUBSTITUTING ANOTHER BRAND, CONFIRM LOAD CAPACITY BASED ON RELIABLE PUBLISHED TESTING DATA OR CALCULATIONS. THE ENGINEER/DESIGNER OF RECORD SHOULD EVALUATE AND GIVE WRITTEN APPROVAL FOR SUBSTITUTION PRIOR TO INSTALLATION.

2018 IBC CONCRETE REBAR LAP SPLICE SCHEDULE

FOR CONCRETE APPLICATIONS (ACI 318 - 14)



BAR LOCATION	CONCRETE TYPE	CONCRETE STRENGTH	CONCRETE REINFORCING & SPLICE LENGTHS (IN) BAR SIZE #3 td	#3 ts	#3 tdh	#4 td	#4 ts	#4 tdh	#5 td	#5 ts	#5 tdh	#6 td	#6 ts	#6 tdh	#7 td	#7 ts	#7 tdh	#8 td	#8 ts	#8 tdh	#9 td	#9 ts	#9 tdh	#10 td	#10 ts	#10 tdh	#11 td	#11 ts	#11 tdh	COMMENTS
VERT. WALL BARS, FILL ON METAL DECK	NWC	3000 PSI	17	22	8	22	29	8	28	36	10	33	43	12	48	62	13	55	72	15	62	81	17	69	90	19	76	99	30	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	3000 PSI	17	22	8	22	29	8	28	36	10	33	43	12	48	62	13	55	72	15	62	81	17	69	90	19	76	99	30	
BEAM BOTTOM BARS, COLUMN BARS	NWC	3000 PSI	17	22	8	22	29	11	28	36	14	33	43	16	48	62	19	55	72	22	62	81	25	69	90	27	76	99	30	
FOOTING BOTTOM BARS	NWC	3000 PSI	12	16	8	14	18	8	17	22	10	20	26	12	29	38	13	33	43	15	37	48	17	42	55	19	46	60	30	
BEAM TOP BARS	NWC	3000 PSI	22	29	8	29	38	11	36	47	14	43	56	16	63	82	19	72	94	22	81	105	25	90	117	27	98	127	30	
SLAB ON GRADE	NWC	3000 PSI	12	16	8	14	18	8	17	22	10	20	26	12	32	42	13	42	55	15	53	69	17	69	90	19	76	99	30	
VERT. WALL BARS, FILL ON METAL DECK	NWC	4000 PSI	15	20	7	19	25	7	24	31	8	29	38	10	42	55	12	48	62	13	54	70	15	60	78	17	66	86	26	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	4000 PSI	15	20	7	19	25	7	24	31	8	29	38	10	42	55	12	48	62	13	54	70	15	60	78	17	66	86	26	
BEAM BOTTOM BARS, COLUMN BARS	NWC	4000 PSI	15	20	7	19	25	9	24	31	12	29	38	14	42	55	17	48	62	19	54	70	21	60	78	24	66	86	26	
FOOTING BOTTOM BARS	NWC	4000 PSI	12	16	7	12	16	7	15	20	8	18	23	10	25	33	12	29	38	13	33	43	15	36	47	17	40	52	26	
BEAM TOP BARS	NWC	4000 PSI	19	25	7	25	33	9	31	40	12	37	48	14	54	70	17	62	81	19	70	91	21	78	101	24	85	111	26	
SLAB ON GRADE	NWC	4000 PSI	12	16	7	12	16	7	15	20	8	18	23	10	28	36	12	36	47	13	46	60	15	60	78	17	66	86	26	
VERT. WALL BARS, FILL ON METAL DECK	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	66	14	56	73	16	62	81	25	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	4500 PSI	14	18	7	18	23	6	23	30	8	27	35	9	40	52	11	45	59	13	51	66	14	56	73	16	62	81	25	
BEAM BOTTOM BARS, COLUMN BARS	NWC	4500 PSI	14	18	7	18	23	9	23	30	11	27	35	13	40	52	16	45	59	18	51	66	20	56	73	22	62	81	25	
FOOTING BOTTOM BARS	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	24	31	11	27	35	13	31	40	14	34	44	16	37	48	25	
BEAM TOP BARS	NWC	4500 PSI	18	23	7	24	31	9	30	39	11	35	46	13	51	66	16	59	77	18	66	86	20	73	95	22	80	104	25	
SLAB ON GRADE	NWC	4500 PSI	12	16	7	12	16	6	14	18	8	17	22	9	27	35	11	34	44	13	44	57	14	56	73	16	62	81	25	
VERT. WALL BARS, FILL ON METAL DECK	NWC	5000 PSI	13	17	6	17	22	6	22	29	7	26	34	9	38	49	10	43	56	12	48	62	13	54	70	15	59	77	23	
HORIZ. WALL BARS, FOOTING TOP BARS	NWC	5000 PSI	13	17	6	17	22	6	22	29	7	26	34	9	38	49	10	43	56	12	48	62	13	54	70	15	59	77	23	
BEAM BOTTOM BARS, COLUMN BARS	NWC	5000 PSI	13	17	6	17	22	8	22	29	11	26	34	13	38	49	15	43	56	17	48	62	19	54	70	21	59	77	23	
FOOTING BOTTOM BARS	NWC	5000 PSI	12	16	6	12	16	6	13	17	7	16	21	9	23	30	10	26	34	12	29	38	13	32	42	15	36	47	23	
BEAM TOP BARS	NWC	5000 PSI	17	22	6	23	30	8	28	36	11	34	44	13	49	64	15	56	73	17	63	82	19	69	90	21	76	99	23	
SLAB ON GRADE	NWC	5000 PSI	12	16	6	12	16	6	13	17	7	16	21	9	25	33	10	32	42	12	41	53	13	54	70	15	59	77	23	

NOTES :
1. MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES SHOWN. SEE STRUCTURAL NOTES FOR MINIMUM COUPLER CAPACITY. WHERE MECHANICAL COUPLERS ARE USED, STAGGER ADJACENT SPLICES A MINIMUM OF 24" AS INDICATED ABOVE.
2. DEVELOPMENT LENGTHS SHALL BE INCREASED BY 50% FOR STRAIGHT BAR DEVELOPMENT AND 20% FOR HOOKED BARS WHERE EPOXY COATING IS USED.
3. WHEN SPLICING BARS OF DIFFERENT SIZES, USE LAP SPLICE LENGTH OF LARGER BARS UNO.
4. SPLICE BARS LARGER THAN #11 USING MECHANICAL COUPLERS.

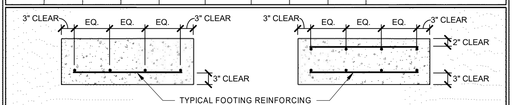
LEGEND OF SYMBOLS AND ABBREVIATIONS

AB	=	ANCHOR BOLT
ABV	=	ABOVE
ARCH	=	ARCHITECT
ATS	=	ANCHOR TIEDOWN SYSTEM
BLW	=	BELOW
BRG	=	BEARING
BN	=	BOUNDARY NAILING
BS	=	BOUNDARY SCREW
BRB	=	BUCKLING RESTRAINED BRACE
BRBF	=	BUCKLING RESTRAINED BRACE FRAME
CJP	=	COMPLETE JOINT PENETRATION
CL	=	CENTERLINE
CMU	=	CONCRETE MASONRY UNIT
COL	=	COLUMN
CONC	=	CONCRETE
CP	=	CONCRETE PIER
DC	=	DEMAND CRITICAL
DIA / Ø	=	DIAMETER
DBA	=	DEFORMED BAR ANCHOR
DBE	=	DECK BEARING ELEVATION
ELEV	=	ELEVATION
EN	=	EDGE NAILING
EOD	=	EDGE OF DECK
FDN	=	FOUNDATION
FTG	=	FOOTING
FFE	=	FINISHED FLOOR ELEVATION
GB	=	CONCRETE GRADE BEAM
HSA	=	HEADED STUD ANCHOR
JBE	=	JOIST BEARING ELEVATION
KB	=	KICKER BRACE
MAX	=	MAXIMUM
MB	=	MASONRY BEAM
MC	=	MASONRY COLUMN
MECH	=	MECHANICAL
MEZZ	=	MEZZANINE
MIN	=	MINIMUM
MJ	=	MASONRY JAMB
MW	=	MASONRY WALL
NS, FS	=	NEAR SIDE, FAR SIDE
OAE	=	OR APPROVED EQUAL
OPP	=	OPPOSITE
PAF	=	POWDER ACTUATED FASTENER
PL	=	PLATE
REINF	=	REINFORCING
REQ'D	=	REQUIRED
SIM	=	SIMILAR
SSH	=	STEEL STUD HEADER
SSJ	=	STEEL STUD JAMB
SSS	=	STEEL STUD SILL
SSW	=	STEEL STUD WALL
TOB	=	TOP OF BEAM ELEVATION
TOC	=	TOP OF CONCRETE SLAB
TOF	=	TOP OF FOOTING
TOG	=	TOP OF GIRDER ELEVATION
TOM	=	TOP OF MASONRY
TOS	=	TOP OF STEEL ELEVATION
TYP	=	TYPICAL
UNO	=	UNLESS NOTED OTHERWISE

FOOTING MARK
TOP OF FOOTING ELEV.
SECTION MARK
SHEET NUMBER
TOP OF FOUNDATION WALL OR COLUMN PIER ELEV.
SHEAR WALL - SEE SCHEDULE
MIN. LENGTH OF SHEAR WALL
S — S FOOTING STEP
MASONRY WALL
DEPRESS FDN./WALL AND POUR FLOOR SLAB OVER AT MASONRY FOUNDATION WALL
DEPRESS FDN./WALL AND POUR FLOOR SLAB OVER AT CONCRETE FOUNDATION WALL
MASONRY BEAM
CONCRETE BEAM
HD - SIMPSON HOLDOWN SIZE
POST - SIZE OF END POST CONNECTED TO HOLDOWN
"A" - PLAN CONFIGURATION AT HOLDOWN AT FOUNDATION
HD POST "A" ELEVATION
L FRAMING ANGLE SEE TYPICAL DETAIL
C FRAMING CHANNEL SEE TYPICAL DETAIL
L ITEMS, DETAILS, & SYSTEMS WHICH ARE PART OF THE LATERAL FORCE RESISTING SYSTEM.
MOMENT RESISTING CONNECTIONS - SEE DETAIL
MOMENT RESISTING CANTILEVER CONNECTIONS - SEE DETAIL
KB KICKER BRACE

FOOTING SCHEDULE

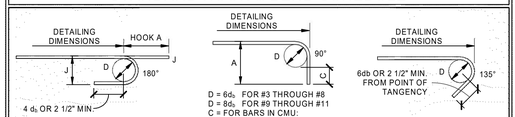
MARK	WIDTH	LENGTH	THICK	LENGTHWISE REINF. NO.	LENGTHWISE REINF. SIZE	CROSSWISE REINF. NO.	CROSSWISE REINF. SIZE	CROSSWISE REINF. SPA.	REMARKS
FC2	2'-0"	CONT.	12"	(2)	#5	--	--	--	
FC3	3'-0"	CONT.	12"	(3)	#5	--	--	--	
FC4	4'-0"	CONT.	24"	(4)	#6	--	#5	24"	TOP & BOTTOM
F3	3'-0"	3'-0"	12"	(3)	#5	(3)	#5	--	
F3.5	3'-6"	3'-6"	12"	(3)	#5	(3)	#5	--	
F4	4'-0"	4'-0"	12"	(4)	#5	(4)	#5	--	
F4.5	4'-6"	4'-6"	12"	(4)	#5	(4)	#5	--	
F5	5'-0"	5'-0"	14"	(5)	#5	(5)	#5	--	
F5.5	5'-6"	5'-6"	14"	(5)	#6	(5)	#6	--	
F6	6'-0"	6'-0"	16"	(6)	#6	(6)	#6	--	
F6.5	6'-6"	6'-6"	18"	(6)	#6	(6)	#6	--	
F7	7'-0"	7'-0"	18"	(7)	#6	(7)	#6	--	
F7.5	7'-6"	7'-6"	20"	(7)	#7	(7)	#7	--	
F8	8'-0"	8'-0"	22"	(8)	#7	(8)	#7	--	
F8.5	8'-6"	8'-6"	22"	(8)	#7	(8)	#7	--	
F9	9'-0"	9'-0"	24"	(9)	#7	(9)	#7	--	
F9.5	9'-6"	9'-6"	24"	(10)	#7	(10)	#7	--	
F10	10'-0"	10'-0"	26"	(10)	#8	(10)	#8	--	



TYP. FOOTING SECTION

TYP. FOOTING SECTION W/ TOP & BOTTOM REINF.

STANDARD HOOK & BEND SCHEDULE



D = 6d_b FOR #3 THROUGH #8
D = 8d_b FOR #9 THROUGH #11

D = 6d_b FOR #3 THROUGH #8
D = 8d_b FOR #9 THROUGH #11
C = FOR BARS IN CMU:
#6 AND LARGER, PROVIDE 12d_b FROM POINT OF TANGENCY
#5 AND SMALLER, PROVIDE 6d_b FROM POINT OF TANGENCY
(2 1/2" MINIMUM)

D = 4d_b FOR #3 THROUGH #5
D = 6d_b FOR #6 THROUGH #8
D = 8d_b FOR #9 THROUGH #11

NOTE: d_b = BAR DIAMETER

BAR SIZE	DIMENSION OF STANDARD 180° HOOKS, ALL GRADES A	DIMENSION OF STANDARD 180° HOOKS, ALL GRADES J	DIMENSION OF STANDARD 90° HOOKS, ALL GRADES A
#3	5"	3"	6"
#4	6"	4"	8"
#5	7"	5"	10"
#6	8"	6"	1'-0"
#7	10"	7"	1'-2"
#8	11"	8"	1'-4"
#9	1'-3"	11 3/4"	1'-7"
#10	1'-5"	1'-1 1/4"	1'-10"
#11	1'-7"	1'-2 3/4"	2'-0"

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PROFESSIONAL STRUCTURAL ENGINEER — No. 374996 — Troy M. Dye — 05/21/21

VILLA NUEVA LLC.

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#	Date	Revision

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CHECKED BY: A.Higgs
DRAWN BY: Z.Thorner
DATE: 05/21/2021

SCHEDULES

S002

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STRUCTURAL STEEL SPECIAL INSPECTION SCHEDULE

ESTABLISHED PER 2018 IBC SECTION 1705.2.1

INSPECTION TASKS PRIOR TO WELDING (TABLE N5.4-1)	FABRICATOR QUALITY CONTROL		SPECIAL INSPECTOR QUALITY ASSURANCE	
	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	●			●
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	●		●	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	●		●	
MATERIAL IDENTIFICATION (TYPE / GRADE)		●		●
WELDER IDENTIFICATION SYSTEM[1]		●		●
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)				
* JOINT PREPARATION				
* DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)		●		●
* CLEANLINESS (CONDITION OF STEEL SURFACES)				
* TACKING (TACK WELD QUALITY AND LOCATION)				
* BACKING TYPE AND FIT (IF APPLICABLE)				
FIT-UP OF CJP GROOVE WELDS OFHSS T-, Y-, AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY)				
* JOINT PREPARATIONS	●			●
* DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)				
* CLEANLINESS (CONDITION OF STEEL SURFACES)				
* TACKING (TACK WELD QUALITY AND LOCATION)				
CONFIGURATION AND FINISH OF ACCESS HOLES		●		●
FIT-UP OF FILLET WELDS				
* DIMENSIONS (ALIGNMENT, GAPS AT ROOT)		●		●
* CLEANLINESS (CONDITION OF STEEL SURFACES)				
* TACKING (TACK WELD QUALITY AND LOCATION)				
CHECK WELDING EQUIPMENT		●		

[1]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.

INSPECTION TASKS DURING WELDING (TABLE N5.4-2)	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
CONTROL AND HANDLING OF WELDING CONSUMABLES				
* PACKAGING		●		●
* EXPOSURE CONTROL				
NO WELDING OVER CRACKED TACK WELDS		●		●
ENVIRONMENTAL CONDITIONS				
* WIND SPEED WITHIN LIMITS		●		●
* PRECIPITATION AND TEMPERATURE				
WPS FOLLOWED				
* SETTINGS ON WELDING EQUIPMENT				
* TRAVEL SPEED				
* SELECTED WELDING MATERIALS		●		●
* SHIELDING GAS TYPE / FLOW RATE				
* PREHEAT APPLIED				
* INTERPASS TEMPERATURE MAINTAINED (MIN. / MAX)				
* PROPER POSITION (F, V, H, OH)				
WELDING TECHNIQUES				
* INTERPASS AND FINAL CLEANING				
* EACH PASS WITHIN PROFILE LIMITATIONS		●		●
* EACH PASS MEETS QUALITY REQUIREMENTS				
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	●		●	

INSPECTION TASKS AFTER WELDING (TABLE N5.4-3)	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
WELDS CLEANED		●		●
SIZE, LENGTH AND LOCATION OF WELDS	●		●	
WELDS MEET VISUAL ACCEPTANCE CRITERIA				
* CRACK PROHIBITION				
* WELD / BASE-METAL FUSION				
* CRATER CROSS SECTION	●		●	
* WELD PROFILES				
* WELD SIZE				
* UNDERCUT				
* POROSITY				
ARC STRIKES	●		●	
K-AREA[1]	●		●	
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES[2]	●		●	
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	●		●	
REPAIR ACTIVITIES	●		●	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	●		●	
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR		●		●

[1]WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75mm) OF THE WELD)
[2]AFTER ROLLED HEAVY SHAPES (SEE SECTION A3.1c) AND BUILT-UP HEAVY SHAPES (SEE SECTION A3.1d) ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS.

NOTES

1. PERIODIC - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
2. CONTINUOUS - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.
3. QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.
4. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), APPLICABLE BUILDING CODE (ABC), PURCHASER, OWNER, OR ENGINEER OF RECORD (EOR). NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE, EXCEPT AS PERMITTED IN ACCORDANCE WITH SECTION N6.
5. QC AND QA INSPECTORS SHALL BE QUALIFIED IN ACCORDANCE WITH AISC 360-16 CHAPTER N4.
6. NONDESTRUCTIVE TESTING PERSONNEL SHALL BE QUALIFIED IN ACCORDANCE WITH AISC 360-16 CHAPTER N4.3.
7. NONDESTRUCTIVE TESTING OF WELDED JOINTS SHALL COMPLY WITH AISC 360-16 CHAPTER N5.5a AND b.
8. OBSERVATION OF WELDING OPERATIONS AND VISUAL INSPECTION OF IN-PROCESS AND COMPLETED WELDS SHALL BE THE PRIMARY METHOD TO CONFIRM THAT THE MATERIALS, PROCEDURES AND WORKMANSHIP ARE IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1 / D1.1M STRUCTURAL WELDING CODE - STEEL FOR STATICALLY LOADED STRUCTURES SHALL APPLY.
9. THERMALLY CUT SURFACES OF ACCESS HOLES SHALL BE TESTED BY QA USING MT OR PT, WHEN THE FLANGE THICKNESS EXCEEDS 2 IN. (50mm) FOR ROLLED SHAPES, OR WHEN THE WEB THICKNESS EXCEEDS 2 IN. (50mm) FOR BUILT-UP SHAPES. ANY CRACK SHALL BE DEEMED UNACCEPTABLE REGARDLESS OF SIZE OR LOCATION.
10. WHEN REQUIRED BY APPENDIX 3, TABLE A-3.1, WELDED JOINTS REQUIRING WELD SOUNDNESS TO BE ESTABLISHED BY RADIOGRAPHICS OR ULTRASONIC INSPECTION SHALL BE TESTED BY QA AS PRESCRIBED. REDUCTION IN THE RATE OF UT IS PROHIBITED.
11. REDUCTION OF RATE OF ULTRASONIC TESTING - THE RATE OF UT IS ONLY PERMITTED TO BE REDUCED IF APPROVED BY THE EOR AND THE AHJ PER AISC 360-16 CHAPTER N5.5e.
12. FOR STRUCTURES IN RISK CATEGORY II, WHERE THE INITIAL RATE FOR UT IS 10%, THE NDT RATE FOR AN INDIVIDUAL WELDER OR WELDING OPERATOR SHALL BE INCREASED TO 100% SHOULD THE REJECT RATE, THE NUMBER OF WELDS CONTAINING UNACCEPTABLE DEFECTS DIVIDED BY THE NUMBER OF WELDS COMPLETED, EXCEEDS 5% OF THE WELDS TESTED FOR THE WELDER OR WELDING OPERATOR. A SAMPLING OF AT LEAST 20 COMPLETED WELDS FOR A JOB SHALL BE MADE PRIOR TO IMPLEMENTING SUCH AN INCREASE. WHEN THE REJECT RATE FOR THE WELDER OR WELDING OPERATOR, AFTER A SAMPLING OF AT LEAST 40 COMPLETED WELDS, HAS FALLEN TO 5% OR LESS, THE RATE OF UT SHALL BE RETURNED TO 10%. FOR EVALUATING THE REJECT RATE OF CONTINUOUS WELDS OVER 3 FT (1M) IN LENGTH WHERE THE EFFECTIVE THROAT IS 1 IN. (25mm) OR LESS, EACH 12 IN. (300mm) INCREMENT OR FRACTION THEREOF SHALL BE CONSIDERED AS ONE WELD. FOR EVALUATING THE REJECT RATE ON CONTINUOUS WELDS OVER 3 FT (1M) IN LENGTH WHERE THE EFFECTIVE THROAT IS GREATER THAN 1 IN. (25mm), EACH 6 IN. (150mm) OF LENGTH OR FRACTION THEREOF SHALL BE CONSIDERED ON WELD.
13. ALL NDT PERFORMED SHALL BE DOCUMENTED. FOR SHOP FABRICATION, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY PIECE MARK AND LOCATION IN THE PIECE. FOR FIELD WORK, THE NDT REPORT SHALL IDENTIFY THE TESTED WELD BY LOCATION IN THE STRUCTURE, PIECE MARK, AND LOCATION IN THE PIECE. WHEN A WELD IS REJECTED ON THE BASIS OF NDT, THE NDT RECORD SHALL INDICATE THE LOCATION OF THE DEFECT AND THE BASIS OF REJECTION
14. DEMAND CRITICAL WELDS SHALL MEET THE PROVISION FOUND IN AISC 341-16 AND WELDING METHODS, PROCEDURES AND QUALITY CONTROL SHALL COMPLY WITH AWS D1.1 AND THE FOLLOWING:
    a. ARC STRIKES, GOUGES AND OTHER IMPERFECTIONS WITHIN OR ADJACENT TO THE JOINT, SHALL BE REPAIRED OR REMOVED.
    b. PREHEAT AND INTER-PASS REQUIREMENTS AS OUTLINED IN SECTION 3.5.
    c. UNREPAIRED CRACKS, GOUGES, AND NOTCHES WILL NOT BE PERMITTED IN THE JOINT AREA.
    d. USE ELECTRODES WITH CHARPY V-NOTCH ABSORBED ENERGY EQUAL TO OR GREATER THAN 20 FT-LBS AT 20 DEGREES FAHRENHEIT UNDER AWS AS CLASSIFICATION TEST METHODS, AND 40 FT-LBS AT 70 DEGREES FAHRENHEIT USING TEST PROCEDURES PRESCRIBED IN APPENDIX X OF AISC 358. ACCEPTABLE ELECTRODES INCLUDE E70TG-K2, E71 T-1.

INSPECTION TASKS PRIOR TO BOLTING (TABLE N5.6-1)	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS		●	●	
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		●		●
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)		●		●
PROPER BOLTING PROCEDURES SELECTED FOR JOINT DETAIL		●		●
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		●		●
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	●			●
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS		●		●

INSPECTION TASKS DURING BOLTING (TABLE N5.6-2)	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
FASTENER ASSEMBLIES, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED		●		●
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		●		●
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		●		●
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES		●		●

INSPECTION TASKS AFTER BOLTING (TABLE N5.6-3)	CONTINUOUS	PERIODIC	CONTINUOUS	PERIODIC
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	●		●	

NOTES

1. PERIODIC - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
2. CONTINUOUS - PERFORM THESE TASKS FOR EACH BOLTED CONNECTION.
3. QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.
4. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), APPLICABLE BUILDING CODE (ABC), PURCHASER, OWNER, OR ENGINEER OF RECORD (EOR). NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE, EXCEPT AS PERMITTED IN ACCORDANCE WITH SECTION N7.
5. FOR SNUG-TIGHT JOINTS, PRE-INSTALLATION VERIFICATION TESTING AS SPECIFIED IN TABLE N5.6-1 AND MONITORING OF THE INSTALLATION PROCEDURES AS SPECIFIED IN TABLE N5.6-2 ARE NOT APPLICABLE. THE QCI AND QAI NEED NOT BE PRESENT DURING THE INSTALLATION OF FASTENERS IN SNUG-TIGHT JOINTS.
6. FOR PRETENSIONED JOINTS AND SLIP-CRITICAL JOINTS, WHEN THE INSTALLER IS USING THE TURN-OF-NUT METHOD WITH MATCHMARKING TECHNIQUES, THE DIRECT-TENSION-INDICATOR METHOD, OR THE TWIST-OFF-TYPE TENSION CONTROL BOLT METHOD, MONITORING OF BOLT PRETENSIONING PROCEDURES SHALL BE AS SPECIFIED IN TABLE N5.6-2. THE QCI AND QAI NEED NOT BE PRESENT DURING THE INSTALLATION OF FASTENERS WHEN THESE METHODS ARE USED BY THE INSTALLER.
7. FOR PRETENSIONED JOINTS AND SLIP-CRITICAL JOINTS, WHEN THE INSTALLER IS USING THE CALIBRATED WRENCH METHOD OR THE TURN-OF-NUT METHOD WITHOUT MATCHMARKING, MONITORING OF BOLT PRETENSIONING PROCEDURES SHALL BE AS SPECIFIED IN TABLE N5.6-2. THE QCI AND QAI SHALL BE ENGAGED IN THEIR ASSIGNED INSPECTION DUTIES DURING INSTALLATION OF FASTENERS WHEN THESE METHODS ARE USED BY THE INSTALLER.
8. OBSERVATION OF BOLTING OPERATIONS SHALL BE THE PRIMARY METHOD USED TO CONFIRM THAT THE MATERIALS, PROCEDURES AND WORKMANSHIP INCORPORATED IN CONSTRUCTION ARE IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND THE PROVISIONS OF THE RCSC SPECIFICATION.

GENERAL STEEL SPECIAL INSPECTION NOTES :

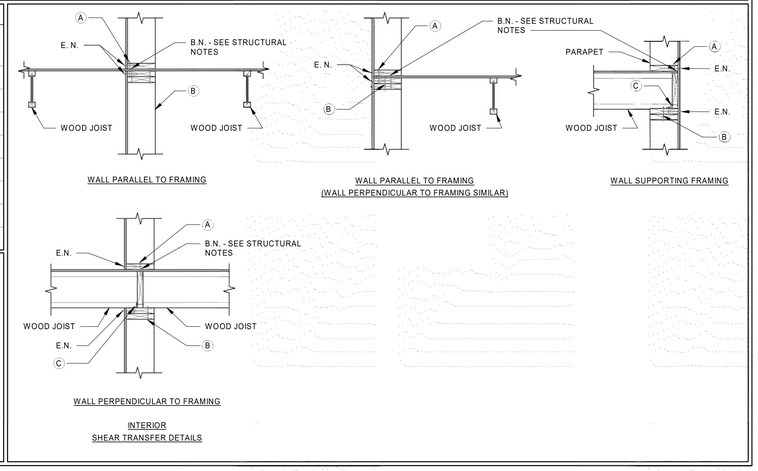
1. QUALITY ASSURANCE (QA) INSPECTION OF FABRICATED ITEMS SHALL BE MADE AT THE FABRICATOR'S PLANT. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE FABRICATOR.
2. QA INSPECTION OF THE ERECTED STEEL SYSTEM SHALL BE MADE AT THE PROJECT SITE. THE QAI SHALL SCHEDULE THIS WORK TO MINIMIZE INTERRUPTION TO THE WORK OF THE ERECTOR.
3. WHERE A TASK IS NOTED TO BE PERFORMED BY BOTH QC AND QA, IT IS PERMITTED TO COORDINATE THE INSPECTION FUNCTION BETWEEN THE QCI AND QAI SO THAT THE INSPECTION FUNCTIONS ARE PERFORMED BY ONLY ONE PARTY. WHERE QA RELIES UPON INSPECTION FUNCTIONS PERFORMED BY QC, THE APPROVAL OF THE ENGINEER OF RECORD AND THE AUTHORITY HAVING JURISDICTION IS REQUIRED.
4. THE FABRICATOR'S QCI SHALL INSPECT THE FABRICATED STEEL TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE SHOP DRAWINGS, SUCH AS PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION. THE ERECTOR'S QCI SHALL INSPECT THE ERECTED STEEL FRAME TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE ERECTION DRAWINGS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
5. THE QAI SHALL BE ON THE PREMISES FOR INSPECTION DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A 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 THE CONCRETE.
6. THE QAI SHALL INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
7. QUALITY ASSURANCE (QA) INSPECTIONS, EXCEPT NONDESTRUCTIVE TESTING (NDT), MAY BE WAIVED WHEN THE WORK IS PERFORMED IN A FABRICATING SHOP OR BY AN ERECTOR APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ) TO PERFORM THE WORK WITHOUT QA. NDT OF WELDS COMPLETED IN AN APPROVED FABRICATOR'S SHOP MAY BE PERFORMED BY THAT FABRICATOR WHEN APPROVED BY THE AHJ. WHEN THE FABRICATOR PERFORMS THE NDT, THE QA AGENCY SHALL REVIEW THE FABRICATOR'S NDT REPORTS.
8. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIALS SUPPLIED AND WORK PERFORMED BY THE FABRICATOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. AT COMPLETION OF ERECTION, THE APPROVED ERECTOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AHJ STATING THAT THE MATERIALS SUPPLIED AND WORK PERFORMED BY THE ERECTOR ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
9. IDENTIFICATION AND REJECTION OF MATERIAL OR WORKMANSHIP THAT IS NOT IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS, SHALL BE PERMITTED AT ANY TIME DURING THE PROGRESS OF THE WORK. HOWEVER, THIS PROVISION SHALL NOT RELIEVE THE OWNER OR THE INSPECTOR OF THE OBLIGATION FOR TIMELY, IN-SEQUENCE INSPECTIONS. NONCONFORMING MATERIAL AND WORKMANSHIP SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE FABRICATOR OR ERECTOR, AS APPLICABLE.
10. NONCONFORMING MATERIAL OR WORKMANSHIP SHALL BE BROUGHT INTO CONFORMANCE, OR MADE SUITABLE FOR ITS INTENDED PURPOSE AS DETERMINED BY THE ENGINEER OF RECORD.
11. CONCURRENT WITH THE SUBMITTAL OF SUCH REPORTS TO THE AHJ, EOR OR OWNER, THE QA AGENCY SHALL SUBMIT TO THE FABRICATOR AND ERECTOR:
    (1) NONCONFORMANCE REPORTS
    (2) REPORTS OF REPAIR, REPLACEMENT OR ACCEPTANCE OF NONCONFORMING ITEMS.

WOOD SHEAR WALL TYPE SCHEDULE

WALL MARK	(NOTE 8, 13) PLYWOOD SHEATHING (CDX U.N.O.)	EDGE NAILING (E.N.) (SEE NOTES 2 & 3)	NOMINAL BOTTOM PLATE SIZE (NOTE 12)	(NOTE 6) NOM. STUD SIZE (MIN.)	STUD SIZE AT PANEL EDGES (SEE NOTE 6)	(A) BOTTOM PL. CONNECTION TO BLOCKING (NOTE 11, NOTE 13)	(B) NAILING TOP PL. TOGETHER	IN-PLANE ANCHORAGE	
								(C) AT BLOCKING	TO CONCRETE (NOTE 8)
SW-A	15/32"	8d AT 6"o.c.	2x	2x	2x	16d AT 6"o.c.	(32) 16d AND 6'-0" MIN. LAP	A35 AT 24"o.c.	3/4" DIA. HILTI KWIK HUS-EZ AT 32"o.c. W/ 6" EMBED.
SW-B	15/32"	8d AT 4"o.c.	2x	2x	3x or (2) 2x	16d AT 6"o.c.	(32) 16d AND 6'-0" MIN. LAP	A35 AT 16"o.c.	3/4" DIA. HILTI KWIK HUS-EZ AT 24"o.c. W/ 6" EMBED.
SW-C	15/32"	8d AT 3"o.c.	3x	2x	3x or (2) 2x	#14 SCREW 5" LONG AT 5"o.c.	(32) 16d AND 6'-0" MIN. LAP	A35 AT 12"o.c.	3/4" DIA. HILTI KWIK HUS-EZ AT 18"o.c. W/ 6" EMBED.
SW-D	15/32"	8d AT 2"o.c.	3x	2x	3x or (2) 2x	#14 SCREW 5" LONG AT 4"o.c.	(32) 16d AND 6'-0" MIN. LAP	A35 AT 10"o.c.	3/4" DIA. HILTI KWIK HUS-EZ AT 12"o.c. W/ 6" EMBED.
SW-E	19/32"	10d AT 2"o.c.	3x	2x	3x or (2) 2x	(2) #14 SCREW 5" LONG AT 6"o.c.	(32) 16d AND 6'-0" MIN. LAP	LTP4 AT 12"o.c. EACH SIDE	3/4" DIA. HILTI KWIK HUS-EZ AT 12"o.c. W/ 6" EMBED.
SW-F (NOTE-4)	19/32" (BOTH SIDES)	10d AT 4"o.c.	3x	2x	3x or (2) 2x	(2) #14 SCREW 5" LONG AT 5"o.c.	(32) 16d AND 6'-0" MIN. LAP	LTP4 AT 12"o.c. EACH SIDE	3/4" DIA. HILTI KWIK HUS-EZ AT 12"o.c. W/ 6" EMBED.
SW-G (NOTE-4)	19/32" (BOTH SIDES)	10d AT 3"o.c.	3x	2x	3x or (2) 2x	(2) #14 SCREW 5" LONG AT 4"o.c.	(32) 16d AND 6'-0" MIN. LAP	LTP4 AT 9"o.c. EACH SIDE	3/4" DIA. HILTI KWIK HUS-EZ AT 8"o.c. W/ 6" EMBED.
SW-H (NOTE-4)	19/32" (BOTH SIDES)	10d AT 2"o.c.	(2) 2x	2x	3x or (2) 2x	(2) #14 SCREW 5" LONG AT 3"o.c.	(32) 16d AND 6'-0" MIN. LAP	LTP4 AT 6"o.c. EACH SIDE	3/4" DIA. HILTI KWIK HUS-EZ AT 6"o.c. W/ 6" EMBED.

NOTES:

1. ALL SHEATHING PANEL EDGES TO BE BLOCKED. USE 3x BLOCKING WHERE 3x STUDS ARE REQ'D AT PANEL EDGES.
2. ALL NAILS TO BE COMMON OR GALV. BOX.
3. FIELD NAILING TO BE SAME NAILS AT 12"o.c.
4. AT SHEAR WALLS W/ SHEATHING ON BOTH SIDES, BOTH VERTICAL AND HORIZONTAL JOINTS ON OPPOSITE SIDES OF THE WALL SHALL BE STAGGERED.
5. STAGGER E.N. AT DOUBLE TOP PLATES.
6. 3x NOMINAL FRAMING MEMBERS TO OCCUR AT ABUTTING PANEL EDGES. 2x NOMINAL FRAMING MEMBERS MAY BE USED AT INTERIOR OF PANEL, UNLESS NOTED OTHERWISE IN FLOOR FRAMING NOTES. (2) 2x NAILED TOGETHER W/ (2) 16d NAILS AT 6"o.c. OR 4x NOMINAL FRAMING MEMBERS OF THE SAME DEPTH AND LUMBER GRADE MAY BE USED IN LIEU OF 3x MEMBERS AT CONTRACTOR OPTION - WHERE EDGE NAILING IS LESS THAN 3"o.c., USE (2) 16d NAILS AT 4"o.c.
7. SHEATHING SHALL BE STAMPED W/ APA STAMP. O.S.B. OF EQUIVALENT THICKNESS, GRADE, AND RATING MAY BE USED IN LIEU OF PLYWOOD.
8. SEE 15/S202 FOR CAST-IN-PLACE OPTION. ALL SOLE PLATE ANCHORS INTO CONCRETE MUST HAVE PLATE WASHERS PER TIMBER STRUCTURAL NOTES ON SHEET S001.
9. SEE THIS SHEET FOR TYPICAL SHEAR TRANSFER DETAILS.
10. AT SW-H, USE (2) BOTTOM PLATES AND CONTERSINK ANCHOR BOLTS IN UPPER PLATE.
11. FOLLOW SCREW MANUFACTURER'S RECOMMENDATIONS FOR STAGGER SPACING AND EDGE DISTANCE WHEN INSTALLING SCREWS. IF SPLITTING OCCURS, USE PRE-DRILLED HOLES.
12. IF PLYWOOD WALL SHEATHING THAT IS PART OF A SHEAR WALL IS TO BE FIRE TREATED, THE SPECIFIED PLYWOOD THICKNESS MUST BE INCREASED BY 1/8". (IE: SHEARWALLS REQUIRING 15/32" PLYWOOD MUST BECOME 19/32" PLYWOOD IF FIRE TREATED.) SEE ALSO NOTE L.5.h ON S001.
13. SCREWS ARE TO BE DRIVEN THRU (1) BOTTOM PLATE. IF SCREWS ARE DRIVEN THRU (2) BOTTOM PLATES, TOTAL SCREW LENGTH MUST BE 6" MIN.



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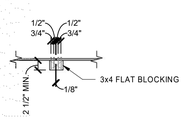
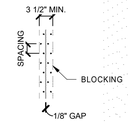
BREEZEWAY DIAPHRAGM CONNECTION SCHEDULE

NOTES:

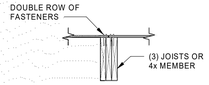
1. SHEATHING NAILING AT BREEZEWAY SHALL BE (2) ROWS OF 10d NAILS AT 2 1/2"o.c., STAGGERED UNLESS NOTED OTHERWISE.
2. ▨ INDICATES SHEATHING NAILING OF (2) ROWS OF 10d NAILS AT 4"o.c. STAGGERED.
3. LAP STRAPS WHERE REQUIRED PER MANUFACTURERS RECOMMENDATIONS.
4. BLOCK ALL PANEL EDGES WITH 3x4 FLAT BLOCKING.
5. FIELD NAILING SHALL BE 10d NAILS AT 12"o.c.
6. STRAPPING SHALL OCCUR OVER FLAT 2x BLOCKING OR FRAMING MEMBERS.



SECTION AT BLOCKING



PLAN VIEW OF NAILING



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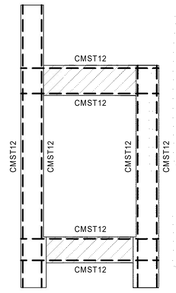

SPECIAL INSPECTION SCHEDULE [1, 2]

ESTABLISHED PER 2018 IBC SECTION 110 AND CHAPTER 17

ITEM	CONTINUOUS[3]	PERIODIC[3]	REFERENCE	COMMENTS
PRE-FAB CONSTRUCTION (IBC 1704.2)			REFERENCE NOTES P1 & P2	P1. SPECIAL INSPECTION IS NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION, PROVIDED THE FABRICATOR COMPLIES WITH IBC. P2. INSPECTION FOR PREFABRICATED CONSTRUCTION SHALL BE THE SAME AS IF THE MATERIAL USED IN THE CONSTRUCTION TOOK PLACE ON SITE. SPECIAL INSPECTION WILL NOT BE REQUIRED DURING PREFABRICATION IF THE APPROVED AGENCY CERTIFIES THE CONSTRUCTION AND FURNISHES EVIDENCE OF COMPLIANCE. (SEE NOTE 2).
OPEN-WEB STEEL JOISTS AND JOIST GIRDERS (IBC 1705.2.3)				
INSTALLATION OF OPEN-WEB JOISTS AND JOIST GIRDERS				
END CONNECTIONS - WELDED OR BOLTED		●	SJI SPECIFICATIONS LISTED IN SECTION 2207.1	
BRIDGING - HORIZONTAL OR DIAGONAL				
STANDARD BRIDGING		●		
BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1		●	SJI SPECIFICATIONS LISTED IN SECTION 2207.1	
CONCRETE CONSTRUCTION (IBC 1705.3)			SEE IBC TABLE 1705.3 - REF. NOTE C1	C 1. SPECIAL INSPECTION IS NOT REQUIRED FOR CONC. ISOLATED SPREAD FOOTINGS, CONTINUOUS FOOTINGS, NON-STRUCTURAL SLABS, FOUNDATION WALLS, PATIOS, DRIVEWAYS, AND SIDEWALKS PROVIDED THE REQUIREMENTS OF IBC 1705.3 ARE MET.
REINFORCING STEEL PLACEMENT		●		C 2. PERIODIC SPECIAL INSPECTION IS ALLOWED FOR VERIFICATION OF THE WELDABILITY OF REINFORCING STEEL RESISTING FLEXURAL
WELDING OF REINFORCING STEEL	●	●	REFERENCE NOTE C2	AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE
EMBEDDED BOLTS & PLATES	●			SHEAR WALLS, AND SHEAR REINFORCEMENT. PERIODIC SPECIAL INSPECTION IS ALLOWED FOR WELDING OF OTHER ASTM A 706
VERIFYING REQUIRED DESIGN MIX		●		REINFORCING STEEL NOT INCLUDED IN THE CONTINUOUS SPECIAL INSPECTION REQUIREMENTS NOTED ABOVE.
CONCRETE PLACEMENT / SAMPLING	●		REFERENCE NOTE C3	C 3. PERFORM AIR, SLUMP AND TEMP. TESTS WHEN CONCRETE SAMPLES ARE CAST.
CURING TEMPERATURE / TECHNIQUES		●		C 4. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR VERIFICATION OF IN-SITU CONCRETE STRENGTH FOR POST-TENSIONED CONCRETE
PRESTRESSED CONCRETE				C PRIOR TO TENSIONING TENDONS OR REMOVING SHORING OR FORMS.
APPLICATION OF PRESTRESSING FORCES	●			C 5. EPOXY AND EXPANSION ANCHORS INTO MASONRY OR CONCRETE MAY BE USED ONLY WHEN APPROVED BY ARCHITECT, AND/OR
GROUTING BONDED TENDONS	●		IN SEISMIC-FORCE-RESISTING SYSTEM	ENGINEER USING AN APPROVED PRODUCT WITH CURRENT PUBLISHED ICC RESEARCH REPORT NUMBERS. COORDINATE
ERECTION OF PRECAST MEMBERS		●		C CONTINUOUS/PERIODIC SPECIAL INSPECTION REQUIREMENTS WITH ICC REPORT.
VERIFICATION OF IN-SITU STRENGTH		●	REFERENCE NOTE C4	
EPOXY / EXPANSION ANCHOR PLACEMENT	●	●	REFERENCE NOTE C5	
WOOD (IBC 1705.5 & 1705.11.1 & 1705.12.2)				W 1. WOOD STRUCTURAL PANEL SHEATHING SHALL BE INSPECTED TO ASCERTAIN THAT GRADE AND THICKNESS ARE IN COMPLIANCE
HIGH LOAD DIAPHRAGMS (ROOF / FLOOR)		●	REFERENCE NOTE W1	WITH APPROVED BUILDING PLANS. NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES, THE NAIL OR STAPLE
SITE-BUILT ASSEMBLIES		●		DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES, AND SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE
SHEAR WALL & DIAPHRAGM NAILING		●	REFERENCE NOTE W2	MARGINS SHALL ALSO BE INSPECTED AND VERIFIED FOR COMPLIANCE WITH APPROVED BUILDING PLANS.
DRAG STRUTS		●		W 2. SPECIAL INSPECTION IS NOT REQUIRED FOR WOOD SHEAR WALLS, WOOD DIAPHRAGMS, INCLUDING NAILING, & BOLTING, AND
BRACES & SHEAR PANELS		●		OTHER FASTENING TO OTHER COMPONENTS WHERE THE SPACING OF THE SHEATHING FASTENERS IS GREATER THAN 4"o.c.
HOLDOWNS		●		W 3. SPECIAL INSPECTION SHALL BE PERFORMED TO VERIFY THAT THE INSTALLATION OF TEMPORARY AND PERMANENT
GLUING OPERATIONS	●			RESTRAINT/BRACING IS INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE.
METAL-PLATE-CONNECTED WOOD TRUSSES WITH HEIGHTS GREATER THAN OR EQUAL TO 60"		●	REFERENCE NOTE W2	W
METAL-PLATE-CONNECTED WOOD TRUSSES WITH SPANS GREATER THAN OR EQUAL TO 60 FEET		●	REFERENCE NOTE W3	
COLD FORMED FRAMING (IBC 1705.11.2 & 1705.12.3)				CF 1. SPECIAL INSPECTION IS NOT REQUIRED FOR COLD-FORMED STEEL LIGHT-FRAME SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS (DRAG STRUTS) AND HOLDOWNS WHERE SHEATHING IS WOOD STRUCTURAL PANEL OR STEEL SHEETS ON ONLY ONE SIDE OF THE SHEAR WALL, SHEAR PANEL OR DIAPHRAGM ASSEMBLY AND THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4"o.c.
LIGHT GAUGE METAL FRAMING WELDING		●		
SHEAR WALL & DIAPHRAGM ATTACHMENTS		●		
DRAG STRUT & BRACE INSTALLATION		●		
HOLDOWN INSTALLATION		●		
SOILS (IBC 1705.6)			REFERENCE NOTE F1	F 1. SPECIAL INSPECTION OF SOILS SHALL REFERENCE THE APPROVED SOILS REPORT TO DETERMINE COMPLIANCE.
VERIFY ADEQUATE MATERIALS BELOW FOOTINGS		●	REFERENCE NOTE F1	F 2. WHERE SOILS REPORT IS NOT PROVIDED SPECIAL INSPECTIONS ARE REQUIRED TO VERIFY THAT THE IN-PLACE DRY DENSITY
EXCAVATIONS EXTEND TO PROPER DEPTH AND REACH PROPER MATERIAL		●	REFERENCE NOTE F2	OF THE COMPACTED FILL IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT
CLASSIFY & TEST CONTROLLED FILL MATERIALS		●	REFERENCE NOTE F2	DETERMINED IN ACCORDANCE WITH ASTM D 1557.
PERFORM MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	●		REFERENCE NOTE F1	
PROPERLY PREPARED SITE AND SUB-GRADE PRIOR TO FILL.		●	REFERENCE NOTE F1	
PILE FOUNDATIONS (IBC 1705.7)			REFERENCE NOTE PF1 AND PF2	PF 1. FOR STEEL ELEMENTS, PERFORM ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH THE STRUCTURAL STEEL
VERIFY PILE MATERIALS, SIZES, AND LENGTHS	●			INSPECTION SCHEDULE ALSO INCLUDED IN THESE DRAWINGS.
DETERMINE CAPACITIES OF TEST PILES & CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED.	●			PF 2. FOR CONCRETE ELEMENTS AND CONCRETE FILLED ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN
INSPECT DRIVING/DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.	●			ACCORDANCE WITH SECTION 1705.3.
VERIFY PLACEMENT LOCATIONS, PLUMBNESS, HAMMER DATA, REQUIRED PENETRATIONS, AND RECORD FINAL TIP AND BUTT ELEVATIONS AND DOCUMENT ANY PILE DAMAGE.	●			
HELICAL PILE FOUNDATIONS (IBC 1705.9)			REFERENCE NOTE HPF1	HPF 1. THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS SHALL BE USED TO DETERMINE COMPLIANCE.
RECORD INSTALLATION EQUIPMENT USED	●			
RECORD PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH, AND FINAL INSTALLATION TORQUE	●			
PIER FOUNDATIONS (IBC 1705.8)			REFERENCE NOTE PF1 AND PF2	PF 1. FOR STEEL ELEMENTS, PERFORM ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH THE STRUCTURAL STEEL
OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH PIER.	●			INSPECTION SCHEDULE ALSO INCLUDED IN THESE DRAWINGS.
VERIFY PLACEMENT LOCATIONS, AND PLUMBNESS, CONFIRM PIER DIAMETERS, LENGTHS, EMBEDMENT INTO BED ROCK AND ADEQUATE END-PEARING CAPACITY.	●			PF 2. FOR CONCRETE ELEMENTS AND CONCRETE FILLED ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3.

GENERAL SPECIAL INSPECTION NOTES :

1. THE ITEMS MARKED WITH A "●" IN THE SPECIAL INSPECTION SCHEDULE SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO THE MATERIAL SAMPLING AND TESTING SECTION, THE PROJECT SPECIFICATIONS, AND THE SPECIFIC GENERAL NOTES SECTIONS. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ARCHITECT, ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL. ANY ITEMS WHICH FAIL TO COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF DISCREPANCIES ARE NOT CORRECTED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL, ARCHITECT, AND ENGINEER PRIOR TO COMPLETION OF THAT PHASE OF WORK. SPECIAL INSPECTION TESTING REQUIREMENTS APPLY EQUALLY TO ALL BIDDER DESIGNED COMPONENTS.
2. ANY CONSTRUCTION OR MATERIAL THAT HAS FAILED INSPECTION SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT.
3. CONTINUOUS SPECIAL INSPECTION MEANS THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED. PERIODIC SPECIAL INSPECTION MEANS THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK. (IBC SECTION 202)

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SCHEDULES

S004

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WOOD SHEAR WALL SCHEDULE

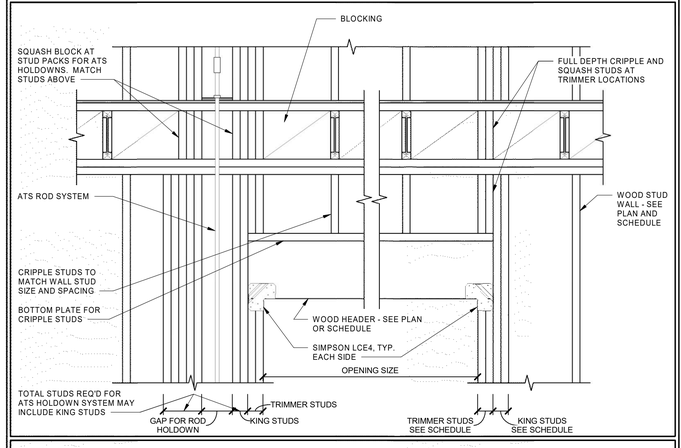
WALL CALLOUT	LEVEL	SHEAR WALL TYPE [4]	BOUNDARY ELEMENT FORCES (kips, ASD) [3]		MIN. ROD DIA.
			TENSION [1,3]	COMPRESSION [3,5]	
SW-1	ROOF - 5th	SW-A	1	1.4	
	5th - 4th	SW-A	3.6	4.4	1/2"
	4th - 3rd	SW-B	7.7	8.9	5/8"
	3rd - 2nd	SW-C	12.8	14.5	3/4"
SW-2	ROOF - 5th	SW-A	2	2.2	3/8"
	5th - 4th	SW-C	6.9	7.5	5/8"
	4th - 3rd	SW-D	14.8	15.8	1"
	3rd - 2nd	SW-E	24.8	26.3	1 1/8"
	2nd - GROUND	SW-E	36.9	39	1 1/2"
SW-3	ROOF - 5th	SW-A	2.4	2.8	3/8"
	5th - 4th	SW-D	8.9	9.6	3/4"
	4th - 3rd	SW-E	19.2	20.4	1"
	3rd - 2nd	SW-F	32.2	33.9	1 1/8"
	2nd - GROUND	SW-G	47.7	50	1 1/4"
SW-4	ROOF - 5th	SW-A	2.2	2.7	3/8"
	5th - 4th	SW-E	10.8	11.8	3/4"
	4th - 3rd	SW-G	24.4	25.9	1"
	3rd - 2nd	SW-G	41.9	44	1 1/2"
	2nd - GROUND	SW-H	62.9	65.7	1 3/4"
SW-5	ROOF - 5th	SW-A	2	2	
	5th - 4th	SW-A	3	4	3/8"
	4th - 3rd	SW-B	6.1	8.6	5/8"
	3rd - 2nd	SW-C	10.9	14.5	7/8"
	2nd - GROUND	SW-C	16.3	21.2	1"
SW-6	ROOF - 5th	SW-A	1	1	
	5th - 4th	SW-A	1	3.8	
	4th - 3rd	SW-C	1.8	8.6	
	3rd - 2nd	SW-C	4.7	14.5	
	2nd - GROUND	SW-D	8.1	21.1	
SW-7	ROOF - 5th	SW-A	1	1.2	
	5th - 4th	SW-A	2.9	3.8	3/8"
	4th - 3rd	SW-B	6.3	7.5	1/2"
	3rd - 2nd	SW-B	10.6	12.2	7/8"
	2nd - GROUND	SW-C	15.3	17.4	7/8"
SW-8	ROOF - 5th	SW-A	1.4	1.8	
	5th - 4th	SW-B	5.5	6.2	5/8"
	4th - 3rd	SW-D	11.4	12.4	7/8"
	3rd - 2nd	SW-D	19.2	20.5	1"
	2nd - GROUND	SW-E	28.1	29.8	1 1/4"
SW-9	ROOF - 5th	SW-A	1.9	2.3	3/8"
	5th - 4th	SW-C	7	7.8	5/8"
	4th - 3rd	SW-E	15	16.2	7/8"
	3rd - 2nd	SW-F	25.4	27	1 1/8"
	2nd - GROUND	SW-E	37.3	39.4	1 3/8"
SW-10	ROOF - 5th	SW-A	2.0	2.3	3/8"
	5th - 4th	SW-D	10.1	10.8	7/8"
	4th - 3rd	SW-F	23.4	24.8	1 1/8"
	3rd - 2nd	SW-G	41.4	42.9	1 1/2"
	2nd - GROUND	SW-H	62.5	64.8	1 3/4"

NOTES :

1. TENSION ANCHORAGE TO BE LOCATED WITHIN 12" OF END OF WALL.
2. SEE DETAIL 3/S207 FOR COMPRESSION POST SCHEDULE
3. TO CONVERT FROM ASD LOADS TO LRFD LOADS, MULTIPLY ASD LOADS BY 1.67.
4. SEE WOOD SHEAR WALL TYPE SCHEDULE ON SHEET S003 FOR SHEATHING, NAILING, STUD, AND CONNECTION REQUIREMENTS.
5. ALL POSTS OR BUILT-UP STUDS USED FOR COMPRESSION POSTS ARE TO BE FULL HEIGHT BETWEEN TOP PLATES AND BOTTOM PLATES. ADD SQUASH BLOCKS BETWEEN FLOOR FRAMING TO MATCH COMPRESSION POSTS / STUDS.
6. MINIMUM ROD DIAMETER IS LISTED WHERE REQUIRED TO LIMIT SHEARWALL DRIFT. WHERE MINIMUM ROD DIAMETER IS NOT LISTED THE STRENGTH OF THE ROD CONTROLLED THE DESIGN.
7. A MINIMUM ROD DIAMETER OF 1/4" SHALL BE USED FOR ALL CASES UNLESS NOTED OTHERWISE IN SCHEDULE.
8. FOR SHEARWALL ANCHORAGE, SEE DETAIL 6/S203.

WOOD OPENING SCHEDULE

WALL LOCATION	LEVEL	OPENING SIZE	KING STUDS	TRIMMER STUDS	HEADER BEAM
EXTERIOR BEARING	ALL LEVELS	2'-0"	(1) 2x6	(1) 2x6	(3) 2x8
EXTERIOR NON-BEARING	ALL LEVELS	4'-0"	(1) 2x6	(1) 2x6	(3) 2x10
	LEVELS 2 AND 3	8'-0"	(2) 2x6	(2) 2x6	(3) 1 3/4"x9 1/2" LVL
	LEVELS 4, 5, AND ROOF	8'-0"	(2) 2x6	(1) 2x6	(3) 1 3/4"x9 1/2" LVL



NOTES:

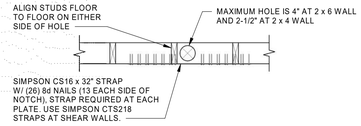
1. BEAM SIZES SHALL BE PER THE SCHEDULE UNLESS NOTED OTHERWISE ON THE PLANS.
2. SEE NOTES FOR STUD GRADES OF KINGS OR TRIMMERS.
3. KING AND TRIMMER STUDS SHALL MATCH WALL STUD SIZE. SEE SCHEDULE.
4. HEADERS SHALL BE BUILT WITH FILLER MATERIAL TO MATCH WALL WIDTH.

WOOD WALL FRAMING SCHEDULE

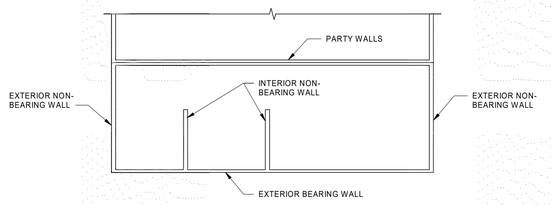
LEVEL	LOCATION	STUD AND GRADE SPECIES	STUD SIZE	STUD SPACING	COMMENTS
GROUND TO 2nd FLOOR	TYPICAL EXTERIOR BRG.	DF#2	(2) 2 x 6	16"	DOUBLE STUDS
	TYPICAL PARTY WALL	DF#2	2 x 6	12"	SPACING
	EXTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	
	INTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
2nd TO 3rd FLOOR	TYPICAL EXTERIOR BRG.	DF#2	2 x 6	12"	SPACING
	TYPICAL PARTY WALL	DF#2	2 x 6	12"	SPACING
	EXTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
	INTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
3rd TO 4th FLOOR	TYPICAL EXTERIOR BRG.	DF#2	2 x 6	16"	--
	TYPICAL PARTY WALL	DF#2	2 x 6	16"	--
	EXTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
	INTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
4th TO 5th FLOOR	TYPICAL EXTERIOR BRG.	DF#2	2 x 6	16"	--
	TYPICAL PARTY WALL	DF#2	2 x 6	16"	--
	EXTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
	INTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
5th FLOOR TO ROOF	TYPICAL EXTERIOR BRG.	DF#2	2 x 6	16"	--
	TYPICAL PARTY WALL	DF#2	2 x 6	16"	--
	EXTERIOR NON-LOAD BRG.	DF#2	2 x 6	16"	--
	INTERIOR NON-LOAD BRG.	DF#2	SEE ARCH.	16"	--

NOTES:

1. WHERE PLYWOOD DOES NOT ATTACH TO SIDE OF BEARING WALL STUDS, PROVIDE 2x BLOCKING BETWEEN STUDS AT 48"o.c. (MAX) TO BRACE STUDS.
2. ALIGN STUDS TO STACK FLOOR TO FLOOR.
3. LSL BLOCKING REQUIRED BETWEEN FLOOR JOISTS AT ALL BEARING WALLS. SEE DETAILS.
4. SEE PLAN BELOW FOR REINFORCEMENT AROUND HOLES IN TOP AND BOTTOM PLATES.
5. THIS SCHEDULE ONLY APPLIES TO WALLS SHOWN ON STRUCTURAL PLANS.



HOLES IN TOP / BOTTOM PLATES



TYPICAL UNIT

TABLE OF EQUIVALENT FASTENERS

STAPLES, NAILS AND T-NAILS (VALID FOR LATERAL LOADS ONLY)

COMMON NAIL SPACING		EQUIVALENT SPACING OF APPROVED FASTENERS				
		STAPLES			NAILS & T-NAILS	
	GAUGE	16	15	14	.113	.131
	PENETRATION	1"	1"	1"	1 1/4"	1 1/2"
6d AT:	4"	3 1/2"	4"	5"	4"	5"
	6"	5"	6"	7"	6"	7 1/2"
	8"	6 1/2"	8"	9 1/2"	8"	10"
	10"	8 1/2"	10"	12"	10"	12"
	12"	10"	12"	14 1/2"	12"	14 1/2"
8d AT:	4"	2 1/2"	3 1/2"	4"	3 1/2"	4"
	6"	4"	5"	6"	5"	6"
	8"	5 1/2"	6 1/2"	8"	6 1/2"	8"
	10"	6 1/2"	8"	10"	8"	10"
	12"	8"	10"	12"	9 1/2"	12"
10d AT:	4"	2"	2 1/2"	3"	2 1/2"	3 1/2"
	6"	3 1/2"	4"	5"	4"	5"
	8"	4 1/2"	5 1/2"	6 1/2"	5 1/2"	7"
	10"	5 1/2"	7"	8"	6 1/2"	8 1/2"
	12"	6 1/2"	8"	9 1/2"	8"	10"

NOTES:
PENETRATION IS THE DEPTH OF EMBEDMENT OF THE STAPLE OR NAIL INTO THE MAIN MEMBER REQUIRED TO ATTAIN IT'S FULL CAPACITY (SHEAR VALUE) FOR LATERAL LOADING.

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SCHEDULES

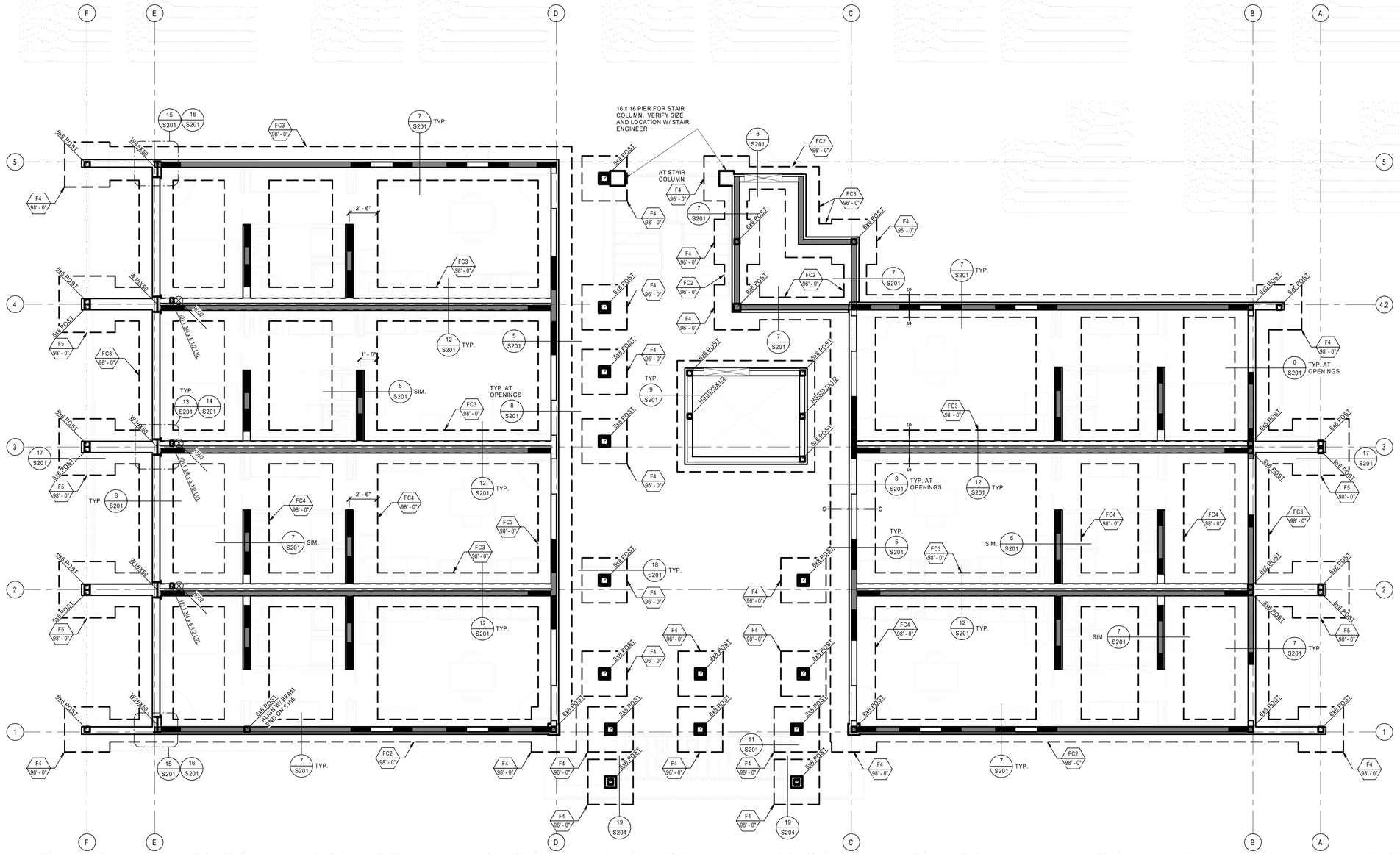
S005

FOOTING & FOUNDATION NOTES :

1. SEE SHEET S001 FOR GENERAL STRUCTURAL NOTES.
2. ALL FOOTINGS SHALL BE PLACED ON SOIL WHICH HAS BEEN PREPARED FOR THE BEARING PRESSURE SHOWN IN THE STRUCTURAL NOTES.
3. VERIFY ALL DIMENSIONS WITH DRAWINGS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOUND.
4. SOLID GROUT ALL MASONRY COURSES BELOW FINISHED FLOOR OR EXTERIOR GRADE (WHICHEVER IS HIGHER)
5. SEE SHEET S002 FOR FOOTING SCHEDULE.
6. PROVIDE DOWELS IN FOOTINGS / FOUNDATIONS TO MATCH VERTICAL WALL REINFORCING U.N.O.
7. SEE SHEET S201 FOR TYPICAL FOOTING AND FOUNDATION DETAILS.
8. ALL EXTERIOR WALL FOOTINGS TO BEAR A MINIMUM DIMENSION BELOW EXTERIOR GRADE AS NOTED IN GENERAL STRUCTURAL NOTES.
9. FOUNDATION WALLS ARE DESIGNED AND DETAILED FOR THE COMPLETED CONDITION. CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION. BACKFILLED WALLS SHALL BE ADEQUATELY BRACED DURING CONSTRUCTION AND BACKFILLING TO PRODUCE PLUMB AND TRUE FINISHED WALLS.
10. ALL ANCHORS, HOLD-DOWNS, ANCHOR BOLTS, DOWELS, EMBEDDED ITEMS, ETC. SHALL BE HELD IN PLACE PRIOR TO AND DURING CONCRETE AND/OR GROUT PLACEMENT.
11. COORDINATE ALL FOOTING DEPTHS (INTERIOR AND EXTERIOR) WITH DRAINS, CONDUITS, ETC. THAT MAY INTERFERE WITH FOOTINGS.

CONCRETE SLAB NOTES :

1. SLAB ON GRADE SHALL BE 4" THICK CONCRETE U.N.O. SLAB SHALL BE UNDERLAIN BY FREE DRAINING MATERIAL AS PRESCRIBED IN THE SOILS REPORT.
2. SEE SHEET S201 FOR CONTROL AND CONSTRUCTION JOINT INFORMATION.



LEVEL 01
SCALE : 1/4" = 1'-0"

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S101.A

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FOOTING AND FOUNDATION PLAN

S101.A

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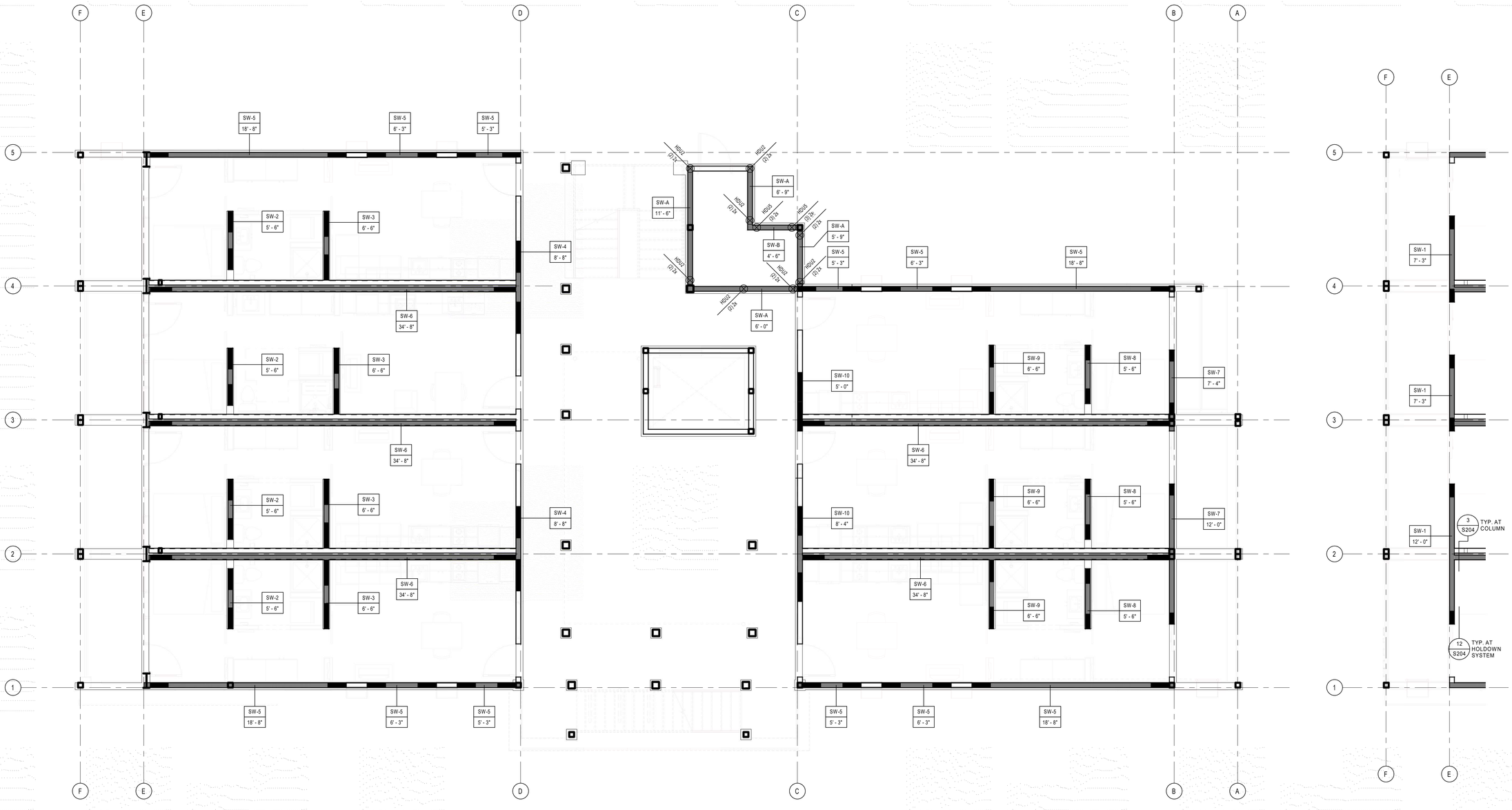
SHEARWALL FRAMING NOTES :

1. SEE SHEET S001 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEARWALL TYPE SCHEDULE FOR TYPICAL FRAMING DETAILS.
3. ■■■■ INDICATES BOUNDARY ELEMENT. NO PENETRATIONS ALLOWED IN THIS ELEMENT WITHOUT WRITTEN PERMISSION FROM ENGINEER OF RECORD.
4. SEE SHEET S203 FOR MORE INFORMATION ON ATS SYSTEM.
5. CONTRACTOR SHALL COORDINATE ALL TRADES FOR WALLS THAT REQUIRE SHEATHING ON EACH SIDE.



LEVEL 01 SHEARWALL PLAN
SCALE : 1/4" = 1'-0"

A S101.B

LEVEL 02 SHEARWALL PLAN
SCALE : 1/4" = 1'-0"

B S101.B

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SHEARWALL AND HOLDOWN PLAN

S101.B

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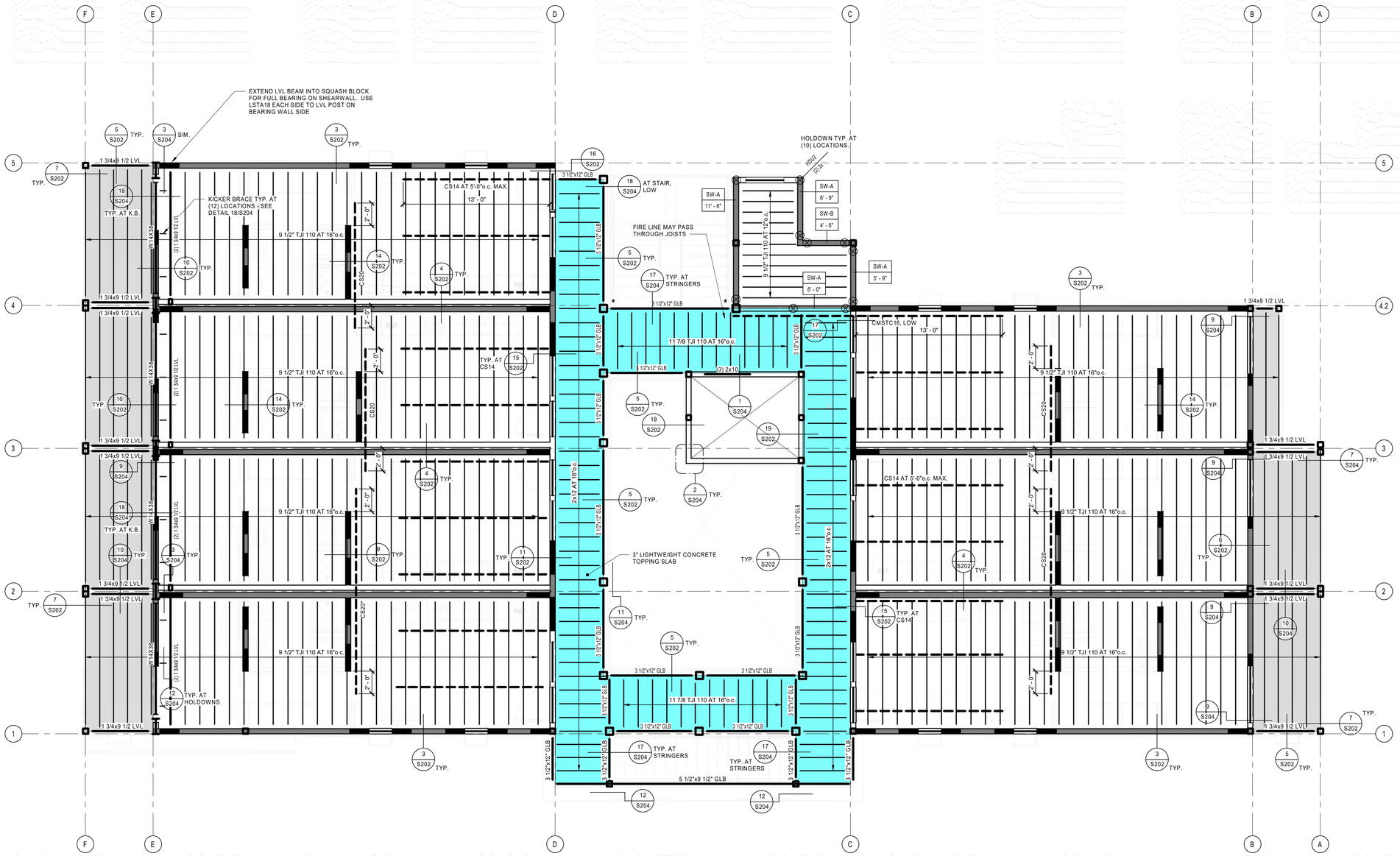
WOOD FLOOR FRAMING NOTES :

1. FOR FLOOR SHEATHING AND NAILING REQUIREMENTS, SEE STRUCTURAL NOTES SHEET S001.
2. HORIZONTAL TIE STRAPS ARE SHOWN ON THE FRAMING PLANS WITH AN (H). ALWAYS CENTER STRAPS OVER BOTH CONNECTED MEMBERS.
3. SHEAR WALLS - SEE THE SHEAR WALL SCHEDULE ON S005.
4. ALL EXTERIOR WALLS AND INTERIOR BEARING WALLS - SEE WOOD WALL FRAMING SCHEDULE ON S005.
5. TYPICAL HEADERS - SEE WOOD OPENING SCHEDULE ON S005.
6. TYPICAL TRIMMERS - SEE WOOD OPENING SCHEDULE ON S005.
7. TYPICAL KING STUDS - SEE WOOD OPENING SCHEDULE ON S005.
8. SEE SHEET S004 FOR BREEZEWAY DIAPHRAGM NAILING.



LEVEL 02 FLOOR FRAMING PLAN

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

A S102

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LEVEL 2 FRAMING PLAN

S102

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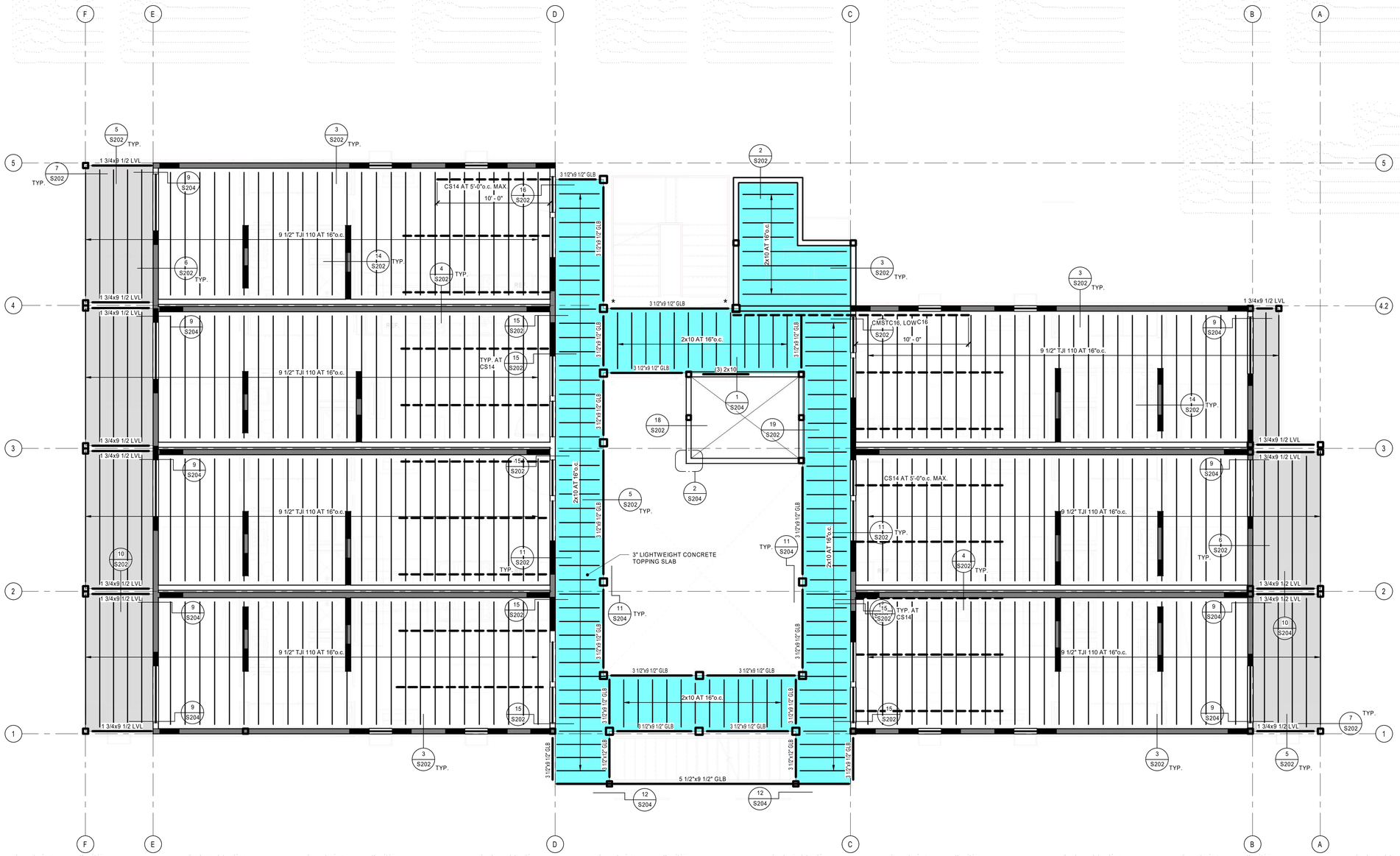
WOOD FLOOR FRAMING NOTES :

1. SEE SHEET S102 FOR FRAMING NOTES.



LEVEL 03 FLOOR FRAMING PLAN

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

A S103

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LEVEL 3 FRAMING PLAN

S103

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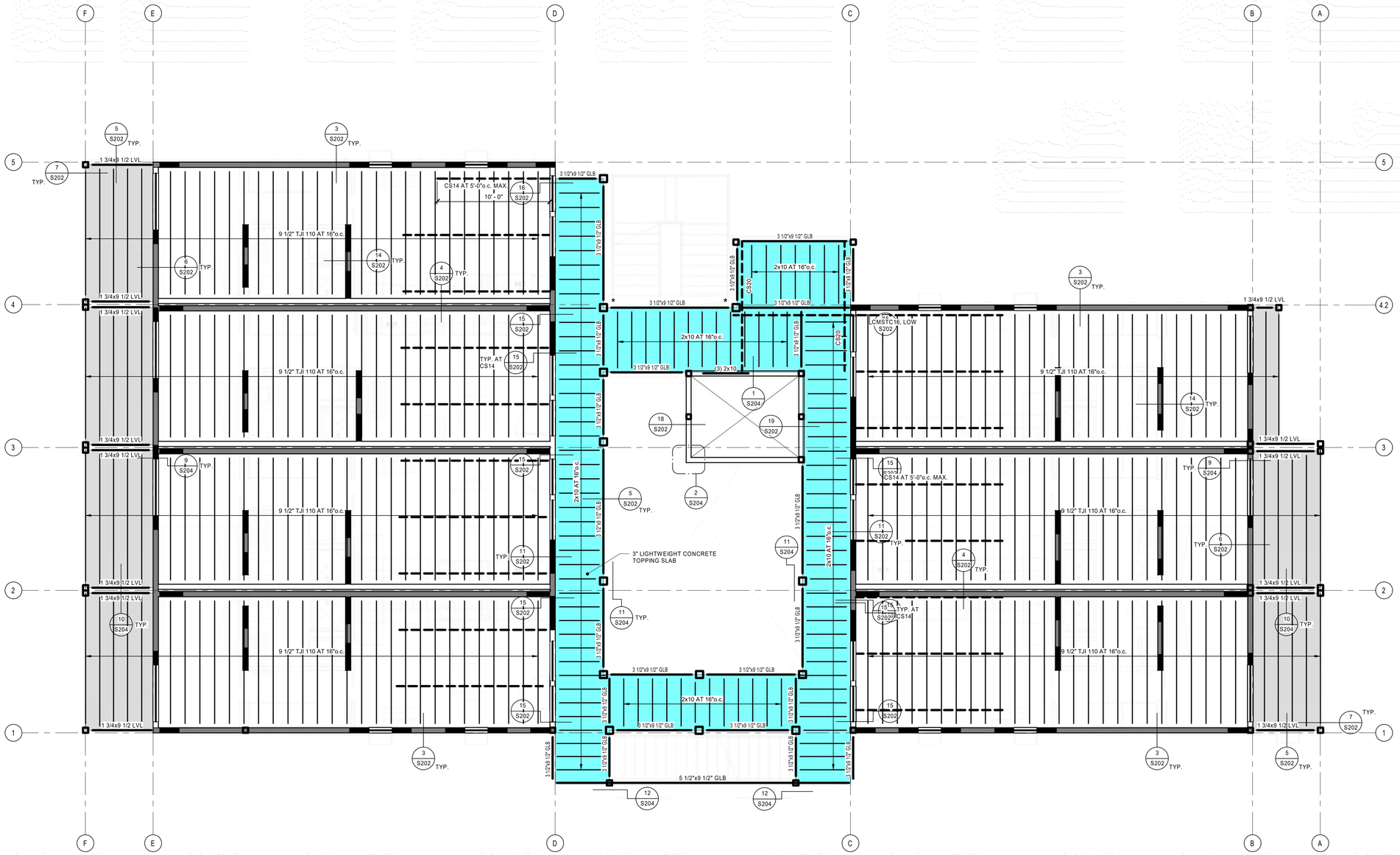
WOOD FLOOR FRAMING NOTES :

1. SEE SHEET S102 FOR FRAMING NOTES.



LEVEL 04 FLOOR FRAMING PLAN

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

A S104

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LEVEL 4 FRAMING PLAN

S104

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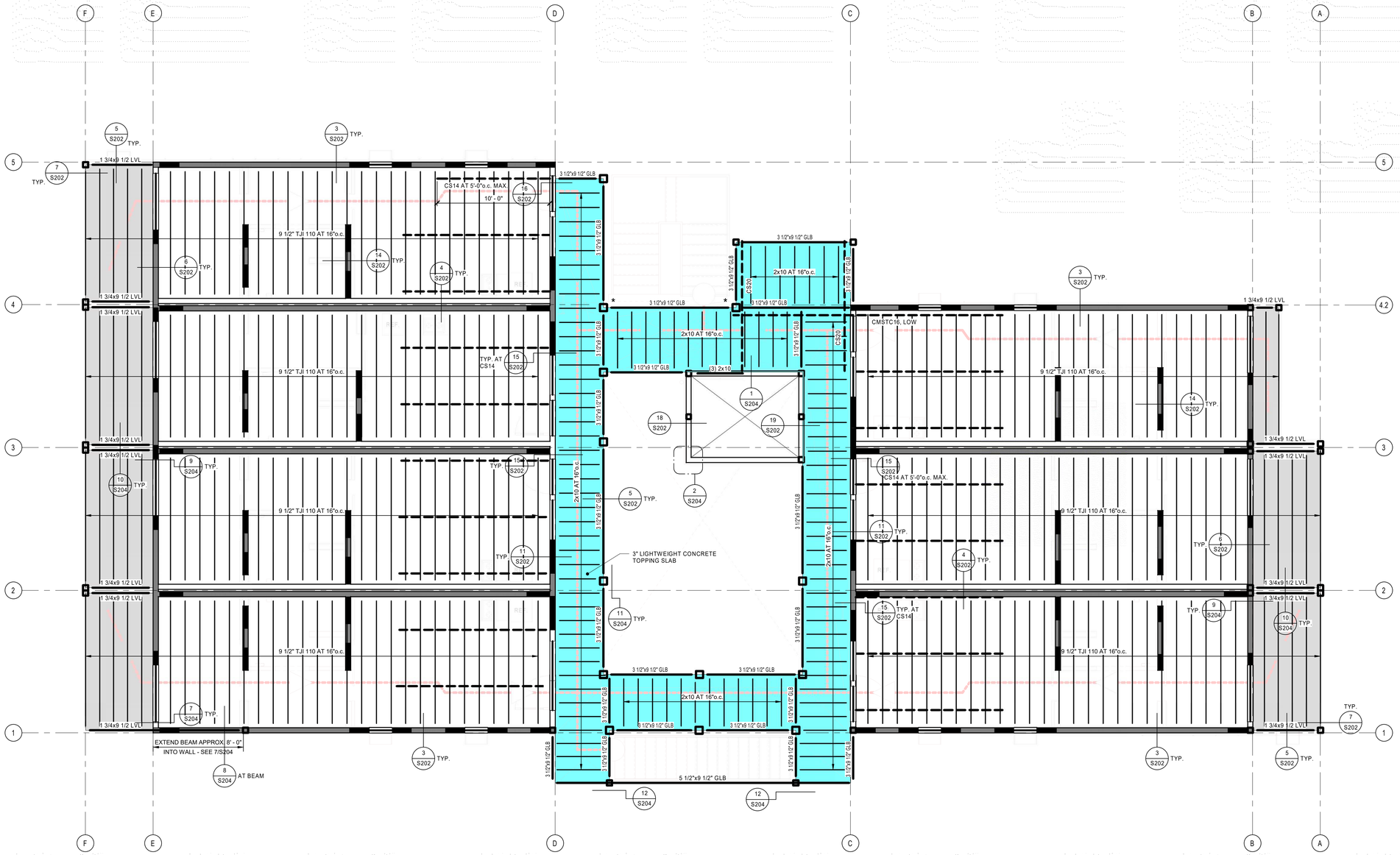
WOOD FLOOR FRAMING NOTES :

1. SEE SHEET S102 FOR FRAMING NOTES.



LEVEL 05 FLOOR FRAMING PLAN

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

A S105

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LEVEL 5 FRAMING PLAN

S105

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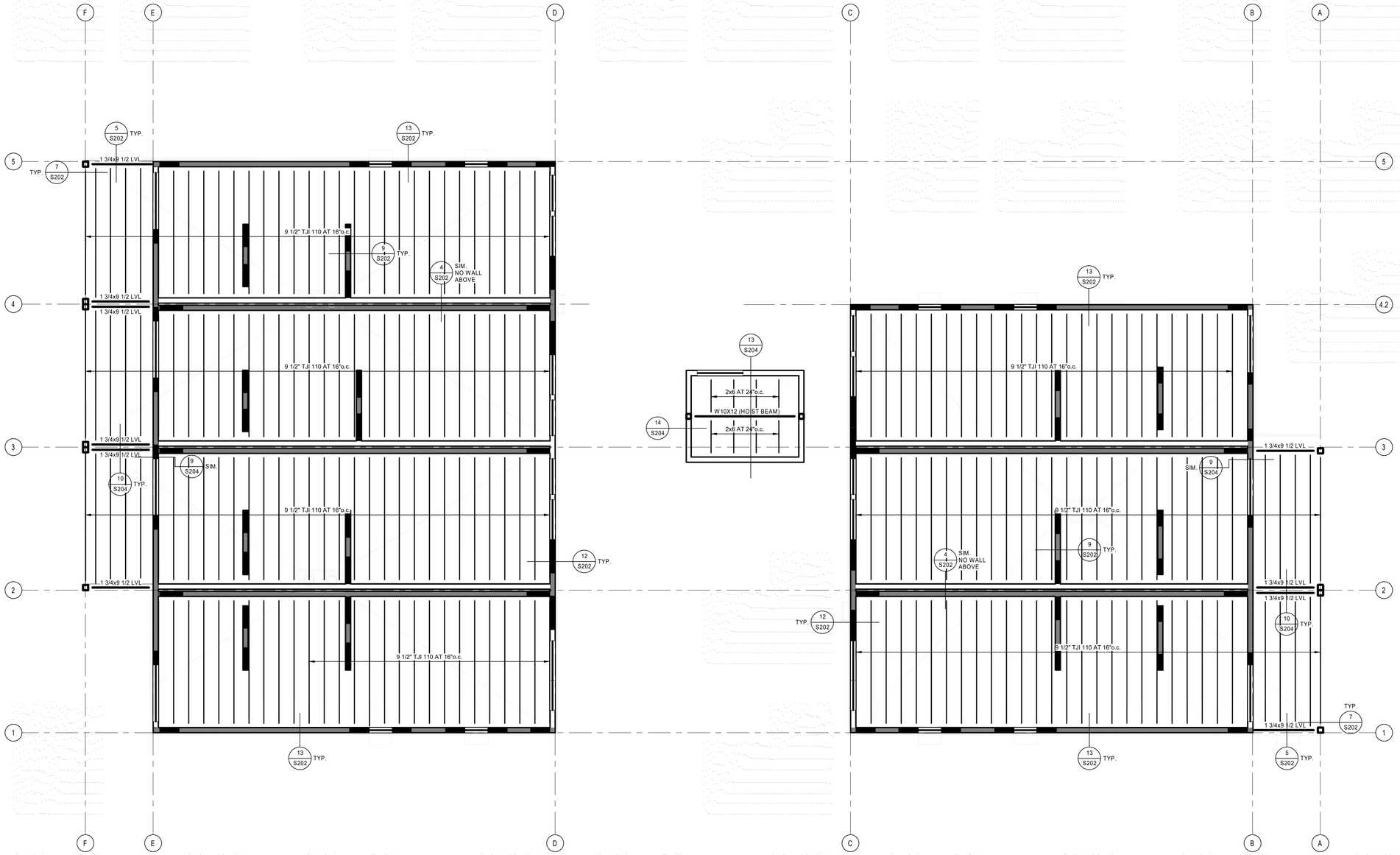
WOOD FRAMING NOTES :

1. FOR ROOF SHEATHING AND NAILING REQUIREMENTS, SEE STRUCTURAL NOTES SHEET S001.
2. SHEAR WALLS - SEE SHEAR WALL SCHEDULE ON S005.
3. AT TOP PLATE SPLICE, LAP 6'-0" MIN. AND CONNECT WITH MIN (20) 16d COMMON NAILS.
4. SEE DETAIL ~/~~ FOR OPENINGS IN ROOF DIAPHRAGM.
5. ALL EXTERIOR WALLS AND INTERIOR BEARING WALLS - SEE WOOD WALL FRAMING SCHEDULE ON S005.
6. TYPICAL HEADERS - SEE WOOD OPENING SCHEDULE ON S005.
7. TYPICAL TRIMMERS- SEE WOOD OPENING SCHEDULE ON S005.
8. TYPICAL KING STUDS - SEE WOOD OPENING SCHEDULE ON S005.
9. SEE DETAIL 1/S202 FOR PLYWOOD ROOF SHEATHING LAYOUT.
10. CONTRACTOR SHALL ERECT AND MAINTAIN ADEQUATE TEMPORARY BRACING UNTIL ALL ROOF FRAMING AND ROOF DIAPHRAGM ATTACHMENTS ARE COMPLETE.
11. SEE DETAIL 8/S202 FOR ATTACHMENT OF NON-BEARING WALLS TO JOISTS.



ROOF FRAMING PLAN
SCALE : 1/4" = 1'-0"

A S106

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ROOF FRAMING PLAN

S106

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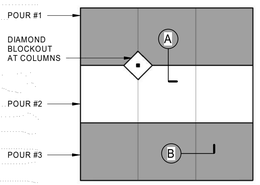
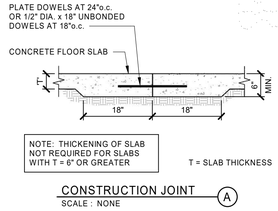


NOTES:
1. JOINTS SHALL OCCUR AT MAIN COLUMN / GRID LINES W/ 10'-0" MAX. SPACING BETWEEN JOINTS AT 4" SLABS; 12'-0" MAX. AT 5" SLABS; AND 15'-0" MAX. AT 6" SLABS.
2. SEE PLAN FOR SLAB THICKNESS 'T' AND REINFORCING SIZE AND SPACING.

TYPICAL CONCRETE SLAB JOINTS

SCALE : NONE

1 S201



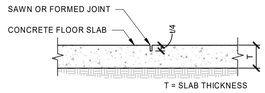
NOTE: THICKENING OF SLAB NOT REQUIRED FOR SLABS WITH T = 6" OR GREATER

T = SLAB THICKNESS

CONSTRUCTION JOINT

SCALE : NONE

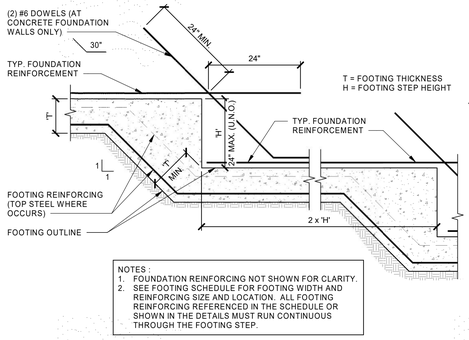
A



CONTROL JOINT

SCALE : NONE

B

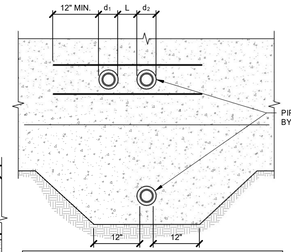


NOTES :
1. FOUNDATION REINFORCING NOT SHOWN FOR CLARITY.
2. SEE FOOTING SCHEDULE FOR FOOTING WIDTH AND REINFORCING SIZE AND LOCATION. ALL FOOTING REINFORCING REFERENCED IN THE SCHEDULE OR SHOWN IN THE DETAILS MUST RUN CONTINUOUS THROUGH THE FOOTING STEP.

TYPICAL STEPPED FOOTING

SCALE : NONE

2 S201



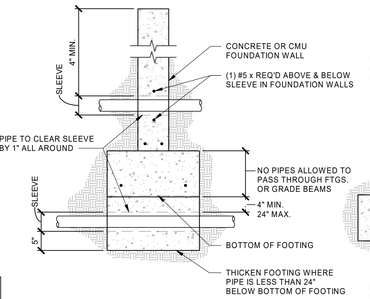
NOTES :
1. TYP. FOUNDATION WALL REINFORCING NOT SHOWN FOR CLARITY.
2. FOR OPENINGS LARGER THAN 12" IN ANY DIRECTION. SEE STRUCTURAL NOTE E-7.
3. DETAIL IS SIMILAR AT MASONRY FOUNDATION WALLS.
4. DISTANCE 'L' SHALL BE THE GREATER OF (d₁ +d₂)/2 OR 4".

PIPE CROSSING FOOTING / FOUNDATION WALL

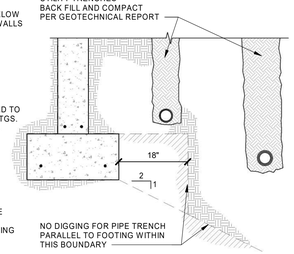
ALLOWABLE PIPING LOCATIONS AT FOOTING DETAIL

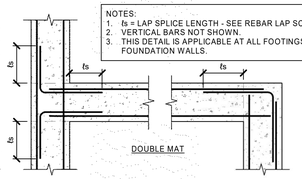
SCALE : NONE

3 S201



PIPE PARALLEL TO FOOTING

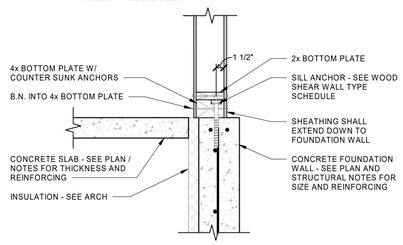




TYP. REINFORCING AT INTERSECTIONS IN CONCRETE DETAIL

SCALE : NONE

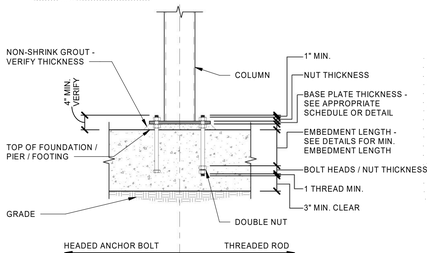
4 S201



DETAIL

SCALE : NONE

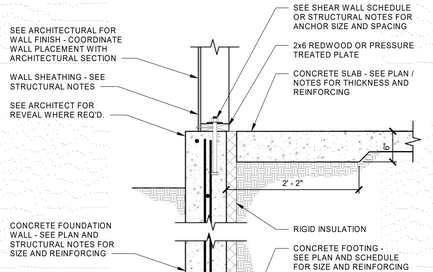
5 S201



TYPICAL ANCHOR BOLT EMBEDMENT DETAIL

SCALE : NONE

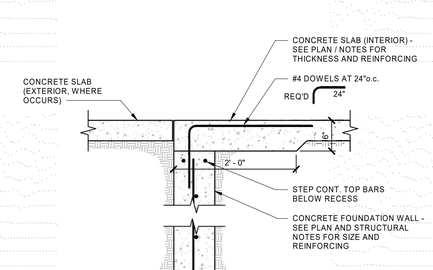
6 S201



FOOTING SECTION AT TIMBER WALL DETAIL

SCALE : NONE

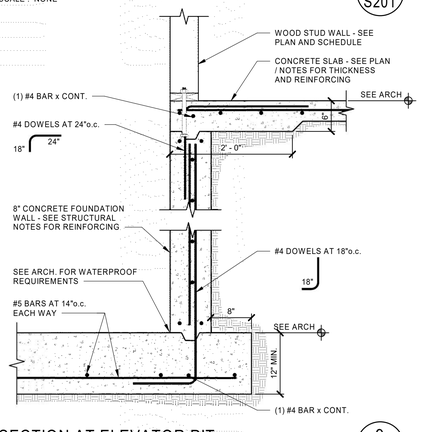
7 S201



CONCRETE FOUNDATION AT OPENING

SCALE : NONE

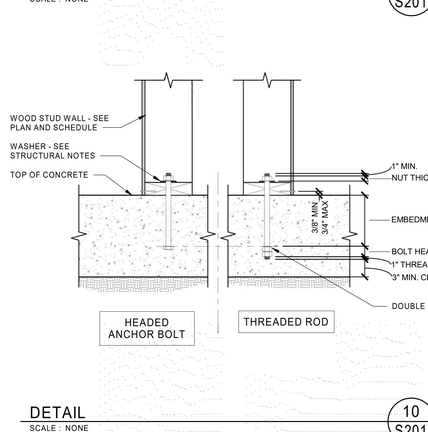
8 S201



SECTION AT ELEVATOR PIT

SCALE : NONE

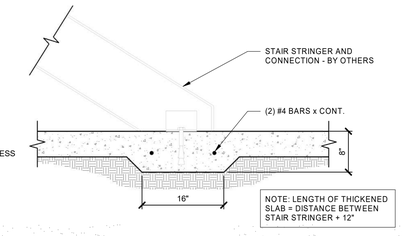
9 S201



DETAIL

SCALE : NONE

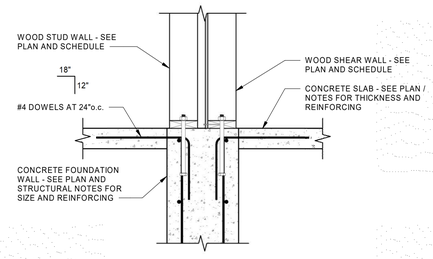
10 S201



THICKENED SLAB AT STAIR

SCALE : NONE

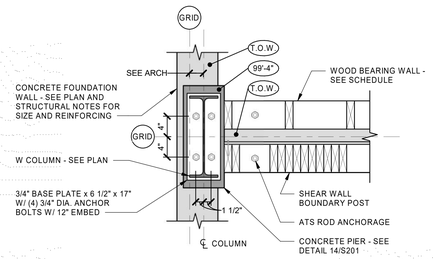
11 S201



DETAIL

SCALE : NONE

12 S201



DETAIL

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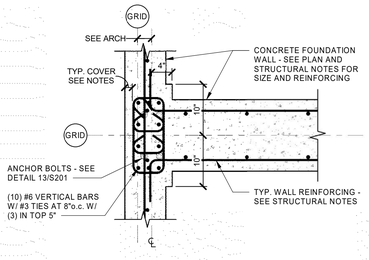
13 S201



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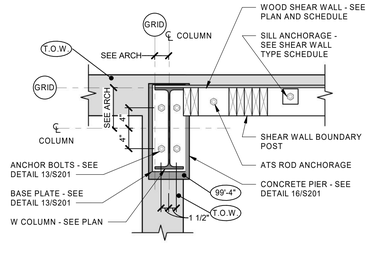
14 S201



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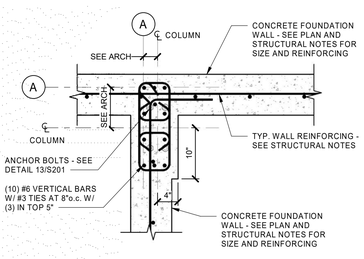
15 S201



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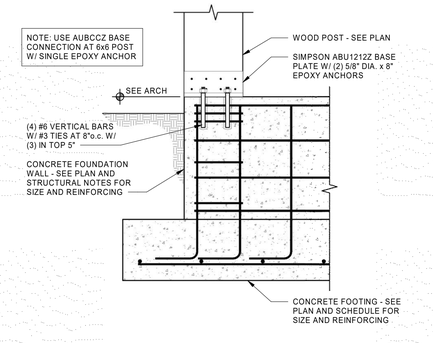
16 S201



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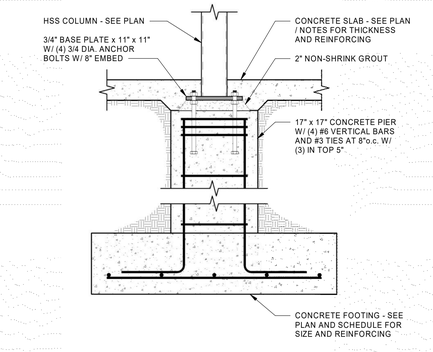
17 S201



DETAIL

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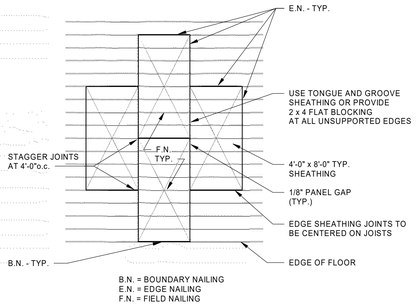
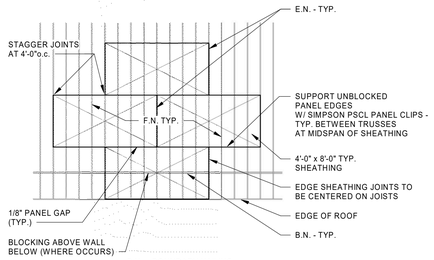


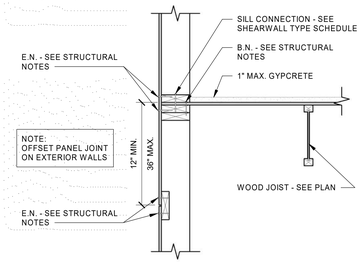
AT FLOOR



AT ROOF

TYP. SHEATHING LAYOUT (UNBLOCKED DIAPHRAGM)

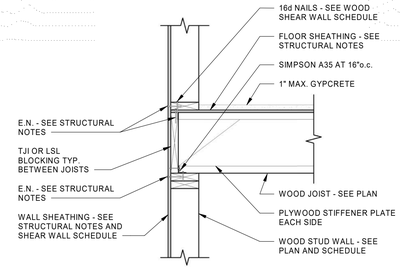
SCALE : NONE — 1 / S202



WALL PARALLEL TO FRAMING

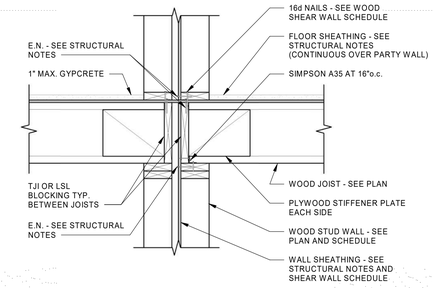
DETAIL

SCALE : NONE — 2 / S202



DETAIL

SCALE : NONE — 3 / S202



DETAIL

SCALE : NONE — 4 / S202

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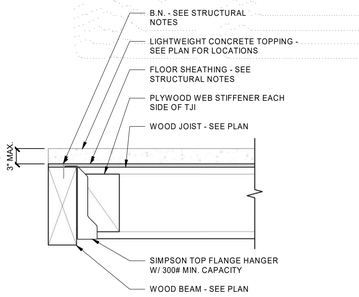
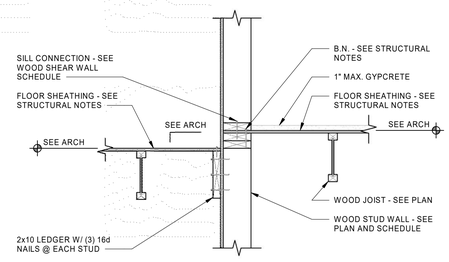
E

D



TJI PERPENDICULAR TO BEAM

SCALE : NONE — 5 / S202



DETAIL

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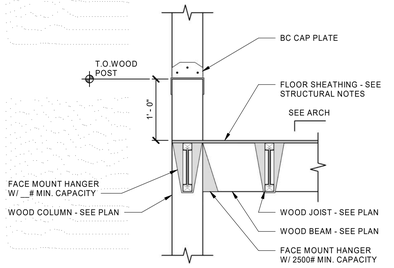
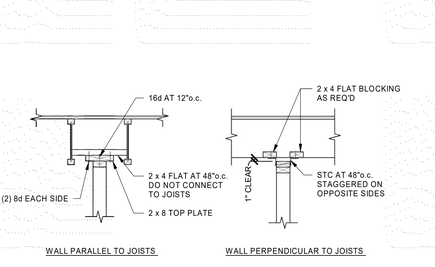


DETAIL

SCALE : NONE — 7 / S202

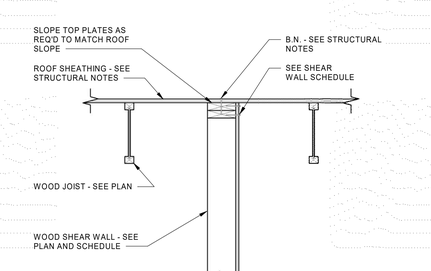


WALL PARALLEL TO JOISTS

WALL PERPENDICULAR TO JOISTS

DETAIL

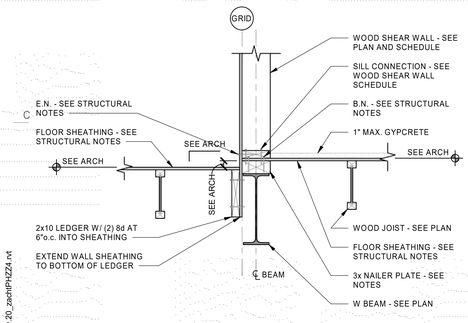
SCALE : NONE — 8 / S202



SHEAR WALL PARALLEL TO ROOF FRAMING

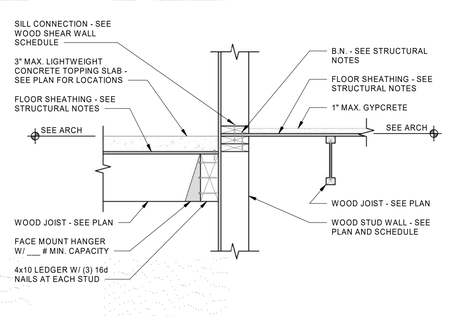
DETAIL

SCALE : NONE — 9 / S202



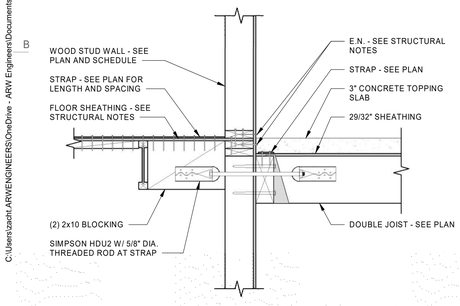
DETAIL

SCALE : NONE — 10 / S202



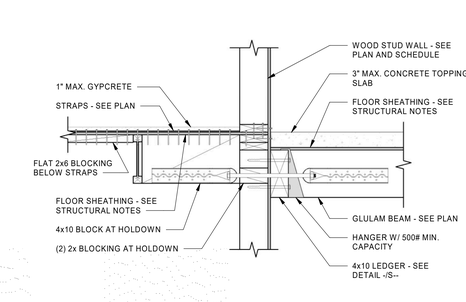
DETAIL

SCALE : NONE — 11 / S202



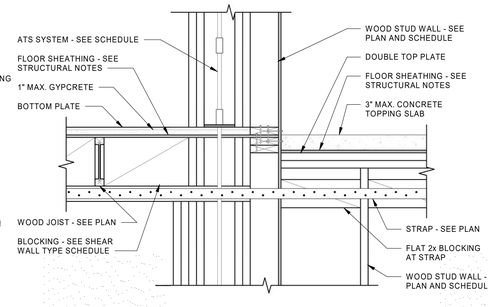
DETAIL

SCALE : NONE — 12 / S202



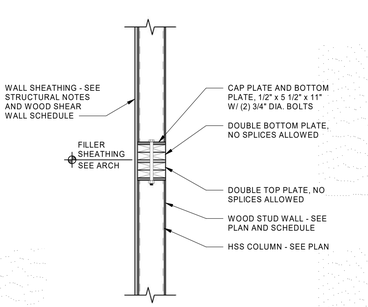
DETAIL

SCALE : NONE — 13 / S202



DETAIL

SCALE : NONE — 14 / S202



DETAIL

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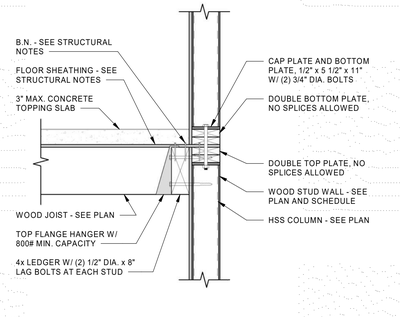

DETAIL

SCALE : NONE — 16 / S202

DETAIL

SCALE : NONE — 17 / S202

DETAIL

SCALE : NONE — 18 / S202

DETAIL

SCALE : NONE — 19 / S202

#	Date	Revision

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MICRO VILLAS

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100% CDs
BID/PERMIT SET

NEXUS PROJ. #: 20020
CHECKED BY: A.Higgs
DRAWN BY: Z.Thorner
DATE: 05/21/2021

DETAILS

S202

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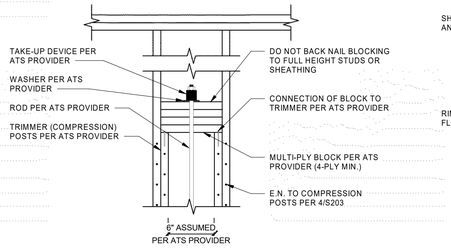
C

B

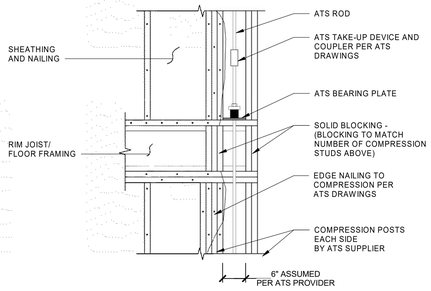
A



MID-HEIGHT TERMINATION DETAIL (SCHEMATIC ILLUSTRATION, DETAIL INFORMATION BY OTHERS)

SCALE : NONE

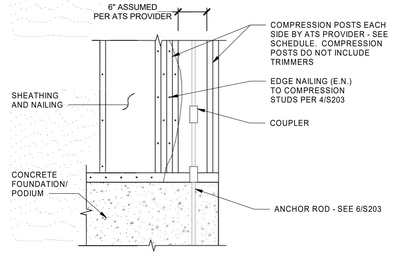
1 S203



MID FLOOR DETAIL AT BEARING WALL (SCHEMATIC ILLUSTRATION, DETAIL INFORMATION BY OTHERS)

SCALE : NONE

2 S203



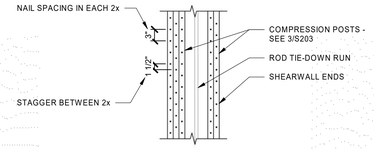
CONCRETE DETAIL (SCHEMATIC ILLUSTRATION, DETAIL INFORMATION BY OTHERS)

SCALE : NONE

3 S203

COMPRESSION POSTS		
FRAMING MEMBER SIZE	NUMBER OF STUDS	COMPRESSION CAPACITY FOR DOUGLAS FIR #2 (ASD)
2x6	2	11.6k
	3	16.8k
	4	20.6k
	5	25.8k
	6	30.9k
	7	36.1k
	8	41.3k
	9	46.4k
	10	51.6k
	11	56.7k
	12	61.9k
	13	67.0k
	14	72.2k
	15	77.3k
	16	82.5k

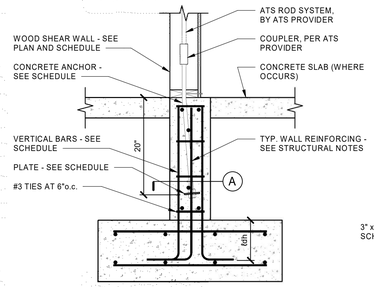
NOTES:
1. FOR STUDS UP TO 10'-0" TALL.
2. WALL BOTTOM PLATE OF THE SAME SIZE AND GRADE.
3. FOR LOADS OVER 40k, CONSIDER USING 6x6 POSTS OR PSL POSTS.



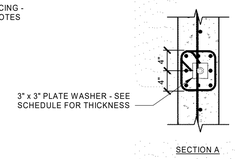
COMPRESSION POST EDGE NAILING

SCALE : NONE

4 S203



CONCRETE ROD DIA. ASTM F1554 GR. 55	REINFORCING	PLATE THICKNESS	SHEAR WALL LOCATION
1/2"	(4) #4	5/8"	
5/8"	(4) #4	3/4"	SW-5, SW-6
3/4"	(6) #4	7/8"	
7/8"	(6) #5	1 1/4"	SW-7
1"	(8) #5	1 1/4"	
1 1/8"	(8) #5	1 3/8"	
1 1/4"	(8) #6	1 5/8"	
1 1/2"	(8) #6	2"	SW-3, SW-9, SW-2, SW-8
1 3/4"	(9) #6	2 3/8"	SW-4, SW-10

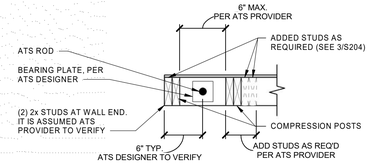


SECTION A

DETAIL

SCALE : NONE

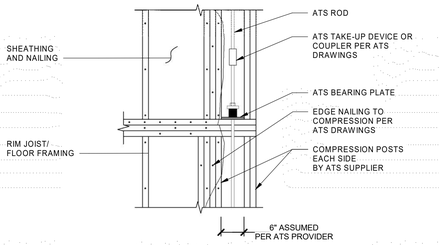
6 S203



COMPRESSION POSTS

SCALE : NONE

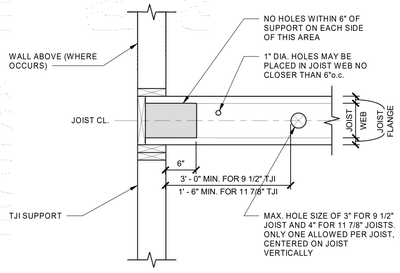
7 S203



MID FLOOR DETAIL AT NON-BEARING WALL (SCHEMATIC ILLUSTRATION, DETAIL INFORMATION BY ATS PROVIDER)

SCALE : NONE

9 S203



NOTE:
1. CONTACT ARW ENGINEERS FOR HOLE SIZE, QUANTITY AND LOCATION THAT IS NOT ALLOWED BY THIS DETAIL. THERE ARE NO HOLES OR CUTS ALLOWED IN THE JOIST FLANGES. CONTRACTOR TO COORDINATE ALL FLOOR PENETRATIONS W/ JOIST LAYOUT.

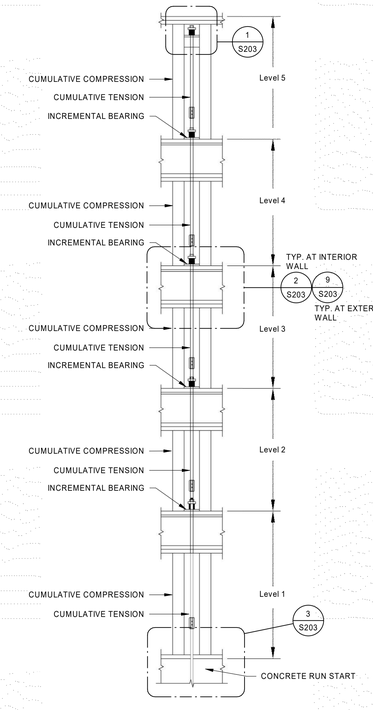
DETAIL

SCALE : NONE

10 S203

ANCHOR TIEDOWN SYSTEM GENERAL NOTES:

1. MANUFACTURER SHALL PROVIDE THE ANCHOR TIEDOWN SYSTEM TO MEET THE DESIGN FORCES AND ELONGATION LIMITS PROVIDED ON THE STRUCTURAL DRAWINGS. ROD-TIE DRAWINGS AND CALCULATIONS SHALL BE PROVIDED FOR REVIEW AND APPROVAL.
2. SHEAR WALLS SHALL BE SUPPORTED WITH A BEARING PLATE AND NUT AT EVERY STORY LEVEL. SKIPPING SHEAR WALL OVERTURNING RESTRAINT AT ANY LEVEL IS NOT PERMITTED.
3. SHRINKAGE COMPENSATION DEVICES SHALL BE USED TO ACCOUNT FOR THE SHRINKAGE AT EACH LEVEL ANTICIPATED SHRINKAGE AT EACH LEVEL IS TO BE LESS THAN 0.188". TOTAL CUMULATIVE SHRINKAGE AT TOP LEVEL IS ANTICIPATED TO BE LESS THAN 0.75".
4. ANCHOR BOLTS SHALL NOT BE IN CONTACT WITH PRESSURE TREATED WOOD (PTW). PTW PLATES SHALL HAVE OVERSIZE HOLES 1/4" MINIMUM AND 3/8" MAXIMUM LARGER THAN ROD SIZE. AS AN ALTERNATE, THE ANCHOR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653.
5. DO NOT WELD PRODUCTS UNLESS THESE DRAWINGS SPECIFICALLY IDENTIFY A PRODUCT AS ACCEPTABLE FOR WELDING, OR UNLESS SPECIFIC APPROVAL FOR WELDING IS PROVIDED BY MANUFACTURER. SOME STEELS HAVE POOR WELDABILITY AND A TENDENCY TO CRACK WHEN WELDED. CRACKED STEEL WILL NOT CARRY LOAD AND MUST BE REPLACED. NUTS AND COUPLER SHALL NOT BE WELDED.
6. IN THE EVENT OF A DISCREPANCY BETWEEN THESE STRUCTURAL DRAWINGS AND THE SUBMITTAL, THE STRUCTURAL DRAWINGS ALWAYS GOVERN.
7. THESE DRAWINGS ARE SPECIFIC TO ATS AND ARE NOT APPLICABLE TO OTHER MANUFACTURER TIEDOWN SYSTEMS. CONTRACTOR'S PROPOSED SUBSTITUTION OF OTHER MANUFACTURER'S CONNECTORS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND BUILDING JURISDICTION FOR REVIEW AND WRITTEN APPROVAL PRIOR TO ORDERING AT THE EXPENSE OF THE CONTRACTOR. REQUESTS FOR SUBSTITUTION SHALL INCLUDE CURRENT ICC-ES EVALUATION REPORTS AND A LIST STATING THE PROPOSED ITEM-FOR-ITEM SUBSTITUTION HAS EQUIVALENT OR GREATER LOAD CAPACITY AND DEFLECTION LIMITATION. IN ADDITION, SUBSTITUTIONS SHALL COMPLY WITH CURRENT ICC-ES ACCEPTANCE CRITERIA FOR SHRINKAGE COMPENSATING DEVICES (AC316).
8. A PRE-CONSTRUCTION MEETING IS RECOMMENDED WITH SIMPSON STRONG-TIE PRIOR TO PLACEMENT OF THE CONCRETE TO ASSIST IN THE INSTALLATION PROCESS AND VERIFY QUANTITIES. TO COORDINATE THIS MEETING, CALL SIMPSON SALES AT 800-999-5099.



TIEDOWN ELEVATION (SCHEMATIC ILLUSTRATION, DETAIL INFORMATION BY OTHERS)

SCALE : NONE

A S203

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No. 374996 Troy M. Dyce 05/21/21

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#	Date	Revision

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NEXUS PROJ. #: 20020
CHECKED BY: A.Higgs
DRAWN BY: Z.Thorner
DATE: 05/21/2021

DETAILS

S203

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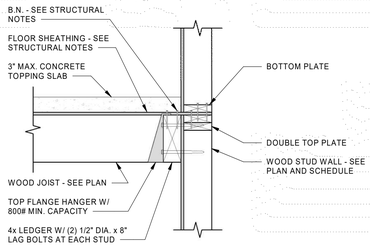

DETAIL 1 S204
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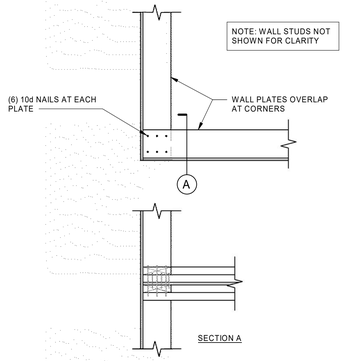

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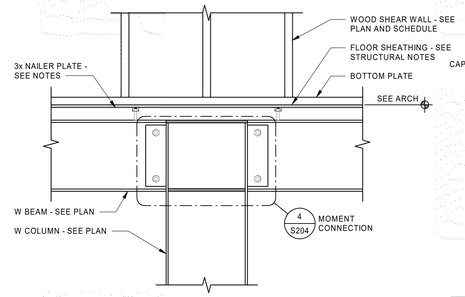

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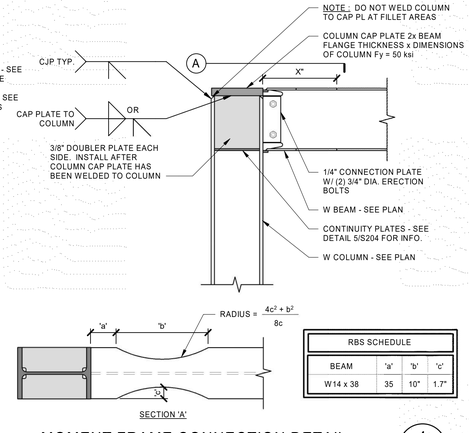
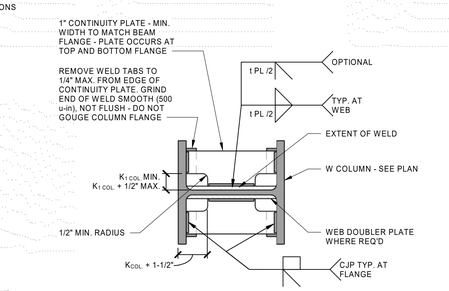


RBS SCHEDULE			
BEAM	'a'	'b'	'c'
W14 x 38	35	10"	1.7"

MOMENT FRAME CONNECTION DETAIL 4 S204
SCALE : NONE



TYPICAL MOMENT FRAME CONTINUITY PLATE DETAIL 5 S204
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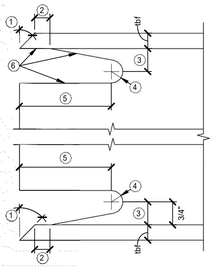
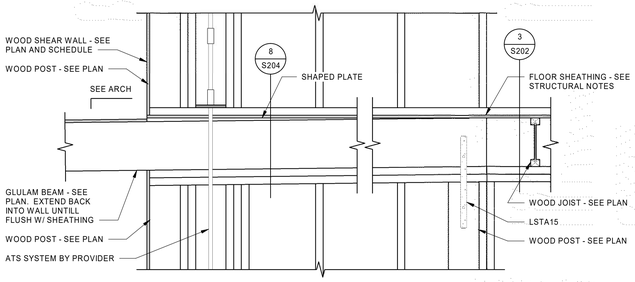


TOLERANCES SHALL NOT ACCUMULATE TO THE EXTENT THAT THE ANGLE OF THE ACCESS HOLE CUT TO THE FLANGE SURFACE EXCEEDS 25°

KEY NOTES :

1. BEVEL AS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
2. LARGER OF t_{bf} OR 1/2 INCH. (PLUS 1/2 t_{bf}, OR MINUS 1/4 t_{bf}).
3. 3/4 t_{bf} TO t_{bf}, 3/4" MINIMUM (+/- 1/4 INCH).
4. 3/8" MINIMUM RADIUS (PLUS 1/4", OR MINUS 0).
5. 3 t_{bf} (+/- 1/2 INCH).
6. SEE FEMA-353, RECOMMENDED SPECIFICATIONS AND QUALITY ASSURANCE GUIDELINES FOR STEEL MOMENT-FRAME CONSTRUCTION FOR SEISMIC APPLICATIONS, FOR FABRICATION DETAILS INCLUDING CUTTING METHODS AND SMOOTHNESS REQUIREMENTS.

DETAIL 6 S204
SCALE : NONE



DETAIL 7 S204
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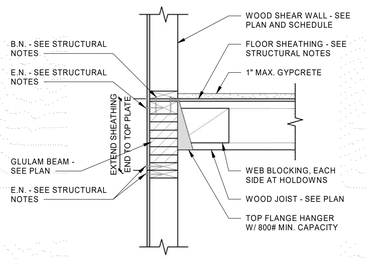

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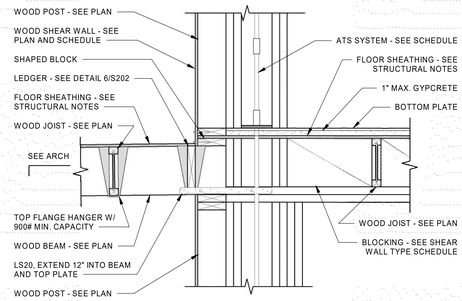

DETAIL 9 S204
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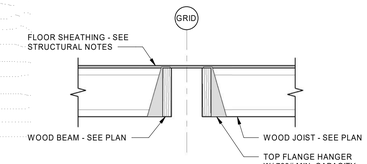

DETAIL 10 S204
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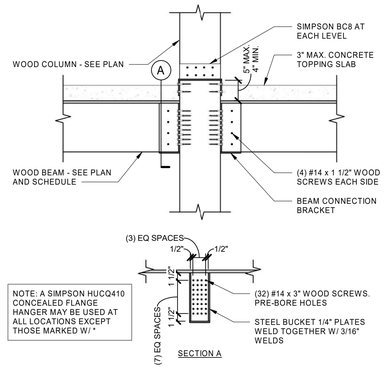

NOTE: A SIMPSON HUCQ410 CONCEALED FLANGE HANGER MAY BE USED AT ALL LOCATIONS EXCEPT THOSE MARKED W/ *

DETAIL 11 S204
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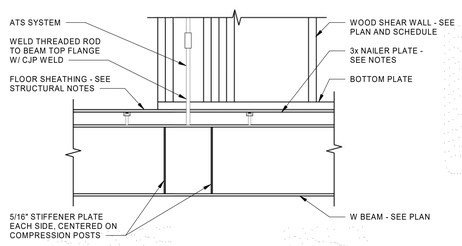

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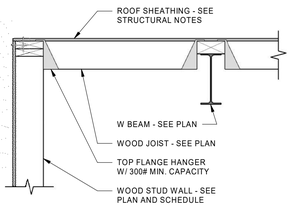

DETAIL 13 S204
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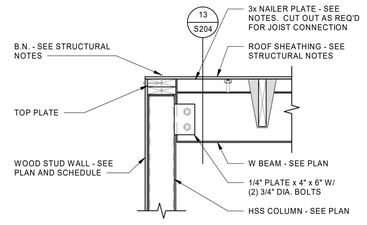

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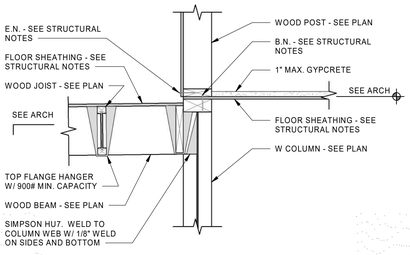

DETAIL 15 S204
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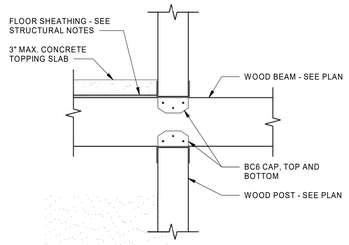

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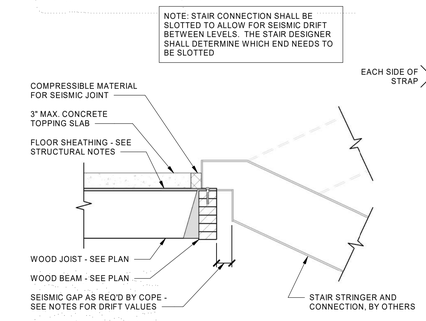

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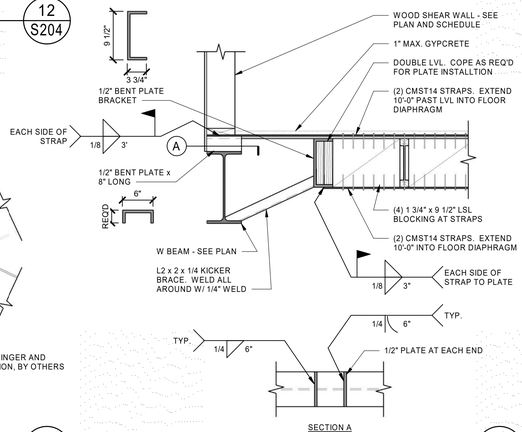
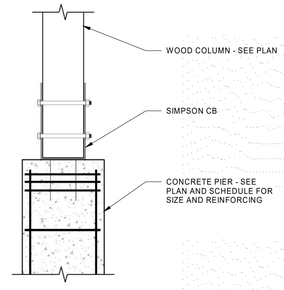


DETAIL 18 S204
SCALE : NONE



DETAIL 19 S204
SCALE : NONE

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No. 374996 Troy M. Dye 05/21/21

VILLA NUEVA LLC.

MICRO VILLAS

915 WEST 200 N SALT LAKE CITY UT, 84116

#	Date	Revision

100% CDs
BID/PERMIT SET

NEXUS PROJ. #: 20020
CHECKED BY: A.Higgs
DRAWN BY: Z.Thorner
DATE: 05/21/2021

DETAILS

S204

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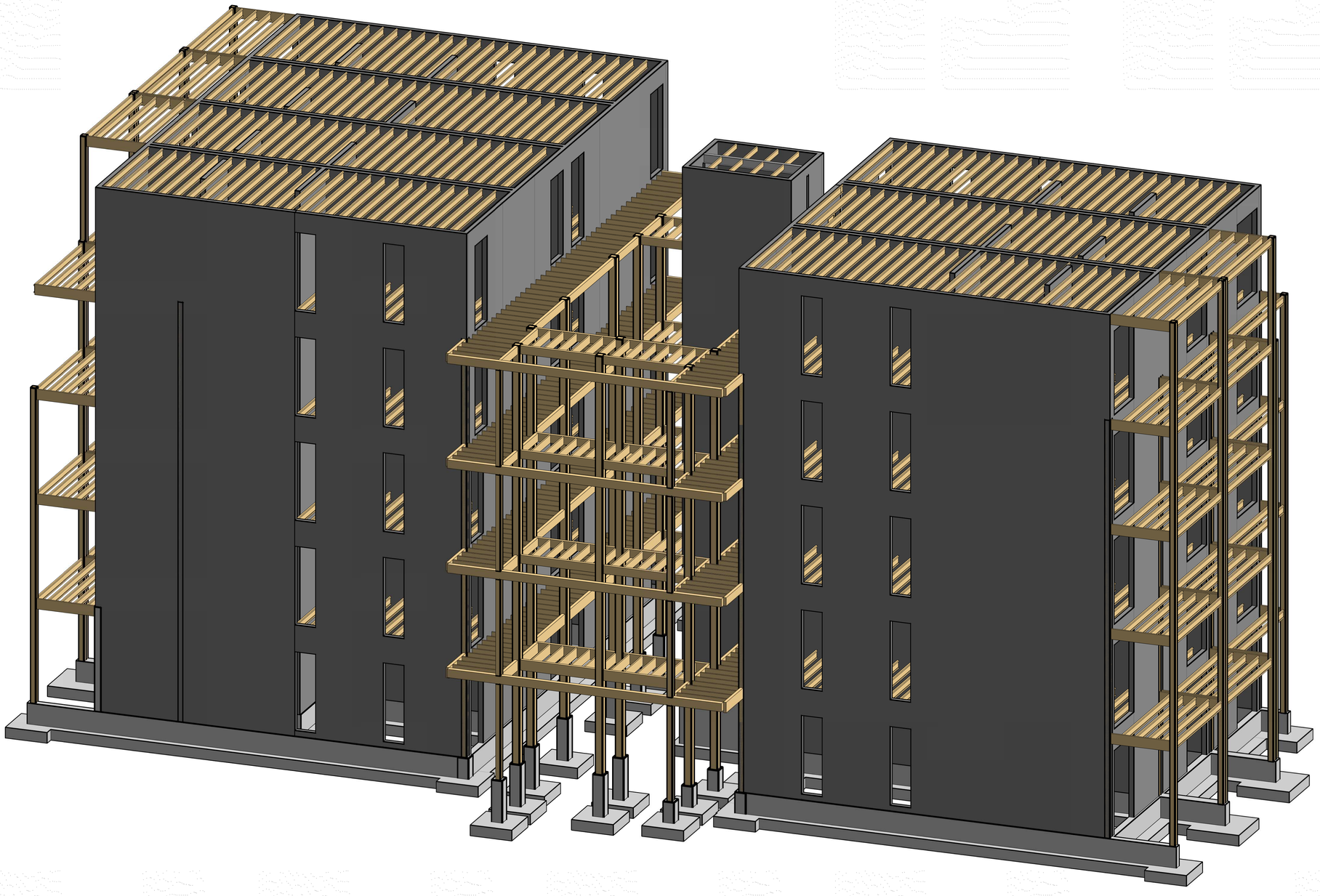

SCHEMATIC VIEW
SCALE : NONE

A
S401

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PROFESSIONAL STRUCTURAL ENGINEER
No. 374996
Troy M. Dye
05/21/21

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915 WEST 200 N SALT LAKE CITY UT, 84116

#	Date	Revision

100% CDs
BID/PERMIT SET

NEXUS PROJ. #: 20020
CHECKED BY: A.Higgs
DRAWN BY: Z.Thorner
DATE: 05/21/2021

SCHEMATIC REFERENCE

NOTE: THIS VIEW REPRESENTS A SCHEMATIC RENDERING ONLY AND IS NOT INTENDED TO CONVEY CONSTRUCTION INFORMATION. ALL CONSTRUCTION SHALL COMPLY WITH SPECIFIC NOTES AND DETAILS WITHIN THE STRUCTURAL DRAWINGS.

S401

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SYMBOL LEGEND

SYMBOL	DESCRIPTION
VALVES, METERS, AND GAUGES	
	SHUT OFF VALVE
	GATE VALVE
	CHECK VALVE
	AUTO 2-WAY VALVE
	AUTO 3-WAY VALVE
	GLOBE VALVE
	BALL VALVE
	RELIEF VALVE
	CHAIN OPERATED GATE VALVE
	PRESSURE REDUCING VALVE
	BUTTERFLY VALVE
	SOLENOID VALVE
	ANGLE VALVE
	VENTURI
	BALANCING OR PLUG COCK
	FLOW SETTER
	EXPANSION VALVE (REFRIG.)
	GAS COCK
MAV	MANUAL AIR VENT
	STRAINER
	GAUGE COCK
	FLEXIBLE CONNECTION
	PRESSURE GAUGE
	THERMOMETER
	VICTUALIC COUPLING
	REDUCER CONCENTRIC
	REDUCER ECCENTRIC
	REFRIGERANT SITE GLASS
	REFRIGERANT STRAINER
	REFRIGERANT FILTER DRIER
	90 DEG ELBOW UP
	90 DEG ELBOW DOWN
	90 DEG TEE UP
	90 DEG TEE DOWN
	UNION
	CAPPED PIPE
	ANCHOR
	FLOAT AND THERMOSTATIC TRAP
HVAC SYMBOLS	
T	THERMOSTAT
S	TEMPERATURE SENSOR
H	HUMIDISTAT

DEFERRED SUBMITTALS

Delegated Deferred Design Submittals to be provided by Contractor

A. Deferred Submittals for the Authority Having Jurisdiction (AHJ) shall be as required by IBC 106.3.4.2.

1. Deferred submittals of seismic restraint of nonstructural components must be submitted to the AHJ a minimum of two weeks prior to the planned installation in order to allow for plan review and forwarding to inspectors. In the event that the submittal is deficient additional time may become necessary.

2. No deferred submittal element shall be installed until AHJ approval has been received.

3. If seismic restraints of nonstructural components are installed prior to receiving AHJ approval they shall not be covered or concealed until plan review and inspection approval. Further, installers are proceeding at their own risk until plan review and inspection approval occurs.

4. Deferred Submittals are required for:
   a. Fire protection design.

- Note: Ductwork and pipes are not suspended more than 12 " from the structure, if this will be the case, contractor shall be responsible for seismically restraining those ducts & pipes, and submit as a deferred submittal the calculation by a licensed structural engineer in the state which work is performed to the authority having jurisdiction.

SYMBOL LEGEND

SYMBOL	DESCRIPTION	
DUCT WORK		
SINGLE LINE	DOUBLE LINE	DESCRIPTION
		RECTANGULAR SUPPLY DUCT UP
		RECTANGULAR SUPPLY DUCT DOWN
		RECTANGULAR RETURN DUCT UP
		RECTANGULAR RETURN DUCT DOWN
		RECTANGULAR EXHAUST DUCT UP
		RECTANGULAR EXHAUST DUCT DOWN
		ROUND DUCT UP
		ROUND DUCT DOWN
		ACCOUSTICALLY LINED RECTANGULAR DUCT
		90° RECTANGULAR ELBOW WITH TURNING VANES
		90° RADIUS ELBOW R=1.5
		DUCT SIZE OR SHAPE TRANSITION
		OPPOSED BLADE BALANCING DAMPER (O.B.D.) IN RECT DUCT
		BUTTERFLY BALANCING DAMPER IN ROUND DUCTS
		COMBINATION TEE
		SPLITTER DAMPER
		SQUARE OR RECTANGULAR CEILING DIFFUSER
		ROUND CEILING DIFFUSER
		SIDEWALL REGISTER SUPPLY OR RETURN
		ROUND FLEXIBLE DUCT
		RETURN GRILLE
		EXHAUST GRILLE
		FIRE SMOKE DAMPER
		FIRE DAMPER
SD	SD	SMOKE DAMPER
FC	FC	FLEXIBLE CONNECTION
		FLEXIBLE CONNECTION

PIPING LEGEND

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

HPS	HIGH PRESSURE STEAM
MPS	MEDIUM PRESSURE STEAM
LPS	LOW PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE RETURN
MPC	MEDIUM PRESSURE CONDENSATE RETURN
LPC	LOW PRESSURE CONDENSATE RETURN
PC	PUMP DISCHARGE
TWS	TEMPERED WATER SUPPLY
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HHWR	HEATING HOT WATER RETURN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUPPLY
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
D	DRAIN LINE
HG	HOT GAS BYPASS
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
REFERENCE LINES AND SYMBOLS	
# / SHEET	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, INTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	SPACE NUMBER
1	KEYNOTE INDICATOR
	REVISION INDICATOR
	EQUIPMENT INDICATOR
	PLUMBING FIXTURE INDICATOR
TYPE / CFM / SIZE	DIFFUSER/GRILLE INDICATOR
TYPE / SIZE	DIFFUSER/GRILLE INDICATOR
	BREAK, STRAIGHT
	BREAK, ROUND
MATCH LINE / SEE XX/X-XXX	MATCHLINE INDICATOR
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE
	NEW CONNECTION TO EXISTING
	POINT OF DEMOLITION

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AD	ACCESS DOOR
AIR COND	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
COND	CONDENS(-ER, -ING, -ATION)
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DP	DEPTH OR DEEP
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FC	FLEXIBLE CONNECT(-OR, -ION)
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HZ	HERTZ (FREQUENCY)
ID	INSIDE DIAMETER
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LG	LENGTH
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
R	THERMAL RESISTANCE
RA	RETURN AIR
RECIRC	RECIRCULATE
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SF	SAFETY FACTOR
SH	SENSIBLE HEAT
SL	SEA LEVEL
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
SW	SOIL, WASTE
TA(R)	TRANSFER AIR (RETURN)
TA(S)	TRANSFER AIR (SUPPLY)
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
THERM	THERMAL
TOT	TOTAL
TSTAT	THERMOSTAT
V	VOLT
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY TEMPERATURE
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WT	WEIGHT
WTR	WATER

MECHANICAL GENERAL NOTES

1. THE MECHANICAL DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT & EXTENT OF THE MECHANICAL SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE & OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT.
2. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.
3. THE DRAWINGS & SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER & SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE & NOT THE OTHER BEING FURNISHED & INSTALLED AS THOUGH SHOWN & CALLED OUT IN BOTH.
4. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, & ALL OTHER APPLICABLE CITY, COUNTY, STATE, & FEDERAL CODES & REGULATIONS IN EFFECT.
5. THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS & REQUIREMENTS OF THE BUILDING OWNER.
6. PRIOR TO FABRICATION & INSTALLATION OF ANY MECHANICAL COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
7. THE SPACE ABOVE ALL CEILINGS IS LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED & OR INSTALLED. ANY CONFLICTS &/OR CHANGES FOUND DURING INSTALLATION THAT RESULTS FROM THE LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
8. ALL MECHANICAL INFORMATION IS NOT SHOWN ON THE MECHANICAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW & USE, WHERE APPROPRIATE, ALL THE MECHANICAL DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE MECHANICAL SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. THE STRUCTURE SHOWN ON ALL DETAILS MAY OR MAY NOT PERTAIN TO A PORTION OR ANY PORTION OF THE BUILDING. COORDINATE ALL MOUNTING REQUIREMENTS WITH ARCHITECTURAL & STRUCTURAL DRAWINGS.
11. ANY PART OF THE MECHANICAL INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
12. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS & GRILLES.
13. CONTRACTOR SHALL OPERATE THE SYSTEM & DEMONSTRATE ALL ASPECTS OF THE SYSTEM TO THE ENGINEER &/OR OWNER TO PROVE ALL SYSTEMS ARE OPERATIONAL.
14. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILT REDLINED RECORD DRAWING AT THE PROJECT SITE. ALL CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, & ACCESSORIES SHALL BE RECORDED. THESE REDLINED DRAWINGS SHALL BE GIVEN TO THE ARCHITECT/ENGINEER AFTER THE FINAL INSPECTION IN ACCORDANCE WITH SPECIFICATIONS.

GENERAL EQUIPMENT NOTES

1. ALL CAPACITIES ARE AT JOB SITE CONDITIONS & ARE MINIMUM CAPACITY.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED TO CONFORM WITH LOCAL SEISMIC REQUIREMENTS & THE REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS.
3. VERIFY ALL REQUIRED SERVICE CONNECTIONS, INCLUDING ELECTRICAL CHARACTERISTICS FOR ALL EQUIPMENT PRIOR TO ORDERING EQUIPMENT.
4. ALL EQUIPMENT SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURAL MEMBERS.
5. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
6. ALL SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.
7. AIR INLETS & OUTLETS SHALL BE OF THE SAME MANUFACTURER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HVAC EQUIPMENT CHECK-IN, SAFEKEEPING, & DAMAGE.

MECHANICAL SHEET INDEX

ME001	MECHANICAL COVER SHEET
ME501	MECHANICAL DETAILS
ME502	MECHANICAL DETAILS
ME601	MECHANICAL SCHEDULES
MH101	LEVEL 01 MECHANICAL PLAN
MH102	LEVEL 02 MECHANICAL PLAN
MH103	LEVEL 03 MECHANICAL PLAN
MH104	LEVEL 04 MECHANICAL PLAN
MH105	LEVEL 05 MECHANICAL PLAN
MH106	ROOF MECHANICAL PLAN
MH401	ENLARGED MECHANICAL PLANS

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#	Date	Revision
2	08.03.21	City Comments #1

100% CD'S
BID/PERMIT SET

NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

MECHANICAL COVER SHEET

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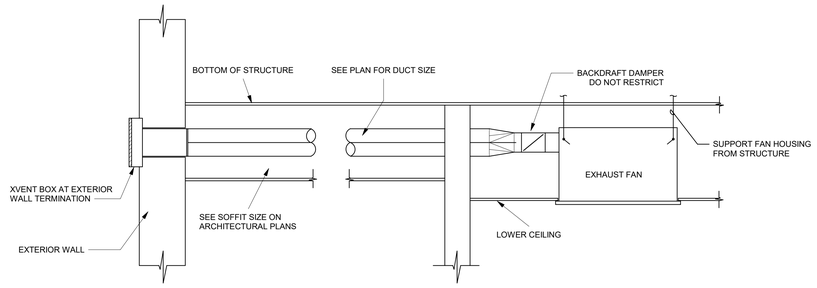
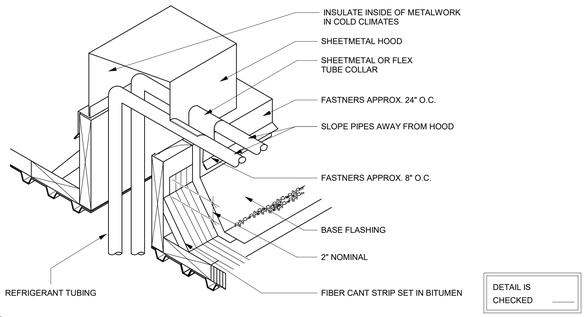
ME001



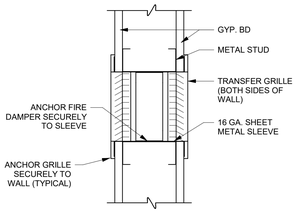
CEILING MOUNTED EXHAUST THROUGH EXTERIOR WALL

15 ME501 1/8" = 1'-0"



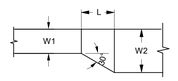
PIPING THRU ROOF DECK DETAIL.

14 ME501 1/8" = 1'-0"

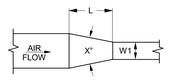


TRANSFER GRILLE

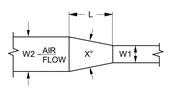
13 ME501 1/8" = 1'-0"



ECCENTRIC TRANSITION:
MAX. 30° ANGLE
EXCEPT 45° IS PERMITTED AT ROUND TO FLAT OVAL
L (MIN.) = (W2-W1)/0.58 FOR 30°
L (MIN.) = W2-W1 FOR 45°



CONVERGING CONCENTRIC
TRANSITION:
X° = 60° MAX.
L (MIN) = (W

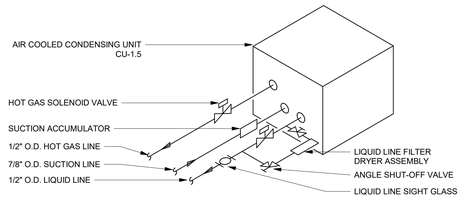


DIVERGING CONCENTRIC
TRANSITION:
X° = 45° MAX.
L (MIN.) = (W2 - W1) / 2

NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

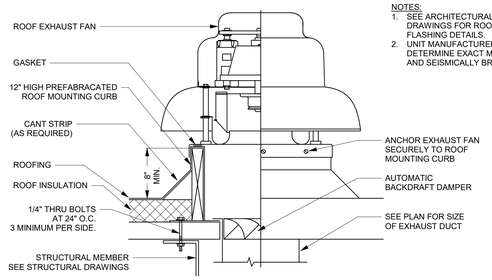
DUCT TRANSITIONS

12 ME501 1/8" = 1'-0"



AIR COOLED CONDENSING UNIT PIPING SCHEMATIC

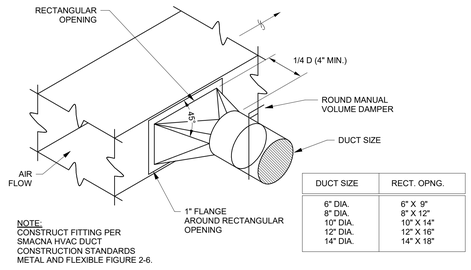
10 ME501 1/8" = 1'-0"



NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ROOFING AND FLASHING DETAILS.
2. UNIT MANUFACTURER SHALL DETERMINE EXACT METHOD AND SEISMICALLY BRACING EQUIPMENT.

ROOF EXHAUST FAN

9 ME501 1/8" = 1'-0"

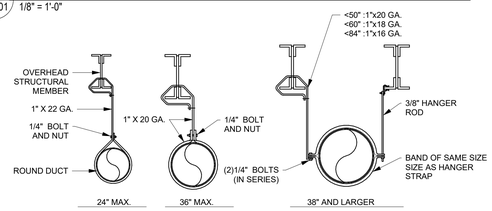


NOTE:
CONSTRUCT FITTING PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE FIGURE 2-6.

DUCT SIZE	RECT. OPNG.
6" DIA.	6" X 9"
8" DIA.	8" X 12"
10" DIA.	10" X 14"
12" DIA.	12" X 16"
14" DIA.	14" X 18"

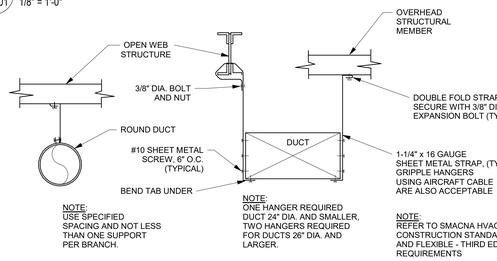
DUCT HIGH EFFICIENCY TAKE-OFF

8 ME501 1/8" = 1'-0"



DUCT HANGER - ROUND

7 ME501 1/8" = 1'-0"



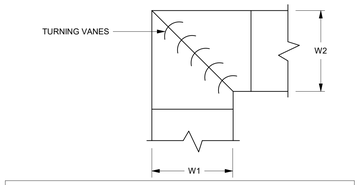
NOTE:
USE SPECIFIED SPACING AND NOT LESS THAN ONE SUPPORT PER BRANCH.

NOTE:
ONE HANGER REQUIRED DUCT 24" DIA. AND SMALLER, TWO HANGERS REQUIRED FOR DUCTS 26" DIA. AND LARGER.

NOTE:
REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE - THIRD EDITION FOR ALL REQUIREMENTS

DUCT HANGER

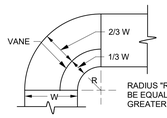
6 ME501 1/8" = 1'-0"



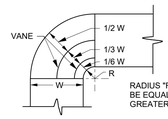
NOTES:
1. ALL TURNING VANES SHALL BE SINGLE VANE TYPE REGARDLESS OF DIMENSION.
2. ALL SINGLE VANES SHALL HAVE A 2 INCH RADIUS, 1 INCH MAXIMUM SPACE BETWEEN VANES AND A 3/4 INCH TRAILING EDGE.

DUCT ELBOW - SQUARE

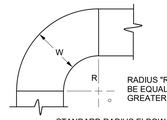
5 ME501 1/8" = 1'-0"



SHORT RADIUS ELBOW WITH ONE VANE



SHORT RADIUS ELBOW WITH TWO VANES

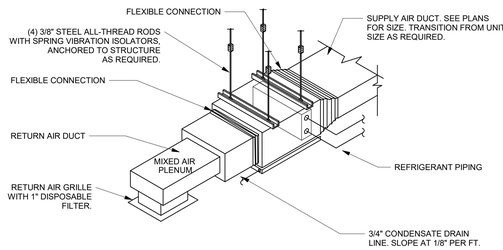


STANDARD RADIUS ELBOW

NOTES:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED REQUIRED BY IMC.

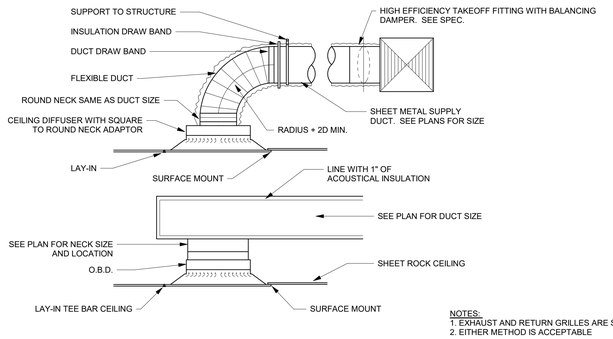
DUCT ELBOW - ROUND

4 ME501 1/8" = 1'-0"



FAN COIL DETAIL

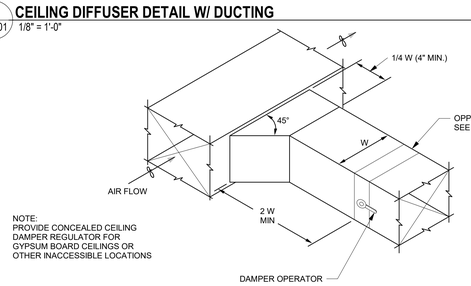
3 ME501 1/8" = 1'-0"



NOTES:
1. EXHAUST AND RETURN GRILLES ARE SIMILAR.
2. EITHER METHOD IS ACCEPTABLE

CEILING DIFFUSER DETAIL W/ DUCTING

2 ME501 1/8" = 1'-0"



NOTE:
PROVIDE CONCEALED CEILING DAMPER REGULATOR FOR GYPSUM BOARD CEILINGS OR OTHER INACCESSIBLE LOCATIONS

BRANCH TAKE-OFF

1 ME501 1/8" = 1'-0"

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Salt Lake City, Utah 84109
T 801.924.5000
http://www.archnexus.com

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#	Date	Revision

100% CD'S
BID/PERMIT SET

NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

MECHANICAL DETAILS

ME501

5/21/2021 7:58:43 AM

E

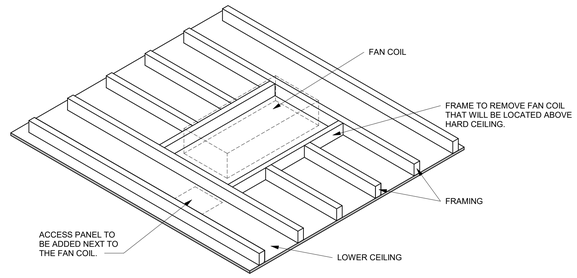
D

C

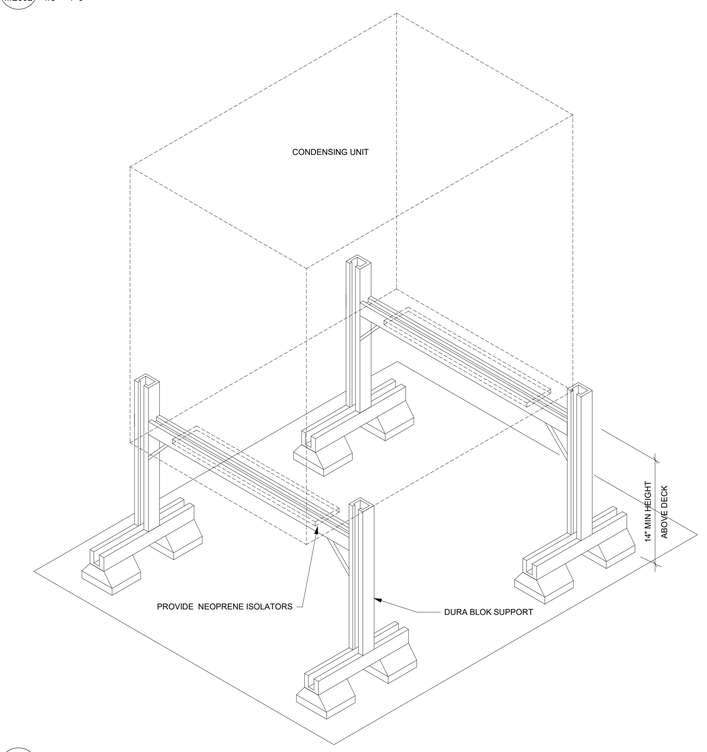
B

A

5/21/2021 7:58:44 AM



2 ACCESS FRAME CONSTRUCTION FOR FAN COIL
ME502 1/8" = 1'-0"



1 ROOF CURB DETAIL FOR CONDENSING UNIT
ME502 1" = 10'-0"

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#	Date	Revision

100% CD'S BID/PERMIT SET

NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

MECHANICAL DETAILS

ME502

CONDENSING UNIT SCHEDULE (AIR-COOLED)

LABEL	SERVES	CAPACITY @ EVAP. BTUH	TOTAL HEATING CAPACITY BTUH	UNIT OPERATING WEIGHT	SOUND RATING	MCA	VOLTAGE	PHASE	Hz	MOCP	EER	IEER	COP	EMERGENCY POWER	DISCONNECT		MANUFACTURER	MODEL	REMARKS
															FURN BY ELEC	FURN BY MECH			
CU-101	FCU-101	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-102	FCU-102	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-103	FCU-103	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-104	FCU-104	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-105	FCU-105	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-106	FCU-106	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-107	FCU-107	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-201	FCU-201	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-202	FCU-202	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-203	FCU-203	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-204	FCU-204	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-205	FCU-205	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-206	FCU-206	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-207	FCU-207	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-301	FCU-301	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-302	FCU-302	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-303	FCU-303	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-304	FCU-304	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-305	FCU-305	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-306	FCU-306	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-307	FCU-307	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-401	FCU-401	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-402	FCU-402	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-403	FCU-403	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-404	FCU-404	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-405	FCU-405	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-406	FCU-406	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-407	FCU-407	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-501	FCU-501	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-502	FCU-502	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-503	FCU-503	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-505	FCU-505	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-506	FCU-506	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8
CU-507	FCU-507	18000 Btu/h	21600 Btu/h	131	55 dBA	17	208	1	60	31	12.8	18.9	3.3	NO	YES	NO	MITSUBISHI ELECTRIC	SUZ-KA18NAHZ	1,2,3,4,5,6,7,8

1. PROVIDE WITH HAIL GUARDS.
2. PROVIDE WITH NEOPRENE PADS AT ALL CONNECTION POINTS.
3. PROVIDE LIQUID LINE SPECIALTIES INCLUDING FILTER DRIER, SIGHT GLASS, TXV, SOLENOID VALVE, 24V 1ph CONTROL WIRE BY CONTROLS CONTRACTOR.
4. PROVIDE REFRIGERANT PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS. "ACR" COPPER ONLY.
5. UNIT TO BE ON 14" HIGH SUPPORT. SEE DETAIL ON ME502.
6. COORDINATE REFRIGERANT CHARGE AND PIPING SIZES WITH EQUIVALENT LINE LENGTH TO MINIMIZE PRESSURE DROP AND CAPACITY LOSS.
7. ACCEPTABLE MANUFACTURERS: TRANE, CARRIER, MITSUBISHI, LENNOX OR PRIOR APPROVED EQUAL.
8. PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.

FAN COIL UNIT SCHEDULE

LABEL	LOCATION	CFM	EXT. S.P.	COOLING CAPACITY BTUH	HEATING CAPACITY BTUH	WEIGHT	SOUND RATING	MCA	FLA	VOLTAGE	PHASE	Hz	EMERGENCY POWER	DISCONNECT		MANUFACTURER	MODEL	REMARKS
														FURN BY ELEC	FURN BY MECH			
FCU-101	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-102	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-103	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-104	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-105	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-106	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-107	LEVEL 1	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-201	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-202	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-203	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-204	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-205	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-206	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-207	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-301	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-302	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-303	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-304	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-305	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-306	LEVEL 3	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-307	LEVEL 2	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-401	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-402	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-403	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-404	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-405	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-406	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-407	LEVEL 4	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-501	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-502	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-503	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-504	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-505	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-506	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4
FCU-507	LEVEL 5	600	0.75 in-wg	18000 Btu/h	21600 Btu/h	75	37 dBA	1.69	1.35 A	208	1	60	NO	YES	NO	MITSUBISHI ELECTRIC	PEAD-A18AA7	1,2,3,4

1. PROVIDE WITH CONDENSATE PUMP.
2. ACCEPTABLE MANUFACTURERS: MITSUBISHI, LG, FUJITSU, DIAKIN OR PRIOR APPROVED EQUAL.
3. PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.
4. PROVIDE A SEPARATED POWER CONNECTION FOR THE ELECTRIC HEATER.

EXHAUST FAN SCHEDULE

LABEL	AREA SERVED	CFM	STATIC PRESSURE	FAN RPM	SOUND RATING	WEIGHT	VOLTAGE	PHASE	Hz	EMERGENCY POWER	STARTER		MANUFACTURER	MODEL	REMARKS
											FURN BY ELEC	FURN BY MECH			
EF-1	APARTMENT RESTROOMS	75	0.50 in-wg	650	28 dBA	17	120	1	60	NO	YES	NO	LOREN COOK COMPANY	GC-146	1,4,5,6
EF-2	ELEVATOR SHAFT	400	0.20 in-wg	3400	58 dBA	26	120	1	60	NO	YES	NO	LOREN COOK COMPANY	CBF	2,3,4,5,6

1. SWITCH OPERATED.
2. PROVIDE THERMOSTAT INSIDE SHAFT ELEVATOR.
3. PROVIDE WITH EC MOTOR, EXTERNAL SPEED CONTROLLER, AND INTERLOCK WITH THERMOSTAT. FAN TO RAMP UP TO 100% SPEED AT 85°F (adj.).
4. PROVIDE WITH BACKDRAFT DAMPER, DISCONNECT SWITCH, SUPPORT BRACKETS AND ISOLATOR, FLEXIBLE CONNECTION, AND BELT TENSIONER (BELT DRIVE MODELS ONLY).
5. ACCEPTABLE MANUFACTURERS: COOK, GREENHECK, PENN BARRY OR PRIOR APPROVED EQUAL.
6. PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING.

REGISTER - GRILLE- DIFFUSER SCHEDULE

LABEL	TYPE	BLOW PATTERN	MAX AIR FLOW (CFM)	FACE SIZE	NECK SIZE	MAX NC	PRESSURE DROP (in-wg)	THROW	MANUFACTURER	MODEL	REMARKS
RG-1	LOUVERED RETURN GRILLE	N/A	1080	20" X 20"	20" X 20"	30	0.010	N/A	PRICE	530FF	1,2,3
SG-1	LOUVERED SUPPLY DIFFUSER	22.5 DEGREE DEFLECTION	320	12" X 6"	12" X 6"	30	0.124	15-18-26	PRICE	RCG	1,2,3

1. PROVIDE TRANSITION AS NECESSARY.
2. COLOR BY ARCHITECT.
3. ACCEPTABLE MANUFACTURERS: PRICE, KRUEGER, TITUS OR PRIOR APPROVED EQUAL.

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#	Date	Revision

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NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

MECHANICAL SCHEDULES

ME601

5/21/2021 7:58:48 AM

SHEET KEYNOTES

1 RUN SPIRAL EXHAUST DUCT AND SPIRAL DRYER VENT DUCT EXPOSED ON THIS APPROXIMATE LOCATION

2 PROVIDE X VENT BOX WITH A DOUBLE OUTLET IN THIS APPROXIMATE LOCATION. MAINTAIN A MINIMUM OF 3' FROM OPENING TO BUILDING.

3 SEE ENLARGED PLAN FOR DETAILED LAYOUT OF THIS SPACE INCLUDING SUPPLY AND RETURN DUCTWORK.

4 UNIT HEATER LOCATED IN PIT BELOW ELEVATOR. ELEVATOR PIT TO BE MAINTAINED AT 45 F.

5 PROVIDE UNIT HEATER WITH SURFACE MOUNTED KIT.

MECHANICAL GENERAL NOTES

1. ALL EQUIPMENT TO BE SELECTED BASED OFF OF SITE INFORMATION, INCLUDING CURBS EQUAL TO OR GREATER THAN DESIGN SNOW DEPTH. ELEVATION: 4226 FT SDB: 98F SWB: 65 F WDB: 5 F DESIGN SNOW DEPTH: 14 FT
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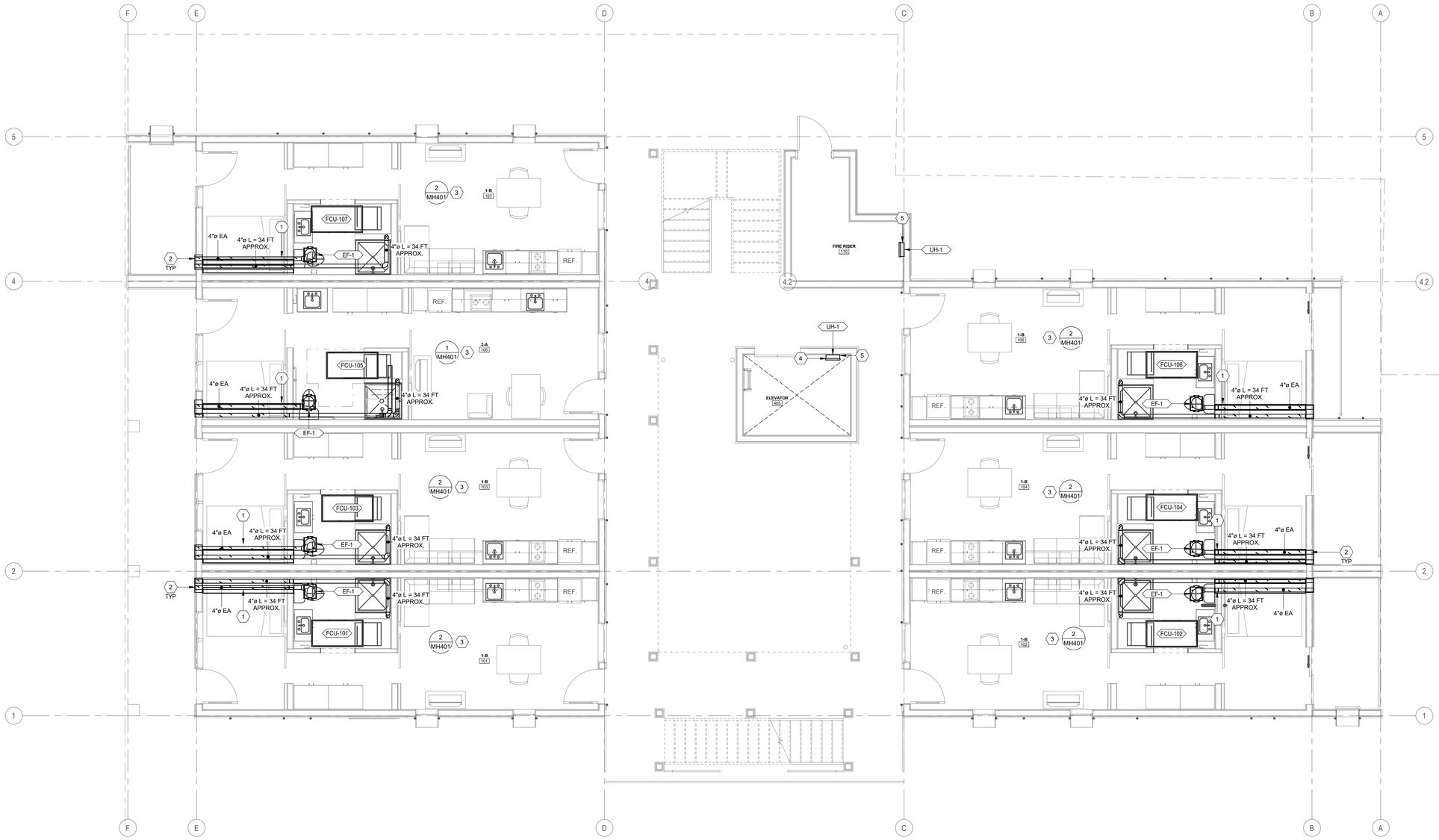
3. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
4. GRILLES AND DUCTWORK ARE SIZED INDEPENDENTLY. THE NECK SIZE OF GRILLES MAY NOT MATCH THE ASSOCIATED DUCT SIZE. PROVIDE TRANSITION TO GRILLES AS NECESSARY.
5. PROVIDE BALANCING DAMPER WITH LOCKING QUADRANT IN EACH DUCT BRANCH OF SUPPLY AND EXHAUST DUCTWORK.
6. PROVIDE REMOTE CABLE OPERATED DAMPERS FOR ALL DUCTWORK ABOVE HARD LID CEILINGS OR WHERE DAMPER IS INACCESSIBLE OR PROVIDE OPPOSED BLADE DAMPER WITH NYLON BUSHINGS AT GRILLE.
7. PROVIDE ACCESS DOORS FOR ALL SERVICEABLE EQUIPMENT OR VALVES ABOVE HARD LID CEILINGS OR IN WALLS. ALL ACCESS PANELS ARE TO BE PAINTED TO MATCH ADJACENT SURFACES.
8. COORDINATE EXACT THERMOSTAT LOCATIONS WITH FURNITURE AND OWNER. FAILURE TO DO SO MAY REQUIRE MOVING THERMOSTATS AT CONTRACTORS COST.
9. CONTRACTOR SHALL SUBMIT WITH BID, AN ITEMIZED COST BREAKDOWN LISTING ALL MAJOR COMPONENTS, LABOR COST (INCLUDING SUBCONTRACTOR LABOR AND MATERIAL COST), AND ENGINEERING COSTS, FOR BASE BID AND FOR EACH ALTERNATE, FOR THE ENTIRE WORK SCOPE OF THE LABORATORY CONTROLS. WHEN REQUESTED, PROVIDE THE ITEMIZED BREAKDOWN TO THE OWNER POST BID, FOR REVIEW AND APPROVAL.
10. PROVIDE FACTORY AUTHORIZED STARTUP OF ALL EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING AND/OR COMMUNICATION TO BMS.
11. GENERAL CONTRACTOR SHALL HIRE A 3RD PARTY COMMISSIONING AGENT TO COMMISSION NEW HVAC EQUIPMENT. COMMISSIONING AGENT SHALL BE LICENSED MECHANICAL ENGINEER. COMMISSIONING AGENT TO PROVIDE COMMISSIONING PLAN LISTING EQUIPMENT AND TEST TO BE PERFORMED TO ENGINEER FOR REVIEW. COMMISSIONING AGENT SHALL PROVIDE REPORT STATING ANY SYSTEM DEFICIENCIES AND LISTING ANY DEFERRED TESTS.
12. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING SYSTEM BALANCING REPORT, FINAL COMMISSIONING REPORT AND MAINTENANCE PROCEDURES.

MECHANICAL GENERAL NOTES

15. PIPING AND DUCTWORK SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING AND DUCTWORK WITHIN 12" FROM SUPPORTING STRUCTURE.
16. WHERE JURISDICTION REQUIRES, CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT AND SUPPORT ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
17. PROVIDE PROTECTIVE SHIELD PLATES AT THE TOP PLATES, EXTENDING AT LEAST 2" BELOW THE PLATE FOR ANY DRYER VENTS. DRYER VENT DUCTS SHALL BE CONSTRUCTED OF GALVANIZED STEEL AT A THICKNESS OF 0.013 OR ALUMINUM AT A THICKNESS OF 0.018. SEE IMC 603.4.
18. MECHANICAL PIPING SCHEDULE:

A. REFRIGERANT PIPING = ACR TYPE L - BRAZED



PLAN N

1 MH101 LEVEL 01 MECHANICAL PLAN

1/4" = 1'-0"

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CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 01 MECHANICAL PLAN

MH101

5/21/2021 7:58:52 AM

SHEET KEYNOTES

1 RUN SPIRAL EXHAUST DUCT AND SPIRAL DRYER VENT DUCT EXPOSED ON THIS APPROXIMATE LOCATION

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3 SEE ENLARGED PLAN FOR DETAILED LAYOUT OF THIS SPACE INCLUDING SUPPLY AND RETURN DUCTWORK.

4 PROVIDE UNIT HEATER WITH SURFACE MOUNTED KIT.

MECHANICAL GENERAL NOTES

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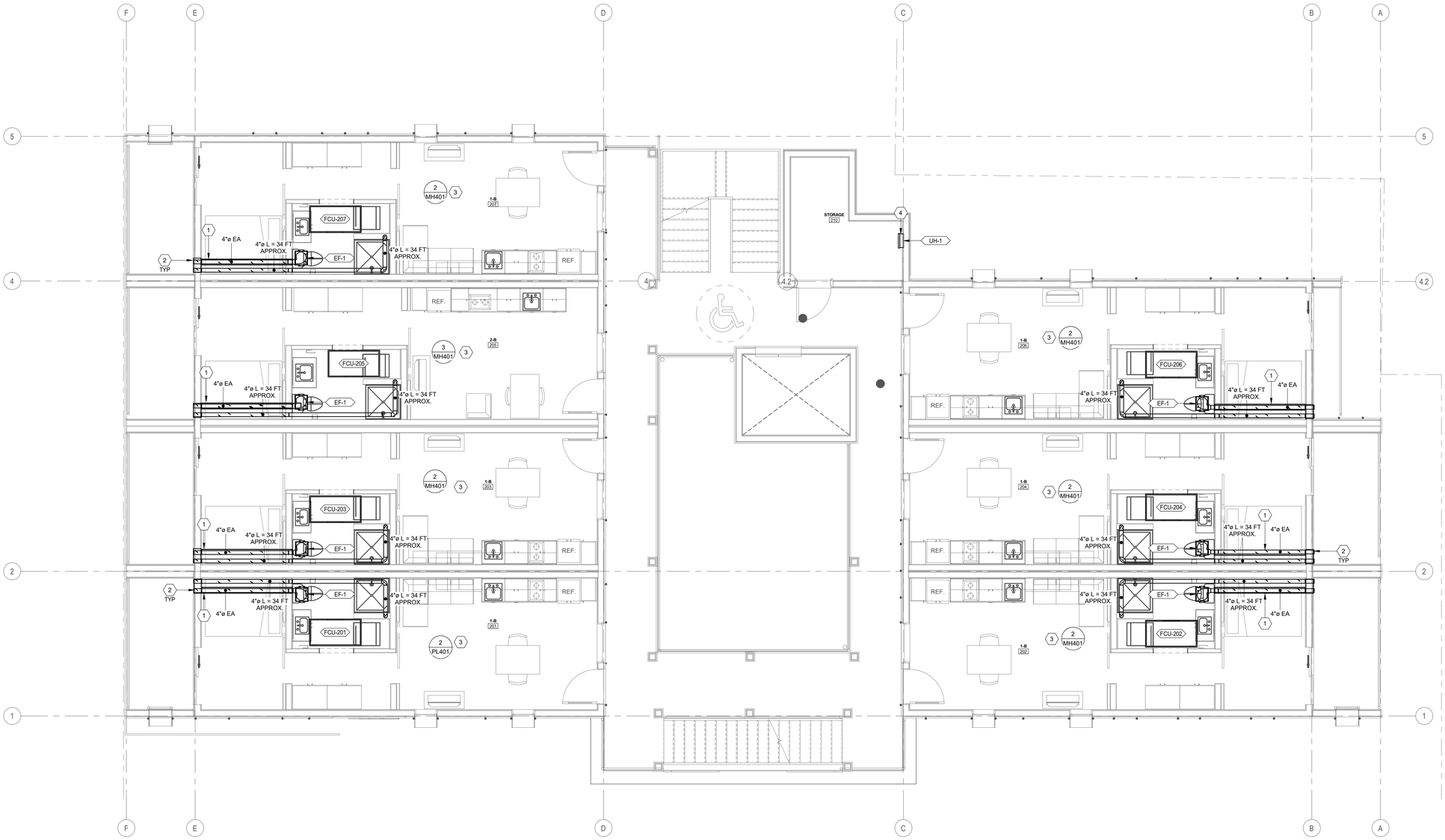

PLAN N — 1 MH102 — LEVEL 02 MECHANICAL PLAN — 1/4" = 1'-0"

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CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 02 MECHANICAL PLAN

MH102

5/21/2021 7:58:56 AM

SHEET KEYNOTES

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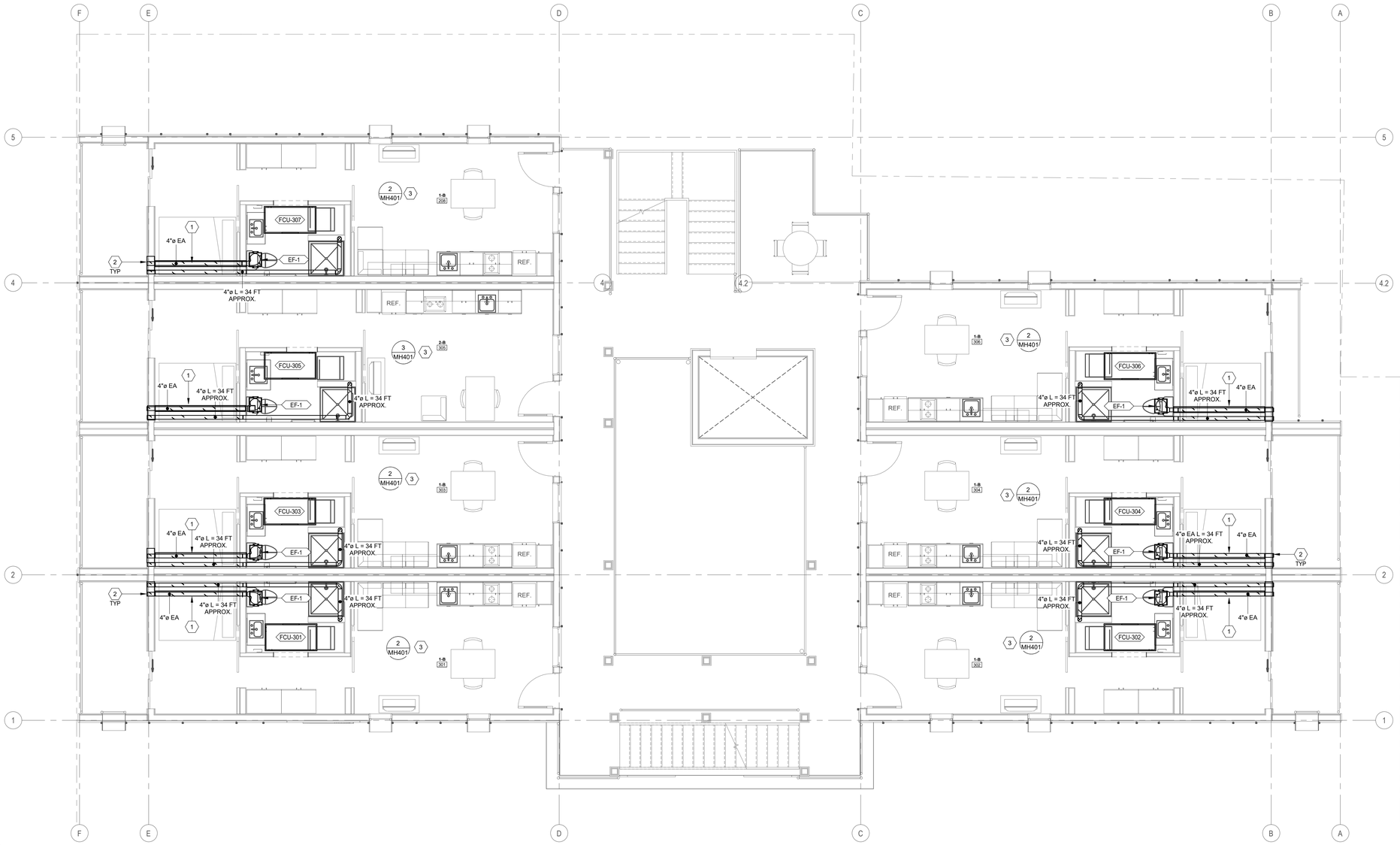
12. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING SYSTEM BALANCING REPORT, FINAL COMMISSIONING REPORT AND MAINTENANCE PROCEDURES.

MECHANICAL GENERAL NOTES

15. PIPING AND DUCTWORK SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING AND DUCTWORK WITHIN 12" FROM SUPPORTING STRUCTURE.
16. WHERE JURISDICTION REQUIRES, CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT AND SUPPORT ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
17. PROVIDE PROTECTIVE SHIELD PLATES AT THE TOP PLATES, EXTENDING AT LEAST 2" BELOW THE PLATE FOR ANY DRYER VENTS. DRYER VENT DUCTS SHALL BE CONSTRUCTED OF GALVANIZED STEEL AT A THICKNESS OF 0.013 OR ALUMINUM AT A THICKNESS OF 0.018. SEE IMC 603.4.
18. MECHANICAL PIPING SCHEDULE:
A. REFRIGERANT PIPING = ACR TYPE L - BRAZED



PLAN
N 1 MH103 LEVEL 03 MECHANICAL PLAN
1/4" = 1'-0"

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DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 03 MECHANICAL PLAN

MH103

5/21/2021 7:58:59 AM

SHEET KEYNOTES

1 RUN SPIRAL EXHAUST DUCT AND SPIRAL DRYER VENT DUCT EXPOSED ON THIS APPROXIMATE LOCATION

2 PROVIDE X VENT BOX WITH A DOUBLE OUTLET IN THIS APPROXIMATE LOCATION. MAINTAIN A MINIMUM OF 3' FROM OPENING TO BUILDING.

3 SEE ENLARGED PLAN FOR DETAILED LAYOUT OF THIS SPACE INCLUDING SUPPLY AND RETURN DUCTWORK.

MECHANICAL GENERAL NOTES

1. ALL EQUIPMENT TO BE SELECTED BASED OFF OF SITE INFORMATION, INCLUDING CURBS EQUAL TO OR GREATER THAN DESIGN SNOW DEPTH. ELEVATION: 4226 FT SDB: 98F SWB: 65 F WDB: 5 F DESIGN SNOW DEPTH: 14 FT
2. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
4. GRILLES AND DUCTWORK ARE SIZED INDEPENDENTLY. THE NECK SIZE OF GRILLES MAY NOT MATCH THE ASSOCIATED DUCT SIZE. PROVIDE TRANSITION TO GRILLES AS NECESSARY.
5. PROVIDE BALANCING DAMPER WITH LOCKING QUADRANT IN EACH DUCT BRANCH OF SUPPLY AND EXHAUST DUCTWORK.
6. PROVIDE REMOTE CABLE OPERATED DAMPERS FOR ALL DUCTWORK ABOVE HARD LID CEILINGS OR WHERE DAMPER IS INACCESSIBLE OR PROVIDE OPPOSED BLADE DAMPER WITH NYLON BUSHINGS AT GRILLE.
7. PROVIDE ACCESS DOORS FOR ALL SERVICEABLE EQUIPMENT OR VALVES ABOVE HARD LID CEILINGS OR IN WALLS. ALL ACCESS PANELS ARE TO BE PAINTED TO MATCH ADJACENT SURFACES.
8. COORDINATE EXACT THERMOSTAT LOCATIONS WITH FURNITURE AND OWNER. FAILURE TO DO SO MAY REQUIRE MOVING THERMOSTATS AT CONTRACTORS COST.
9. CONTRACTOR SHALL SUBMIT WITH BID, AN ITEMIZED COST BREAKDOWN LISTING ALL MAJOR COMPONENTS, LABOR COST (INCLUDING SUBCONTRACTOR LABOR AND MATERIAL COST), AND ENGINEERING COSTS, FOR BASE BID AND FOR EACH ALTERNATE, FOR THE ENTIRE WORK SCOPE OF THE LABORATORY CONTROLS. WHEN REQUESTED, PROVIDE THE ITEMIZED BREAKDOWN TO THE OWNER POST BID, FOR REVIEW AND APPROVAL.
10. PROVIDE FACTORY AUTHORIZED STARTUP OF ALL EQUIPMENT INCLUDING STARTUP OF ANY FACTORY CONTROLS TO ENSURE PROPER SEQUENCING AND/OR COMMUNICATION TO BMS.
11. GENERAL CONTRACTOR SHALL HIRE A 3RD PARTY COMMISSIONING AGENT TO COMMISSION NEW HVAC EQUIPMENT. COMMISSIONING AGENT SHALL BE LICENSED MECHANICAL ENGINEER. COMMISSIONING AGENT TO PROVIDE COMMISSIONING PLAN LISTING EQUIPMENT AND TEST TO BE PERFORMED TO ENGINEER FOR REVIEW. COMMISSIONING AGENT SHALL PROVIDE REPORT STATING ANY SYSTEM DEFICIENCIES AND LISTING ANY DEFERRED TESTS.
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MECHANICAL GENERAL NOTES

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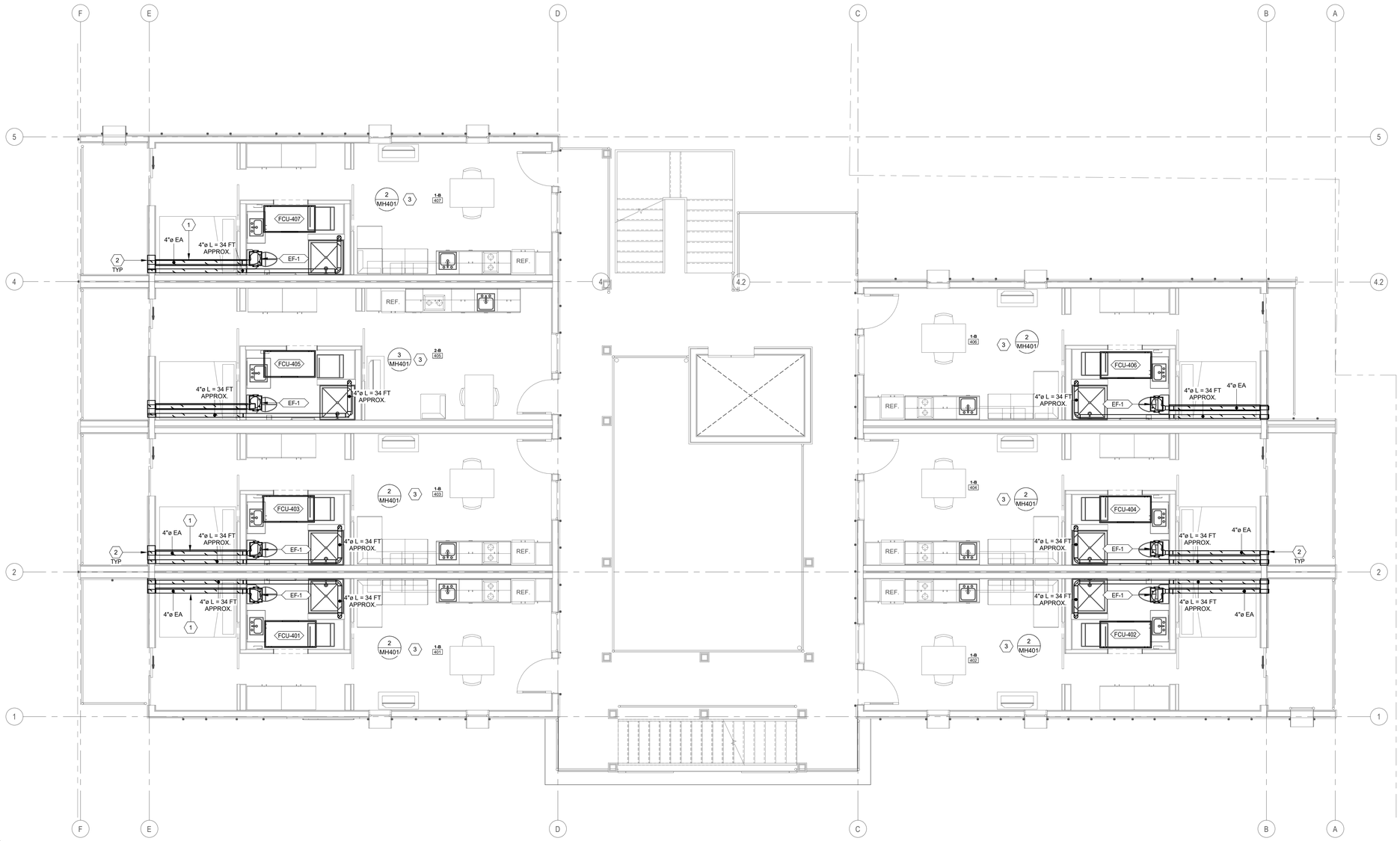
18. MECHANICAL PIPING SCHEDULE:
A. REFRIGERANT PIPING = ACR TYPE L - BRAZED



PLAN N

1 MH104 LEVEL 04 MECHANICAL PLAN
1/4" = 1'-0"

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DATE: 5/21/2021

LEVEL 04 MECHANICAL PLAN

MH104

5/21/2021 7:59:03 AM

SHEET KEYNOTES

1 RUN SPIRAL EXHAUST DUCT AND SPIRAL DRYER VENT DUCT EXPOSED ON THIS APPROXIMATE LOCATION

2 PROVIDE X VENT BOX WITH A DOUBLE OUTLET IN THIS APPROXIMATE LOCATION. MAINTAIN A MINIMUM OF 3' FROM OPENING TO BUILDING.

3 SEE ENLARGED PLAN FOR DETAILED LAYOUT OF THIS SPACE INCLUDING SUPPLY AND RETURN DUCTWORK.

4 EXHAUST FAN CONTROLLED VIA THERMOSTAT IS ELEVATOR SHAFT.

MECHANICAL GENERAL NOTES

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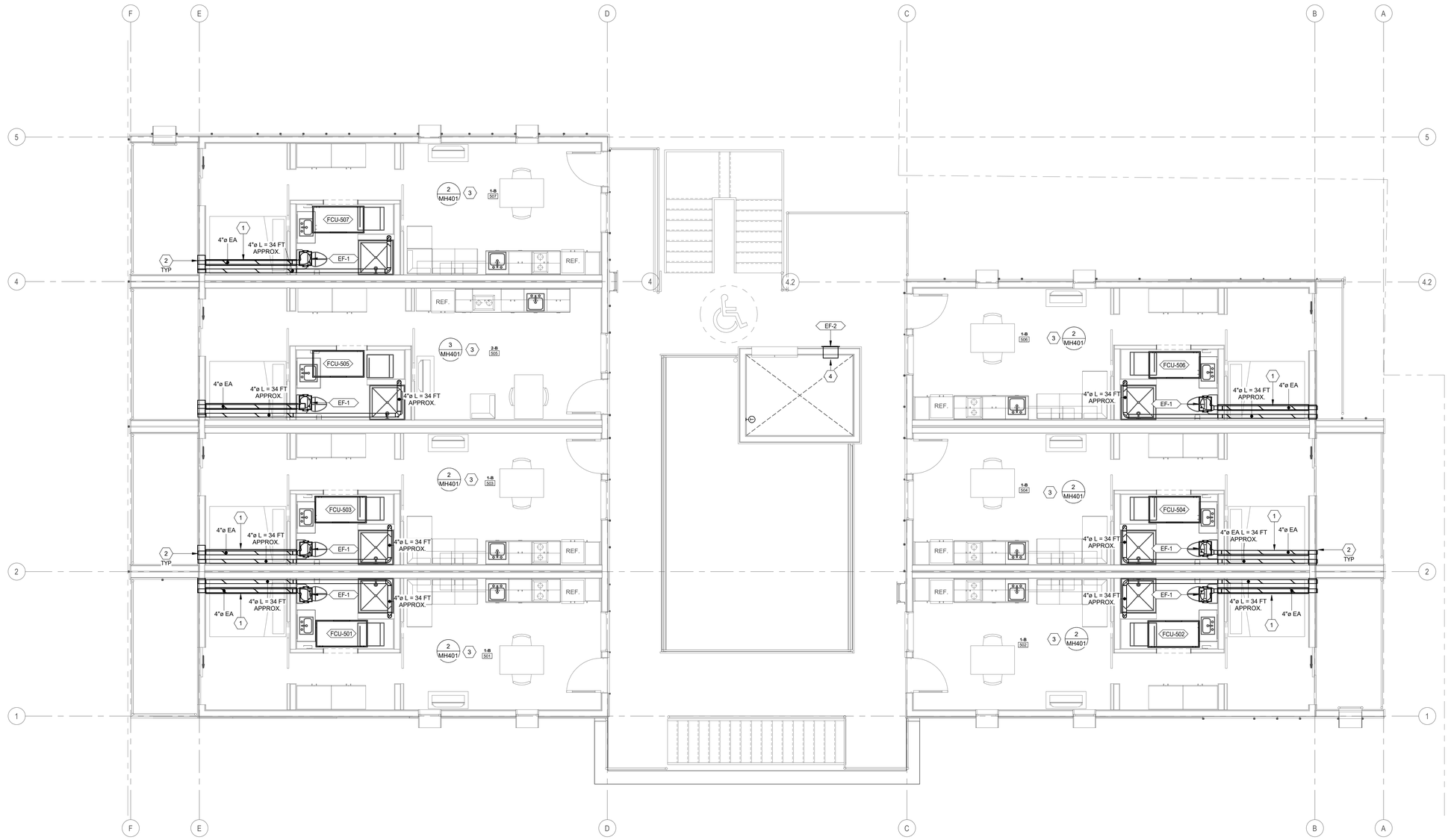
18. MECHANICAL PIPING SCHEDULE:

A. REFRIGERANT PIPING = ACR TYPE L - BRAZED



PLAN N

1 MH105 **LEVEL 05 MECHANICAL PLAN**

1/4" = 1'-0"

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CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 05 MECHANICAL PLAN

MH105

SHEET KEYNOTES

1 KEEP 10 FT FROM THE ROOF EDGE AND THE MECHANICAL EQUIPMENT EDGE..

MECHANICAL GENERAL NOTES

1. ALL EQUIPMENT TO BE SELECTED BASED OFF OF SITE INFORMATION, INCLUDING CURBS EQUAL TO OR GREATER THAN DESIGN SNOW DEPTH. ELEVATION: 4226 FT SDB: 98F SWB: 65 F WDB: 5 F DESIGN SNOW DEPTH: 14 FT
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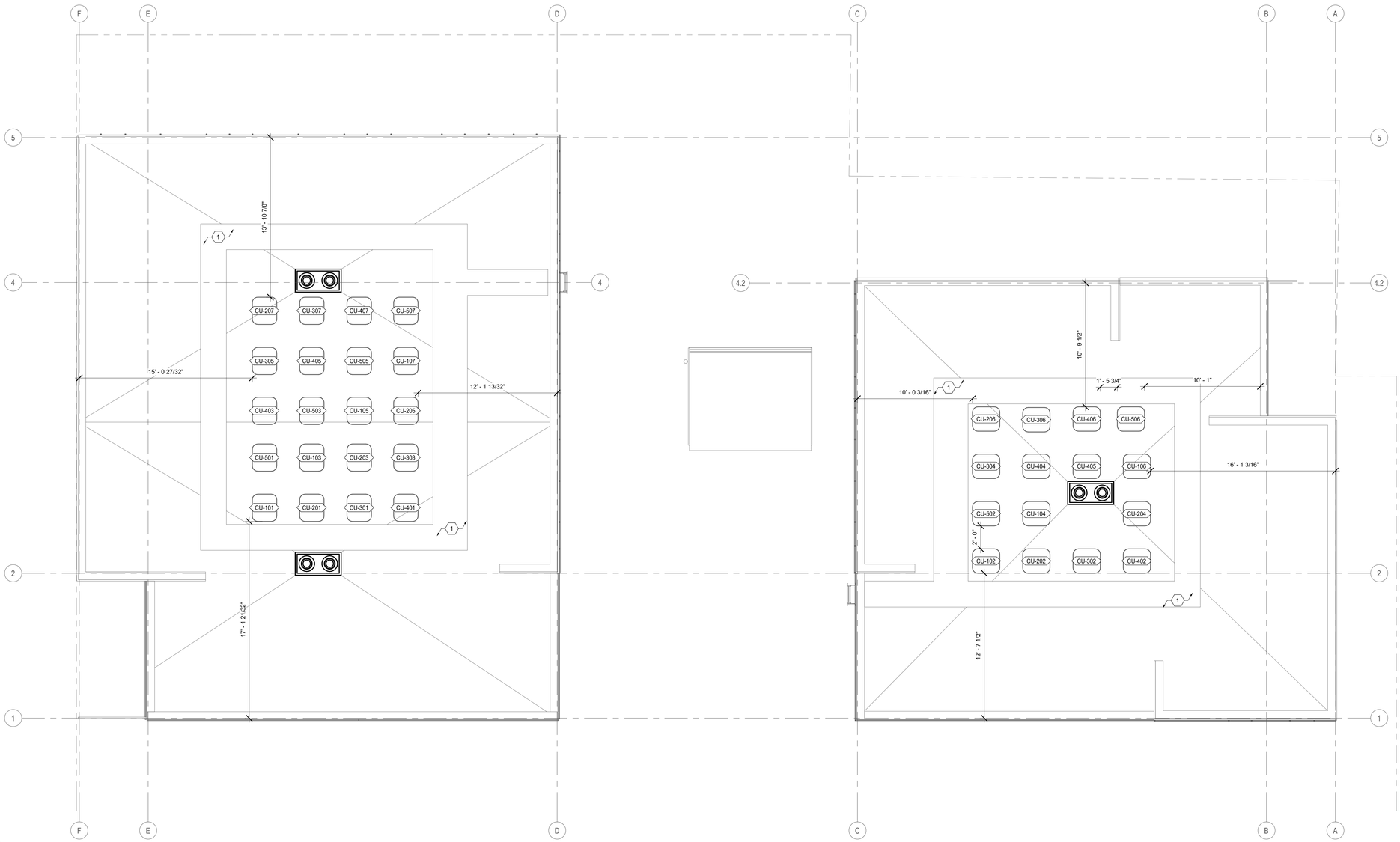
18. MECHANICAL PIPING SCHEDULE:

A. REFRIGERANT PIPING = ACR TYPE L - BRAZED



PLAN N 1 MH106 **ROOF MECHANICAL PLAN**
1/4" = 1'-0"

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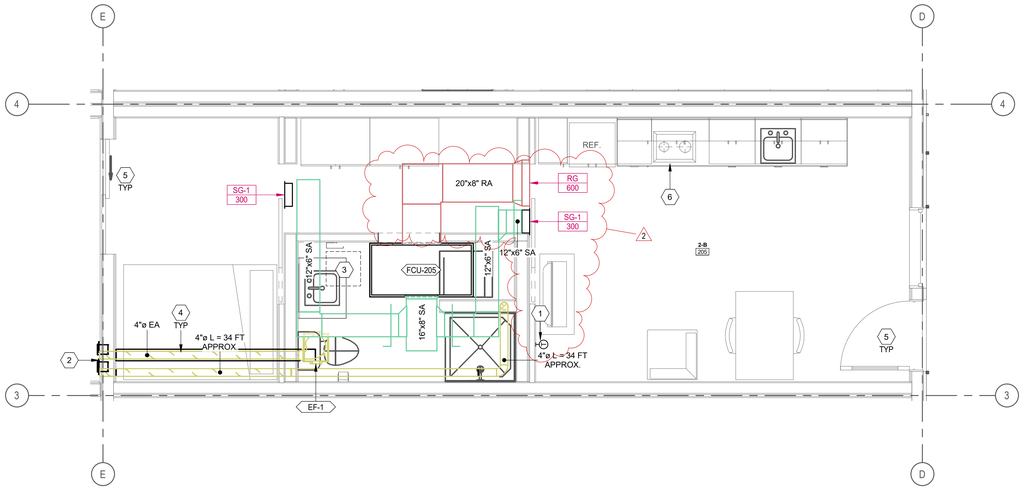
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

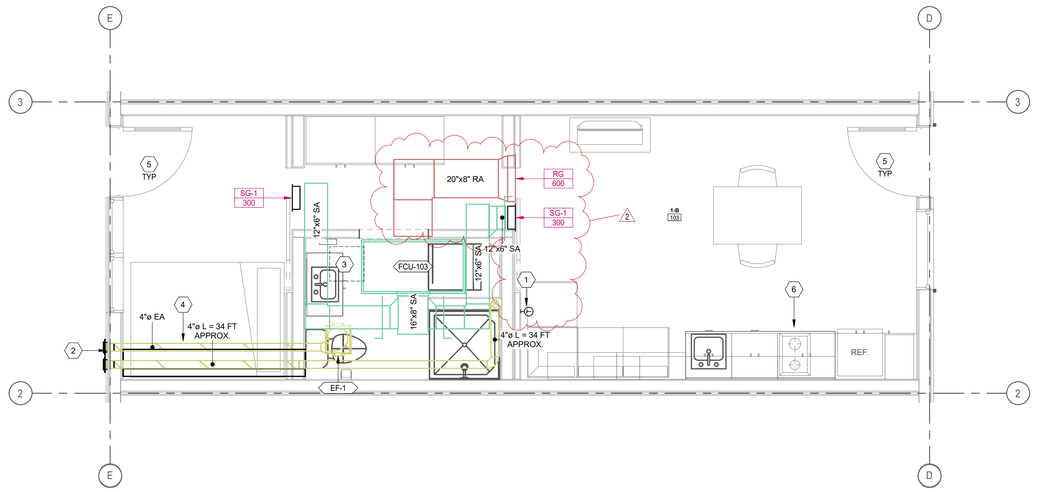
ROOF MECHANICAL PLAN

MH106

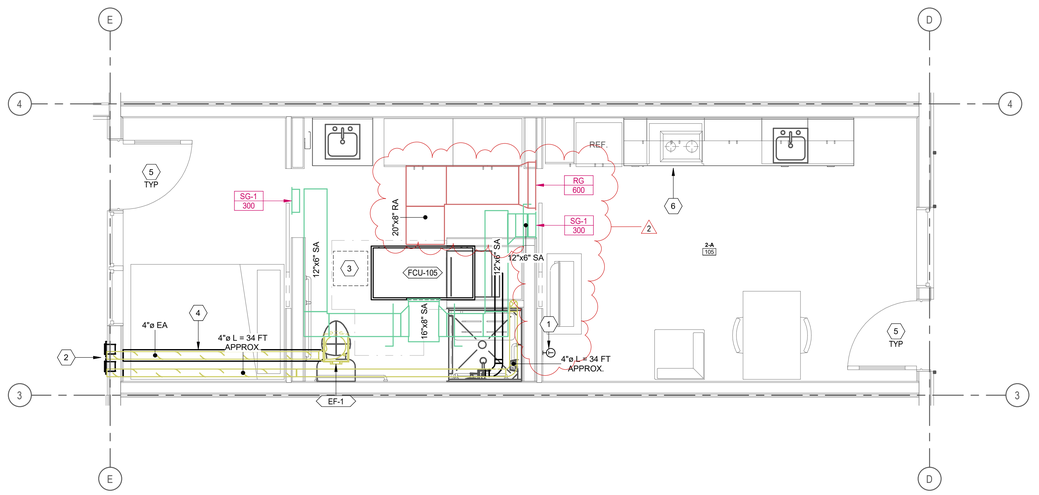
5/21/2021 7:59:09 AM



3 ENLARGED MECHANICAL PLAN - TYPE 2-B UNIT
MH401 3/8" = 1'-0"



2 ENLARGED MECHANICAL PLAN - TYPE 1-B UNIT
MH401 3/8" = 1'-0"



1 ENLARGED MECHANICAL PLAN - TYPE 2-A UNIT (ADA)
MH401 3/8" = 1'-0"

MECHANICAL GENERAL NOTES

1. ALL EQUIPMENT TO BE SELECTED BASED OFF OF SITE INFORMATION, INCLUDING CURBS EQUAL TO OR GREATER THAN DESIGN SNOW DEPTH. ELEVATION: 4226 FT SDB: 98F SWB: 65 F WDB: 5 F DESIGN SNOW DEPTH: 14 FT
2. THIS CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL SUPPLY AND RETURN DUCTWORK TO BE EXTERNALLY WRAPPED WITH INSULATION WITH AN R-VALUE OF R-6.
4. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
5. FLEXIBLE DUCT MAY BE USED AT FINAL TERMINATION OF DUCT TO DIFFUSER OR GRILLE. MAXIMUM FLEXIBLE DUCT LENGTH IS 5'-0". PROVIDE DUCT SUPPORTS EVERY 3 FEET.
6. GRILLES AND DUCTWORK ARE SIZED INDEPENDENTLY. THE NECK SIZE OF GRILLES MAY NOT MATCH THE ASSOCIATED DUCT SIZE. PROVIDE TRANSITION TO GRILLES AS NECESSARY.
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14. PROVIDE OPERATION AND MAINTENANCE MANUALS (O&M) WITHIN 30 DAYS OF CERTIFICATE OF OCCUPANCY FOR ALL EQUIPMENT IN DIGITAL FORMAT TO ENGINEER FOR REVIEW. O&M'S SHALL INCLUDE DOCUMENTATION OF ALL WARRANTIES, REPORTS AND TESTS, RECORD DRAWINGS, CONTROLS SEQUENCE OF OPERATIONS WITH DIAGRAMS, & EQUIPMENT INFORMATION. EQUIPMENT INFORMATION INCLUDES MAKE & MODEL, WIRING, PIPING, STARTUP, SHUTDOWN, TROUBLE SHOOTING SYSTEM BALANCING REPORT, FINAL COMMISSIONING REPORT AND MAINTENANCE PROCEDURES.
15. PIPING AND DUCTWORK SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING AND DUCTWORK WITHIN 12" FROM SUPPORTING STRUCTURE.
16. WHERE JURISDICTION REQUIRES, CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT AND SUPPORT ENGINEERED BY A LICENSED STRUCTURAL ENGINEER. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
17. PROVIDE PROTECTIVE SHIELD PLATES AT THE TOP PLATES, EXTENDING AT LEAST 2" BELOW THE PLATE FOR ANY DRYER VENTS. DRYER VENT DUCTS SHALL BE CONSTRUCTED OF GALVANIZED STEEL AT A THICKNESS OF 0.013 OR ALUMINUM AT A THICKNESS OF 0.018. SEE IMC 603.4.
18. MECHANICAL PIPING SCHEDULE:
    A. REFRIGERANT PIPING = ACR TYPE L - BRAZED

SHEET KEYNOTES

1	COORDINATE THERMOSTAT LOCATIONS WITH ARCHITECT.
2	PROVIDE X VENT BOX WITH A DOUBLE OUTLET IN THIS APPROXIMATE LOCATION. MAINTAIN A MINIMUM OF 3' FROM OPENING TO BUILDING.
3	PROVIDE ACCESS PANEL FOR FAN COIL IN THIS APPROXIMATE LOCATION. SEE DETAIL ON ME502 FOR REQUIRED OPENING SPACE BELOW FAN COIL. COORDINATE WITH CEILING CONTRACTOR.
4	RUN SPIRAL EXHAUST DUCT AND SPIRAL DRYER VENT DUCT EXPOSED ON THIS APPROXIMATE LOCATION
5	21 SQ FT OF OPENING TO EXTERIOR FOR NATURAL VENTILATION.
6	UL LISTED RECIRCULATION HOOD OVER HOT PLATE

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#	Date	Revision
2	08.03.21	City Comments #1

100% CD'S
BID/PERMIT SET

NEXUS PROJ. #:	21010
CHECKED BY:	RHB
DRAWN BY:	LGG
DATE:	5/21/2021

ENLARGED MECHANICAL PLANS

MH401

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MISC. SYMBOL LEGEND

SYMBOL	DESCRIPTION
# / SHEET	DETAIL INDICATOR: # INDICATES DETAIL NUMBER, SHEET INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
# / SHEET	ELEVATION OR SECTION INDICATOR, EXTERIOR: # INDICATES ELEVATION OR SECTION NUMBER, SHEET INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
P-	PLUMBING FIXTURE INDICATOR.
TYPE / CFM / SIZE	DIFFUSER/GRILLE INDICATOR.
TYPE / SIZE	DIFFUSER/GRILLE INDICATOR.
	BREAK, STRAIGHT
	BREAK, ROUND.
	MATCH LINE INDICATOR
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
	NEW CONNECTION POINT TO EXISTING

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION
C.B.	CATCH BASIN
M.H.	MANHOLE
W.H.	WALL HYDRANT
H.B.	HOSE BIBB
	CLEANOUT TO GRADE
	FLOOR CLEANOUT
	WALL CLEANOUT
	1/2 GRATE
	3/4 GRATE
	FULL GRATE

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

PLUMBING PIPING LEGEND

SYMBOL	DESCRIPTION
CWV	COMBINATION WASTE AND VENT
	SOIL, WASTE - ABOVE GRADE (SW)
	SOIL, WASTE - BELOW GRADE (SW)
GW	GREASE WASTE - ABOVE GRADE
GW	GREASE WASTE - BELOW GRADE
	VENT (V)
AV	ACID VENT
AW	ACID WASTE - ABOVE GRADE
AW	ACID WASTE - BELOW GRADE
	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	DOMESTIC HOT WATER RECIRC (DHWR)
180	180°F HOT WATER
180R	180° HOT WATER RETURN
160	160° HOT WATER
160R	160° HOT WATER RETURN
RW	RAINWATER - ABOVE GRADE
RW	RAINWATER - BELOW GRADE
SRW	SECONDARY RAINWATER ABOVE GRADE
SRW	SECONDARY RAINWATER BELOW GRADE
SD	STORM DRAIN
VTR	VENT THRU ROOF
	NON POTABLE WATER
(E)	EXISTING PIPE
(E)	EXISTING PIPE TO BE REMOVED
IW	IRRIGATION WATER
SS	SANITARY SEWER
W	WATER
PWS	PURE WATER SUPPLY
PWR	PURE WATER RETURN
G	GAS
FP	FIRE PROTECTION
LPG	PROPANE
VAC	VACUUM
A	COMPRESSED AIR
MA	MEDICAL AIR
O	OXYGEN
NO	NITROUS OXIDE
N	NITROGEN
CO2	CARBON DIOXIDE
EVAC	EVACUATION

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	VALVES, METERS, AND GAUGES
	SHUT OFF VALVE
	GATE VALVE
	CHECK VALVE
	AUTO 2-WAY VALVE
	AUTO 3-WAY VALVE
	GLOBE VALVE
	BALL VALVE
	RELIEF VALVE
	CHAIN OPERATED GATE VALVE
	PRESSURE REDUCING VALVE
	BUTTERFLY VALVE
	SOLENOID VALVE
	ANGLE VALVE
	VENTURI
	BALANCING OR PLUG COCK
	FLOW SETTER
	EXPANSION VALVE (REFRIG.)
	GAS COCK
MAV	MANUAL AIR VENT
	STRAINER
	GAUGE COCK
	FLEXIBLE CONNECTION
	PRESSURE GAUGE
	THERMOMETER
	VICTUALIC COUPLING
	REDUCER CONCENTRIC
	REDUCER ECCENTRIC
	REFRIGERANT SITE GLASS
	REFRIGERANT STRAINER
	REFRIGERANT FILTER DRIER
	90 DEG ELBOW UP
	90 DEG ELBOW DOWN
	90 DEG TEE UP
	90 DEG TEE DOWN
	UNION
	CAPPED PIPE
	ANCHOR
	FLOAT AND THERMOSTATIC TRAP

DEFERRED SUBMITTALS

Delegated Deferred Design Submittals to be provided by Contractor

A. Deferred Submittals for the Authority Having Jurisdiction (AHJ) shall be as required by IBC 106.3.4.2.

1. Deferred submittals of seismic restraint of nonstructural components must be submitted to the AHJ a minimum of two weeks prior to the planned installation in order to allow for plan review and forwarding to inspectors. In the event that the submittal is deficient additional time may become necessary.

2. No deferred submittal element shall be installed until AHJ approval has been received.

3. If seismic restraints of nonstructural components are installed prior to receiving AHJ approval they shall not be covered or concealed until plan review and inspection approval. Further, installers are proceeding at their own risk until plan review and inspection approval occurs.

4. Deferred Submittals are required for:
   a. Fire protection design.
   - Note: Ductwork and pipes are not suspended more than 12 '' from the structure, if this will be the case, contractor shall be responsible for seismically restraining those ducts & pipes, and submit as a deferred submittal the calculation by a licensed structural engineer in the state which work is performed to the authority having jurisdiction.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

(E)	EXISTING
(F)	FUTURE
AD	ACCESS DOOR
AIR COND	AIR CONDITION(-ING,-ED)
APD	AIR PRESSURE DROP
BD	BALANCING DAMPER
BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
COND	CONDENS(-ER, -ING, -ATION)
CV	CONTROL VALVE
DB	DRY BULB TEMPERATURE
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRC
DP	DEPTH OR DEEP
EA	EXHAUST AIR
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ELEC	ELECTRIC
ELEV	ELEVATION
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EWT	ENTERING WATER TEMPERATURE
EXT	EXTERNAL
FC	FLEXIBLE CONNECT(-OR, -ION)
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
GE	GREASE EXHAUST
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HD	HEAD
HG	MERCURY
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTG	HEATING
HZ	HERTZ (FREQUENCY)
ID	INSIDE DIAMETER
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LG	LENGTH
LH	LATENT HEAT
LRA	LOCKED ROTOR AMPS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTUR(-ER, -ED)
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OZ	OUNCE
PD	PRESSURE DROP OR DIFFERENCE
PG	PROPOLENE GLYCOL
PH	PHASE
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAUGE
R	THERMAL RESISTANCE
RA	RETURN AIR
RECIRC	RECIRCULATE
REFR	REFRIGERATION
REQD	REQUIRED
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCW	SOFT COLD WATER
SF	SAFETY FACTOR
SH	SENSIBLE HEAT
SL	SEA LEVEL
SP	STATIC PRESSURE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
SW	SOIL, WASTE
TA(R)	TRANSFER AIR (RETURN)
TA(S)	TRANSFER AIR (SUPPLY)
TD	TEMP. DROP OR DIFF.
TEMP	TEMPERATURE
THERM	THERMAL
TOT	TOTAL
TSTAT	THERMOSTAT
V	VOLT
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY TEMPERATURE
VEL	VELOCITY
VENT	VENT, VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
WB	WET BULB TEMP
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
WT	WEIGHT
WTR	WATER

PLUMBING GENERAL NOTES

1 THE PLUMBING DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE PLUMBING SYSTEM. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THESE DRAWINGS DO NOT SHOW ALL OFFSETS, BENDS OR ELBOWS NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL REQUIRE PRIOR APPROVAL BY THE DESIGN ENGINEER.

2 THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.

3 THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODES, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT.

4 THE ENTIRE PLUMBING INSTALLATION SHALL CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS OF THE BUILDING OWNER.

5 PRIOR TO FABRICATION AND INSTALLATION OF ANY PLUMBING COMPONENT THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WITH ALL OTHER BUILDING TRADES, INCLUDING BUILDING TRADES HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.

6 ALL PLUMBING INFORMATION IS NOT SHOWN ON THE PLUMBING DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS.

7 THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW AND USE, WHERE APPROPRIATE, ALL THE PLUMBING DETAILS SHOWN ON THE DRAWINGS. DETAILS MAY OR MAY NOT BE CALLED OUT ON THE DRAWINGS WITH SYMBOLS OR KEYED NOTES. ANY CHANGES RESULTING FROM FAILURE TO INSTALL THE PLUMBING SYSTEM WITHOUT USING THE INCLUDED DETAILS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

8 ANY PART OF THE PLUMBING INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

9 PROVIDE PROPER PROVISIONS FOR EXPANSION, CONTRACTION, OR MOVEMENT OF ALL PIPING.

10 PROVIDE LARGE ENOUGH PIPE SLEEVES THROUGH WALL OR FLOOR TO ALLOW FOR ANTICIPATED DIFFERENTIAL MOVEMENT.

11 ALL PIPING SHALL BE SUPPORT WITH CLEVIS HANGERS (MSS TYPE 1). PERFORATED METAL STRAPS OR PLASTIC STRAPPING (PLUMBER TAPE) SHALL NOT BE USED TO SUPPORT OR BRACE ANY PIPE.

12 PROVIDE PIPE HANGERS WITHIN 18-INCHES OF ALL CHANGES OF DIRECTION.

13 PROVIDE SWAY BRACING FOR ALL PIPING 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45-DEGREES.

14 ALL STEEL CLEVIS HANGERS USED TO SUPPORT COPPER PIPING SHALL BE COPPER OR PLASTIC COATED.

15 COPPER PIPING SHALL NOT COME IN CONTACT WITH FIRE TREATED LUMBER. PROVIDE ½" THICK SLIP-ON CLOSED CELL INSULATION WHERE COPPER PIPING IS ADJACENT TO FIRE TREATED LUMBER. CLOSED CELL INSULATION SHALL EXTEND A MINIMUM OF 1-1/2" PAST LUMBER.

16 ALL EXPOSED PIPING SHALL BE INSTALLED IN A NEATLY ARRANGED MANNER PARALLEL TO THE BUILDING STRUCTURE.

17 ALL EXPOSED DOMESTIC WATER PIPE IN OCCUPIED SPACES SHALL BE POLISHED CHROME PLATED.

18 ALL EXPOSED DRAINAGE PIPING IN OCCUPIED SPACES INCLUDING TRAPS UNDER SINKS SHALL BE POLISHED CHROME PLATED.

19 DRAWINGS SHOW GENERAL ARRANGEMENT OF THE DRAIN WASTE AND VENT SYSTEM WITH THE REQUIRED CLEANOUTS. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL CLEANOUTS AS REQUIRED BY THE PLUMBING CODE.

20 ALL SANITARY DRAINAGE SYSTEM PIPING 3" AND LARGER SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/8" PER FOOT.

21 ALL SANITARY DRAINAGE SYSTEM PIPING SMALLER THAN 3" SHALL BE SLOPED IN DIRECTION OF FLOW AT A MINIMUM OF 1/4" PER FOOT.

22 SLOPE VENT SYSTEM TOWARDS DRAINAGE SYSTEM.

23 SIMILAR EQUIPMENT SHALL BE OF THE SAME MANUFACTURER.

24 ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE JOB SITE ELEVATION.

25 FIXTURE AND EQUIPMENT MODEL NUMBERS SHOWN IN PLUMBING FIXTURE SCHEDULE AND PLUMBING EQUIPMENT SCHEDULE ARE SHOWN TO ESTABLISH THE TYPE OF PRODUCT THAT SHALL BE USED. THE SELECTED PRODUCT SHALL MEET THE SCHEDULED PERFORMANCE DATA SHOWN ON THE SCHEDULE EVEN IF A DIFFERENT MODEL IS SUPPLIED THAT IS DIFFERENT THAN THAT SCHEDULED.

26 ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS, VALVES AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.

27 SEE "PLUMBING FIXTURE SCHEDULE" FOR INDIVIDUAL TRAPS, WASTE, VENT, AND DOMESTIC WATER PIPING FOR INDIVIDUAL FIXTURES.

28 ALL PLUMBING EQUIPMENT SHALL BE LISTED AND LABELED BY AN APPROVED TESTING AGENCY.

29 FIXTURES, EQUIPMENT AND PIPING INSTALLATION SHALL MEET NSF STANDARDS.

PLUMBING SHEET INDEX

PE001	PLUMBING COVER SHEET
PE501	PLUMBING DETAILS
PE601	PLUMBING SCHEDULES
PL101	LEVEL 01 PLUMBING PLAN - DWV
PL102	LEVEL 02 PLUMBING PLAN - DWV
PL103	LEVEL 03 PLUMBING PLAN - DWV
PL104	LEVEL 04 PLUMBING PLAN - DWV
PL105	LEVEL 05 PLUMBING PLAN - DWV
PL106	ROOF PLUMBING PLAN - DWV
PL107	LEVEL 01 PLUMBING PLAN - WATER
PL108	LEVEL 02 PLUMBING PLAN - WATER
PL109	LEVEL 03 PLUMBING PLAN - WATER
PL110	LEVEL 04 PLUMBING PLAN - WATER
PL111	LEVEL 05 PLUMBING PLAN - WATER
PL401	ENLARGED PLUMBING PLANS - DWV
PL402	ENLARGED PLUMBING PLANS - WATER

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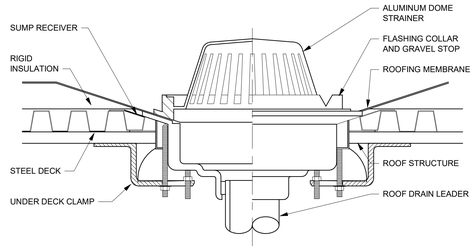
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

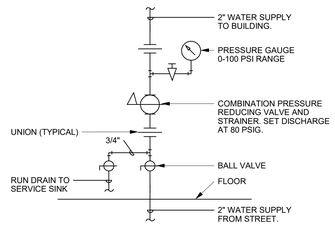
PLUMBING COVER SHEET

8/6/2021 3:34:30 PM

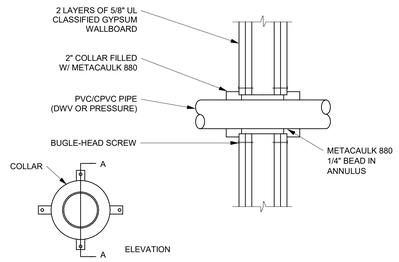
PE001



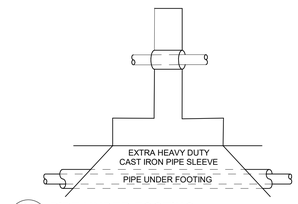
10 ROOF DRAIN
PE501 1/8" = 1'-0"



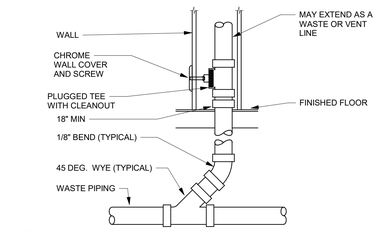
9 PRV STATION DETAIL
PE501 1/8" = 1'-0"



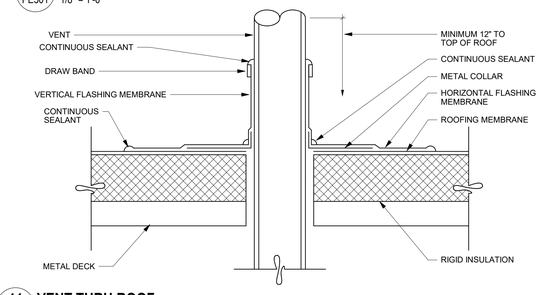
8 PIPE WALL SLEEVE
PE501 1/8" = 1'-0"



13 PIPE UNDER FOOTING
PE501 1/8" = 1'-0"

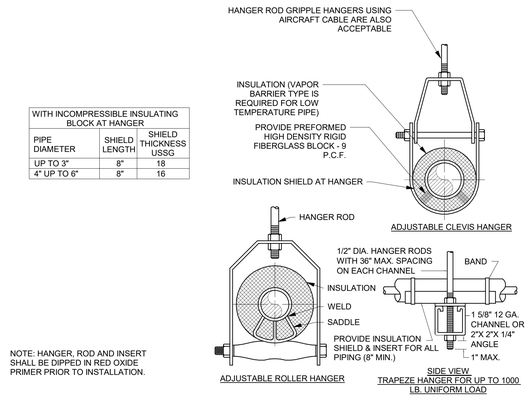


12 WALL CLEANOUT
PE501 1/8" = 1'-0"



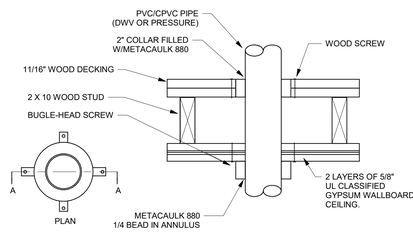
11 VENT THRU ROOF
PE501 1/8" = 1'-0"

WITH INCOMPRESSIBLE INSULATING BLOCK AT HANGER		
PIPE DIAMETER	SHIELD LENGTH	SHIELD THICKNESS USSG
UP TO 3"	8"	18
4" UP TO 6"	8"	16

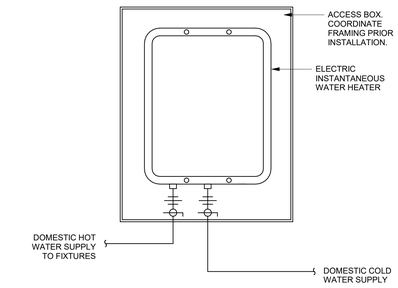


NOTE: HANGER, ROD AND INSERT SHALL BE DIPPED IN RED OXIDE PRIMER PRIOR TO INSTALLATION.

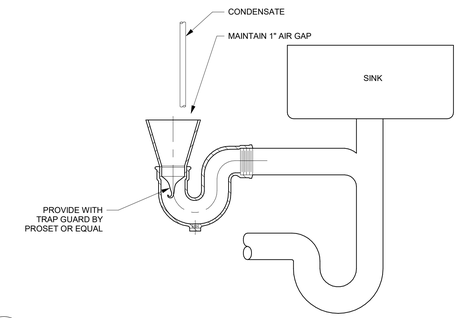
7 PIPE SUPPORTS
PE501 1/8" = 1'-0"



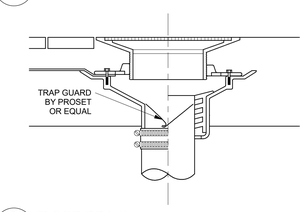
6 PIPE FLANGE
PE501 1/8" = 1'-0"



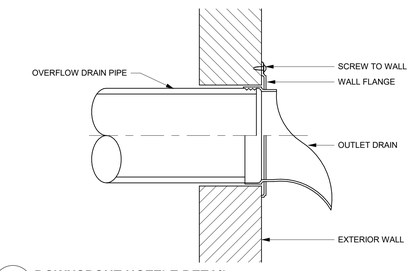
5 INSTANANEOUS WATER HEATER
PE501 1/8" = 1'-0"



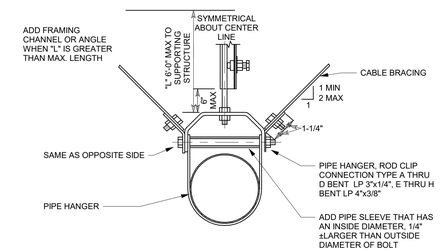
4 FUNNEL DRAIN DETAIL
PE501 1/8" = 1'-0"



3 FLOOR DRAIN
PE501 1/8" = 1'-0"



2 DOWNSPOUT NOZZLE DETAIL
PE501 1/8" = 1'-0"



1 CABLE BRACING FOR PIPES
PE501 1/8" = 1'-0"

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#	Date	Revision

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DRAWN BY: LGG
DATE: 5/21/2021

PLUMBING DETAILS

PE501

5/21/2021 7:59:19 AM

PLUMBING FIXTURE SCHEDULE

REFER TO PLUMBING SPECIFICATIONS FOR COMPLETE FIXTURE COMPONENTS

LABEL	DESCRIPTION	WASTE	TRAP	VENT	CW	HW	MANUFACTURER	MODEL	REMARKS
CWB-1	WASHING MACHINE OUTLET BOX	2"	0"	0"	1/2"	1/2"	WATER-TITE	W4700 HA SERIES	PROVIDE WATER HAMMER ARRESTORS ENSURE 1" MIN. AIR GAP IS PROVIDED FOR WASTE
DSN	DOWNSPOUT NOZZLE	0"	---	0"	0"	0"	ZURN	Z199	TO MATCH PIPE SIZE MOUNTED 12" ABOVE FINISHED GRADE OR AS PER ARCHITECT.
FD-1	FLOOR DRAIN	2"	2"	2"	0"	0"	FIXTURE: ZURN TRAP SEAL: RECTORSEAL	FIXTURE: Z415-BZ1 TRAP SEAL: SURESEAL	TRAP SEAL TO MATCH FD SIZE
FD-2	FLOOR DRAIN	3"	2"	2"	0"	0"	FIXTURE: ZURN TRAP SEAL: RECTORSEAL	FIXTURE: Z415-BZ1 TRAP SEAL: SURESEAL	TRAP SEAL TO MATCH FD SIZE
GD-1	GARBAGE DISPOSER	0"	1-1/2"	0"	0"	0"	INSINKERATOR	BADGER 5	DISPOSER ELECTRICAL: 3/4 HP, 1725 RPM, 9.5A, 120/1
IMB-1	ICE MAKER BOX	0"	0"	0"	1/2"	0"	IPS-GUY GRAY	WB200 (ICE MAKER)	PROVIDE WATER HAMMER ARRESTORS ENSURE 1" MIN. AIR GAP IS PROVIDED FOR WASTE. PROVIDE FIRE RATED BOX WHEN IN INSTALLED IN A FIRE RATED WALL.
KS-1	UNDERMOUNT SINGLE BOWL KITCHEN SINK	1 1/2"	1 1/2"	1 1/2"	1/2"	1/2"	FIXTURE: ELKAY FAUCET: AMERICAN STANDARD DISPOSER: INSINKERATOR TMV: BRADLEY	FIXTURE: ECTRU21179TC FAUCET:4803300 DISPOSER: BADGER 5 TMV: S59-4016 SERIES	DISPOSER ELECTRICAL: 3/4 HP, 1725 RPM, 9.5A, 120/1. PROVIDE BRUSHED NICKEL TERMINATION.
KS-A	UNDERMOUNT SINGLE BOWL KITCHEN SINK (ADA)	1 1/2"	1 1/2"	1 1/2"	1/2"	1/2"	FIXTURE: ELKAY FAUCET: AMERICAN STANDARD DISPOSER: INSINKERATOR TMV: BRADLEY	FIXTURE: ELUHAD191655PD FAUCET:4803300 DISPOSER: BADGER 5 TMV: S59-4016 SERIES	DISPOSER ELECTRICAL: 3/4 HP, 1725 RPM, 9.5A, 120/1. PROVIDE BRUSHED NICKEL TERMINATION.
LAV-1	UNDERMOUNT LAVATORY	1 1/4"	1 1/4"	1 1/2"	1/2"	1/2"	FIXTURE: IKEA-GODMORGON/ODENSVIK VANITY FAUCET: CHICAGO FAUCET INSULATION: TRUEBRO TMV: WEBSTONE	FIXTURE: 292.928.90 FAUCET:3510-4E2805AB INSULATION: LAVGUARD 2 TMV: H-77211W-TG	SET TMV AT 110 DEG. F. PROVIDE FAUCET WITH BRUSHED NICKEL TERMINATION.
LAV-A	UNDERMOUNT LAVATORY (ADA)	1 1/4"	1 1/4"	1 1/2"	1/2"	1/2"	FIXTURE: KOHLER FAUCET: CHICAGO FAUCET INSULATION: TRUEBRO TMV: WEBSTONE	FIXTURE: K-2882 FAUCET: 3510-4E2805AB INSULATION: LAVGUARD 2 TMV: H-77211W-TG	SET TMV AT 110 DEG. F. PROVIDE FAUCET WITH BRUSHED NICKEL TERMINATION.
PRD-1	FLOOR DRAIN	2"	2"	2"	0"	0"	FIXTURE: ZURN TRAP SEAL: RECTORSEAL	FIXTURE: Z415-BZ1 TRAP SEAL: SURESEAL	TRAP SEAL TO MATCH FD SIZE
RD-1	ROOF DRAIN (PRIMARY)	3"	---	0"	0"	0"	ZURN	ZC121-C	CAST IRON DOME. UNDERDECK CLAMP
SHR-1	SHOWER	0"	"FD"	0"	1/2"	1/2"	DELTA	T14233	PROVIDE BRUSHED NICKEL TERMINATION.
SHR-A	SHOWER (ADA)	0"	"FD"	0"	1/2"	1/2"	DELTA	T14233	PROVIDE BRUSHED NICKEL TERMINATION.
SRD-1	ROOF DRAIN (SECONDARY)	3"	---	0"	0"	0"	ZURN	ZC121-C-89	CAST IRON DOME. UNDERDECK CLAMP. 2" HIGH EXTERNAL WATER DAM
WC-1	FLOOR MOUNT TANK WATER CLOSET	3"	INT.	2"	3/4"	0"	FIXTURE: GLACIER BAY SEAT: GLACIER BAY - INCLUDED	FIXTURE:1004-159-514	PROVIDE WATER CLOSET WITH A MAP SCORE OF 1000.

WATER HEATER (ELECTRIC)

LABEL	TYPE	MAX TEMP	CAPACITY		DYNAMIC OPERATING PRESSURE		ELECTRICAL					WEIGHT	MANUFACTURER	MODEL	REMARKS
			TURN ON	MAX FLOW	MIN	MAX	kW	AMPS	VOLTAGE	PHASE	Hz				
WH-1	ELECTRIC TANKLESS	140	0.3	8.0	25	150	26.6	127 A	208 V	1	60 Hz	14	HOMEADVANTAGE II	HA036240	1,2

1. PROVIDE FACTORY AUTHORIZED STARTUP OF EQUIPMENT.
2. PROVIDE ACCESS DOOR FOR WATER HEATER. WATER HEATER APPROXIMATE SIZE 17" H X 21" W X 3.75" D.

HEAT TRACE SCHEDULE

LABEL	WATTS / FT	LENGTH (FT)	VOLTAGE	PHASE	AMPS	MANUFACTURER	MODEL	REMARKS
HT-1	8	60	208 V	1	15 A	CHROMALOX	SLR10-2	1,2,3,4,5

1. PROVIDE FOR PVC PIPING 4 W/FT (CHROMALOX SRL5-2 AT 208 V), FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V)
2. PROVIDE WITH AMBIENT SENSOR.
3. UL LISTED FOR USE WITH FIRE PROTECTION.
4. USE ALUMINUM TAPE WITH ALL PLASTIC PIPING.
5. PROVIDE A MINIMUM OF 2" OF MINERAL FIBER INSULATION OVER ALL PIPING WITH HEAT TRACE.

ROOF DRAIN CALCULATIONS - AREA

NAME	NUMBER	AREA	PARAPET AREA	TOTAL AREA	RAINFALL RATE (IN/HR)	FLOW RATE (GPM)	VERTICAL PIPE SIZE	1/8" SLOPE PIPE SIZE
AREA	01	1035 SF	100	1085	1.3	15	2	2
AREA	02	1035 SF	100	1085	1.3	15	2	2
AREA	03	1538 SF	220	1648	1.3	22	3	3
AREA	04	1292 SF	220	1402	1.3	19	2	2

SANITARY SEWER DEMAND

BASIS FOR DESIGN	
2018 INTERNATIONAL PLUMBING CODE - MINIMUM SLOPE = 1/8" PER FOOT	6"
CHAPTER 7 - SANITARY DRAINAGE- REQUIRED PIPE SIZE =	
TABLE 710.1(1) - BUILDING DRAINS AND SEWERS - XX DFU'S PERMITTED ON MAIN	

EQUIPMENT	QUANTITY	INDIVIDUAL DRAINGE FIXTURE UNIT	TOTAL DRAINAGE FIXTURE UNITS
	3	2	6
AUTOMATIC CLOTHES WASHERS, RESIDENTIAL	35	2	70
FLOOR DRAINS	51	2	102
ICE MAKER BOX	35	0	0
KITCHEN SINK	35	2	70
LAVATORY	35	1	35
SHOWER HEAD	35	2	70
WATER CLOSET. FLUSHOMETER TANK. PRIVATE OR PUBLIC	35	3	105
TOTAL	264		458

DOMESTIC COLD WATER DEMAND

2018 INTERNATIONAL PLUMBING CODE - TABLE E103.3(3) ESTIMATED DEMAND (GPM):	81.8
PER HUNTER CURVE - ESTIMATED DEMAND (GPM)	55
PIPE SIZE (WATER SUPPLY TO BUILDING):	2"
2018 INTERNATIONAL PLUMBING CODE - FIGURE E103.3(5) PIPE FRICTION (PSI / 100 FT):	5.96
PIPE VELOCITY (FEET / SECOND):	5.75

EQUIPMENT	OCCUPANCY	TYPE OF SUPPLY CONTROL	QUANTITY	COMBINED WATER SUPPLY FIXTURE UNITS (WSFU)	TOTAL WATER SUPPLY FIXTURE UNITS (WSFU)
AUTOMATIC CLOTHES WASHERS, RESIDENTIAL	PRIVATE	AUTOMATIC	35	1.4	49
ICE MAKER BOX	PRIVATE	FAUCET	35	1	35
KITCHEN SINK	PRIVATE	FAUCET	35	1.4	49
LAVATORY	PRIVATE	FAUCET	35	0.7	24.5
SHOWER HEAD	PRIVATE	MIXING VALVE	35	1.4	49
WATER CLOSET. FLUSHOMETER TANK. PRIVATE OR PUBLIC	PRIVATE	FLUSH TANK	35	2.2	77
TOTAL			210		283.5

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NEXUS PROJ. #: 21010
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DRAWN BY: LGG
DATE: 5/21/2021

PLUMBING SCHEDULES

PE601

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SHEET KEYNOTES

1 2" SS PIPE RISE UP IN THIS APPROXIMATE LOCATION.

2 4" SS PIPE RISE UP IN THIS APPROXIMATE LOCATION.

3 4" RW INVERT AT BUILDING WALL = 30" BELOW FINISHED GRADE MINIMUM (1/8"/FT. MIN. SLOPE). CONTINUED BY CIVIL CONTRACTOR

4 6" SS INVERT AT BUILDING WALL = 32" BELOW FINISHED GRADE MINIMUM (1/8"/FT. MIN. SLOPE). CONTINUED BY CIVIL CONTRACTOR

5 4" SS INVERT AT BUILDING WALL = 30" BELOW FINISHED GRADE MINIMUM (1/8"/FT. MIN. SLOPE). CONTINUED BY CIVIL CONTRACTOR

6 3" RW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

7 3" RW PIPE RISE TO LEVEL 5 IN THIS APPROXIMATE LOCATION.

8 2" V PIPE RISE UP TO LEVEL 5 IN THIS APPROXIMATE LOCATION.

9 PROVIDE WITH MOISTURE SENSOR WITH AUDIBLE AND VISIBLE ALARM.

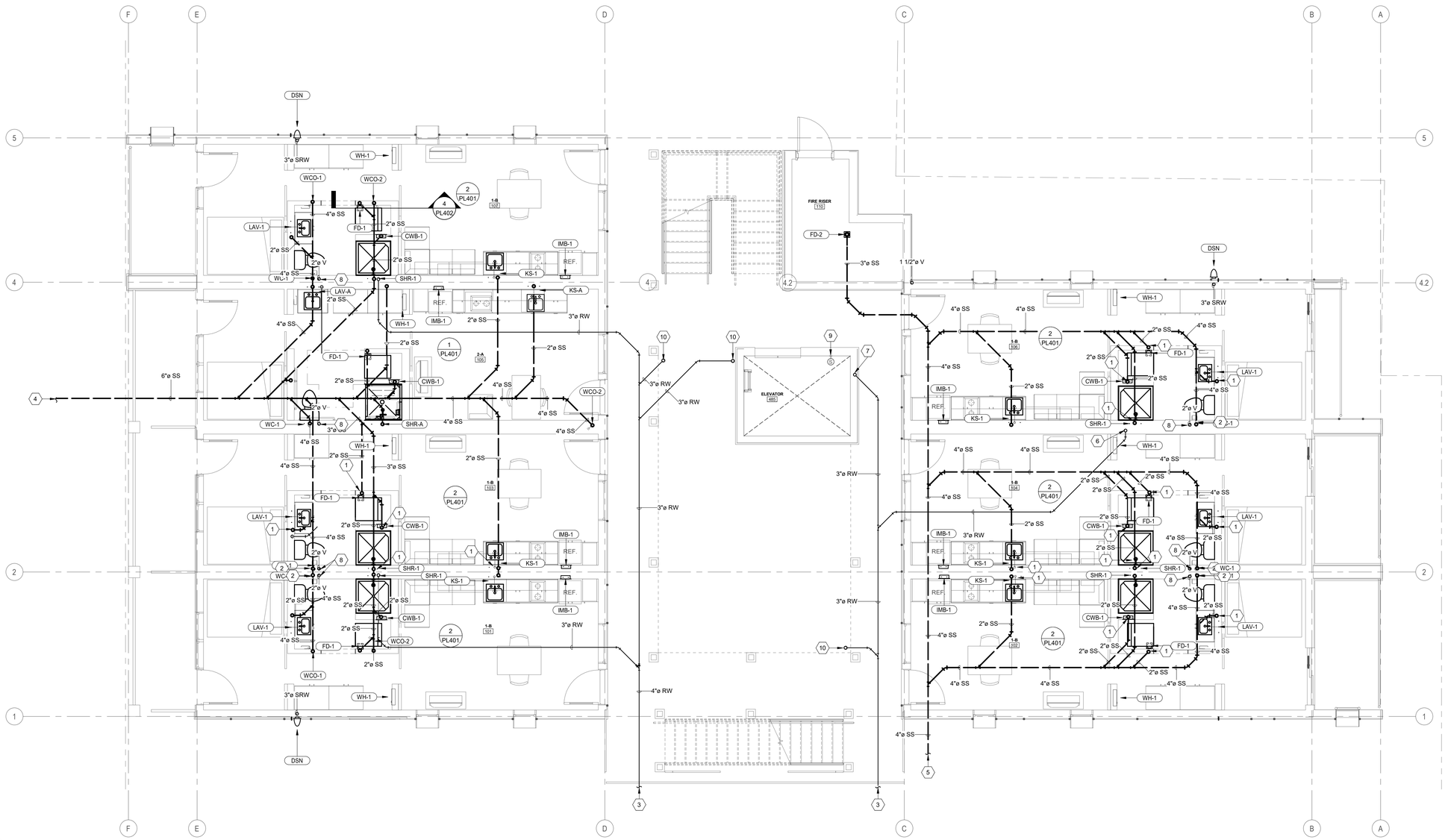
10 CONNECT DOWNSPOUT TO THE RAIN WATER SYSTEM.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
10. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
11. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
12. PROVIDE PORTABLE PUMP (LITTLE GIANT UPSP-5 OR EQUAL) TO OWNER.
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.

PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS. VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 W/FT (CHROMALOX SRL5-2 AT 208 V). FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V).
15. ALL DOMESTIC WASTE AND VENT PIPING TO BE CAST IRON OR PVC INSULATED TO MEET FLAME SPREAD AND SMOKE DEVELOPED INDEX. THERMAL AND SOUND INSULATION AND COVERING OVER PIPE OR TUBING WHICH ARE INSTALLED IN CONCEALED PLENUM SPACES SHALL BE TESTED IN ACCORDANCE WITH ASTM E84 AND HAVE A FLAME SPREAD OF 0-25 AND A SMOKE INDEX OF 0-50.
16. PLUMBING PIPING SCHEDULE
    - A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    - B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    - C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    - D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 PL101 **LEVEL 01 PLUMBING PLAN - DWV**
1/4" = 1'-0"

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#	Date	Revision
2	08.03.21	City Comments #1

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CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 01 PLUMBING PLAN - DWV

PL101

7/28/2021 9:30:19 AM

SHEET KEYNOTES

1 3" SRW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

2 3" SRW PIPE DROP DROWN INSIDE EXTERIOR WALL TO DOWNSPOUT IN THIS APPROXIMATE LOCATION.

3 3" SRW PIPE RISE UP/ DROP DOWN INSIDE WALL IN THIS APPROXIMATE LOCATION.

4 3" RW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

5 3" SRW RUN INSIDE STRUCTURE TO EXTERIOR WALL.

6 3" SRW RUN INSIDE LOWER CEILING IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
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5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
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8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
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PLUMBING GENERAL NOTES

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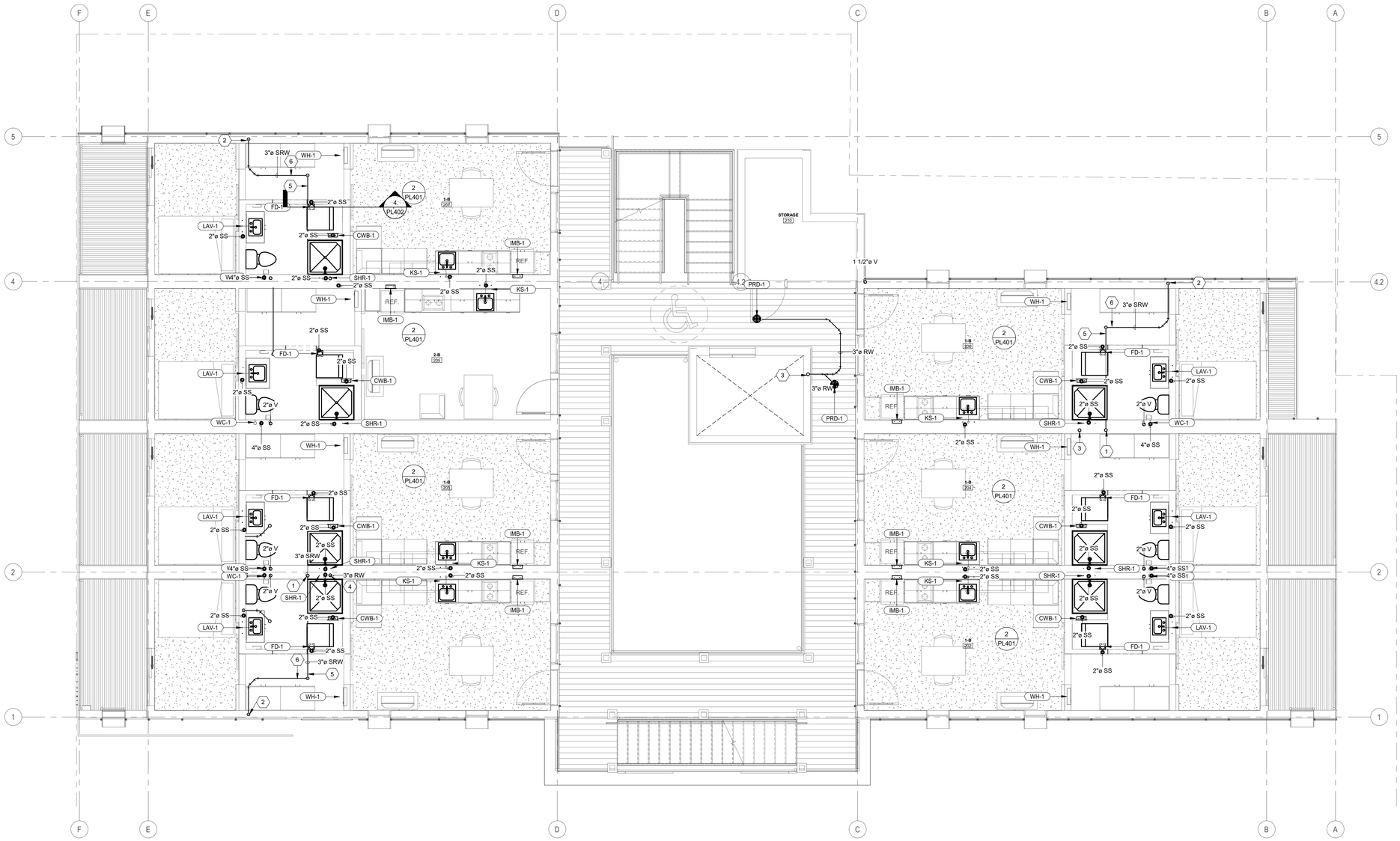
    - A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    - B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    - C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    - D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 / PL102 — LEVEL 02 PLUMBING PLAN - DWV 1/4" = 1'-0"

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DATE: 5/21/2021

LEVEL 02 PLUMBING PLAN - DWV

PL102

7/28/2021 9:30:21 AM

SHEET KEYNOTES

1 3" SRW PIPE RISE UP/ DROP DOWN INSIDE WALL IN THIS APPROXIMATE LOCATION.

2 3" RW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

3 3" SRW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

4 2" SS PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

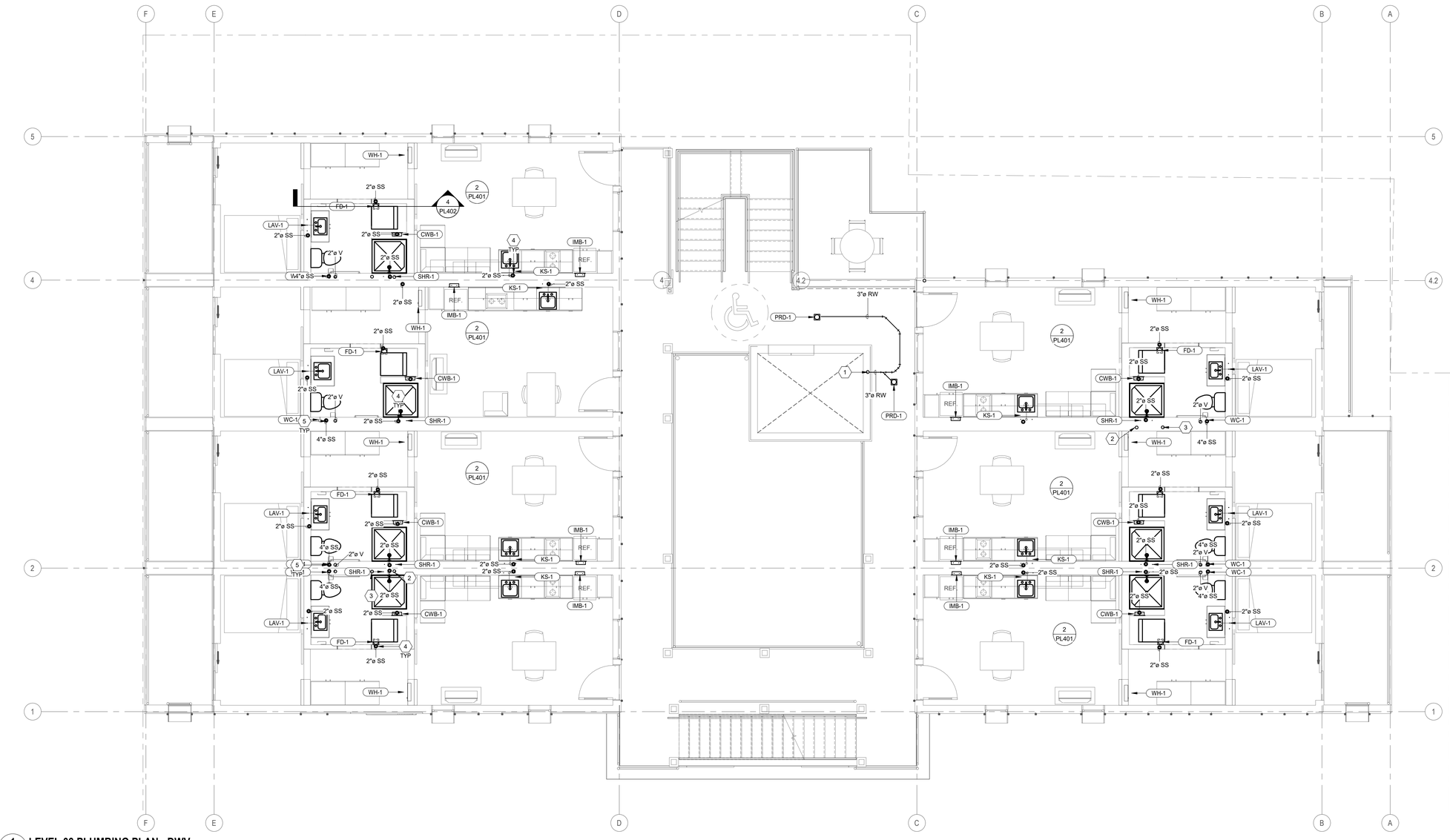
5 4" SS PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
10. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
11. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
12. PROVIDE PORTABLE PUMP (LITTLE GIANT UPSP-5 OR EQUAL) TO OWNER.
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2' BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.

PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 W/FT (CHROMALOX SRL5-2 AT 208 V). FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V)
15. ALL DOMESTIC WASTE AND VENT PIPING TO BE CAST IRON OR PVC INSULATED TO MEET FLAME SPREAD AND SMOKE DEVELOPED INDEX. THERMAL AND SOUND INSULATION AND COVERING OVER PIPE OR TUBING WHICH ARE INSTALLED IN CONCEALED PLENUM SPACES SHALL BE TESTED IN ACCORDANCE WITH ASTM E84 AND HAVE A FLAME SPREAD OF 0-25 AND A SMOKE INDEX OF 0-50.
16. PLUMBING PIPING SCHEDULE:
    A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 PL103 — LEVEL 03 PLUMBING PLAN - DWV
1/4" = 1'-0"

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LEVEL 03 PLUMBING PLAN - DWV

PL103

7/28/2021 9:30:22 AM

SHEET KEYNOTES

1 2" SS PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

2 4" SS PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

3 2" V PIPE RISE UP TO LEVEL 5 IN THIS APPROXIMATE LOCATION.

4 3" SRW PIPE RISE UP/ DROP DOWN INSIDE WALL IN THIS APPROXIMATE LOCATION.

5 3" RW PIPE RISE UP/ DROP DOWN INSIDE WALL IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
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3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
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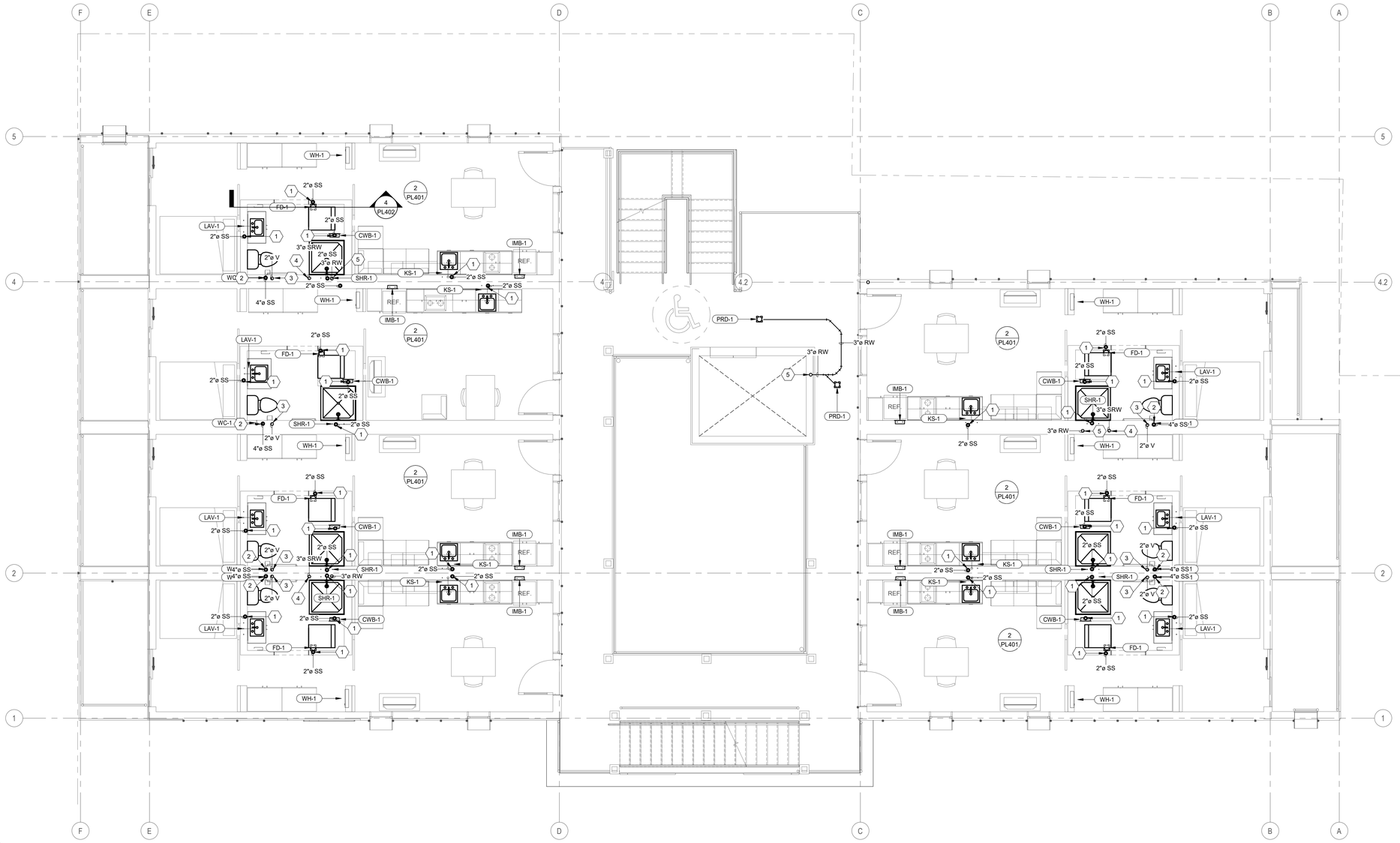
12. PROVIDE PORTABLE PUMP (LITTLE GIANT UPSP-5 OR EQUAL) TO OWNER.
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2' BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.

PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 WPT (CHROMALOX SRL5-2 AT 208 V). FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V)
15. ALL DOMESTIC WASTE AND VENT PIPING TO BE CAST IRON OR PVC INSULATED TO MEET FLAME SPREAD AND SMOKE DEVELOPED INDEX. THERMAL AND SOUND INSULATION AND COVERING OVER PIPE OR TUBING WHICH ARE INSTALLED IN CONCEALED PLENUM SPACES SHALL BE TESTED IN ACCORDANCE WITH ASTM E84 AND HAVE A FLAME SPREAD OF 0-25 AND A SMOKE INDEX OF 0-50.
16. PLUMBING PIPING SCHEDULE:
    A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 / PL104 — LEVEL 04 PLUMBING PLAN - DWV
1/4" = 1'-0"

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DATE: 5/21/2021

LEVEL 04 PLUMBING PLAN - DWV

PL104

7/28/2021 9:30:23 AM

SHEET KEYNOTES

1 2" SS PIPE DROP FROM LEVEL 5 TO LEVEL 1 IN THIS APPROXIMATE LOCATION.

2 4" SS PIPE DROP FROM LEVEL 5 TO LEVEL 1 IN THIS APPROXIMATE LOCATION.

3 2" VENT PIPE DROP DOWN TO LEVEL 1 IN THIS APPROXIMATE LOCATION.

4 3" SRW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

5 3" RW PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

6 3" SRW PIPE DROP DOWN TO LEVEL 2 IN THIS APPROXIMATE LOCATION.

7 3" RW PIPE DROP DOWN TO LEVEL 1 IN THIS APPROXIMATE LOCATION.

8 3" VENT PIPE RISE UP TO ROOF IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
10. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
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12. PROVIDE PORTABLE PUMP (LITTLE GIANT UPSP-5 OR EQUAL) TO OWNER.
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2' BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.

PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 WFT (CHROMALOX SRL5-2 AT 208 V); FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V)
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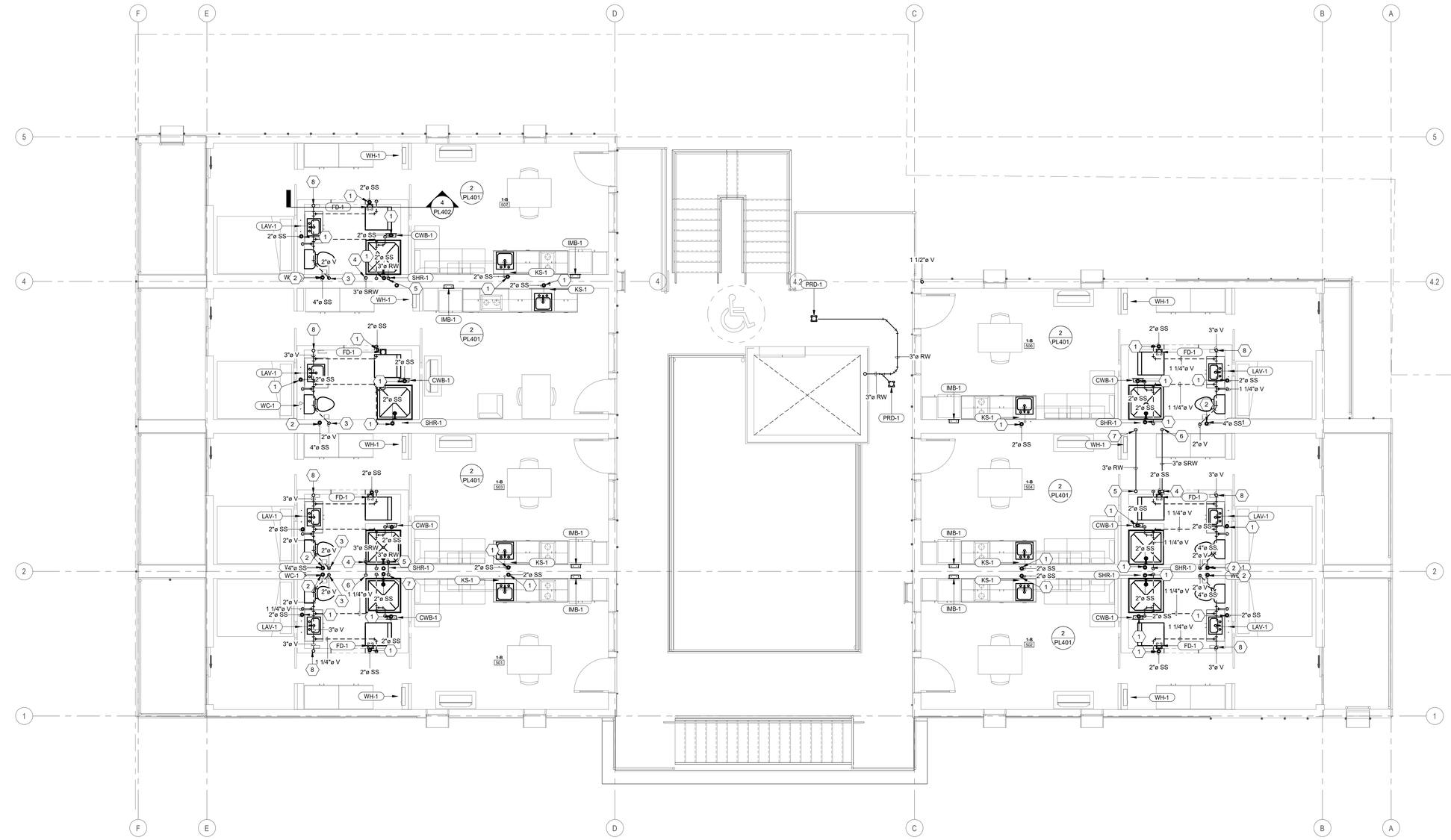
16. PLUMBING PIPING SCHEDULE:
    A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 / PL105 LEVEL 05 PLUMBING PLAN - DWV
1/4" = 1'-0"

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DRAWN BY: LGG
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LEVEL 05 PLUMBING PLAN - DWV

PL105

SHEET KEYNOTES

1 PROVIDE VENT KIT IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
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10. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
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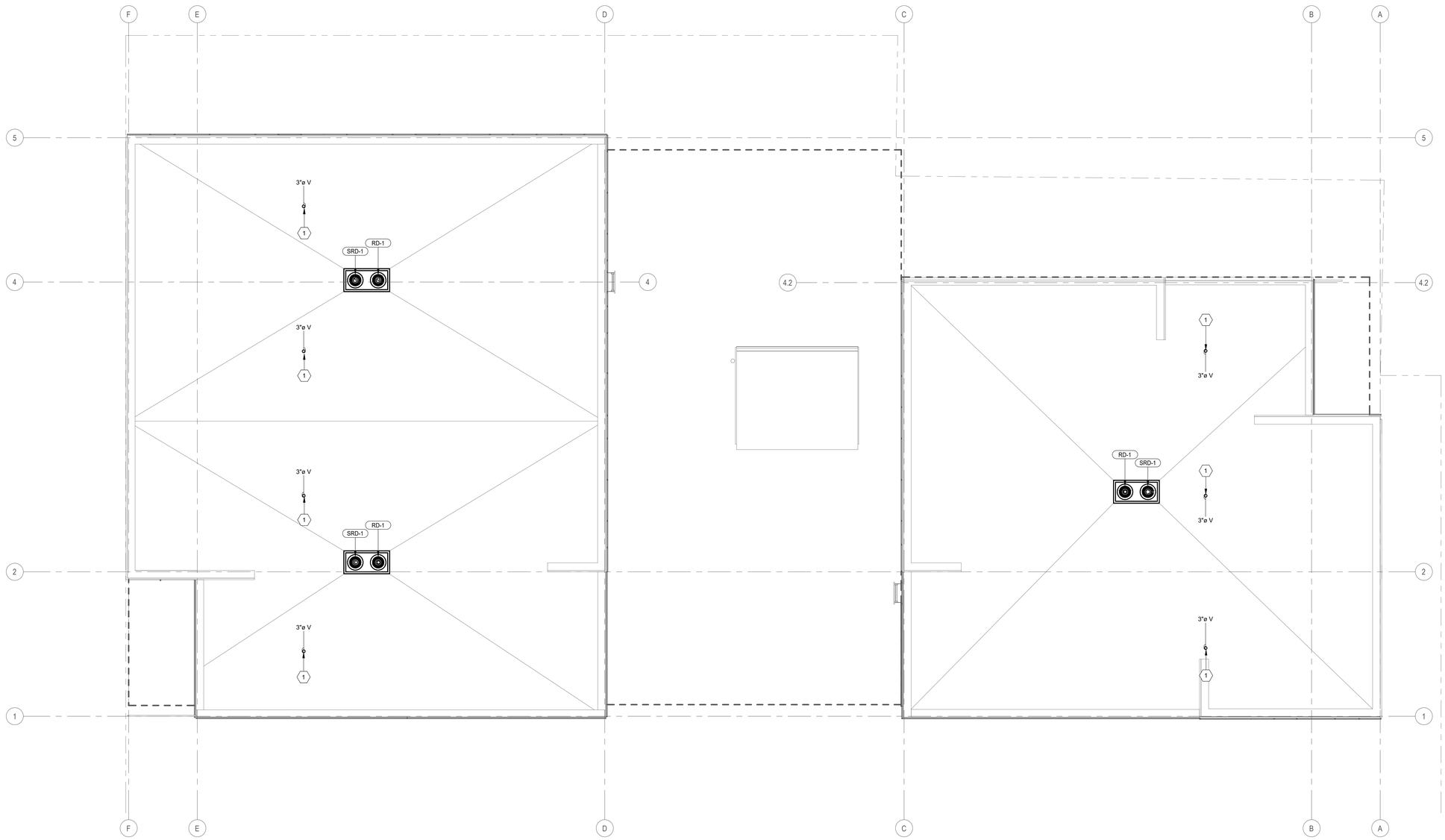
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.

PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 W/FT (CHROMALOX SRL5-2 AT 208 V); FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V).
15. ALL DOMESTIC WASTE AND VENT PIPING TO BE CAST IRON OR PVC INSULATED TO MEET FLAME SPREAD AND SMOKE DEVELOPED INDEX. THERMAL AND SOUND INSULATION AND COVERING OVER PIPE OR TUBING WHICH ARE INSTALLED IN CONCEALED PLENUM SPACES SHALL BE TESTED IN ACCORDANCE WITH ASTM E84 AND HAVE A FLAME SPREAD OF 0-25 AND A SMOKE INDEX OF 0-50.
16. PLUMBING PIPING SCHEDULE:
    A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 / PL106 — ROOF PLUMBING PLAN - DWV — 1/4" = 1'-0"

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DATE: 5/21/2021

ROOF PLUMBING PLAN - DWV

PL106

7/28/2021 9:30:25 AM

SHEET KEYNOTES

1 PROVIDE PRV STATION IN THIS APPROXIMATE LOCATION.

2 DCW PIPE RUN 3 FT BELOW GRADE FR FREEZING PROTECTION. COORDINATE EXACT LOCATION WITH STRUCTURAL.

3 SEE CIVIL PLAN FOR CONTINUATION.

4 PROVIDE SHUT OFF VALVE IN THIS APPROXIMATE LOCATION. PROVIDE ACCESS DOOR IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT.

5 HEAT TRACE ALL FIRE SPRINKLER PIPING. FIRE SPRINKLER HEAT TRACE TO BE UL LISTED.

6 DCW PIPE RISE UP FROM BELOW FLOOR TO LEVEL 1 ABOVE CEILING IN THIS APPROXIMATE LOCATION.

7 DCW RUN INSIDE STRUCTURE IN THIS APPROXIMATE LOCATION. COORDINATE EXACT PENETRATION SIZE WITH STRUCTURAL.

8 DCW RISE UP FROM 3 FT BELOW GRADE IN THIS APPROXIMATE LOCATION.

9 DCW DROP DOWN FROM PRV VALVE TO RUN 3 FT BELOW FLOOR IN THIS APPROXIMATE LOCATION.

PLUMBING GENERAL NOTES

1. ALL DOMESTIC WATER PIPING TO BE COPPER. ALL HOT WATER AND HOT WATER RECIRCULATING PIPING TO BE INSULATED WITH 1" UP TO 1-1/4" PIPE AND 1-1/2" INSULATION FOR PIPING 1-1/2" AND LARGER. DOMESTIC COLD WATER PIPING TO BE INSULATED WITH 1/2" UP TO 1-1/4" PIPING AND 1" INSULATION FOR PIPING 1-1/2" OR LARGER.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED, EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
10. PIPING SHALL NOT BE SUPPORTED FROM THE ROOF DECK, JOIST BRIDGING OR OTHER PIPES. HANG PIPES FROM BEAMS, JOIST OR SUPPLEMENTARY STRUCTURAL MEMBERS. WHERE POSSIBLE INSTALL ALL PIPING WITHIN 12" FROM SUPPORTING STRUCTURE.
11. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
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PLUMBING GENERAL NOTES

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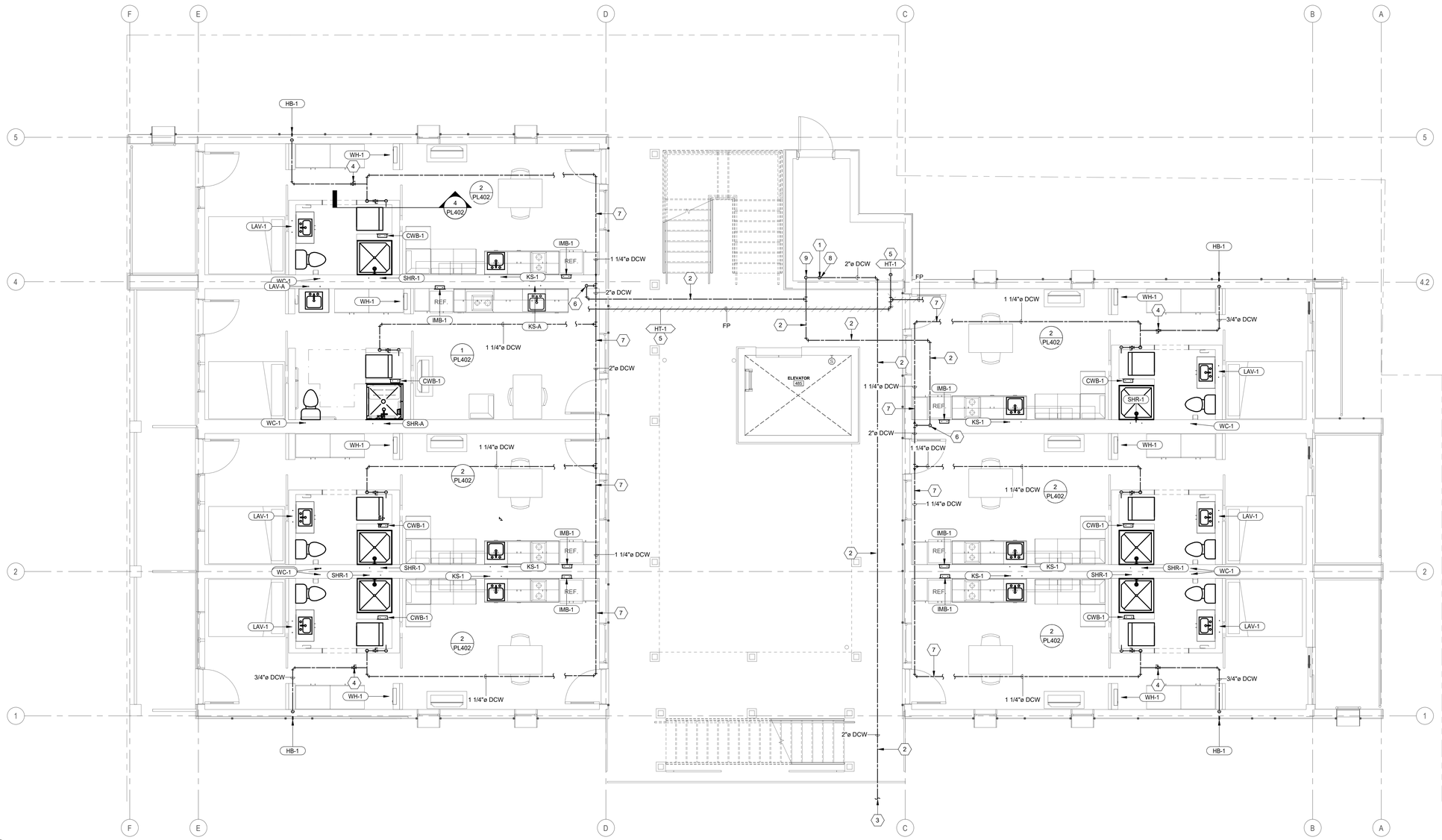
16. PLUMBING PIPING SCHEDULE:
    A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT



PLAN N — 1 / PL107 **LEVEL 01 PLUMBING PLAN - WATER**
1/4" = 1'-0"

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LEVEL 01 PLUMBING PLAN - WATER

PL107

7/28/2021 9:30:26 AM

SHEET KEYNOTES

1 1 1/4" DCW PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

2 PROVIDE SHUT OFF VALVE IN THIS APPROXIMATE LOCATION. PROVIDE ACCESS DOOR IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT.

3 1" DCW PIPE RUN ABOVE CEILING TO UNIT BATHROOM.

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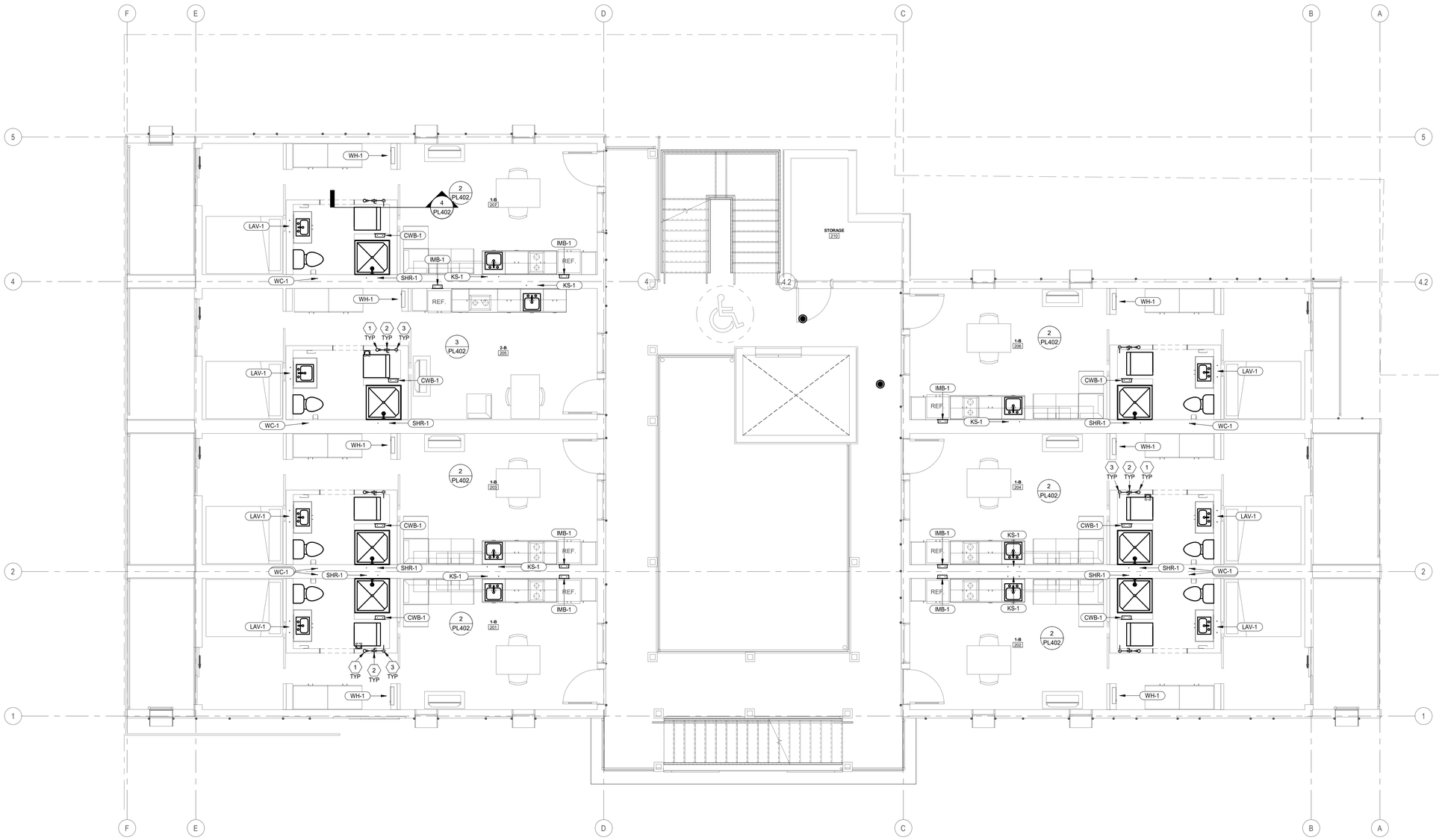

PLAN N — 1 / PL108 LEVEL 02 PLUMBING PLAN - WATER
1/4" = 1'-0"

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DATE: 5/21/2021

LEVEL 02 PLUMBING PLAN - WATER

PL108

7/28/2021 9:30:27 AM

SHEET KEYNOTES

1 1 1/4" DCW PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

2 PROVIDE SHUT OFF VALVE IN THIS APPROXIMATE LOCATION. PROVIDE ACCESS DOOR IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT.

3 1" DCW PIPE RUN ABOVE CEILING TO UNIT BATHROOM.

PLUMBING GENERAL NOTES

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2. THE CONTRACTOR SHALL CLOSELY COORDINATE MECHANICAL AND PLUMBING WITH ELECTRICAL, ARCHITECTURAL, AND BUILDING STRUCTURE.
3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
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8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
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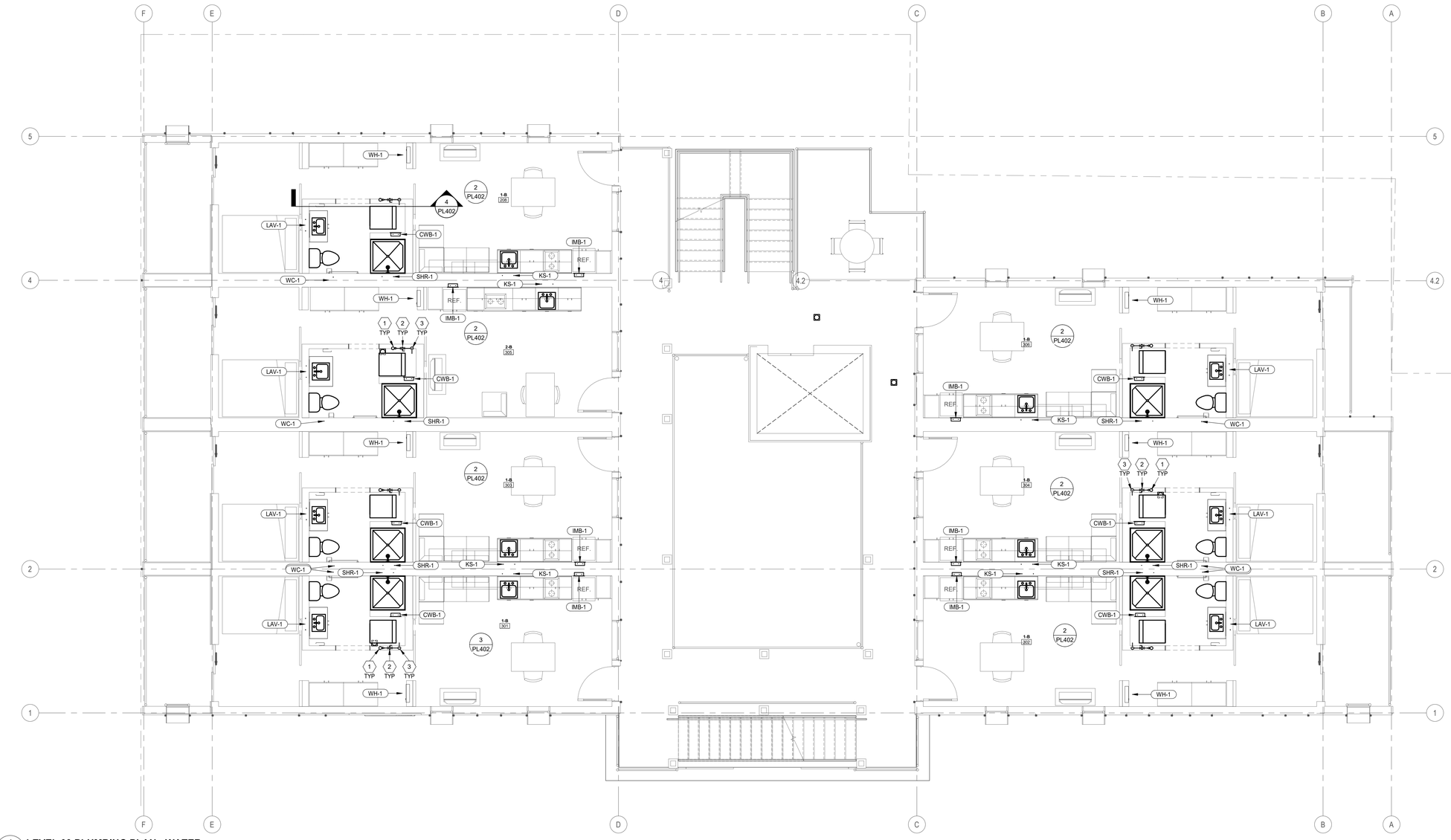

PLAN N — 1 PL109 — **LEVEL 03 PLUMBING PLAN - WATER**
1/4" = 1'-0"

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LEVEL 03 PLUMBING PLAN - WATER

PL109

7/28/2021 9:30:28 AM

SHEET KEYNOTES

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3 1" DCW PIPE RUN ABOVE CEILING TO UNIT BATHROOM.

PLUMBING GENERAL NOTES

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3. ALL DOMESTIC WATER PIPING TO BE PRESSURE TESTED, CLEANED, AND DISINFECTED. SEE SPECIFICATIONS.
4. BALL VALVES SHALL BE FULL PORT AND LEAD FREE. PROVIDE WITH HANDLE/STEM EXTENSIONS FOR PROPER FUNCTION WHEN FULLY INSULATED. EXTENSIONS TO BE SEALED AND VAPOR PROOF.
5. ALL DOMESTIC WATER PIPING TO BE LOCATED ON WARM SIDE OF BUILDING ENVELOPE. ALL ROOF DRAIN PIPING (PRIMARY AND SECONDARY) LOCATED IN BUILDING ENVELOPE, INCLUDING ROOF DRAIN BOWLS TO BE INSULATED.
6. ALL SANITARY WASTE AND STORM WATER PIPING EXPOSED TO FREEZING CONDITIONS TO BE INSULATED WITH 1" THICK MINERAL FIBER INSULATION AND 20 MIL PVC JACKET. LABEL ALL EXPOSED PIPING WITH SYSTEM TYPE.
7. WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED PER PLUMBING AND DRAINAGE INSTITUTE (STANDARD PDI-WH 201) REQUIREMENTS IN ACCESSIBLE LOCATIONS ON THE COLD WATER AND HOT WATER PIPING WHERE FLUSH VALVES OR QUICK CLOSING VALVES ARE USED.
8. TEST WASTE AND VENT PIPING FOR LEAKAGE. SEE SPECIFICATIONS.
9. PROVIDE A SAND BED WITH SIX (6") INCHES MINIMUM COVERAGE AROUND ALL BELOW GRADE PIPES. PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACKFILL. PROVIDE MINIMUM TRENCH WIDTH OF NOT LESS THAN 1.5 TIMES THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES.
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PLUMBING GENERAL NOTES

14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 W/FT (CHROMALOX SRLS-2 AT 208 V). FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10/2 AT 208V).
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16. PLUMBING PIPING SCHEDULE:
    - A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
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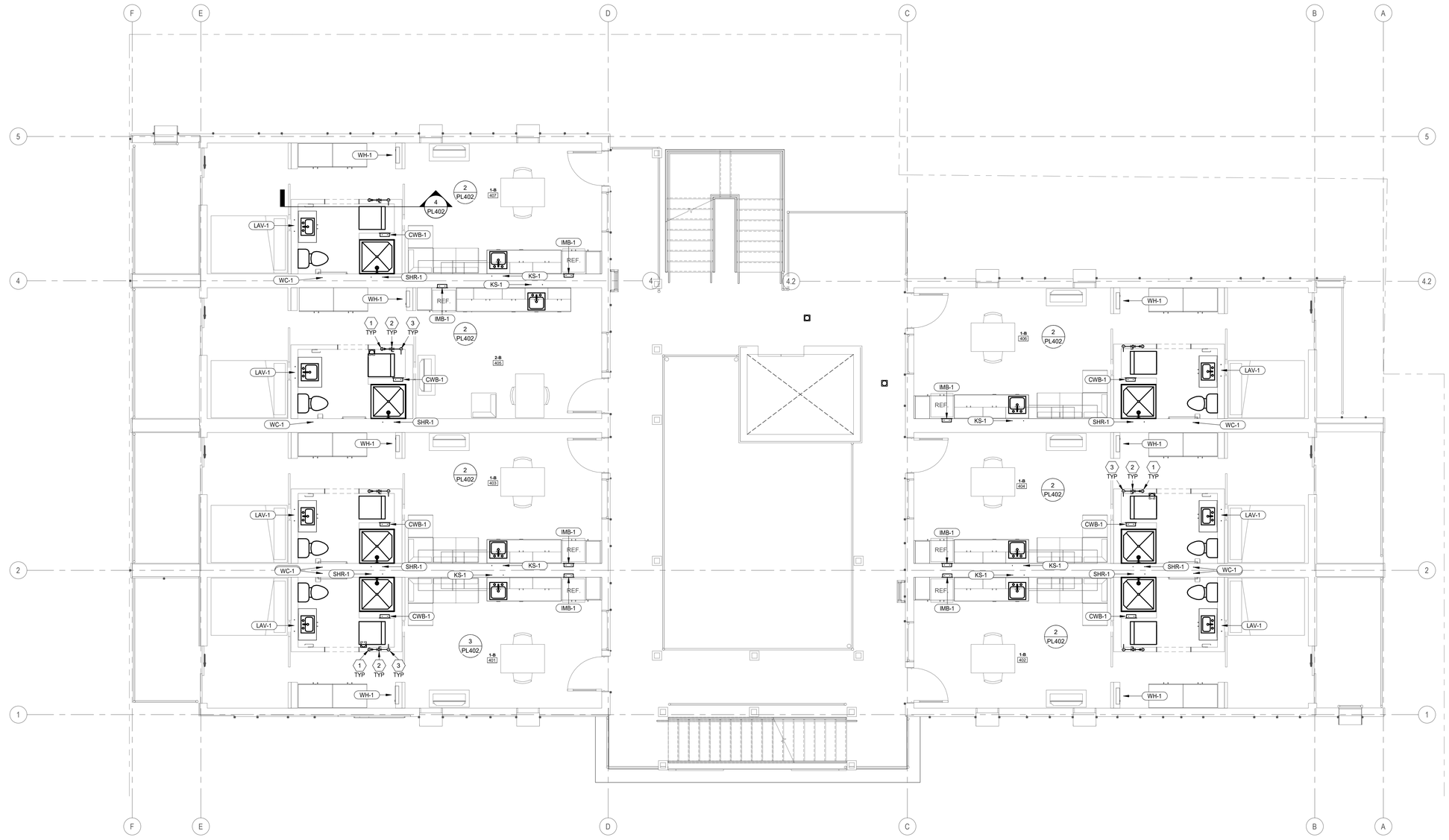

PLAN N — 1 / PL110 — **LEVEL 04 PLUMBING PLAN - WATER** — 1/4" = 1'-0"

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PROFESSIONAL ENGINEER — 7-28-21 — RYAN BOOGAARD — NO. 8677128 — STATE OF UTAH

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#	Date	Revision
2	08.03.21	City Comments #1

100% CD'S
BID/PERMIT SET

NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

LEVEL 04 PLUMBING PLAN - WATER

PL110

7/28/2021 9:30:30 AM

SHEET KEYNOTES

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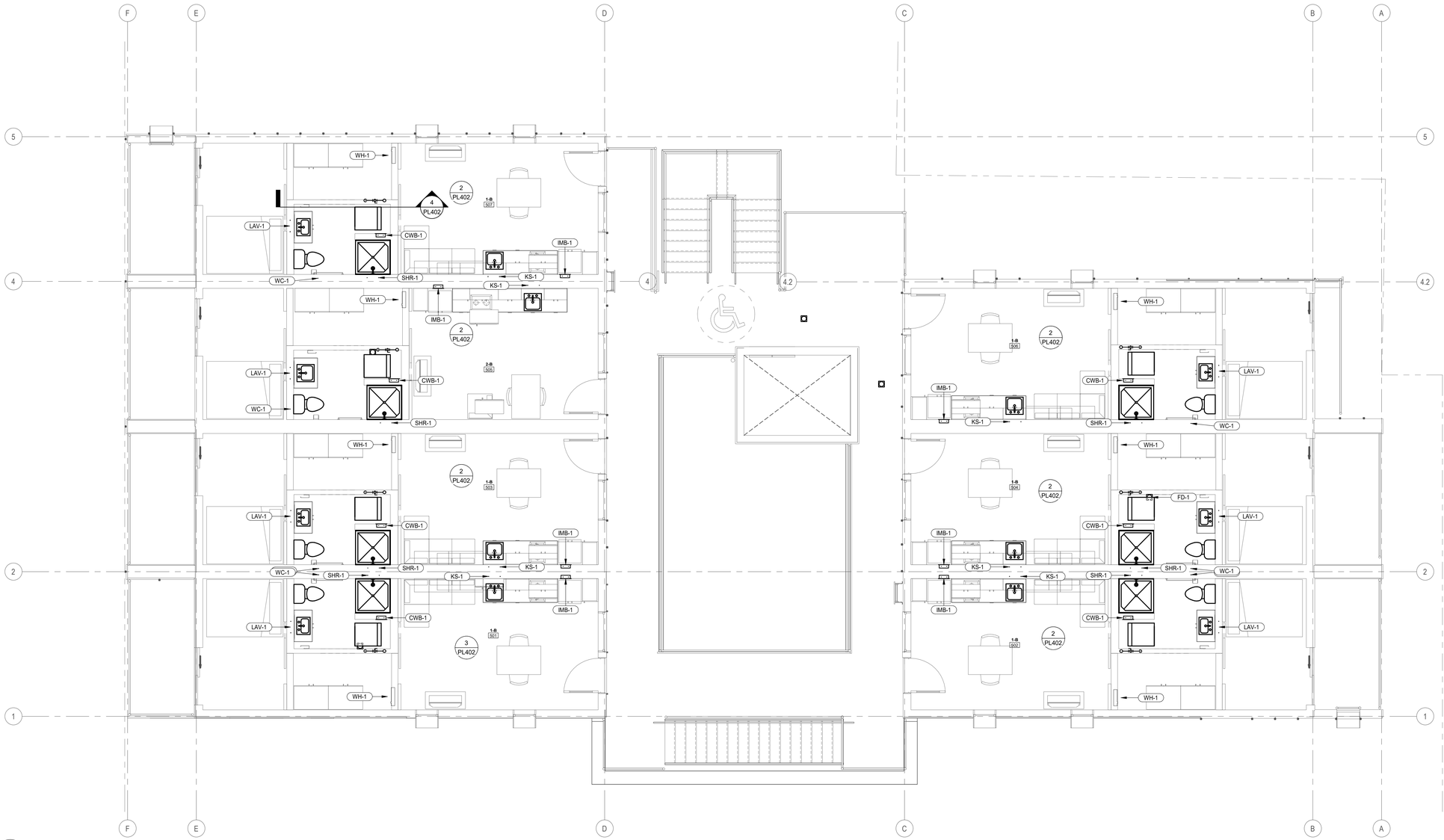

PLAN N

1 PL111 **LEVEL 05 PLUMBING PLAN - WATER**

1/4" = 1'-0"

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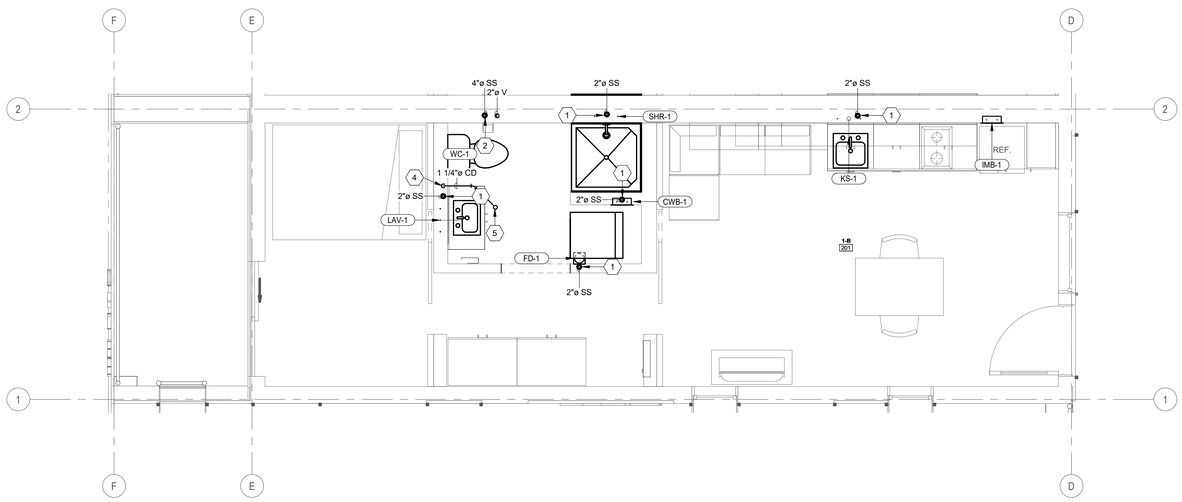
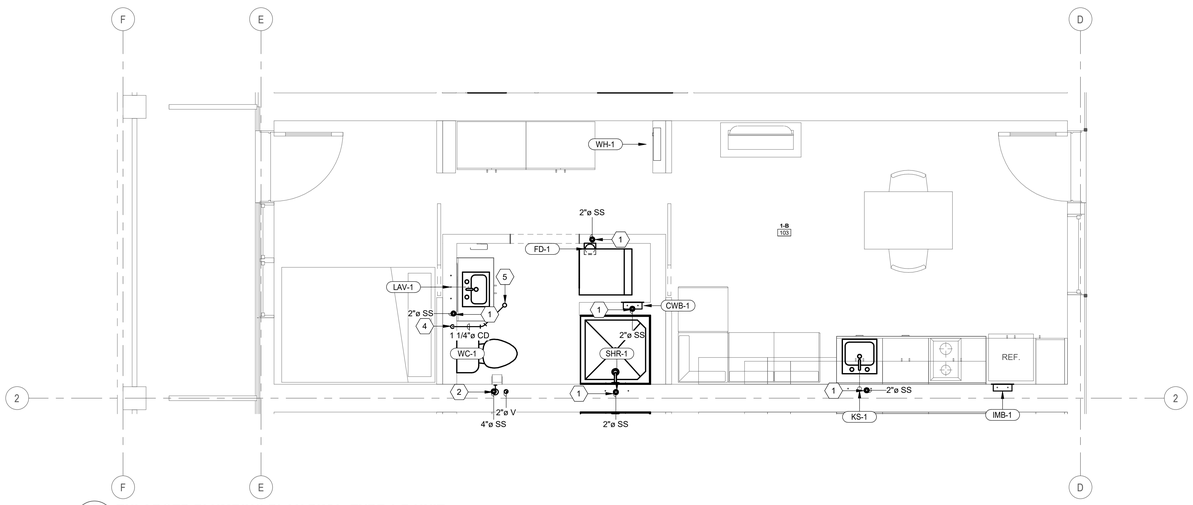
LEVEL 05 PLUMBING PLAN - WATER

PL111

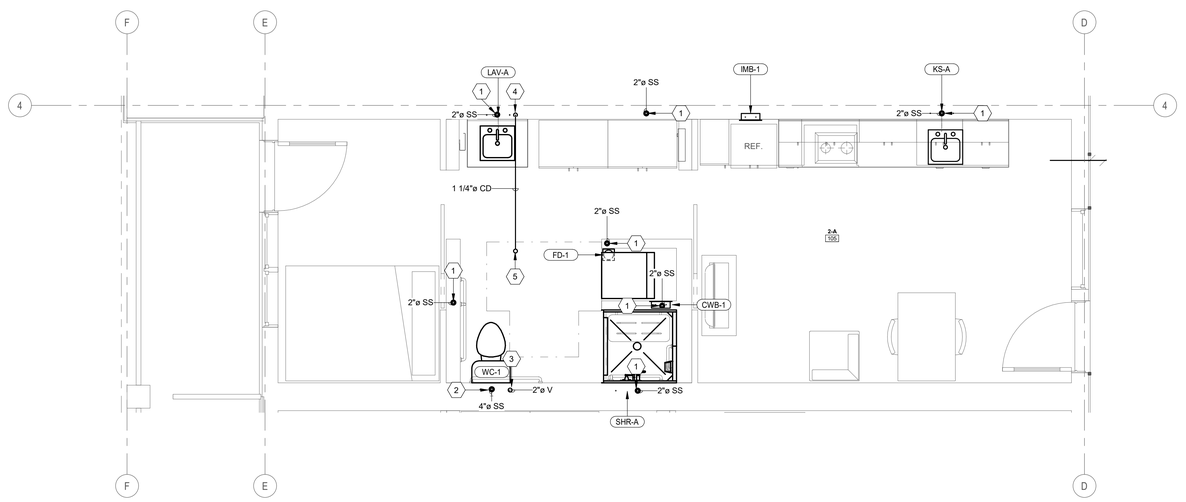
7/28/2021 9:30:31 AM



3 ENLARGED PLUMBING PLAN DWV - TYPE 2-B UNIT
PL401 3/8" = 1'-0"



2 ENLARGED PLUMBING PLAN DWV - TYPE 1-B UNIT
PL401 3/8" = 1'-0"



1 ENLARGED PLUMBING PLAN DWV - TYPE 2-A UNIT (ADA)
PL401 3/8" = 1'-0"

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    - D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT

SHEET KEYNOTES

1 2" SS PIPE RISE UP IN THIS APPROXIMATE LOCATION.

2 4" SS PIPE RISE UP IN THIS APPROXIMATE LOCATION.

3 2" V PIPE RISE UP TO LEVEL 5 IN THIS APPROXIMATE LOCATION.

4 PROVIDE FUNNEL DRAIN IN THIS APPROXIMATE LOCATION.

5 CONNECT THE MECHANICAL EQUIPMENT DRAIN LINE IN THIS APPROXIMATE LOCATION.

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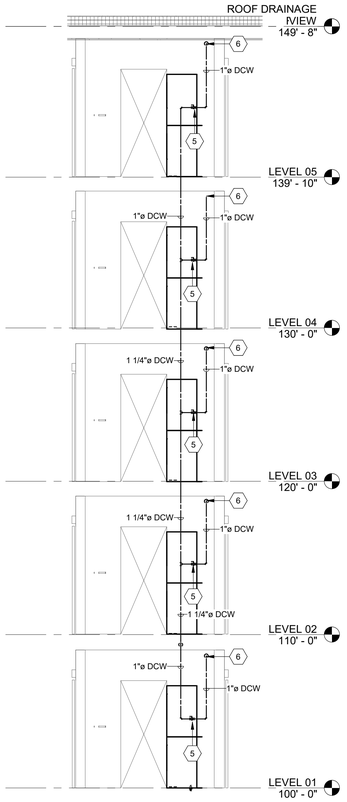
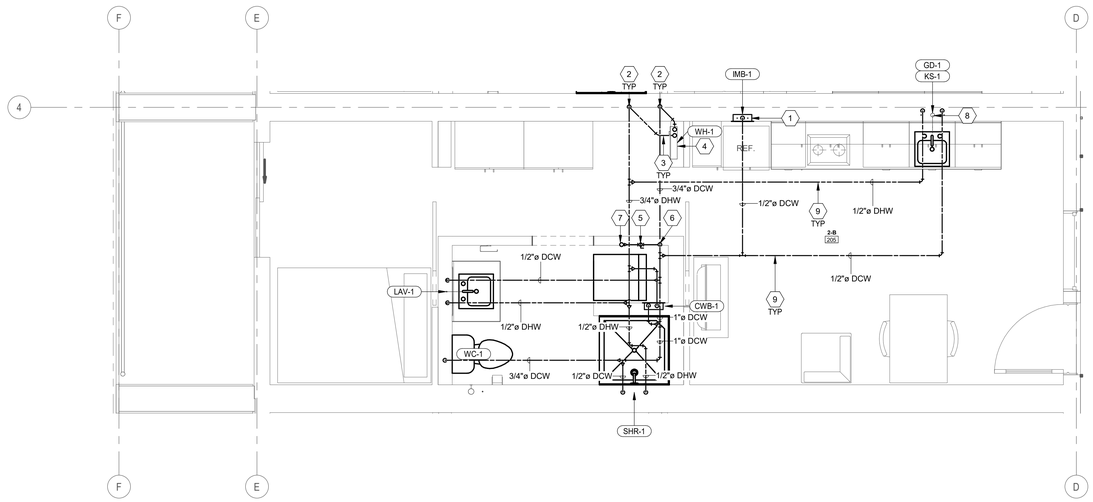
ENLARGED PLUMBING PLANS - DWV

PL401

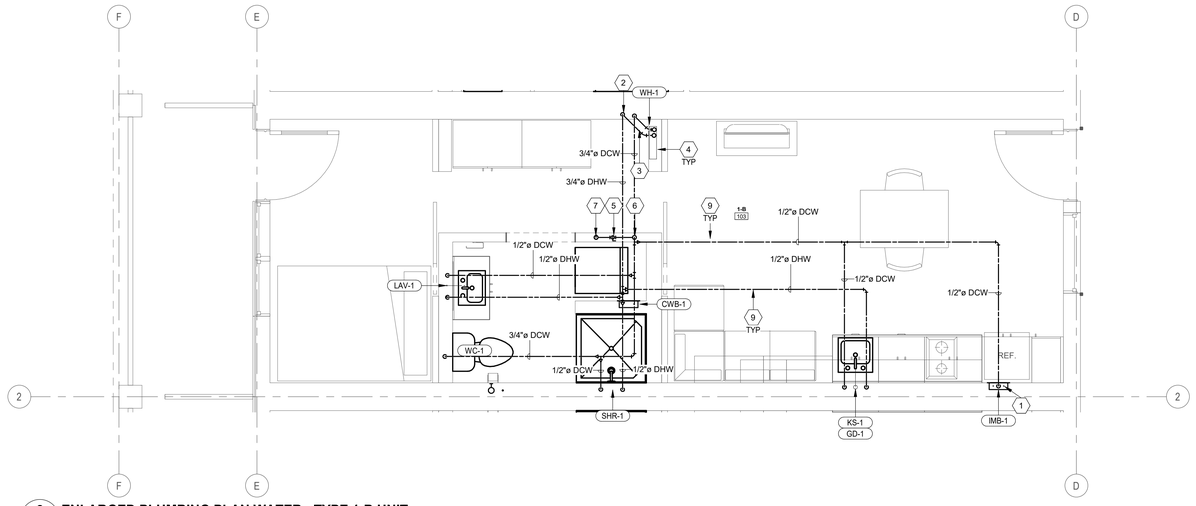
7/28/2021 9:30:32 AM



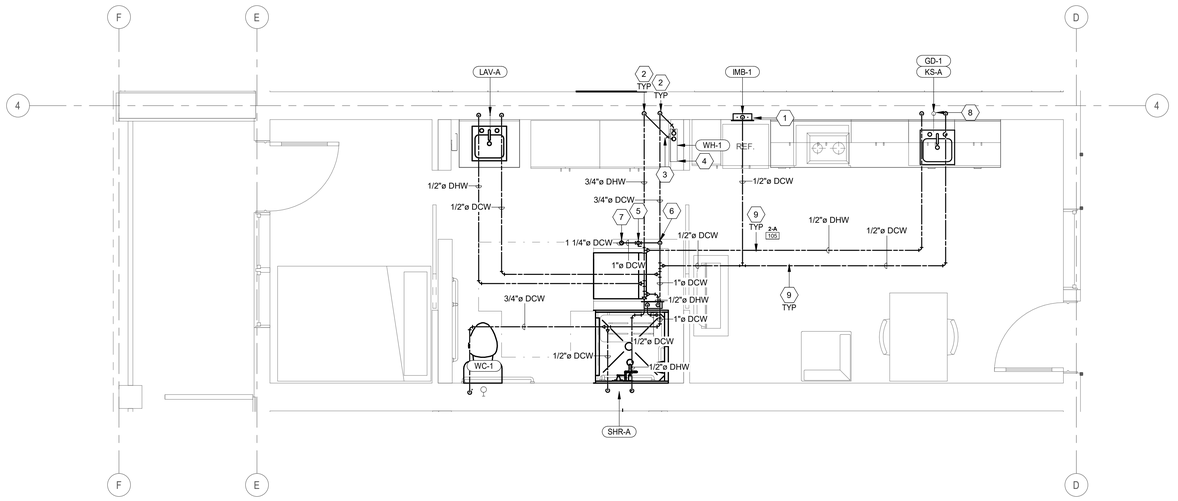
4 PL402 **DCW - APARTMENT'S RISER**
1/4" = 1'-0"



3 PL402 **ENLARGED PLUMBING PLAN WATER - TYPE 2-B UNIT**
3/8" = 1'-0"



2 PL402 **ENLARGED PLUMBING PLAN WATER - TYPE 1-B UNIT**
3/8" = 1'-0"



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11. WHERE JURISDICTION REQUIRES, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SEISMIC RESTRAINT. PROVIDE DESIGN DRAWINGS TO AUTHORITY HAVING JURISDICTION AND MECHANICAL ENGINEER FOR REVIEW.
12. PROVIDE PORTABLE PUMP (LITTLE GIANT UPSP-5 OR EQUAL) TO OWNER.
13. ALL PIPING THROUGH A FOUNDATION WALL OR UNDER A FOOTING TO BE PROVIDED WITH PIPE SLEEVE 2 PIPE SIZES LARGER THAN PIPE PASSING THROUGH WALL OR UNDER FOOTING. SEAL WITH CAULK OR FOAM. PIPE SLEEVE UNDER FOOTING TO BE A MINIMUM OF 2" BELOW FOOTING. PIPE TO BE IRON AND EXTEND BEYOND THE WIDTH OF THE FOOTING AT A 45 DEGREE ON BOTH SIDES OF FOOTING.
14. HEAT TRACE ALL PIPING EXTERIOR TO BUILDING ENVELOPE OR IN FREEZING CONDITIONS. HEAT TRACE SHALL BE SELF-REGULATING AND A MINIMUM OF 8W/FT. WRAP HEAT TRACE AROUND PIPING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. PROVIDE POWER CONNECTION TO ELECTRIC HEAT TRACE. CIRCUIT THROUGH THERMOSTAT CONTROL AND CONNECT TO GFCI CIRCUIT BREAKER IN PANELBOARD WITH 30 MILLI-AMP GFI TRIP. HEAT TRACE IS ASSUMED TO BE 120V 20AMPS, VERIFY VOLTAGE PRIOR TO INSTALLATION. IT IS ALSO ACCEPTABLE TO PROVIDE LONGER RUN LENGTHS OF HEAT TRACE BY USING 120V 30AMP CIRCUITS, 208V 20AMP CIRCUITS, OR 208V 30AMP TO HELP WITH EFFICIENCY. FOR PVC USE 4 W/FT (CHROMALOX SRL5-2 AT 208 V). FOR METAL PIPING USE 8 W/FT (CHROMALOX SLR10-2 AT 208V)
15. ALL DOMESTIC WASTE AND VENT PIPING TO BE CAST IRON OR PVC INSULATED TO MEET FLAME SPREAD AND SMOKE DEVELOPED INDEX. THERMAL AND SOUND INSULATION AND COVERING OVER PIPE OR TUBING WHICH ARE INSTALLED IN CONCEALED PLENUM SPACES SHALL BE TESTED IN ACCORDANCE WITH ASTM E84 AND HAVE A FLAME SPREAD OF 0-25 AND A SMOKE INDEX OF 0-50.
16. PLUMBING PIPING SCHEDULE:
    - A. DOMESTIC WATER ABOVE GRADE= TYPE L COPPER - SOLDERED
    - B. DOMESTIC WATER BELOW GRADE= TYPE K COPPER - SOLDERED
    - C. ROOF DRAIN, WASTE & VENT ABOVE GRADE = CAST IRON - HUBLESS COUPLINGS WITH HEAVY DUTY COUPLINGS
    - D. ROOF DRAIN, WASTE & VENT BELOW GRADE = DWV SOLID CORE PVC - SOLVENT CEMENT

SHEET KEYNOTES

1 PROVIDE WITH 3/8" FLEXIBLE WATER LINE AND NEEDLE VALVE TO FRIDGE.

2 3/4" DCW & DHW PIPE DROP DOWN FROM CEILING TO BELOW FLOOR IN THIS APPROXIMATE LOCATION.

3 3/4" DCW & DHW RUN BELOW FLOOR TO WATER HEATER.

4 WATER HEATER TO BE INSTALLED IN A RECESSED BOX IN THIS APPROXIMATE LOCATION. PROVIDE ACCESS DOOR BIG ENOUGH FOR THE WATER HEATER TO BE REPLACED IF IN A FUTURE IF IS NEED IT.

5 PROVIDE SHUT OFF VALVE IN THIS APPROXIMATE LOCATION. PROVIDE ACCESS DOOR IN THIS APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT.

6 1" DCW PIPE RUN ABOVE CEILING TO UNIT BATHROOM.

7 1 1/4" DCW PIPE RISE UP / DROP DOWN IN THIS APPROXIMATE LOCATION.

8 PROVIDE PIPE AND RUN WATER LINES FROM UNDER SINK TO DISHWASHER WITH SHUT-OFF VALVE.

9 COORDINATE THE TJI PENETRATIONS WITH LOCATIONS ALLOWABLE PER STRUCTURAL

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#	Date	Revision
2	08.03.21	City Comments #1

100% CD'S
BID/PERMIT SET

NEXUS PROJ. #: 21010
CHECKED BY: RHB
DRAWN BY: LGG
DATE: 5/21/2021

ENLARGED PLUMBING PLANS - WATER

PL402

7/28/2021 9:30:33 AM

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 / E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
A5 / E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
ROOM NAME 100	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
X-X XMDP	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XMDP" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
	BREAK, ROUND
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE
	PROPERTY LINE: DASHED, WIDE LINE.
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
X-X 1LA-3	EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "1LA-3" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
WIRING METHODS	
	WIRING.
A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
	FLEXIBLE WIRING.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
HC	ADA ACCESS PUSH PLATE
	JUNCTION BOX.
SC	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION CONNECTION.
SP	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION.
	EARTH GROUND (ONE-LINE DIAGRAM).
C	JUNCTION BOX, CEILING.
	LADDER RACK.
	MECHANICAL EQUIPMENT CONNECTION. REFER TO EQUIPMENT SCHEDULE FOR REQUIREMENTS.
ELECTRICAL POWER AND DISTRIBUTION	
	TRANSFER SWITCH (ONE-LINE DIAGRAM).
DMM	DIGITAL MULTIMETER (ONE-LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE-LINE DIAGRAM).
G	GENERATOR, POWER (ONE-LINE DIAGRAM).
M	METER.
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#	DISTRIBUTION PANEL OR SWITCHBOARD.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
75	TRANSFORMER: NUMBER INDICATES kVA.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
SITE ELECTRICAL AND COMMUNICATIONS UTILITIES	
—3ØUP—	ELECTRIC LINE: THIN LINE. 1Ø = SINGLE PHASE, 2Ø = 2-PHASE, 3Ø = 3-PHASE, O = OVERHEAD, U = UNDERGROUND, P = PRIMARY, S = SECONDARY
	LIGHTNING ARRESTOR.
	UTILITY POLE.
	UTILITY, DISTRIBUTION SWITCH OR SWITCHING STATION.
E	UTILITY, PRIMARY ELECTRICAL HAND HOLE.
M	UTILITY SERVICES, MANHOLE.
C	UTILITY, COMMUNICATIONS MANHOLE.
E	UTILITY, ELECTRICAL MANHOLE.
—3ØUP—	ELECTRIC LINE: THIN LINE. 1Ø = SINGLE PHASE, 2Ø = 2-PHASE, 3Ø = 3-PHASE, O = OVERHEAD, U = UNDERGROUND, P = PRIMARY, S = SECONDARY
T	UTILITY, TELEPHONE MANHOLE.
TM	PRECAST CONCRETE, MANHOLE, TRANSFORMER VAULT.
S	SUBSTATION.
T	TRANSFORMER.
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	OVERLOAD RELAY (ONE-LINE DIAGRAM).
	STARTER (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP (ONE-LINE DIAGRAM).
MCP	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTION (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
GFP	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE-LINE DIAGRAM).
	MOTOR.
L	COMBINATION RESIDENTIAL EXHAUST FAN/LIGHT.
	TRANSFORMER (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H" 60/3	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).
225/3 "1H" 25/3	PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
W	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
	RECEPTACLE, DUPLEX ON EMERGENCY POWER: NEMA 5-20R.
	RECEPTACLE, DUPLEX, CONNECTED TO UPS: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
D	RECEPTACLE, DRYER: NEMA 14-30R.
R	RECEPTACLE, RANGE: NEMA 14-50R.
	MULTI-OUTLET ASSEMBLY: NEMA 5-20R.
D	DROP CORD. SEE DETAIL.
FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PT#	FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $2	SWITCH, DOUBLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $2	SWITCH, DOUBLE POLE ("x" INDICATES FIXTURES CONTROLLED).
$DS	SWITCH, DOOR.
$K	SWITCH, KEY OPERATED.
$WP	SWITCH, WEATHERPROOF.
T	RECEPTACLE, DUPLEX, TAMPER RESISTANT: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, CONNECTED TO UPS: NEMA 5-20R.
	RECEPTACLE, SINGLE PLEX, WITH USB OUTLET
STRUCTURED CABLING	
	DATA CONNECTION: WIRELESS ACCESS POINT (WAP). REQUIRES (2) DATA DROPS PER DEVICE
X	OUTLET, DATA COMMUNICATION ("X" INDICATES QUANTITY OF CABLES).
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.
D	DATA CABLE, CATEGORY 6A (ONE-LINE DIAGRAM).
LIGHTING	
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
	EGRESS DIRECTION ARROW (EXIT SIGNS).
	EXIT SIGN: SINGLE FACE; CEILING MOUNTED
	EXIT SIGN: DOUBLE FACE; CEILING MOUNTED
	EXIT SIGN: DOUBLE FACE; WALL MOUNTED
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
R	OCCUPANCY SENSOR CONTROL RELAY.
	VACANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
P	PHOTOCELL.
TC	TIME CLOCK.
SP	OCCUPANCY SENSOR, SWITCH PACK.
	SWITCH/OCCUPANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	SWITCH/VACANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	DIMMER SWITCH/OCCUPANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	DIMMER SWITCH/VACANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
a,b	LOW VOLTAGE DIGITAL LIGHTING CONTROL SWITCH: LETTER "a,b" INDICATES ZONING WHERE SHOWN (REFER TO PLANS, SCHEDULES, AND DETAILS FOR EXACT BUTTON CONFIGURATION AND PROGRAMMING REQUIREMENTS)
DC	DIGITAL LIGHTING DIMMING CONTROLLER
LC	DIGITAL PLUG LOAD CONTROLLER
RC	DIGITAL LIGHTING ROOM CONTROLLER
SM	LIGHTING NETWORK SEGMENT MANAGER
L X	LIGHTING SPACE CONTROL TYPE. X INDICATES TYPE. SEE SCHEDULE / DIAGRAM.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE
1PH	SINGLE-PHASE
1WAY	ONE-WAY
2/C	TWO-CONDUCTOR
2WAY	TWO-WAY
3/C	THREE-CONDUCTOR
3WAY	THREE-WAY
4OUT	QUADRUPLE RECEPTACLE OUTLET
4PDT	FOUR-POLE DOUBLE THROW
4PST	FOUR-POLE SINGLE THROW
4W	FOUR-WIRE
4WAY	FOUR-WAY
A	ABOVE COUNTER
AC	ARMORED CABLE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AMP	AMPERE
ANN	ANNUNCIATOR
AP	ACCESS POINT (WIRELESS DATA)
AR	AS REQUIRED
ASC	AMPS SHORT CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAGE
BB	BUCK-BOOST TRANSFORMER
XFMR	
C	CEILING MOUNTED
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT
CCTV	CLOSED CIRCUIT TELEVISION
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT
CKT	CIRCUIT
CM	CONSTRUCTION MANAGER
CND	CONDUIT
CO	CONVENIENCE OUTLET
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
dBA	UNIT OF SOUND LEVEL
DPDT	DOUBLE POLE, DOUBLE THROW
DS	DISCONNECT SWITCH
EA	EACH
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRIC NONMETALLIC TUBING
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EX	EXISTING
F	FURNITURE MOUNTED
FA	FIRE ALARM
FCP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METAL CONDUIT
FOB	FREIGHT ON BOARD
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GEN	GENERATOR
GFCI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
HD	HEAVY DUTY
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
I/O	INPUT/ OUTPUT
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN/IS	INSULATED/ ISOLATED
IR	INFRARED
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MDP	MAIN DISTRIBUTION PANEL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTS	MANUAL TRANSFER SWITCH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFC	NATIONAL FIRE CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVER CURRENT PROTECTION
OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/ OWNER INSTALLED
OFP	OBTAIN FROM PLANS
OH DR	OVERHEAD (COILING) DOOR
OL	OVERLOAD
PB	PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PTZ	PAN/TILT/ZOOM
QTY	QUANTITY
R	REMOVE
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETAL CONDUIT
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
S/S	START/STOP
SCA	SHORT CIRCUIT AMPS
SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
SF	SQUARE FOOT (FEET)
SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
ST	SINGLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TL	TWIST LOCK
TP	TELEPHONE POLE
TP	TWISTED PAIR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UF	UNDERFLOOR
UGND	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VFC/VF D	VARIABLE FREQUENCY MOTOR CONTROLLER
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
4. SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
6. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

SITE COORDINATION

THE LOCATION, CAPACITY, AND VOLTAGE OF THE LINES ARE ALL IN ACCORDANCE WITH DATA GIVEN THIS OFFICE BY THE UTILITY COMPANY. COORDINATE WITH THE LOCAL UTILITY COMPANY FOR THE INSTALLATION OF THE ELECTRICAL SERVICE. COMPLY WITH UTILITY REGULATIONS. REPORT DISCREPANCIES TO THE ENGINEER.

ELECTRIC UTILITY	
ROCKY MOUNTAIN POWER	PERSON CONTACTED: SHELDON STONE DATE: 04-14-2021 PHONE NUMBER: RMP: 801-220-7242, WORK CELL: 385-232-0833 EMAIL: SHELDON.STONE@ROCKYMOUNTAINPOWER.NET
ADDRESS	
FIBER UTILITY	
GOOGLE FIBER	PERSON CONTACTED: ALAN
ADDRESS	DATE: 02-26-2021
CITY, STATE, ZIP	PHONE NUMBER: 801-678-8679 EMAIL: -

ELECTRICAL SHEET INDEX

EE001	SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES
EE401	TYPICAL UNIT PLAN - 2A
EE402	TYPICAL UNIT PLAN - 1B
EE403	TYPICAL UNIT PLAN - 2B
EE501	ELECTRICAL DETAILS
EE701	TYPICAL MOUNTING HEIGHT DETAILS
EE702	TYPICAL LABELING DETAILS
ES101	ELECTRICAL SITE PLAN
ES501	SITE ELECTRICAL DETAILS
EP101	LEVEL 1 POWER PLAN
EP102	LEVEL 2 POWER PLAN
EP103	LEVEL 3 POWER PLAN
EP104	LEVEL 4 POWER PLAN
EP105	LEVEL 5 POWER PLAN
EP106	ROOFTOP POWER PLAN
EP601	ONE-LINE DIAGRAM - NORMAL
EP602	ELECTRICAL SCHEDULES
EL101	LEVEL 1 LIGHTING/FIRE ALARM PLAN
EL102	LEVEL 2 LIGHTING/FIRE ALARM PLAN
EL103	LEVEL 3 LIGHTING/FIRE ALARM PLAN
EL104	LEVEL 4 LIGHTING/FIRE ALARM PLAN
EL105	LEVEL 5 LIGHTING/FIRE ALARM PLAN
EL601	LIGHTING FIXTURE SCHEDULES
EL602	EXTERIOR LIGHTING FIXTURES
EL603	EXTERIOR LIGHTING FIXTURES
FA601	FIRE ALARM RISER

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No. 8182456
TYLER S. SQUIRE
STATE OF UTAH

05/21/2021

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#	Date	Revision

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #:	21010
CHECKED BY:	TDS
DRAWN BY:	JCJ
DATE:	05/21/2021

SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES

EE001

5/21/2021 9:25:45 PM

PANEL: "2A"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 1Ø, 3 WIRE	22" W x 6" D, BOLT-ON	200 AMPERE MAIN LUGS	2-A 105	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, PROVIDE FACTORY WHITE PANEL COVER — **AIC RATING:** 10,000

CKT	OCP		LOAD (kVA)				PHASE LOAD					LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.8	0.0	PWR: DISPOSAL	0.8	2.0			PWR: DRYER	0.0	4.0	0.0	2	30	2
3	20	1	0.0	1.5	0.0	PWR: WASHING MACHINE			1.5	2.0	--	--	--	--	--	--	4
5	20	1	0.0	0.0	0.5	CO: KITCHEN	0.5	2.5			PWR: RANGE	0.0	5.0	0.0	2	50	6
7	20	1	0.0	0.8	0.0	PWR: REFRIGERATOR			0.8	2.5	--	--	--	--	--	--	8
9	20	1	0.0	0.0	0.4	CO: LIVING SPACE	0.4	0.6			CO: TELEVISION	0.6	0.0	0.0	1	20	10
11	40	2	0.0	6.0	0.0	PWR: WATER HEATER (WH-1)			3.0	2.1	PWR: FAN COIL UNIT (FCU-1.5)	0.0	4.2	0.0	2	40	12
13	--	--	--	--	--	--	3.0	2.1			--	--	--	--	--	--	14
15	20	1	0.2	0.1	0.0	LTG: LIGHTS AND EXHAUST FANS			0.2	0.2	CO: MEDIA	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.5	CO: BEDROOM	0.5	0.0			SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	30

TOTALS: CONNECTED kVA PER PHASE — A: 12, B: 12 — CONNECTED TOTAL kVA = 25

CONNECTED AMPS PER PHASE — A: 119, B: 118 — AVERAGE CONNECTED AMPS PER PHASE = 119

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.2 kVA @ 125% = 0.2 kVA** - 100% CONNECTED LOAD PLUS 25%

RECEPTACLES: **2.2 kVA @ 100% = 2.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50%

ALL OTHER LOADS @ 100% : **23.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **26**

AVERAGE AMPS PER PHASE = **126**

Notes:

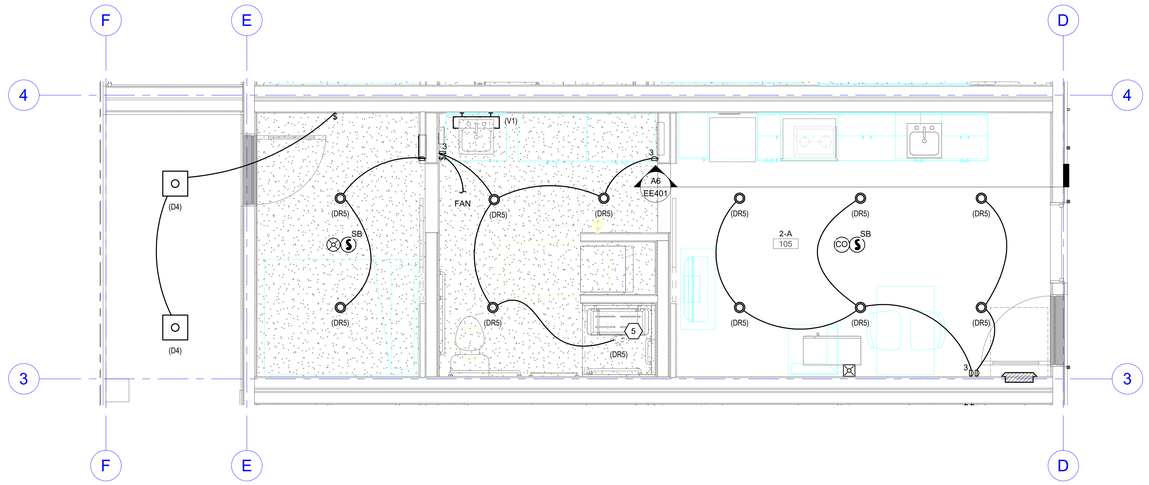
EQUIPMENT SCHEDULE - UNIT 2A

MARK	ITEM DESCRIPTION	LOAD DATA HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	OC PROTECTION DEVICE	DISCONNECT DEVICE	NOTES
EF-1	EXHAUST FAN	1/8	57	-	0.5	120	1	60	2 #12, 12 GR 0.75" CND	15/1 CB	TOGGLE SWITCH	
FCU-1.5	FAN COIL UNIT	-	-	-	20	208	1	60	2 #10, #10 GR 0.75" CND	30/2 CB	30A/2P NF	
WH-1	WATER HEATER	-	6.0	-	28.8	208	1	60	2 #8, #10 GR 1" CND	40/1 CB	60A/3P	

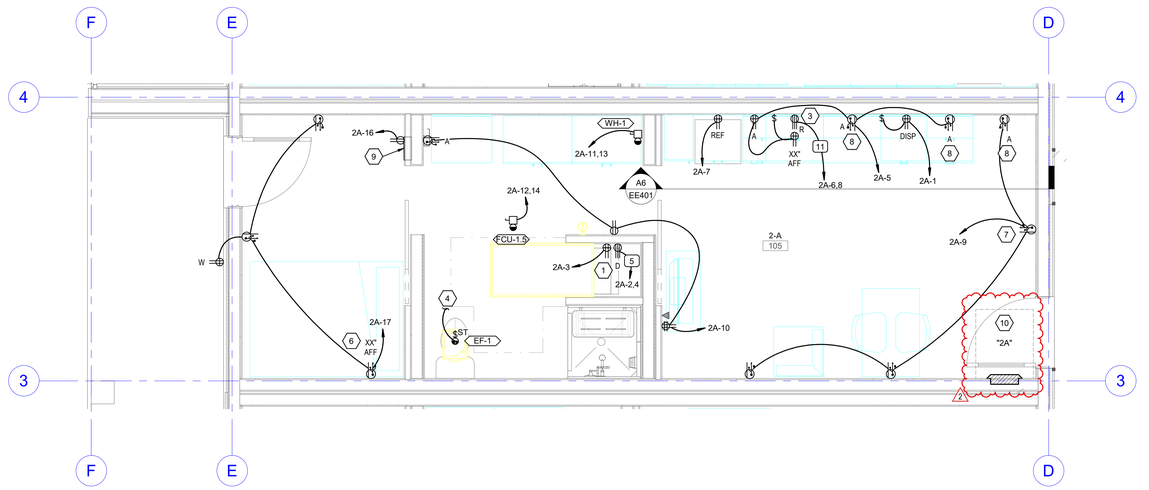
LIGHTING FIXTURE SCHEDULE - UNIT 2A

ID	IMAGE	DESCRIPTION	VOLTAGE	WATTS	FIXTURE LUMENS	TAKEOFF QUANTITY	MANUFACTURER (CATALOG SERIES) BASIS OF DESIGN
(DR5)		5" SURFACE DOWNLIGHT, ROUND, JBOX MOUNTED. WET LOCATION LISTED FOR INSTALLATION ABOVE A SHOWER.	120	10	500	34	LITON (LCMPD)
(V1)		BATH VANITY; LENGTH TO BE THE SAME LENGTH AS VANITY	120	30	2000	1	EVERGREEN LIGHTING (VAN-SECP-20W-9-WF-25*-DIM)

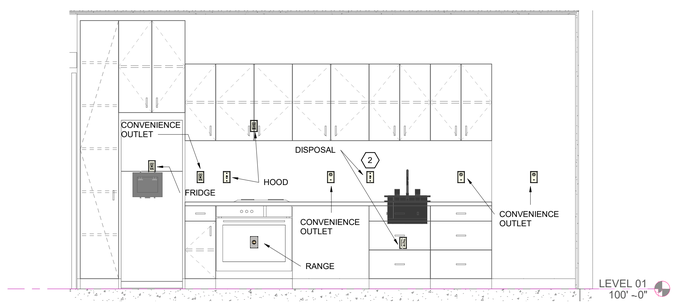
PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.



B4 TYPICAL LIGHTING/FIRE ALARM PLAN - UNIT 2A
SCALE: 3/8" = 1'-0"



A4 TYPICAL POWER PLAN - UNIT 2A
SCALE: 3/8" = 1'-0"



A6 TYPICAL KITCHEN VIEW - UNIT 2A
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

1. ALL UNITS OUTLETS SHALL BE TAMPER RESISTANT AS STATED IN NEC 406.12.
2. PROVIDE ONE SMOKE/CARBON MONOXIDE DETECTOR IN EACH UNIT HALLWAY.
4. COORDINATE LIGHT FIXTURE ROUGH-IN REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION.
5. PROVIDE POWER OUTLET FOR EACH KITCHEN APPLIANCE. COORDINATE EXACT LOCATIONS WITH ELEVATIONS, MILLWORK, ARCHITECT, AND OWNER.
6. ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.
7. OPENINGS THROUGH FIRE WALLS OR FLOORS IN WHICH CONDUIT PASSES SHALL BE SEALED BY FIRE STOP FITTINGS. FIRE STOP FITTINGS SHALL HAVE AN HOURLY FIRE-RATING EQUAL TO OR HIGHER THAN THE FIRE RATING OF THE WALL OR FLOOR THROUGH WHICH THE CONDUIT PASSES.
8. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ADDITIONAL DEVICES NOT SHOWN TO COMPLY WITH NEC 210.52 DUE TO FIELD CHANGES.
9. PROVIDE LISTED PUTTY PADS ON ALL BACK BOXES FOR POWER, COMMUNICATIONS, AND CABLE SERVICE OUTLETS FOR EACH SHARED WALL BETWEEN UNITS. COMPLY WITH IBC 714.3.2 AND MAINTAIN SPACING IN UNITS AS REQUIRED BY NEC 210.52.
10. PROVIDE ARC-FAULT CIRCUIT INTERRUPT CIRCUIT BREAKERS FOR ALL CIRCUITS SERVING SPACES STATED IN NEC 210.12.
12. PROVIDE ELECTRICAL CONNECTION TO ALL MECHANICAL EQUIPMENT. COORDINATE WITH NAME PLATE RATING OF EQUIPMENT AND PROVIDE APPROPRIATE CIRCUIT AMPACITY AND OVER CURRENT PROTECTION DEVICE. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.
13. ALL 120V, SINGLE PHASE, 15AMP AND 20AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN FAMILY ROOMS, DINNING ROOMS, LIVING ROOMS, PARLORS, BEDROOMS, OR OTHER SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ACR-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. COMPLY WITH NEC ARTICLE 210.12.
14. PROVIDE LOW FREQUENCY SOUNDERS IN EACH AREA INTENDED FOR SLEEPING AND IN AREAS THAT MIGHT REASONABLY BE USED FOR SLEEPING. FOR EXAMPLE EACH BEDROOM OF AN APARTMENT AND ALSO THE LIVING ROOM AREA OF AN APARTMENT AS IT MIGHT HAVE SLEEPING OCCUPANTS. LOW FREQUENCY SOUNDERS SHALL COMPLY WITH SOUND LEVEL TEST OF 75DBA MINIMUM AT THE PILLOW HEIGHT. THE SOUNDER LEVEL MUST ALSO BE 15DB ABOVE THE AVERAGE AMBIENT SOUND.
15. ENSURE THAT THE REQUIRED DEDICATED ELECTRICAL SPACE IS PROVIDED ABOVE THE ELECTRICAL PANELBOARDS PER NEC ARTICLE 110.26(E)(1).

SHEET KEYNOTES

1. PROVIDE DRYER OUTLET NEMA 14-30R. COORDINATE EXACT PLUG INFORMATION WITH ACTUAL DRYER TO BE PROVIDED.
2. OUTLETS AND SWITCHES ARE TO BE MOUNTED 46" MAX TO TOP OF FACEPLATE. COORDINATE EXACT LOCATION, MOUNTING HEIGHT, AND MOUNTING DETAILS FOR ALL ELECTRICAL DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN.
3. PROVIDE RANGE OUTLET NEMA 14-50R. COORDINATE EXACT PLUG CONFIGURATION WITH ACTUAL RANGE TO BE PROVIDED.
4. POWER TO LIGHTS IN THIS ROOM.
5. LIGHTING FIXTURE MOUNTED IN WET LOCATION. FIXTURE IS TO BE MOUNTED IN THE CENTER OF THE SHOWER SPACE.
6. COORDINATE MOUNTING DETAILS WITH ARCHITECT..
7. RECEPTACLE MOUNTED BELOW WINDOW.
8. PROVIDE GFCI RECEPTACLE WITH USB PORT.
9. PROVIDE RECESSED MEDIA ENCLOSURE TYPE LEVITON 47605-14X14 OR APPROVED EQUAL. PROVIDE DEDICATED OUTLET INSIDE THE MEDIA PANEL. PROVIDE WITH TELECOMMUNICATION PUNCH DOWN BLOCK AND TV SPLITTER. SEE RISER DIAGRAM. PROVIDE 1" CND FROM MEDIA ENCLOSURE TO CEILING SPACE.
10. PANEL IS TO BE MOUNTED BEHIND ENTRYWAY DOOR FOR UNIT TYPE "A" ONLY. CONFIRM WITH ARCHITECT BEFORE ROUGH-IN.

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05/21/2021

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#	Date	Revision
2	08.03.21	CITY COMMENTS #1

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
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DRAWN BY: JCJ
DATE: 05/21/2021

TYPICAL UNIT PLAN - 2A

EE401

8/3/2021 3:41:14 PM

PANEL: "1B"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 1Ø, 3 WIRE	22" W x 6" D, BOLT-ON	200 AMPERE MAIN LUGS	1-B 103	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, PROVIDE FACTORY WHITE PANEL COVER **AIC RATING:** 10,000

CKT	OCP		LOAD (kVA)				PHASE LOAD					LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.8	0.0	PWR: DISPOSAL	0.8	2.0			PWR: DRYER	0.0	4.0	0.0	2	30	2
3	20	1	0.0	1.5	0.0	PWR: WASHING MACHINE			1.5	2.0	--	--	--	--	--	--	4
5	20	1	0.0	0.0	1.1	PWR: MICROWAVE	0.0	2.5			PWR: RANGE	0.0	5.0	0.0	2	50	6
7	20	1	0.0	0.0	0.4	CO: 1-B 103			0.4	0.0	--	--	--	--	--	--	8
9	20	1	0.0	0.0	0.4	CO: LIVING SPACE	0.0	0.0			PWR: REFRIGERATOR	0.0	0.8	0.0	1	20	10
11	20	1	0.0	0.0	0.1	CO: BATHROOM			0.0	0.0	PWR: FAN COIL UNIT (FCU-1.5)	0.0	4.2	0.0	2	40	12
13	20	1	0.0	0.0	0.6	CO: BEDROOM	0.6	2.1			--	--	--	--	--	--	14
15	20	1	0.0	0.0	0.2	CO: MEDIA			0.2	3.0	PWR: WATER HEATER (WH-1)	0.0	6.0	0.0	2	40	16
17	20	1	0.0	0.0	0.5	CO: TELEVISION	0.5	0.0			--	--	--	--	--	--	18
19	20	1	0.2	0.1	0.0	LTG: LIGHTS AND EXHAUST FANS			0.0	0.0	SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	30

TOTALS: CONNECTED kVA PER PHASE **9** **8** CONNECTED TOTAL kVA = **26**

CONNECTED AMPS PER PHASE **84** **84** AVERAGE CONNECTED AMPS PER PHASE = **123**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.2 kVA @ 125% = 0.2 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **27**

RECEPTACLES: **3.2 kVA @ 100% = 3.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **131**

ALL OTHER LOADS @ 100% : **23.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

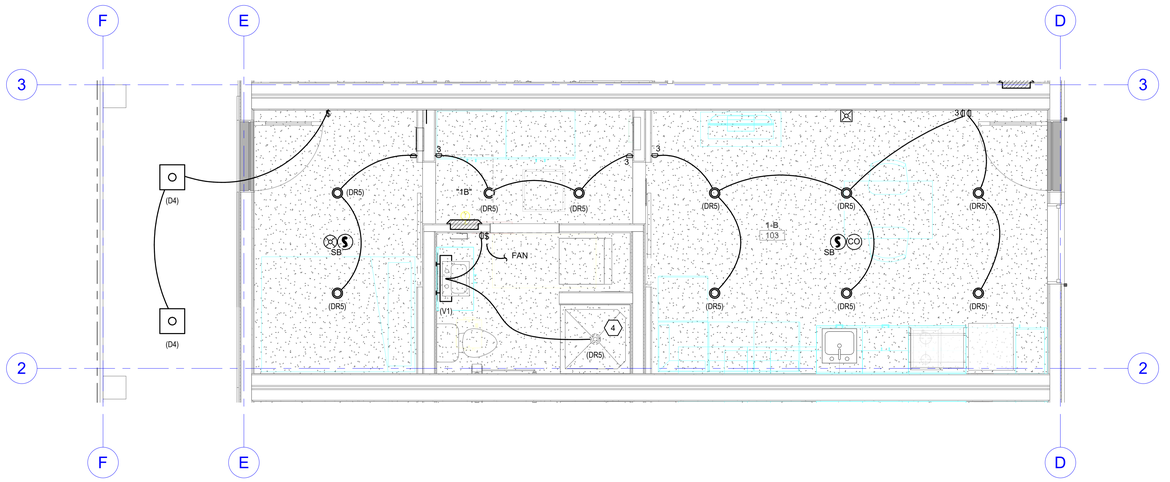
EQUIPMENT SCHEDULE - UNIT 1B

MARK	ITEM DESCRIPTION	LOAD DATA HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	OC PROTECTION DEVICE	DISCONNECT DEVICE	NOTES
EF-1	EXHAUST FAN	1/8	57	-	0.5	120	1	60	2 #12, 12 GR 0.75" CND	15/1 CB	TOGGLE SWITCH	
FCU-1.5	FAN COIL UNIT	-	-	-	20	208	1	60	2 #10, #10 GR 0.75" CND	30/2 CB	30A/2P NF	
WH-1	WATER HEATER	-	6.0	-	28.8	208	1	60	2 #8, #10 GR 1" CND	40/1 CB	60A/3P	

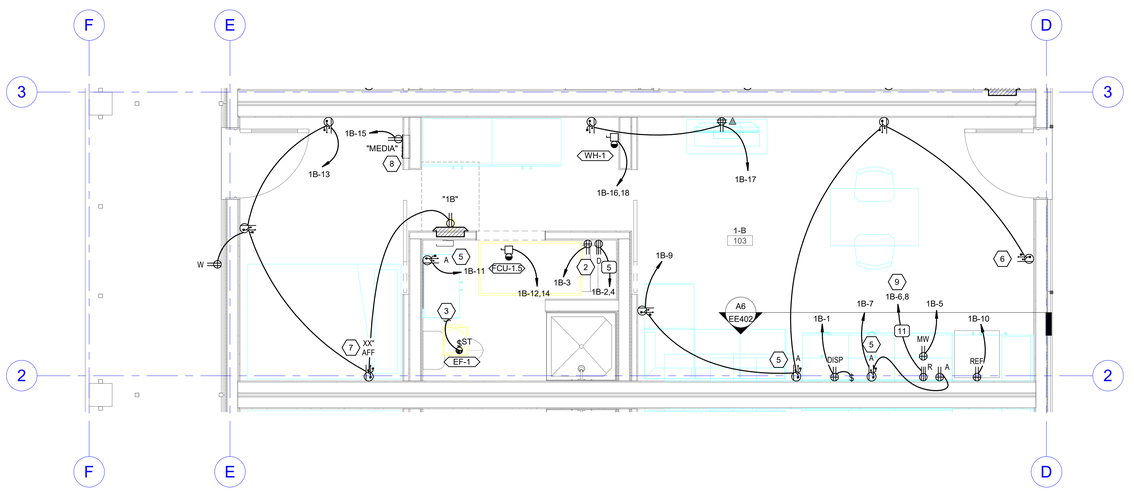
LIGHTING FIXTURE SCHEDULE - UNIT 1B

ID	IMAGE	DESCRIPTION	VOLTAGE	WATTS	FIXTURE LUMENS	TAKEOFF QUANTITY	MANUFACTURER (CATALOG SERIES) BASIS OF DESIGN
(DR5)		5" SURFACE DOWNLIGHT, ROUND, JBOX MOUNTED. WET LOCATION LISTED FOR INSTALLATION ABOVE A SHOWER.	120	10	500	34	LITON (LCMPD)
(V1)		BATH VANITY; LENGTH TO BE THE SAME LENGTH AS VANITY	120	30	2000	1	EVERGREEN LIGHTING (VAN-SECP-20W-9-WF-25*-DIM)

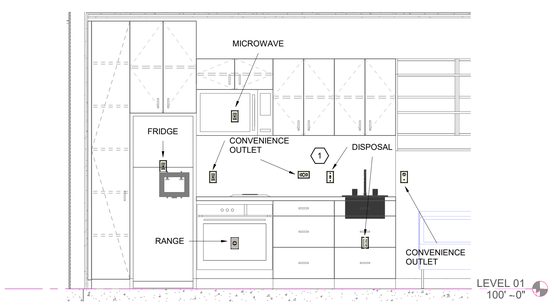
PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.



B4 TYPICAL LIGHTING/FIRE ALARM PLAN - UNIT 1B
SCALE: 3/8" = 1'-0"



A4 TYPICAL POWER PLAN - UNIT 1B
SCALE: 3/8" = 1'-0"



A6 TYPICAL KITCHEN VIEW - UNIT 1B
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

1. ALL UNITS OUTLETS SHALL BE TAMPER RESISTANT AS STATED IN NEC 406.12.
2. PROVIDE ONE SMOKE/CARBON MONOXIDE DETECTOR IN EACH UNIT HALLWAY.
4. COORDINATE LIGHT FIXTURE ROUGH-IN REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION.
5. PROVIDE POWER OUTLET FOR EACH KITCHEN APPLIANCE. COORDINATE EXACT LOCATIONS WITH ELEVATIONS, MILLWORK, ARCHITECT, AND OWNER.
6. ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.
7. OPENINGS THROUGH FIRE WALLS OR FLOORS IN WHICH CONDUIT PASSES SHALL BE SEALED BY FIRE STOP FITTINGS. FIRE STOP FITTINGS SHALL HAVE AN HOURLY FIRE-RATING EQUAL TO OR HIGHER THAN THE FIRE RATING OF THE WALL OR FLOOR THROUGH WHICH THE CONDUIT PASSES.
8. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ADDITIONAL DEVICES NOT SHOWN TO COMPLY WITH NEC 210.52 DUE TO FIELD CHANGES.
9. PROVIDE LISTED PUTTY PADS ON ALL BACK BOXES FOR POWER, COMMUNICATIONS, AND CABLE SERVICE OUTLETS FOR EACH SHARED WALL BETWEEN UNITS. COMPLY WITH IBC 714.3.2 AND MAINTAIN SPACING IN UNITS AS REQUIRED BY NEC 210.52.
10. PROVIDE ARC-FAULT CIRCUIT INTERRUPT CIRCUIT BREAKERS FOR ALL CIRCUITS SERVING SPACES STATED IN NEC 210.12.
12. PROVIDE ELECTRICAL CONNECTION TO ALL MECHANICAL EQUIPMENT. COORDINATE WITH NAME PLATE RATING OF EQUIPMENT AND PROVIDE APPROPRIATE CIRCUIT AMPACITY AND OVER CURRENT PROTECTION DEVICE. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.
13. ALL 120V, SINGLE PHASE, 15AMP AND 20AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN FAMILY ROOMS, DINNING ROOMS, LIVING ROOMS, PARLORS, BEDROOMS, OR OTHER SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ACR-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. COMPLY WITH NEC ARTICLE 210.12.
14. PROVIDE LOW FREQUENCY SOUNDERS IN EACH AREA INTENDED FOR SLEEPING AND IN AREAS THAT MIGHT REASONABLY BE USED FOR SLEEPING. FOR EXAMPLE EACH BEDROOM OF AN APARTMENT AND ALSO THE LIVING ROOM AREA OF AN APARTMENT AS IT MIGHT HAVE SLEEPING OCCUPANTS. LOW FREQUENCY SOUNDERS SHALL COMPLY WITH SOUND LEVEL TEST OF 75DBA MINIMUM AT THE PILLOW HEIGHT. THE SOUNDER LEVEL MUST ALSO BE 15DB ABOVE THE AVERAGE AMBIENT SOUND.
15. ENSURE THAT THE REQUIRED DEDICATED ELECTRICAL SPACE IS PROVIDED ABOVE THE ELECTRICAL PANELBOARDS PER NEC ARTICLE 110.26(E)(1).

SHEET KEYNOTES

1. OUTLETS AND SWITCHES ARE TO BE MOUNTED 46" MAX TO TOP OF FACEPLATE. COORDINATE EXACT LOCATION, MOUNTING HEIGHT, AND MOUNTING DETAILS FOR ALL ELECTRICAL DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN.
2. PROVIDE DRYER OUTLET NEMA 14-30R. COORDINATE EXACT PLUG INFORMATION WITH ACTUAL DRYER TO BE PROVIDED.
3. POWER TO LIGHTS IN THIS ROOM.
4. LIGHTING FIXTURE MOUNTED IN WET LOCATION. FIXTURE IS TO BE MOUNTED IN THE CENTER OF THE SHOWER SPACE.
5. PROVIDE GFCI RECEPTACLE WITH USB PORT.
6. RECEPTACLE MOUNTED BELOW WINDOW.
7. COORDINATE MOUNTING DETAILS WITH ARCHITECT.
8. PROVIDE RECESSED MEDIA ENCLOSURE TYPE LEVITON 47605-14X14 OR APPROVED EQUAL PROVIDE DEDICATED OUTLET INSIDE THE MEDIA PANEL. PROVIDE WITH TELECOMMUNICATION PUNCH DOWN BLOCK AND TV SPLITTER. SEE RISER DIAGRAM. PROVIDE 1" CND FROM MEDIA ENCLOSURE TO CEILING SPACE.
9. PROVIDE RANGE OUTLET NEMA 14-50R. COORDINATE EXACT PLUG CONFIGURATION WITH ACTUAL RANGE TO BE PROVIDED.

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#	Date	Revision
2	08.03.21	CITY COMMENTS #1

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
CHECKED BY: TDS
DRAWN BY: JCJ
DATE: 05/21/2021

TYPICAL UNIT PLAN - 1B

EE402

8/3/2021 3:41:22 PM

PANEL: "2B"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 1Ø, 3 WIRE	22" W x 6" D, BOLT-ON	200 AMPERE MAIN LUGS	2-B 205	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR, PROVIDE FACTORY WHITE PANEL COVER **AIC RATING:** 0

CKT	OCP		LOAD (kVA)				PHASE LOAD					LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.8	0.0	PWR: DISPOSAL	0.8	2.0			PWR: DRYER	0.0	4.0	0.0	2	30	2
3	20	1	0.0	1.5	0.0	PWR: WASHING MACHINE			1.5	2.0	--	--	--	--	--	--	4
5	20	1	0.0	0.0	1.1	PWR: HOOD	0.0	2.5			PWR: RANGE	0.0	5.0	0.0	2	50	6
7	20	1	0.0	0.0	0.4	CO: KITCHEN			0.4	0.0	--	--	--	--	--	--	8
9	20	1	0.0	0.0	0.4	CO: LIVING SPACE	0.4	0.0			PWR: REFRIGERATOR	0.0	0.8	0.0	1	20	10
11	20	1	0.0	0.0	0.1	CO: BATHROOM			0.0	0.0	PWR: FAN COIL UNIT (FCU-1.5)	0.0	4.2	0.0	2	40	12
13	20	1	0.0	0.0	0.6	CO: BEDROOM	0.6	2.1			--	--	--	--	--	--	14
15	20	1	0.0	0.0	0.2	CO: MEDIA			0.2	3.0	PWR: WATER HEATER (WH-1)	0.0	6.0	0.0	2	40	16
17	20	1	0.0	0.0	0.5	CO: TELEVISION	0.5	0.0			--	--	--	--	--	--	18
19	20	1	0.2	0.1	0.0	LTG: LIGHTS AND EXHAUST FANS			0.0	0.0	SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	30

TOTALS: CONNECTED kVA PER PHASE **9** **8** CONNECTED TOTAL kVA = **26**

CONNECTED AMPS PER PHASE **87** **87** AVERAGE CONNECTED AMPS PER PHASE = **123**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.2 kVA @ 125% = 0.2 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **27**

RECEPTACLES: **3.2 kVA @ 100% = 3.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **131**

ALL OTHER LOADS @ 100% : **23.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

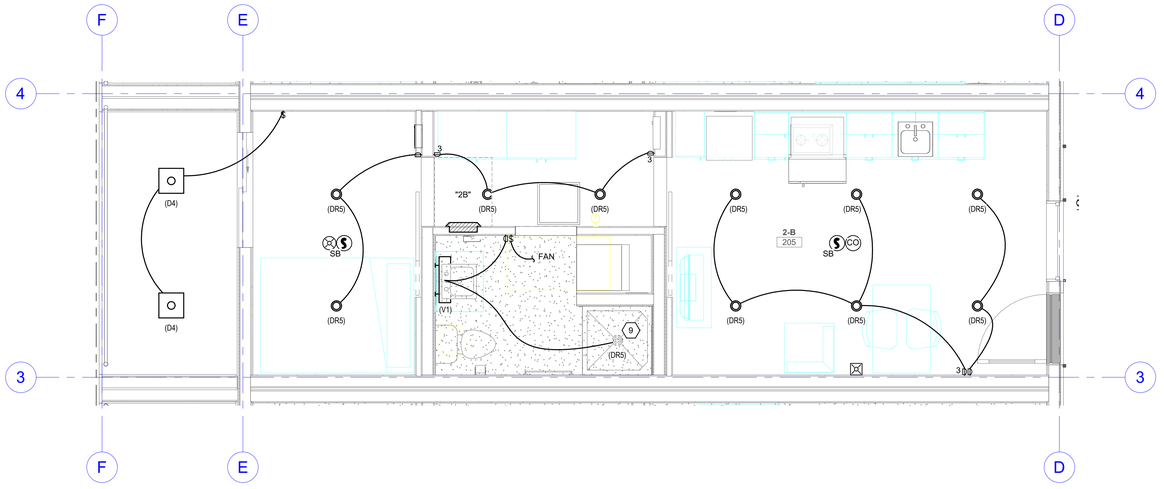
EQUIPMENT SCHEDULE - UNIT 2B

MARK	ITEM DESCRIPTION	LOAD DATA HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	OC PROTECTION DEVICE	DISCONNECT DEVICE	NOTES
EF-1	EXHAUST FAN	1/8	57	-	0.5	120	1	60	2 #12, 12 GR 0.75" CND	15/1 CB	TOGGLE SWITCH	
FCU-1.5	FAN COIL UNIT	-	-	-	20	208	1	60	2 #10, #10 GR 0.75" CND	30/2 CB	30A/2P NF	
WH-1	WATER HEATER	-	6.0	-	28.8	208	1	60	2 #8, #10 GR 1" CND	40/1 CB	60A/3P	

LIGHTING FIXTURE SCHEDULE - UNIT 2B

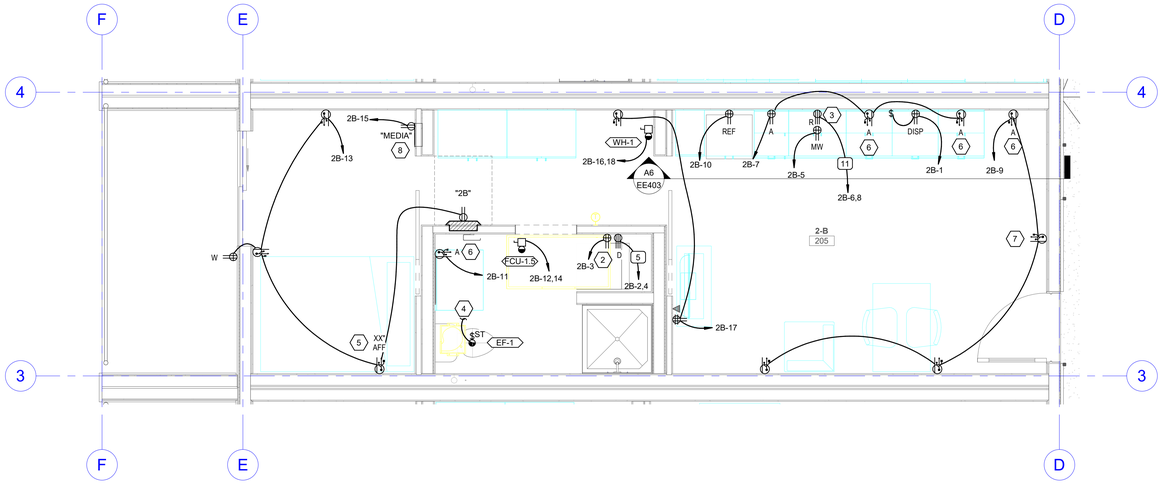
ID	IMAGE	DESCRIPTION	VOLTAGE	WATTS	FIXTURE LUMENS	TAKEOFF QUANTITY	MANUFACTURER (CATALOG SERIES) / BASIS OF DESIGN
(DR5)		5" SURFACE DOWNLIGHT, ROUND, JBOX MOUNTED. WET LOCATION LISTED FOR INSTALLATION ABOVE A SHOWER.	120	10	500	34	LITON (LCMPD)
(V1)		BATH VANITY; LENGTH TO BE THE SAME LENGTH AS VANITY	120	30	2000	1	EVERGREEN LIGHTING (VAN-SECP-20W-9-WF-25*-DIM)

PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.



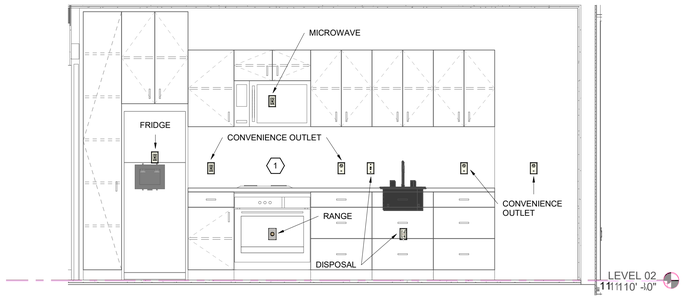
B4 LEVEL 2 LIGHTING/FIRE ALARM PLAN - UNIT 2B

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



A4 LEVEL 2 POWER PLAN - UNIT 2B

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



A6 TYPICAL KITCHEN VIEW - UNIT 2B

SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

1. ALL UNITS OUTLETS SHALL BE TAMPER RESISTANT AS STATED IN NEC 406.12.
2. PROVIDE ONE SMOKE/CARBON MONOXIDE DETECTOR IN EACH UNIT HALLWAY.
4. COORDINATE LIGHT FIXTURE ROUGH-IN REQUIREMENTS WITH OWNER AND ARCHITECT PRIOR TO INSTALLATION.
5. PROVIDE POWER OUTLET FOR EACH KITCHEN APPLIANCE. COORDINATE EXACT LOCATIONS WITH ELEVATIONS, MILLWORK, ARCHITECT, AND OWNER.
6. ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.
7. OPENINGS THROUGH FIRE WALLS OR FLOORS IN WHICH CONDUIT PASSES SHALL BE SEALED BY FIRE STOP FITTINGS. FIRE STOP FITTINGS SHALL HAVE AN HOURLY FIRE-RATING EQUAL TO OR HIGHER THAN THE FIRE RATING OF THE WALL OR FLOOR THROUGH WHICH THE CONDUIT PASSES.
8. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ADDITIONAL DEVICES NOT SHOWN TO COMPLY WITH NEC 210.52 DUE TO FIELD CHANGES.
9. PROVIDE LISTED PUTTY PADS ON ALL BACK BOXES FOR POWER, COMMUNICATIONS, AND CABLE SERVICE OUTLETS FOR EACH SHARED WALL BETWEEN UNITS. COMPLY WITH IBC 714.3.2 AND MAINTAIN SPACING IN UNITS AS REQUIRED BY NEC 210.52.
10. PROVIDE ARC-FAULT CIRCUIT INTERRUPT CIRCUIT BREAKERS FOR ALL CIRCUITS SERVING SPACES STATED IN NEC 210.12.
12. PROVIDE ELECTRICAL CONNECTION TO ALL MECHANICAL EQUIPMENT. COORDINATE WITH NAME PLATE RATING OF EQUIPMENT AND PROVIDE APPROPRIATE CIRCUIT AMPACITY AND OVER CURRENT PROTECTION DEVICE. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.
13. ALL 120V, SINGLE PHASE, 15AMP AND 20AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN FAMILY ROOMS, DINNING ROOMS, LIVING ROOMS, PARLORS, BEDROOMS, OR OTHER SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ACR-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. COMPLY WITH NEC ARTICLE 210.12.
14. PROVIDE LOW FREQUENCY SOUNDERS IN EACH AREA INTENDED FOR SLEEPING AND IN AREAS THAT MIGHT REASONABLY BE USED FOR SLEEPING. FOR EXAMPLE EACH BEDROOM OF AN APARTMENT AND ALSO THE LIVING ROOM AREA OF AN APARTMENT AS IT MIGHT HAVE SLEEPING OCCUPANTS. LOW FREQUENCY SOUNDERS SHALL COMPLY WITH SOUND LEVEL TEST OF 75DBA MINIMUM AT THE PILLOW HEIGHT. THE SOUNDER LEVEL MUST ALSO BE 15DB ABOVE THE AVERAGE AMBIENT SOUND.
15. ENSURE THAT THE REQUIRED DEDICATED ELECTRICAL SPACE IS PROVIDED ABOVE THE ELECTRICAL PANELBOARDS PER NEC ARTICLE 110.26(E)(1).

SHEET KEYNOTES

1. OUTLETS AND SWITCHES ARE TO BE MOUNTED 48" MAX TO TOP OF FACEPLATE. COORDINATE EXACT LOCATION, MOUNTING HEIGHT, AND MOUNTING DETAILS FOR ALL ELECTRICAL DEVICES WITH ARCHITECT PRIOR TO ROUGH-IN.
2. PROVIDE DRYER OUTLET NEMA 14-30R. COORDINATE EXACT PLUG INFORMATION WITH ACTUAL DRYER TO BE PROVIDED.
3. PROVIDE RANGE OUTLET NEMA 14-50R. COORDINATE EXACT PLUG CONFIGURATION WITH ACTUAL RANGE TO BE PROVIDED.
4. POWER TO LIGHTS IN THIS ROOM.
5. COORDINATE MOUNTING DETAILS WITH ARCHITECT.
6. PROVIDE GFCI RECEPTACLE WITH USB PORT.
7. RECEPTACLE MOUNTED BELOW WINDOW.
8. PROVIDE RECESSED MEDIA ENCLOSURE TYPE LEVITON 47605-14X14 OR APPROVED EQUAL. PROVIDE DEDICATED OUTLET INSIDE THE MEDIA PANEL. PROVIDE WITH TELECOMMUNICATION PUNCH DOWN BLOCK AND TV SPLITTER. SEE RISER DIAGRAM. PROVIDE 1" CND FROM MEDIA ENCLOSURE TO CEILING SPACE.
9. LIGHTING FIXTURE MOUNTED IN WET LOCATION. FIXTURE IS TO BE MOUNTED IN THE CENTER OF THE SHOWER SPACE.

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05/21/2021

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#	Date	Revision
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DATE: 05/21/2021

TYPICAL UNIT PLAN - 2B

EE403

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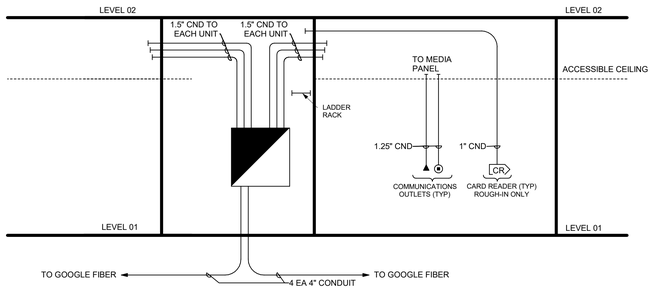
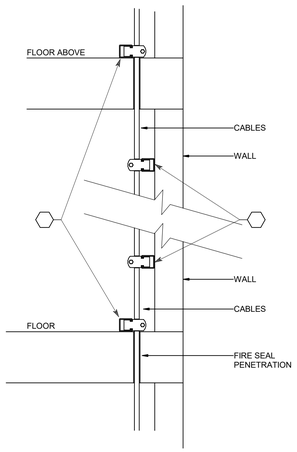


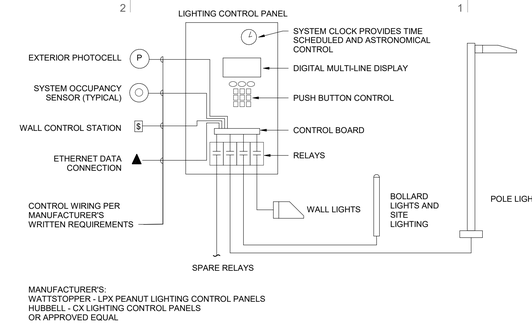
C6 VOICE/ DATA CONDUIT RISER DIAGRAM

SCALE: 1" = 10'-0"



C4 CABLE SUPPORT DETAIL

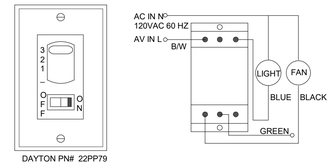
SCALE: 1/8" = 1'-0"



MANUFACTURER'S:
WATTSTOPPER - LPX PEANUT LIGHTING CONTROL PANELS
HUBBELL - CX LIGHTING CONTROL PANELS
OR APPROVED EQUAL

E2 LIGHTING CONTROL PANEL RISER DIAGRAM (TYPICAL)

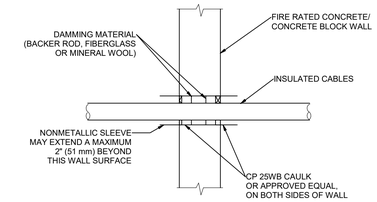
SCALE: 1/8" = 1'-0"



DAYTON PN# 22PP79

D2 ADA RANGE HOOD CONTROL DETAIL

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

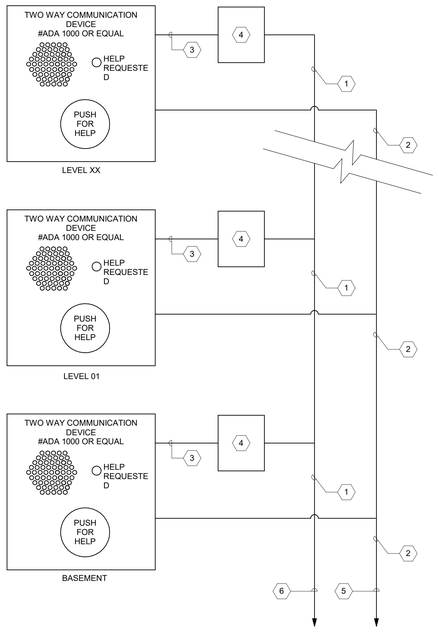


C2 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE WALLS

SCALE: NTS

TWO WAY COMMUNICATION:

Provide a Two-way communication system that will communicate between each required location and the fire commence center or a central control point location approved by the fire department. The two-way communication locations shall be in each area of refuge and each elevator lobby above and below level of means of egress to the exterior of the facility. Comply with IBC 1007.8.1.



RISER KEYNOTES

1. (1) 1" PRIMARY CONDUIT PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MINIMUM DEPTH 48" PRIMARY CONDUCTORS PROVIDED AND INSTALLED BY POWER COMPANY.
2. (1) - #20 TO 24 AWG TWISTED PAIR.
3. (1) - #14 AWG THHN COPPER + (1) - #14 AWG THHN GROUND.
4. 5va TRANSFORMER, 120V TO 10V.
5. (1) - #20 TO 24 AWG TWISTED PAIR TO TELEPHONE BOARD.
6. (2) - #14 AWG THHN COPPER + (1) - #14 AWG THHN GROUND TO 120V PANELBOARD.

TECHNICAL SPECIFICATIONS:
POWER:
ON HOOK VOLTAGE: 48V TO 24V
OFF HOOK VOLTAGE: 48V TO 9.3V; 24V TO 7.45 V
LOOP CURRENT: 48V TO 43.2MA; 24V TO 38.5MA
BATTERY BACKUP: 5 YEAR BATTERY LIFE
ACTIVE OPERATION 4 HOURS

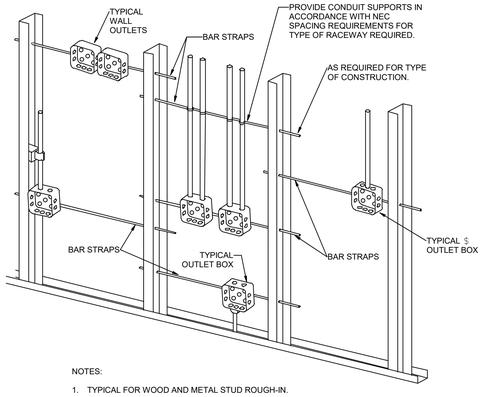
WIRE:
POWER
THREE (3) - #12 AWG WIRES FOR 110VAC

TELEPHONE:
MINIMUM ONE (1) - #20 TO 24 AWG TWISTED PAIR FROM DEDICATED ANALOG PHONE LINE
RINGER EQUIVALENCE (REN) 1.1
UP TO FIVE (5) ADA 1000'S PER PHONE LINE

CONTACT INFORMATION:
HOUSING DEVICES, INC
VOICE: 800-392-5200
WWW.HOUSINGDEVICES.COM

A6 2-WAY COMMUNICATIONS SYSTEM RISER

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

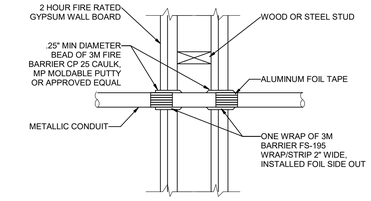


NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 714.3.2 EXCEPTION 1, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE OR LISTED, SOUND AND FIRE RATED PUTTY PADS SHALL BE USED ON THE OUTLET BOXES.
5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

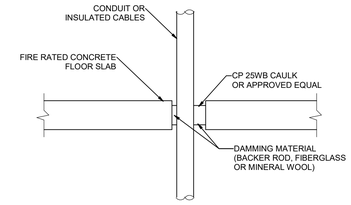
A4 TYPICAL ROUGH-IN REQUIREMENTS DETAIL

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



B2 FIRE STOP FOR METAL CONDUIT THROUGH GYPSUM WALL BOARD

SCALE: NTS



A2 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE FLOORING

SCALE: NTS

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#	Date	Revision

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ELECTRICAL DETAILS

EE501

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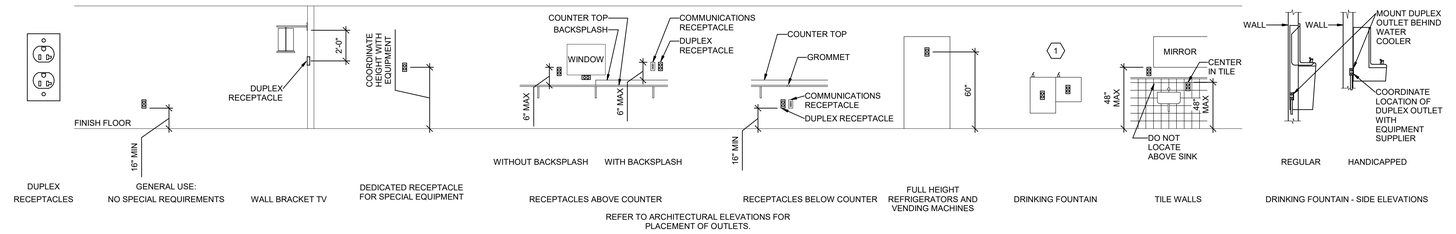
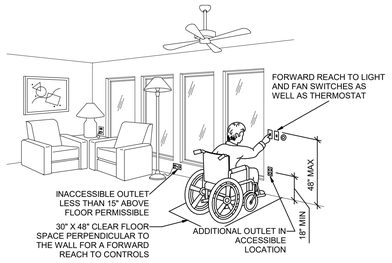
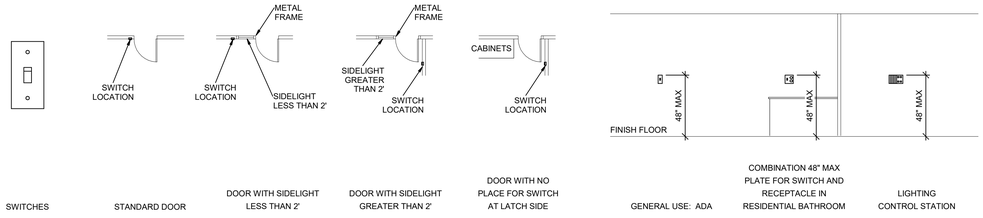


DUPLEX RECEPTACLES | GENERAL USE: NO SPECIAL REQUIREMENTS | WALL BRACKET TV | DEDICATED RECEPTACLE FOR SPECIAL EQUIPMENT | RECEPTACLES ABOVE COUNTER | WITHOUT BACKSPLASH | WITH BACKSPLASH | RECEPTACLES BELOW COUNTER | FULL HEIGHT REFRIGERATORS AND VENDING MACHINES | DRINKING FOUNTAIN | TILE WALLS | DRINKING FOUNTAIN - SIDE ELEVATIONS | REGULAR | HANDICAPPED

REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.

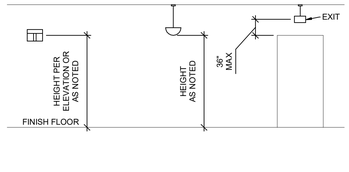
E5 RECEPTACLE MOUNTING DETAILS
SCALE: NTS





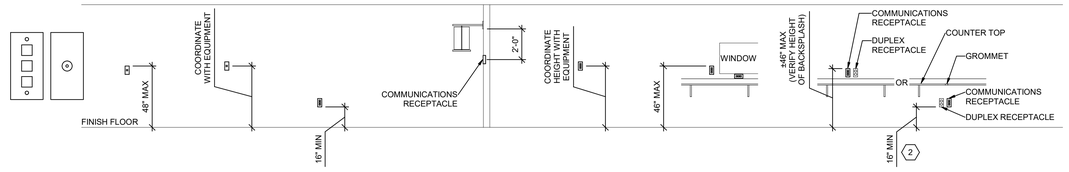
SWITCHES | STANDARD DOOR | DOOR WITH SIDELIGHT LESS THAN 2' | DOOR WITH SIDELIGHT GREATER THAN 2' | DOOR WITH NO PLACE FOR SWITCH AT LATCH SIDE | GENERAL USE: ADA | COMBINATION 48" MAX PLATE FOR SWITCH AND RECEPTACLE IN RESIDENTIAL BATHROOM | LIGHTING CONTROL STATION

D5 ADA DETAIL
SCALE: NTS

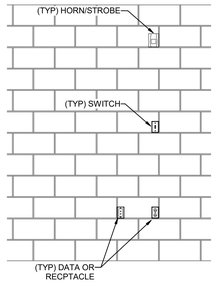


WALL MOUNTED LIGHT FIXTURE | PENDANT LIGHT FIXTURE | PENDANT EXIT SIGNS

D4 SWITCH MOUNTING DETAILS
SCALE: NTS



COMMUNICATION RECEPTACLES | WALL PHONE | PAY PHONE | GENERAL USE: NO SPECIAL REQUIREMENTS | WALL BRACKET TV | DEDICATED RECEPTACLE FOR SPECIAL EQUIPMENT | ABOVE COUNTER - TYPICAL | RECEPTACLES ABOVE OR BELOW COUNTER

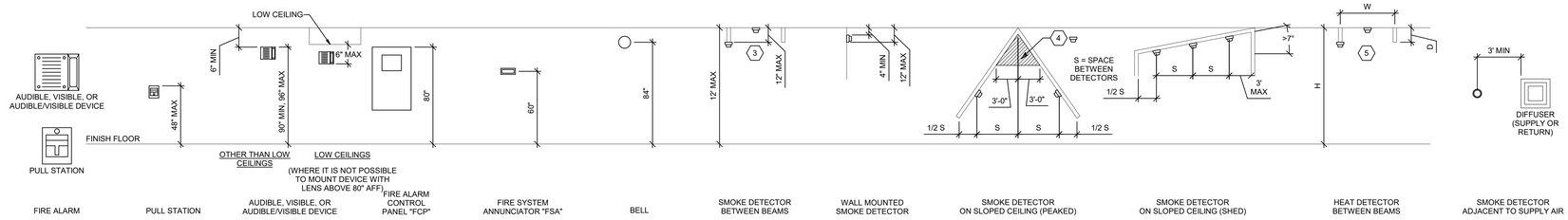


NOTE: ALL DEVICES SHALL BE INSTALLED AND LOCATED IN THE BLOCK CONSISENTLY THROUGH OUT THE BUILDING.

C6 CMU DEVICE MOUNTING ALIGNMENT DETAIL
SCALE: NTS

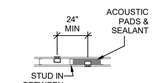
C5 LIGHTING MOUNTING DETAILS
SCALE: NTS

C4 COMMUNICATIONS MOUNTING DETAILS
SCALE: NTS



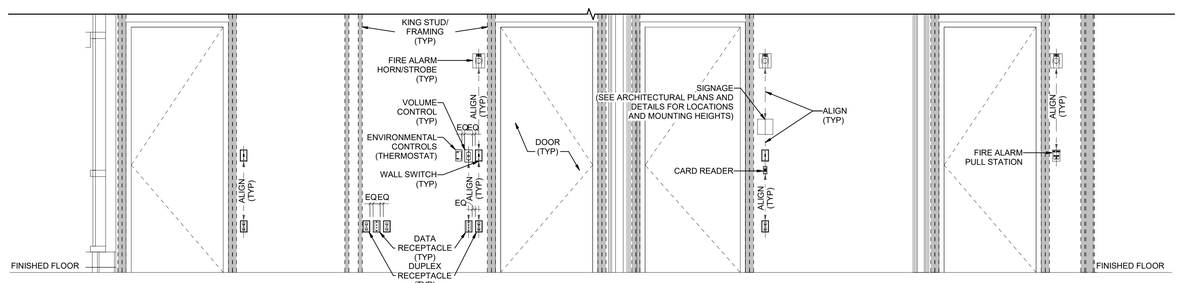
FIRE ALARM | PULL STATION | AUDIBLE, VISIBLE, OR AUDIBLE/VISIBLE DEVICE | FIRE ALARM CONTROL PANEL "FCP" | FIRE SYSTEM ANNUNCIATOR "FSA" | BELL | SMOKE DETECTOR BETWEEN BEAMS | WALL MOUNTED SMOKE DETECTOR | SMOKE DETECTOR ON SLOPED CEILING (PEAKED) | SMOKE DETECTOR ON SLOPED CEILING (SHED) | HEAT DETECTOR BETWEEN BEAMS | SMOKE DETECTOR ADJACENT TO SUPPLY AIR

B6 FIRE ALARM MOUNTING DETAILS
SCALE: NTS



FOR LESS THAN 24" SEPERATION, PROVIDE LISTED SOUND AND FIRE PUTTY PADS

BOXES ON OPPOSITE SIDES OF WALL



A6 BOX MOUNTING DETAILS
SCALE: NTS

A5 TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL
SCALE: NTS

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
9. WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.

⬡ SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

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DATE: 05/21/2021

TYPICAL MOUNTING HEIGHT DETAILS

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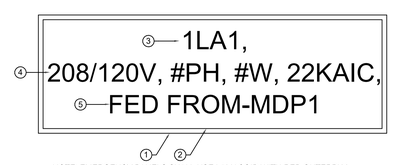
1. LABEL TO BE PROVIDED AT EACH SWITCHBOARD, PANELBOARD, DISCONNECT/STARTER. LABEL IS TO BE 3" X REQUIRED LENGTH X 1/16" LAMINATED 2-PLY PLASTIC LAMACOID. LETTERS SHALL BE FORMED BY ENGRAVING OUTER WHITE PLY, EXPOSING BLACK PLY BENEATH.
2. LABEL IS TO BE MOUNTED USING DOUBLE SIDED ADHESIVE TAPE COVERING THE BACK OF THE LABEL.
3. FIRST LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. REPLACE THE LETTER/NUMBER WITH THOSE FOUND ON THE ONE-LINE DIAGRAM.
4. SECOND LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. THE FOLLOWING SHALL BE PROVIDED, VOLTAGE, PHASE, NUMBER OF WIRES, AND AIC RATING OF DEVICE.
5. THIRD LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. PROVIDE "FED FROM-" AND REPLACE MDP1 WITH THE DEVICES NAME THAT FEEDS THE PANELBOARD.

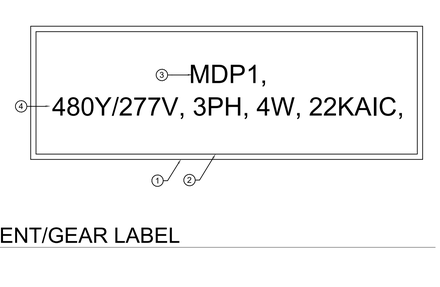


NOTE: EMERGENCY PANELS SHALL USE LAMACOID WITH RED OUTERPLY, EXPOSING WHITE LETTERING BENEATH. CONTRACTOR TO USE SAME LABEL SCHEME EXCEPT FIRST 'X' IS REPLACED WITH 'E' FOR EMERGENCY. SECOND 'X' TO BE 'L' FOR LOW OR 'H' FOR HIGH VOLTAGE (480/277V), LAST '#' TO BE REPLACED WITH LETTER INDICATING LOCATION OF PANEL.

D2 TYPICAL PANELBOARD/SWITCHBOARD LABEL

SCALE: NTS

1. LABEL TO BE PROVIDED THAT IS TO BE 4" X REQUIRED LENGTH X 1/16" LAMINATED 2-PLY PLASTIC LAMACOID. LETTERS SHALL BE FORMED BY ENGRAVING OUTER WHITE PLY, EXPOSING BLACK PLY BENEATH.
2. LABEL IS TO BE MOUNTED USING DOUBLE SIDED ADHESIVE TAPE COVERING THE BACK OF THE LABEL.
3. FIRST LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, WITH THE EQUIPMENT ID MATCHING PLANS.
4. SECOND LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. THE FOLLOWING SHALL BE PROVIDED, VOLTAGE, PHASE, NUMBER OF WIRES, AND AIC RATING OF GEAR.



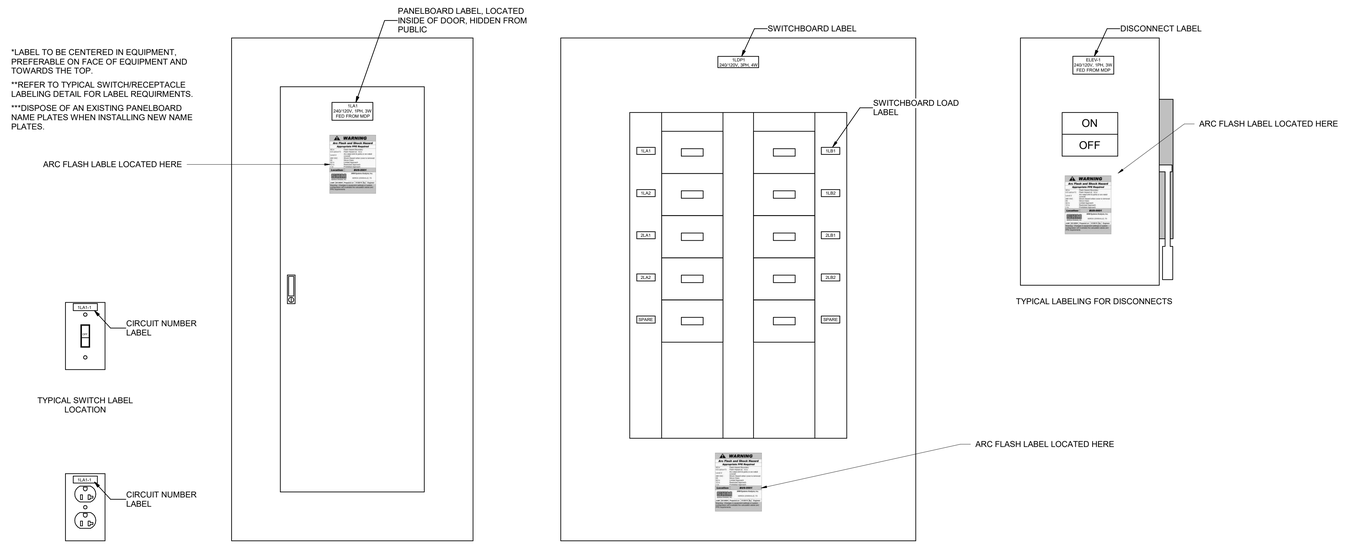
C2 TYPICAL MAIN SERVICE EQUIPMENT/GEAR LABEL

SCALE: NTS

*LABEL TO BE CENTERED IN EQUIPMENT, PREFERABLE ON FACE OF EQUIPMENT AND TOWARDS THE TOP.

**REFER TO TYPICAL SWITCH/RECEPTACLE LABELING DETAIL FOR LABEL REQUIRMENTS.

***DISPOSE OF AN EXISTING PANELBOARD NAME PLATES WHEN INSTALLING NEW NAME PLATES.



TYPICAL SWITCH LABEL LOCATION

TYPICAL RECEPTACLE LABEL LOCATION

TYPICAL LABELING FOR PANELBOARDS IN NON-PUBLIC LOCATIONS

TYPICAL LABELING FOR SWITCHBOARDS

TYPICAL LABELING FOR DISCONNECTS

A4 TYPICAL SWITCH, RECEPTACLE AND PANELBOARD LABELING LOCATION DETAIL

SCALE: NTS

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TYPICAL LABELING DETAILS

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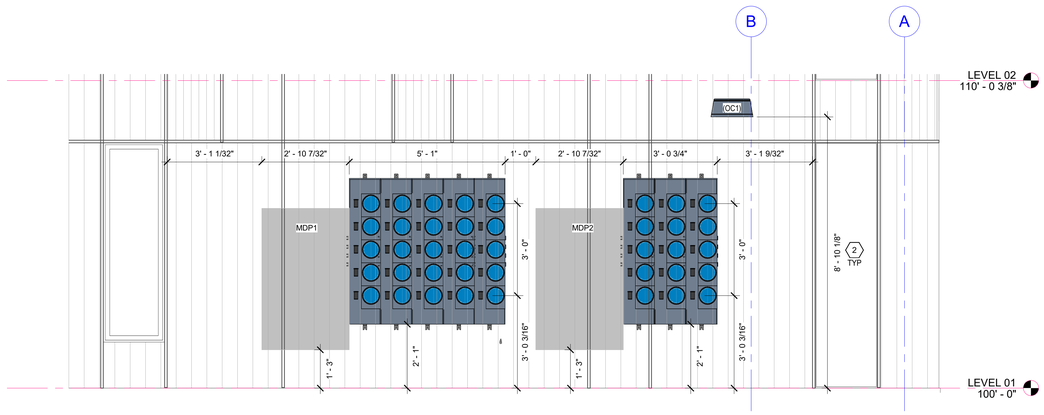
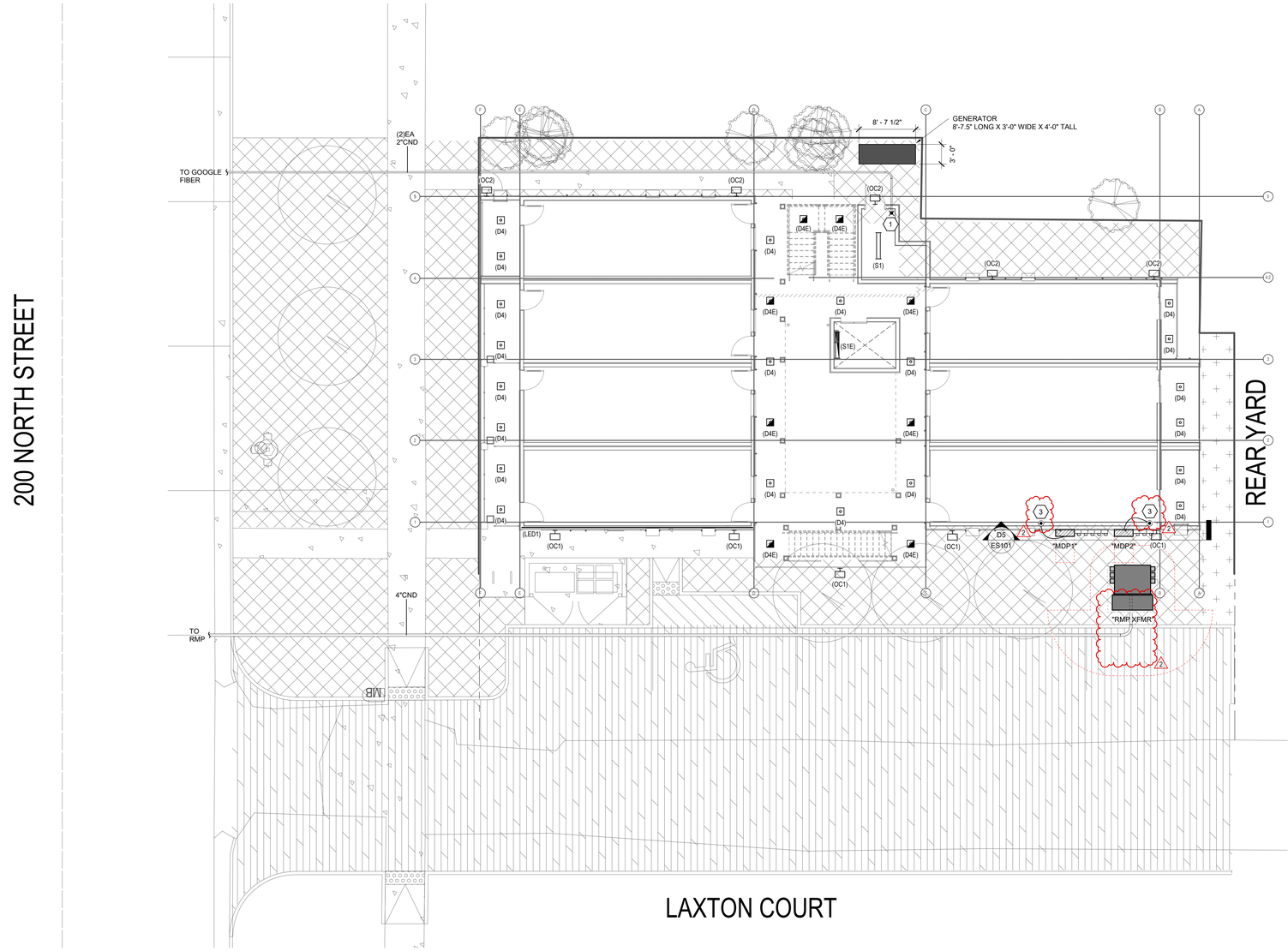


D5 METER ELEVATION VIEW

SCALE: 1/2" = 1'-0"



A5 SITE ELECTRICAL PLAN

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

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GENERAL SHEET NOTES

1 COORDINATE LOCATIONS AND DIMENSIONS OF CONDUIT BLOCKOUTS WITH STRUCTURAL INSTALLER PRIOR TO ROUGH-IN.

2 VERIFY FLOOR BOX, POWER POLE, AND POKE-THROUGH DEVICE LOCATIONS WITH ARCHITECT/OWNER PRIOR TO ROUGH IN OR INSTALLATION.

3 THE ELECTRICAL CONTRACTOR SHALL MEET WITH AND COORDINATE WITH ALL SERVICE PROVIDERS (POWER, COMMUNICATION, CABLE/SATELLITE, TELECOMM., ETC.) TO THE FACILITY ON SITE PRIOR TO ANY WORK BEING PREFORMED. CONFIRM WITH EACH SERVICE PROVIDER EXACT LOCATIONS EQUIPMENT AND ROUTING. COMPLY WITH ALL SERVICE PROVIDER'S CURRENT STANDARDS AND REQUIREMENTS. PROVIDE THE REQUIRED EQUIPMENT, RACEWAYS, BOXES, CABLE, ETC. AS REQUIRED BY THE SERVICE PROVIDER WEATHER SHOWN ON THE DRAWINGS OR NOT.

4 SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. VERIFY OR RE-CALCULATE THE AVAILABLE FAULT CURRENT AT THE SERVICE WHERE MODIFICATIONS TO THE ELECTRICAL INSTALLATION OCCUR. PLEASE INCLUDE NOTES IN THE ELECTRICAL DRAWINGS OR SUPPLY CALCULATIONS WHERE APPLICABLE. SEE NEC 110.24. (B)

SHEET KEYNOTES

1 (2) 2" CONDUITS FOR GOOGLE FIBER ARE TO BE RAN FROM THE STREET TO THE STORAGE ROOM. CONDUIT SHOULD RUN FROM THE STORAGE ROOM TO EACH UNIT IN THE BUILDING.

2 TYPICAL FOR ALL OC1 LIGHTING FIXTURES. COORDINATE DETAILS WITH ARCHITECT. FIXTURE IS TO BE LOCATED IN THE CENTER OF METAL PANEL; COORDINATE WITH ALL WALL SWEEP LOCATIONS.

3 CONNECT TO UFER GROUND IN CONCRETE FOOTING. COORDINATE WITH ARCHITECT/ STRUCTURAL DRAWINGS PRIOR TO ROUGH-IN.

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ELECTRICAL SITE PLAN

ES101

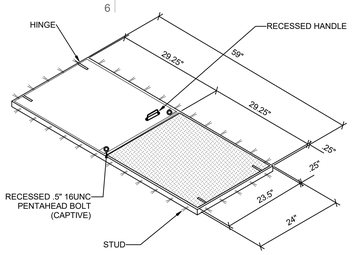
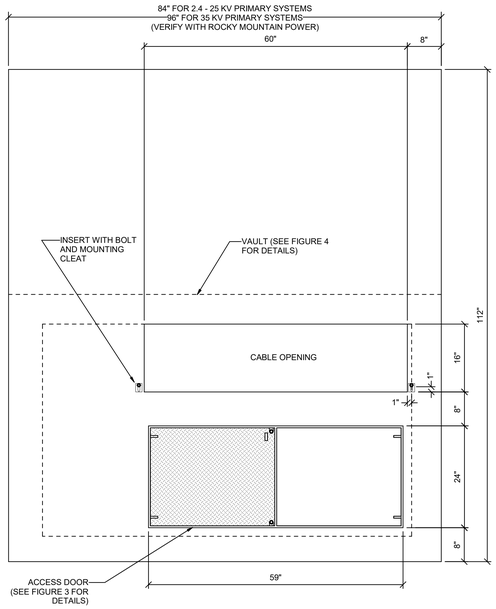


FIGURE 3 - ACCESS DOOR DETAIL



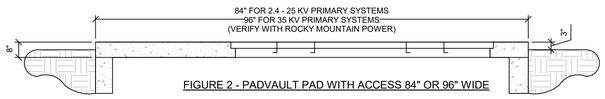
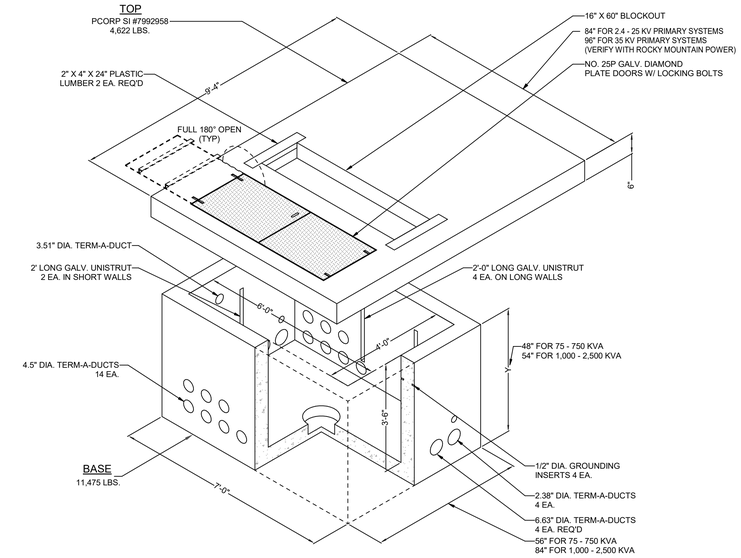
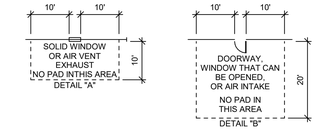


FIGURE 2 - PADVAULT PAD WITH ACCESS 84" OR 96" WIDE

2.4 - 25kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992600-STOCK ITEM 1790023



A6 THREE-PHASE TRANSFORMER PADVAULT (ROCKY MOUNTAIN POWER STANDARD)
SCALE: NTS



TOP VIEW WITH ACCESS DOORS CLOSED
DETAIL "C"

MINIMUM DISTANCE REQUIRED FROM PAD:

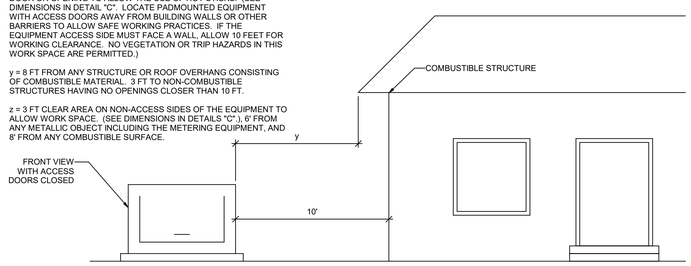
x = 10 FT. CLEAR AREA IN FRONT OF, ANY EQUIPMENT ACCESS DOOR OR OPENING TO ALLOW THE USE OF HOT STICKS. (SEE DIMENSIONS IN DETAIL "C". LOCATE PADMOUNTED EQUIPMENT WITH ACCESS DOORS AWAY FROM BUILDING WALLS OR OTHER BARRIERS TO ALLOW SAFE WORKING PRACTICES. IF THE EQUIPMENT ACCESS SIDE MUST FACE A WALL, ALLOW 10 FEET FOR WORKING CLEARANCE. NO VEGETATION OR TRIP HAZARDS IN THIS WORK SPACE ARE PERMITTED.)

y = 8 FT FROM ANY STRUCTURE OR ROOF OVERHANG CONSISTING OF COMBUSTIBLE MATERIAL. 3 FT TO NON-COMBUSTIBLE STRUCTURES HAVING NO OPENINGS CLOSER THAN 10 FT.

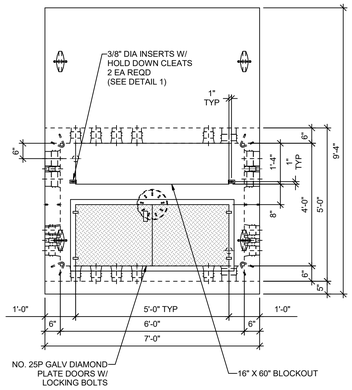
z = 3 FT CLEAR AREA ON NON-ACCESS SIDES OF THE EQUIPMENT TO ALLOW WORK SPACE. (SEE DIMENSIONS IN DETAILS "C".), 6' FROM ANY METALLIC OBJECT INCLUDING THE METERING EQUIPMENT, AND 8' FROM ANY COMBUSTIBLE SURFACE.

CLEARANCE GENERAL NOTES:

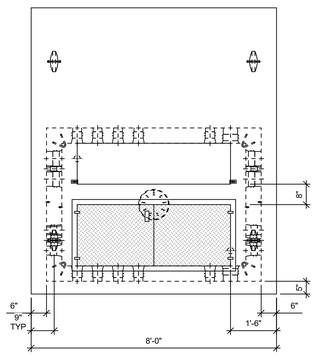
1. CLEARANCES: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 10 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 25 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW. VAULTS SHALL BE LOCATED WITHIN 15 FEET OF A GRAVELED OR PAVED SURFACE SUITABLE FOR INCIDENTAL HEAVY TRUCK ACCESS.
2. BARRIERS: IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) CONTACT ROCKY MOUNTAIN POWER FOR PROTECTIVE BARRIER REQUIREMENTS.
3. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SACKRETE OR COMPARABLE.



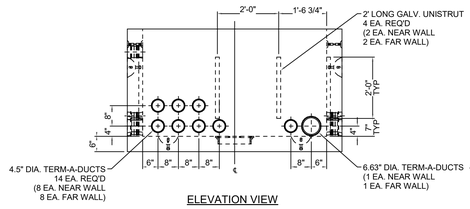
D3 TRANSFORMER CLEARANCE DETAIL
SCALE: NTS



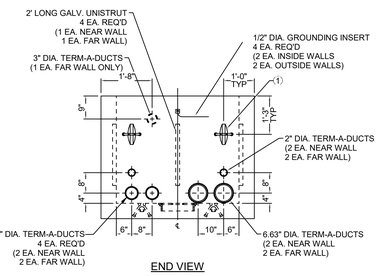
PLAN VIEW
2.4-25 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992600 - SI #1790023



PLAN VIEW
35 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992602 - SI #1008977



ELEVATION VIEW



END VIEW

*LIFTING DEVICE TYPE & LOCATION MAY CHANGE WITHOUT NOTICE.

NOTE: PRIOR TO ORDERING AND INSTALLING THE PADVAULT, SUBMIT PADVAULT TO ROCKY MOUNTAIN POWER FOR APPROVAL AND VERIFICATION, AND COORDINATE EXACT SIZE AND LOCATION OF DUCT OPENINGS WITH ROCKY MOUNTAIN POWER.

GENERAL SHEET NOTES

1. SCOPE

   THIS MATERIAL SPECIFICATION OUTLINES THE MINIMUM REQUIREMENTS FOR PADVAULTS TO BE USED IN CONJUNCTION WITH PACIFICORP-OWNED THREE-PHASE TRANSFORMERS (SEE FIGURE 1). THE MATERIAL SPECIFICATION APPLIES WHETHER THE PADVAULT IS TO BE INSTALLED BY COMPANY PERSONNEL, CONTRACTOR, CUSTOMER, OR THE SUPPLIER.

2. APPLICABLE DOCUMENTS

   THE LATEST REVISIONS OF THE DOCUMENTS, STANDARDS, CODES, AND REQUIREMENTS LISTED IN 2.1, PACIFICORP, AND 2.2, CODES AND STANDARDS, IN EFFECT ON THE DATE OF INVITATION TO BID APPLY TO THE EXTENT SPECIFIED HEREIN.

   2.1 PACIFICORP

   ZG 301 GENERAL EQUIPMENT BASE AND ENCLOSURE REQUIREMENTS

   ZG 311 CONCRETE REQUIREMENTS

   2.2 CODES AND STANDARDS

   WESTERN UNDERGROUND COMMITTEE GUIDE 2.13, SECURITY FOR PADMOUNTED EQUIPMENT ENCLOSURES

   APPLICABLE CODES

   ANSI STANDARDS

   IEEE STANDARDS

   NEMA STANDARDS

3. GENERAL

   3.1 APPLICATION INFORMATION

   THIS MATERIAL SPECIFICATION STATES MATERIAL AND CONSTRUCTION REQUIREMENTS THAT ARE APPLICABLE TO ALL THREE-PHASE TRANSFORMER PADVAULTS.

   3.2 AUTHORIZED MATERIAL SPECIFICATION

   THIS MATERIAL SPECIFICATION IS NOT CONSIDERED VALID UNTIL EACH PAGE CONTAINS THE APPROVAL SIGNATURE OR INITIALS OF THE PERSONS NAMED IN THE TITLE BLOCKS.

4. APPLICABLE STOCK ITEM NUMBERS

   MATERIALS BEING SUBMITTED FOR THE FOLLOWING PACIFICORP STOCK ITEM NUMBERS ARE SUBJECT TO EVALUATION IN ACCORDANCE WITH REQUIREMENTS IN THIS MATERIAL SPECIFICATION.

   7992600, PADVAULT, TRANSFORMER, 3-PHASE, 75-750 KVA

   7992958, PADVAULT, TRANSFORMER, 3-PHASE, 1000-2500 KVA

5. PRODUCT AND INSTALLATION REQUIREMENTS

   THE PURPOSE OF A THREE-PHASE TRANSFORMER PADVAULT IS TO SUPPORT A THREE-PHASE TRANSFORMER.

   5.1 PADVAULT LAYOUT

   THE THREE-PHASE TRANSFORMER PADVAULT IS COMPOSED OF TWO PIECES: (1) THE PAD, AND (2) THE ENCLOSURE. UNLESS OTHERWISE APPROVED BY PACIFICORP ENGINEERING, ALL DIMENSIONS AND PLACEMENT OF HARDWARE SHALL CONFORM TO THOSE SHOWN ON THIS SHEET. THE ENCLOSURE IS COMMON TO ALL PADVAULTS COVERED BY THIS MATERIAL SPECIFICATION, ZG 531, PADVAULT-THREE-PHASE SECTIONALIZING CABINET, AND ZG 551, PADVAULT-THREE-PHASE FUSING CABINET.

   5.2 INSERTS

   TWO .375" 16UNC STAINLESS STEEL OR NYLON THREADED INSERTS AND STAINLESS STEEL BOLTS WITH CLEATS FOR MOUNTING THE TRANSFORMER SHALL BE PLACED IN THE PAD AS SHOWN IN FIGURE 2.

   5.3 PULLING ATTACHMENTS

   CABLE PULLING ATTACHMENTS SHALL BE INSTALLED OPPOSITE OF EACH SET OF CONDUIT BREAKOUTS SUCH THAT BLOCKS MAY BE ATTACHED FOR A STRAIGHT CABLE PULL. PULLING ATTACHMENTS SHALL HAVE A MINIMUM PULLOUT STRENGTH OF 6000 POUNDS. ATTACHMENTS SHALL ALLOW THE ATTACHMENT OF A CLEVIS WITH A ONE-INCH DIAMETER THROUGH BOLT. PULLING ATTACHMENTS MAY BE DESIGNED BY THE MANUFACTURER TO MEET THESE REQUIREMENTS.

   5.4 CONDUIT ENTRANCES

   BANKS OF NINE (9) SIX-INCH SQUARE BREAKOUTS SHALL BE USED FOR CONDUIT ENTRANCES. TWO BANKS OF KNOCKOUTS SHALL BE PLACED IN EACH SIDE AND IN EACH END OF THE ENCLOSURE.

   5.5 LIFTING ATTACHMENTS

   ENOUGH LIFTING ATTACHMENTS SHALL BE PROVIDED TO ENSURE SAFE INSTALLATION OF ALL PIECES AT THE SITE.
   ENOUGH LIFTING ATTACHMENTS SHALL BE PROVIDED TO ENSURE SAFE INSTALLATION OF ALL PIECES AT THE SITE.

   5.6 INSTALLATION

   THIS UNIT SHALL BE INSTALLED AT THE SITE BY THE SUPPLIER OR CONTRACTOR. ALL EARTH UNDER THE PADVAULT SHALL BE COMPACTED AND LEVEL PRIOR TO SETTING THE PADVAULT. PROVIDE 6" OF 3/4-INCH-MINUS GRAVEL BACKFILL BASE. THE JOINT BETWEEN THE PAD AND ENCLOSURE SHALL BE SEALED USING TAR OR MASTIC. THE TOP OF THE PAD SHOULD BE TWO TO FOUR INCHES ABOVE FINAL GRADE, WHEN INSTALLED.

6. TESTING

   6.1 TEST COMPLIANCE

   PADVAULTS SUBMITTED UNDER THIS MATERIAL SPECIFICATION SHALL MEET ALL TESTS AND REQUIREMENTS CONTAINED IN ZG 301, GENERAL EQUIPMENT BASE AND ENCLOSURE REQUIREMENTS, ZG 311, CONCRETE REQUIREMENTS, AND THIS MATERIAL SPECIFICATION. PADVAULTS WILL ALSO COMPLY WITH REQUIREMENTS IN APPLICABLE NATIONAL STANDARDS.

GENERAL SHEET NOTES

   6.2 SECURITY TEST

   TRANSFORMER PADVAULTS MUST BE ABLE TO PASS THE FOLLOWING SECURITY TEST. THE SECURITY TEST IS DESIGNED TO ENSURE THAT PADMOUNT EQUIPMENT, WHICH COMPLIES WITH WESTERN UNDERGROUND COMMITTEE GUIDE 2.13, SECURITY FOR PADMOUNTED EQUIPMENT ENCLOSURES, IS NOT COMPROMISED BY UNEVEN PAD SETTING.

   WITH THE APPROPRIATE TRANSFORMER MOUNTED, ATTEMPT TO PASS A #14 AWG SOFT-DRAWN COPPER WIRE THROUGH THE INTERFACE BETWEEN THE CABINET AND PAD. IF THE WIRE CAN BE PASSED THROUGH, THE PADVAULT HAS FAILED THE TEST AND IS NOT ACCEPTABLE.

7. PROVIDE AMCOR TYPE GV151 PADVAULT OR AS APPROVED OR DIRECTED BY ROCKY MOUNTAIN POWER.

8. REQUIREMENTS ARE SUBJECT TO CHANGE. SUBMIT PADVAULT TO ROCKY MOUNTAIN POWER FOR APPROVAL PRIOR TO THE PURCHASE AND INSTALLATION OF THE PADVAULT, AND INCLUDE ALL COSTS IN BID.

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#	Date	Revision

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
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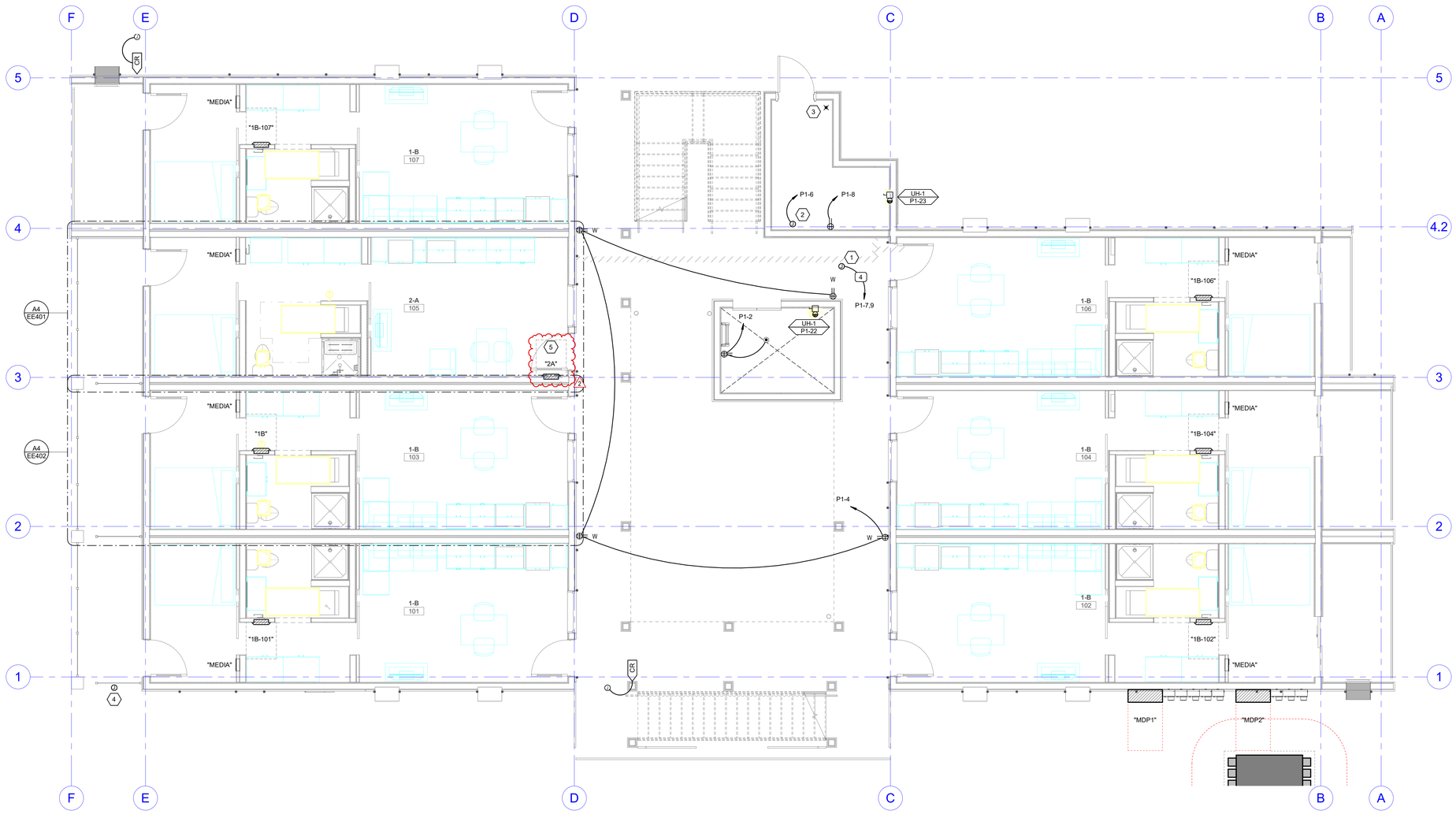
SITE ELECTRICAL DETAILS

ES501

5/21/2021 9:28:24 PM



A6 LEVEL 1 POWER PLAN
SCALE: 1/4" = 1'-0"

8/3/2021 3:42:32 PM

GENERAL SHEET NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ALL LINE VOLTAGE AS PART OF THIS PROJECT. PROVIDE LINE VOLTAGE REQUIRED TO ALL SYSTEMS PROVIDED AS PART OF THIS PROJECT. COORDINATE WITH ALL OTHER DISCIPLINES AND DRAWINGS.
2. CONTRACTOR IS RESPONSIBLE FOR ALL DEVICES, GEAR, CABLE, CONDUCTORS, TERMINATIONS, OVERCURRENT PROTECTION DEVICES, AND HEAD END EQUIPMENT AS PART OF THIS PROJECT.
3. CORE DRILL THE FLOOR FOR POKE THROUGHS. COORDINATE EXACT LOCATION WITH ARCHITECT.
4. VERIFY FLOOR BOX, POWER POLE, AND POKE-THROUGH DEVICE LOCATIONS WITH ARCHITECT/OWNER PRIOR TO ROUGH IN OR INSTALLATION.
5. ALL RACEWAYS SHALL BE CONCEALED IN WALLS, FLOORS, AND CEILING UNLESS OTHERWISE NOTED. INSTANCES WHERE EXPOSED OR SURFACE MOUNTED RACEWAYS IS REQUIRED A ROUTING SKETCH SHALL BE PROVIDED TO ARCHITECT AND ENGINEER. RACEWAY TYPE SHALL BE SELECTED BY ENGINEER. FINISH OF RACEWAY SHALL BE SELECTED BY ARCHITECT.
6. COORDINATE EXACT LOCATION OF ELECTRICAL CONNECTION POINT TO ROOF TOP UNITS AND ALL OTHER MECHANICAL EQUIPMENT TO ENSURE APPROPRIATE ROOF PENETRATION LOCATIONS.
7. ENSURE THAT THE REQUIRED DEDICATED ELECTRICAL SPACE IS PROVIDED ABOVE THE ELECTRICAL PANELBOARDS PER NEC ARTICLE 110.26(E)(1).

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO HEAT TRACE ON FIRE PROTECTION PIPING. PROVIDE GFI BREAKER WITH 30 MILLIAMP TRIP. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH FIRE PROTECTION INSTALLERS.
2. PROVIDE POWER TO IRRIGATION CONTROLLER. COORDINATE INSTALLATION AND LANDSCAPE DETAILS WITH OWNER PRIOR TO ROUGH-IN.
3. (2) 2" CONDUITS FOR GOOGLE FIBER ARE TO BE RAN FROM THE STREET TO THE STORAGE ROOM. CONDUIT SHOULD RUN FROM THE STORAGE ROOM TO EACH UNIT IN THE BUILDING.
4. PROVIDE POWER FOR SIGNAGE. COORDINATE DETAILS WITH ARCHITECT/OWNER.
5. PANEL IS TO BE MOUNTED BEHIND ENTRYWAY DOOR FOR UNIT TYPE "A" ONLY. CONFIRM WITH ARCHITECT BEFORE ROUGH-IN.

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1	07.12.21	RFI #002
2	08.03.21	CITY COMMENTS #1

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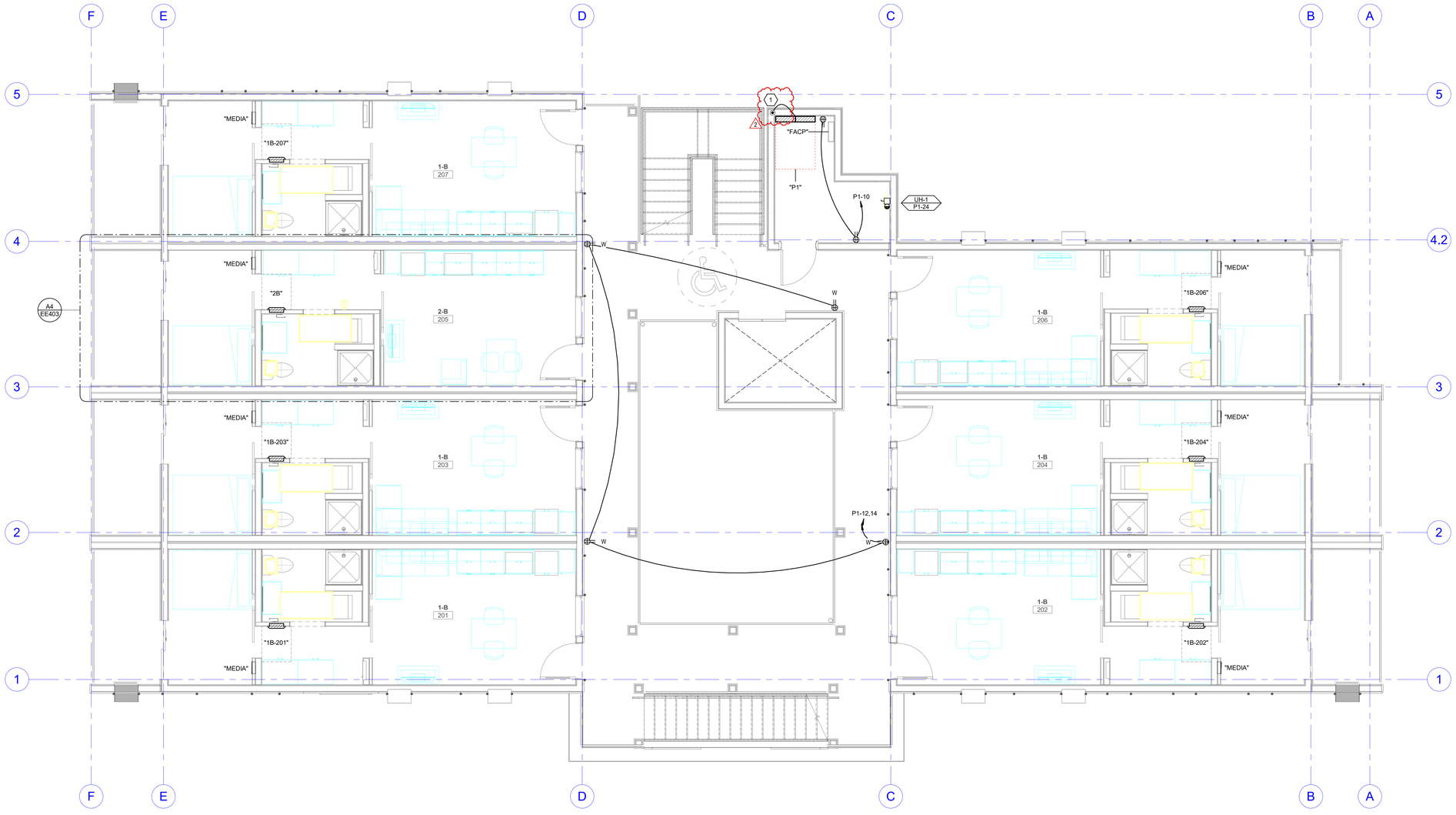
DATE: 05/21/2021

LEVEL 1 POWER PLAN

EP101



A6 LEVEL 2 POWER PLAN
SCALE: 1/4" = 1'-0"

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SHEET KEYNOTES

1. CONNECT TO UFER GROUND IN CONCRETE FOOTING. COORDINATE WITH ARCHITECT/ STRUCTURAL DRAWINGS PRIOR TO ROUGH-IN.

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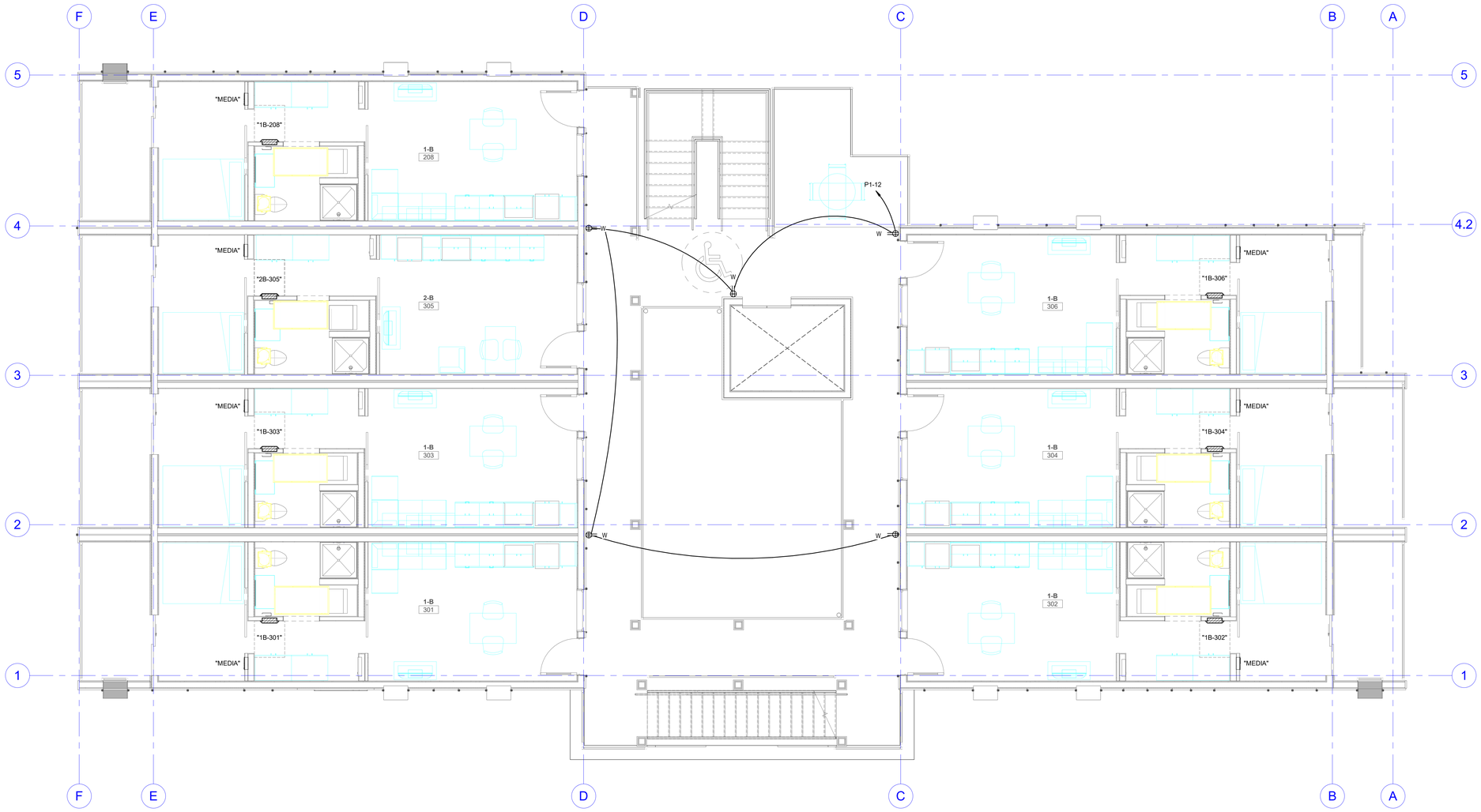
LEVEL 2 POWER PLAN

EP102



A6 LEVEL 3 POWER PLAN
SCALE: 1/4" = 1'-0"

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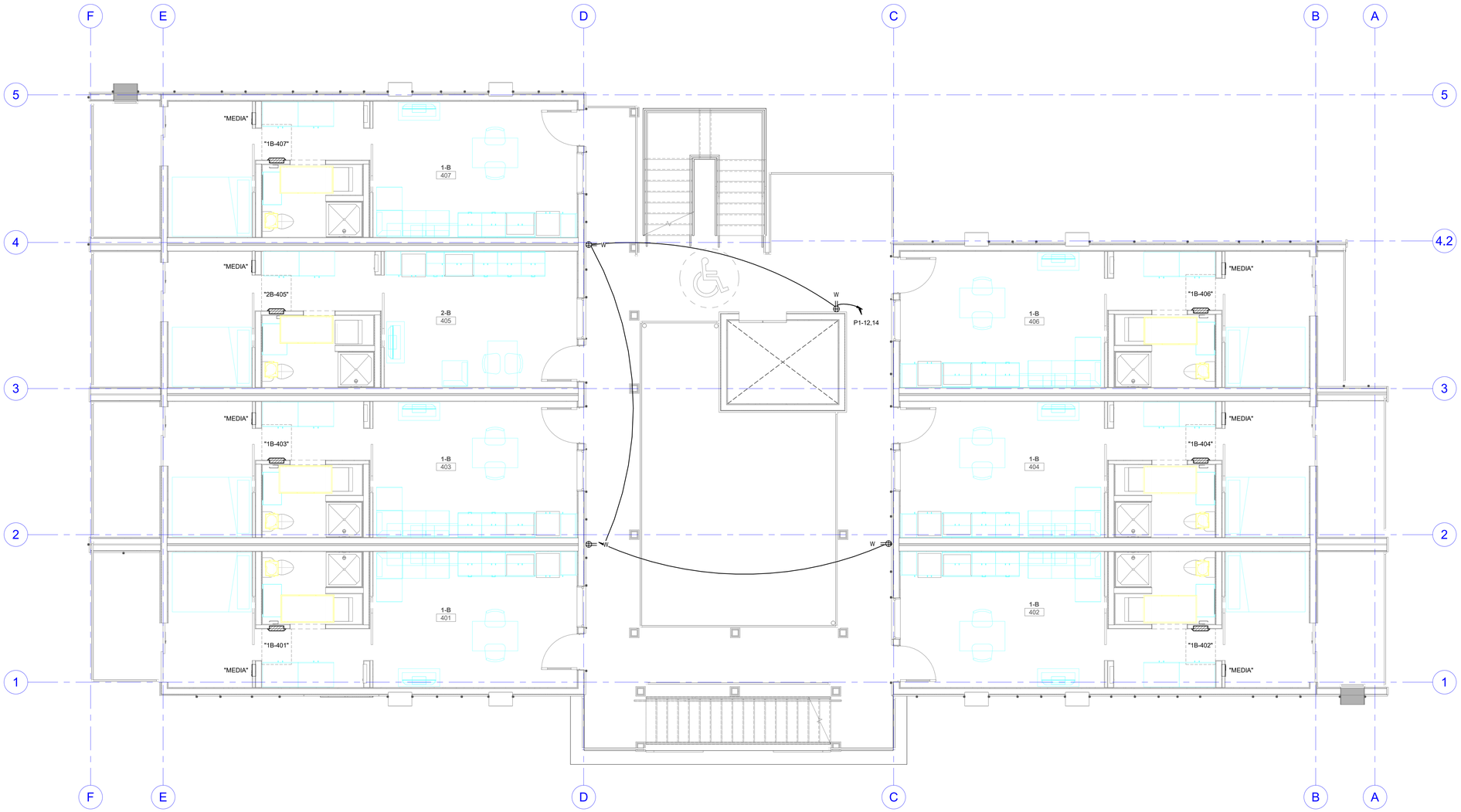
LEVEL 3 POWER PLAN

EP103



A6 LEVEL 4 POWER PLAN
SCALE: 1/4" = 1'-0"

8/3/2021 3:42:45 PM

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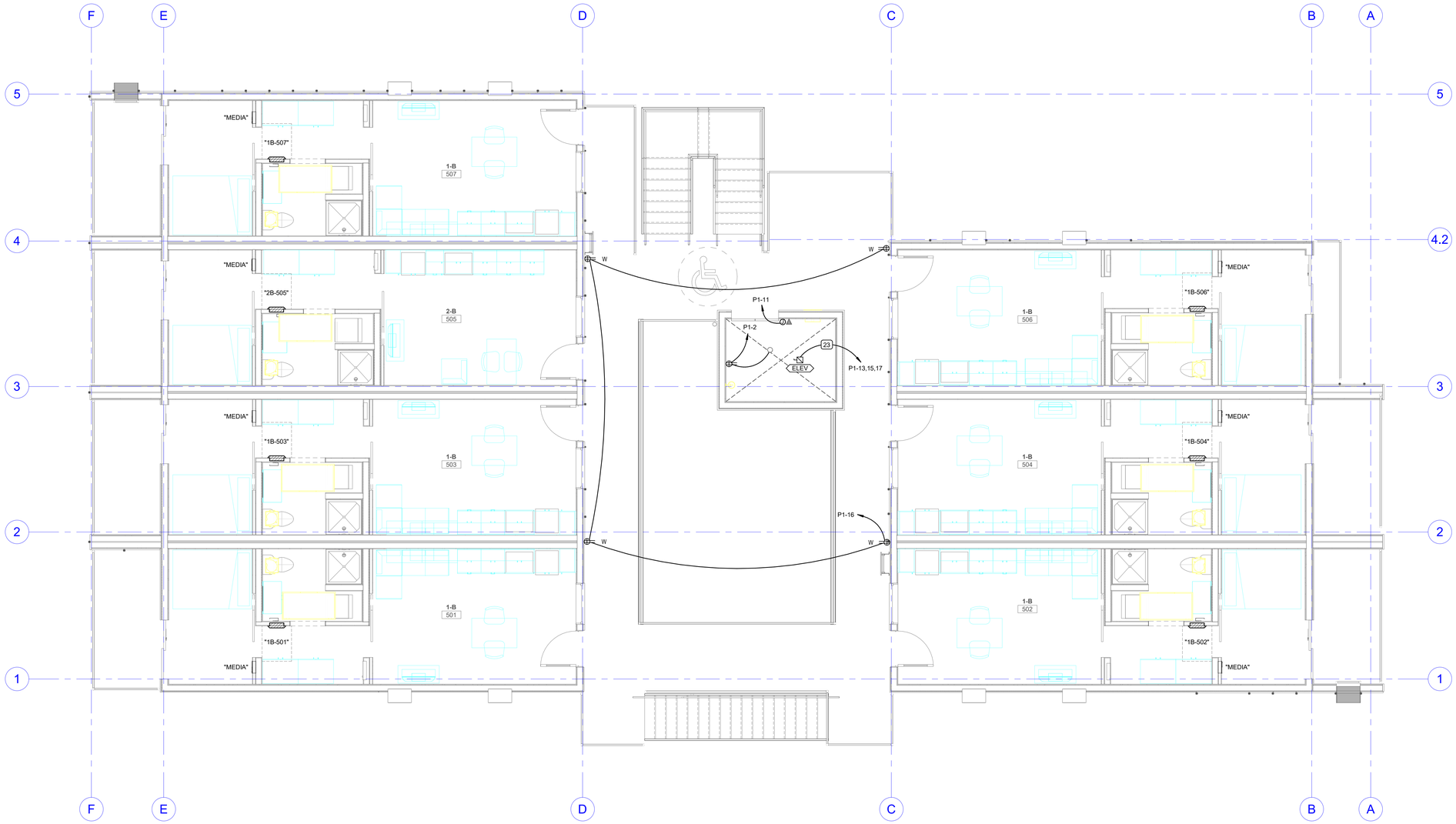
LEVEL 4 POWER PLAN

EP104



A6 LEVEL 5 POWER PLAN
SCALE: 1/4" = 1'-0"

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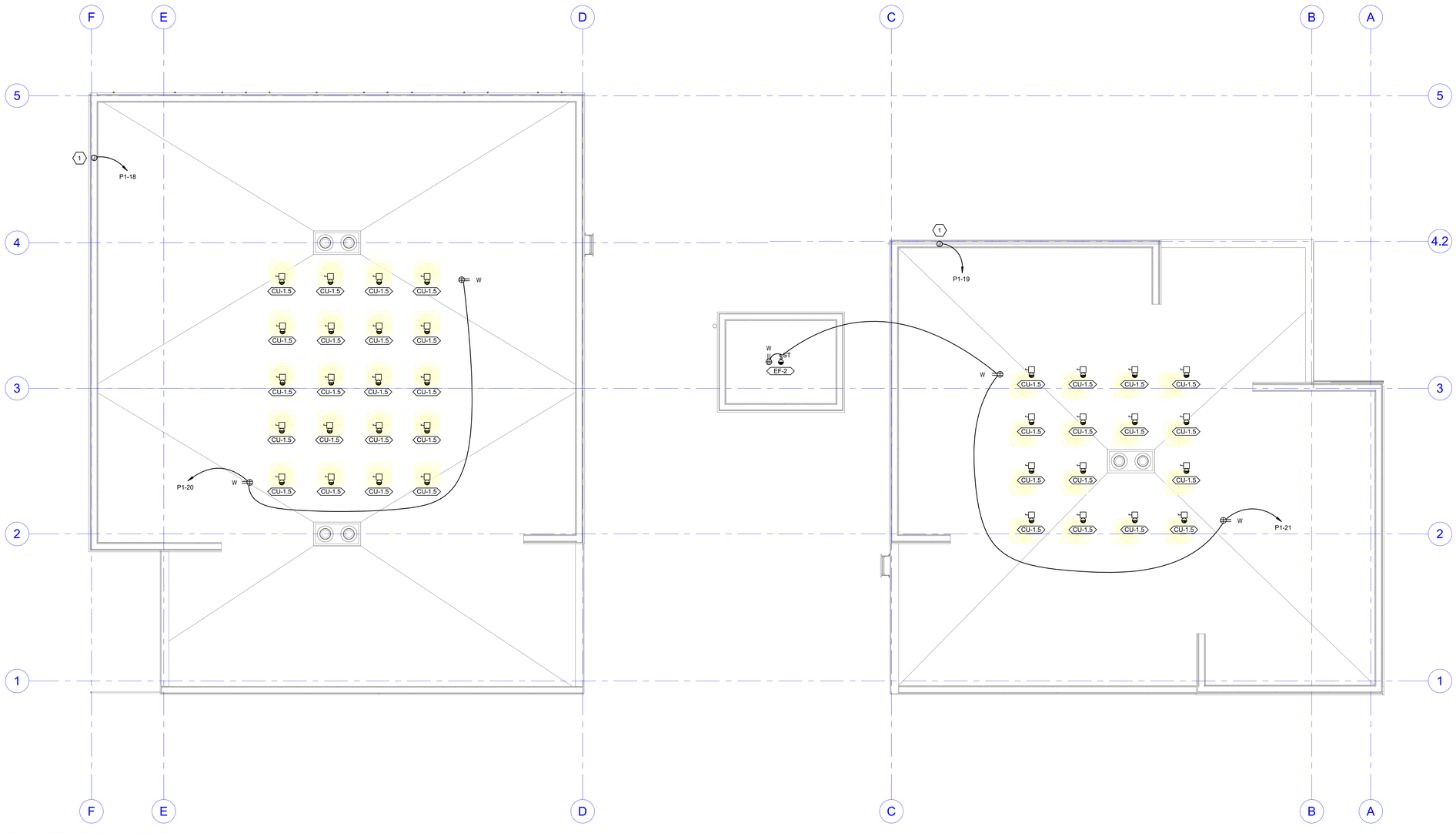
LEVEL 5 POWER PLAN

EP105



A6 ROOFTOP POWER PLAN
SCALE: 1/4" = 1'-0"

5/21/2021 9:27:52 PM

GENERAL SHEET NOTES

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4 VERIFY FLOOR BOX, POWER POLE, AND POKE-THROUGH DEVICE LOCATIONS WITH ARCHITECT/OWNER PRIOR TO ROUGH IN OR INSTALLATION.

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ROOFTOP POWER PLAN

EP106

PROVIDE PERMANENT LABEL ON "MAIN SWITCHBOARD" STATING:

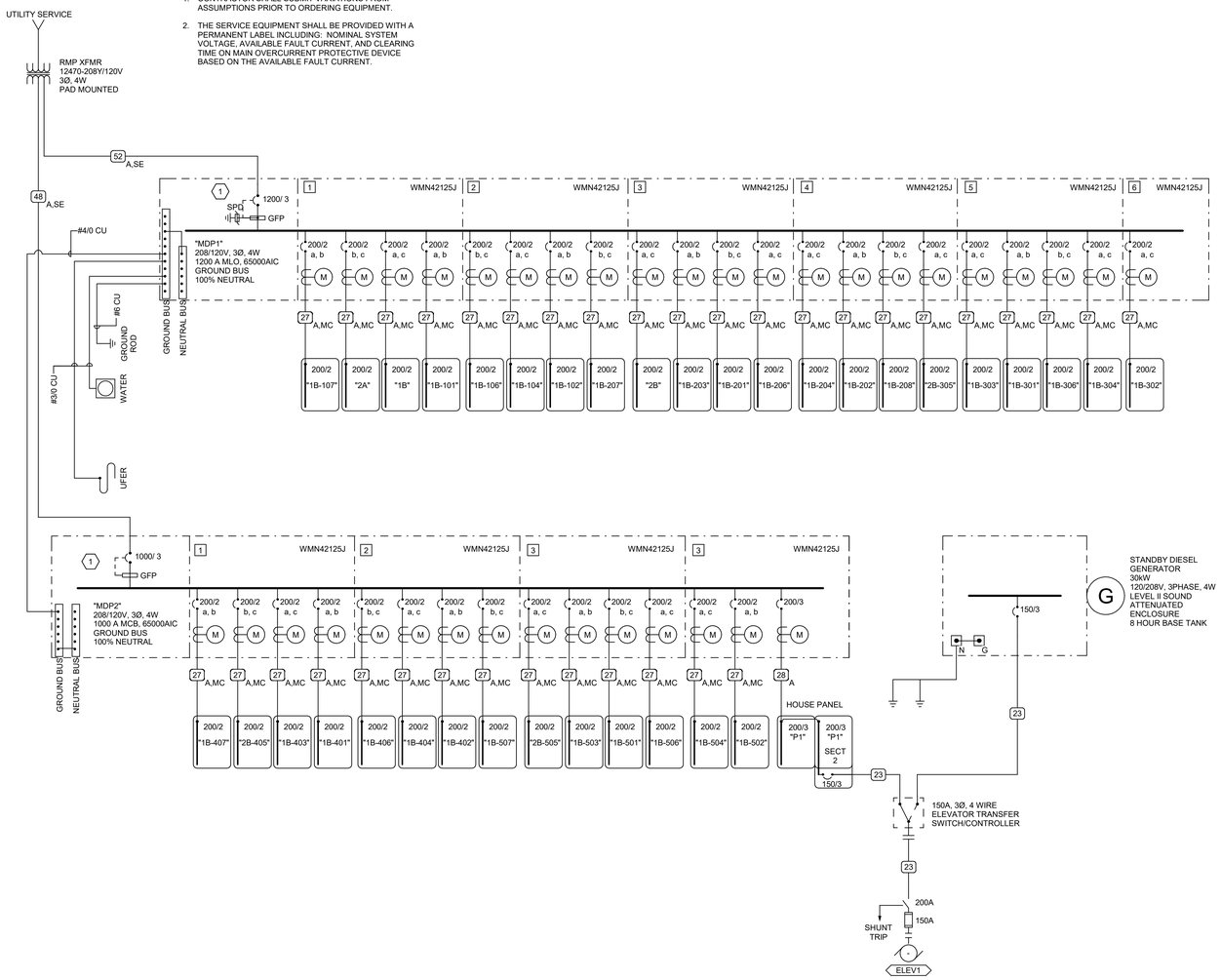
"MAXIMUM CALCULATED AIC - XXXXXA, 1980-07- 11"

CALCULATIONS ARE BASED ON THE FOLLOWING ASSUMPTIONS:

- INFINITE PRIMARY
- UTILITY TRANSFORMNER SIZE XXXkVA
- TRANSFORMER IMPEDANCE OF XX%
- SUPPLY FEEDER LENGTH OF XX'

NOTES:

1. CONTRACTOR SHALL SUBMIT VARIATIONS FROM ASSUMPTIONS PRIOR TO ORDERING EQUIPMENT.
2. THE SERVICE EQUIPMENT SHALL BE PROVIDED WITH A PERMANENT LABEL INCLUDING: NOMINAL SYSTEM VOLTAGE, AVAILABLE FAULT CURRENT, AND CLEARING TIME ON MAIN OVERCURRENT PROTECTIVE DEVICE BASED ON THE AVAILABLE FAULT CURRENT.



A1 ONE-LINE DIAGRAM - NORMAL

SCALE: NTS

5/21/2021 9:28:04 PM

COPPER CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G. 5 IG)

SYM	AMP	HH AMPS	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG/HH	SE	NOTES
1	20	-	.75	2	12	12	12	8	2
2	20	-	.75	3	12	12	12	8	2,3
3	20	24	.75	4	12	12	12	8	2,3
4	30	-	.75	2	10	10	10	8	2
5	30	-	.75	3	10	10	10	8	2
6	30	32	.75	4	10	10	10	8	2
7	40	-	1	2	8	10	8	6	2
8	40	-	1	3	8	10	8	6	2
9	40	44	1	4	8	10	8	6	2
10	55	-	1	2	6	10	8	4	2
11	55	-	1	3	6	10	8	4	2
12	55	60	1.25	4	6	10	8	4	2
13	70	-	1	2	4	8	4	2	2
14	70	-	1.25	3	4	8	4	2	2
15	70	76	1.25	4	4	8	4	2	2
16	85	-	1.25	2	3	8	3	2	2
17	85	-	1.25	3	3	8	3	2	2
18	85	92	1.25	4	3	8	3	2	2
19	95	-	1.25	3	2	8	2	2	2
20	95	104	1.50	4	2	8	2	2	2
21	130	-	1.50	3	1	6	2	2	2
22	130	116	1.50	4	1	6	2	2	2
23	150	-	2	3	1/0	6	2	1/0	2
24	150	136	2	4	1/0	6	2	1/0	2
25	175	-	2	3	2/0	6	2	2/0	2
26	175	156	2	4	2/0	6	2	2/0	2
27	200	-	2	3	3/0	6	2	2/0	2
28	200	180	2.50	4	3/0	6	2	2/0	2
29	230	-	2.50	3	4/0	4	2	2/0	2
30	230	208	2.50	4	4/0	4	2	2/0	2
31	255	-	2.50	3	250	4	1	2/0	2
32	255	232	2.50	4	250	4	1	2/0	2
33	310	-	3	3	350	3	1/0	3/0	2
34	310	280	3	4	350	3	1/0	3/0	2
35	380	-	3.50	3	500	3	3/0	3/0	2
36	380	344	4	4	500	3	3/0	3/0	2
37	400	-	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	360	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	-	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	464	2 EA 3	4	250	1	4/0	3/0	2
41	620	-	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	560	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	-	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	688	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	-	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	768	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	-	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	912	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	-	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	1032	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	-	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	1120	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	1520	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	1824	6 EA 4	4	400	250	250	250	4
55	2660	2408	7 EA 4	4	500	350	350	350	4
56	3040	2752	8 EA 4	4	500	500	500	500	4
57	4180	3784	11 EA 4	4	500	500	500	500	4
58	-	-	5 EA 4	-	-	-	-	-	6
59	-	-	5	-	-	-	-	-	6
60	-	-	10 EA 4	-	-	-	-	-	6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS SIZED AS SCHEDULED FOR PHASE AND NEUTRAL CONDUCTORS WHERE THE CONDUCTOR IS #1/0 OR LARGER. INCLUDE A SINGLE 200% RATED CONDUCTOR THAT IS TWICE THE AMPACITY OF THE SCHEDULED PHASE AND NEUTRAL CONDUCTOR WHERE THE CONDCUTOR IS BELOW #1/0 IN SIZE.
   - "FG" FULL SIZE GROUND, SIZE EQUIPMENT GROUNDING CONDUCTOR TO BE SAME SIZE AS THE PHASE CONDUCTORS.
   - "HH": NEUTRAL CURRENTS EXIST DUE TO HIGH HARMONIC "NONLINEAR" LOADS. CURRENT CARRYING CONDUCTORS DERATED ACCORDINGLY. PROVIDE THE IG/HH SIZE FOR THE EQUIPMENT GROUNDING CONDUCTOR.
   - "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

BRANCH CIRCUIT CONDUCTOR AND CONDUIT SIZING TABLE

CIRCUIT AMPACITY/VOLTAGE	CIRCUIT LENGTH	CONDUCTOR SIZE (PHASE, NEUTRAL AND GR)	CONDUIT SIZE
20A/120V	0' - 60'	#12 AWG	0.75" Ø
20A/120V	60' - 95'	#10 AWG	0.75" Ø
20A/120V	95' - 150'	#8 AWG	1" Ø
20A/120V	150' - 240'	#6 AWG	1.25" Ø
20A/277V	0' - 140'	#12 AWG	0.75" Ø
20A/277V	140' - 220'	#10 AWG	0.75" Ø
20A/277V	220' - 350'	#8 AWG	1" Ø
20A/277V	350' - 550'	#6 AWG	1.25" Ø

NOTES:

1. WIRE SIZING IS BASED ON COPPER CONDUCTORS SUPPLYING A 20A, 120V CIRCUIT AT THE INDICATED VOLTAGE, ASSUMED TO BE 80% LOADED (16A), WITH MAXIMUM VOLTAGE DROP OF 3% AT THE LOAD.
2. DOWN-SIZED WIRE AT DEVICE/LOAD AS REQUIRED AND TERMINATE CONDUCTORS IN A SAFE AND CODE COMPLIANT MANNER.
3. CONDUIT SIZE IS BASED ON A MAXIMUM OF 3 CIRCUITS PER CONDUIT, EACH WITH A SEPARATE NEUTRAL CONDUCTOR.

FAULT CURRENT TABLE

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

BUS	FAULT CURRENT
1DPHA	
1DPLA	
1LA	
1LB	
1QLA	
2LA	
2LB	
3LA	

BUS	FAULT CURRENT
3LB	
A	
CTM	
ELA	
INV-1	
MDP1	
MDP2	
P1	
QDP	
XXX	
ZL1	

ALUMINUM CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G. 5 IG)

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1A								
2A								
3A								
4A								
5A								
6A								
7A								
8A								
9A								
10A								
11A								
12A								
13A								
14A								
19A								
18A								
17A								
18A								
19A								
20A								
21A	130	2	3	2/0	4	1/0	4	2,7
22A	130	2	4	2/0	4	1/0	4	2,7
23A	150	2	3	3/0	4	1/0	4	2,7
24A	150	2	4	3/0	4	1/0	4	2,7
25A	175	2	3	4/0	4	1/0	2	2,7
26A	175	2.50	4	4/0	4	1/0	2	2,7
27A	200	2.50	3	250	4	1/0	2	2,7
28A	200	3	4	250	4	1/0	2	2,7
29A	230	2.50	3	300	2	1/0	1/0	2,7
30A	230	3	4	300	2	1/0	1/0	2,7
31A	250	3	3	350	2	2/0	1/0	2,7
32A	250	3	4	350	2	2/0	1/0	2,7
33A	310	3	3	500	1	3/0	1/0	2,7
34A	310	4	4	500	1	3/0	1/0	2,7
35A	380	2 EA 2.50	3	250	1	4/0	3/0	2,7
36A	380	2 EA 3	4	250	1	4/0	3/0	2,7
37A	400	2 EA 2.50	3	250	1/0	4/0	3/0	2,7
38A	400	2 EA 2.50	4	250	1/0	4/0	3/0	2,7
39A	500	2 EA 3	3	350	1/0	300	3/0	2,4,7
40A	500	2 EA 3	4	350	1/0	300	3/0	2,4,7
41A	620	2 EA 3	3	500	3/0	300	3/0	2,4,7
42A	620	2 EA 4	4	500	3/0	300	3/0	2,4,7
43A	750	3 EA 3	3	350	3/0	300	4/0	2,4,7
44A	750	3 EA 3	4	350	3/0	300	4/0	2,4,7
45A	810	3 EA 3	3	400	4/0	300	250	2,4,7
46A	810	3 EA 4	4	400	4/0	300	250	2,4,7
47A	1000	4 EA 3	3	350	4/0	300	250	4,7
48A	1000	4 EA 3	4	350	4/0	300	250	4,7
49A	1140	4 EA 4	3	500	250	300	250	4,7
50A	1140	4 EA 4	4	500	250	300	250	4,7
51A	1240	4 EA 4	3	500	350	300	250	4,7
52A	1240	4 EA 4	4	500	350	300	250	4,7
53A	1620	6 EA 4	4	400	400	350	250	4,7
54A	2170	7 EA 4	4	500	400	500	250	4,7
55A	2695	7 EA 4	4	750	600	750	750	4,7
56A	3080	8 EA 4	4	750	600	750	750	4,7
57A	4235	11 EA 4	4	750	800	750	750	4,7
58A	-	5 EA 4	-	-	-	-	-	6
59A	-	5	-	-	-	-	-	6
60A	-	10 EA 4	-	-	-	-	-	6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
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5. SYMBOL SUBSCRIPTS:
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
   - "FG" FULL SIZE GROUND, SIZE EQUIPMENT GROUNDING CONDUCTOR TO BE SAME SIZE AS THE PHASE CONDUCTORS.
   - "HH": NEUTRAL CURRENTS EXIST DUE TO HIGH HARMONIC "NONLINEAR" LOADS. CURRENT CARRYING CONDUCTORS DERATED ACCORDINGLY.
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   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.
7. ALUMINUM CONDUCTORS NOT TO BE USED FOR CONNECTION TO MOTORS OR MOTOR DRIVEN EQUIPMENT.

EQUIPMENT NAMEPLATE SCHEDULE

EQUIPMENT ID SCHEME	FIRST DIGIT - BUILDING LEVEL (0, 1, 2, ETC) SECOND DIGIT - PANEL TYPE M - MECHANICAL H - (277/480) L - (120/208) E - EMERGENCY S - STANDBY Q - EQUIPMENT U - UPS K - KITCHEN (120/208) THIRD DIGIT - BUILDING AREA (A, B, C, ETC) FOURTH DIGIT - SEQUENCE # (1,2,3,...)
LABEL FORMAT	[NAME] [SYSTEM] [VOLTAGE] [FED FROM] [SOURSE(S)]
LABEL EXAMPLE	PANEL "4LA1" STANDBY POWER 120/208V FED FROM BUS-A / XFMR 4TA
BUSWAY	LABEL BUSWAY EVERY 6' WHERE EXPOSED TO VIEW AND EVERY 15' WHERE NOT EXPOSED TO VIEW
OTHER	

COLOR SCHEME

SYSTEM	EQUIPMENT	NAMEPLATE COLOR TEXT	BACKGROUND
NORMAL POWER	ALL GEAR NOT INCLUDED BELOW	WHITE	BLACK
STANDBY POWER	MDPS1 AND ALL DOWNSTREAM GEAR, EXCEPT UPS GEAR AS NOTED	WHITE	ORANGE
EMERGENCY POWER	GDP1, GDP2, ATS-E AND ALL DOWNSTREAM GEAR	WHITE	RED
LEGALLY-REQUIRED STANDBY POWER	ATS-S AND ALL DOWNSTREAM GEAR	RED	WHITE
UPS "A" POWER	UPSA AND ALL DOWNSTREAM GEAR	WHITE	BLUE
UPS "B" POWER	UPSB AND ALL DOWNSTREAM GEAR	BLACK	YELLOW

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO ELECTRICAL SPECIFICATIONS FOR REQUIREMENTS.
4. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER NEC 230.95(C).

SHEET KEYNOTES

1. PROVIDE A PERMANENT PLAQUE AT EACH SERVICE DISCONNECT DENOTING ALL OTHER SERVICES, FEEDERS, BRANCH CIRCUITS SUPPLYING THIS BUILDING AND THE AREAS SERVED BY EACH IN ACCORDANCE WITH THE REQUIREMENTS IN NEC 230.2 AND 225.37.

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LICENSED PROFESSIONAL ENGINEER
No. 8182456
TYLER SQUIRE
STATE OF UTAH
05/21/2021

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#	Date	Revision

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
CHECKED BY: TDS
DRAWN BY: JCJ
DATE: 05/21/2021

ONE-LINE DIAGRAM - NORMAL

EP601

EQUIPMENT SCHEDULE

EQUIPMENT SCHEDULE KEY
E - DIVISION 26
Q - FURNISHED WITH EQUIPMENT
* - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
** - AUTOMATIC CONTROL WIRING BY DIVISION 23

NOTES:
1. NEMA 3R
2. TOGGLE SWITCH W/ THERMAL OVERLOAD.
3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP.
4. CONTRACTOR TO PERFORM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS.
5. TOGGLE SWITCH W/BACNET INTERFACE.
6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH.
7. PROVIDE SWITCH WITH BACNET MS/TP CAPABILITY.
8. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR."
9. LINE VOLTAGE THERMOSTAT ON WALL.
10. PROVIDE EXPLOSION PROOF DEVICES AND WIRING METHODS.
11. PROVIDE DUAL-REDUNDANT 100% RATED VFD'S FOR AIR HANDLER.
12. PROVIDE MANUAL STARTER WITH THERMAL OVERLOAD AND RELAY FOR ATC/BAS CONTROL.

GENERAL NOTES:
1. WHERE DISCONNECTS, STARTERS, OR VFCs ARE BEING PROVIDED BY ELECTRICAL CONTRACTOR, LOCATE EQUIPMENT IN ACCESSIBLE LOCATION, SUCH THAT IT IS WITHIN SITE OF THE MECHANICAL EQUIPMENT IT IS SERVING, AND COMPLIES WITH N.E.C. REQUIRED CLEARANCES.

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER										
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
CU-1.5	35	CONDENSING UNIT	-	-	-	20	208	1	60	2 #10, #10 GR 0.75" CND	E	30/2 CB		E	30A/2P NF	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		CU-1.5
EF-2	1	EXHAUST FAN	1/2	-	-	9.8	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	P1	E	TOGGLE SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		EF-2

PANEL: "P1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	FED FROM:	CABINET:	LOCATION:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	200 AMPERE MAIN LUGS		SURFACE	STORAGE 210	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR — AIC RATING: 0

CKT	OCP			LOAD (kVA)			PHASE LOAD						LOAD (kVA)			OCP			CKT
NO	AMP	POLE	BKR	LTG	PWR	CO	A		B		C		CO	PWR	LTG	BKR	POLE	AMP	NO
1	20	1		1.5	0.0	0.0	LTG: LEVEL 1 & 2 CORRIDORS	1.5	0.4					CO: ELEVATOR PIT	0.4	0.0	0.0		1	20	2
3	20	1		1.4	0.0	0.0	LTG: LEVEL 3, 4 & 5 CORRIDORS			1.4	0.7			CO: LEVEL 1	0.7	0.0	0.0		1	20	4
5	20	1		0.2	0.0	0.0	LTG: LEVEL 1 & 2 ELECTRICAL...					0.2	0.2	PWR: IRRIGATION CONTROLS	0.0	0.2	0.0		1	20	6
7	30	2		0.0	0.2	0.0	PWR: HEAT TRACE LEVEL 1	0.1	0.2					CO: FIRE RISER	0.2	0.0	0.0		1	20	8
9	--	--	--	--	--	--	--			0.1	0.4			CO: LEVEL 2	0.4	0.0	0.0		1	20	10
11	20	1		0.0	0.2	0.0	PWR: ELEVATOR					0.2	1.6	CO: LEVEL 3	1.6	0.0	0.0		1	20	12
13	20	3		0.0	0.0	0.0	PWR: ELEVATOR	0.0	0.7					CO: LEVEL 4	0.7	0.0	0.0		1	20	14
15	--	--	--	--	--	--	--			0.0	0.7			CO: LEVEL 5	0.7	0.0	0.0		1	20	16
17	--	--	--	--	--	--	--					0.0	0.2	PWR: NORTH SIGNAGE	0.0	0.2	0.0		1	20	18
19	20	1		0.0	0.2	0.0	PWR: EAST SIGNAGE	0.2	0.4					CO: ROOFTOP	0.4	0.0	0.0		1	20	20
21	20	1		0.0	1.2	0.5	CO: ROOFTOP POWER/ FAN			1.7	0.0			SPARE	--	--	--	--	1	20	22
23	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	24
25	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	26
27	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	28
29	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	30
31	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	32
33	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	34
35	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	36
37	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	38
39	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	40
41	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	42
43	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	44
45	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	46
47	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	48
49	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	50
51	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	52
53	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	54
55	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	56
57	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	58
59	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	60
61	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	62
63	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	64
65	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	66
67	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	68
69	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	70
71	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	72
73	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	74
75	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	76
77	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	78
79	20	1	--	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	--	1	20	80
81	20	1	--	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	--	1	20	82
83	20	1	--	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	--	1	20	84
TOTALS:							CONNECTED kVA PER PHASE	3		5		2		CONNECTED TOTAL kVA =	11						
							CONNECTED AMPS PER PHASE	29		43		19		AVERAGE CONNECTED AMPS PER PHASE =	30						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **3.1 kVA @ 125% = 3.8 kVA** - 100% CONNECTED LOAD PLUS 25%
RECEPTACLES: **5.6 kVA @ 100% = 5.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50%
ALL OTHER LOADS @ 100% : **2.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **12**
AVERAGE AMPS PER PHASE = **33**

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

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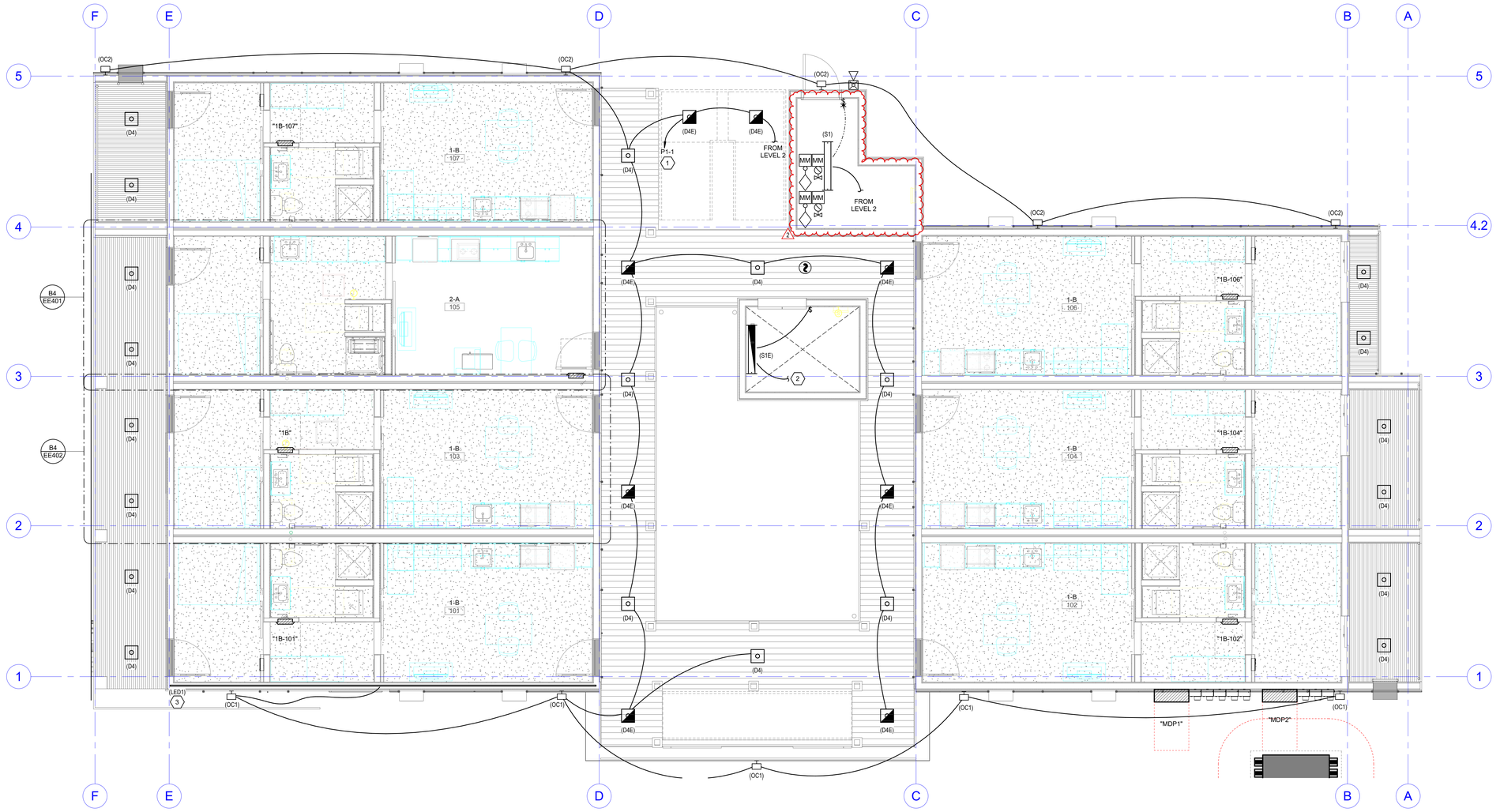
ELECTRICAL SCHEDULES

EP602

5/21/2021 9:28:07 PM



A6 LEVEL 1 LIGHTING/FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"

8/3/2021 3:41:46 PM

GENERAL SHEET NOTES

1 ALL CEILING MOUNTED LIGHT FIXTURES AND DEVICES SHALL BE CENTERED IN CEILING TILE, UNLESS OTHERWISE NOTED.

2 CIRCUIT ALL EXIT SIGNS TO NEAREST UNSWITCHED LEG OF EMERGENCY LIGHTING CIRCUIT.

3 ALL ENCLOSED SPACES SHALL HAVE MANUAL ON LIGHTING CONTROL WITH AUTOMATIC OFF VIA DUAL TECHNOLOGY SENSOR OR TIME CLOCK. SENSOR(S) SHALL PROVIDE A MINIMUM OF 90 PERCENT COVERAGE IN SPACE. PROVIDE ADDITIONAL SENSORS AS REQUIRED. COMPLY WITH 2015 IECC SECTION C405.

4 INSTALL LIGHT FIXTURES INLINE AND CENTERED.

5 COORDINATE ALL LIGHT FIXTURE MOUNTING HEIGHTS WITH ARCHITECT.

6 ARCHITECT TO SELECT ALL LIGHT FIXTURE FINISHES.

7 LOCATE ALL VACANCY/OCCUPANCY SENSORS MINIMUM OF 6 FEET FROM SUPPLY AIR DIFFUSERS AND 3 FEET FROM RETURN AIR DIFFUSERS.

8 ALL CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL TECHNOLOGY WITH BUILT IN LIGHT LEVEL SENSOR AND BAS/HVAC ISOLATED RELAY.

9 ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.

10 LOCATE ALL ROOM CONTROLLER IN ACCESSIBLE CEILING.

SHEET KEYNOTES

1 RUN CIRCUIT THROUGH PROGRAMMABLE TIMECLOCK WITH PHOTOCELL INPUT. LIGHTS SHALL TURN ON AT DUSK AND OFF AT DAWN.

2 CIRCUIT WITH ELEVATOR PIT RECEPTACLE AND LIGHT FIXTURE AND RECEPTACLE AT TOP OF SHAFT.

3 RECESSED LED STRIP LIGHTING TO BE MOUNTED UNDER SOFFIT. COORDINATE DETAILS WITH ARCHITECT.

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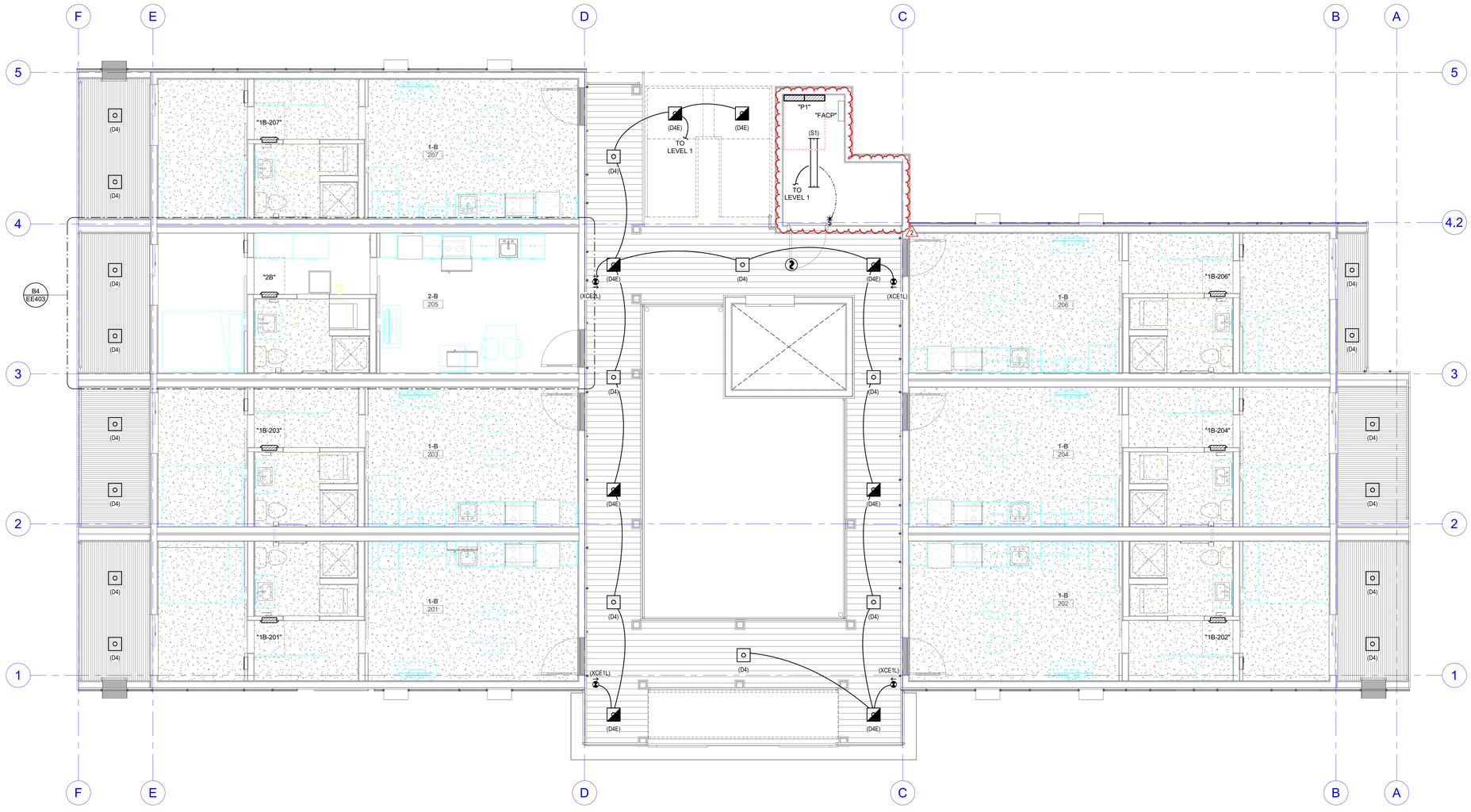
LEVEL 1 LIGHTING/FIRE ALARM PLAN

EL101



A6 LEVEL 2 LIGHTING/FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"

8/3/2021 3:41:52 PM

GENERAL SHEET NOTES

1 ALL CEILING MOUNTED LIGHT FIXTURES AND DEVICES SHALL BE CENTERED IN CEILING TILE, UNLESS OTHERWISE NOTED.

2 CIRCUIT ALL EXIT SIGNS TO NEAREST UNSWITCHED LEG OF EMERGENCY LIGHTING CIRCUIT.

3 ALL ENCLOSED SPACES SHALL HAVE MANUAL ON LIGHTING CONTROL WITH AUTOMATIC OFF VIA DUAL TECHNOLOGY SENSOR OR TIME CLOCK. SENSOR(S) SHALL PROVIDE A MINIMUM OF 90 PERCENT COVERAGE IN SPACE. PROVIDE ADDITIONAL SENSORS AS REQUIRED. COMPLY WITH 2015 IECC SECTION C405.

4 INSTALL LIGHT FIXTURES INLINE AND CENTERED.

5 COORDINATE ALL LIGHT FIXTURE MOUNTING HEIGHTS WITH ARCHITECT.

6 ARCHITECT TO SELECT ALL LIGHT FIXTURE FINISHES.

7 LOCATE ALL VACANCY/OCCUPANCY SENSORS MINIMUM OF 6 FEET FROM SUPPLY AIR DIFFUSERS AND 3 FEET FROM RETURN AIR DIFFUSERS.

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9 ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.

10 LOCATE ALL ROOM CONTROLLER IN ACCESSIBLE CEILING.

SHEET KEYNOTES

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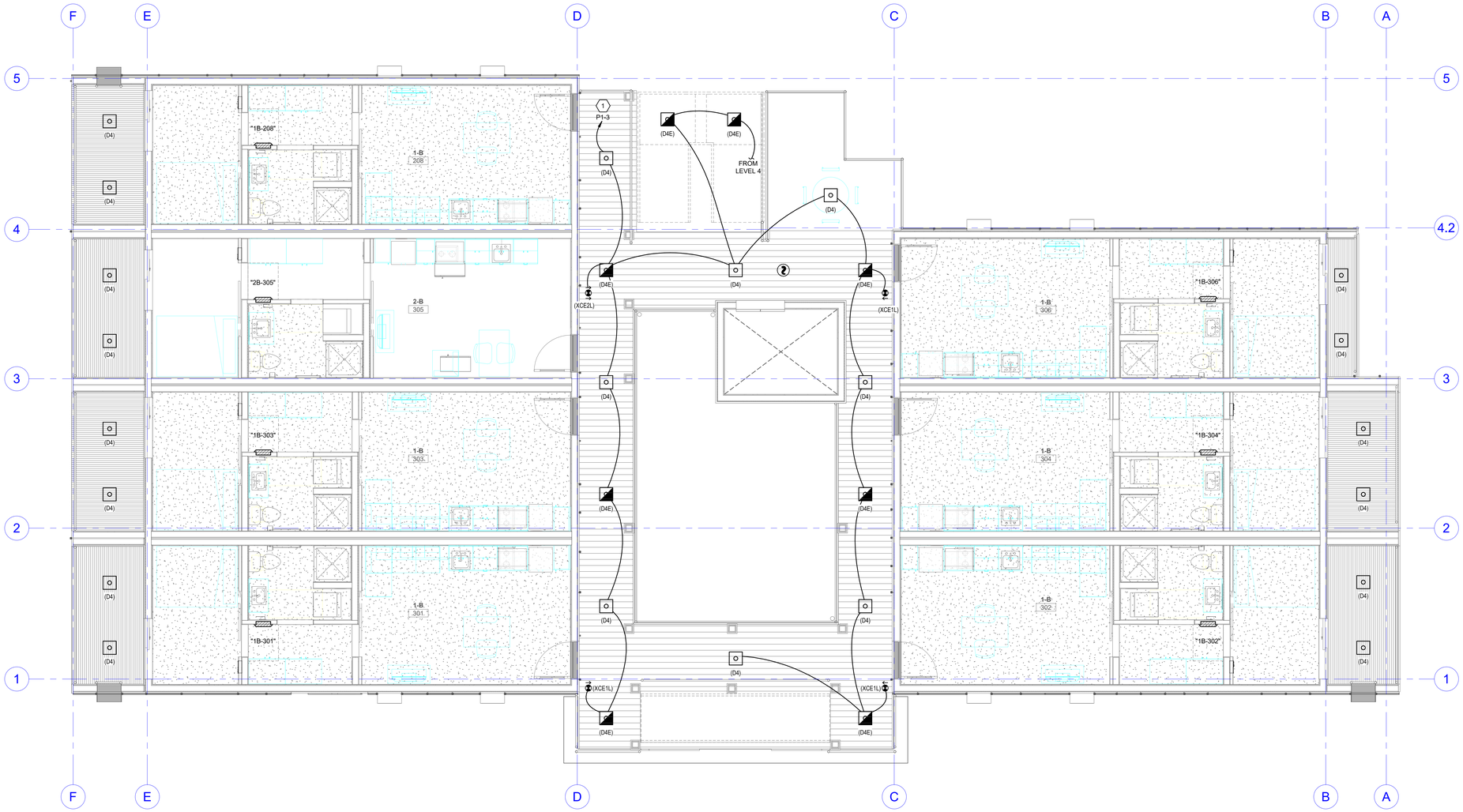
LEVEL 2 LIGHTING/FIRE ALARM PLAN

EL102



A6 LEVEL 3 LIGHTING/FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"

5/21/2021 9:26:38 PM

GENERAL SHEET NOTES

1 ALL CEILING MOUNTED LIGHT FIXTURES AND DEVICES SHALL BE CENTERED IN CEILING TILE, UNLESS OTHERWISE NOTED.

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5 COORDINATE ALL LIGHT FIXTURE MOUNTING HEIGHTS WITH ARCHITECT.

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9 ALL LIGHT FIXTURES THAT PENITRATE FIRE RATED SURFACE SHALL BE IN A FIRE RATED ASSEMBLE OR BE PROVIDED WITH A FIRE RATED ASSEMBLE TO MAINTAIN A FIRE RATE SURFACE.

10 LOCATE ALL ROOM CONTROLLER IN ACCESSIBLE CEILING.

SHEET KEYNOTES

1 RUN CIRCUIT THROUGH PROGRAMMABLE TIMECLOCK WITH PHOTOCELL INPUT. LIGHTS SHALL TURN ON AT DUSK AND OFF AT DAWN.

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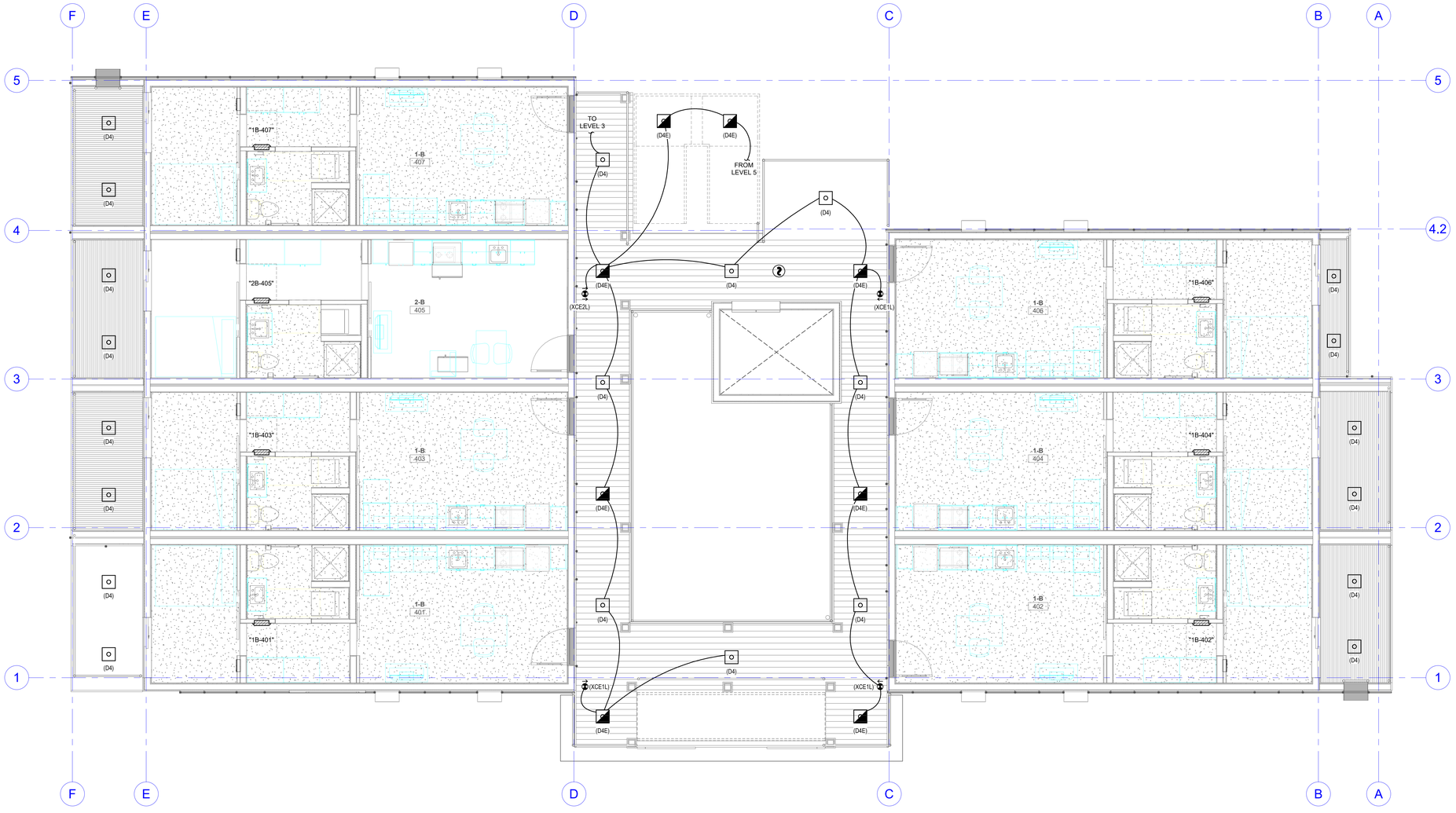
LEVEL 3 LIGHTING/FIRE ALARM PLAN

EL103



A6 LEVEL 4 LIGHTING/FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"

5/21/2021 9:26:43 PM

GENERAL SHEET NOTES

1 ALL CEILING MOUNTED LIGHT FIXTURES AND DEVICES SHALL BE CENTERED IN CEILING TILE, UNLESS OTHERWISE NOTED.

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4 INSTALL LIGHT FIXTURES INLINE AND CENTERED.

5 COORDINATE ALL LIGHT FIXTURE MOUNTING HEIGHTS WITH ARCHITECT.

6 ARCHITECT TO SELECT ALL LIGHT FIXTURE FINISHES.

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10 LOCATE ALL ROOM CONTROLLER IN ACCESSIBLE CEILING.

SHEET KEYNOTES

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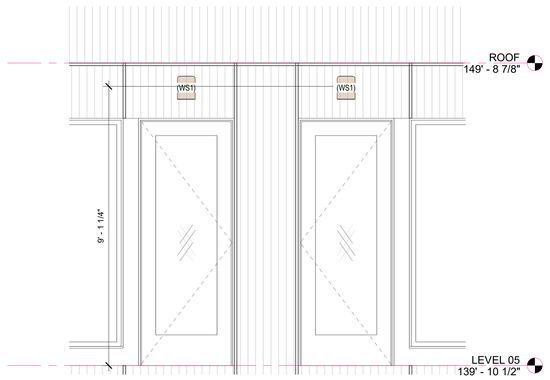
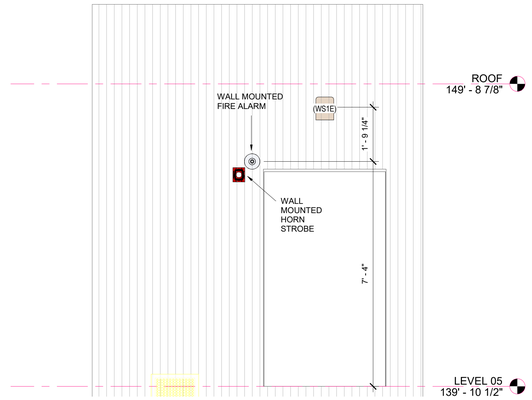
LEVEL 4 LIGHTING/FIRE ALARM PLAN

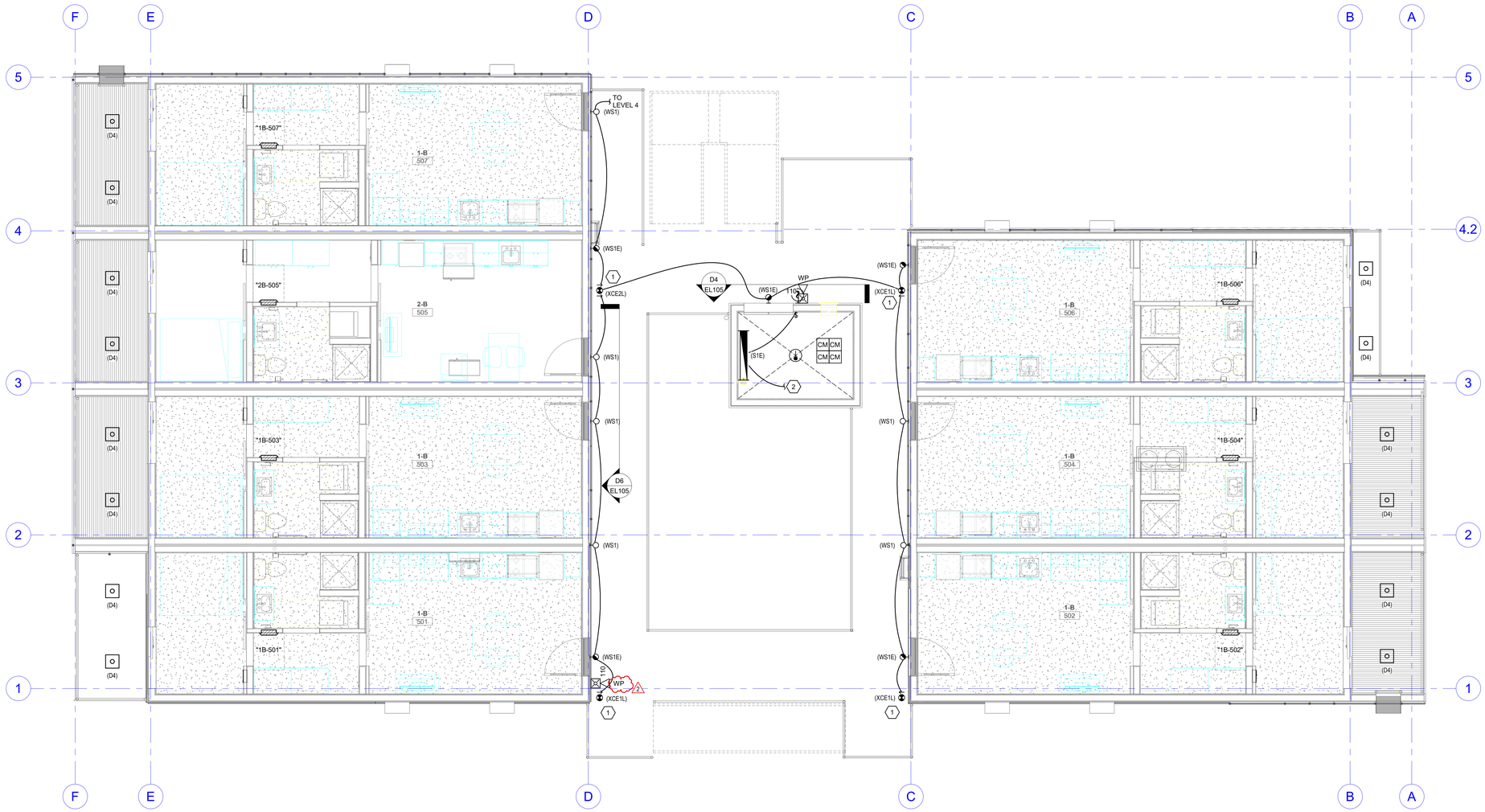
EL104



D6 LEVEL 5 EXTERIOR EQUIPMENT VIEW - A
SCALE: 1/2" = 1'-0"



D4 LEVEL 5 EXTERIOR EQUIPMENT VIEW - B
SCALE: 1/2" = 1'-0"



A6 LEVEL 5 LIGHTING/FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"

8/3/2021 3:42:12 PM

GENERAL SHEET NOTES

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10 LOCATE ALL ROOM CONTROLLER IN ACCESSIBLE CEILING.

SHEET KEYNOTES

1 EXIT SIGN IS TO BE WALL-MOUNTED. HEIGHTS AND DETAILS FOR ALL WALL-MOUNTED FIXTURES ON THIS LEVEL ARE TO BE COORDINATED WITH THE ARCHITECT/ OWNER.

2 CIRCUIT WITH ELEVATOR SHAFT RECEPTACLE AND DEVICES AT BOTTOM OF ELEVATOR SHAFT.

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LEVEL 5 LIGHTING/FIRE ALARM PLAN

EL105

INTERIOR LIGHTING FIXTURE SCHEDULE

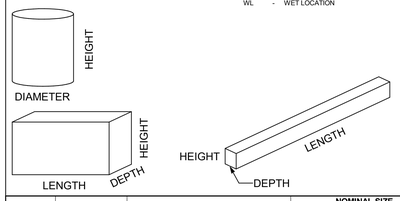
ABBREVIATIONS

MOUNTING

B - BASE
C - CEILING
F - FLANGE
G - GRID
P - PENDANT
PL - POLE
R - RECESSED
S - SURFACE
W - WALL

LUMINAIRE OPTIONS

ARHR - AIR RETURN AND HEAT REJECTION
DL - DAMP LOCATION
EQC - EARTHQUAKE CLIPS
F - FUSING
HLD - HINGED AND LATCHED DOOR
HS - HOUSE SIDE SHIELD
PS - PHOTOCELL SWITCH
QRS - QUARTZ RESTRIKE
ST - STATIC
WG - WIRE GUARD
WL - WET LOCATION



FINISH

MW - MATTE WHITE
BL - BLACK
SL - SILVER
GL - GOLD
CL - CLEAR
PW - PAINTED WHITE
EA - EXTRUDED ALUMINUM
S - STEEL
GS - GALVANIZED STEEL
C - CAST
CBA - COLOR BY ARCHITECT
SCBA - STANDARD COLOR BY ARCHITECT
CCA - CUSTOM COLOR BY ARCHITECT
FS - MEETS FEDERAL STANDARD 209D
TP - THERMALLY PROTECTED
FL - FLUSH
R - REGRESS
M - MITERED

DIFFUSER/LENS

#A - ACRYLIC #THICK
#OA - ACRYLIC #THICK (OPAL)
GC - GLASS (CLEAR)
GO - GLASS (OPAL)
GF - GLASS (FROSTED)
SGL - SOFT GLOW LENS
HPL - HIGH PERFORMANCE LENS
DO - DROP OPAL
CGL - CONVEX GLASS LENS
S - SATIN LENS

REFLECTOR

OP - NONE/OPEN
SP - SPECULAR
SS - SEMI-SPECULAR
D - DIFFUSE (WHITE ENAMEL)
SC - SPECULAR (COLORED)
PR - PRISMATIC
FDR - FULL DEPTH REFLECTOR
DS - DIFFUSE (SEMI SPECULAR) SILVER
LI - LOW IRIDESCENT
IR - IRIDESCENT
SL - SILVER
GL - GOLD
CA - CLEAR ALZAK

NOTES

GENERAL NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED. CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.
3. SUBSTITUTIONS AND/OR EQUAL FIXTURES MUST RECEIVE APPROVAL PRIOR TO BIDDING, THEY MUST BE SUBMITTED TO THE ENGINEER NO LESS THAN 2 WEEKS PRIOR TO BID OPENING.
4. SAMPLES MUST BE PROVIDED FOR ANY AND ALL FIXTURES UPON A/E REQUEST PRIOR TO RELEASING FIXTURES.
5. ALL FIXTURES SHALL BE LISTED AND APPROVED FOR THEIR INTENDED USE AND LOCATION.
6. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
7. COMPLY WITH THE "INTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
8. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, DRIVERS, AND LAMPS.
9. ALL LIGHT FIXTURES TO BE EITHER "DLC" OR "LIGHTING FACTS" LISTED OR TO BE APPROVED BY ARCHITECT/ENGINEER.

ID	IMAGE	DESCRIPTION	NOMINAL SIZE				MOUNTING	TYPE	COLOR TEMP	CRI	DRIVER CONFIGURATION	VOLTAGE	WATTS	FINISH	FIXTURE LUMENS	DIFFUSER/LENS	REFLECTOR	OPTIONS	NOTES	MANUFACTURER (CATALOG SERIES)			
			LENGTH	DEPTH	HEIGHT	DIAMETER/ APERTURE														BASIS OF DESIGN	OPTION 2	OPTION 3	OPTION 4
(S1)		STRIP LIGHT; LED; LENS; LOW PROFILE.	48"	1"	3"	-	C/P	LED	4100K	80	LED DRIVER (0-10V DIMMING)	120/277	35	SCBA	4000	HPL	LENS	-		LITHONIA (ZL1D)	DAYBRITE (LF 4 EZ)	METALUX (SNLED)	COLUMBIA (LCL)
(S1E)		STRIP LIGHT; LED; LENS; LOW PROFILE, WITH INTEGRAL EMERGENCY BATTERY PACK.	48"	2.5"	3"	-	CS	LED	4100K	80	LED DRIVER (0-10V DIMMING)	120/277	35	SCBA	4000	HPL	PR	EM		LITHONIA (ZL1D)	DAYBRITE (LF 4 EZ)	METALUX (SNLED)	COLUMBIA (LCL)
(XCE1L)		EXTERIOR-EDGE-LIT-LED-EXIT-SIGN, UNIVERSAL MOUNTING; UNIVERSAL ARROWS; EMERGENCY BATTERY PACK WITH 10 YEAR PRO-RATA WARRANTY; DIFFUSE LENS PANEL; GREEN LETTERS ON WHITE BACKGROUND; SHALL COMPLY WITH NFPA ILLUMINATION STANDARDS.	12"	8"	2"		C	LED	GREEN		LED DRIVER	120/277	0	SCBA	100	HPL				LITHONIA (EDG)	DUAL-LITE	SURE-LITE	CHLORIDE
(XCE2L)		EXTERIOR-EDGE-LIT-LED-EXIT-SIGN, UNIVERSAL MOUNTING; UNIVERSAL ARROWS; EMERGENCY BATTERY PACK WITH 10 YEAR PRO-RATA WARRANTY; DIFFUSE LENS PANEL; GREEN LETTERS ON WHITE BACKGROUND; SHALL COMPLY WITH NFPA ILLUMINATION STANDARDS.	12"	8"	2"		C	LED	GREEN		LED DRIVER	120/277	0	SCBA	100	HPL				LITHONIA (EDG)	DUAL-LITE	SURE-LITE	CHLORIDE

EXTERIOR LIGHTING FIXTURE SCHEDULE

ABBREVIATIONS

LUMINAIRE

ARHR - AIR RETURN AND HEAT REJECTION
DL - DAMP LOCATION
EQC - EARTHQUAKE CLIPS
F - FUSING
HLD - HINGED AND LATCHED DOOR
HS - HOUSE SIDE SHIELD
PS - PHOTOCELL SWITCH
QRS - QUARTZ RESTRIKE
ST - STATIC
WG - WIRE GUARD
WL - WET LOCATION

EMERGENCY

NE - NORMAL AND EMERGENCY CONNECTIONS
EB - EMERGENCY BATTERY PACK
ET - EMERGENCY TRANSFER DEVICE

BALLAST

IS - INSTANT START
RS - RAPID START
PS - PROGRAM START, PARALLEL LAMP OPERATION
PSMH - PULSE START METAL HALLIDE (CWA OR ELECTRONIC)
PPLF - PROVIDE POWER LINE FILTER
LVTM - LOW VOLTAGE TRANSFORMER (MAGNETIC)
LVTE - LOW VOLTAGE TRANSFORMER (ELECTRONIC)

DIMMING BALLAST

0D - 2 WIRE DIMMER
D3 - 3 WIRE DIMMER
D4 - 4 WIRE DIMMER
DD - DIGITAL DIMMER
SDP - STEP DIMMER BALLAST

FINISH

MW - MATTE WHITE
BL - BLACK
SL - SILVER
GL - GOLD
CL - CLEAR
PW - PAINTED WHITE
EA - EXTRUDED ALUMINUM
S - STEEL
GS - GALVANIZED STEEL
C - CAST
CBA - COLOR BY ARCHITECT
SCBA - STANDARD COLOR BY ARCHITECT
CCA - CUSTOM COLOR BY ARCHITECT
FS - MEETS FEDERAL STANDARD 209D
TP - THERMALLY PROTECTED
FL - FLUSH
R - REGRESS
M - MITERED

LENS

#A - ACRYLIC #THICK
#OA - ACRYLIC #THICK (OPAL)
GC - GLASS (CLEAR)
GO - GLASS (OPAL)
GF - GLASS (FROSTED)
SGL - SOFT GLOW LENS
HPL - HIGH PERFORMANCE LENS
DO - DROP OPAL
CGL - CONVEX GLASS LENS
S - SATIN LENS

REFLECTOR AND DISTRIBUTION

I - TYPE I
II - TYPE II
III - TYPE III
IV - TYPE IV
V - TYPE V
VSQ - TYPE V SQUARE
SA - SPUN ALLUMINUM
SR - SEGMENTED REFLECTOR
BW# - NEMA BEAM WIDTH 1 THRU 7

CUTOFF CLASSIFICATION

FC - FULL CUTOFF
CO - CUTTOFF
SC - SEMI CUTOFF
NC - NONCUTOFF

MOUNTING

B - BASE
C - CEILING
F - FLANGE
G - GRID
P - PENDANT
PL - POLE
R - RECESSED
S - SURFACE
W - WALL

CONFIGURATION

BA - BANNER ARMS
BH - BULL HORN
DL - 2 "L" SHAPE
DS - 2 @ 180
PT - INLINE POST TOP
Q - QUAD
SH - SHEPHERDS HOOK
SL - SINGLE
T - 3 "T" SHAPE

POLE

RD - ROUND STRAIGHT
RT - ROUND TAPERED
SS - SQUARE STRAIGHT
ST - SQUARE TAPERED

NOTES

1. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
2. COMPLY WITH THE "EXTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
3. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS.
4. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED.

NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.

ID	IMAGE	TYPE	LUMINAIRE								LAMP			BALLAST		FINISH			DIFFUSER				REFLECTOR			MOUNTING						MANUFACTURER (CATALOG SERIES)				
			BUG RATING			SIZE (NOMINAL)																															
			BACK	UP	GLARE	LENGTH	WIDTH	DEPTH	DIAMETER / APERTURE	OPTIONS	COLOR	TYPE	LUMENAIRE LUMENS	INPUT VOLTS	ANSI WATTS	HOUSING	TRIM	OTHER	TYPE	FINISH	CONFIGURATION	OPTIONS	DISTRIBUTION TYPE	FINISH	EFFICIENCY	TYPE	CONFIGURATION	POLE BASE HEIGHT	POLE HEIGHT	WIND RATING	OPTIONS	OPTION 1	OPTION_2	OPTION 3	ALLOWANCE
(D4)		4" ROUND RECESSED LED DOWNLIGHT.				-	-	7"	4"	-	3000K	LED	1500	0	21	SCBA	SCBA	SCBA														GOTHAM (EVO4-30/15-AR-MWD-LSS-MVOLT-GZ10)			
(D4E)		4" ROUND RECESSED LED DOWNLIGHT WITH INTEGRAL EMERGENCY BATTERY PACK.				-	-	7"	4"	-	3000K	LED	1500	0	21	SCBA	SCBA	SCBA														GOTHAM (EVO4-30/15-AR-MWD-LSS-MVOLT-GZ10)			
(LED1)		LED STRIP LIGHT. LIGHT FIXTURE SPECS ARE PER FOOT. LENGTH IS APPROXIMATE COORDINATE DETAILS WITH ARCHITECT.				PER PLANS					3000K	LED	2367	0	7	SCBA	SCBA	SCBA														INSIGHT (PEX-MO-30K-30X30-SM-XX-UNV-DIM-MG)			
(OC1)		WALL PACK, FULL CUT OFF; FULL PERIMETER GASKETING; WET LOCATION; STAINLESS STEEL HINGES AND LATCHES; INTEGRAL COLD WEATHER BATTERY AND PHOTOCELL CONTROL.				13"	9"	7"		-	3000K	LED	9200	0	69	SCBA	SCBA	SCBA														LITHONIA (WPX3 LED-30K-MVOLT)			
(OC2)		WALL PACK, FULL CUT OFF; FULL PERIMETER GASKETING; WET LOCATION; STAINLESS STEEL HINGES AND LATCHES; INTEGRAL COLD WEATHER BATTERY AND PHOTOCELL CONTROL.				13"	9"	7"		-	3000K	LED	1550	0	15	SCBA	SCBA	SCBA														LITHONIA (WPX1 LED P1-30K-MVOLT)			
(WS1)		EXTERIOR LED WALL SCONCE. DECORATIVE, DOWN LIGHT.				12"	4"	7"		-	3000K	LED	1165	0	17	SCBA	SCBA	SCBA														WAC LIGHTING (WS-25612)			
(WS1E)		EXTERIOR LED WALL SCONCE. DECORATIVE, DOWN LIGHT. PROVIDE INTEGRAL EMERGENCY BATTERY PACK.				12"	4"	7"		-	3000K	LED	1165	0	17	SCBA	SCBA	SCBA														WAC LIGHTING (WS-25612)			

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No. 8182456
TYLER S. SQUIRE
STATE OF UTAH
05/21/2021

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#	Date	Revision

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
CHECKED BY: TDS
DRAWN BY: JCJ
DATE: 05/21/2021

LIGHTING FIXTURE SCHEDULES

EL601

5/21/2021 10:35:14 PM

E



WPX LED
Wall Packs

5 YEAR warranty

NIGHTTIME FRIENDLY

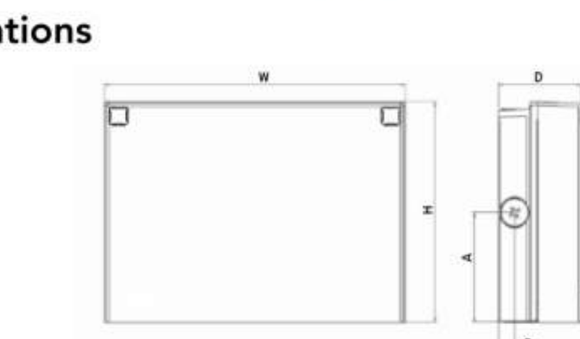
Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications



Front View Side View

Luminaire	Height (H)	Width (W)	Depth (D)	Side Conduit Location A	Side Conduit Location B	Weight
WPX1	8.1" (20.6 cm)	11.1" (28.3 cm)	3.2" (8.1 cm)	4.0" (10.3 cm)	0.6" (1.6 cm)	6.1 lbs (2.8kg)
WPX2	9.1" (23.1 cm)	12.3" (31.1 cm)	4.1" (10.5 cm)	4.5" (11.5 cm)	0.7" (1.7 cm)	8.2 lbs (3.7kg)
WPX3	9.5" (24.1 cm)	13.0" (33.0 cm)	5.5" (13.7 cm)	4.7" (12.0 cm)	0.7" (1.7 cm)	11.0 lbs (5.0kg)

Introduction

The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in three sizes, the WPX family delivers 1,550 to 9,200 lumens with a wide, uniform distribution.

The WPX full cut-off solutions fully cover the footprint of the HID glass wall packs that they replace, providing a neat installation and an upgraded appearance. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Photocell and emergency egress battery options make WPX ideal for every wall mounted lighting application.

Ordering Information

EXAMPLE: WPX2 LED 40K MVOLT DDBXD

Series	Color Temperature	Voltage	Options	Finish
WPX1 LED P1 1,550 Lumens, 11W[1] WPX1 LED P2 2,900 Lumens, 24W WPX2 LED 6,000 Lumens, 47W WPX3 LED 9,200 Lumens, 69W	30K 3000K 40K 4000K 50K 5000K	MVOLT 120V - 277V 347 347V[3]	(blank) None E4WH Emergency battery backup, CEC compliant (4W, 0°C min)[2] E14WC Emergency battery backup, CEC compliant (14W, -20°C min)[2] PE Photocell[3]	DDBXD Dark bronze DWHXD White DBLXD Black Note: For other options, consult factory.

Note: The lumen output and input power shown in the ordering tree are average representations of all configuration options. Specific values are available on request.

NOTES
1. All WPX wall packs come with 6kV surge protection standard, except WPX1 LED P1 package which comes with 2.5kV surge protection standard. Add SPD6KV option to get WPX1 LED P1 with 6kV surge protection. Sample nomenclature: WPX1 LED P1 40K MVOLT SPD6KV DDBXD
2. Battery pack options only available on WPX1 and WPX2.
3. Battery pack options not available with 347V and PE options.

FEATURES & SPECIFICATIONS

INTENDED USE
The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs. The WPX1, WPX2 and WPX3 are ideal for replacing up to 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution.

CONSTRUCTION
WPX feature a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and sealed against moisture or environmental contaminants.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs and LED lumen maintenance of L90/100,000 hours. Color temperature (CCT) options of 3000K, 4000K and 5000K with minimum CRI of 70. Electronic drivers ensure system power factor >90% and THD <20%. All luminaires have 6kV surge protection (Note: WPX1 LED P1 package comes with a standard surge protection rating of 2.5kV. It can be ordered with an optional 6kV surge protection). All photocell (PE) operate on MVOLT (120V - 277V) input.

Note: The standard WPX LED wall pack luminaires come with field-adjustable drive current feature. This feature allows tuning the output current of the LED drivers to adjust the lumen output (to dim the luminaire).

INSTALLATION
WPX can be mounted directly over a standard electrical junction box. Three 1/2 inch conduit ports on three sides allow for surface conduit wiring. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all cases. WPX is only recommended for installations with LEDs facing downwards.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

WARRANTY
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

Performance Data

Electrical Load

Luminaire	Input Power (W)	120V	208V	240V	277V	347V
WPX1 LED P1	11W	0.09	0.05	0.05	0.04	0.03
WPX1 LED P2	24W	0.20	0.12	0.10	0.09	0.07
WPX2	47W	0.39	0.23	0.20	0.17	0.14
WPX3	69W	0.58	0.33	0.29	0.25	0.20

Projected LED Lumen Maintenance

Data references the extrapolated performance projections in a 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.94	>0.92	>0.90

HID Replacement Guide

Luminaire	Equivalent HID Lamp	WPX Input Power
WPX1 LED P1	100W	11W
WPX1 LED P2	150W	24W
WPX2	250W	47W
WPX3	400W	69W

Lumen Output

Luminaire	Color Temperature	Lumen Output
WPX1 LED P1	3000K	1,537
	4000K	1,568
	5000K	1,602
WPX1 LED P2	3000K	2,748
	4000K	2,912
	5000K	2,954
WPX2	3000K	5,719
	4000K	5,896
	5000K	6,201
WPX3	3000K	8,984
	4000K	9,269
	5000K	9,393

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

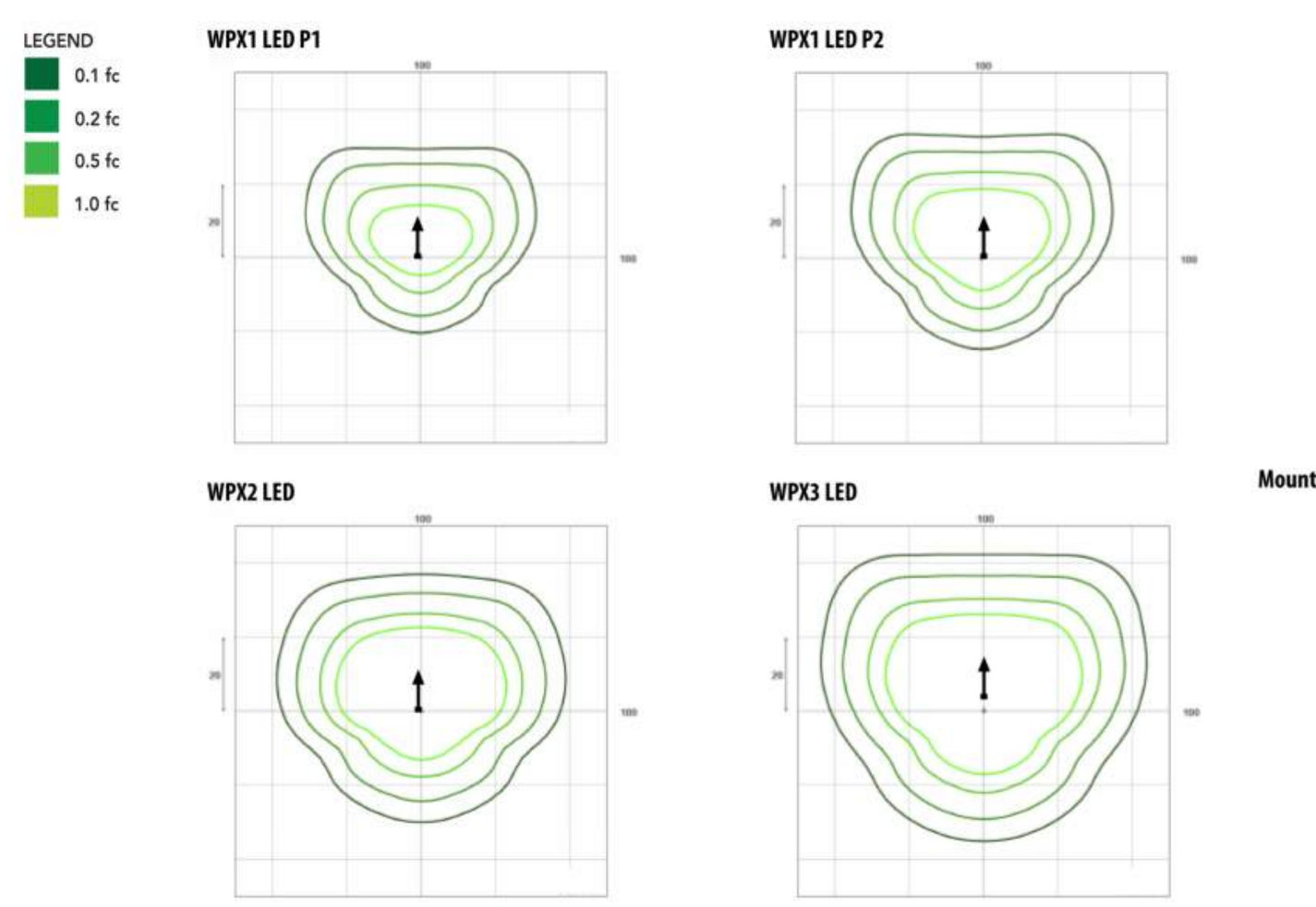
Emergency Egress Battery Packs

The emergency battery backup is integral to the luminaire — no external housing or back box is required. The emergency battery will power the luminaire for a minimum duration of 90 minutes and deliver minimum initial output of 550 lumens. Both battery pack options are CEC compliant.

Battery Type	Minimum Temperature Rating	Power (Watts)	Controls Option	Ordering Example
Standard	0°C	4W	E4WH	WPX2 LED 40K MVOLT **E4WH** DDBXD
Cold Weather	-20°C	14W	E14WC	WPX2 LED 40K MVOLT **E14WC** DDBXD

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WPX LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards



Mounting Height = 12 Feet.

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Multiple Layers of Light

Luminaire Type:
Catalog Number:

General Illumination Round Downlight With nTune 4"



OVERVIEW

Feature Set

- Tunable White solution that reproduces natural light patterns and colors, complements materials, and supports productivity.
- Rhythm Range (2700K-6500K) follows the cycle of daylight
- Productivity Range (3000K-5000K) to re-energize and inspire, ideal for collaboration
- WARMDIM® Range (3000K-1800K) for relaxing; warm and comfortable when dimmed
- Bounding Ray™ Optical Principle design provides 45° cut-off to source and source image
- Rated 65,000 hours (L80) at 25°C ambient temperature
- Dim to Dark 100% - 0.1%

Distribution

medium 0.9 S:MH — medium wide 1.0 S:MH — wide 1.2 S:MH

Superior Perfomance

Nominal lumens	750	1000	1500	2000	2500	3000
Delivered	840	1012	1406	1872	2416	2878
Wattage	9	10	14	19	24	29
Efficacy	92	97	100	101	100	98

*80 CRI, 3500K

COMPLEMENTARY PRODUCTS

Coordinated Apertures I Multiple Layers of Light



General Illumination Layer I EVO — High Center Beam Layer I Incito — EVO + Incito — Multiple Layers of Light

Core: Downlight, Adjustable, Open Wallwash, Lensed Wallwash, Cylinder, Pinhole, Bevel, Hyperbolic

Healthcare: MRI, Surgical Suite, Patient Room

Special Applications: Dynamic, Food Service, Vandal/Tamper, Clean Room, Shower, Steam Room

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4" General Illumination Round Downlight

ORDERING INFORMATION

A+ Capable options indicated by this color background.

Design2Ship Quick Ship Program: Options in green text qualify for Design2Ship — 5 business days from order entry to ship. Refer to Design2Ship Brochure for complete program details. Maximum Order Quantity: 100 units; 50 for Chicago Plenum.

Luminaire Type:
Catalog Number:

EXAMPLE: EV04 35/25 AR MWD LSS 120 EZ1

Series	Color Temperature	Nominal Lumen Values	Reflector & Flange Color	Trim Style	Distribution	Finish	Voltage
EVO4	27/ 2700 K 30/ 3000 K 35/ 3500 K 40/ 4000 K 50/ 5000 K	02 250 lumens 05 500 lumens 07 750 lumens 10 1000 lumens 15 1500 lumens 20 2000 lumens 25 2500 lumens 30 3000 lumens 35 3500 lumens	AR Clear PR Pewter WTR Wheat GR Gold WR[1] White BR[1] Black WRAMF[1] White Anti-microbial	(blank) Self-flanged FL Flangeless	MD Medium (0.9 s/mh) MWD Medium wide (1.0 s/mh) WD Wide (1.2 s/mh)	LSS Semi-specular LD Matte-diffuse LS Specular	MVOLT 120 277 347[2,3]

Driver[4]	Control Interface	Options
GZ10 0-10V driver dims to 10% GZ1 0-10V driver dims to 1% EZ10 eldoLED 0-10V ECOdrive. Linear dimming to 10% min. EZ1 eldoLED 0-10V ECOdrive. Linear dimming to 1% min. EZB eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%. EDAB[4] eldoLED SOLOdrive DALI. Logarithmic dimming to <1%. EDXB[4] eldoLED POWERdrive DMX with RDM (remote device management). Square Law dimming to <1%. Minimum 1000 lumens. Includes termination resistor. Refer to DMXR Manual. ECOS2[5] Lutron® Hi-Lume® 2-wire forward-phase driver.120V only. Minimum dimming level 1%. Minimum 1000 lumens. ECOD[5] Lutron Ecosystem digital Hi-Lume 1% soft-on, fade to black	NLT[6] nLight® dimming pack controls NLTER[2,6,10] nLight® dimming pack controls emergency circuit NLTAIR2[13] nLight® Air enabled NLTAIRER2[2,10,13] nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit EXA1 XPoint Wireless, eldoLED 0-10V ECOdrive. Linear dimming to 1%. Refer to XPoint tech sheet. EXAB XPoint Wireless, eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%. Refer to XPoint tech sheet.	SF Single Fuse. Specify 120V or 277V TRW[7] White painted flange TRBL[8] Black painted flange EL[9] Emergency battery pack, 10W, with integral test switch ELR[9] Emergency battery pack, 10W, with remote test switch ELSD[9] Emergency battery pack, 10W, with self-diagnostics, integral test switch ELRSD[9] Emergency battery pack, 10W, with self-diagnostics, remote test switch E10WCP[9] Emergency battery pack, 10W Constant Power, CA Title 20 compliant with integral test switch E10WCPR[9] Emergency battery pack, 10W Constant Power, CA Title 20 compliant with remote test switch N80[11] nLight® Lumen Compensation BGTD Bodine generator transfer device. Specify 120V or 277V. 90CRI High CRI (90+) CP[12] Chicago Plenum. Specify 120V or 277V for 5000lm and above. RRL__ RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature.

ACCESSORIES — order as separate catalog numbers (shipped separately)

SCA4	Sloped ceiling adapter. Degree of slope must be specified (5D, 10D, 15D, 20D, 25D, 30D). Ex: SCA4 10D. Refer to TECH-190.
CTA4-8 YK	Ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 5"). Adds ~4" to fixture height.
ISD BC	0-10V wallbox dimmer. Refer to ISD-BC.

ORDERING NOTES

1. Not available with finishes.
2. Not available with emergency battery pack options.
3. Supplied with factory installed step down transformer.
4. Refer to TECH-240 for compatible dimmers.
5. Not available with nLight® and XPoint options.
6. Must specify voltage.
7. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with WR (white reflector) or FL (flangeless) option.
8. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with BR (black reflector) or FL (flangeless) option.
9. 11" of plenum depth or top access required for battery pack maintenance.
10. ER for use with generator supply power. Will require an emergency hot feed and normal hot feed.
11. Fixture begins at 80% light level. Must be specified with NLT or NLTER. Only available with EZ10 and EZ1 drivers.
12. Not available with ELR, HAO, EXA1, or EXAB options.
13. Not available DALI or DMX drivers. Not available with CP or N80 options. Not recommended for metal ceiling installations.

D

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4" General Illumination Round Downlight

SPECIFICATIONS

Optical Assembly
Fully serviceable and upgradeable lensed LED light engine suitable for field maintenance or service from below the ceiling.
Optical design is a Bounding Ray™ design with 45° cutoff to source and source image. Top-down flash characteristic for superior glare control.
Unitized optics shall have mechanical attachment of the light engine to the lower reflector for complete optical alignment.

Electrical
The luminaire shall operate from a 50 or 60 Hz ±3 Hz AC line over a voltage ranging from 120 VAC to 277 VAC. The fluctuations of line voltage shall have no visible effect on the luminous output.
The luminaire shall have a power factor of 90% or greater at all standard operating voltages and full luminaire output.
Sound Rated A+. Driver shall be >80% efficient at full load across all input voltages.
Input wires shall be 18AWG, 300V minimum, solid copper.

Controls
Luminaire shall be equipped with interface for nLight wired or wireless network with integral power supply as per specification.

Dimming
The luminaire shall be capable of continuous dimming without perceivable stroboscopic flicker as measured by flicker index (ANSI/IES RP-16-10) over a range of 100 – 10%, 100 – 1.0% or 100 – 0.1% of rated lumen output with a smooth shut off function to step to 0%.
eldoLED LED drivers shall conform to IEEE P1789 standards. Alternatively, manufacturers must demonstrate conformance with product literature and testing which demonstrates this performance. Systems that do not meet IEEE P1789 will not be considered.
Driver is inaudible in 24dB environment, and stable when input voltage conditions fluctuate over what is typically experienced in a commercial environment.

Construction
Luminaire housing shall be constructed of 16-gauge galvanized steel and have preinstalled telescopic mounting bars with maximum 32" and minimum 15" extension and 4" vertical adjustment.
Luminaires shall be suitable for installation in ceilings up to 1½" thick. (specify ceiling thickness adapter to extend frame to accommodate ceiling thickness up to 2").
Tool-less adjustments shall be possible after installation.
The assembly and manufacturing process for the luminaire shall be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration.
25°C ambient temperature standard (1/2" clearance on all sides from non-combustible materials in non-IC applications, unless marked spacing noted otherwise). For use in insulated ceilings, a 3" clearance on all sides from insulation is required (unless marked spacing noted otherwise).

Listings
Fixtures are CSA certified to meet US and Canadian Standards: All fixtures manufactured in strict accordance with the appropriate and current requirements of the "Standards for Safety" to UL, wet location covered ceiling. Luminaire configurations are Energy Star certified through testing in EPA–recognized laboratories, with the results reviewed by an independent, accredited certification organization. Visit www.energystar.gov for specific configurations listed.

Photometrics
LEDs tested to LM-80 standards. Measured by IESNA Standard LM-79-08 in an accredited lab. Lumen output shall not decrease by more than 30% over the minimum operational life of 60,000 hours.
Color appearance from luminaire to luminaire of the same type and in all configurations, shall be consistent both initially and at 6,000 hours and operate within a tolerance of <2.5 MacAdam ellipse as defined by a point at the intersection of the CCT line and the black body locus line in CIE chromaticity space.

Warranty
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/customer-support/terms-and-conditions

Note:
Actual performance may differ as a result of end user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.

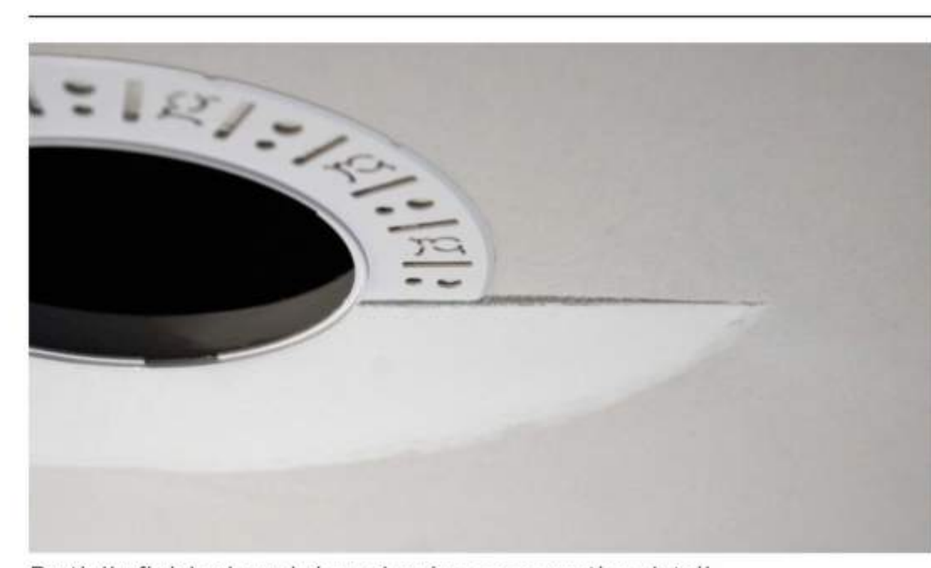
A+ Capable Luminaire
This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.
- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a shaded background*
- This luminaire is part of an A+ Certified solution for nLight® control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.
*See ordering tree for details

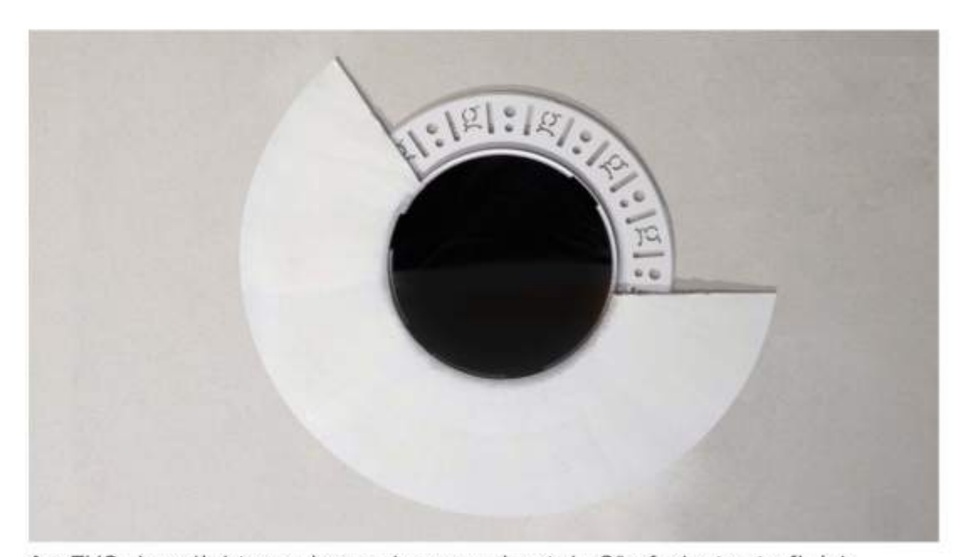
gotham | EVO

4" General Illumination Round Downlight

Flangeless



Partially finished mud ring, showing cross-section detail.



An EVO downlight requires only approximately 3" of plaster to finish.



EVO with flangeless trim

Flangeless Installation
Gotham's flangeless option utilizes a micro-thin polymer mud ring that minimizes the amount of drywall compound required to finish the ceiling. The end result is a virtually undetectable flangeless downlight installation.
The polymer mud ring is installed independent of the of the recessed frame, therefore floating with the ceiling. This innovation minimizes any surface cracks during reflector installation, ceiling movement and any future service to the recessed frame, wiring, electronics, etc.

gotham | EVO

4" General Illumination Round Downlight

Tables of Use

EVO - eldoLED Driver Default Dimming Curve

Nomenclature	Min Dimming	Driver Dim Curve	Control Dim Curve
EZ10	10%	Linear	Linear/Logarithmic
EZ1	1%	Linear	Linear/Logarithmic
EXA1	1%	Linear	Linear/Logarithmic
EZB	<1%	Logarithmic	Linear
EDAB	<1%	Logarithmic	Linear
EXAB	<1%	Logarithmic	Linear
EDXB	<1%	Logarithmic	Linear

CCT/CRI Multiplier Table

CRI	CCT	Multiplier
80	2700K	0.96
	3000K	1.00
	3500K	1.00
	4000K	1.01
	5000K	1.07
90	2700K	0.80
	3000K	0.83
	3500K	0.85
	4000K	0.87
	5000K	0.91

Reflector Finish Multiplier

Reflector Finish	Multiplier
LS - Specular	1
LSS - Semi Specular	0.956
WR - White	0.87
LD - Matte Diffuse	0.85
BR - Black	0.73

Driver Nomenclature	Driver Description	Control Provided (note: 347V/UVOLT versions provided with 347 option selected) NLT	NLTER	NLTAIR2	NLTAIR2ER
GZ10	0-10V driver dims to 10%	nPP16 D EFP	nPP16 D ER EFP	RPP20 D 24V G2	RPP20 D 24V ER G2
GZ1	0-10V driver dims to 1%	nPP16 D EFP	nPP16 D ER EFP	RPP20 D 24V G2	RPP20 D 24V ER G2
EZ10	eldoLED 0-10V ECOdrive	nPS 80 EZ	nPS 80 EZ ER	RPP20 D 24V G2	RPP20 D 24V ER G2
EZ1	eldoLED 0-10V ECOdrive	nPS 80 EZ	nPS 80 EZ ER	RPP20 D 24V G2	RPP20 D 24V ER G2
EZB	eldoLED 0-10V SOLOdrive	nPS 80 EZ	nPS 80 EZ ER	RPP20 D 24V G2	RPP20 D 24V ER G2

How to Estimate Delivered Lumens in Emergency Mode

Delivered Lumens = 1.25 x P x LPW

P = Output power of emergency driver. P = 10W for PS1055CP

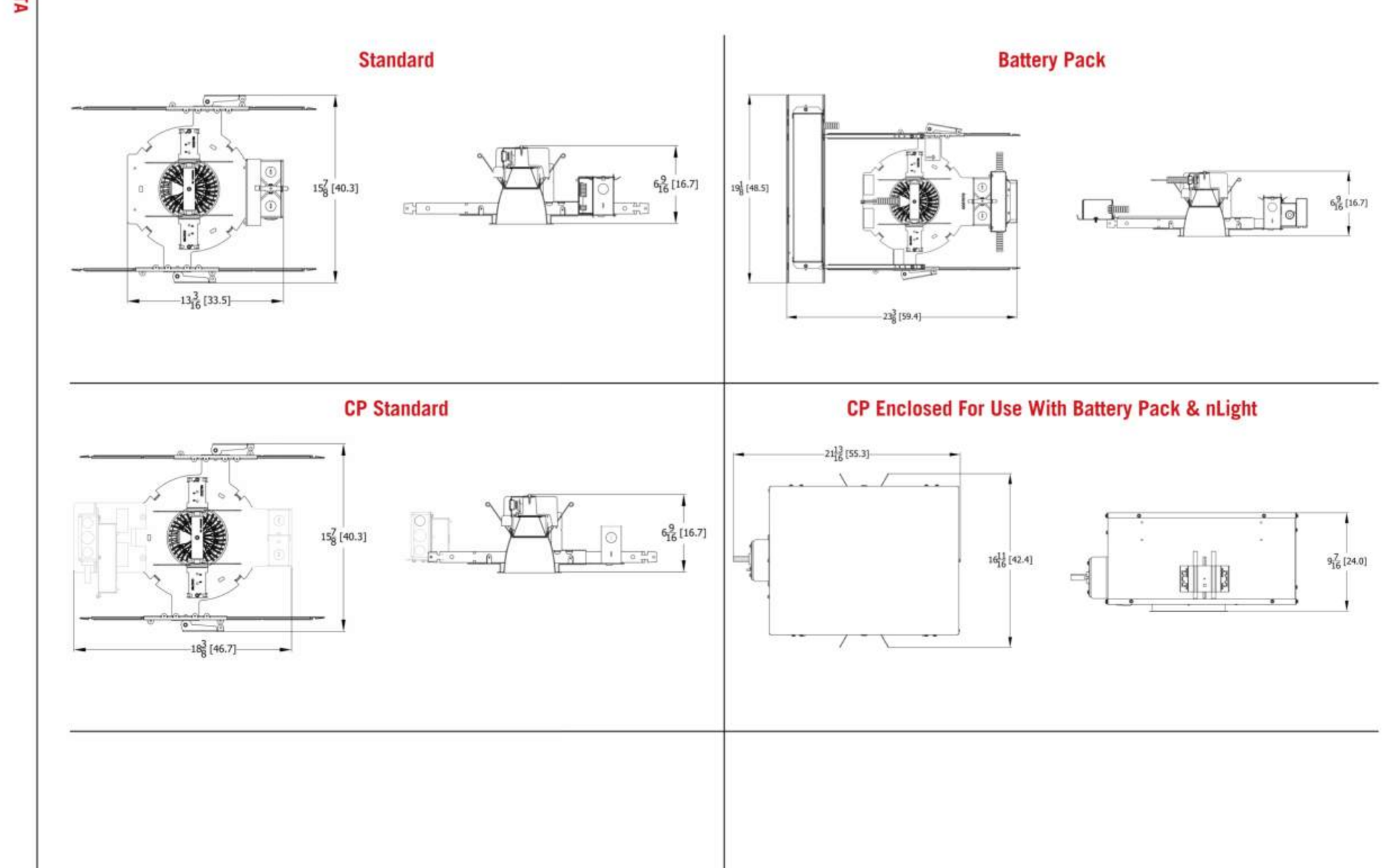
LPW = Lumen per watt rating of the luminaire. This information is available on the ABL luminaire spec sheet.

gotham | EVO

4" General Illumination Round Downlight

DIMENSIONAL DATA

Aperture: 4-5/16" (11) — Ceiling Opening: 5-1/8" (13) self-flanged
Overlap trim: 5-7/16" (13.8) — 5-1/4" (13.3) flangeless



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EXTERIOR LIGHTING FIXTURES

EL602

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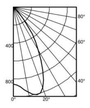
Photometry

EVO4 35/10 MWD LS INPUT WATTS: 8.8W, DELIVERED LUMENS: 1001.7LM, LPW = 113.8, 1.08 S/MH, TEST NO. LTL27786P131



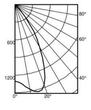
Ave	Lumens	Zone	Lumens	% Lamp
0	856	0° - 30°	717.4	71.6
5	888	0° - 40°	942.0	94.0
15	1010	0° - 60°	1000.8	99.9
25	775	0° - 90°	1001.7	100.0
35	363	90° - 180°	0.0	0.0
45	61	0° - 180°	1001.7	*100.0
55	7	*Efficiency		
65	2			
75	0			
85	0			
90	0			

pf	80%			20%			
pc	50%	30%	10%	50%	30%	10%	
0	119	119	119	116	116	116	
1	111	108	106	109	106	104	
2	103	99	96	101	98	95	
3	96	91	87	95	90	87	
4	90	84	80	89	84	80	
5	84	78	74	83	78	74	
6	79	73	69	78	72	68	
7	74	68	64	73	68	64	
8	70	64	59	69	63	59	
9	66	60	56	65	59	56	
10	62	56	52	61	56	52	

	50%	30%	10%
	111	111	111
	105	103	101
	98	95	93
	92	88	85
	87	82	79
	81	77	73
	76	72	68
	72	67	63
	68	63	59
	64	59	55
	61	56	52

Mounting Height	Initial FC Center Beam	50% beam - 56.7° Diameter	FC	10% beam - 79.7° Diameter	FC
8.0	43.2	5.9	21.6	9.2	4.3
10.0	33.2	8.1	11.6	12.5	2.3
12.0	14.5	10.3	7.2	15.9	1.4
14.0	9.9	12.4	4.9	19.2	1.0
16.0	7.2	14.6	3.6	22.5	0.7

EVO4 35/15 MWD LSS INPUT WATTS: 13.7W, DELIVERED LUMENS: 1527.3LM, LPW = 111.4, 1.08 S/MH, TEST NO. LTL27786P137



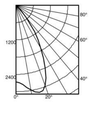
Ave	Lumens	Zone	Lumens	% Lamp
0	1305	0° - 30°	1093.9	71.6
5	1354	0° - 40°	1436.2	94.0
15	1539	0° - 60°	1525.8	99.9
25	1181	0° - 90°	1527.3	100.0
35	553	90° - 180°	0.0	0.0
45	93	0° - 180°	1527.3	*100.0
55	2	*Efficiency		
65	1			
75	0			
85	0			
90	0			

pf	80%			20%			
pc	50%	30%	10%	50%	30%	10%	
0	119	119	119	116	116	116	
1	111	108	106	109	106	104	
2	103	99	96	101	98	95	
3	96	91	87	95	90	87	
4	90	84	80	89	84	80	
5	84	78	74	83	78	74	
6	79	73	69	78	72	68	
7	74	68	64	73	68	64	
8	70	64	59	69	63	59	
9	66	60	56	65	59	56	
10	62	56	52	61	56	52	

	50%	30%	10%
	111	111	111
	105	103	101
	98	95	93
	92	88	85
	87	82	79
	81	77	73
	76	72	68
	72	67	63
	68	63	59
	64	59	55
	61	56	52

Mounting Height	Initial FC Center Beam	50% beam - 56.7° Diameter	FC	10% beam - 79.7° Diameter	FC
8.0	43.2	5.9	21.6	9.2	4.3
10.0	33.2	8.1	11.6	12.5	2.3
12.0	14.5	10.3	7.2	15.9	1.4
14.0	9.9	12.4	4.9	19.2	1.0
16.0	7.2	14.6	3.6	22.5	0.7

EVO4 35/30 MWD LSS INPUT WATTS: 31.2W, DELIVERED LUMENS: 3110.6LM, LPW = 99.6, 1.08 S/MH, TEST NO. LTL27786P155



Ave	Lumens	Zone	Lumens	% Lamp
0	2659	0° - 30°	2027.9	71.6
5	2758	0° - 40°	2925.0	94.0
15	3135	0° - 60°	3107.6	99.9
25	2406	0° - 90°	3110.6	100.0
35	1126	90° - 180°	0.0	0.0
45	189	0° - 180°	3110.6	*100.0
55	5	*Efficiency		
65	2			
75	0			
85	0			
90	0			

pf	80%			20%			
pc	50%	30%	10%	50%	30%	10%	
0	119	119	119	116	116	116	
1	111	108	106	109	106	104	
2	103	99	96	101	98	95	
3	96	91	87	95	90	87	
4	90	84	80	89	84	80	
5	84	78	74	83	78	74	
6	79	73	69	78	72	68	
7	74	68	64	73	68	64	
8	70	64	59	69	63	59	
9	66	60	56	65	59	56	
10	62	56	52	61	56	52	

	50%	30%	10%
	111	111	111
	105	103	101
	98	95	93
	92	88	85
	87	82	79
	81	77	73
	76	72	68
	72	67	63
	68	63	59
	64	59	55
	61	56	52

Mounting Height	Initial FC Center Beam	50% beam - 56.7° Diameter	FC	10% beam - 79.7° Diameter	FC
8.0	67.9	5.9	43.9	9.2	6.8
10.0	52.2	8.1	22.7	12.5	3.6
12.0	28.5	10.3	14.7	15.9	2.9
14.0	20.1	12.4	10.1	19.2	2.0
16.0	14.6	14.6	7.3	22.5	1.5

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NLTAIR

nLight® AIR is the ideal solution for retrofit or new construction spaces where adding communication wiring is cost prohibitive. The integrated nLight AIR rPP20 Power Pack is part of each EVO Luminaire ordered with the NLTAIR option. These individually addressable controls offer the ultimate in flexibility during initial setup and for space repurposing.

nLight® AIR Control Accessories
Order as separate catalog number. Visit nLight AIR.

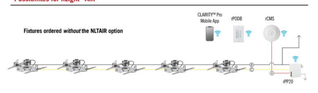
Wall Switches	Model Number
On/Off single pole	rPODB (color) G2
On/Off two pole	rPODB 2P (color) G2
On/Off & raise/lower single pole	rPODB DX (color) G2
On/Off & raise/lower two pole	rPODB 2P DX (color) G2

nLight® AIR Control Accessories *(cont.)*

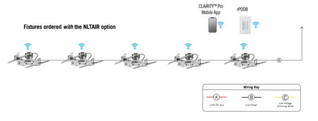
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	rCMS 9 / rCMS PDT 9
Large motion 360°, ceiling	rCMS 10 / rCMS PDT 10

Possibilites for nLight® AIR

Fixtures ordered without the NLTAIR option



Fixtures ordered with the NLTAIR option



NLTWIRE

nLight® The nLight® solution is a digital networked lighting control system that provides both energy savings and increased user configurability by cost effectively integrating time-based, daylight-based, sensor-based and manual lighting control schemes.

nLight® Wired Control Accessories
Order as separate catalog number. Visit nLight.

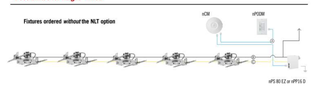
Wall Switches	Model Number
On/Off single pole	nPODM (color)
On/Off two pole	nPODM 2P (color)
On/Off & raise/lower single pole	nPOD DX (color)
On/Off & raise/lower two pole	nPODM 2P DX (color)
Graphic touchscreen	nPOD GFX (color)
Photocell Controls	
Dimming	nCM ADCX

nLight® Wired Control Accessories *(cont.)*

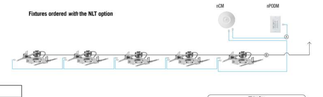
Occupancy Sensors (PIR/dual tech)	Model Number
Small motion 360°, ceiling	nCM 9 / nCM PDT 9
Large motion 360°, ceiling	nCM 10 / nCM PDT 10
Wide View	nWV 15 / nWV PDT 15
Wall switch with raise/lower	nWDX LV DX / nWDX PDT LV DX
Cat-5 Cables (plenum rated)	
10', CAT5	CAT5 10FT J1
15', CAT5	CAT5 15FT J1

Possibilites for nLight® wired

Fixtures ordered without the NLT option



Fixtures ordered with the NLT option



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EXTERIOR LIGHTING FIXTURES

EL603

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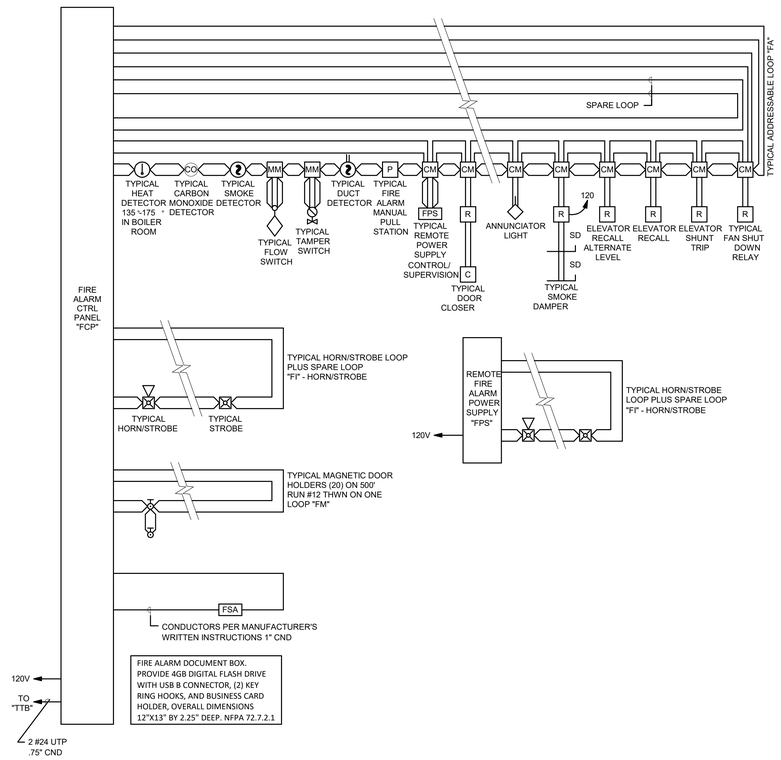
FIRE ALARM INPUT/OUTPUT MATRIX

INITIATING DEVICES		ZONE	OUTPUT DEVICES: GENERAL ALARM	DOOR HOLDER/CLOSERS	ELEVATOR RECALL MAIN LEVEL	ELEVATOR RECALL ALTERNATE LEVEL	FAN SHUTDOWN	FIRE DAMPER	MAIN LEVEL ELEVATOR DOORS HOLD OPENS	ELEVATOR SHUNT TRIP	SUPERVISORY	NOTES
	1	MAIN FLOW	o				o					
	2	MAIN TAMPER									o	
	3	LEVEL FLOW	o				o					
	4	LEVEL TAMPER									o	
		LEVEL INITIATING LOOP	o				o					



A4 FIRE ALARM RISER - TYPICAL
SCALE: 1/8" = 1'-0"

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
FPS	FIRE ALARM NOTIFICATION POWER SUPPLY.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
	DETECTOR, SMOKE.
A	DETECTOR, SMOKE WITH AUXILIARY CONTACT.
E	DETECTOR, SMOKE, ELEVATOR RECALL DESIGNATION.
G	DETECTOR, SMOKE WITH GUARD.
R	DETECTOR, SMOKE, RESIDENTIAL.
	DETECTOR, HEAT.
	STROBE.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
	ALARM, HORN/STROBE, ONE ASSEMBLY.
75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE: TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
SD	SMOKE DAMPER.
FSD	FIRE AND SMOKE DAMPER.
CO	DETECTOR, CARBON MONOXIDE.
75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.

WIRING SCHEDULE

FUNCTION	< 500'	< 1000'	1000'-3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
POWER LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
STROBE HORNS	#14 THWN	#14 THWN	#12 THWN	#10 THWN
MAGNETIC DOOR HOLDER	#12 THWN	#10 THWN		
SPEAKERS	#16 TSP	#16 TSP	#14 TSP	#14 TSP

NOTIFICATION SCHEDULE

SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT	MAXIMUM PER CIRCUIT ALONE
15	15 CD	20'x20'	.085A	17
30	30 CD	30'x30'	.135A	11
75	75 CD	40'x40'	.200A	7
110	110 CD	50'x50'	.225A	6

GENERAL SHEET NOTES

1 PLANS ARE BASED UPON 99 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP. OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.

2 PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.

3 PLANS ARE BASED UPON 2 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.50 AMPS AVAILABLE), POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.

4 FLOW AND TAMPER CONFIGURATION BASED UPON FIRE SPRINKLER DESIGN CONCEPT. FIELD VERIFY ACTUAL REQUIREMENTS. INCLUDE ANY ADDITIONAL MONITOR MODULES REQUIRED BY ACTUAL DESIGN REQUIREMENTS.

5 HEAT DETECTORS WHEN INSTALLED IN ELEVATOR SHAFTS OR MECHANICAL ROOMS FOR ELEVATOR SHUT DOWN SHALL HAVE HEAT DETECTOR WITH LOWER RESPONSE TIME INDEX THAN SPRINKLER HEAD.

6 PROVIDE POWER SUPPLY CAPACITY AS REQUIRED FOR DOOR HOLD OPENS SHOWN.

7 BATTERY CAPACITY TO BE ADEQUATE TO OPERATE 15 MINUTES AFTER 24 HOURS PLUS 25% SPARE CAPACITY.

8 VFD REQUIRES TWO RELAYS, ONE FOR SMOKE CONTROL, ONE SPARE.

9 RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.

10 PROVIDE DUCT DETECTORS FOR SUPPLY AND RETURN AIR SYSTEMS OVER 2000 CFM. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.

11 PROVIDE DUCT DETECTOR AT EACH FLOOR, PRIOR TO CONNECTION TO A COMMON RETURN AND PRIOR TO RECIRCULATING OR FRESH AIR INLET IN AIR RETURN SYSTEMS OVER 15,000 CFM CAPACITY AND SERVING MORE THAN ONE STORY.

12 PROVIDE MANUAL PULL STATIONS IN BOILER ROOMS AND KITCHENS.

13 PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.

14 LOCATE SMOKE DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS.

15 PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.

16 INITIATING AND INDICATING LOOPS SHALL NOT SERVE AN AREA OF GREATER THAN 22,500 SQUARE FEET. PROVIDE ADDITIONAL LOOPS FOR AREAS LARGER THAN THIS.

17 ALL OUTPUT DEVICES ARE DESIGNED ON SYSTEMS WITH 2 AMP POWER SUPPLY.

18 HORN/STROBE BASED ON 120 MILLIAMPS, DOOR HOLDERS BASED ON 70 MILLIAMPS.

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#	Date	Revision

100% CONSTRUCTION DOCUMENTS

NEXUS PROJ. #: 21010
CHECKED BY: TDS
DRAWN BY: JCJ
DATE: 05/21/2021

FIRE ALARM RISER

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