General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE 2018 INTERNATIONAL BUILDING CODE.

2. DESIGN LOADING CRITERIA:

RESIDENTIAL – ONE AND TWO-FAMILY DWELLINGS	
FLOOR LIVE LOAD	40 PSF
ROOF	
ROOF DEAD LOAD (INCLUDES 4 PSF PV DL)	15 PSF
ROOF LIVE LOAD	25 PSF
DECK LIVE LOAD	60 PSF
DEFLECTION CRITERIA	
LIVE LOAD DEFLECTION	L/360
TOTAL LOAD DEFLECTION	L/240
ENVIRONMENTAL LOADS	
SNOW	25 PSF
WIND Kzt= 1.0, GCpi=0.18, 98 MPH, RISK CATEGORY II, EXPOSURE "B"	
EARTHQUAKE ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE	
LATERAL SYSTEM: LIGHT FRAMED SHEAR WALLS	
SITE CLASS=D, Ss=1.23 Sds=.98, S1=.43, SD1=.53, Cs=0.15	
SDC D, Ie=1.0, R=6.5	

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.

4. PRIMARY STRUCTURAL ELEMENTS NOT DIMENSIONED ON THE STRUCTURAL PLANS AND DETAILS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS AND DETAILS. VERTICAL DIMENSION CONTROL IS DEFINED BY THE ARCHITECTURAL WALL SECTIONS, BUILDING SECTION, AND PLANS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTORS WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. CONFORM TO ASCE 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".

7. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL TYPICAL NOTES AND DETAILS SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REQUEST ADDITIONAL INFORMATION. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED TO THE ENGINEER AND ARCHITECT FOR APPROVAL PRIOR TO CONSTRUCTION.

9. ALL STRUCTURAL SYSTEMS, WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED, SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

    CONNECTOR PLATE WOOD ROOF TRUSSES

11. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. ELECTRONIC SUBMITTALS SHALL ALSO BE DEEMED TO MEET THIS REQUIREMENT. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

    SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

QUALITY ASSURANCE

12. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1705 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED UNLESS NOTED OTHERWISE.

POST INSTALLED BOLTS AND RODS IN EXISTING CONCRETE	PERIODIC
DRIVEN PIPE PILE INSTALLATION AND TESTING	PERIODIC
WOOD FRAMED LATERAL SYSTEM	PERIODIC

    PERIODIC INSPECTION: INSPECTION SHALL BE PERFORMED AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS.

13. UNLESS OTHERWISE NOTED, THE FOLLOWING ELEMENTS COMPRISE THE SEISMIC-FORCE-RESISTING SYSTEM AND ARE SUBJECT TO SPECIAL INSPECTION FOR SEISMIC RESISTANCE IN ACCORDANCE WITH IBC SECTION 1705.12.

    A. STRUCTURAL WOOD SHEAR WALL SYSTEMS REQUIRE PERIODIC INSPECTION FOR FIELD GLUING, NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC FORCE, RESISTING SYSTEM INCLUDING SHEAR WALLS, DIAPHRAGMS, DRAG STRUTS, BRACES AND HOLDOWNS. EXCEPTIONS: PLYWOOD SHEAR WALL NAILING LESS THAN 4 in. oc.

GEOTECHNICAL

14. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT OR AS DIRECTED BY THE SOILS ENGINEER. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH OR COMPACTED STRUCTURAL FILL AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB AND SOILS ENGINEER. BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE SOILS REPORT.

LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	55 PCF/35 PCF
ALLOWABLE PASSIVE EARTH PRESSURE (FS OF 1.5 INCLUDED)	150 PCF
PILE CAPACITY (COMPRESSION)	PER NOTE 15

    SOILS REPORT REFERENCE: #1361022 BY NELSON GEOTECHNICAL DATED 11-14-22.

15. PIPE PILES SHOWN ON PLAN SHALL BE DRIVEN WITH HYRAULIC HAMMERS TO THE FINAL PENETRATION RATES MEASURED IN SECONDS PER INCH WITH THE ASSIGNED FOLLOWING COMPRESSIVE CAPACITIES.

PILE		(HYDRAULIC HAMMERS)			
DIAM	CAPACITY	850LB	1100LB	2000LB	3000LB
4IN SCH 40	10T	16	10	5	
6IN SCH 40	15T		20	10	6

    THE REFUSAL CRITERIA INDICATED IN THE ABOVE TABLE ARE VALID ONLY FOR PIPE PILES THAT ARE INSTALLED USING A HYDRAULIC IMPACT HAMMER CARRIED ON LEADS THAT ALLOW THE HAMMER TO SIT ON THE TOP OF THE PILE DURING DRIVING. IF THE PILES ARE INSTALLED BY ALTERNATIVE METHODS, SUCH AS A VIBTRATORY HAMMER OR A HAMMER THAT IS HARD MOUNTED TO THE INSTALLATION MACHINE, NUMEROUS LOAD TESTS TO 200 PERCENT OF THE DESIGN CAPACITY WOULD BE NECESSARY TO SUBSTANTIATE THE ALLOWABLE PILE LOAD. THE APPROPRIATE NUMBER OF LOAD TESTS WOULD NEED TO BE DETERMINED AT THE TIME THE CONTRACTOR AND INSTALLATION METHOD ARE CHOSEN. AS A MINIMUM, LOAD TESTS SHALL BE REQUIRED ON AT LEAST 3 PERCENT OF ALL PILES INSTALLED AT THE SITE, WITH A MINIMUM OF ONE TEST AND A MAXIMUM OF FIVE TESTS. ALL TESTS MUST CONFORM TO THE QUICK LOAD TEST METHOD ACCORDING TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) D-1143. GEOTECHNICAL SPECIAL INSPECTION IS REQUIRED FOR ALL TESTING AND INSTALLATION.

    SUBSEQUENT SECTIONS OF PIPE CAN BE CONNECTED WITH SLIP OR THREADED COUPLERS, OR THEY CAN BE WELDED TOGETHER. IF SLIP COUPLERS ARE USED, THEY SHOULD FIT SNUGLY INTO THE PIPE SECTIONS WITH PIPE SLEEVES CONTAINING MATCHING PIPE COUPLING RINGS.

CONCRETE

16. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301, INCLUDING TESTING PROCEDURES. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF f'c = 3,000 PSI AND MIX SHALL CONTAIN NOT LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD AND SHALL BE PROPORTIONED TO PRODUCE A SLUMP OF 5" OR LESS. REQUIRED CONCRETE STRENGTH IS BASED ON THE DURABILITY REQUIREMENTS OF SECTION 1904 OF THE IBC. DESIGN STRENGTH f'c = 2,500 PSI.

17. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, FY=60,000 PSI.

18. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 315-99 AND 318-11. LAP ALL CONTINUOUS REINFORCEMENT AND CORNER BARS #5 AND SMALLER 48 BAR DIAMETERS OR 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS.

19. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER):	1-1/2"
SLABS AND WALLS (INT. FACE):	GREATER OF BAR DIAMETER PLUS 1/8" OR 3/4"

20. CONCRETE WALL REINFORCING--PROVIDE THE FOLLOWING UNLESS DETAILED OTHERWISE

    6" AND 8" WALLS #4 @ 12 HORIZ. #4 @ 16 VERTICAL

21. CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES.

ANCHORAGE

22. EXPANSION BOLTS INTO CONCRETE SHALL BE "STRONG-BOLT 2" WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO ICC-ES REPORT NUMBER ESR-3037. PERIODIC SPECIAL INSPECTION IS REQUIRED TO VERIFY ANCHOR TYPE, DIMENSIONS, LOCATION, TIGHTENING TORQUE, HOLE DIMENSIONS, EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

23. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "AT-XP" AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH IAMPO REPORT NO. ER-0281. MINIMUM BASE MATERIAL TEMPERATURE IS 14 DEGREES, F. RODS SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE AND DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION AND EXPIRATION, HOLE DIMENSIONS, CLEANING PROCEDURE, EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

WOOD

24. FRAMING LUMBER SHALL BE S-DRY, KD, OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD, GRADING RULES FOR WEST COAST LUMBER NO. 17, OR WWPA STANDARD, WESTERN LUMBER GRADING RULES 2011. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JSTs-BMS	(2X & 3X MEMBERS)	HEM-FIR NO. 2 MINIMUM BASE VALUE, Fb =850 PSI
	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1000 PSI
BEAMS	(INCL. 6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1350 PSI
POSTS	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 2 MINIMUM BASE VALUE, Fc = 1350 PSI
	(6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fc = 1000 PSI
STUDS, PLATES & MISC. FRAMING:		DOUGLAS-FIR-LARCH OR HEM-FIR NO. 2

25. GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM AND ANSI/AITC STANDARDS. EACH MEMBER SHALL BEAR AN AITC OR APA-EWS IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC OR APA-EWS CERTIFICATE OF CONFORMANCE. ALL BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, Fb = 2,400 PSI, Fv =265 PSI.

26. MANUFACTURED LUMBER, PSL, LVL, AND LSL SHOWN ON PLAN ARE BASED PRODUCTS MANUFACTURED BY THE WEYERHAEUSER CORPORATION IN ACCORDANCE WITH ICC-ES REPORT ESR-1387. MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

PSL (2.0E)	Fb = 2900 PSI,	E = 2000 KSI,	Fv = 290 PSI
LVL (2.0E)	Fb = 2600 PSI,	E = 2000 KSI,	Fv = 285 PSI
LSL (1.55E)	Fb = 2325 PSI,	E = 1550 KSI,	Fv = 310 PSI

27. PREFABRICATED PLYWOOD WEB JOIST DESIGN SHOWN ON PLANS IS BASED ON JOISTS MANUFACTURED BY THE WEYERHAEUSER CORPORATION.

28. PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH THE "NATIONAL DESIGN STANDARD FOR METAL PLATE-CONNECTED WOOD TRUSS CONSTRUCTION, ANSI/TPI 1" BY THE TRUSS PLATE INSTITUTE FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. LOADING SHALL BE AS FOLLOWS:

TOP CHORD LIVE LOAD	25 PSF
TOP CHORD DEAD LOAD	12 PSF
BOTTOM CHORD DEAD LOAD	5 PSF
TOTAL LOAD	42 PSF
WIND UPLIFT (TOP CHORD)	5 PSF
BOTTOM CHORD LIVE LOAD	10 PSF
(BOTTOM CHORD LIVE LOAD DOES NOT ACT CONCURRENTLY WITH THE ROOF LIVE LOAD)	

    WOOD TRUSSES SHALL UTILIZE APPROVED CONNECTOR PLATES (GANGNAIL OR EQUAL). SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMITTED DOCUMENTS SHALL BE SIGNED AND STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON. PROVIDE FOR SHAPES, BEARING POINTS, INTERSECTIONS, HIPS, VALLEYS, ETC., SHOWN ON THE DRAWINGS. EXACT COMPOSITION OF SPECIAL HIP, VALLEY, AND INTERSECTION AREAS (USE OF GIRDER TRUSSES, JACK TRUSSES, STEP-DOWN TRUSSES, ETC.) SHALL BE DETERMINED BY THE MANUFACTURER UNLESS SPECIFICALLY INDICATED ON THE PLANS. PROVIDE ALL TRUSS TO TRUSS AND TRUSS TO GIRDER TRUSS CONNECTION DETAILS AND REQUIRED CONNECTION MATERIALS. PROVIDE FOR ALL TEMPORARY AND PERMANENT TRUSS BRACING AND BRIDGING.

29. PLYWOOD SHEATHING SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1 OR PS 2. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD (EXCEPT AT ROOFS AND FLOORS).

    ROOF SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 32/16.
    FLOOR SHEATHING SHALL BE 3/4" (NOMINAL) WITH SPAN RATING 48/24.
    ACCESSIBLE ROOF SHEATHING SHALL BE 3/4" (NOMINAL) WITH SPAN RATING 48/24.
    WALL SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 24/0.

    PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING.

30. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY.

31. PRESERVATIVE TREATED WOOD SHALL BE TREATED PER AWPA STANDARD U1 TO THE USE CATEGORY EQUAL TO OR HIGHER THAN THE INTENDED APPLICATION. TREATED WOOD FOR ABOVE GROUND USE SHALL BE TREATED TO AWPA UC3B.

32. FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE CORROSION RESISTANCE AS INDICATED IN THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

WOOD TREATMENT	CONDITION	PROTECTION
HAS NO AMMONIA CARRIER	INTERIOR DRY	G90 GALVANIZED
CONTAINS AMMONIA CARRIER	INTERIOR DRY	G185 OR A185 HOT DIPPED OR CONTINUOUS HOT-GALVANIZED PER ASTM A653
CONTAINS AMMONIA CARRIER	INTERIOR WET	TYPE 304 OR 316 STAINLESS
CONTAINS AMMONIA CARRIER	EXTERIOR	TYPE 304 OR 316 STAINLESS
AZCA	ANY	TYPE 304 OR 316 STAINLESS

    INTERIOR DRY CONDITIONS SHALL HAVE WOOD MOISTURE CONTENT LESS THAN 19%. WOOD MOISTURE CONTENT IN OTHER CONDITIONS (INTERIOR WET, EXTERIOR WET, AND EXTERIOR DRY) IS EXPECTED TO EXCEED 19%. CONNECTORS AND THEIR FASTENERS SHALL BE THE SAME MATERIAL. COMPLY WITH THE TREATMENT MANUFACTURERS RECOMMENDATIONS FOR PROTECTION OF METAL.

33. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2021 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

    ALL 2X JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS. ALL BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "HU/HUCQ" SERIES JOIST HANGERS, UNO. ALL TJI JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "ITS" SERIES JOIST HANGERS. ALL DOUBLE-JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "MIT" SERIES JOIST HANGERS, UNO.

    WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.

    ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

34. WOOD FASTENERS

    A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
8d	2-1/2"	0.131"
16d	3-1/4"	0.131"

    B. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG BOLTS BEARING ON WOOD. INSTALLATION OF LAG BOLTS SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH A LEAD BORE HOLE OF 60 TO 70 PERCENT OF THE SHANK DIAMETER.

35. NOTCHES AND HOLES IN WOOD FRAMING:

    A. NOTCHES ON THE ENDS OF SOLID SAWN JOISTS AND RAFTERS SHALL NOT EXCEED ONE-FOURTH THE JOIST DEPTH. NOTCHES IN THE TOP OR BOTTOM OF SOLID SAWN JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN. HOLES BORED IN SOLID SAWN JOISTS AND RAFTERS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM OF THE JOIST, AND THE DIAMETER OF ANY SUCH HOLE SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST.

    B. IN EXTERIOR WALLS AND BEARING PARTITIONS, ANY WOOD STUD IS PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF ITS WIDTH. A HOLE NOT GREATER IN DIAMETER THAN 40 PERCENT OF THE STUD WIDTH IS PERMITTED TO BE BORED IN ANY WOOD STUD. IN NO CASE SHALL THE EDGE OF THE BORED HOLE BE NEARER THAN 5/8 INCH TO THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH.

    C. NOTCHES AND HOLES IN MANUFACTURED LUMBER AND PREFABRICATED PLYWOOD WEB JOISTS SHALL BE PER THE MANUFACTURERS RECOMMENDATIONS UNLESS OTHERWISE NOTED.

36. WOOD FRAMING NOTES--THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS:

    A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE, THE AITC "TIMBER CONSTRUCTION MANUAL" AND THE AF&PA "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION". MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO IBC TABLE 2304.10.1. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

    B. WALL FRAMING: REFER ARCHITECTURAL DRAWINGS FOR THE SIZE OF ALL WALLS. ALL STUDS SHALL BE SPACED AT 16" O.C. UNO. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS, AND AT BEAM OR HEADER BEARING LOCATIONS. TWO 2x8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW.

    ALL WALLS SHALL HAVE A SINGLE BOTTOM PLATE AND A DOUBLE TOP PLATE. END NAIL TOP PLATE TO EACH STUD WITH TWO 16d NAILS, AND TOENAIL OR END NAIL EACH STUD TO BOTTOM PLATE WITH TWO 16d NAILS. FACE NAIL DOUBLE TOP PLATE WITH 16d @ 12" O.C. AND LAP MINIMUM 4'-0" AT JOINTS AND PROVIDE EIGHT 16d NAILS @ 4" O.C. EACH SIDE JOINT.

    ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH TWO ROWS OF 16d NAILS @ 12" ON-CENTER, OR ATTACHED TO CONCRETE BELOW WITH 5/8" DIAMETER ANCHOR BOLTS @ 4'-0" ON-CENTER EMBEDDED 7" MINIMUM, UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH TWO ROWS OF 16d @12" ON-CENTER. UNLESS INDICATED OTHERWISE, 1/2" (NOMINAL)APA RATED SHEATHING (SPAN RATING 24/0) SHALL BE NAILED TO ALL EXTERIOR SURFACES WITH 8d NAILS @ 6" ON-CENTER AT PANEL EDGES AND TOP AND BOTTOM PLATES (BLOCK UN-SUPPORTED EDGES) AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH 8d NAILS @ 12" ON-CENTER.

    C. FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST LENGTH AND AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING AT ALL BEARING POINTS. TOE-NAIL JOISTS TO SUPPORTS WITH TWO 16d NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH SIMPSON METAL JOIST HANGERS IN ACCORDANCE WITH NOTES ABOVE. NAIL ALL MULTI JOIST BEAMS TOGETHER WITH TWO ROWS 16d @ 12" ON-CENTER.

    UNLESS OTHERWISE NOTED ON THE PLANS, PLYWOOD ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH GRAIN PERPENDICULAR TO SUPPORTS AND NAILED AT 6" ON-CENTER WITH 8d NAILS TO FRAMED PANEL EDGES, STRUTS AND OVER STUD WALLS AS SHOWN ON PLANS AND @ 12" ON-CENTER TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING. TOENAIL BLOCKING TO SUPPORTS WITH 16d @ 12" ON-CENTER UNO.

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DESIGN: ABB
DRAWN: NHD
CHECKED: ABB
APPROVED: ABB

Reviewed for 2018 Building Code Compliance
8/17/23
Building Plan Review by SAFEbuilt

REVISIONS:

1	Permit Correction	June 30, 2023

DPD:

PROJECT TITLE:
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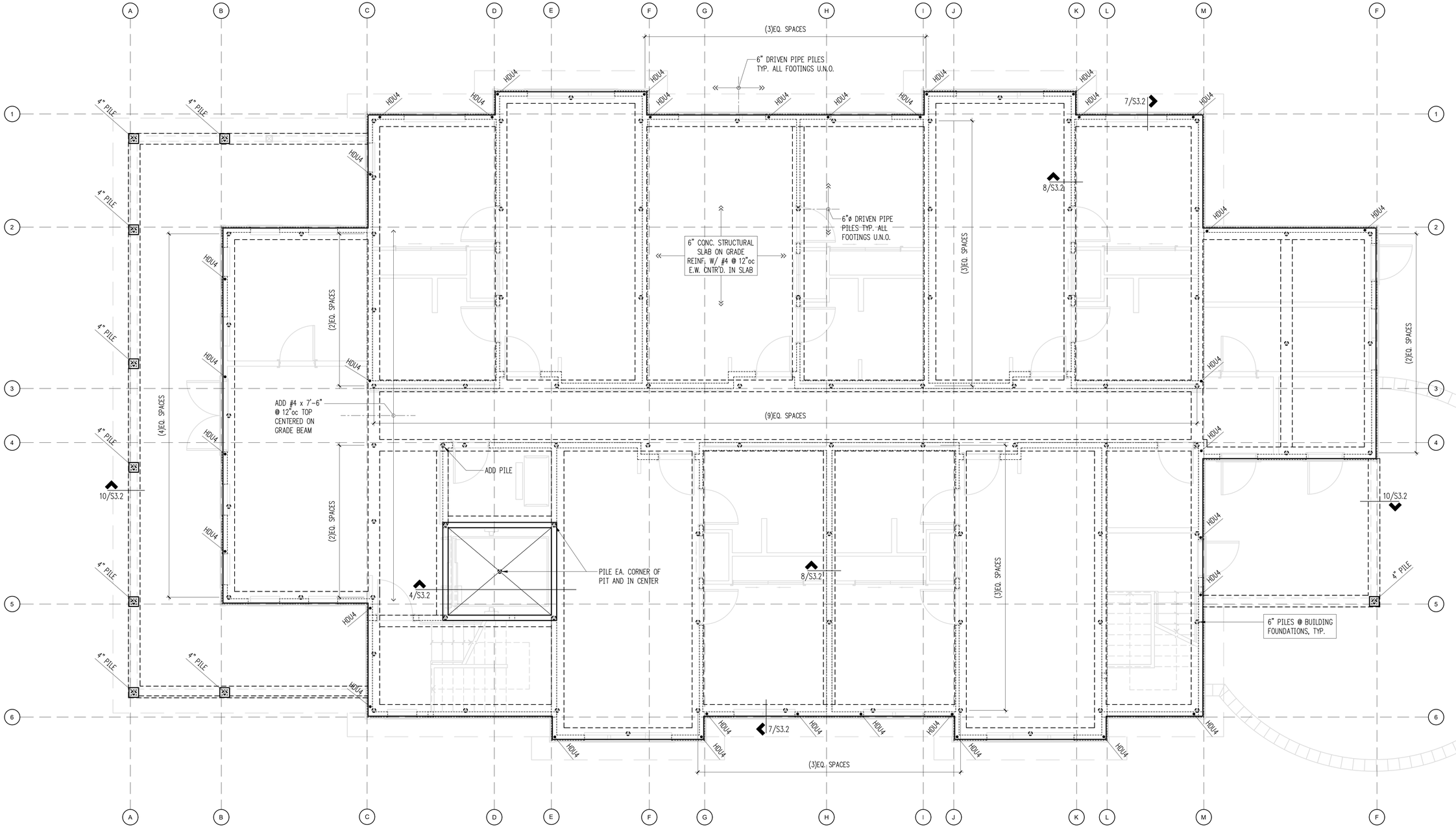
ISSUE:
Permit

SHEET TITLE:
General Structural Notes

SCALE: -
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO:
S1.1



Foundation Plan

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

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. TYPICAL STRUCTURAL SLAB ON GRADE SHALL BE 6" MIN REINFORCED WITH #4's AT 12"oc EACH WAY, CENTERED IN SLAB. PROVIDE 6 MIL VAPOR BARRIER ON 4" OF GRAVEL OR CRUSHED ROCK OVER FIRM UNDISTURBED SOIL OR ENGINEERED COMPACTED BACK-FILL IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS.
3. PROVIDE CORNER BARS PER GENERAL STRUCTURAL NOTES AT ALL WALL AND FOOTING INTERSECTIONS.
4. PROVIDE EPOXY GROUTED #4 X 2'-6" DOWELS EMBEDDED A MINIMUM OF 5" IN TO EXISTING CONCRETE TO MATCH NEW HORIZONTAL REINFORCING. TYPICAL WHERE NEW CONCRETE WALL OR FOOTING TERMINATES AT EXISTING CONCRETE. EPOXY GROUT PER GENERAL STRUCTURAL NOTES.
5. GEOTECHNICAL EXPLORATIONS PERFORMED ENCOUNTERED COMPETENT NATIVE SOILS AT APPROXIMATELY 10 TO 15 FEET BELOW THE EXISTING GROUND SURFACE. PILES SHALL EXTEND A MINUM OF FIVE FEET INTO THE COMPETENT NATIVE SOILS, IN ADDITION TO MEETING THE REFUSAL CRITERION. PILES SHOULD BE SPACED A MINIMUM OF TWO FEET APART TO AVOID A GROUPING EFFECT ON THE PILES. 1
6. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST ABOVE
- STEM WALL & FOOTING
- XX HOLDOWN PER
- & 6"ø DRIVEN PIPE PILE

USE ONLY 6" PILES PER ENG CALCS PAGE 11

STRUCTURAL ENGINEERING

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STATE OF WASHINGTON — ANDREW B. BRASKO — 31727 — REGISTERED STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DESIGN: ABB
DRAWN: NHD
CHECKED: ABB
APPROVED: ABB

Reviewed for 2018 Building Code Compliance
8/17/23
Building Plan Review by SAFEbuilt

REVISIONS:

1	Permit Correction	June 30, 2023

DPD:

PROJECT TITLE:
Sno-Valley Senior Housing

Carnation, WA 98014

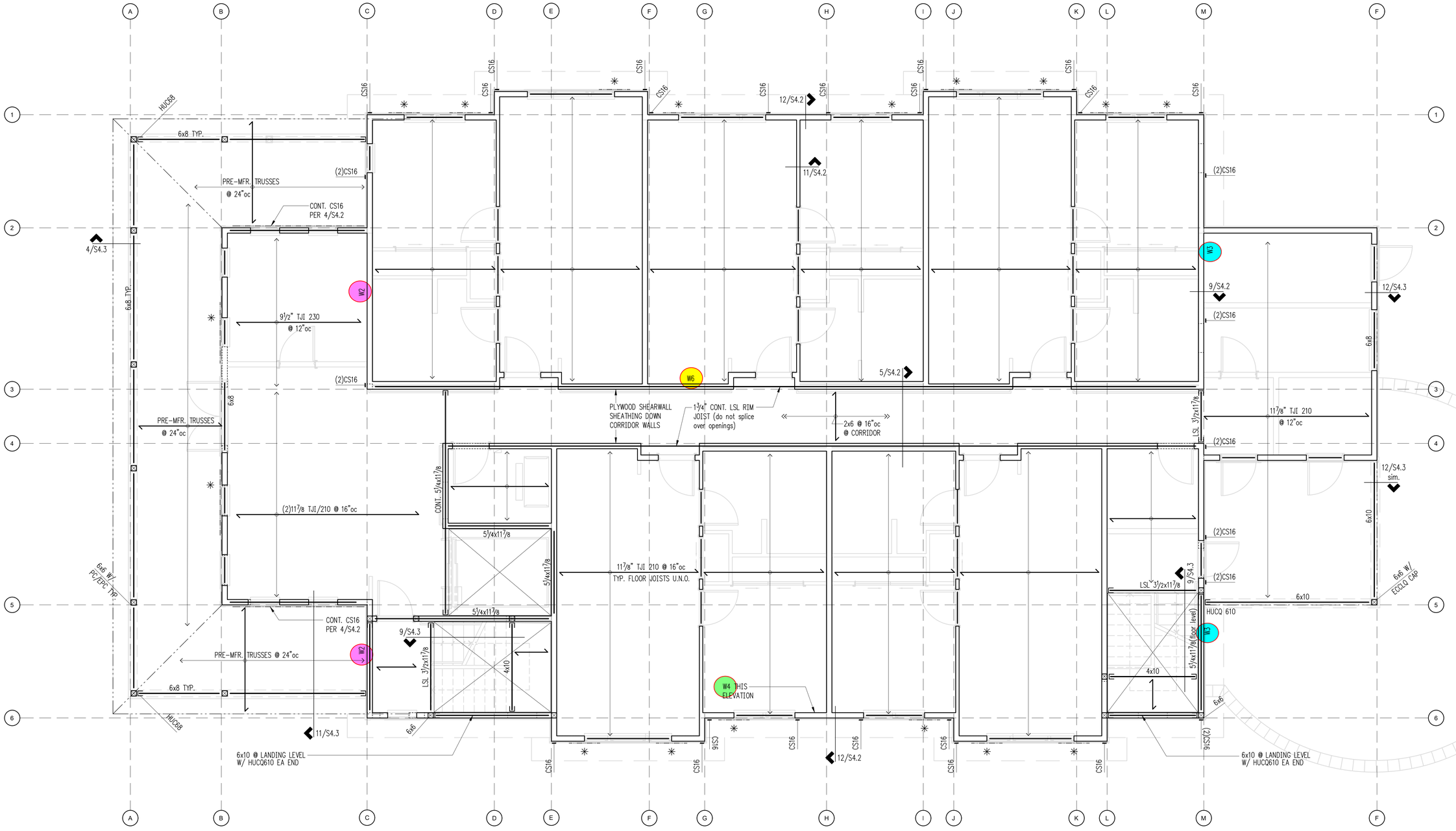
ARCHITECT:
Environmental Works
402 15th Avenue East
Seattle, Washington 98112
PH 206.329.8300
FX 206.329.5494

ISSUE:
Permit

SHEET TITLE:
Foundation Plan

SCALE: 1/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02

SHEET NO:
S2.1



Second Floor Framing Plan

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

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. FLOOR SHEATHING SHALL BE 3/4" A.P.A. RATED PANELS (EXPOSURE 1, SPAN RATING 48/24) FACE GRAIN PERPENDICULAR TO SUPPORTS OVER FLOOR FRAMING PER PLAN. NAIL SHEATHING AT ALL FRAMED PANEL EDGES WITH 8D AT 6"O.C. AND TO ALL INTERMEDIATE FRAMING AT 12" O.C.
3. HEADERS OVER DOOR AND WINDOW OPENINGS SHALL BE (2)2X8 UNO. PROVIDE (2) TRIMMER STUDS EACH END OF ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS. SEE TYPICAL DETAIL FOR INSTALLATION.
4. PROVIDE (2) STUDS (MINIMUM) AT EACH END OF ALL BEAMS UNLESS NOTED OTHERWISE ON PLANS. BEAR BEAM FULLY ON BUILT UP COLUMN AND PROVIDE LCE, ACE, PCZ, OR LPCZ CAP TO FIT.
5. W # INDICATES SHEAR WALL. SEE SHEARWALL SCHEDULE FOR CONSTRUCTION REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE W6, UNO.
6. (X)CS16 INDICATES VERTICAL HOLD-DOWN STRAP AT END OF SHEAR WALL ABOVE. (X) INDICATES STRAP QUANTITY. SEE DETAIL 2/S4.2 FOR INSTALLATION REQUIREMENTS.
7. MANUFACTURED LUMBER PRODUCTS (LSL, LVL, PSL, GL) SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%.
8. ALL POSTS ABOVE SHALL BEAR FULLY ON BEAMS OR POSTS BELOW AND SHALL HAVE CONTINUOUS VERTICAL GRAIN BLOCKING TO MATCH POST ABOVE FOR FULL BEARING THROUGH FLOORS TO THE FOUNDATION.
9. SPLICE ALL TOP PLATE SPLICES PER GENERAL STRUCTURAL NOTES.
10. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST BELOW
- NON-STRUCTURAL WALL BELOW
- STRUCTURAL WALL OR POST ABOVE
- Wx — SHEARWALL PER
- SPAN DIRECTION
- EXTENT OF JOISTS
- HEADER/BEAM PER PLAN
- HANGER
- CSxx — HOLDOWN STRAP PER
- CS16 HORIZONTAL STRAP PER DETAIL 8/S4.2

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Carnation, WA 98014

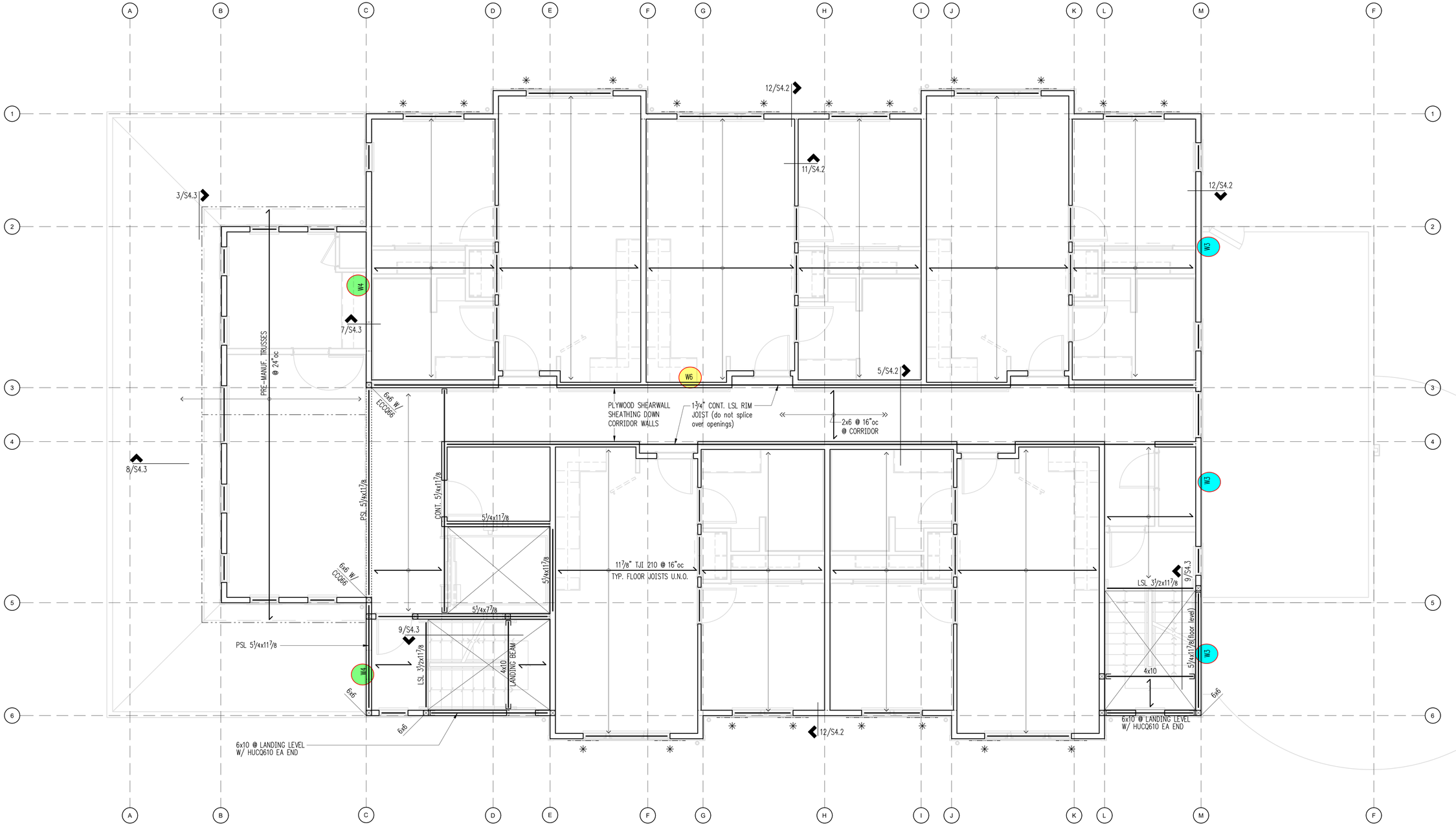
ARCHITECT:
Environmental Works
402 15th Avenue East
Seattle, Washington 98112
PH 206.329.8300
FX 206.329.5494

ISSUE:
Permit

SHEET TITLE:
Second Floor Framing Plan

SCALE: 1/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02

SHEET NO:
S2.2



Third Floor Framing Plan

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

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. FLOOR SHEATHING SHALL BE 3/4" A.P.A. RATED PANELS (EXPOSURE 1, SPAN RATING 48/24) FACE GRAIN PERPENDICULAR TO SUPPORTS OVER FLOOR FRAMING PER PLAN. NAIL SHEATHING AT ALL FRAMED PANEL EDGES WITH 8D AT 6"O.C. AND TO ALL INTERMEDIATE FRAMING AT 12" O.C.
3. HEADERS OVER DOOR AND WINDOW OPENINGS SHALL BE (2)2X8 UNO. PROVIDE (2) TRIMMER STUDS EACH END OF ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS. SEE TYPICAL DETAIL FOR INSTALLATION.
4. PROVIDE (2) STUDS (MINIMUM) AT EACH END OF ALL BEAMS UNLESS NOTED OTHERWISE ON PLANS. BEAR BEAM FULLY ON BUILT UP COLUMN AND PROVIDE LCE, ACE, PCZ, OR LPCZ CAP TO FIT.
5. W # INDICATES SHEAR WALL. SEE SHEARWALL SCHEDULE FOR CONSTRUCTION REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE W6, UNO.
6. (X)CS16 INDICATES VERTICAL HOLD-DOWN STRAP AT END OF SHEAR WALL ABOVE. (X) INDICATES STRAP QUANTITY. SEE DETAIL 2/S4.2 FOR INSTALLATION REQUIREMENTS.
7. MANUFACTURED LUMBER PRODUCTS (LSL, LVL, PSL, GL) SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%.
8. ALL POSTS ABOVE SHALL BEAR FULLY ON BEAMS OR POSTS BELOW AND SHALL HAVE CONTINUOUS VERTICAL GRAIN BLOCKING TO MATCH POST ABOVE FOR FULL BEARING THROUGH FLOORS TO THE FOUNDATION.
9. SPLICE ALL TOP PLATE SPLICES PER GENERAL STRUCTURAL NOTES.
10. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST BELOW
- NON-STRUCTURAL WALL BELOW
- STRUCTURAL WALL OR POST ABOVE
- Wx — SHEARWALL PER
- SPAN DIRECTION
- EXTENT OF JOISTS
- HEADER/BEAM PER PLAN
- HANGER
- CSxx — HOLDOWN STRAP PER 8/S4.2

STRUCTURAL ENGINEERING

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ANDREW B. BRISKO — 31725 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DESIGN: ABB
DRAWN: NHD
CHECKED: ABB
APPROVED: ABB

Reviewed for 2018 Building Code Compliance
8/17/23
Building Plan Review by SAFEbuilt

REVISIONS:

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Sno-Valley Senior Housing

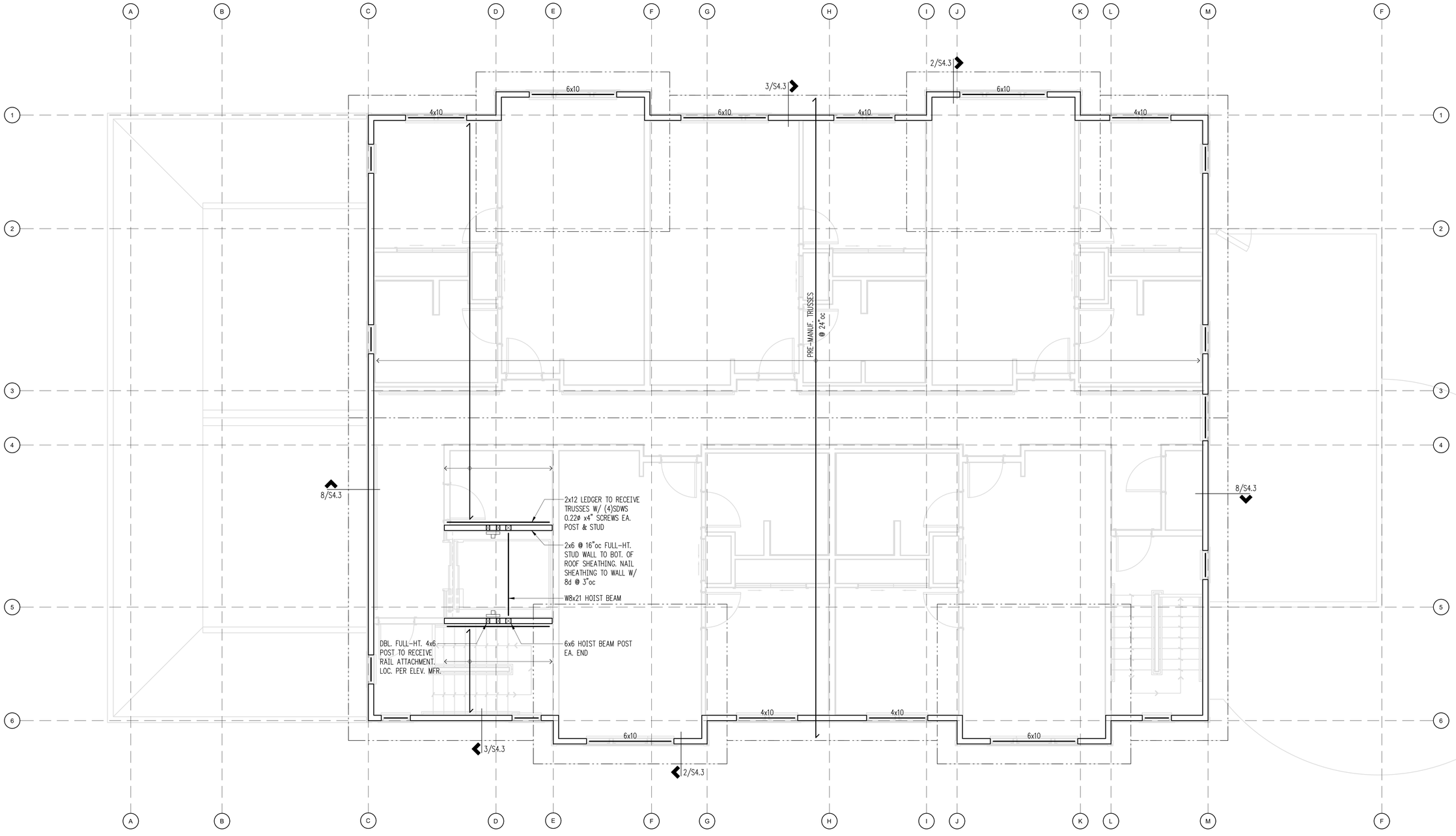
Carnation, WA 98014

ARCHITECT:
Environmental Works
402 15th Avenue East
Seattle, Washington 98112
PH 206.329.8300
FX 206.329.5494

ISSUE:
Permit

SHEET TITLE:
Third Floor Framing Plan

SCALE: 1/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO: S2.3



Roof Framing Plan

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

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. ROOF SHEATHING SHALL BE 1/2" A.P.A. RATED PANELS (EXPOSURE 1, SPAN RATING 32/16), FACE GRAIN PERPENDICULAR TO SUPPORTS OVER ROOF FRAMING PER PLAN. NAIL SHEATHING AT ALL FRAMED PANEL EDGES WITH 8D AT 6"O.C. AND TO ALL INTERMEDIATE FRAMING AT 12" O.C.
3. ROOF FRAMING SHALL BE PREFABRICATED ROOF TRUSSES AT 24" O.C. TRUSS DESIGN TO BE PROVIDED BY OTHERS. SEE STRUCTURAL NOTES FOR DESIGN REQUIREMENTS.
4. HEADERS OVER DOOR AND WINDOW OPENINGS SHALL BE (2)2X8 UNO. PROVIDE (2) TRIMMER STUDS EA END OF ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS. SEE TYPICAL DETAIL FOR INSTALLATION.
5. PROVIDE (2) STUDS (MINIMUM) AT EACH END OF ALL BEAMS UNLESS NOTED OTHERWISE ON PLANS. BEAR BEAM FULLY ON BUILT UP COLUMN AND PROVIDE LCE, ACE, PCZ, OR LPCZ CAP TO FIT.
6. W # INDICATES SHEAR WALL. SEE SHEARWALL SCHEDULE FOR CONSTRUCTION REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE W6, UNO.
7. PROVIDE H1 HURRICANE TIE AT EACH TRUSS/RAFTER WHERE IT BEARS ON EXTERIOR WALL OR BEAM.
8. MANUFACTURED LUMBER PRODUCTS (LSL, LVL, PSL, GL) SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%.
9. SPLICE ALL TOP PLATE SPLICES PER GENERAL STRUCTURAL NOTES.
10. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST BELOW
- NON-STRUCTURAL WALL BELOW
- Wx — SHEARWALL PER
- SPAN DIRECTION
- EXTENT OF JOISTS
- HEADER/BEAM PER PLAN
- HANGER

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ISSUE:
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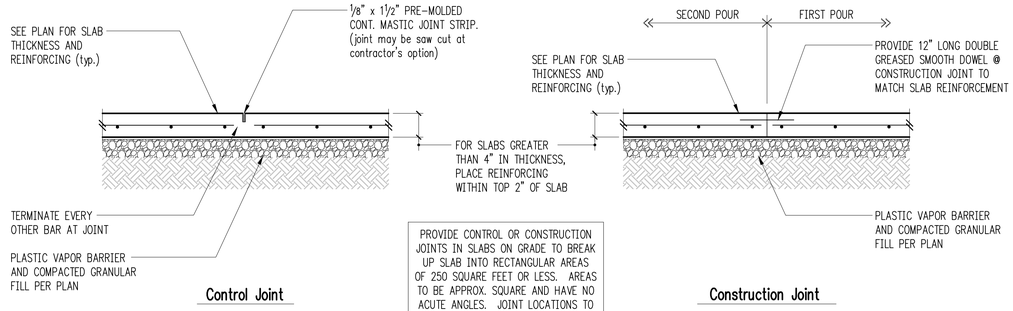
SHEET TITLE:
Roof Framing Plan

SCALE: 1/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02

SHEET NO:
S2.4

1

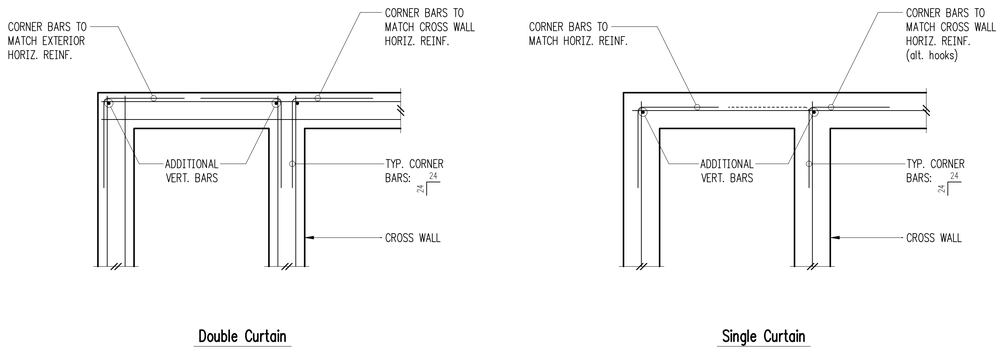
2



Typical Slab Joints 4

5

6



Typical Corner Bars at Concrete Walls and Footings 8

9

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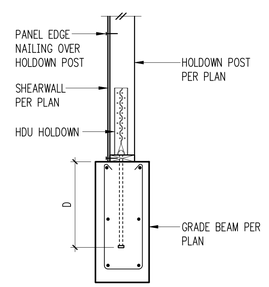

HDU Into Grade Beam

Holdown Schedule

Plan Mark	Screws	Anchor Bolt	Min. A.B. Embed (D) Grade Beam	Holdown Post ① if 2x4	Holdown Post ① if 2x6
HDU2-SDS2.5	(6)SDS 1/4"x2 1/2"	5/8"ø	12"	(2) 2x4	(2) 2x6
HDU4-SDS2.5	(10)SDS 1/4"x2 1/2"	5/8"ø	18"	4x4	4x6
HDU5-SDS2.5	(14)SDS 1/4"x2 1/2"	5/8"ø	SB5/8x24	4x4	4x6

① MINIMUM SIZE OF POST AT END OF WALL UNLESS OTHERWISE NOTED ON FRAMING PLANS.

Typical HDU Holdown 12

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ARCHITECT:
Environmental Works
402 15th Avenue East
Seattle, Washington 98112
PH 206.329.8300
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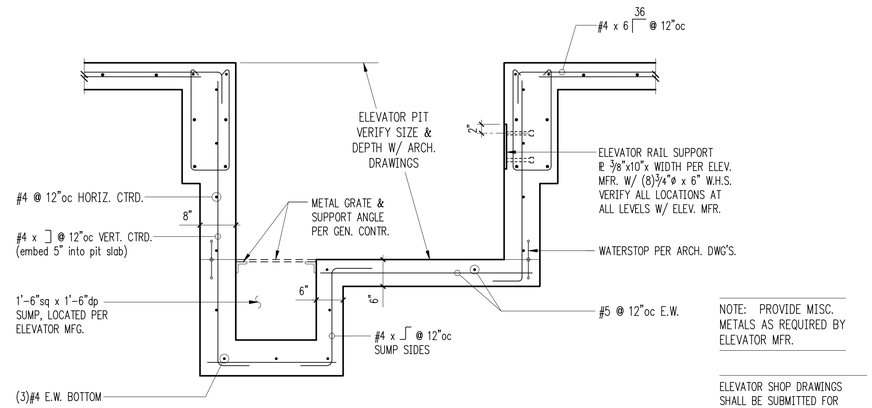
ISSUE: Permit

SHEET TITLE: Typical Concrete Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO: S3.1

1

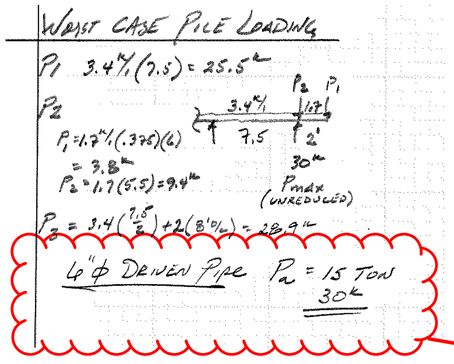
2



NOTE: PROVIDE MISC. METALS AS REQUIRED BY ELEVATOR MFR.

ELEVATOR SHOP DRAWINGS SHALL BE SUBMITTED FOR COORDINATION AND APPROVAL PRIOR TO FABRICATION

Typical Elevator Pit W/ Sump 4



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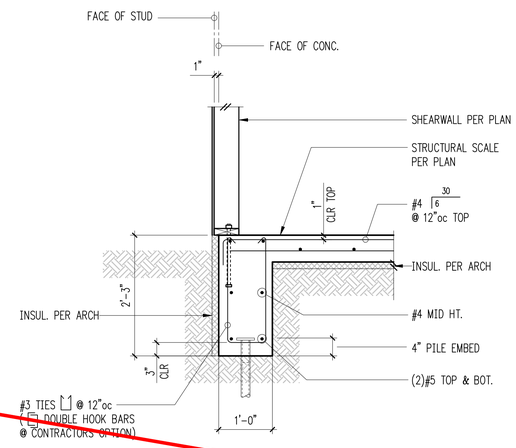

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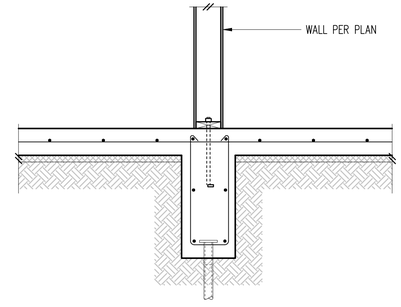
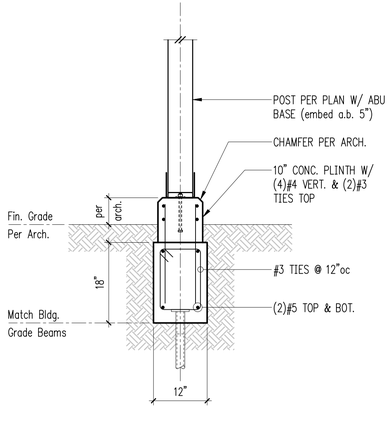
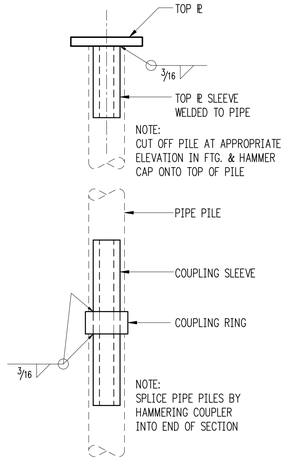


FOR CALLOUTS IN COMMON SEE 7/S3.2

8



Deck or Canopy Post Footing 10



USE 6" PER CALCS

Typical Pipe Pile Assembly

PART	PIPE	
	4" Sch 40 Pipe 4.5" O.D.	6" Sch 40 Pipe 6.625" O.D.
TOP PLATE	.50"x6"x6" (COMPRESSION FIT TOP PLATE)	.50"x8"x8" (COMPRESSION FIT TOP PLATE)
TOP ℄ SLEEVE	3.5" SCH 40 x 5" ASTM A53 GRADE A PIPE (TOP ℄ SLEEVE)	6"OD (.25") x 5" A500 PIPE (TOP ℄ SLEEVE)
PIPE	4" SCH 40 (.237") ASTM A53 GRADE A PIPE (TYP. 21' LENGTHS)	6" SCH 40 (.280") ASTM A53 GRADE A PIPE (TYP. 21' LENGTHS)
COUPLING SLEEVE	3.5" SCH 40 (.226") x 14" ASTM A53 GRADE A PIPE (COUPLING SLEEVE)	6" SCH 40 (.280") x 16" A500 PIPE (COUPLING SLEEVE)
COUPLING RING	4.50" x .188" x 1.75" (A500) TUBING (COUPLING RING)	6" SCH 80 (.432") x 2" ASTM A53 GRADE A PIPE (COUPLING RING)

3" = 1'-0"

Typical Pipe Pile Assembly Schedule 12

9

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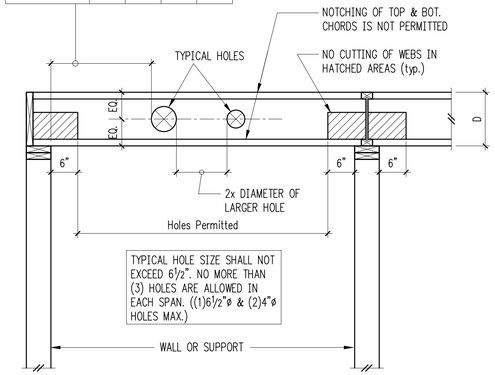
ISSUE: Permit

SHEET TITLE: Foundation Details

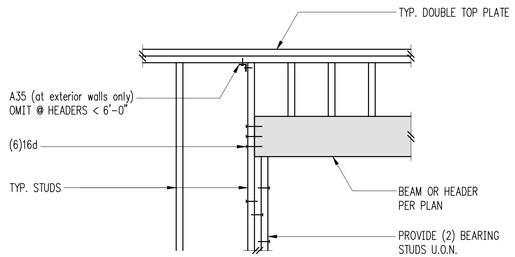
SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO: S3.2

(minimum distance from edge of hole to inside face of support)

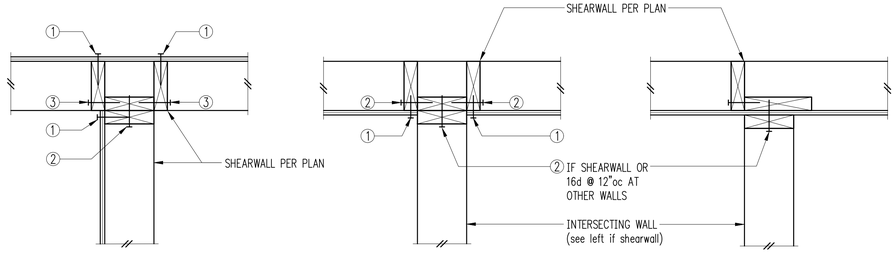
HOLE SIZE	2"	3"	4"	6½"
MIN. DISTANCE	1'-0"	2'-0"	3'-0"	5'-6"



Allowable Cutting in Web Joist Members 1



Typical Header Support w/2 Bearing Studs 2



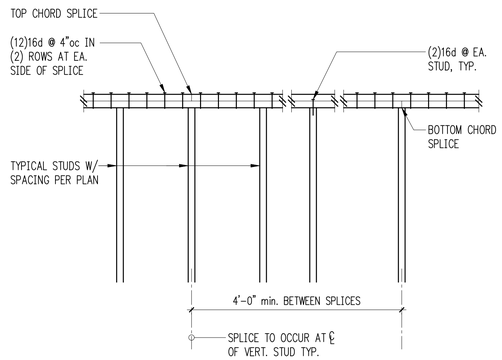
① PLYWOOD PANEL EDGE NAILING PER SHEARWALL SCHEDULE

② BASE PLATE NAILING PER SHEARWALL SCHEDULE

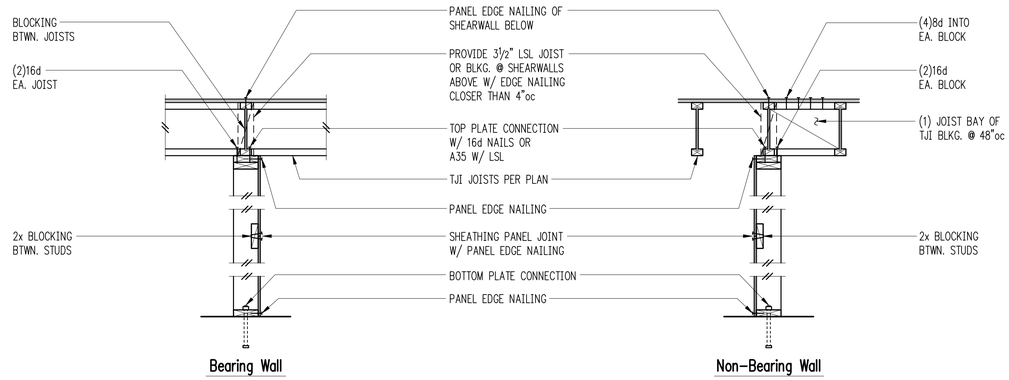
③ 16d @ 8"oc

Typical Shearwall Intersections 4

5



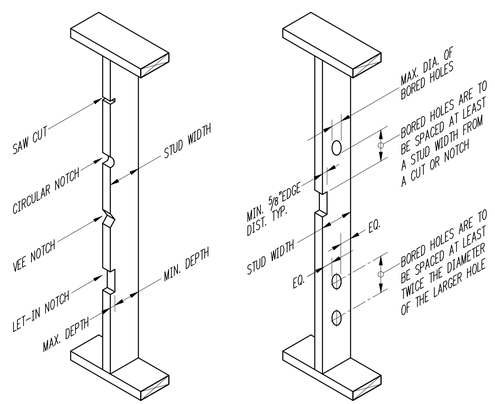
Typical Top Plate Splice 6



NOTE:
SEE SHEARWALL SCHEDULE FOR ALL NAILING AND CONNECTIONS, NOT OTHERWISE NOTED

Typical Shearwall Construction 8

USE MIN 1/2" CDX PLYWOOD PER PAGE 8 OF STRUCTURAL CALCULATIONS



BEARING WALL STUDS

STUD SIZE	MAX DEPTH OF EDGE CUT OR NOTCH	MIN DEPTH REMAINING AFTER CUT OR NOTCH
2x4	1⅜"	2⅝"
2x6	1⅜"	4⅛"
2x8	1¾"	5½"

BEARING WALL STUDS

STUD SIZE	MAX DIAMETER OF BORED HOLE	MIN DEPTH REMAINING AFTER BORED HOLE
2x4	1⅜"	⅝" EA SIDE OF HOLE
2x6	2 1/16"	⅝" EA SIDE OF HOLE
2x8	2⅞"	⅝" EA SIDE OF HOLE

NOTE:
STUDS MAY NOT BE BORED IN EXCESS OF 40% OF THE STUD, IF STUDS ARE DOUBLED, BORINGS MAY BE INCREASED TO 60% OF STUD WIDTH PROVIDED NOT MORE THAN (2) SUCCESSIVE STUDS ARE BORED. BORINGS SHALL NOT BE MADE AT THE SAME SECTION WHERE CUT OR NOTCH HAS BEEN MADE.

NON-BEARING WALL STUDS

STUD SIZE	MAX DEPTH OF EDGE CUT OR NOTCH	MIN DEPTH REMAINING AFTER CUT OR NOTCH
2x4	1⅜"	2⅛"
2x6	2 5/16"	3⅜"
2x8	2⅞"	4⅜"

NON-BEARING WALL STUDS

STUD SIZE	MAX DIAMETER OF BORED HOLE	MIN DEPTH REMAINING AFTER BORED HOLE
2x4	2 1/16"	⅝" EA SIDE OF HOLE
2x6	3¼"	⅝" EA SIDE OF HOLE
2x8	4¼"	⅝" EA SIDE OF HOLE

NOTE:
STUDS MAY NOT BE BORED IN EXCESS OF 60% OF THE STUD. BORINGS SHALL NOT BE MADE AT THE SAME SECTION WHERE CUT OR NOTCH HAS BEEN MADE.

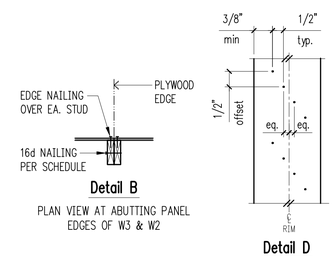
CUTTING AND NOTCHING WOOD STUDS

NOTE:
DO NOT NOTCH MORE THAN THREE ADJACENT STUDS WITHOUT REVIEW BY ENGINEER.

BORED HOLES IN WOOD STUDS

NOTE:
BORED HOLE NOT PERMITTED IN MORE THAN THREE ADJACENT STUDS WITHOUT REVIEW BY ENGINEER.

Typical Holes and Notches in Wood Studs 10



Shearwall Schedule ①②③⑤⑥⑦

Mark	Sheathing	Panel Edge Nailing	Top Plate Connection if TJI	Top Plate Connection if Wood ⑧⑨	Base Plate Connection at Wood ⑩	Base Plate Connection at Concrete
W6	15/32" CDX PLYWOOD	8d @ 6"oc	16d @ 6"oc	A35 @ 24"oc	16d @ 6"oc	⅝"ø A.B. @ 48"oc
W4	15/32" CDX PLYWOOD	8d @ 4"oc	16d @ 4"oc	A35 @ 16"oc	(2)rows 16d @ 6"oc	⅝"ø A.B. @ 32"oc
W3 ④	15/32" CDX PLYWOOD	8d @ 3"oc	(2)rows 16d @ 4"oc	A35 @ 12"oc	(2)rows 16d @ 6"oc	⅝"ø A.B. @ 24"oc
W2 ④	15/32" CDX PLYWOOD	8d @ 2"oc	(2)rows 16d @ 4"oc	A35 @ 9"oc	(2)rows 16d @ 4"oc ⑪	⅝"ø A.B. @ 16"oc

① BLOCK PANEL EDGES WITH 3x MIN LAID FLAT AND NAIL PANELS TO INTERMEDIATE SUPPORTS WITH 8d @ 12"o.c.

② 8d NAILS SHALL BE 0.131"ø x 2 1/2" (common) – 16d NAILS SHALL BE 0.135"ø x 3 1/2" (box)

③ EMBED ANCHOR BOLTS AT LEAST 7". DRILLED AND EPOXIED THREADED ROD MAY BE SUBSTITUTED FOR ANCHOR BOLTS WITH 6" EMBEDMENT. TITEN HD SCREW ANCHORS MAY BE SUBSTITUTED FOR ANCHOR BOLTS W/ 4" EMBEDMENT. ALL BOLTS SHALL HAVE 3" x 3" x 1/4" MIN. PLATE WASHERS. PLATE WASHERS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WITH SHEATHING. SEE DETAIL C.

④ 3x STUDS OR DOUBLE STUDS NAILED TOGETHER W/ BASE PLATE NAILING ARE REQUIRED AT ABUTTING PANEL EDGES OF W3 AND W2. SEE DETAIL B. WHERE 3x STUDS ARE USED FOR W2, STAGGER NAILS AT ADJOINING PANEL EDGES.

⑤ TWO STUDS MINIMUM ARE REQUIRED AT EACH END OF ALL SHEARWALLS AND ALL END STUDS SHALL RECEIVE PANEL EDGE NAILING. SEE PLANS AND HOLDOWN SCHEDULE FOR ALTERNATE REQUIREMENTS.

⑥ ALL EXTERIOR WALLS SHALL BE W6, UNLESS NOTED OTHERWISE.

⑦ 7/16" O.S.B. MAY BE SUBSTITUTED FOR 15/32" CDX.

⑧ LTP4's (HORIZONTAL ORIENTATION) W/ 8d COMMON MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.

⑨ A 2x NAILER ATTACHED W/ BASE PLATE NAILING PER DETAIL A MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.

⑩ AT MULTI-ROW NAILING, MINIMUM OFFSET BETWEEN ROWS AND ROW SPACING 1/2", SEE DETAIL D.

⑪ PROVIDE (3) ROWS 16d @ 6"oc AT LVL RIMS.

Shearwall Schedule 12

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CHECKED: ABB
APPROVED: ABB

Reviewed for 2018 Building Code Compliance
8/17/23
Building Plan Review by SAFEbuilt

REVISIONS:

1	Permit Correction	June 30, 2023

DPD:

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Carnation, WA 98014

ARCHITECT:
Environmental Works
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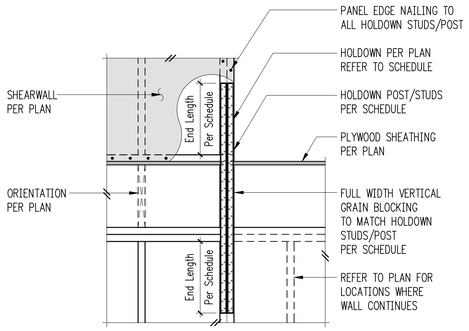
Seattle, Washington 98112
PH 206.329.8300
FX 206.329.5494

ISSUE:
Permit

SHEET TITLE:
Typical Wood Framing Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02

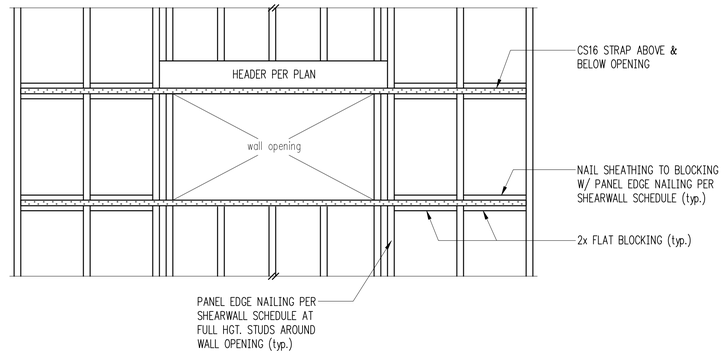
SHEET NO:
S4.1



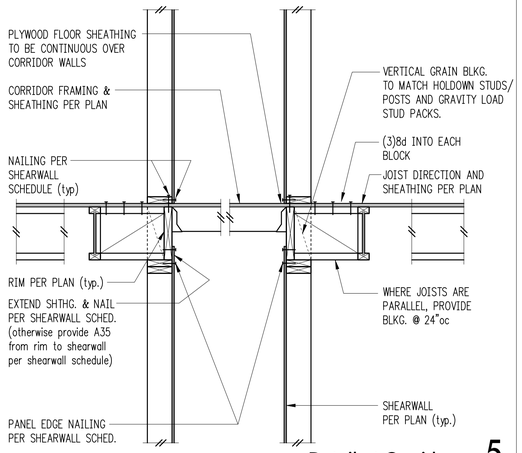
Holdown Strap Schedule

Plan Mark	End Length	#Nails Ea. End Length	Holdown Studs/Post	
			if 2x4	if 2x6
CS16	1'-2"	(13) 8d	(1) 2x4	(1) 2x6
CMST14	2'-6"	(33) 10d	4x6	4x6
CMST12	3'-3"	(43) 10d	4x8	6x6

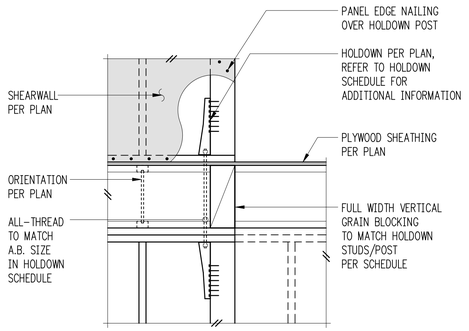
Typical Holdown Schedule 2



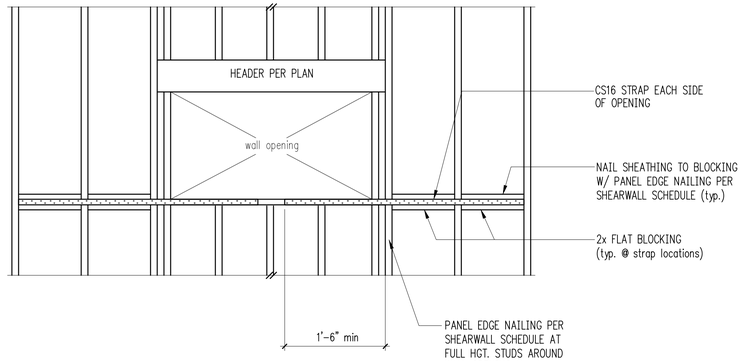
Continuous Straps at Wall Opening (above and below) 4



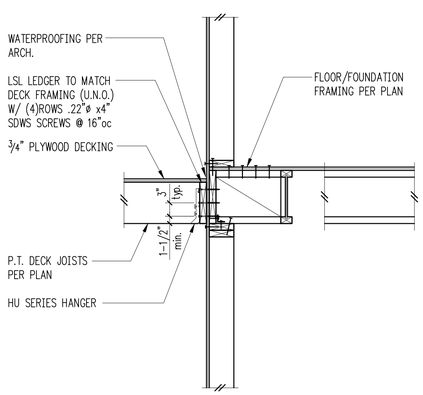
Detail at Corridor 5



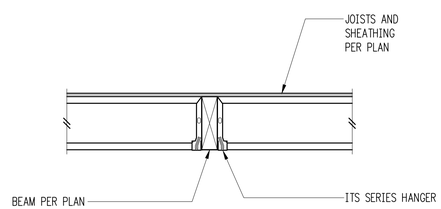
Typical HDU Holdowns 6



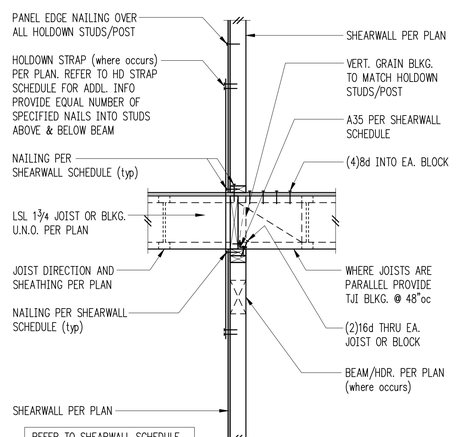
Straps at Wall Opening 8



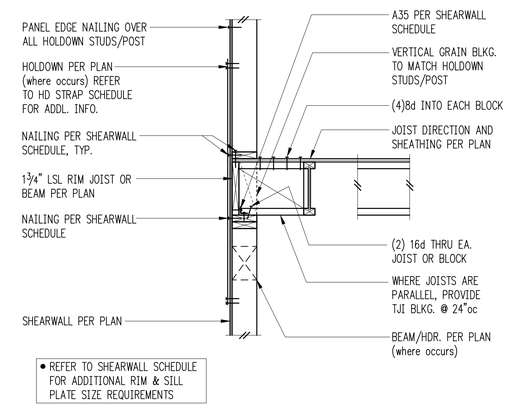
Typical Deck Ledger Detail 9



Typical Flush Beam 10



Interior Shearwall 11



Exterior Floor Framing 12

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DRAWN: NHD
CHECKED: ABB
APPROVED: ABB

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1 Permit Correction June 30, 2023

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Carnation, WA 98014

ARCHITECT:
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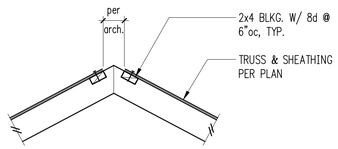
Seattle, Washington 98112
PH 206.329.8300
FX 206.329.5494

ISSUE:
Permit

SHEET TITLE:
Wood Framing Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO:
S4.2



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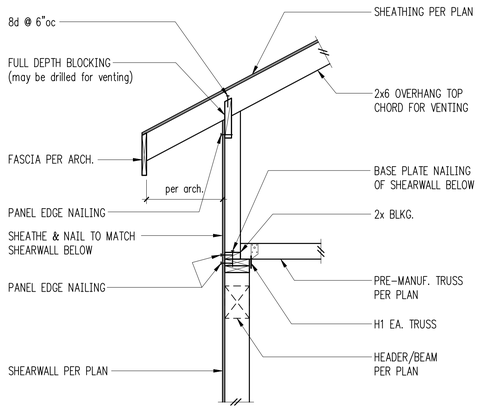
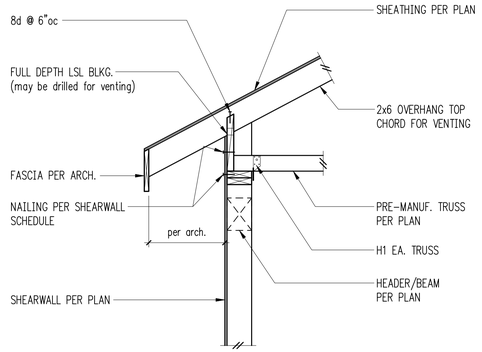
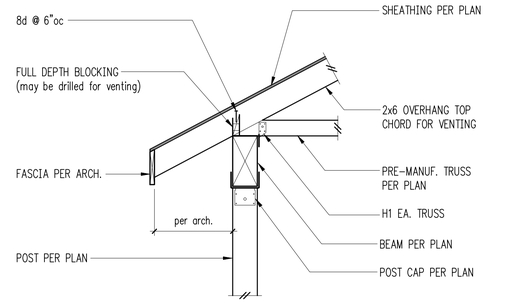


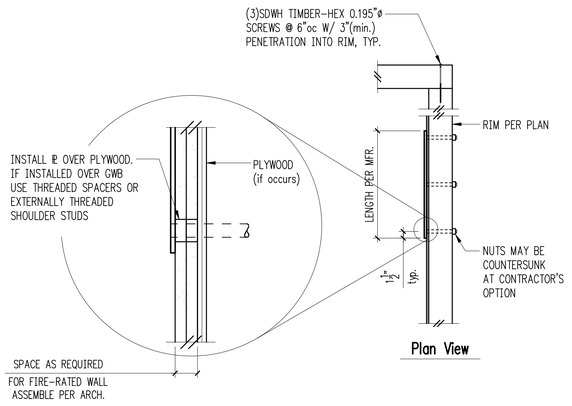
Raised Heel Exterior Bearing Wall 2



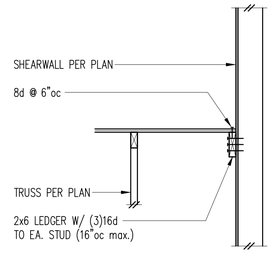
Raised Heel Exterior Bearing Wall 3



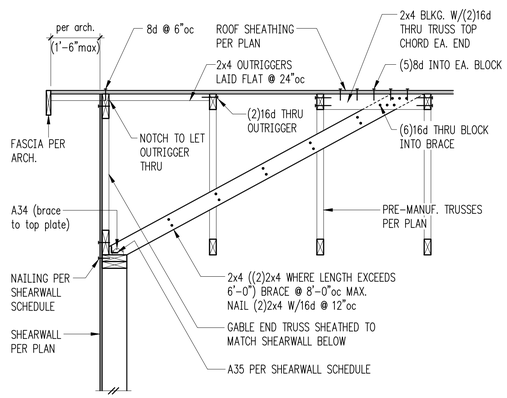
Beam & Post 4



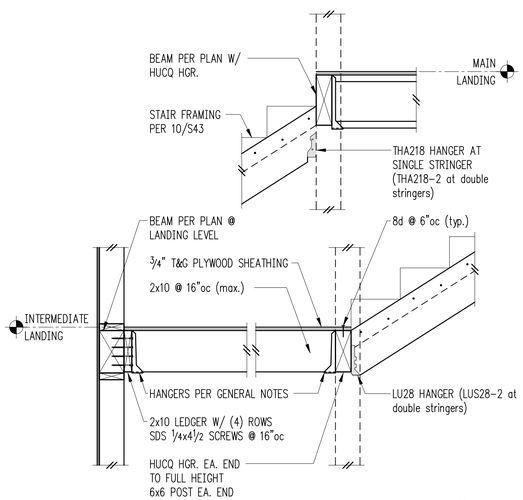
Typical Rail Support Connection at Wood Floors 6



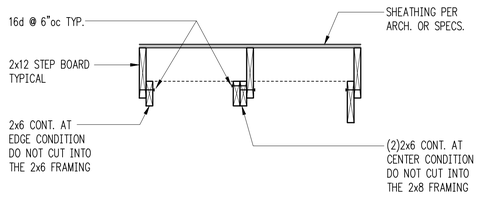
Trusses Parallel to Exterior Wall 7



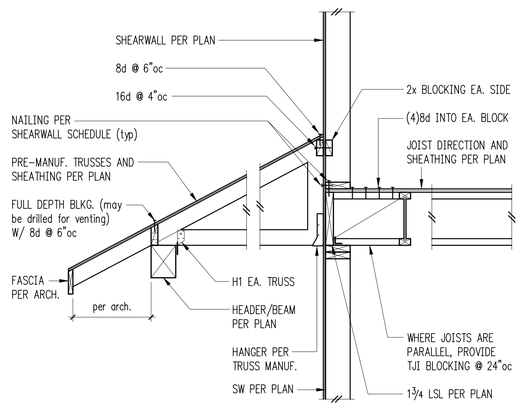
Exterior Non-Bearing Wall 8



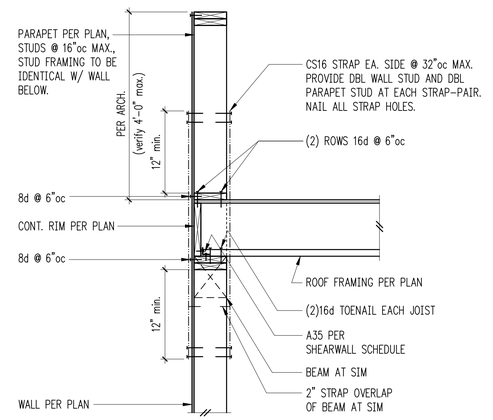
Stair Landings 9



Typical Stair Stringers 10



Truss Hung at Floor 11



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ISSUE: Permit

SHEET TITLE: Wood Framing Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 22, 2023
PROJECT NO: 00306-2022-02
SHEET NO: S4.3

MECHANICAL SYMBOLS LEGEND

HYDRONIC SYSTEM LABELS

- PIPE BREAK (CONTINUATION)
- HYDRONIC SUPPLY
- HYDRONIC RETURN
- DIRECTION OF FLOW
- CAP
- HEAT TRACED PIPING

HYDRONIC VALVES AND SPECIALTIES

- F.O. / F.C. — 2-WAY ELECTRIC CONTROL VALVE; FAIL OPEN / FAIL CLOSED
- 3-WAY ELECTRIC CONTROL VALVE
- 4-WAY CONTROL VALVE

DUCTWORK LABELS

- INTERNALLY LINED DUCT
- HIDDEN DUCT
- 16X12 — DUCT (1ST DIMENSION SIDE SHOWN, 2ND DIMENSION OTHER SIDE)
- REMOVE DUCT, PIPE OR MECH. EQUIPMENT
- FLEX DUCT
- RECTANGULAR SUPPLY DUCT OUT OF PAGE
- RECTANGULAR SUPPLY DUCT INTO PAGE
- SUPPLY DIFFUSER
- OUTSIDE AIR DIFFUSER
- RECTANGULAR RETURN / EXHAUST DUCT OUT OF PAGE
- RECTANGULAR RETURN / EXHAUST DUCT INTO PAGE
- OR — RETURN OR EXHAUST GRILLE
- TURNING VANES
- STRAIGHT TAP
- TAPERED FITTING
- BELL MOUTH FITTING
- CONICAL FITTING
- 45 DEG. ANGLE TAP
- ROUND ELBOW OUT OF PAGE
- ROUND ELBOW INTO PAGE
- ROUND DUCT OUT OF PAGE
- ROUND DUCT INTO PAGE
- ROUND DUCT BREAK (CONTINUATION)
- RECTANGULAR DUCT BREAK (CONTINUATION)
- FLEX CONNECTION

REFERENCE SYMBOLS

- M-1 — DETAIL NUMBER; SHEET
- FLAG NOTE
- 1 — REVISION TAG
- AHU-1 — MECHANICAL EQUIPMENT
- D / 0 — DIFFUSER/GRILLE TYPE; CFM
- 1 — SECTION NUMBER; SHEET NUMBER

LIFE SAFETY SYMBOLS

- CEILING RADIATION DAMPER
- OR — COMBINATION SMOKE/FIRE DAMPER
- HORIZONTAL SMOKE DAMPER
- FIRE DAMPER

CONTROL SYMBOLS

- VOLUME DAMPER
- M — MOTORIZED CONTROL DAMPER
- T — THERMOSTAT IN DUCT
- P — PRESSURE SENSOR IN DUCT
- OR — REMOTE OPERATED VOLUME DAMPER
- BACKDRAFT DAMPER
- PRESSURE INDEPENDENT VOLUME CONTROLLER (TROX VFC)
- PRESSURE INDEPENDENT VOLUME CONTROLLER W/ ACTUATOR (TROX VFC EØ / MØ)
- T — THERMOSTAT, MOUNT @ 4'-0" A.F.F.
- S — SENSOR
- C — CONTROL DEVICE
- D — MAGNETIC DOOR SWITCH
- CO / GEF-1 — CARBON MONOXIDE DETECTOR WITH FAN INDICATED
- CO2 — CARBON DIOXIDE DETECTOR

PIPING SYSTEM LABELS

- G — NATURAL GAS OR PROPANE
- BALL VALVE MANUAL LEVER
- BUTTERFLY VALVE MANUAL LEVER
- BUTTERFLY GEAR VALVE
- GLOBE VALVE MANUAL LEVER
- BALANCE VALVE (CIRCUIT SETTER)
- BALANCE VALVE (PRESSURE INDEPENDENT)
- PIPE TO DRAIN
- PRESSURE SAFETY VALVE
- AAV — AUTOMATIC AIR VENT
- MAV — MANUAL AIR VENT
- WYE STRAINER
- WYE STRAINER WITH VALVE AND HOSE END CAP
- HEAT TRACE PIPING
- HOSE END AND CAP
- EXPANSION LOOP

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALT	ALTERNATE
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL/ARCHITECT
AS	AIR SEPARATOR
AUX	AUXILIARY
BFF	BELOW FINISHED FLOOR
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CA	COMBUSTION AIR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
C/L	CENTER LINE
CLG	CEILING
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COND	CONDENSATE
CW	COLD WATER
CX	CONNECT TO EXISTING
dB	DECIBEL
DB °F	DRY BULB TEMPERATURE
° OR DEG.	DEGREE
Ø OR DIA	DIAMETER
DL	DOOR LOUVER
DN	DOWN
DWG(S)	DRAWING(S)
DWV	DRAIN, WASTE, VENT
EX	EXISTING/EXISTING TO REMAIN
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ERU	ENERGY RECOVERY UNIT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWH	ELECTRIC WALL HEATER
EXP	EXPANSION
FC	FAIL CLOSED
FSD	FIRE/SMOKE DAMPER
FF	FINISHED FLOOR
FLA	FULL LOAD AMPS
FO	FAIL OPEN
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET/FOOT
FTG	FOOTING
FOIC	FURNISHED BY OWNER INSTALLED BY CONTRACTOR
FOIO	FURNISHED BY OWNER INSTALLED BY OWNER
FSD	FIRE/SMOKE DAMPER
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
G.C.	GENERAL CONTRACTOR
GSM	GALVANIZED SHEET METAL
H	HEIGHT
HD	HEAD
HP	HORSEPOWER
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER/DIMENSION
IN	INCH/INCHES
IN WC	INCHES WATER COLUMN
KW	KILOWATT/KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAL FOOT
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LWT	LEAVING WATER TEMPERATURE
MBH	1000 BRITISH THERMAL UNIT PER HOUR
MCD	MOTORIZED CONTROL DAMPER
MD	MOTORIZED DAMPER
MED	MEDIUM
MEP	MECHANICAL, ELECTRICAL & PLUMBING
MEZZ	MEZZANINE
MIN	MINIMUM OR MINUTE
MISC	MISCELLANEOUS
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA/OSA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
ΔP	PRESSURE DIFFERENTIAL
PERF	PERFORATED
Φ OR PH	PHASE
PIVD	PRESSURE INDEPENDENT VOLUME DAMPER
PLBG	PLUMBING
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER INCH GAUGE
PTAC	PACKAGE TERMINAL AIR CONDITIONER
QTY	QUANTITY
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RM	ROOM
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RLX	RELOCATE EXISTING
RTU	ROOF TOP UNIT
RV	RELIEF VALVE
RX	REMOVE EXISTING
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SF	SQUARE FOOT
S.L.	SOUND LINER
SP	STATIC PRESSURE
SPEC	SPECIFICATION
S/S, OR SS	STAINLESS STEEL
STD	STANDARD
T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
TBD	TO BE DETERMINED
TEMP	TEMPERATURE
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOD	TOP OF DECK
TOJ	TOP OF JOIST
TOS	TOP OF SLAB/TOP OF STEEL
T&P	TEMPERATURE & PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UTR	UP THROUGH ROOF
V	VOLT
VAV	VARIABLE AIR VOLUME
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VIB	VALVE-IN-BOX
VOL	VOLUME
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
WB °f	WET BULB TEMPERATURE
WC	WATER COLUMN
WPD	WATER PRESSURE DROP
WT	WEIGHT

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COMMISSIONING NOTES

1. BUILDING COMMISSIONING BY A CERTIFIED COMMISSIONING PROFESSIONAL (CCXP) SHALL BE COMPLETED FOR THE MECHANICAL SYSTEMS, SERVICE WATER HEATING SYSTEMS AND ENERGY METERING SYSTEMS ON THIS PROJECT IN ACCORD WITH THE COMMERCIAL ENERGY CODE SECTION C408 AND SPECIFICATION SECTION 230800. THE GOAL OF COMMISSIONING IS TO VERIFY THAT EQUIPMENT, CONTROLS AND THE SEQUENCING OF SUCH OPERATE AS INTENDED. THE COMMISSIONING DOCUMENTATION THAT IS REQUIRED IS THE PROOF OF THIS OPERATION. THE FOLLOWING TASKS ARE REQUIRED FOR COMMISSIONING. SEE SECTION 230800 FOR ADDITIONAL REQUIREMENTS.

2. COMMISSIONING PLAN: THE CCXP SHALL DEVELOP A PLAN WHICH OUTLINES THE ORGANIZATION, SCHEDULE, ALLOCATION OF RESOURCES AND DOCUMENTATION REQUIREMENTS OF THE COMMISSIONING PROCESS. ITEMS 1 THROUGH 4 AS SPECIFIED SHALL BE PREPARED AND SUBMITTED WITH THE MECHANICAL PERMIT. ITEMS 5 THROUGH 8 AS SPECIFIED SHALL BE SUBMITTED TO BUILDING DEPARTMENT PRIOR TO THE FIRST MECHANICAL INSPECTION. ALL ITEMS SHALL BE SUBMITTED WITH THE MECHANICAL SUBMITTALS.

3. PRELIMINARY COMMISSIONING REPORT: COMPLETION OF THE COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE CERTIFIED BY THE CCXP. REPORT SHALL NOTE DEFICIENCIES FOUND DURING TESTING, CORRECTIVE ACTION TAKEN OR THE ANTICIPATED DATE OF CORRECTION, CONDITIONS UNDER WHICH THE TESTING WAS PERFORMED AND STATUS OF ANY DEFERRED TESTS.
   A. SUBMISSION OF THIS REPORT IS REQUIRED PRIOR TO FINAL MECHANICAL & PLUMBING INSPECTIONS AND CERTIFICATE OF OCCUPANCY.
   B. A COPY OF THIS REPORT SHALL BE MADE AVAILABLE TO THE CODE OFFICIAL.

4. WITHIN 90 DAYS OF RECEIPT OF THE BUILDING CERTIFICATE OF OCCUPANCY, THE PROJECT RECORD DRAWINGS, O&M MANUALS, FINAL BALANCING REPORT, FINAL COMMISSIONING REPORT AND DOCUMENTATION OF COMPLETED OWNER TRAINING SHALL BE SUBMITTED FOR REVIEW.

5. RECORD DRAWINGS: LOCATION AND PERFORMANCE DATA ON EACH PIECE OF INSTALLED EQUIPMENT, AS-INSTALLED CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM, INCLUDING SIZES, AND THE TERMINAL AIR AND WATER DESIGN FLOW RATES OF THE ACTUAL INSTALLATION.

6. OPERATION & MAINTENANCE MATERIALS: SUBMIT ALL OF THE FOLLOWING.
   A. EQUIPMENT SIZE, SELECTED OPTIONS, AND REQUIRED MAINTENANCE.
   B. MANUFACTURER'S O&M MANUAL FOR EACH PIECE OF EQUIPMENT.
   C. NAME AND ADDRESS OF SERVICE AGENCY.
   D. CONTROLS MAINTENANCE AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, RECORD DRAWINGS AND CONTROL SEQUENCES. SETPOINTS SHALL BE PERMANENTLY RECORDED IN THESE DOCUMENTS.
   E. NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

7. SYSTEM ADJUSTING & BALANCING: ALL HVAC, HYDRONIC AND SERVICE HOT WATER SYSTEMS SHALL BE BALANCED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH ACCEPTED ENGINEERING STANDARDS AND SECTION 230593. FINAL FLOW RATES SHALL BE WITHIN TOLERANCES SPECIFIED. EACH AIR INLET OR OUTLET AND HYDRONIC COIL SHALL BE EQUIPPED WITH A MEANS FOR BALANCING.

8. FUNCTIONAL PERFORMANCE TESTING (FPT): THE CCXP SHALL PROVIDE AND EXECUTE WRITTEN PROCEDURES WHICH CLEARLY DESCRIBE THE INDIVIDUAL SYSTEMATIC TEST PROCEDURES, THE EXPECTED SYSTEMS' RESPONSE, ACCEPTANCE CRITERIA FOR EACH PROCEDURE, THE ACTUAL RESPONSE OR FINDINGS AND ANY NOTES. TESTING SHALL AFFIRM OPERATION DURING ACTUAL OR SIMULATED WINTER AND SUMMER CONDITIONS AND DURING FULL OUTSIDE AIR CONDITIONS.
   A. EQUIPMENT FPT SHALL DEMONSTRATE THE CORRECT INSTALLATION AND OPERATION OF EACH COMPONENT, SYSTEM, AND SYSTEM-TO-SYSTEM INTERTIE RELATIONSHIP. TESTING SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATIONS, INCLUDING FULL-LOAD, PART-LOAD, EMERGENCY, ALARMS AND LOSS OF POWER.
   B. CONTROL SYSTEMS SHALL BE TESTED TO ENSURE THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS ARE CALIBRATED, ADJUSTED AND OPERATE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. SEQUENCE OF OPERATION SHALL BE FUNCTIONALLY TESTED TO DOCUMENT THEY OPERATE AS REQUIRED.
   C. ECONOMIZER SHALL UNDERGO A FUNCTIONAL TEST TO DETERMINE THAT THEY OPERATE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

9. OWNER TRAINING: PROVIDE SYSTEM/EQUIPMENT OVERVIEW (WHAT IT IS, WHAT IT DOES AND WHICH OTHER SYSTEMS AND OR EQUIPMENT DOES IT INTERFACE WITH). REVIEW THE AVAILABLE O&M MATERIALS. REVIEW THE PROJECT RECORD DRAWINGS. PROVIDE HANDS-ON DEMONSTRATION OF ALL NORMAL MAINTENANCE PROCEDURES, NORMAL OPERATING MODES, AND ALL EMERGENCY SHUTDOWN AND START-UP PROCEDURES. INCLUDE WRITTEN DOCUMENTATION THAT ALL THE PREVIOUS HAS BEEN COMPLETED.

10. FINAL COMMISSIONING REPORT: THE CCXP SHALL COMPLETE AND CERTIFY THE RESULTS OF ALL FUNCTIONAL PERFORMANCE TESTS AND THAT THE COMMISSIONING PLAN HAS BEEN FULLY EXECUTED. REPORT SHALL INCLUDE:
    A. DISPOSITION OF ALL DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED.
    B. ALL FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.

11. BUILDINGS OR PORTIONS THEREOF, SHALL NOT BE CONSIDERED ACCEPTABLE FOR FINAL INSPECTION UNTIL THE CODE OFFICIAL HAS RECEIVED A LETTER OF TRANSMITTAL FROM THE BUILDING OWNER ACKNOWLEDGING RECEIPT OF THE PRELIMINARY COMMISSIONING REPORT. THIS MAY BE ACCOMPLISHED BY SUBMITTING THE COMMISSIONING COMPLIANCE CHECKLIST.

12. THE MECHANICAL CONTRACTOR SHALL NOT BE CONSIDERED SUBSTANTIALLY COMPLETE UNTIL THE PRELIMINARY COMMISSIONING REPORT HAS BEEN APPROVED BY THE ENGINEER.

HVAC ENERGY CODE NOTES

1. SEE SCHEDULES FOR EQUIPMENT TYPE, CAPACITY AND EFFICIENCY. ALL EQUIPMENT SHALL MEET MINIMUM EFFICIENCY PER C403.3.2.
2. THERMOSTATIC CONTROLS IN THE SAME ZONE OR IN NEIGHBORING ZONES CONNECTED BY OPENINGS LARGER THAN 10% OF THE FLOOR AREA OF EITHER ZONE SHALL BE INTERLOCKED TO NOT ALLOW SIMULTANEOUS HEATING AND COOLING.
3. HEAT PUMPS WITH SUPPLEMENTARY ELECTRIC HEAT SHALL INCLUDE MICROPROCESSOR CONTROLS THAT MINIMIZE ELECTRIC HEAT USAGE DURING START-UP, SET-UP, AND DEFROST CONDITIONS. CONTROLS SHALL ANTICIPATE NEED FOR HEAT AND USE COMPRESSION HEATING AS THE FIRST STAGE. CONTROLS SHALL INDICATE WHEN ELECTRIC HEAT IS BEING USED THROUGH VISUAL MEANS. ELECTRIC HEAT SHALL NOT OPERATE ABOVE 40 F OUTSIDE AIR TEMPERATURE.
4. THERMOSTATIC CONTROLS SHALL BE CONFIGURED WITH AT LEAST A 5F DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.
5. THERMOSTATS (OTHER THAN GROUP R) SHALL BE 7-DAY PROGRAMMABLE WITH AUTOMATIC SETBACK CONTROLS SET DOWN TO 55F AND UP TO 85F. CONTROLS SHALL MAINTAIN PROGRAMMING FOR AT LEAST 10 HOURS DURING LOSS OF POWER. CONTROLS SHALL HAVE A MANUAL 2 HR OVERRIDE FOR TEMPORARY OPERATION. CONTROLS SHALL ADJUST THE DAILY START TIME FOR MORNING WARMUP PRIOR TO SCHEDULED OCCUPANCY.
6. PROVIDE AMCA CLASS 1A MOTORIZED CONTROL DAMPERS FOR OUTSIDE AIR INTAKES, EXHAUST OUTLETS, RELIEF OPENINGS, STAIRWAY AND SHAFT VENTS AND RETURN SIDE OF AIRSIDE ECONOMIZERS.
7. AIR-COOLED UNITARY DIRECT-EXPANSION UNITS WITH A COOLING CAPACITY OF 54 MBH OR GREATER THAT ARE EQUIPPED WITH AN ECONOMIZER SHALL INCLUDE FAULT DETECTION AND DIAGNOSTICS (FDD).
8. PROVIDE GAS-FIRED HEATING EQUIPMENT WITH MODULATING OR STAGED COMBUSTION CONTROL FOR ALL EQUIPMENT OVER 225 MBH.
9. THERMOSTATS (GROUP R) SHALL BE 5-2 PROGRAMMABLE SCHEDULE WITH AT LEAST 2 SETBACK PERIODS PER DAY.
10. PROVIDE DUCT, SHAFT AND PLENUM INSULATION PER C403.2.8 AND SPECIFICATION SECTION 23 07 00.
11. SEAL ALL TRANSVERSE AND LONGITUDINAL SEAMS, JOINTS AND CONNECTIONS OF ALL DUCTWORK WITH WELDS, GASKETS OR MASTICS.
12. PROVIDE PIPE INSULATION PER ENERGY CODE SECTION C403.2.9 AND SPECIFICATION SECTION 23 07 00.
13. INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, SUNLIGHT, MOISTURE AND WIND. PROVIDE JACKET AND ALUMINUM COVERS. ADHESIVE TAPE IS NOT PERMITTED.
14. SINGLE FAN OR MULTIPLE FANS IN PARALLEL WITH COMBINED MOTOR NAMEPLATE OVER 5HP SHALL HAVE A FAN EFFICIENCY GRADE (FEG) OF 67 OR HIGHER AND SHALL BE SELECTED TO OPERATE WITHIN 15% OF THE MAXIMUM TOTAL EFFICIENCY OF THE FAN.
15. COOLING SYSTEMS 65 MBH AND GREATER SHALL HAVE TWO SPEED FAN CONTROL OR MODULATING FAN CONTROL.
16. FAN AND PUMP MOTORS 7.5 HP AND GREATER SHALL BE PROVIDED WITH A VFD.
17. ECONOMIZERS SHALL BE INTEGRATED WITH MECHANICAL COOLING AND SHALL BE CAPABLE OF PROVIDING PARTIAL ECONOMIZER COOLING EVEN WHEN ADDITIONAL MECHANICAL COOLING IS REQUIRED.
18. AIR ECONOMIZERS SHALL HAVE FIXED DRY-BULB HIGH-LIMIT SHUTOFF CONTROL NOT TO EXCEED 75 DEG. F.
19. ALL ELECTRIC MOTORS SHALL MEET THE EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THROUGH C405.8(4).
20. FAN MOTORS 1/12 HP UP TO 1 HP SHALL BE ECM.
21. PROVIDE A MEANS OF BALANCING EVERY AIR INLET AND OUTLET AND EVERY AIR OR WATER TERMINAL DEVICE.
22. ALL PIPE AND DUCT INSULATION SHALL BE LABELLED WITH ITS THICKNESS AND INSULATING VALUE (R OR K).

HVAC GENERAL NOTES

1. THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING OR EVERY OFFSET, WHICH MAY BE REQUIRED. THE HVAC CONTRACTOR IS TO COORDINATE WITH ALL OTHER TRADES AND IS TO VERIFY ALL CLEARANCES BEFORE COMMENCING WORK.
2. MATERIALS, METHODS AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE LATEST EDITION OF THE INTERNATIONAL MECHANICAL CODE, INTERNATIONAL BUILDING CODE, INTERNATIONAL FIRE CODE AND LOCAL CODES AND ORDINANCES.
3. DUCT CONSTRUCTION AND HANGING SHALL COMPLY WITH THE LATEST IMC AND WITH CURRENT SMACNA STANDARDS.
4. JOINTS OF DUCT SYSTEM SHALL BE SEALED WITH GASKETS OR LISTED MASTIC TYPE DUCT SEALANT.
5. DUCTS SHALL BE INSULATED AS INDICATED ON PLANS TO MEET THE REQUIREMENTS OF THE CURRENT INTERNATIONAL ENERGY CODE AND SPECIFICATION.
6. FLEXIBLE DUCTS SHALL ONLY BE USED WHERE SHOWN AND SHALL NOT EXCEED 6 FT IN LENGTH UNLESS NOTED OTHERWISE.
7. PROVIDE EARTHQUAKE RESTRAINT FOR HVAC EQUIPMENT IN ACCORDANCE WITH THE CURRENT IBC.
8. PIPING PENETRATIONS OF FIRE RATED WALLS OR FLOOR SHALL BE SLEEVED AND FIRE STOPPED WITH LISTED MATERIALS SO AS TO MAINTAIN THE INTEGRITY AND RATING OF THE FLOOR OR WALL.
9. PROVIDE RETURN DUCT SMOKE DETECTOR(S) FOR AUTOMATIC SHUT DOWN OF ALL HEATING OR COOLING EQUIPMENT DELIVERING IN EXCESS OF 2000 CFM IN ACCORDANCE WITH THE CURRENT INTERNATIONAL MECHANICAL CODE. POWER WIRING AND INTERLOCK WIRING WITH THE BUILDING FIRE ALARM SYSTEM IS BY THE ELECTRICAL CONTRACTOR.
10. HVAC EQUIPMENT, VALVES AND DAMPERS SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS, UNLESS SHOWN ON ARCHITECTURAL DRAWINGS. REQUIRED ACCESS PANELS SHALL BE PROVIDED BY THE HVAC CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
11. HVAC CONTRACTOR MUST COORDINATE WITH LIGHTING FIXTURES PRIOR TO DUCT AND PIPING INSTALLATION.

REFERENCE DESIGN CODES

2018 INTERNATIONAL BUILDING CODE (IBC)
2018 WASHINGTON STATE ENERGY CODE (WSEC)
2018 INTERNATIONAL FIRE CODE (IFC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL FUEL GAS CODE (IFGC)
2020 NATIONAL ELECTRICAL CODE (NEC)
2018 UNIFORM PLUMBING CODE (UPC)

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ELECTRIC HEATER SCHEDULE

MARK	MAKE	MODEL	SERVES	HEAT W	ELEC VOLT / PH	NOTES
EWH-1	KING	PAW 2022	SPRINKLER ROOM	1000	208 / 1	5
EWH-2	KING	PAW 2022	LAUNDRY 1	1000	208 / 1	2
EWH-3	KING	PAW 2022	CORRIDOR 3	1000	208 / 1	2
EWH-4	KING	PAW 2022	STAIRWELL	1000	208 / 1	2
EWH-5	KING	PAW 2022	STAIRWELL	1000	208 / 1	2

NOTES
1. PROVIDE WITH MANUFACTURER'S SEVEN DAY PROGRAMMABLE WALL STAT (FURNISHED BY M.C., INSTALLED BY E.C.)
2. PROVIDE WITH MANUFACTURER'S 24V RELAY WITH TRANSFORMER AND LOW-VOLTAGE THERMOSTAT. SET TO 70F (ADJ.) (FURNISHED & INSTALLED BY M.C.)
3. STAINLESS STEEL CONSTRUCTION AND GRILL
4. PROVIDE WITH MANUFACTURER'S DISCONNECT SWITCH (FURNISHED BY M.C., INSTALLED BY E.C.)
5. INTEGRAL THERMOSTAT. SET TO 55F (ADJ.) FOR FREEZE PROTECTION

SPLIT SYSTEM A/C SCHEDULE

INDOOR UNIT																	OUTDOOR UNIT												
			SUPPLY			COOLING						HEATING	ELECTRICAL		SOUND					COOLING			HEATING			ELECTRICAL				SOUND		
MARK	MAKE	MODEL	TOTAL CFM	ESP W.C.	OSA CFM	TOTAL MBH	SENS MBH	EAT DB / WB	OAT DB	ECONO (Y/N)	ECONO EXCEPT	HEATING MBH OUTPUT @24F OAT	VOLT/PH	MCA	PRESS dBA	OP. WT. LBS.	MARK	MAKE	MODEL	TOTAL MBH	IEER	SEER	TOTAL MBH	COP AT 17 F	COP AT 47 F	VOLT/PH	MCA	MOCP	SCCR kA	PRESS dbA	OP. WT. LBS.	NOTES:
HP-EMR	TRANE/MITSUBISHI	MSY-GL15NA-U1	420	N/A	N/A	14.0	10.9	75/63	86	N	C403.3, 3	N/A	208/1	1	37	25	CU-EMR	TRANE/MITSUBISHI	MUY-GL15NA-U1	15	---	21.6	N/A	---	---	208/1	9	15	NOTE C	49	100	ALL

NOTES:
1. FACTORY PROVIDED WASHABLE FILTER
2. LOW AMBIENT COOLING TO 0 DEG F.

A. 7-DAY PROGRAMMABLE T-STAT BY UNIT MANUFACTURER, WALL-MOUNT
B. PROVIDE WITH BLUE DIAMOND CONDENSATE PUMP (SEE WALL MOUNTED DUCTLESS FAN COIL CONDENSATE PUMP DETAIL)
C. SEE SPECIFICATIONS AND ELECTRICAL.

ENERGY RECOVERY VENTILATOR SCHEDULE

MARK	SERVES	MAKE	MODEL	TYPE	SUPPLY CFM	SUPPLY ESP	EXHAUST CFM	EXHAUST ESP	HEAT RECOVERY MIN. SENSIBLE EFF. AHRI 1060	ELECTRICAL MCA (W)	ELECTRICAL MOCP	ELECTRICAL VOLT/PH	WT. LBS	NOISE LEVEL	NOTES
ERV-1	ENTRY LOBBY AND OFFICES	PANASONIC	FV-10VEC2	INDOOR	100	0.5	100	0.5	70%	(100)	N/A	120 / 1	50	40 DBA	1, 7
ERV-2	LOUNGE AND LAUNDRY	PANASONIC	FV-10VEC2	INDOOR	100	0.5	100	0.5	70%	(100)	N/A	120 / 1	50	40 DBA	1, 7
ERV-3	LAUNDRY 3, WASHROOM, CORRIDOR	PANASONIC	FV-10VEC2	INDOOR	100	0.5	100	0.5	70%	(100)	N/A	120 / 1	50	40 DBA	1, 7
ERV-R	RESIDENCES	PANASONIC	FV-10VEC2	INDOOR	50	0.5	50	0.5	70%	(100)	N/A	120 / 1	50	40 DBA	1, 7

NOTES:
1. PROVIDE HANGING ISOLATION OR RUBBER IN SHEAR ISOLATORS
2. INTERLOCK WITH RESPECTIVE HEAT PUMP CONTROL SYSTEM - OPERATES DURING OCCUPIED HOURS
3. 24V TRANSFORMER/RELAY PACKAGE
4. INTEGRATED PROGRAMMABLE CONTROLS
5. PROVIDE WITH ERV WALL CONTROL PANEL
6. BUILT IN DAMPERS FOR DEFROST AND RECIRCULATION CYCLING, CLOSED TO OUTSIDE WHEN UNIT IS OFF
7. OPERATES CONTINUOUSLY

50 CFM CONTINUOUS EXHAUST FROM EACH TOILET ROOM THROUGH ERV-R. ERV-R MEETS THE REQUIREMENTS OF WSRC M1505.4.1.4 FOR BALANCED VENTILATION WITH HVI 920 EQUIPMENT. ERV-R UNITS OPERATE CONTINUOUSLY.

AIR QUANTITY MEETS THE REQUIREMENTS OF TABLES M1505.4.3.(1) AND 1505.4.4.1.

TYPICAL FOR EACH DWELLING UNIT.

FAN SCHEDULE

MARK	SERVES	MAKE	MODEL	TYPE	CFM	ESP INCH WC	RPM	HP (WATTS)	ELEC VOLT/PH	WT. LBS	MAX SONES (DBA)	NOTES:
EF-1	JANITORS CLOSET	PANASONIC	FV0511VKS2	CEILING	80	0.25	1130	(10.2)	120 / 1	15	0.4	B, 3, 8
EF-2	LAUNDRY 1	PANASONIC	FV0511VKS2	CEILING	80	0.25	1130	(10.2)	120 / 1	15	0.4	B, 3, 8

NOTES:
1. FAN SPEED CONTROL
2. ALUMINUM BIRDSCREEN
3. BACKDRAFT DAMPER
4. INLET GUARD
5. FACTORY CURB W/ SEAL & LINER, MATCH ROOF SLOPE
6. MOTOR COVER WITH INSULATION
7 SPRING ISOLATION
8. HANGING NEOPRENE ISOLATION
9. HANGING SPRING ISOLATION
10. MOTORIZED SHUTOFF DAMPER

A. SWITCHED BY OCCUPANCY SENSOR
B. RUNS CONTINUOUSLY
C. SWITCHED BY WALL SWITCH (BY E.C.)
D. RUNS ON THERMOSTAT (FURNISHED M.C., INSTALLED E.C.)

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SPLIT SYSTEM HEAT PUMP SCHEDULE

INDOOR UNIT														OUTDOOR UNIT										
			SUPPLY		COOLING				HEATING	ELECTRICAL		SOUND					COOLING			ELECTRICAL			SOUND		
MARK	MAKE	MODEL	TOTAL CFM	ESP W.C.	TOTAL MBH	SENS MBH	EAT DB / WB	OAT DB	HEATING MBH OUTPUT @ 24F OAT	VOLT/PH	MCA	PRESS dBA	OP. WT. LBS.	MARK	MAKE	MODEL	TOTAL MBH	SEER	HEATING HSPF AT 47 F	VOLT / PH	MCA	MOCP	PRESS dbA	OP. WT. LBS.	NOTES
														CU-R	TRANE/MITSUBISHI	NTXMMX20A122B	18	20	10	208/230V / 1	17.2	20	54	150	
HP-R-1	TRANE/MITSUBISHI	NTXWPH09B112AA	170	-	9.0	7.0	75 / 63	85	10.9	208 / 230V, 1 PH	1	24	35												4, A
HP-R-2	TRANE/MITSUBISHI	NTXWPH09B112AA	170	-	9.0	7.0	75 / 63	85	10.9	208 / 230V, 1 PH	1	24	35												4, A
														CU-1	TRANE/MITSUBISHI	NTXMMX24A122B	24	20		208/230V / 1				150	
HP-1A	TRANE/MITSUBISHI	NTXWPH12B112AA	220	-	12.0	10.0	75 / 63	85	13.6	208 / 230V, 1 PH	1	29	180												4, A
HP-1B	TRANE/MITSUBISHI	NTXWPH09B112AA	170	-	9.0	7.0	75 / 63	85	10.9	208 / 230V, 1 PH	1	24	35												4, A
														CU-2	TRANE/MITSUBISHI	NTXMMX20A122B	18	20	10	208/230V / 1	17.2	20	54	150	
HP-2A	TRANE/MITSUBISHI	NTXWPH09B112AA	160	-	9.0	7.0	75 / 63	85	10.9	208 / 230V, 1 PH	1	24	35												4, A
HP-2B	TRANE/MITSUBISHI	NTXWPH09B112AA	160	-	9.0	7.0	75 / 63	85	10.9	208 / 230V, 1 PH	1	24	35												4, A
														CU-EMR	TRANE/MITSUBISHI	NTXSPB12B112AA	12	26.1	12.0	208/230V / 1	10	15	51	100	
HP-EMR	TRANE/MITSUBISHI	NTXWPH12B112AA	150	N/A	12.0	8.0	75/63	85	12.3	208 / 230V, 1 PH	1	25	30												4, A

NOTES:

1. MANUFACTURER'S DIGITAL CONTROL SYSTEM.
2. CONTROL POWER SUPPLY UNIT.
3. FACTORY FILTER BOX WITH MERV 8 FILTER.
4. RESILIANT RUBBER MOUNTING AT ALL FAN COIL UNITS INCLUDING WALL MOUNT UNITS.

A. MANUFACTURER'S WIRING INTERFACE AND THERMOSTAT
B. PROVIDE WITH BLUE DIAMOND CONDENSATE PUMP

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DUCT FROM RANGE HOOD (HOOD NOT BY M.C.) THAT DELIVERS 160 CFM ON DEMAND IN COMPLIANCE WITH WASHINGTON STATE RESIDENTIAL CODE TABLE M1505.4.4. SWITCHED AT HOOD. TYPICAL IN EACH DWELLING UNIT. 1

HP-R1 TYPICAL IN RESIDENCES

HP-R2

GREENHECK WC-6 WALL CAP. 10'-0" MINIMUM SEPARATION

ERV-1

HP-1B

COORDINATE ACCESS PANEL (PANEL NOT BY M.C.) TYP

REFRIGERANT LINESETS THRU SECOND LEVEL JOISTS (TYP) ABOVE ONE HOUR RATED LID

INSULATE ALL OUTSIDE AIR SUPPLY AND EXHAUST TO EXTERIOR WITH R-8 WRAP (TYP. FOR ERV'S)

EF-2

EWH-2

DRYER VENT TO WALL CAP LOW

ERV-R TYPICAL

PRICE MODEL 530 12X8 RETURN, WHITE

HP-EMR

EWH-1

EF-1

REFRIGERANT LINE SETS THRU JOISTS (TYP)

HP-1A

GREENHECK WC-4, WALL CAP MIN. 3' FROM OPENINGS TYP U.N.O.

EWH-5

LIFEBREATH TECH GRILLE (TYP)

EWH-4

CU-EMR

CU-R

SEPARATE LINE SET TO EACH INDOOR UNIT (TYPICAL)

PRICE MODEL 530 8X8 EXH GRILLE 45 DEG, 1/2" SPACING STEEL, WHITE TYPICAL

TEST ALL ERV-R UNITS IN ACCORDANCE WITH WSRC M1505.4.1.6 TYPICAL FOR EACH DWELLING UNIT 1

50 CFM CONTINUOUS EXHAUST FROM EACH TOILET ROOM THROUGH ERV. ERV MEETS THE REQUIREMENTS OF WSRC M1505.4.1.4 FOR BALANCED VENTILATION WITH HVI 920 EQUIPMENT. AIR QUANTITY MEETS THE REQUIREMENTS OF TABLES M1505.4.3.(1) AND 1505.4.4.1. TYPICAL FOR EACH DWELLING UNIT. REFERENCE THE SCHEDULE ON M0.3. 1

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

SIDER+BYERS
MECHANICAL + ELECTRICAL ENGINEERS
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Reviewed for 2018 Building Code Compliance
8/17/23
Building Plan Review by
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SNO VALLEY SENIOR HOUSING

31845 W COMMERCIAL ST.
CARNATION, WA 98014

KATHLEEN BYERS — STATE OF WASHINGTON — 25618 — REGISTERED PROFESSIONAL ENGINEER

Issuance: BID SET
Date: 25 JULY 2023
Revisions

#	Date	Description
	7.25.23	PERMIT CORRECTIONS

MAIN LEVEL PLAN

Drawn By: NB
Checked By (P.M.): NB
Checked By (Q.C.): NB
Project No.: 21035

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M2.2

5/2021 12:28:48 PM

DUCT FROM RANGE HOOD (HOOD NOT BY M.C.) THAT DELIVERS 160 CFM ON DEMAND IN COMPLIANCE WITH WASHINGTON STATE RESIDENTIAL CODE TABLE M1505.4.4. SWITCHED AT HOOD. TYPICAL IN EACH DWELLING UNIT. (1)

HP-R1
TYPICAL IN RESIDENCES

HP-R2

GREENHECK WC-6 WALL CAP. 10'-0" MINIMUM SEPARATION

4" DRYER VENTS TO WALL CAPS

ERV-2

HP-2B

HP-2A

REFRIGERANT LINE SETS THRU JOISTS (TYP)

8X8 PRICE 530 EXH GRILLES, WHITE 100 CFM

FDSD

6 UP

8X8 PRICE 530 EXH GRILLE, WHITE 50 CFM

ERV-R TYPICAL

COORDINATE ACCESS PANEL (PANEL NOT BY M.C.) TYP

INSULATE ALL OUTSIDE AIR SUPPLY AND EXHAUST TO EXTERIOR WITH R-8 WRAP (TYP. FOR ERV'S)

GROUP EXPOSED REFRIGERANT ON COMMON RACK. STACK PIPING OVER/UNDER. PROVIDE PROTECTIVE ALUMINUM JACKET FOR ALL EXPOSED REFRIGERANT PIPING

CU-2

INSTALL REFRIGERANT PIPING THRU JOISTS AND ABOVE 1 HOUR RATED LID

CU-1

LIFEBREATH TECH GRILLE (TYP)

CU-R
(TYPICAL FOR 14)
COORDINATE FINAL LOCATIONS WITH ARCHITECT PRIOR TO INSTALL

SEPARATE LINE SET TO EACH INDOOR UNIT (TYPICAL)

PRICE MODEL 530 8X8 EXH GRILLE 45 DEG, 1/2" SPACING STEEL, WHITE TYPICAL

TEST ALL ERV-R UNITS IN ACCORDANCE WITH WSRC M1505.4.1.6 TYPICAL FOR EACH DWELLING UNIT (1)

50 CFM CONTINUOUS EXHAUST FROM EACH TOILET ROOM THROUGH ERV.
ERV MEETS THE REQUIREMENTS OF WSRC M1505.4.1.4 FOR BALANCED VENTILATION WITH HVI 920 EQUIPMENT.
AIR QUANTITY MEETS THE REQUIREMENTS OF TABLES M1505.4.3.(1) AND 1505.4.4.1.
TYPICAL FOR EACH DWELLING UNIT.
REFERENCE THE SCHEDULE ON M0.3. (1)

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

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STATE OF WASHINGTON
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SECOND LEVEL PLAN

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DUCT FROM RANGE HOOD (HOOD NOT BY M.C.) THAT DELIVERS 160 CFM ON DEMAND IN COMPLIANCE WITH WASHINGTON STATE RESIDENTIAL CODE TABLE M1505.4.4. SWITCHED AT HOOD. TYPICAL IN EACH DWELLING UNIT.
1

HP-R1
TYPICAL IN RESIDENCES

HP-R2

REFRIGERANT LINE SETS THRU JOISTS (TYPICAL)

6" INTAKE UP TO ROOF CAP MIN. 10' FROM INTAKE

INSULATE ALL OUTSIDE AIR SUPPLY AND EXHAUST TO EXTERIOR WITH R-8 WRAP (TYP. FOR ERV'S)

COORDINATE ACCESS PANEL (PANEL NOT BY M.C.) TYP

6" EXHAUST UP TO ROOF CAP

4" DRYER VENT TO ROOF CAP

FDSD

ERV-R TYPICAL

EWH-3

PRICE MODEL 520
6X6, 100 CFM
DOUBLE DEFLECTION, 3/4" SPACING
STEEL, WHITE

ERV-3

LIFEBREATH TECH GRILLE (TYP)

SEPARATE LINE SET TO EACH INDOOR UNIT (TYPICAL)

PRICE MODEL 530
8X8 EXH GRILLE
45 DEG, 1/2" SPACING
STEEL, WHITE
TYPICAL

TEST ALL ERV-R UNITS IN ACCORDANCE WITH WSRC M1505.4.1.6 TYPICAL FOR EACH DWELLING UNIT
1

50 CFM CONTINUOUS EXHAUST FROM EACH TOILET ROOM THROUGH ERV.
ERV MEETS THE REQUIREMENTS OF WSRC M1505.4.1.4 FOR BALANCED VENTILATION WITH HVI 920 EQUIPMENT.
AIR QUANTITY MEETS THE REQUIREMENTS OF TABLES M1505.4.3.(1) AND 1505.4.4.1.
TYPICAL FOR EACH DWELLING UNIT.
REFERENCE THE SCHEDULE ON M0.3.
1

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

FLAG NOTES:

1 COORDINATE DRYER AND ERV-3 DUCTWORK THRU RAFTERS. RATED ENCLOSURE AROUND DUCTWORK TO PRESERVE RATED CEILING LID. RATED ENCLOSURE NOT BY M.C.

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THIRD LEVEL PLAN

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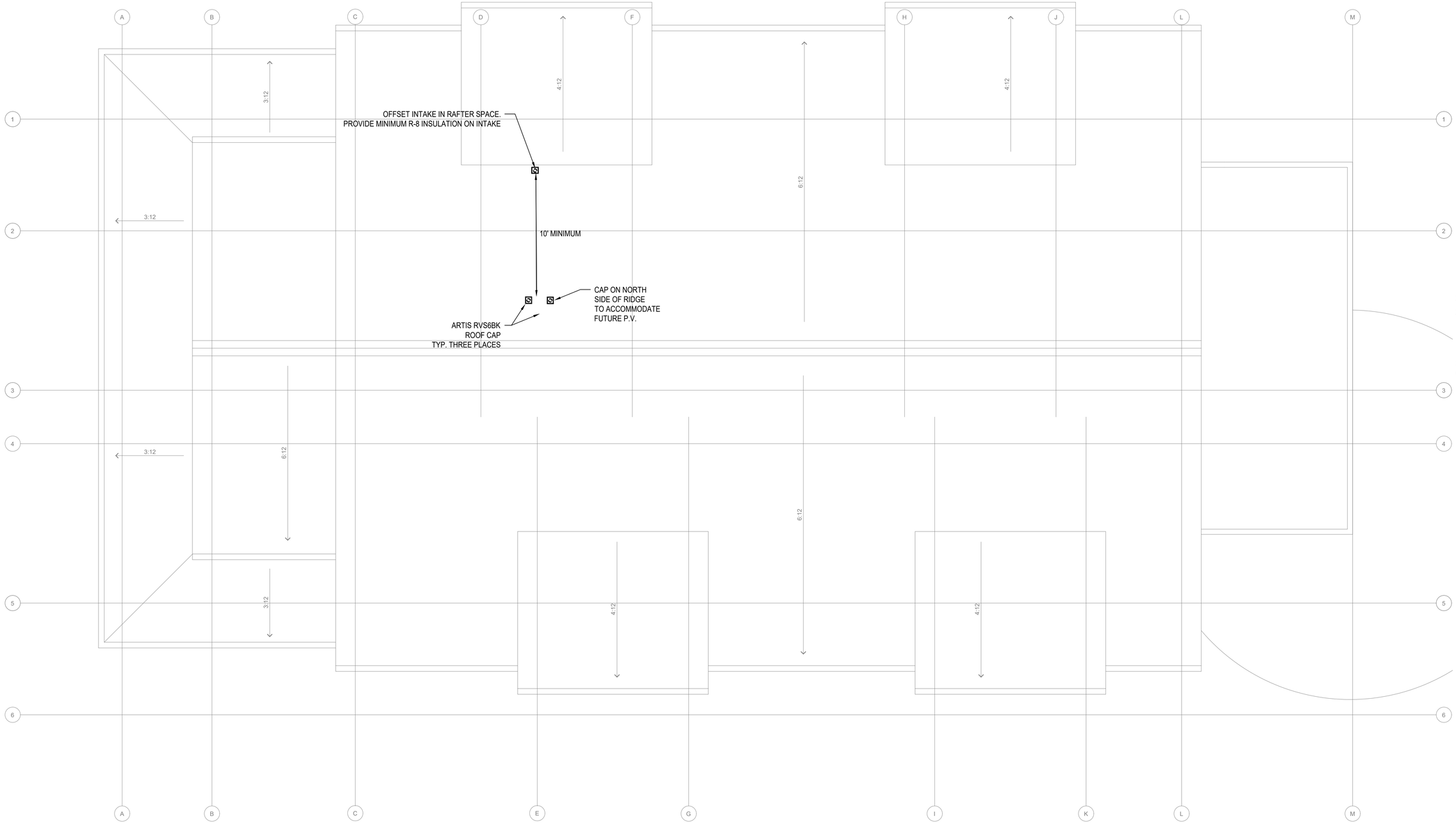

ROOF PLAN
SCALE: 1/4"=1'-0"

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M2.5

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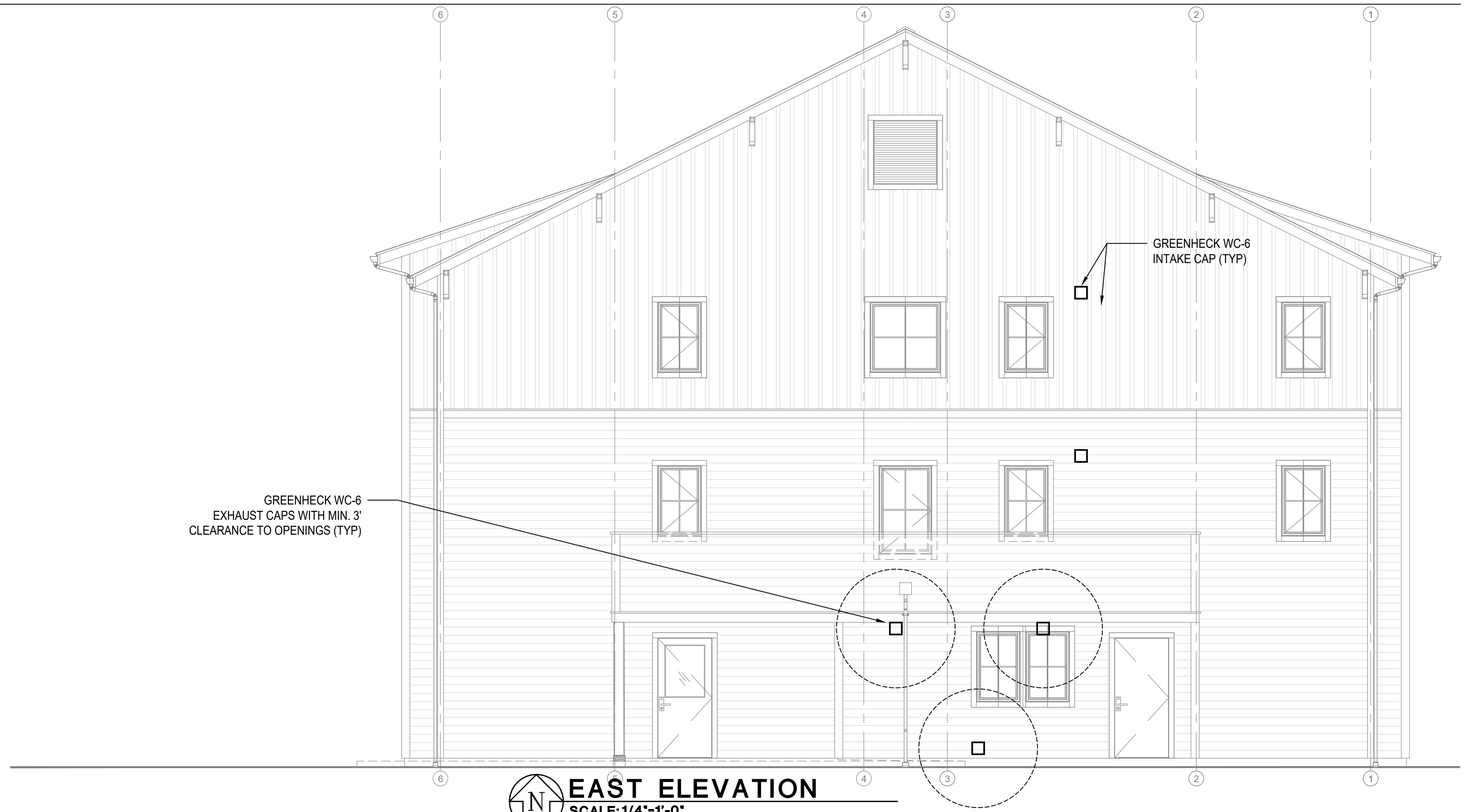
NORTH ELEVATION
SCALE: 1/4"=1'-0"



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

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

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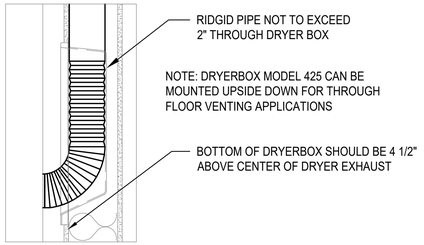
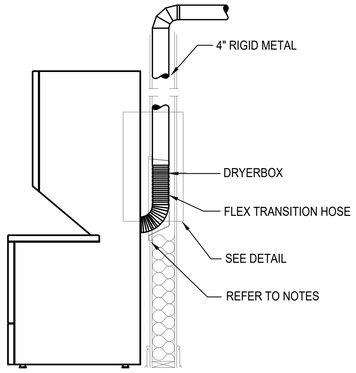


DRYERBOX INSTALLATION

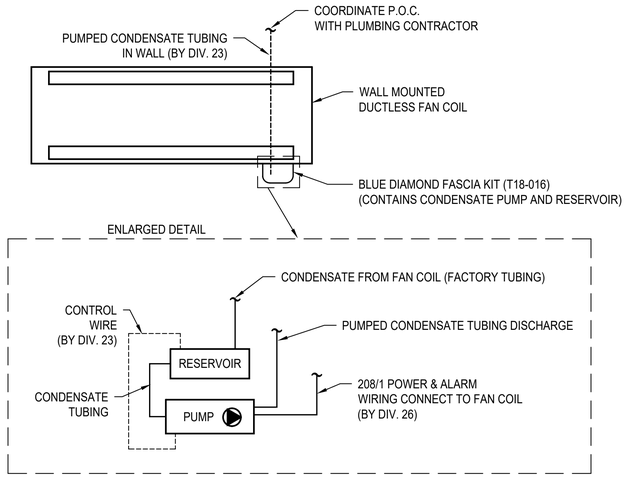
DRYER VENTING: MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RUNNING ALL DUCTWORK FOR THE DRYER EXHAUST SYSTEM. ALL CONCEALED DRYER DUCTING MUST BE RIGID METAL (GALVANIZED OR ALUMINUM) MINIMUM OF 4" IN DIAMETER, SMOOTH 30 GA. CLEAN, UNOBSTRUCTED, FRICTIONLESS DUCTS (NO FLEXIBLE DUCT ALLOWED IN CONCEALED AREAS). SEAL ALL JOINTS WITH FOIL BACKED PRESSURE SENSITIVE DUCT TAPE MEETING THE REQUIREMENTS OF UL 181. DUCT JOINTS SHALL BE INSTALLED SO THAT THE MALE END OF THE DUCT POINTS IN THE DIRECTION OF THE AIRFLOW. DO NOT USE RIVETS OR SCREWS IN THE JOINTS OR ANYWHERE ELSE IN THE DUCT AS THESE WILL ENCOURAGE LINT COLLECTION.

DRYERBOX® RECEPTACLE (WWW.DRYERBOX.COM) SHALL BE METAL AND BE INSTALLED AS LOW AS POSSIBLE AS TO PERMIT THE PROPER AND SAFE COLLECTION OF THE DRYER TRANSITION HOSE. DRYERBOX SHOULD BE RESTING ON THE BOTTOM PLATE AND BE LOCATED AT OR NEAR THE CENTERLINE OF THE PROPOSED DRYER APPLIANCE. RIGID DUCT SHOULD PENETRATE DRYERBOX PORT 2 INCHES TO PROVIDE FOR FUTURE CONNECTION AND STORAGE OF TRANSITION HOSE. BASEBOARD SHALL BE "BUTTED" UP TO THE FIXED EXTENSION RIM AND SLIGHTLY BACK-CUT. DRYERBOX SHOULD BE CAULKED AND THEN PAINTED WITH THE TRIM PAINT. FOR USAGE IN A ONE-HOUR WALL ASSEMBLY, UL REQUIRES THAT BATT INSULATION BE STUFFED AROUND THE DRYERBOX AND IN THE ENTIRE WALL CAVITY CELL.

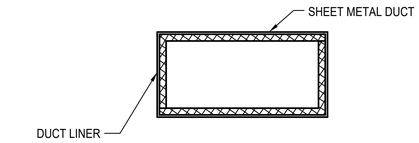
LENGTH OF CONCEALED RIGID METAL DUCTING SHALL NOT EXCEED 25 FEET. DEDUCT 5 FEET FROM THE ALLOWABLE LENGTH FOR EVERY 3.5" RADIUS 90 DEGREE ELBOW AND TWO AND A HALF FEET FOR EVERY 45 DEGREE FITTING. DRYER VENTING SHALL BE INDEPENDENT OF ANY OTHER SYSTEMS (CHIMNEYS OR EXHAUST VENTS). TERMINATION OF DRYER VENTING MUST BE TO THE EXTERIOR WITH A PROPER HOOD OR ROOF JACK EQUIPPED WITH A BACK-DRAFT DAMPER. SMALL ORIFICE METAL SCREENING SHOULD NOT BE PART OF THE HOOD OR ROOF JACK AS THIS WILL ACCELERATE LINT ACCUMULATION AND BLOCKAGE. THE HOOD OPENING SHOULD POINT DOWN AND EXHIBIT 12 INCHES OF CLEARANCE BETWEEN THE BOTTOM OF THE HOOD AND THE GROUND OR OTHER OBSTRUCTION. VERIFY MANUFACTURER'S RECOMMENDATIONS FOR ANY OTHER FACTORS.

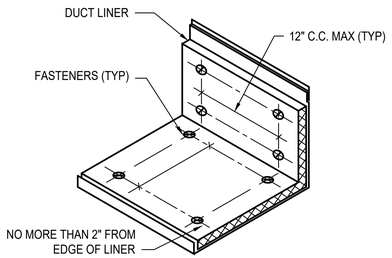


1 M4.1 **DRYER VENT WALL BOX**
N.T.S.



2 M4.1 **WALL MOUNTED DUCTLESS FAN COIL CONDENSATE PUMP (FASCIA)**
N.T.S.





NOTES:

1. PROVIDE S/M NOSING AT EXPOSED EDGES OF INSULATION.
2. ALL TRANSVERSE AND LONGITUDINAL ENDS OF LINER TO BE COATED WITH ADHESIVE.

3 M4.1 **DUCT LINER DETAIL**
N.T.S.

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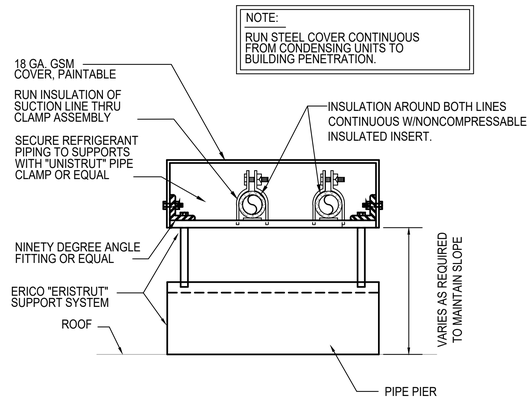
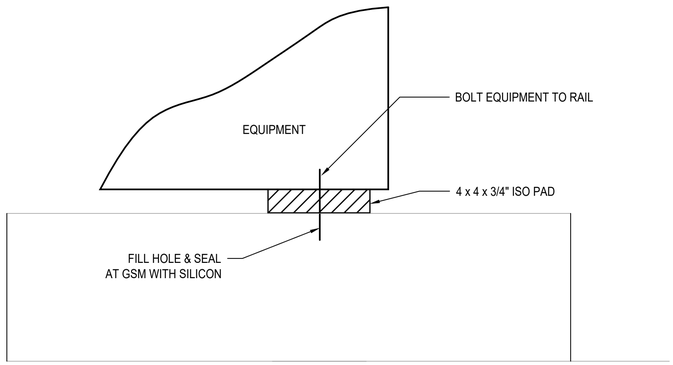


NOTE:
PROVIDE ADDITIONAL WIDTH ON PIPE SUPPORT FOR ELEC. CONDUIT(S) AND CONTROL CONDUIT(S). COORDINATE WITH ELECTRIC AND CONTROL CONTRACTORS.

4 M4.1 **REFRIGERANT PIPE SUPPORT**
N.T.S.



DETAIL TYPICAL FOR CONDENSING UNIT SUPPORT.

5 M4.1 **RAIL SUPPORT DETAIL**
Scale: NONE

NOTE:

MECH. CONTRACTOR TO HIRE THIRD PARTY STRUCTURAL ENGINEER TO PROVIDE EXACT NUMBER AND SIZE OF BOLTS/FASTENERS AND PROVIDE EQUIPMENT SEISMIC CALCULATIONS.

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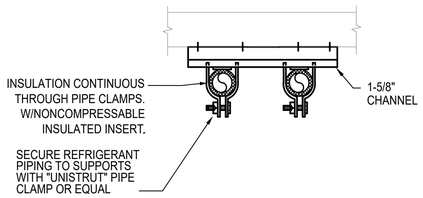
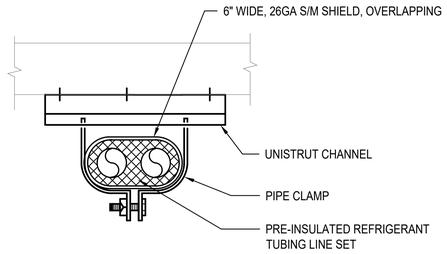
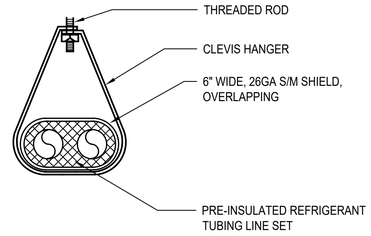


NOTE:
QUANTITY OF PIPES SHOWN REPRESENTATIVE ONLY, PROVIDE QUANTITY OF PIPES REQUIRED.

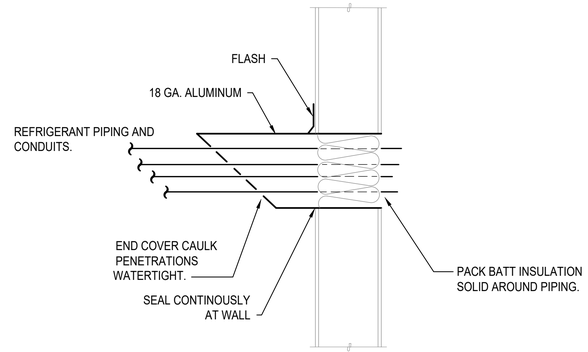
1 M4.2 REFRIGERANT PIPE SUPPORT
N.T.S.



2 M4.2 REFRIGERANT PIPE SUPPORT
N.T.S.



3 M4.2 REFRIGERANT PIPE SUPPORT
N.T.S.



4 M4.2 WALL PIPE PENETRATION
N.T.S.

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PLUMBING SYMBOLS LEGEND

LINETYPE LEGEND

- EXISTING
- NEW WORK DARK/HEAVY

PIPING SYSTEM LABELS

- CW — COLD WATER
- HW — HOT WATER
- (140) — HOT WATER (TEMPERATURE)
- HWC — HOT WATER CIRCULATING
- SD — STORM DRAIN
- PW — PUMPED WASTE
- WASTE (BURIED)
- W — WASTE (ABOVE GRADE)
- GW — GREASE WASTE
- V — VENT
- RL — RAINLEADER
- OD — OVERFLOW DRAIN
- NPW — NON-POTABLE COLD WATER
- G OR P — NATURAL GAS OR PROPANE
- F — FIRE SERVICE
- DIRECTION OF FLOW
- CA — COMPRESSED AIR
- DI — DIONIZED WATER
- V — VACUUM
- C — CONDENSATE
- PC — PUMPED CONDENSATE
- X" — SLOPE SYMBOL (X' PER FOOT)

PIPE FITTINGS

- PIPE DOWN
- PIPE UP
- TEE UP
- TEE DOWN
- UNION
- PIPE ANCHOR POINT
- PIPE GUIDE
- FLANGE
- CAP

DRAINS AND CLEANOUTS

- FLOOR SINK
- FLOOR DRAIN
- HIDDEN FLOOR DRAIN
- ROOF DRAIN
- OVERFLOW DRAIN
- FLOOR CLEANOUT
- GRADE CLEANOUT
- TRENCH DRAIN
- WALL CLEANOUT
- UP TO CLEANOUT
- FUNNEL DRAIN
- STANDPIPE FUNNEL DRAIN

PIPE VALVES AND SPECIALTIES

- P-1 — PLUMBING EQUIPMENT
- X — MEDICAL TAG
- M-1 — DETAIL NUMBER / SHEET
- FLAG NOTE
- 1 — REVISION TAG
- 1 / P-1 — PLUMBING RISER NO. / SHEET
- 1 — SECTION NUMBER / SHEET NUMBER

PIPE VALVES AND SPECIALTIES

- GATE VALVE
- GLOBE VALVE
- NON RISING STEM VALVE
- RISING STEM GATE VALVE
- BALANCING VALVE (CIRCUIT SETTER)
- AUTOFLOW VALVE
- CHECK VALVE
- BALL VALVE
- PRESSURE REDUCING VALVE
- SOLENOID VALVE
- PRESSURE GAUGE
- THERMOMETER
- STRAINER
- SAFETY VALVE
- PIPING FLEXIBLE CONNECTIONS
- BUTTERFLY VALVE
- OR — CAP
- HOSE BIBB
- DOUBLE CHECK VALVE
- RPBA
- TRIPLE DUTY VALVE
- BALL VALVE MANUAL LEVER
- GLOBE VALVE MANUAL LEVER
- BALANCE VALVE (PRESSURE INDEPENDENT)
- PUMP
- M — METER
- M — METER

PLUMBING NOTES

1. PLUMBING FIXTURES SHALL BE DESIGNED OR EQUIPPED TO MEET FOLLOWING MAXIMUM WATER USE EFFICIENCY STANDARDS:
   - A. WATER CLOSETS (TANK STYLE OR FLUSH VALVE). 1.1 GPF
   - B. SHOWER HEADS 1.5 GPM
   - C. RESIDENTIAL LAVATORY FAUCETS. 1.2 GPM
   - D. PUBLIC LAVATORY FAUCETS. 0.5 GPM
   - E. KITCHEN SINK FAUCETS 1.8 GPM

   SINK AND LAVATORY DRAINS SHALL BE CHROME PLATED 17 GA. BRASS TUBING BY ENGINEERED BRASS, DEARBORN BRASS OR BRASSCRAFT. PROVIDE INSULATED P-TRAP AND SUPPLY COVERS (TRUEBRO OR EQUAL) AT ALL EXPOSED P-TRAPS AND SUPPLIES PER A.D.A. STANDARDS.
2. PLUMBING FIXTURE MOUNTING SHALL COMPLY WITH CONTRACT DOCUMENTS, ADA, AND WASHINGTON STATE ACCESSIBILITY CODE.
3. INSTALL WATER HAMMER ARRESTORS ON HOT & COLD WATER PIPING OF EACH FIXTURE GROUP AND AT ALL FIXTURES W/QUICK ACTING VALVES. UNITS SHALL BE ZURN "SHOKTROLL" OR EQUAL. SELECT UNIT SIZE AND LOCATION PER MANUFACTURERS RECOMMENDATIONS AND IN ACCORD WITH PDI STANDARD WH-201. PROVIDE ACCESS PANELS AT ARRESTORS ABOVE GWB CEILINGS. ALL ACCESS PANELS AND DOORS SHALL BE ELMDOR FAB. STEEL SLK SERIES OR EQUAL WITH 14 GAUGE DOOR AND FRAME. PROVIDE WITH CYLINDER LOCK, CONTINUOUS PIANO HINGE AND PRIME COATED READY FOR PAINTING.
4. COLD WATER AND HOT WATER PIPING SHALL BE INSULATED AND ROUTED FULL SIZE WITH APPROPRIATE SIZE REDUCTION AT POINT OF CONNECTION TO FIXTURE. 1/2" WATER LINE LIMITED TO 10'-0" DISTANCE FROM FIXTURE. "DEAD-LEGS" OR "FUTURE" STUBS ON ACTIVE POTABLE WATER LINES SHALL BE LIMITED TO 4" TO PREVENT STAGNANT WATER CONDITIONS.
5. INSTALL WATER PIPING ON WARM SIDE OF BUILDING INSULATION. SEE SPEC. FOR INSULATION SYSTEMS. SEE DWGS. FOR ELEC. HEAT TRACE REQUIREMENTS. SEE PLUMBING DETAILS FOR PIPE HANGER STYLE. SEE SPEC. FOR HANGER SPACING.
6. WHEN CONNECTING TO EXISTING BURIED WASTE PIPING VERIFY PROPER FLOW CONDITIONS BEFORE COVERING. BURIED WASTE & VENT PIPING SHALL BE MIN. 2" DIA. & SLOPED 1/4"/FT., UNLESS OTHERWISE NOTED. PVC OR ABS PIPING SHALL BE USED ONLY IF APPROVED BY ADMINISTRATIVE AUTHORITY, SEE SPECIFICATIONS FOR FURTHER INFO.
7. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS EXCEPT IN SHOWER STALLS OR OTHERWISE NOTED ON DWGS. CONTRACTOR SHALL INSTALL ACCESS PANELS WHERE PRIMERS ARE CONCEALED IN WALLS.
8. COORDINATE VENT THROUGH ROOF (VTR) LOCATIONS WITH HVAC UNITS. MAINTAIN MIN. 10'-0" CLEARANCE. OFFSET VTR AS NECESSARY. COORDINATE PIPE ROUTING WITH HVAC AND SPRINKLER CONTRACTORS.
9. SITE WATER PRESSURE IS 57 PSI PER CARNATION WATER DEPARTMENT.
10. RISER DIAGRAMS & PLANS DO NOT SHOW SOME PIPING OFFSETS REQUIRED FOR STRUCTURAL CLEARANCES. EXACT ROUTING MAY VARY FROM THAT INDICATED. ALL WASTE PIPING INCLUDING RISERS ON RESIDENTIAL LEVELS TO BE CAST IRON.
11. PROVIDE ELECTRIC HEAT TRACE UNDER PIPING INSULATION FOR ALL WATER PIPING INSTALLED IN UNHEATED GARAGE SPACES.
12. CONFIGURE PIPING FOR SUDS RELIEF AS REQUIRED BY THE UPC.
13. ALL LEVER CONTROLLED WATER CLOSETS TO BE INSTALLED WITH THE LEVER ON THE OPEN SIDE OF THE BATHROOM.
14. PROPANE TANK LOCATIONS SHALL BE VERIFIED BY CONTRACTOR WITH LOCAL GAS SUPPLIER PRIOR TO INSTALLATION OF TANK PAD OR PROPANE PIPING TO/FROM BUILDING. GAS SUPPLIER REQUIRMENTS MAY BE MORE STRICT THAN NFPA 58.

ENERGY CODE NOTES

1. SEE SCHEDULE FOR WATER HEATER EQUIPMENT TYPE, CAPACITY AND EFFICIENCY. MINIMUM EFFICIENCY SHALL MEET TABLE C404.2
2. PUBLIC LAVATORIES SHALL BE EQUIPPED WITH AN ASSE 1070 MIXING VALVE SET TO DELIVERY 110 F HOT WATER.
3. NONCIRCULATING HOT WATER SYSTEMS WITHOUT AN INTEGRAL HEAT TRAP SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING.
4. ELECTRIC WATER HEATERS IN UNCONDITIONED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON INCOMPRESSIBLE R-10 INSULATION.
5. PROVIDE PIPE INSULATION PER ENERGY CODE SECTION C403.2.9 AND SPECIFICATION SECTION 22 07 00.
6. INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, SUNLIGHT, MOISTURE AND WIND. PROVIDE JACKET AND ALUMINUM COVERS. ADHESIVE TAPE IS NOT PERMITTED.
7. ALL PIPE AND WRAP INSULATION SHALL BE LABELED WITH ITS THICKNESS AND INSULATING VALUE (R OR K).
8. THE MAXIMUM ALLOWABLE PIPING LENGTH FROM THE NEAREST SOURCE OF HOT WATER TO THE TERMINATION OF THE FIXTURE SUPPLY SHALL COMPLY WITH C404.3
9. CIRCULATING HOT WATER PUMPS OR HEAT TRACE SHALL BE EQUIPPED WITH AUTOMATIC TIMERS.

REFERENCE DESIGN CODES

2018 INTERNATIONAL BUILDING CODE (IBC)
2018 WASHINGTON STATE ENERGY CODE (WSEC)
2018 INTERNATIONAL FIRE CODE (IFC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL FUEL GAS CODE (IFGC)
2020 NATIONAL ELECTRICAL CODE (NEC)
2018 UNIFORM PLUMBING CODE (UPC)

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE	MBH	1000 BRITISH THERMAL UNITS PER HOUR
ADA	AMERICANS WITH DISABILITIES ACT	MED	MEDIUM
ADJ	ADJUSTABLE	MEP	MECHANICAL, ELECTRICAL, PLUMBING
AFF	ABOVE FINISHED FLOOR	MEZZ	MEZZANINE
AFG	ABOVE FINISHED GRADE	MIN	MINIMUM
ALT	ALTERNATE	MISC	MISCELLANEOUS
AP	ACCESS PANEL		
APPROX	APPROXIMATE	N/A	NOT APPLICABLE
ARCH	ARCHITECTURAL/ARCHITECT	NC	NORMALLY CLOSED
AS	AIR SEPARATOR	NEG	NEGATIVE
AUX	AUXILIARY	NIC	NOT IN CONTRACT
		NOM	NOMINAL
BFF	BELOW FINISHED FLOOR	NPC	NON-POTABLE COLD WATER
BFG	BELOW FINISHED GRADE	NPCW	NON POTABLE COLD WATER
BHP	BRAKE HORSE POWER	NPH	NON-POTABLE HOT WATER
BLDG	BUILDING	NPHR	NON-POTABLE HOT WATER RETURN
BOP	BOTTOM OF PIPE	NPT	NATIONAL PIPE THREAD
BTU	BRITISH THERMAL UNIT	NTS	NOT TO SCALE
BTUH	BRITISH THERMAL UNIT PER HOUR		
		OD	OUTSIDE DIAMTER/OVERLOW DRAIN
CA	COMBUSTION AIR	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CLG	CEILING	OFOI	OWNER FURNISHED OWNER INSTALLED
CMU	CONCRETE MASONRY UNIT	ORD	OVERFLOW ROOF DRAIN
CO	CLEANOUT	ORL	OVERFLOW RAINWATER LEADER
COND	CONDENSATE		
CW	COLD WATER	ΔP	PRESSURE DIFFERENTIAL
CX	CONNECT TO EXISTING		
		PD	PLANTER DRAIN; PRESSURE DROP
dB	DECIBEL	PERF	PERFORATED
DCVA	DOUBLE CHECK VALVE ASSEMBLY	PH	PHASE
DDCV	DOUBLE DETECTOR CHECK VALVE	PIV	POST INDICATOR VALVE
DDCVA	DOUBLE DETECTOR CHECK VAVLE ASSEMBLY	PLBG	PLUMBING
DF	DRINKING FOUNTAIN	PRESS	PRESSURE
DFU	DRAINAGE FIXTURE UNIT	PRV	PRESSURE REDUCING VALVE
DHW	DOMESTIC HOT WATER	PSF	POUNDS PER SQUARE FOOT
DHWC	DOMESTIC HOT WATER RECIRCULATION	PSI	POUNDS PER SQUARE INCH
Ø OR DIA	DIAMETER	PSIG	POUNDS PER INCH GAUGE
DN	DOWN		
DWG(S)	DRAWING(S)	QTY	QUANTITY
DWV	DRAIN, WASTE, VENT		
		RD	ROOF DRAIN
EA	EACH	REQD	REQUIRED
EEW	EMERGENCY EYEWASH	RL	RAIN WATER LEADER
EFF	EFFICIENCY	RM	ROOM
ELEV	ELEVATION	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
EQUIP	EQUIPMENT	RPM	REVOLUTIONS PER MINUTE
ES	EMERGENCY SHOWER	RLX	RELOCATE EXISTING
ET	EXPANSION TANK	RV	RELIEF VALVE
EX	EXISTING/EXISTING TO REMAIN	RX	REMOVE EXISTING
EXP	EXPANSION		
		S	SINK
FC	FAIL CLOSED	S	STORM
FCO	FLOOR CLEANOUT	SCFM	STANDARD CUBIC FEET PER MINUT
FD	FLOOR DRAIN	SD	STORM DRAIN
FDC	FIRE DEPARTMENT CONNECTION	SF	SQUARE FOOT
FF	FINISHED FLOOR	SFU	SUPPLY FIXTURE UNIT
FLA	FULL LOAD AMPS	SH	SHOWER
FM	FORCE MAIN	S.O.V.	SHUTOFF VALVE
FO	FAIL OPEN	SPEC	SPECIFICATION
FP	FIRE PROTECTION	S/S, OR SS	STAINLESS STEEL
FPM	FEET PER MINUTE	STD	STANDARD
FPS	FEET PER SECOND	SYM	SYMBOL
FS	FLOOR SINK		
FSZV	FIRE SPRINKLER ZONE VALVE ASSEMBLY	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
FT	FEET/FOOT	TBD	TO BE DETERMINED
FTG	FOOTING	TD	TRENCH DRAIN
FV	FLUSH VALVE	TEMP	TEMPERATURE
		TOB	TOP OF BEAM
G	NATURAL GAS	TOC	TOP OF CONCRETE
GA	GAUGE	TOD	TOP OF DECK
GAL	GALLON	TOJ	TOP OF JOIST
G.C.	GENERAL CONTRACTOR	TOS	TOP OF SLAB/TOP OF STEEL
GCO	GRADE CLEANOUT	TP	TRAP PRIMER
GD	GARAGE DRAIN	T&P	TEMPERATURE & PRESSURE
GPF	GALLONS PER FLUSH	TYP	TYPICAL
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE	UL	UNDERWRITERS LABORATORY
GW	GREASE WASTE	UNO	UNLESS NOTED OTHERWISE
		UR	URINAL
H	HEIGHT		
HB	HOSE BIBB	V	VENT(S)
HBVB	HOSE BIBB VACUUM BREAKER	V	VOLT
HD	HEAD	VERT	VERTICAL
HP	HORSEPOWER	VFD	VARIABLE FREQUENCY DRIVE
HS	HAND SINK	VIB	VALVE-IN-BOX
HW	HOT WATER	VTR	VENT THROUGH ROOF
HX	HEAT EXCHANGER		
		W	WASTE/WATER
IE	INVERT ELEVATION	W/	WITH
IN	INCH/INCHES	W/IN	WITHIN
		W/O	WITHOUT
KW	KILOWATT/KILOWATTS	WC	WATER CLOSET
		WCO	WALL CLEANOUT
LAV	LAVATORY	WH	WATER HEATER
LBS	POUNDS	WPD	WATER PRESSURE DROP
LF	LINEAL FOOT	WT	WEIGHT
LTG	LIGHTING		
LWT	LEAVING WATER TEMPERATURE	YCO	YARD CLEANOUT

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Issuance
BID SET
Date
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COVER SHEET

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PLUMBING SHEET LIST

PLUMBING CALCULATIONS

2018 UPC PLUMBING CODE — FIXTURE UNITS PER APPENDIX A

FIXTURE	QTY	DOMESTIC WATER WSFU PER FIXTURE	DOMESTIC WATER WSFU TOTAL	HW PER FIXTURE	HW TOTAL	SEWER DFU PER FIXTURE	SEWER DFU TOTAL
Private Tank Water Closet	15	2.5	37.5	-	-	3	45
Public Tank Water Closet	1	2.5	2.5	-	-	4	4
Lavatory (Public or Private)	16	1	16	0.75	12	1	16
Shower (Single Head)	15	2	30	1.5	22.5	2	30
Kitchen Sink	15	1.5	22.5	1.125	16.88	2	30
Service Sink or Mop Basin	2	3	6	2.25	4.5	3	6
Clothes Washer	4	4	16	3	12	3	12
Hose-bibb*	4	2.5	5.5	-	-	-	-
Floor Drain	23	-	-	-	-	2	46
Sump Pump (50 GPM) (Emergency)	1	-	-	-	-	-	-
Hub Drain (Emergency for Sump Pump)	1	-	-	-	-	-	-
TOTALS	97		136		67.88		189

*EACH ADDITIONAL HOSE BIBB AFTER FIRST IS 1.0 WSFU

TOTAL BUILDING DEMAND IS 52 GPM PER APPENDIX A OF 2018 UPC BUILDING WATER SERVICE SIZE = 2"

BUILDING SEWER CONNECTION = 4"

PRESSURE LOSS CALCULATIONS

STATIC WATER PRESSURE AT MAIN:	57 PSI
METER PRESSURE LOSS.	2 PSI
BACKFLOW PREVENTER PRESSURE LOSS	10 PSI
PRESSURE AVAILABLE AT BUILDING:	**45 PSI**
PRV REQUIRED? (Y/N):	NO
ELEVATION CHANGE (30 FT X .43 PSI/FT).	12.9 PSI
MIN. RESIDUAL PRESSURE AT FURTHEST FIXTURE.	25 PSI
AVAILABLE PIPING PRESSURE LOSS	7.1 PSI
LONGEST PIPE RUN (X 1.25 FOR FITTINGS):	187.5 FT
FRICTION LOSS NOT TO EXCEED /100FT	**4.7 PSI**

ESDS NOTES:

1. MEET ESDS 4.06 REQUIREMENTS FOR EFFICIENT PIPING.
2. PLUMB PIPING FROM WATER HEATERS TO LAVS, SINKS, AND SHOWERS TO ENSURE NOT MORE THAN 0.5 GALLONS OF WATER IS HELD IN THE PIPING BETWEEN THE WATER HEATER AND ANY FIXTURE.
3. PROVIDE HEAT TRAPS ON HOT AND COLD WATER LINES AT WATER HEATERS.
4. PROVIDE NOT LESS THAN 1" INSULATION ON THE 60" OF HOT AND COLD WATER PIPING CLOSEST TO EACH WATER HEATER.
5. AVOID 90 DEGREE BENDS TO THE GREATEST EXTENT POSSIBLE AND USE THERMALLY BROKEN HANGERS FOR HOT WATER PIPING.

TABLE OF MATERIALS

SERVICE TYPE	PIPE MATERIALS	PIPE FITTING CONNECTIONS
DOMESTIC WATER (BURIED)	TYPE K COPPER	BRAZE
DOMESTIC WATER (ABOVE GRADE)	TYPE L COPPER	SOLDER OR PRESS CONNECTION
	SCHEDULE 80 CPVC	SOLVENT
	PEX-a	PRO-PEX RING COUPLING
SANITARY SEWER (BURIED)	HUB-LESS CAST IRON ASTM A888	SHIELDED COUPLING
	SCHEDULE 40 ABS	SOLVENT
	SCHEDULE 40 SOLID WALL PVC	SOLVENT
SANITARY SEWER (ABOVE GRADE)	HUB-LESS CAST IRON ASTM A888	SHIELDED COUPLING
	SCHEDULE 40 ABS	SOLVENT
	SCHEDULE 40 SOLID WALL PVC	SOLVENT
EQUIPMENT DRAINS (CONDENSATE)	TYPE L COPPER	SOLDER OR PRESS CONNECTION
	SCHEDULE 40 CPVC	SOLVENT

NOTES:

1. INSTALLATION OF SCHEDULE 40 PVC USED FOR SANITARY DRAINAGE SHALL COMPLY WITH UPC SECTION 705.6.2.
2. INSTALLATION OF SCHEDULE 40 CPVC USED FOR DOMESTIC WATER SHALL COMPLY WITH UPC SECTION 605.3. PRIMER SHALL BE APPLIED IN ACCORDANCE WITH ASTM F656 AND SOLVENT CEMENTS APPLIED IN ACCORDANCE WITH ASTM F493 / F2855

PLUMBING INSULATION SCHEDULE

SERVICE TYPE	INSULATION TYPE	<1"	1" TO 1 1/4"	1 1/2" TO 4"	4" TO 8"
DOMESTIC COLD WATER	GLASS FIBER, RIGID	1/2"	1/2"	1	1
DOMESTIC HOT WATER	GLASS FIBER, RIGID	1"	1"	1-1/2"	1-1/2"
DOMESTIC WATER OUTSIDE CONDITIONED SPACE	GLASS FIBER, RIGID	1-1/2"	1-1/2"	2"	2"

1 DO NOT INSULATE DIRECT BURIAL COLD WATER

2 FOR ALL EXTERIOR PIPING APPLICATIONS USE ONLY ELASTOMERIC CELLULAR FOAM WITH ALUMINUM JACKET

3 FOR ALL BELOW GRADE PIPING APPLICATIONS, USE ONLY INSULATION ENGINEERED FOR APPLICATION.

TABLE C403.10.3
MINIMUM PIPE INSULATION THICKNESS (thickness in inches)[a]

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
	Conductivity Btu • in./(h · ft² • °F)[b]	Mean Rating Temperature, °F	< 1	1 to < 1-1/2	1-1/2 to < 4	4 to < 8	≥ 8
> 350	0.32 – 0.34	250	4.5	5.0	5.0	5.0	5.0
251 – 350	0.29 – 0.32	200	3.0	4.0	4.5	4.5	4.5
201 – 250	0.27 – 0.30	150	2.5	2.5	2.5	3.0	3.0
141 – 200	0.25 – 0.29	125	1.5	1.5	2.0	2.0	2.0
105 – 140	0.21 – 0.28	100	1.0	1.0	1.5	1.5	1.5
40 – 60	0.21 – 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 – 0.26	75	0.5	1.0	1.0	1.0	1.5

a. For piping smaller than 1-1/2 inch (38 mm) and located in partitions within *conditioned spaces*, reduction of these thicknesses by 1 inch (25 mm) shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch (25 mm).

b. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:

$$T = r\{(1 + t/r)^{K/k} - 1\}$$

where:

T = minimum insulation thickness,
r = actual outside radius of pipe,
t = insulation thickness listed in the table for applicable fluid temperature and pipe size,
K = conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu × in/h × ft² × °F) and
k = the upper value of the conductivity range listed in the table for the applicable fluid temperature.

c. For direct-buried heating and hot water system piping, reduction of these thicknesses by 1-1/2 inches (38 mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than 1 inch (25 mm).

RPBA SCHEDULE

MARK	LOCATION	MAKE	MODEL	SIZE	NOTES:
RPBP-1	SPRINKLER RM	WATTS	919	2"	DOMESTIC CW. LEAD FREE
RPBP-2	SPRINKLER RM.	WATTS	919	2"	DOMESTIC CW. LEAD FREE

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NOTES AND SCHEDULES

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PLUMBING FIXTURE SCHEDULE

MARK	ITEM	MFR: MODEL	DESCRIPTION
WC-1	WATER CLOSET (RESIDENTIAL ADA)	KOHLER HIGHLINE K-5299	FLOOR MOUNT, TANK TYPE, VITREOUS CHINA, ELONGATED BOWL, 1.0 GPF, 12" ROUGH-IN, 16.5" TALL RIM, PROVIDE STAINLESS BRAIDED SUPPLY AND 1/4 TURN ANGLE STOP, MAP 600 GRAMS MINIMUM, ADA.
	SEAT	INCLUDED	WHITE PLASTIC COMPOSITE, CLOSED FRONT, W/ SLOW CLOSE COVER.
WC-2	WATER CLOSET (PUBLIC ADA)	KOHLER HIGHLINE K-5299	FLOOR MOUNT, TANK TYPE, VITREOUS CHINA, ELONGATED BOWL, 1.0 GPF, 12" ROUGH-IN, 16.5" TALL RIM, PROVIDE STAINLESS BRAIDED SUPPLY AND 1/4 TURN ANGLE STOP, MAP 600 GRAMS MINIMUM, ADA.
	SEAT	INCLUDED	WHITE PLASTIC COMPOSITE, CLOSED FRONT, W/ SLOW CLOSE COVER.
LAV-1	LAVATORY (RESIDENTIAL ADA)	KOHLER: K-2337-4	21"X17" DROP IN COUNTERTOP LAV. VITREOUS CHINA, 4" CTRS. WHITE. INSTALLED TO ADA COMPLIANT HEIGHTS AND WITH COMPLIANT INSULATION ON DRAIN AND WATER PIPING.
	FAUCET	DELTA 500-DST	SINGLE LEVER, METAL CONSTRUCTION, ADA COMPLIANT, SINGLE HOLE POP-UP WASTE ASSEMBLY. 1.2 GPM, WATERSENSE, ADA.
	DRAIN		METAL POP-UP TYPE. IN ALL UNITS INSULATE P-TRAPS AND WATER SUPPLIES TO MEET ADA REQUIREMENTS
NOTE: CONTRACTOR SHALL VERIFY CABINET DIMENSIONS BEFORE ORDERING SINK.			
LAV-2	LAVATORY (PUBLIC ADA)	KOHLER: 2005-0	21 1/4" X 18 1/8". WALL MOUNT, VIT CHINA, 4' CTRS, WHITE. INSTALLED TO ADA COMPLIANT HEIGHTS AND WITH COMPLIANT INSULATION ON DRAIN AND WATER PIPING.
	FAUCET	DELTA 500-DST	SINGLE LEVER. METAL CONSTRUCTION, ADA COMPLIANT, 0 5 GPM, WATERSENSE
	LAVATORY MIXING VALVE	SYMMONS: 7-210-CK	THERMOSTATIC MIXING VALVE, INTEGRAL CHECKS, 3/8" INLETS AND OUTLET, MOUNT EXPOSED BELOW LAVATORIES. ASSE 1070.
	DRAIN	DEARBORN BRASS: 760W	PERFORATED STRAINER W/ OFFSET TAILPIECE PER ADA REQUIREMENTS.
NOTE: CONTRACTOR SHALL VERIFY CABINET DIMENSIONS BEFORE ORDERING SINK.			
KS-1	KITCHEN SINK (RESIDENTIAL ADA)	DAYTON: D125223	25" X 22" X 6 9/16". SINGLE COMPARTMENT. STAINLESS, 20 GAUGE. 3 HOLES, ADA
	FAUCET	DELTA. 140-WE-DST	SWING SPOUT, 8" CENTERS. 1.75 GPM, ADA.
	DRAIN		BASKET STRAINER. INSULATED DRAIN AND WATER PIPING PER ADA
	OVERFLOW	FISHER. 11223	OVERFLOW ELBOW KIT. PROVIDE PIPING TO SINK DRAIN.
NOTE: CONTRACTOR SHALL VERIFY CABINET DIMENSIONS BEFORE ORDERING SINK.			
S-1	LAUNDRY SINK (ADA)	ELKAY: LR2522	25" X 21-1/4" X 5-3/8", SINGLE COMPARTMENT, STAINLESS, 18 GAUGE, 3 HOLES, ADA.
	FAUCET	CHICAGO: 2300-8E34ABCP	SGL. LEVER, 9" SWING SPOUT WITH 1.5 GPM AERATOR, 8" CTRS , CHROME PLATE.
	DRAIN		BASKET STRAINER. INSULATED DRAIN AND WATER PIPING PER ADA.
	OVERFLOW	FISHER: 11223	OVERFLOW ELBOW KIT, PROVIDE PIPING TO SINK DRAIN.
NOTE: CONTRACTOR SHALL VERIFY CABINET DIMENSIONS BEFORE ORDERING SINK.			

MARK	ITEM	MFR: MODEL	
SH-1	SHOWER	EVERFAB S6339TA0NR - L/R	63" X 39" X 79-5/8". ONE PIECE, GEL COAT AND FIBERGLASS COMPOSITE, WHITE, NO-RECESS, ADA. **PROVIDE WITH REINFORCEMENT ON 3 SIDES FOR FUTURE GRAB BAR AND FOLD UP SEAT INSTALLATION PER ADA P.C. TO VERIFY RIGHT OR LEFT HAND BEFORE ORDERING.** BRADLEY B-6047 CURTAIN ROD, B-204-1 HOOKS. B-204-3 CURTAIN. BPEDM 67" SHOWER SPLASH GUARD 3" TALL.
	SHOWER VALVE	BRADLEY S59-1005	SINGLE LEVER, PRESSURE BALANCING MIXING VALVE. CHROME PLATE. DIVERTOR VALVE FOR HOSE SPRAY. ADA.
	HAND SHOWER	SYMMONS T736-1.5	36" WALL BAR WITH SLIDE BRACKET. 60" STAINLESS HOSE, DIVERTER VALVE, VACUUM BREAKER, SECONDARY HOOK MOUNTED ON GRAB BAR 1.5 GPM FLOW, WATERSENSE LABELED, ADA.
	DRAIN		PERFORATED GRID STRAINER. CHROME.
SH-2	SHOWER	EVERFAB. S6339TA0LP - L/R	63" X 39" X 79-5/8". ONE PIECE, GEL COAT AND FIBERGLASS COMPOSITE. WHITE, LOW-PROFILE. ADA **PROVIDE WITH REINFORCEMENT ON 3 SIDES FOR FUTURE GRAB BAR AND FOLD UP SEAT INSTALLATION PER ADA P.C. TO VERIFY RIGHT OR LEFT HAND BEFORE ORDERING.** BRADLEY B-6047 CURTAIN ROD, B-204-1 HOOKS. B-204-3 CURTAIN. BPEDM 67" SHOWER SPLASH GUARD 3" TALL
	SHOWER VALVE	BRADLEY S59-1005	SINGLE LEVER, PRESSURE BALANCING MIXING VALVE CHROME PLATE. DIVERTOR VALVE FOR HOSE SPRAY. ADA.
	HAND SHOWER	SYMMONS T736-1 5	36" WALL BAR WITH SLIDE BRACKET. 60" STAINLESS HOSE. DIVERTER VALVE, VACUUM BREAKER, SECONDARY HOOK MOUNTED ON GRAB BAR. 1.5 GPM FLOW, WATERSENSE LABELED, ADA
	DRAIN		PERFORATED GRID STRAINER. CHROME
LB-1	LAUNDRY BOX	OATEY: "QUADTRO" 38545	LAUNDRY BOX 1/2" HW, 1/2" CW, & 2" DRAIN CONNECTIONS, SINGLE-THROW VALVE, INSTALL AT SIDE WALL OF STACKED WASHER/DRYER AND STANDARD WASHER
WH-1	ELECTRIC WATER HEATER	A.O. SMITH: ENT-50	50 GAL STORAGE, (2) 4500 WATT ELEMENTS (NON-SIMULTANEOUS) 208 VOLT/1 PH.
DET-1	DOMESTIC EXPANSION TANK	AMTROL: ST-5	STEEL CONST. W/INTERNAL DIAPHRAGM 8" DIA. X 13" HIGH.
WH-2	ELECTRIC WATER HEATER	STATE WATER HEATERS EGX-80-DRRT	80 GAL. STORAGE, (2) 4500 WATT ELEMENTS (NON-SIMULTANEOUS) 208 VOLT/1 PH.
DET-2	DOMESTIC EXPANSION TANK	AMTROL: ST-12	STEEL CONST. W/INTERNAL DIAPHRAGM 11" DIA. X 15" HIGH.
CP-1	HW CIRCULATION PUMP	ARMSTRONG: COMPASS H 20-20SS	2 GPM @ 10' HEAD, 0.06 HP, 115 V/1PH, STAINLESS STEEL CONSTRUCTION, LEAD FREE.
SP-1	ELEVATOR SUMP PUMP	STANCOR: OM100DW-ELV-115-WA	SIMPLEX SUBMERSIBLE, 1 HP. 115 V/1 PHASE PLUG-IN TYPE. 50 GPM @ 40 FEET HEAD, 2" DISCHARGE. STANCOR OIL MINDER SYSTEM WITH SENSOR AND FLOATS (STOPS PUMP WITH DETECTION OF OIL. STARTS PUMP WHEN OIL IS NO LONGER DETECTED). PROVIDE ADDITIONAL POWER CABLE LENGTHS AS NEEDED.
	CONTROLS	STANCOR	OIL MINDER SYSTEM CONTROL PANEL, NEMA 4X, UL LISTED. ALARM, PROVIDE ADDITIONAL POWER CABLE LENGTHS AS AS NEEDED, 115 V / 1 PHASE PLUG-IN TYPE. (PANEL LOCATED IN JANITOR ROOM ON MAIN LEVEL.SEE FLOOR PLANS)

MARK	ITEM	MFR: MODEL	DESCRIPTION
SS-1	SERVICE SINK	FIAT: MSB-2424	FLOOR STYLE 24" X 24" X 10" MOLDED COMPOSITION STONE, 3" DIA. FLAT STRAINER, #E-77-AA VINYL BUMPERGUARD, STAINLESS WALL GUARDS, MOP HANGER 889-CC, WHITE
	FAUCET	FIAT: 830-AA	WALL MOUNT WITH BRACE, VACUUM BREAKER, BUCKET HOOK. 3/4" HOSE THREAD, #832-AA 30" HOSE & BRACKET.
HB-1	HOSE BIBB (FREEZE-PROOF)	WOODFORD: B24BX-BR	WALL MOUNT, BRONZE CONST., 3/4" HOSE THREAD, VACUUM BREAKER, LOOSE KEY HANDLE, CHROME PLATE STAINLESS STEEL BOX WITH OPERATING KEY LOCK ON COVER.
FD-1	FLOOR DRAIN	ZURN: Z-415-S	2" C.I. BODY, 5" SQ. ADJ. NICKEL BRONZE STRAINER. TRAP PRIMER TAPPING. PROVIDE TRAP PRIMERS FOR ALL INSTALLATIONS EXCEPT SHOWERS. **REFER TO FLOOR FOR DRAIN CONST. AND/OR COVERING. BEFORE ORDERING VERIFY DRAIN STRAINER HEIGHT ADJUSTMENT IS COMPATIBLE WITH FLOORING FOR STRAINER TO BE INSTALLED FLUSH WITH FLOOR.**
FD-2	FLOOR DRAIN (FUNNEL)	ZURN: Z-415-S	2" C.I. BODY, 7" SQ. ADJ. NICKEL BRONZE STRAINER. TRAP PRIMER TAPPING. PROVIDE TRAP PRIMERS FOR ALL INSTALLATIONS EXCEPT SHOWERS. PROVIDE WITH ZURN Z329-7 FUNNEL. **REFER TO FLOOR DRAIN DETAIL FOR DRAIN CONST. AND/OR COVERING. BEFORE ORDERING VERIFY DRAIN STRAINER HEIGHT ADJUSTMENT IS COMPATIBLE WITH FLOORING FOR STRAINER TO BE INSTALLED FLUSH WITH FLOOR.**
FD-3	FLOOR DRAIN (WOOD CONST.)	SIOUX CHIEF 822-F3ANR	ADJUSTABLE ROUND NICKEL BRONZE STRAINER, DECK FLANGE, PVC BODY WITH SCHEDULE 40 ABS HUB CONNECTION. PROVIDE TRAP PRIMER. **REFER TO FLOOR DRAIN DETAIL FOR DRAIN CONST. AND/OR COVERING. BEFORE ORDERING VERIFY DRAIN STRAINER HEIGHT ADJUSTMENT IS COMPATIBLE WITH FLOORING FOR STRAINER TO BE INSTALLED FLUSH WITH FLOOR.**
FD-4	FLOOR DRAIN (WOOD CONST.)	SIOUX CHIEF: 822-F3ANR	ADJUSTABLE ROUND NICKEL BRONZE STRAINER, DECK FLANGE. PVC BODY WITH SCHEDULE 40 ABS HUB CONNECTION PROVIDE TRAP PRIMER AND 863-FN FUNNEL. **REFER TO FLOOR DRAIN DETAIL FOR DRAIN CONST. AND/OR COVERING. BEFORE ORDERING VERIFY DRAIN STRAINER HEIGHT ADJUSTMENT IS COMPATIBLE WITH FLOORING FOR STRAINER TO BE INSTALLED FLUSH WITH FLOOR.**

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	FIXTURE	PIPE SIZE C.W	PIPE SIZE H.W	WASTE	VENT	REMARKS
WC-1	WATER CLOSET	1/2"	-	3"	2"	TANK TYPE
WC-2	WATER CLOSET	1/2"	-	3"	2"	TANK TYPE
LAV-1	LAVATORY	1/2"	1/2"	1-1/2"	1-1/2"	
LAV-2	LAVATORY	1/2"	1/2"	1-1/2"	1-1/2"	PUBLIC, ADA
SH-1	SHOWER	1/2"	1/2"	2"	1-1/2"	ADA, LEVEL 1
SH-2	SHOWER	1/2"	1/2"	2"	1-1/2"	ADA, LEVEL 2 AND 3
KS-1	KITCHEN SINK	1/2"	1/2"	2"	1-1/2"	TOP MOUNT
S-1	SINK	1/2"	1/2"	2"	1-1/2"	TOP MOUNT
LB-1	LAUNDRY BOX	1/2"	1/2"	2"	1-1/2"	
SS-1	SERVICE SINK	1/2"	1/2"	3"	1-1/2"	FLOOR STYLE
HB-1	HOSE BIBB	1/2"	-	-	-	FREEZE-PROOF
FD-1	FLOOR DRAIN	-	-	2"	1-1/2"	
FD-2	FLOOR DRAIN	-	-	2"	1-1/2"	WITH FUNNEL
FD-3	FLOOR DRAIN	-	-	2"	1-1/2"	
FD-4	FLOOR DRAIN	-	-	2"	1-1/2"	WITH FUNNEL

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CARNATION, WA 98014

STATE OF WASHINGTON 25615 REGISTERED PROFESSIONAL ENGINEER

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Revisions
Date Description

NOTES AND SCHEDULES

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

NOTES:

1. PROVIDE SUDS RELIEF IN ACCORDANCE WITH 711.0 OF UPC 2018.

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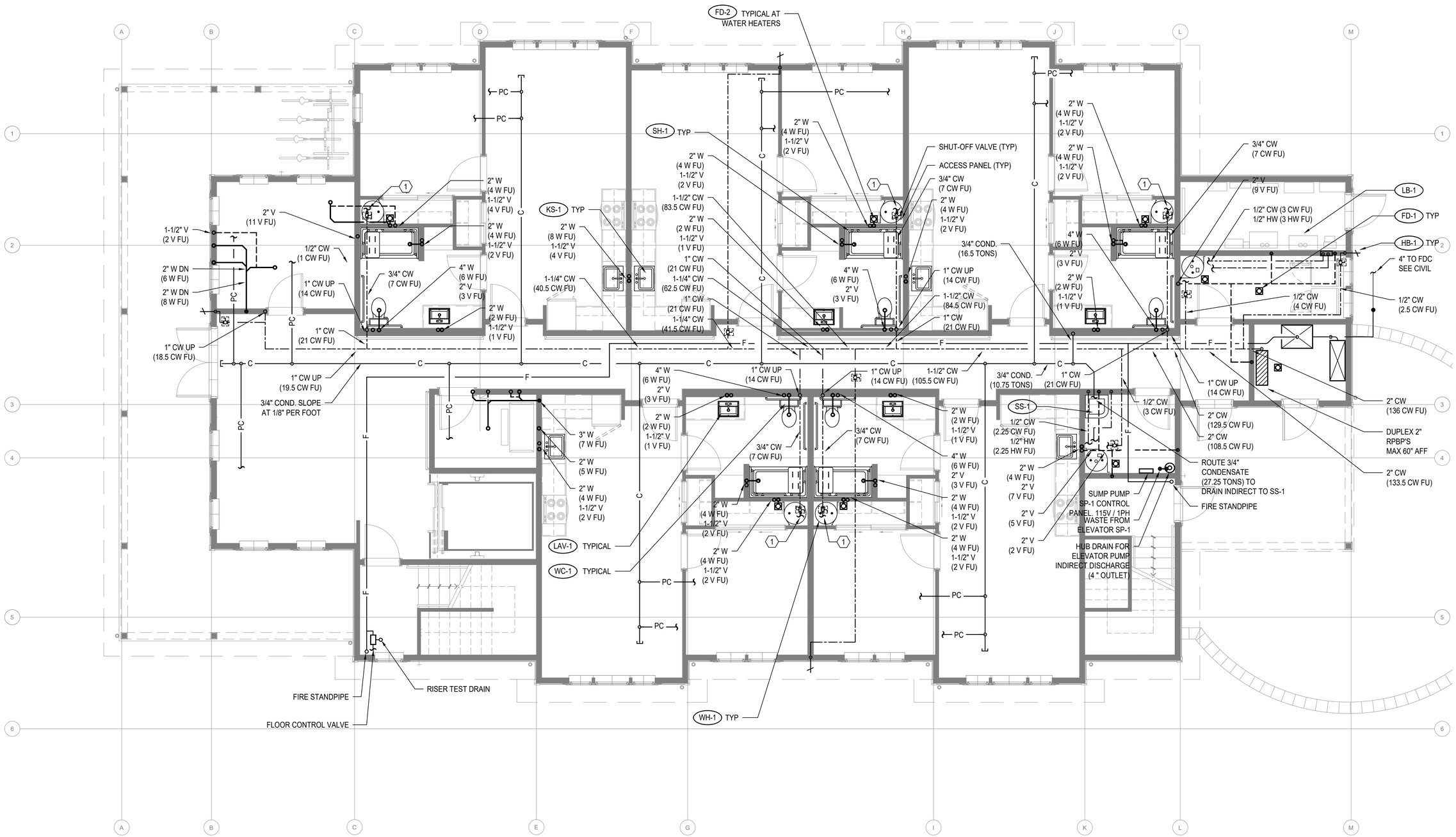

MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. PLUMBING ROUTING AND LAYOUT TO BE IN ACCORDANCE WITH ESDS V4.0 SECTION 4.06 EFFICIENT PLUMBING LAYOUT AND DESIGN.

(1) TO HOT WATER HEATER. 3/4" CW (5.875 CW FU), 3/4 HW (3.375 HW FU). SEE UNIT WATER DETAIL 1/P4.3 FOR IN UNIT PLUMBING LAYOUT.

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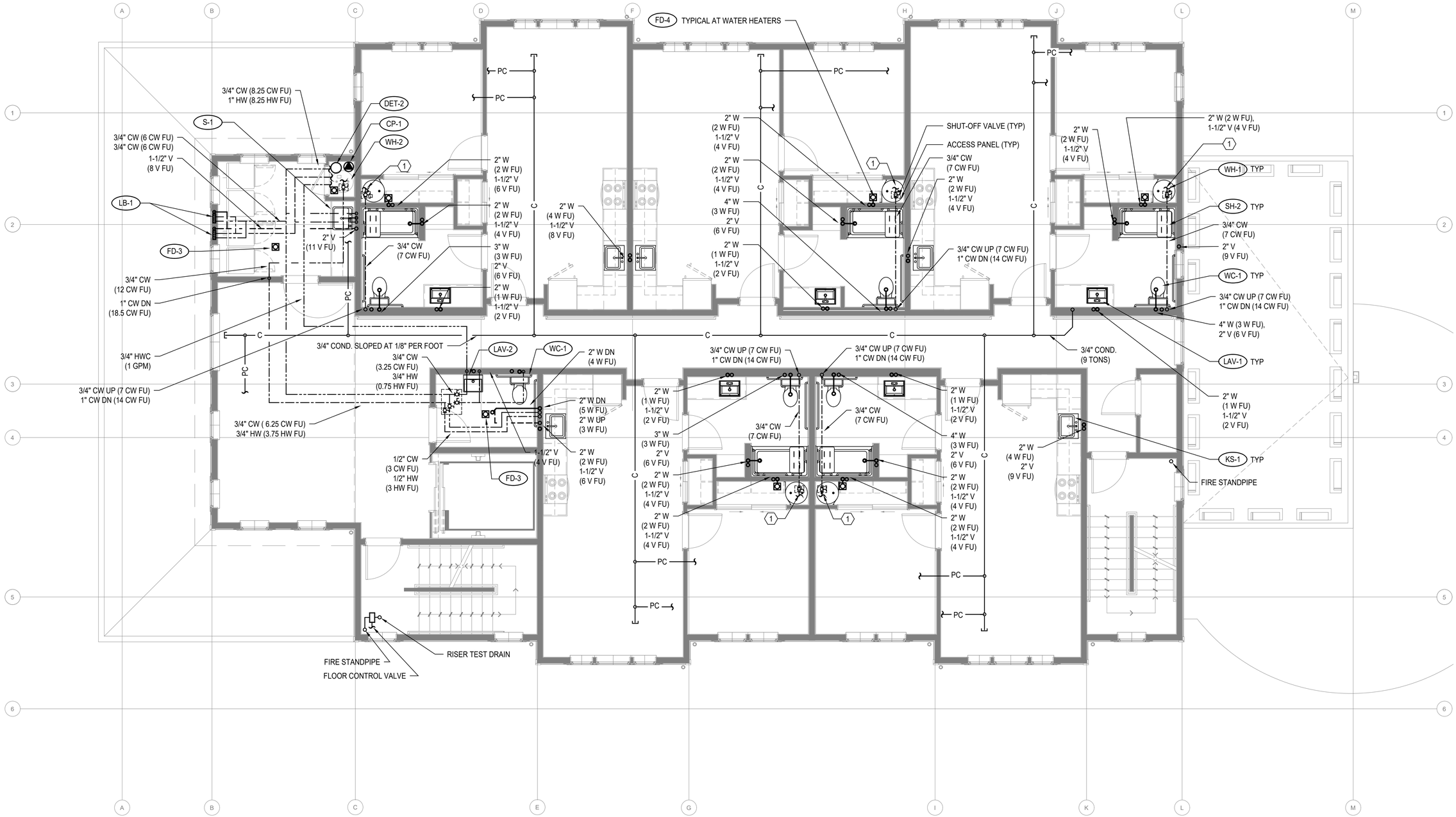

SECOND LEVEL PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. PLUMBING ROUTING AND LAYOUT TO BE IN ACCORDANCE WITH ESDS V4.0 SECTION 4.06 EFFICIENT PLUMBING LAYOUT AND DESIGN.

(1) TO HOT WATER HEATER. 3/4" CW (5.875 CW FU), 3/4 HW (3.375 HW FU). SEE UNIT WATER DETAIL 1/P4.3 FOR IN UNIT PLUMBING LAYOUT.

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SECOND LEVEL PLAN

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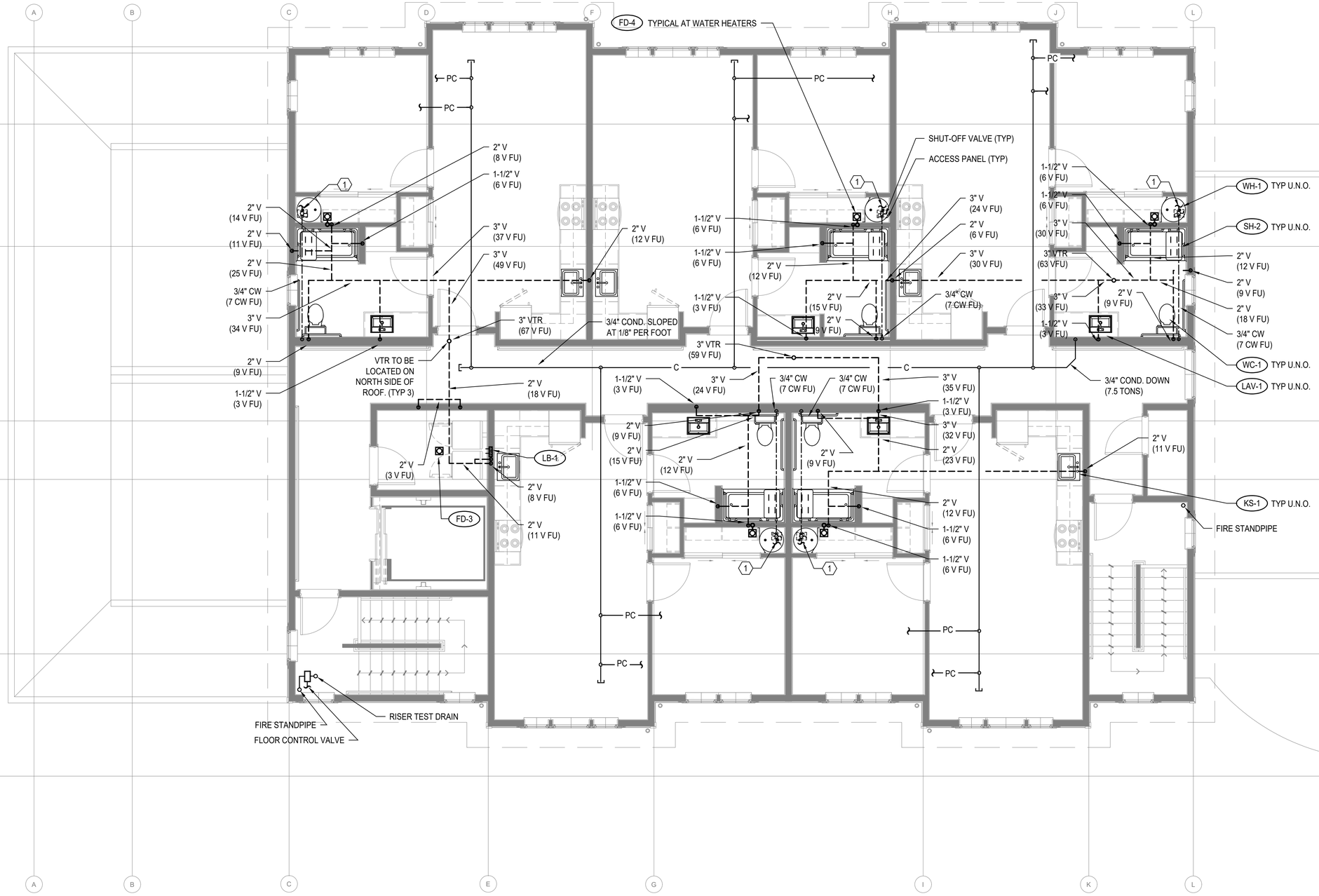

NOTES:

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(1) TO HOT WATER HEATER. 3/4" CW (5.875 CW FU), 3/4 HW (3.375 HW FU). SEE UNIT WATER DETAIL 1/P4.3 FOR IN UNIT PLUMBING LAYOUT.

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

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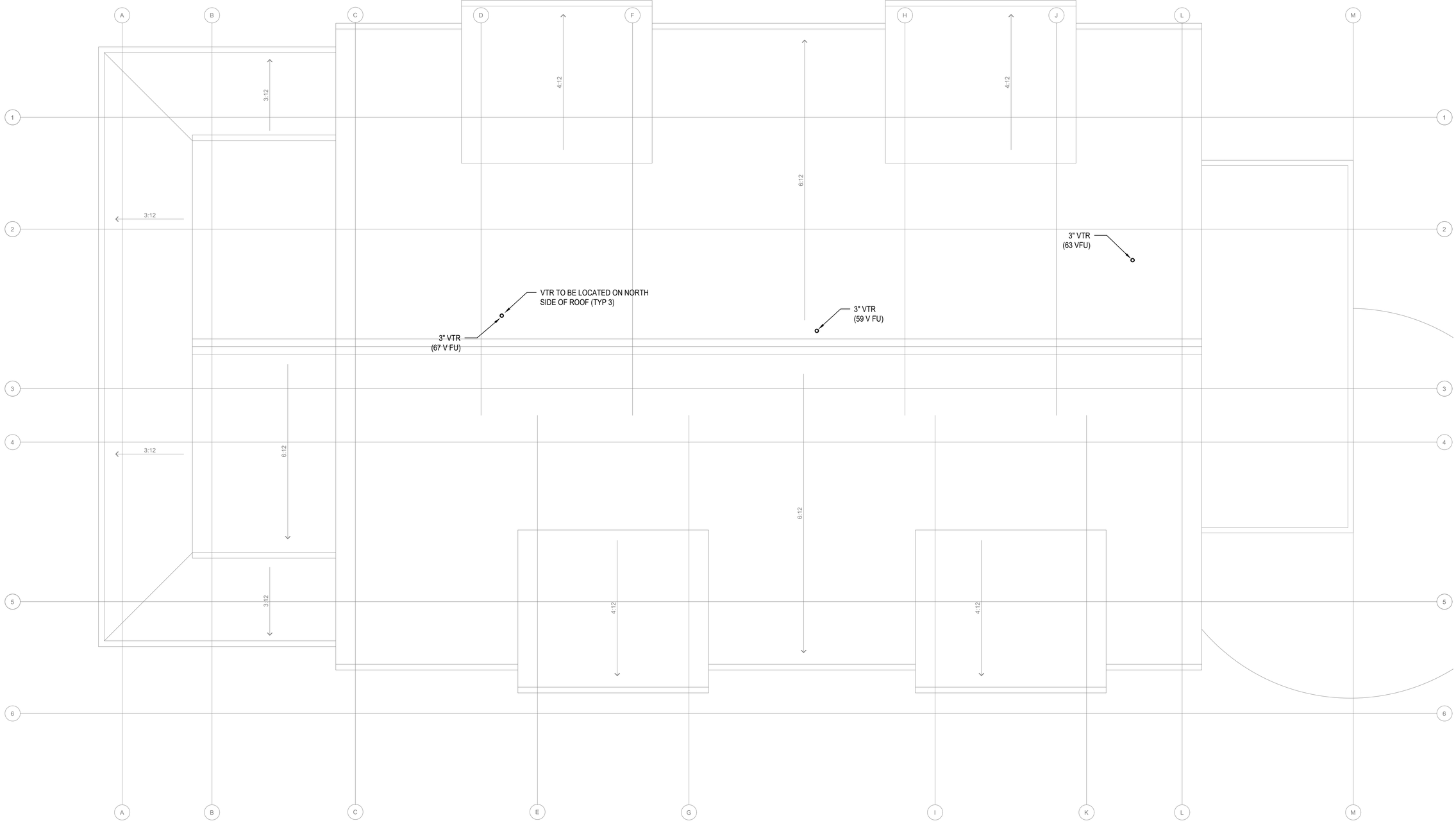

ROOF PLAN
SCALE: 1/4"=1'-0"

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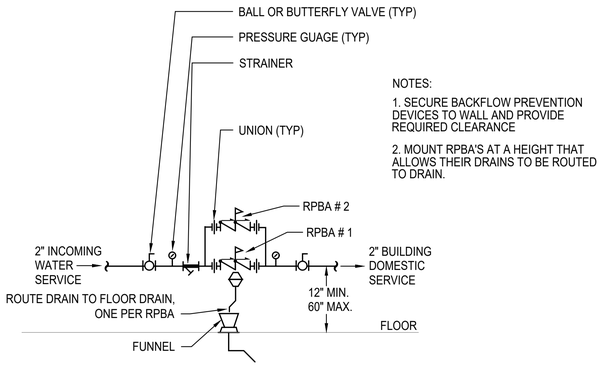
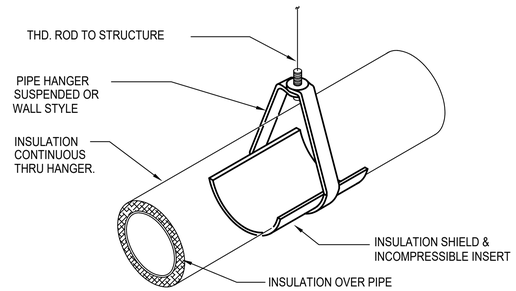


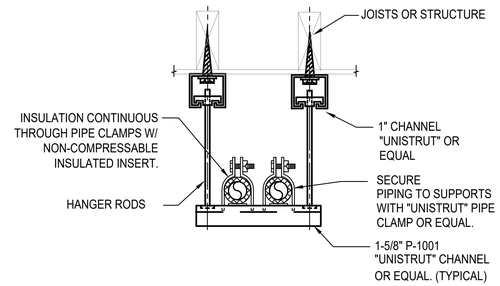
WATER SERVICE SCHEDULE				
MARK	MAKE	MODEL	SIZE	NOTES
RPBP #1 AND #2	WATTS	919	2"	DUPLEX CONFIGURATION, LEAD FREE

1 P3.1 INCOMING WATER SERVICE DETAIL
N.T.S.



NOTE:
INSULATE & LABEL PIPING PER. SPEC.

2 P3.1 TYPICAL PIPE HANGER DETAIL
N.T.S.



NOTE: QUANTITY OF PIPES SHOWN REPRESENTATIVE ONLY, PROVIDE QUANTITY OF PIPES REQUIRED.

3 P3.1 SUSPENDED PIPE SUPPORT
N.T.S.

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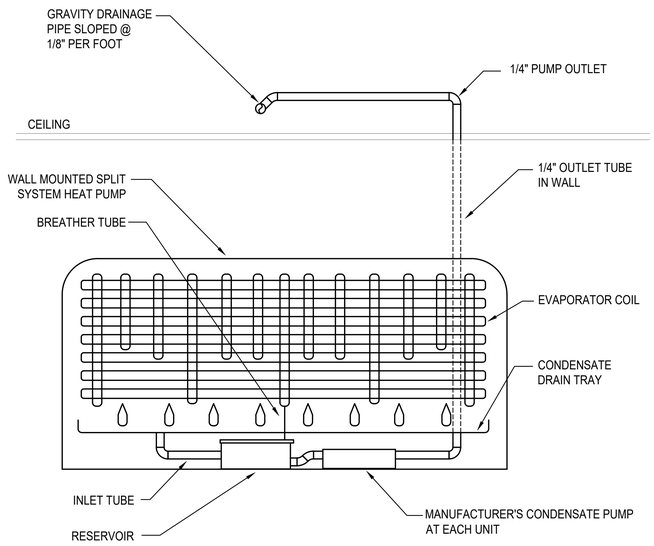
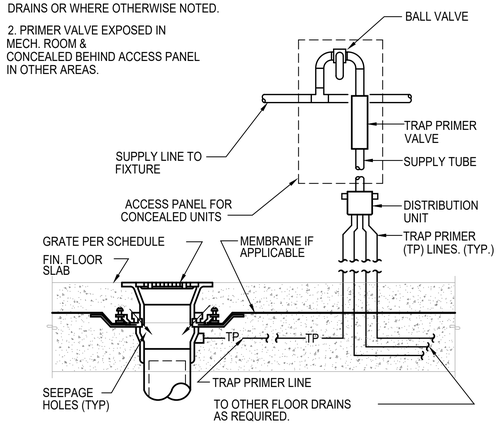


4 P3.1 WALL MOUNTED SPLIT SYSTEM CONDENSATE DETAIL
N.T.S.

NOTES:
1. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS & FLOOR SINKS EXCEPT SHOWER DRAINS OR WHERE OTHERWISE NOTED.
2. PRIMER VALVE EXPOSED IN MECH. ROOM & CONCEALED BEHIND ACCESS PANEL IN OTHER AREAS.



5 P3.1 TRAP PRIMER DETAIL
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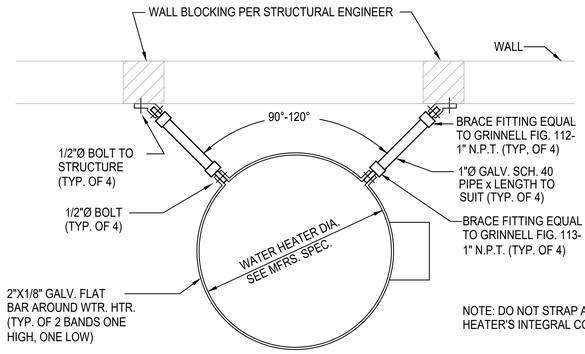

NOTE: DO NOT STRAP AROUND WATER HEATER'S INTEGRAL CONTROL PANEL.

NOTE: VERIFY SIZING FOR SPECIFIC APPLICATION W/ STRUCTURAL ENGINEER.

6 P3.1 WATER HEATER/ STORAGE TANK SEISMIC BRACING
N.T.S.

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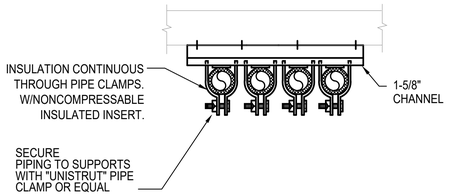
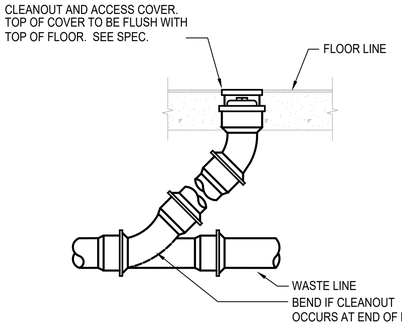


NOTE: QUANTITY OF PIPES SHOWN REPRESENTATIVE ONLY, PROVIDE QUANTITY OF PIPES REQUIRED.

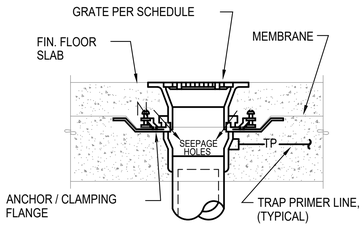
1 P3.2 PIPE SUPPORT
N.T.S.

2 P3.2 NOT USED
N.T.S.

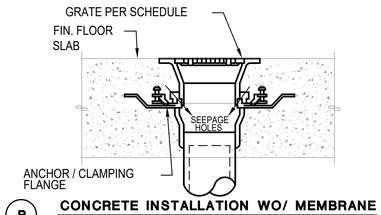


NOTE:
FOR GRADE CLEANOUTS (G.C.O.) IN VEHICULAR TRAFFIC AREAS, PROVIDE ACCESS HOUSING EQUAL TO WADE # 8300 MF-39.

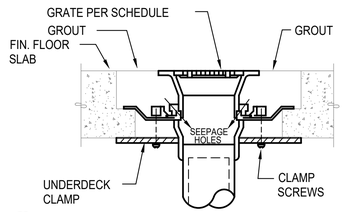
3 P3.2 FLOOR CLEANOUT DETAIL
N.T.S.



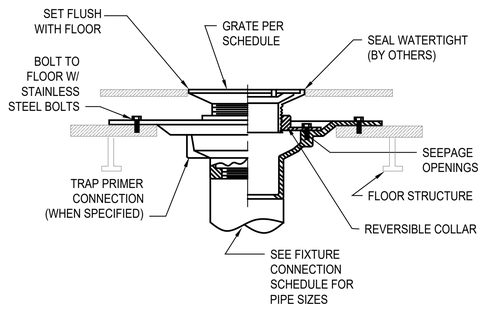
A CONCRETE INSTALLATION W/ MEMBRANE



B CONCRETE INSTALLATION WO/ MEMBRANE



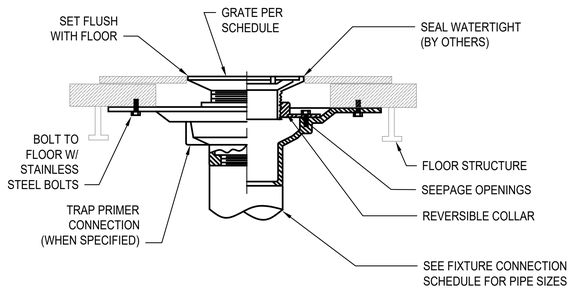
C CONCRETE INSTALLATION W/ CLAMPING RING



D FOR USE W/ DOUBLE WOOD FLOORS

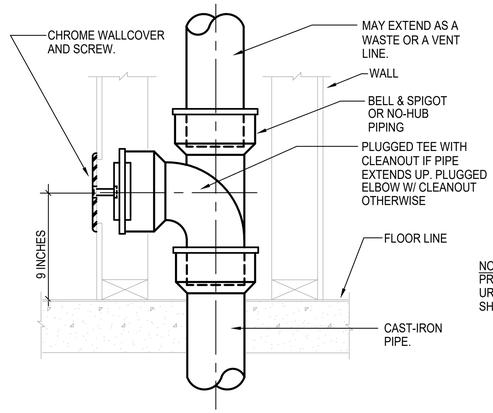
NOTES:
1. VERIFY FLOORING CONSTRUCTION BEFORE ORDERING DRAINS.
2. FLOOR DRAINS SHALL BE FLUSH TO 1/4" BELOW FINISHED FLOOR.

NOTES FOR WOOD FLOOR INSTALLATION
1. VERIFY ASSEMBLY PROCEDURE W/ FLOORING MANUFACTURER.
2. ONLY INSTALL FLOOR DRAINS COMPATIBLE WITH WOOD CONSTRUCTION.
3. VERIFY FLOOR ASSEMBLY WITH ARCHITECT TO DETERMINE APPROPRIATE INSTALLATION METHOD.
4.VERIFY DRAIN IS COMPATIBLE WITH FLOOR ASSEMBLY BEFORE ORDERING.



E FOR USE W/ SINGLE WOOD FLOORS

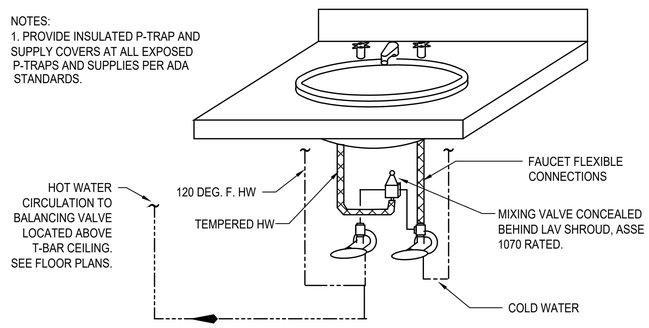
4 P3.2 FLOOR DRAIN / SINK INSTALLATION STYLES
N.T.S.



NOTE:
PROVIDE CLEANOUTS @ SINKS & URINALS PER U.P.C. CLEANOUTS SHALL BE LOCATED PER UPC.

5 P3.2 WALL CLEANOUT DETAIL
N.T.S.

NOTES:
1. PROVIDE INSULATED P-TRAP AND SUPPLY COVERS AT ALL EXPOSED P-TRAPS AND SUPPLIES PER ADA STANDARDS.



PUBLIC LAVATORY WATER CONNECTION DETAIL
6 P3.2 N.T.S.

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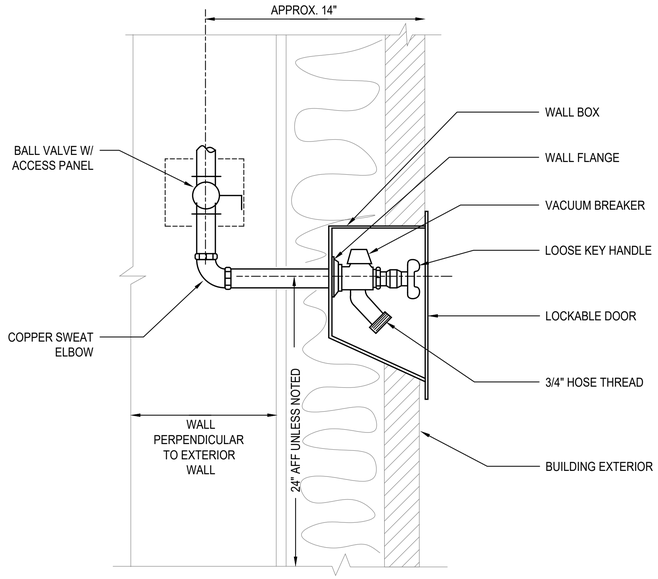
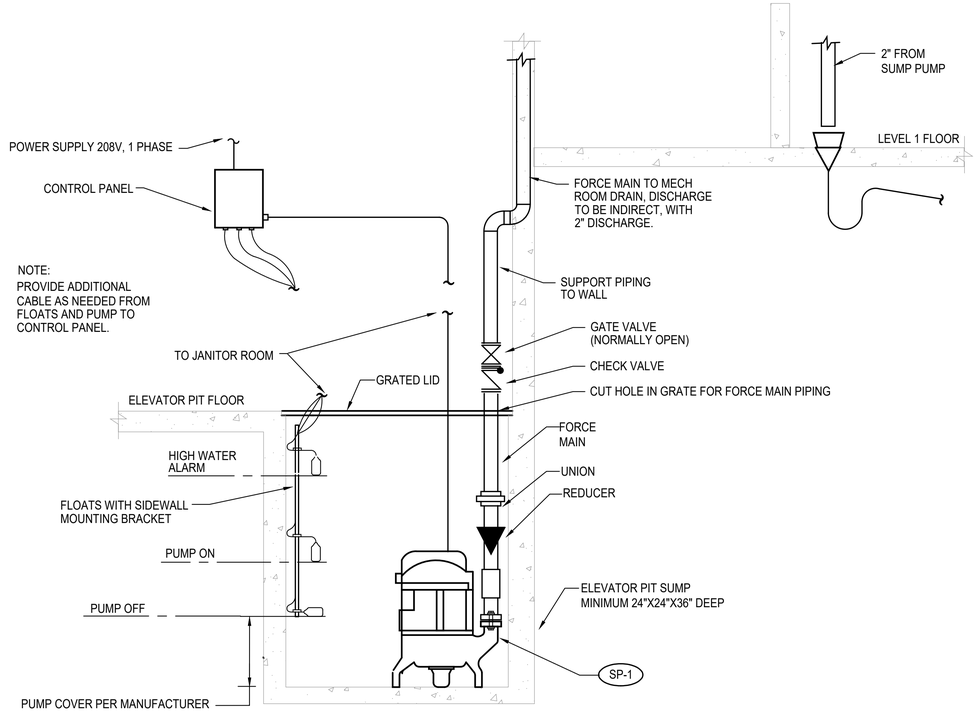


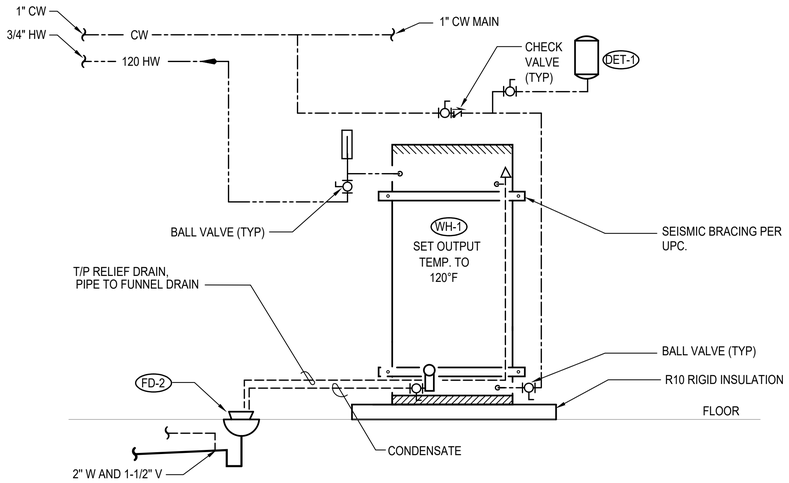
1 P3.3 FREEZE PROOF HOSE BIBB DETAIL

N.T.S.



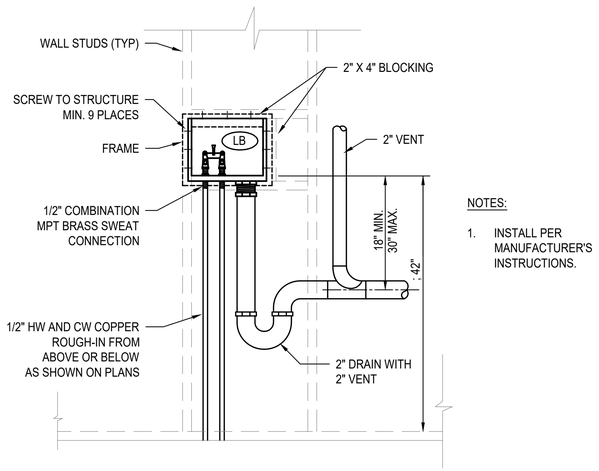
2 P3.3 ELEVATOR SUMP PUMP DETAIL

N.T.S.



3 P3.3 WATER HEATER DETAIL

N.T.S.

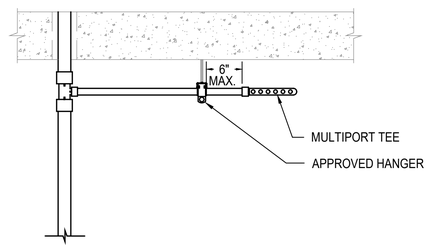


NOTES:

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

4 P3.3 LAUNDRY BOX DETAIL

N.T.S.



5 P3.3 PEX MULTIPORT TEE

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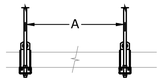
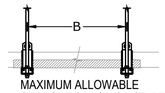
HORIZONTAL SUPPORT SPACING REQUIREMENTS FOR UPONOR PEX PIPE:

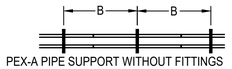


MAXIMUM ALLOWABLE SUPPORT SPACING FOR BARE-PEX PIPE

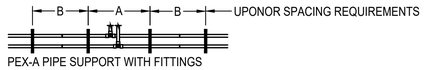


MAXIMUM ALLOWABLE SUPPORT SPACING FOR PEX PIPE WITH PEX-A PIPE SUPPORT

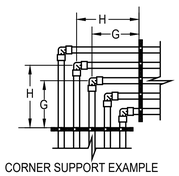
Nominal Pipe Size	Spacing for Bare PEX-Dimension "A"			Spacing w/ PEX-a Pipe Support-Dimension "B"			Dimension "C"
	IPC	UPC	NPCC	IPC	UPC	NPCC	All Codes
½"	32"	32"	32"	6'-0"	6'-0"	6'-0"	--
¾"	32"	32"	32"	6'-0"	6'-0"	6'-0"	--
1"	32"	32"	32"	8'-0"	8'-0"	8'-0"	--
1 ¼"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
1 ½"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
2"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
2 ½"	32"	48"	32"	8'-0"	8'-0"	8'-0"	7"
3"	32"	48"	32"	8'-0"	8'-0"	8'-0"	7"



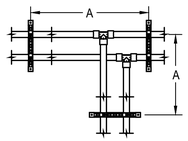
PEX-A PIPE SUPPORT WITHOUT FITTINGS



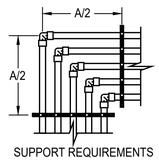
PEX-A PIPE SUPPORT WITH FITTINGS



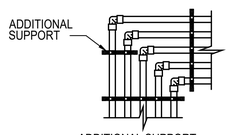
CORNER SUPPORT EXAMPLE
DISTANCE G = 16"
TOTAL DISTANCE FOR G = 32"
(16 + 16)
DISTANCE H = > 16"
TOTAL DISTANCE FOR H = > 32"



SUPPORT REQUIREMENTS FOR FITTINGS



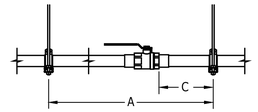
SUPPORT REQUIREMENTS FOR FITTINGS AT CORNERS



ADDITIONAL SUPPORT REQUIREMENTS FOR FITTINGS AT CORNERS

1 P3.4 HORIZONTAL PEX SUPPORT

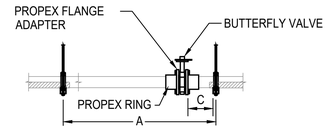
N.T.S.



BASED ON 1 1/4" TO 2" PROPEX BALL VALVE OR SIMILAR

Nominal Pipe Size	Spacing for Bare PEX-Dimension "A"			Spacing w/ PEX-a Pipe Support-Dimension "B"			Dimension "C"
	IPC	UPC	NPCC	IPC	UPC	NPCC	All Codes
½"	32"	32"	32"	6'-0"	6'-0"	6'-0"	--
¾"	32"	32"	32"	6'-0"	6'-0"	6'-0"	--
1"	32"	32"	32"	8'-0"	8'-0"	8'-0"	--
1 ¼"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
1 ½"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
2"	32"	48"	32"	8'-0"	8'-0"	8'-0"	18"
2 ½"	32"	48"	32"	8'-0"	8'-0"	8'-0"	7"
3"	32"	48"	32"	8'-0"	8'-0"	8'-0"	7"

UPONOR SPACING REQUIREMENTS



BASED ON 2 1/2" TO 3" DUCTILE-IRON BUTTERFLY VALVES OR SIMILAR

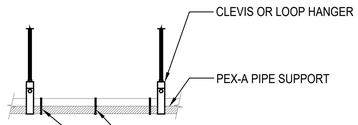
NOTE: IF DIMENSION C CANNOT BE MET ADDITIONAL SUPPORT SHALL BE ADDED.

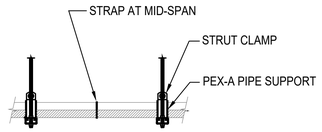
2 P3.4 PEX VALVE SUPPORT

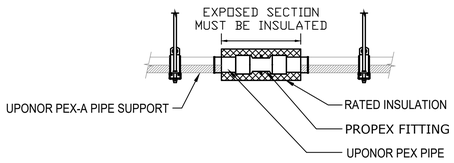
N.T.S.

Nominal Pipe Size	Max. Support Spacing (A)	Max. Cantilever (B)	Min. Overlap (C)	Min. Distance to Fitting (D)	Min. Overhang E
1/2"	6'-0"	18"	6"	1 1/4"	1"
3/4"				1 3/4"	
1"				2 1/4"	
1 1/4"	8'-0"			2 3/4"	
1 1/2"				3"	
2"				4"	
2 1/2"				5"	
3"				6"	

Support	Maximum Distance
Clamps	Greater than 48" = 1 strap mid-span
Hangers	Less than 48" = 2 straps equally spaced Greater than 48" = 3 straps (1 mid-span and 1 on each end placed 2" from end of support)



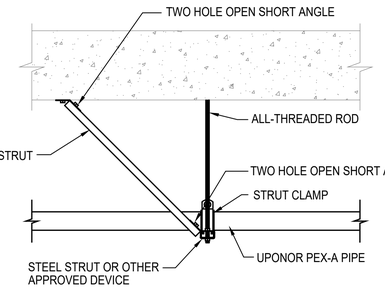




PEX-A PIPE SUPPORT INSTALLATIONS IN ASTM E84 APPLICATIONS

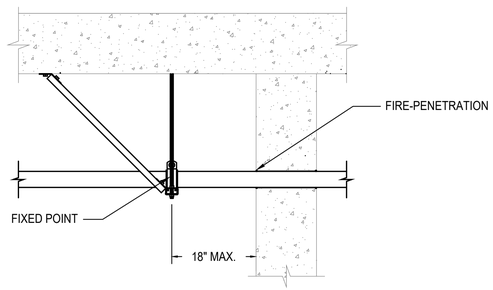
3 P3.4 HORIZONTAL PEX W/ PIPE SUPPORT

N.T.S.



4 P3.4 FIXED PEX EXPANSION ANCHOR

N.T.S.



5 P3.4 FIXED PEX ANCHOR CLEARANCE

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STATE OF WASHINGTON
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Project No. 21035

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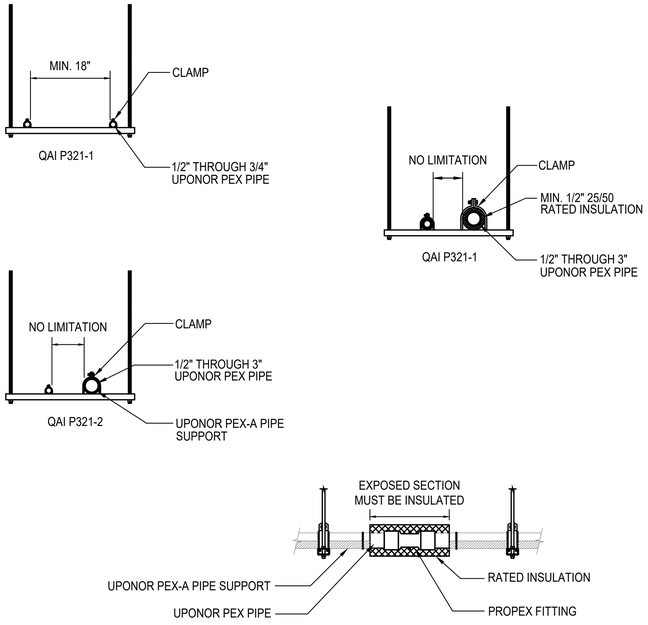
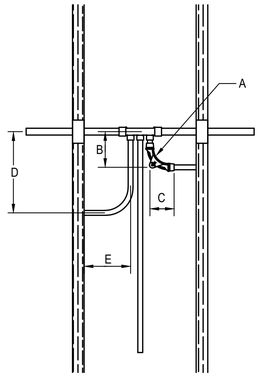


PEX-A PIPE SUPPORT INSTALLATIONS IN ASTM E84 APPLICATIONS

1 P3.5 PEX SUPPORT IN PLENUM

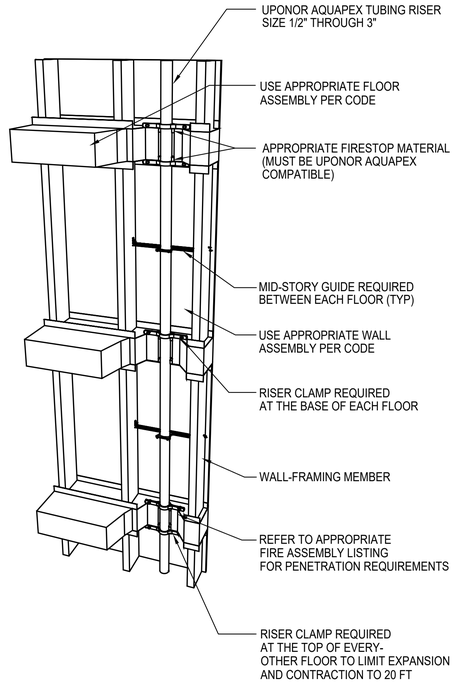
N.T.S.



	Min. Distances with Bend Support (in.)			Min. Distances without Bend Support (in.)	
	A	B	C	D	E
1/2"	R 2.5	5	5	10	6
3/4"	R 3.8	8	8	16	12
1"	n/a	n/a	n/a	22	18

3 P3.5 PEX BAND SUPPORT DISTANCES

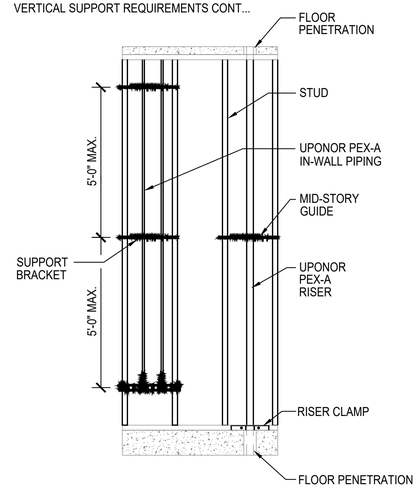
N.T.S.



VERTICAL SUPPORT REQUIREMENTS

		Nominal Pipe Size	International Plumbing Code (IPC)	Uniform Plumbing Code (UPC)	National Plumbing Code of Canada
Vertical	In wall	All Pipe Sizes	5'-0" (1.5m)	5'-0" (1.5m)	5'-0" (1.5m)
	Risers	All Pipe Sizes	Base of each floor, provide mid-story guide	Base of each floor, provide mid-story guide	Supported at the base and floor levels of alternate stories

VERTICAL SUPPORT REQUIREMENTS CONT...



2 P3.5 VERTICAL PEX SUPPORT

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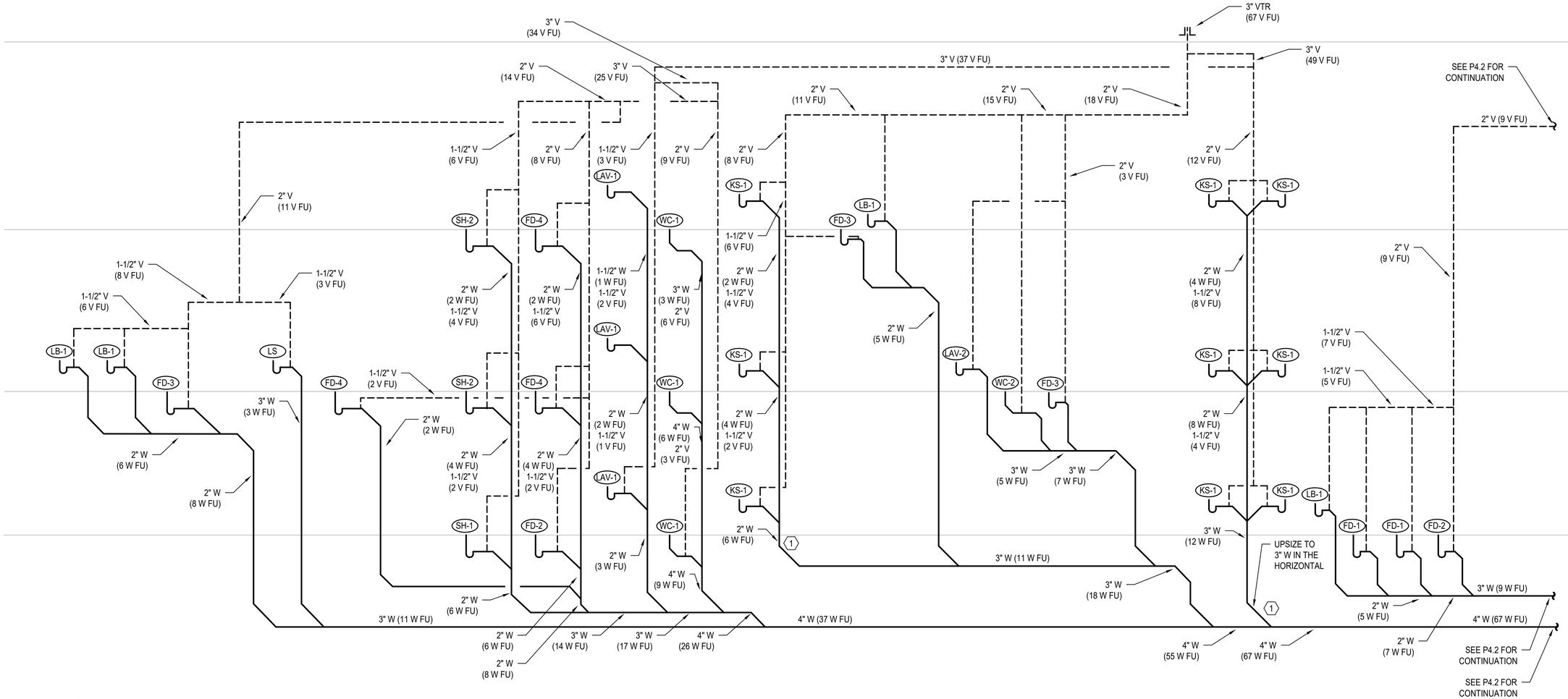

NOTES:

1. PROVIDE SUDS RELIEF IN ACCORDANCE WITH 711.0 OF UPC 2018 .

1 P4.1 WASTE RISER N.T.S.

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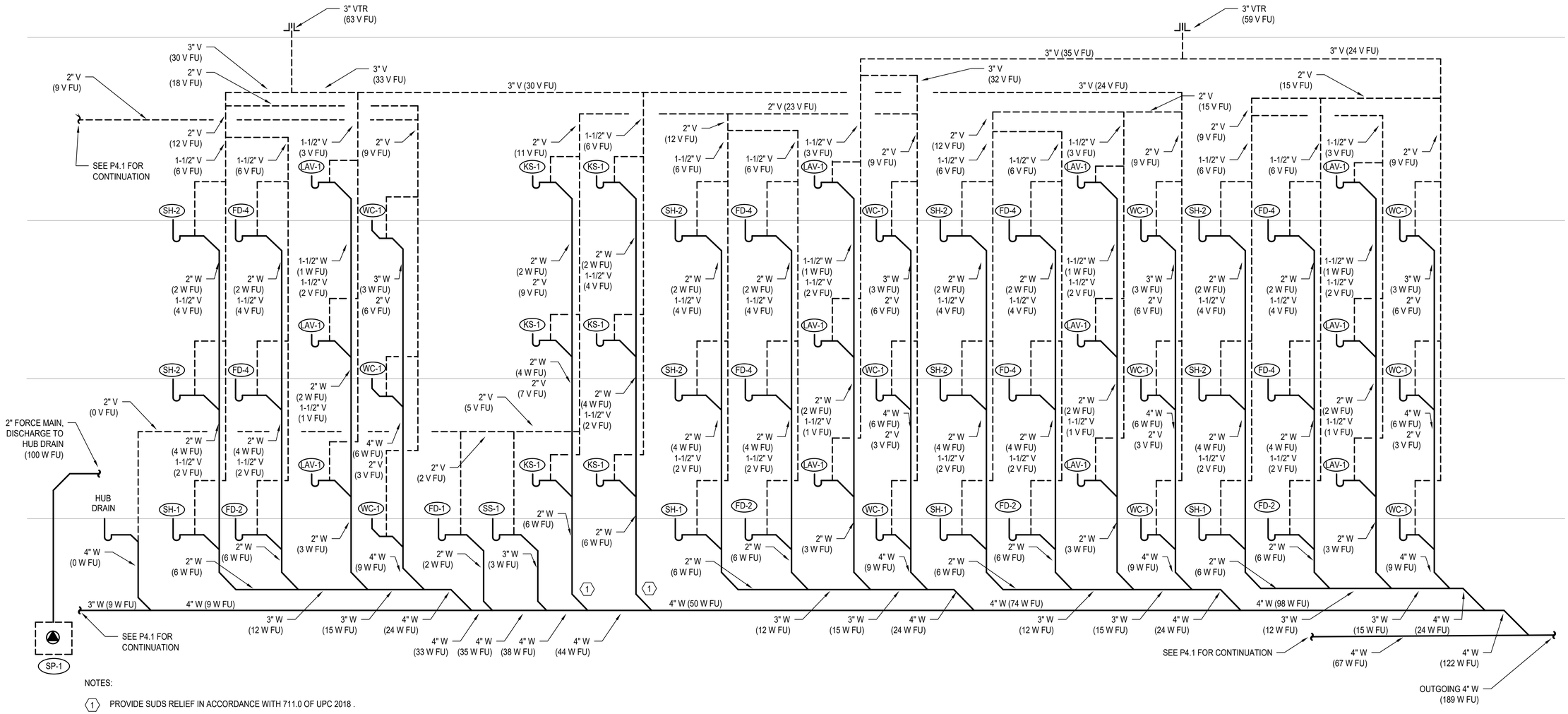

NOTES:

1 PROVIDE SUDS RELIEF IN ACCORDANCE WITH 711.0 OF UPC 2018 .

1 P4.2 WASTE RISER
N.T.S.

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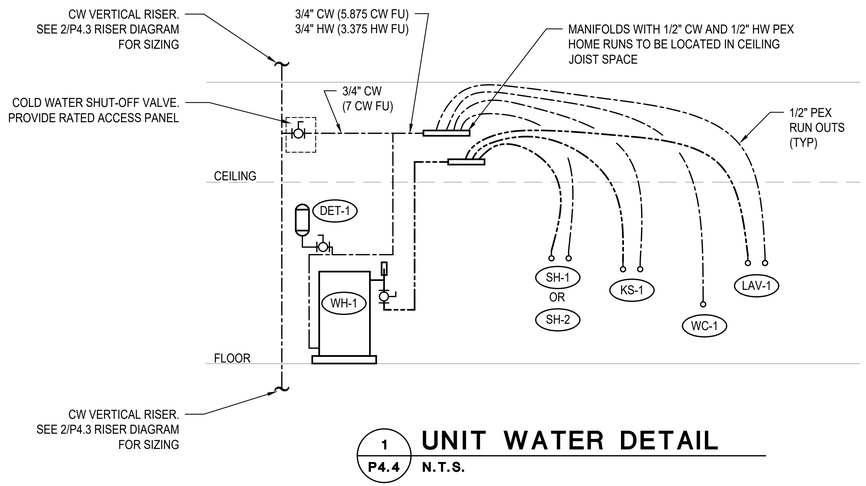
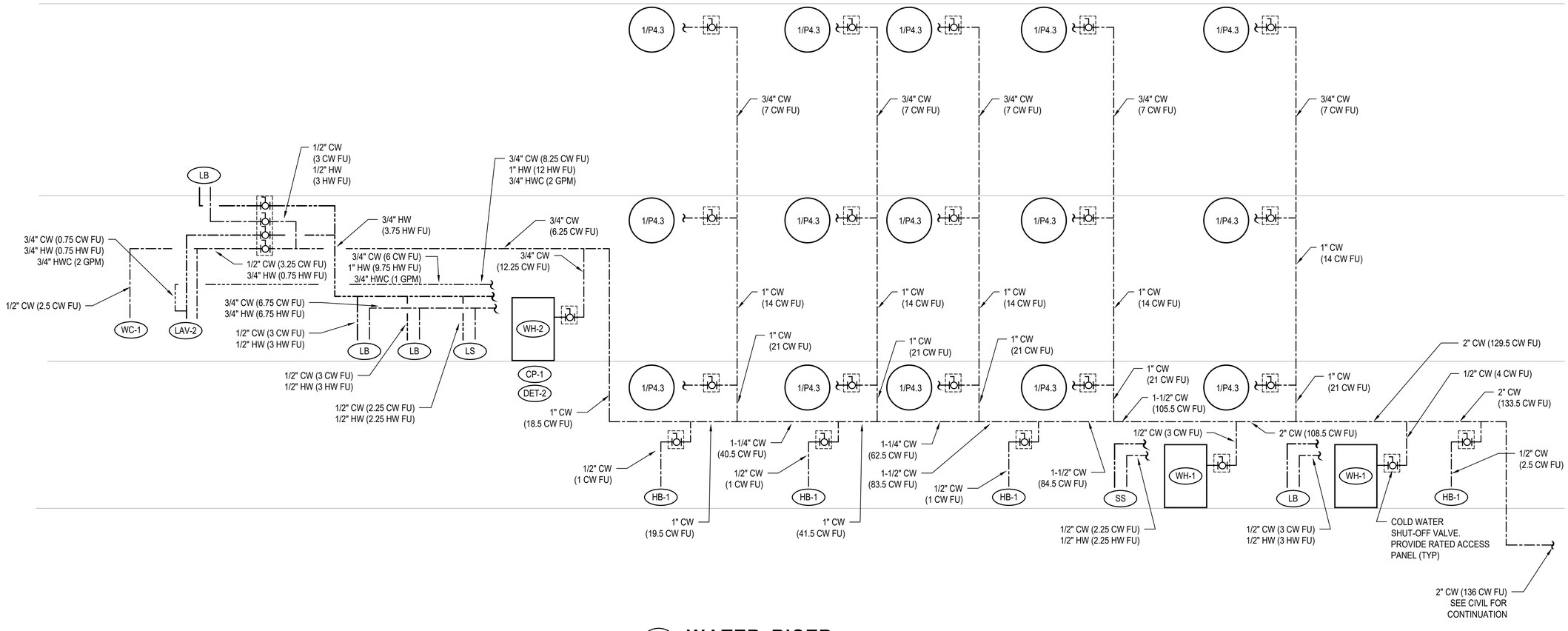
NOTES:

1. PLUMBING ROUTING AND LAYOUT TO BE IN ACCORDANCE WITH ESDS V4.0 SECTION 4.06 EFFICIENT PLUMBING LAYOUT AND DESIGN.



1 P4.4 **UNIT WATER DETAIL**
N.T.S.



2 P4.3 **WATER RISER**
N.T.S.

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ELECTRICAL SYMBOLS LEGEND

REFERENCE SYMBOLS

- DETAIL NUMBER / SHEET (E-1)
- FLAG NOTE
- REVISION TAG (1)
- MECHANICAL EQUIPMENT (AHU-1)
- SECTION NUMBER / SHEET NUMBER (1)
- FAULT CURRENT TAG (XX kA)

FIRE ALARM SYMBOLS

- COMBINATION SMOKE/FIRE DAMPER (OR)
- FACP — FIRE ALARM CONTROL PANEL
- FARA — FIRE ALARM REMOTE ANUNCIATOR
- FIRE ALARM STROBE LIGHT
- (SD) — FIRE ALARM SMOKE DETECTOR
- (SC) — FIRE ALARM COMBINATION SMOKE DETECTOR / CARBON MONOXIDE ALARM

WIRING SYMBOLS

- BREAK (CONTINUATION)
- CAP
- STUB DOWN
- STUB UP
- CONDUIT / CABLING CONCEALED IN CEILING OR WALL
- CONDUIT / CABLING CONCEALED UNDERGROUND OR IN CEILING SPACE OF LEVEL BELOW
- —G— GROUNDING CONDUCTOR(S) PER CODE
- FLEXIBLE CONDUIT

LUMINAIRE SYMBOLS

- •EM ——— EM — SHADING AND/ OR "EM" INDICATES EMERGENCY EGRESS LUMINAIRES

FL1 3a FL1 3-Z1.2

TYPICAL LUMINAIRE ANNOTATIONS:

FL1 = LUMINAIRE TYPE
3 = CIRCUIT NUMBER
c = SWITCH LEG
Z1.2 = CONTROL ZONE

POWER SYSTEMS SYMBOLS

- PANELBOARD: SURFACE, FLUSH MOUNTED. DASHED LINE = CLEARANCE (TYPICAL)
- ELECTRICAL DISTRIBUTION EQUIPMENT. SEE PLANS FOR TYPE, DIMENSIONS, NAME, ETC. DASHED LINE = CLEARANCE (TYPICAL)
- CONNECTION TO EQUIPMENT BY OTHERS
- CONNECTION TO MOTOR
- DISCONNECT SWITCH, FUSED
- DISCONNECT SWITCH, CB
- DISCONNECT SWITCH
- VFD — VARIABLE FREQUENCY DRIVE
- EMERGENCY POWER OFF BUTTON
- GROUND BAR
- GROUND ROD
- JUNCTION BOX: WALL, FLOOR AND CEILING MTD
- RECEPTACLE, DUPLEX: WALL, FLOOR AND CLG MTD; PARALLEL SHADED = HALF-SWITCHED
- RECEPTACLE, DUPLEX: WALL MTD ABOVE BACKSPLASH, GFCI-TYPE
- RECEPTACLE, DOUBLE DUPLEX: WALL, FLOOR AND CLG MTD; PARALLEL SHADED = HALF-SWITCHED
- RECEPTACLE, DOUBLE DUPLEX: WALL MTD ABOVE BACKSPLASH, GFCI-TYPE
- RECEPTACLE, SIMPLEX: WALL, FLOOR AND CLG MTD
- RECEPTACLE, SIMPLEX: WALL MTD ABOVE BACKSPLASH, GFCI-TYPE
- SPECIALTY RECEPTACLE: WALL, FLOOR AND CLG MTD. NEMA TYPE AS INDICATED ON PLANS.

TYPICAL DEVICE ANNOTATIONS:

- 702 — ON ALTERNATE POWER: 700, 701 AND 702 SYSTEMS PER NEC
- WP — WEATHERPROOF
- GFI — GFCI TYPE
- C — FULLY CONTROLLED

LOW VOLTAGE SYSTEMS SYMBOLS

- PUSHBUTTON. WALL-MOUNTED.
- JUNCTION BOX: WALL, FLOOR AND CEILING MTD
- COMBINATION RF COAX / PHONE OUTLET WALL, FLOOR AND CEILING MTD
- COMBINATION DATA / PHONE OUTLET WALL, FLOOR AND CEILING MTD
- DATA OUTLET WALL, FLOOR AND CEILING MTD
- PHONE OUTLET WALL, FLOOR AND CEILING MTD
- TV — RF COAX CABLE OUTLET WALL, FLOOR AND CEILING MTD
- CCTV SECURITY CAMERA; FIXED WALL AND CEILING MTD
- CR — CARD / FOB READER WALL/ MULLION AND BOLLARD MTD
- IS — INTERCOM SYSTEM WALL/ MULLION AND BOLLARD MTD
- DS — SECURITY DOOR POSITION MONITOR
- ES — ELECTRIC STRIKE
- WALL MOUNTED NURSE CALL STATION

CONTROL SYMBOLS

- M — MOTORIZED CONTROL DAMPER
- THERMOSTAT
- $^{2PDX\ a,b,c}$ — WALL SWITCH / LOW VOLTAGE WALL STATION. SUPERSCRIPT INDICATES SWITCH TYPE (BELOW). SUBSCRIPT INDICATES SWITCHLEGS / RELAYS CONTROLLED; FOR MULTI-POLE WALL STATIONS, CONTROL FOR EACH POLE SEPARATED BY COMMA (I.E. SWITCHLEGS a AND b CONTROLLED BY ONE POLE, c ANOTHER).
- ^{OR} — OVERRIDE SWITCH FOR CENTRAL TIME SWEEP SYSTEM, TYPICAL
- WALL DIMMER LINE VOLTAGE, 1-POLE
- $ — WALL SWITCH, LINE VOLTAGE, 1-POLE
- ^{3} — WALL SWITCH, LINE VOLTAGE, 3-WAY
- ^{4} — WALL SWITCH, LINE VOLTAGE, 4-WAY
- ^{TS} — WALL SWITCH, LINE VOLTAGE, TIMER SWITCH
- ^{K} — WALL SWITCH, LINE VOLTAGE, KEY OPERATED
- ^{1P} — LOW VOLTAGE WALL STATION, 1-POLE, ON/OFF
- ^{DX} — LOW VOLTAGE WALL STATION, 1-POLE, ON/OFF AND RAISE/LOWER
- ^{2P} — LOW VOLTAGE WALL STATION, 2-POLE, ON/OFF
- ^{2PDX} — LOW VOLTAGE WALL STATION, 2-POLE, ON/OFF AND RAISE/LOWER
- ^{4P} — LOW VOLTAGE WALL STATION, 4-POLE, ON/OFF
- ^{4PDX} — LOW VOLTAGE WALL STATION, 4-POLE, ON/OFF AND RAISE/LOWER
- OS — COMBINATION OCCUPANCY SENSOR SWITCH, WALL-MOUNTED
- (OS) (OS) — OCCUPANCY SENSOR: WALL, CLG MTD
- (PC) — PHOTO CELL, CLG MTD
- (OP) (OP) — COMBINATION PHOTO CELL / OCCUPANCY SENSOR: WALL, CLG MTD

RISER DIAGRAM SYMBOLS

- 100AT GFP / 50AT — CIRCUIT BREAKER, ENCLOSED CIRCUIT BREAKER AT = TRIP AMPACITY GFP = GROUND FAULT PROTECTION PER CODE
- 100AF — FUSED SWITCH. AF= FUSE RATING
- SWITCH
- CONTACTOR/ RELAY - NORMALLY CLOSED
- CONTACTOR/ RELAY - NORMALLY OPEN
- (C) — CONTACTOR COIL
- POTENTIAL TRANSFORMER. GROUND PER CODE.
- CURRENT TRANSFORMER
- (DM) — DIGITAL METER
- (M) (M) — UTILITY METER SOCKET WITH METER; PER UTILITY REQUIREMENTS; REMOTE MOUNTED.
- CONNECTION TO GROUND
- GROUND BAR
- PIPE GROUND PER CODE
- UFER GROUND PER CODE

ABBREVIATIONS

A, AMP	AMPERES	LRA	LOCKED ROTOR AMPS
AB	ABOVE BACKSPLASH	LTG	LIGHTING
AC	ALTERNATING CURRENT		
ACT	ACOUSTICAL CEILING TILE	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MCA	MINIMUM CIRCUIT AMPACITY
ADJ	ADJUSTABLE	MED	MEDIUM
AF	AMPERE RATING OF FUSE OR CB FRAME	MEP	MECHANICAL, ELECTRICAL
AFF	ABOVE FINISHED FLOOR		& PLUMBING
AFG	ABOVE FINISHED GRADE		& PLUMBING
AIC	AMPERE INTERRUPTING CAPACITY,	MEZZ	MEZZANINE
	AMPERE INTERRUPTING RATING	MIN	MINIMUM OR MINUTE
AL	ALUMINUM (ALLOY)	MISC	MISCELLANEOUS
ALT	ALTERNATE	MLO	MAIN LUGS ONLY
APPROX	APPROXIMATE	MNT	MOUNTED
ARCH	ARCHITECTURAL/ARCHITECT	MOCP	MAXIMUM OVERCURRENT PROTECTION
AS	AMPERE RATING OF SWITCH		
AT	CB TRIP SETTING (AMPS)	N/A	NOT APPLICABLE
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AUTO	AUTOMATIC	NC	NORMALLY CLOSED
AUX	AUXILIARY	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAUGE	-, NEG	NEGATIVE
		NEMA	NATIONAL ELECTRICAL MANUFACTURERS'
BFF	BELOW FINISHED FLOOR		ASSOCIATION
BHP	BRAKE HORSE POWER	NIC	NOT IN CONTRACT
BLDG	BUILDING	NL	NIGHT LIGHT (UNSWITCHED)
		NO	NORMALLY OPEN
C	CONDUIT	NOM	NOMINAL
CB	CIRCUIT BREAKER	NPT	NATIONAL PIPE THREAD
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CKT	CIRCUIT		
CLG	CEILING	OC	ON CENTER
CO	CARBON MONOXIDE	OCC	OCCUPANCY
CO2	CARBON DIOXIDE	OD	OUTSIDE DIAMETER
CONN	CONNECTED	OS	OCCUPANCY SENSOR
CT	CURRENT TRANSFORMER		
CU	COPPER	P	POLE
		PC	PHOTOCELL
dB	DECIBEL	PERF	PERFORATED
DC	DIRECT CURRENT	Φ OR PH	PHASE
° OR DEG.	DEGREE	PNL	PANELBOARD
DIA	DIAMETER	POC	POINT OF CONNECTION
DISC	DISCONNECT	PSF	POUNDS PER SQUARE FOOT
DIST	DISTRIBUTION	PSI	POUNDS PER SQUARE INCH
DIV	DIVISION		
DN	DOWN	QTY	QUANTITY
DP	DISTRIBUTION PANEL		
DWG(S)	DRAWING(S)	REQ	REQUIRED
DZ	DAYLIGHT CONTROL ZONE (LIGHTING)	RLX	RELOCATE EXISTING
		RM	ROOM
EA	EACH	RMC	RIGID METALLIC CONDUIT
EM	EMERGENCY (700 SYSTEM)	RNC	RIGID NON-METALLIC CONDUIT (PVC)
EMT	ELECTRICAL METALLIC TUBING	RPM	REVOLUTIONS PER MINUTE
EF	EXHAUST FAN	RTU	ROOF TOP UNIT
EWC	ELECTRIC WATER COOLER	RV	RELIEF VALVE
EWH	ELECTRIC WATER HEATER	RX	REMOVE EXISTING
EX	EXISTING/EXISTING TO REMAIN		
		SA	SUPPLY AIR
FA	FIRE ALARM	SD	SMOKE DETECTOR
FACP	FIRE ALARM CONTROL PANEL	SF	SQUARE FOOT
FARA	FIRE ALARM REMOTE ANUNCIATOR	SPD	SURGE PROTECTION DEVICE
FC	FOOTCANDLES	SPEC	SPECIFICATION
FF	FINISHED FLOOR	S/S, OR SS	STAINLESS STEEL
FLA	FULL LOAD AMPS	STD	STANDARD
FLEX	FLEXIBLE	SWBD	SWITCHBOARD
FP	FIRE PROTECTION		
FPM	FEET PER MINUTE	T&P	TEMPERATURE AND PRESSURE
FPS	FEET PER SECOND		RELIEF VALVE
FSD	FIRE SMOKE DAMPER	TBD	TO BE DETERMINED
FT	FEET/FOOT	TC	TIMECLOCK
FTG	FOOTING	TEL	TELEPHONE
FOIC	FURNISHED BY OWNER	TELECOM	TELECOMMUNICATIONS
	INSTALLED BY CONTRACTOR	TEMP	TEMPERATURE
FOIO	FURNISHED BY OWNER	TOB	TOP OF BEAM
	INSTALLED BY OWNER	TOC	TOP OF CONCRETE
		TOD	TOP OF DECK
G, GND	GROUND	TOJ	TOP OF JOIST
GA	GAUGE	TOS	TOP OF SLAB/TOP OF STEEL
GAL	GALLON	T&P	TEMPERATURE & PRESSURE
GALV	GALVANIZED	TSP	TOTAL STATIC PRESSURE
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GEN	GENERATOR		
GFI	GROUND FAULT CIRCUIT INTERRUPTER	UL	UNDERWRITERS LABORATORY
GFP	GROUND FAULT PROTECTION	UNO	UNLESS NOTED OTHERWISE
GRC	GALVANIZED RIGID STEEL CONDUIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
		UTR	UP THROUGH ROOF
H	HEIGHT		
HP	HORSEPOWER	V	VOLT
HTR	HEATER	VA	VOLT AMPS
HVAC	HEATING VENTILATING AND	VERT	VERTICAL
	AIR CONDITIONING	VFD	VARIABLE FREQUENCY DRIVE
HW	HOT WATER	VOL	VOLUME
HX	HEAT EXCHANGER		
HZ	HERTZ	W	WATT
		W/	WITH
ID	INSIDE DIAMETER/DIMENSION	W/IN	WITHIN
IESNA	ILLUMINATING ENGINEERING SOCIETY	W/O	WITHOUT
	OF NORTH AMERICA	WP	WEATHERPROOF
IG	ISOLATED GROUND	WT	WEIGHT
IMC	INTERMEDIATE METAL CONDUIT		
IN	INCH/INCHES	XFR	TRANSFORMER
KCMIL	THOUSAND CIRCULAR MILS	(E)	EXISTING TO REMAIN
KO	KNOCK OUT	(D)	EXISTING TO BE DEMOLISHED
KW	KILOWATT/KILOWATTS	(R)	EXISTING TO BE DEMOLISHED AND REPLACED WITH NEW
KWH	KILOWATT HOUR(S)	(RL)	EXISTING TO BE RELOCATED
KVA	KILOVOLT AMPS	(N)	NEW EQUIPMENT / DEVICE
LBS	POUNDS	(D)	EXISTING TO BE DEMOLISHED
LCP	LIGHTING CONTROL PANEL	(R)	EXISTING TO BE DEMOLISHED AND REPLACED WITH NEW
LCZ	LIGHTING CONTROL ZONE	(RL)	EXISTING TO BE RELOCATED
LF	LINEAL FOOT	(N)	NEW EQUIPMENT / DEVICE

ELECTRICAL DRAWING LIST

CODES AND STANDARDS

2020 NATIONAL ELECTRICAL CODE (NEC) WITH STATE AND LOCAL AMENDMENTS
2018 WASHINGTON STATE ENERGY CODE - RESIDENTIAL
2018 INTERNATIONAL BUILDING CODE (IBC) WITH STATE AND LOCAL AMENDMENTS
2018 INTERNATIONAL FIRE CODE (IFC) WITH STATE AND LOCAL AMENDMENTS
2018 INTERNATIONAL MECHANICAL CODE (IMC) WITH STATE AND LOCAL AMENDMENTS
2018 UNIFORM PLUMBING CODE (UPC) WITH STATE AND LOCAL AMENDMENTS
AMERICAL WITH DISABILITIES ACT (ADA)
EVERGREEN SUSTAINABLE DEVELOPMENT STANDARDS (ESDS)

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NOT FOR CONSTRUCTION

Issuance	
BID SET	
Date	
22 MAY 2023	

Revisions

#	Date	Description

COVER SHEET

Drawn By:	RA
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Project No.	21035

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LOW VOLTAGE SYSTEMS NOTES

1. SEE GENERAL PROJECT NOTES, THIS DRAWING, PRELIMINARY DESIGN DRAWINGS AND PERFORMANCE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL LOW VOLTAGE SYSTEMS, INCLUDING FIRE ALARM, ARE DESIGNED BY OTHERS. ANY DEVICES AND EQUIPMENT INDICATED ON THESE PLANS ARE PRELIMINARY FOR SPACE PLANNING PURPOSES ONLY. SEE NOTES THIS DRAWING, PRELIMINARY SYSTEMS PLAN, AND PERFORMANCE SPECIFICATIONS FOR INFORMATION AND REQUIREMENTS.
3. LOW VOLTAGE SYSTEMS FOR THE PROJECT SHALL INCLUDE: FIRE ALARM, ACCESS CONTROL SYSTEM, CCTV SYSTEM, WIRELESS NETWORK IN ALL COMMON AND OFFICE AREAS, CATV SYSTEMS AND TELECOM SYSTEMS. SEE PERFORMANCE SPECIFICATIONS AND PRELMINARY SYSTEMS PLANS FOR ADDITIONAL INFORMATION.
4. FIRE ALARM SYSTEMS ARE TO BE DESIGNED, SUBMITTED FOR PLAN REVIEW, PERMITTED AND INSTALLED BY A FIRE ALARM CONTRACTOR HIRED UNDER THE SCOPE OF THIS PROJECT. THE DESIGN-BUILD FIRE ALARM CONTRACTOR SHALL DESIGN AND PROVIDE COMPLETE AND FULLY OPERATIONAL FIRE ALARM SYSTEM MEETING THE REQUIREMENTS OF CODE, THE LOCAL AHJ AND THE FIRE MARSHAL. ANY DEVICES SHOWN ON THE ELECTRICAL DRAWINGS ARE SCHEMATIC FOR COORDINATION PURPOSES ONLY. SEE THE PERFORMANCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

   THE FIRE ALARM CONTRACTORS SHALL MAKE ALL REQUIRED SUBMISSIONS TO THE AUTHORITIES HAVING JURISDICTION FOR PLAN REVIEW, PERMITS AND APPROVAL OF ALL FIRE ALARM SYSTEMS AND SHALL PAY ALL FEES ASSOCIATED WITH THESE SUBMISSIONS AND OBTAINING THE REQUIRED PERMIT(S). THE FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND PROVIDING SYSTEMS THAT MEET ALL REQUIREMENTS OF CODE AND THE LOCAL AHJ; ALL ADDITIONS, REVISIONS, RESUBMITTALS, ETC REQUIRED TO OBTAIN AHJ APPROVAL SHALL BE CARRIED OUT BY THE FIRE ALARM CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. PROVIDE A COPY OF THE FINAL APPROVED DRAWINGS WITH THE LOCAL AHJ'S APPROVAL STAMP TO THE OWNER FOR THEIR RECORDS.
5. TYPE A UNITS AND UNITS FOR THE HEARING IMPAIRED ARE TO BE PROVIDED WITH SYSTEM AUDIBLE AND VISUAL FIRE ALARM DEVICES.
6. STAND-ALONE SMOKE DETECTORS, CARBON MONOXIDE ALARMS, AND COMBINATION SMOKE DETECTOR/ CARBON MONOXIDE ALARMS ARE TO BE INSTALLED IN ALL DWELLING UNITS.
7. ALL OTHER LOW VOLTAGE SYSTEMS (CATV, TELECOM, CCTV, ACCESS CONTROL, ETC) ARE TO BE DESIGNED AND INSTALLED BY A LOW VOLTAGE DESIGN-BUILD CONTRACTOR HIRED BY THE ELECTRICAL CONTRACTOR. THE DESIGN-BUILD LOW VOLTAGE CONTRACTOR SHALL DESIGN AND PROVIDE COMPLETE AND FULLY OPERATIONAL LOW VOLTAGE SYSTEMS PER THE REQUIREMENTS OF THE OWNER, THE LOCAL AHJ AND THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE ALL PARTS AND PIECES REQUIRED FOR THESE LOW VOLTAGE SYSTEMS INCLUDING BUT NOT LIMITED TO RACKS, PATCH PANELS, ROUTERS, WIRELESS ACCESS POINTS, PATCH CABLES, ETC. SEE THE PERFORMANCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. WIRELESS ACCESS POINTS ARE TO BE PROVIDED BY THE LOW VOLTAGE CONTRACTOR TO PROVIDE COMPLETE WIFI COVERAGE FOR ALL AREAS OF THE BUILDING OUTSIDE OF THE SLEEPING UNITS FOR TWO NETWORKS; ONE SECURED FOR EMPLOYEES AND ONE UNSECURED FOR GUEST AND RESIDENT USE.
9. ALL VOICE/ DATA SYSTEM DESIGN SHALL BE PERFORMED BY A BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD) OR BY A DESIGN ENGINEER AT LEAST FIVE YEARS OF EXPERIENCE ON PROJECTS WITH SIMILAR SYSTEMS AND SCOPES. THE CONTRACTOR SHALL PROVIDE PROOF OF CERTIFICATION FOR THE SYSTEMS TO BE INSTALLED IN THE PROJECT AND THE CABLING, TERMINATIONS, AND EQUIPMENT PROPOSED FOR THE PROJECT.
10. ALL LOW VOLTAGE CABLING AND EQUIPMENT INSTALLATION AND TESTING SHALL BE PERFORMED BY A CERTIFIED INSTALLER. THE CONTRACTOR SHALL PROVIDE PROOF OF CERTIFICATION FOR THE SYSTEMS TO BE INSTALLED IN THE PROJECT AND THE CABLING, TERMINATIONS, AND EQUIPMENT PROPOSED FOR THE PROJECT.
11. THE ELECTRICAL CONTRACTOR SHALL COORDINATE TELECOM AND CATV SERVICE TO THE BUILDING AND PROVIDE THE REQUIRED INFRASTRUCTURE FROM THE TELECOM PROVIDERS' SERVICE POINTS TO THE DEMARC LOCATION. SEE PLANS FOR ADDITIONAL INFORMATION. ALL UTILITY INFRASTRUCTURE SHALL MEET THE UTILITY SERVICE PROVIDERS' REQUIREMENTS.
12. THE ELECTRICAL CONTRACTOR IS TO PROVIDE ALL INFRASTRUCTURE (LINE VOLTAGE POWER, CONDUITS WITH PULLSTRINGS, BACKBOXES, EQUIPMENT RACKS, ETC) FOR ALL LOW VOLTAGE SYSTEMS. PRELIMINARY SYSTEMS PLAN PROVIDED IN THIS BID SET ARE FOR BIDDING PURPOSES ONLY. THE ELECTRICAL CONTRACTOR SHALL CONFIRM ACTUAL DEVICE LOCATIONS, QUANTITIES, AND REQUIREMENTS WITH THE DESIGN-BUILD LOW VOLTAGE CONTRACTOR.
13. BACK-TO-BACK DEVICES ARE NOT ALLOWED; INSTALL IN SEPARATE STUD CAVITIES. INSTALL PUTTY PADS ON ALL BOXES INSTALLED IN PARTY OR CORRIDOR WALLS.
14. THE TELECOM SYSTEM WIRING SHALL MEET TIA PERFORMANCE CRITERIA FOR CATEGORY 6.

9/27/2023

ENERGY CODE NOTES

1. SEE THE LUMINAIRE SCHEDULE, AND THE LIGHTING PLANS FOR LIGHTING AND LIGHTING CONTROL REQUIREMENTS. SYSTEMS SHALL MEET THE REQUIREMENTS OF R404.
2. OCCUPANCY SENSORS SHALL FAIL ON AND AUTOMATICALLY TURN OFF LUMINAIRES IN THEIR COVERAGE AREA WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE UNLESS NOTED OTHERWISE ON THE PLANS.
3. EXIT SIGNS SHALL NOT EXCEED 5 WATTS PER SIDE.
4. THE LUMINAIRES SERVING DWELLING UNITS SHALL BE LED WITH AN EFFICACY OF AT LEAST 65 LUMENS PER WATT AS REQUIRED BY ENERGY CODE.
5. LUMINAIRES SERVING THE EXIT ACCESS AND PROVIDING MEANS OF EGRESS ILLUMINATION REQUIRED BY THE IBC SHALL BE CONTROLLED BY A COMBINATION OF LISTED EMERGENCY RELAY AND OCCUPANCY SENSORS OR SIGNAL FROM ANOTHER BUILDING CONTROL SYSTEM THAT AUTOMATICALLY SHUTS OFF THE LIGHTING WHEN THE AREAS SERVED BY THAT ILLUMINATION ARE UNOCCUPIED. SEE LIGHTING PLANS.
6. THE BUILDING SHALL MEET CERTIFICATION REQUIREMENTS FOR EVERGREEN SUSTAINABLE DESIGN STANDARDS (ESDS). SEE THE TEAMS APPROVED CHECKLIST FOR APPLICABLE ITEMS EFFECTING THE ELECTRICAL SCOPE.
7. THE BUILDING SHALL BE COMMISSIONED PER THE REQUIREMENTS OF ESDS - NEW CONSTRUCTION. IN ADDITION, SEE COMMISSIONING NOTES ON THIS DRAWING AND PROJECT DRAWINGS FOR REQUIREMENTS.

GENERAL PROJECT NOTES

1. THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING, DEVICE LOCATIONS, ETC. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES AND PROVIDE COMPLETE AND FULLY OPERATIONAL AND COORDINATED ELECTRICAL AND LOW VOLTAGE SYSTEMS THAT MEET ALL REQUIREMENTS OF THE OWNER, CODE AND THE LOCAL AHJ AND THE CONTRACT DOCUMENTS.
2. WHERE THE DRAWINGS CALL OUT FOR THE CONTRACTOR TO FIELD VERIFY AND / OR COORDINATE LOCATIONS AND REQUIREMENTS THIS VERIFICATION / COORDINATION IS TO BE COMPLETED PRIOR TO ANY EQUIPMENT, DEVICES, SUPPORTS, CONDUITS, ETC ARE INSTALLED / ROUGHED-IN. ANY EQUIPMENT, DEVICES, SUPPORTS, CONDUITS, ETC INSTALLED AT LOCATIONS UNACCEPTABLE TO THE DESIGN TEAM (EITHER FOR AESTHETICS OR FUNCTIONALITY) DUE TO THE CONTRACTOR FAILING TO FIELD VERIFY / COORDINATE SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE.
3. MATERIALS, METHODS AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE LATEST EDITION (WITH STATE AND LOCAL AMENDMENTS) OF THE NATIONAL ELECTRICAL CODE, WASHINGTON STATE ENERGY CODE, INTERNATIONAL BUILDING CODE, INTERNATIONAL FIRE CODE, INTERNATIONAL MECHANICAL CODE, UNIFORM PLUMBING CODE, THE AMERICANS WITH DISABILITY ACT AND LOCAL CODES AND ORDINANCES.
4. CONFIRM ALL LOCATIONS AND QUANTITIES WITH THE OWNER AND ARCHITECT PRIOR TO THE START OF CONSTRUCTION.
5. CONTRACTOR TO MAINTAIN THE FIRE RATING OF ANY FIRE-RATED WALLS AND FLOORS. ALL FLOOR PENETRATIONS TO BE FINISHED TO A SMOOTH SURFACE.
6. INSTALL ALL EQUIPMENT PER CODE AND MANUFACTURER'S INSTRUCTIONS; THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE MECHANICAL/PLUMBING EQUIPMENT COORDINATION SCHEDULE FOR CONNECTION REQUIREMENTS FOR SPECIFIC MECHANICAL AND PLUMBING EQUIPMENT. SEE THE PANEL SCHEDULES AND FEEDER AND BRANCH CIRCUIT SCHEDULES FOR CIRCUIT SIZES.
7. ALL ELECTRICAL DEVICES AND EQUIPMENT (LUMINAIRES, CONDUIT AND CABLING, ETC) SHALL BE INDEPENDENTLY SUPPORTED (I.E. DO NOT SUPPORT LUMINAIRES FROM MECHANICAL EQUIPMENT, ETC). PROVIDE SUPPORTS PER CODE AND AHJ REQUIREMENTS.
8. ALL UTILITY INFRASTRUCTURE (POWER AND TELECOM) SHALL MEET THE UTILITY SERVICE PROVIDERS' REQUIREMENTS.
9. ALL NEW RACEWAYS AND CABLING SHALL BE INSTALLED CONCEALED WHEREVER POSSIBLE. AT OPEN CEILING AREAS, CONTRACTOR MUST PROVIDE CONDUCTORS / CABLING IN CONDUIT. COORDINATE THE ROUTING OF THE CONDUIT AT OPEN CEILING AREAS WITH THE ARCHITECT. ALL CONDUIT AND CABLING SHALL BE INSTALLED PARALLEL WITH BUILDING LINES. THE CONTRACTORS SHALL COORDINATE WITH THE CEILING TYPES IN ALL ROOMS AND ENSURE THAT ALL JUNCTION BOXES ARE ACCESSIBLE AFTER THE WORK OF ALL TRADES IS COMPLETE. JUNCTION BOXES SHALL NOT BE LOCATED ON HARD CEILINGS OR IN WALLS IN "FRONT OF HOUSE" SPACES WITHOUT PRIOR APPROVAL FROM ARCHITECT.
10. COORDINATE CONDUIT AND CABLING ROUTING WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS. ROUTE CONDUIT AS TO MINIMIZE PENETRATIONS THROUGH PARTITIONS.
11. COORDINATE THE EXACT LOCATIONS OF CEILING MOUNTED DEVICES WITH ALL OTHER TRADES. OCCUPANCY / VACANCY SENSORS SHALL BE INSTALLED AT LEAST 8-FT OR THE MANUFACTURER'S RECOMMENDED DISTANCE FROM ALL HVAC EXHAUST DIFFUSERS. LOCATE PHOTO CELLS PER MANUFACTURER'S INSTRUCTIONS.
12. COORDINATE THE LOCATIONS OF ALL WALL-MOUNTED DEVICES (OCCUPANCY SENSOR SWITCHES, LOW VOLTAGE WALL STATIONS, THERMOSTATS, ETC) WITH LOCATIONS AND SWINGS OF DOORS. DO NOT LOCATE DEVICES SUCH THAT THEY WILL BE BEHIND ANY DOOR WHEN THAT DOOR IS OPEN WITHOUT PRIOR APPROVAL OF THE ARCHITECT.
13. BACK-TO-BACK DEVICES ARE NOT ALLOWED; INSTALL IN SEPARATE STUD CAVITIES. INSTALL PUTTY PADS ON ALL BOXES INSTALLED IN PARTY OR CORRIDOR WALLS.
14. THE ELECTRICAL CONTRACTOR SHALL PERFORM COORDINATION, SHORT-CIRCUIT / FAULT CURRENT AND ARC FLASH STUDIES FOR THE PROJECT PER THE ACTUAL INTENDED INSTALLATION (FINAL GEAR SELECTION, ACTUAL FEEDER LENGTHS, ETC). STUDIES SHALL BE SUBMITTED TO THE ENGINEER WITH THE GEAR SUBMITTAL FOR REVIEW. FINAL STUDIES SHALL BE STAMPED BY AN ELECTRICAL ENGINEER CURRENTLY REGISTERED IN THE THE STATE OF WASHINGTON AND SHALL BE SUBMITTED TO THE LOCAL AHJ. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ARC FLASH LABELS ON ALL ELECTRICAL DISTRIBUTION EQUIPMENT PER CODE AND AHJ REQUIREMENTS. SEE THE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
15. LIGHTING CONTROL COORDINATION MEETING; THE ELECTRICAL CONTRACTOR SHALL COORDINATE A LIGHTING CONTROL COORDINATION MEETING WITH THE OWNER, ARCHITECT, ENGINEER, GENERAL CONTRACTOR, ELECTRICAL CONTRACTOR AND AN AUTHORIZED SERVICE REPRESENTATIVE OF THE INTENDED LIGHTING CONTROL SYSTEM FOR THE PROJECT TO DISCUSS THE LIGHTING CONTROL INTENT FOR THE PROJECT. THIS MEETING SHALL OCCUR AT LEAST TEN (10) WORKING DAYS PRIOR TO SUBMITTING THE LIGHTING CONTROL SUBMITTAL; THE LIGHTING CONTROL SUBMITTAL SHALL REFLECT THE DECISIONS MADE DURING THIS MEETING.
16. THE CONTRACTORS SHALL MARK LOCATIONS OF ALL DEVICES AND EQUIPMENT (LOAD CENTERS, MEDIA BOXES, LUMINAIRES, SWITCHES, RECEPTACLES, CATV AND TELECOM OUTLETS, THERMOSTATS, HEATERS/ HVAC EQUIPMENT, ETC) IN ONE OF EACH TYPE OF TYPICAL DWELLING UNIT AND ALL COMMON AREAS IN THE PROJECT (EXACT UNITS AND AREAS TO BE CONFIRMED BY ARCHITECT). BEFORE STARTING INSTALLATION OF EQUIPMENT AND DEVICES, THE ELECTRICAL CONTRACTOR SHALL WALK THROUGH ALL MOCKED-UP AREAS WITH THE OWNER, ARCHITECT, AND GENERAL CONTRACTOR TO RECEIVE APPROVAL FOR ALL LOCATIONS. THE ELECTRICAL CONTRACTOR SHALL RELOCATE EQUIPMENT AND DEVICES IN THE MOCK-UPS PER THE OWNER AND ARCHITECT'S INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL RELOCATE ANY EQUIPMENT AND DEVICES INSTALLED PRIOR TO THE APPROVAL OF THE MOCKED-UP AREAS BY THE ARCHITECT AND OWNER AT THE ELECTRICAL CONTRACTOR'S EXPENSE.
17. ALL LOW VOLTAGE SYSTEMS, INCLUDING FIRE ALARM, ARE DESIGN BUILD. ANY DEVICES AND EQUIPMENT INDICATED ON THESE PLANS ARE PRELIMINARY FOR SPACE PLANNING PURPOSES ONLY.
18. THE DESIGN-BUILD LOW VOLTAGE CONTRACTOR SHALL DESIGN AND PROVIDE COMPLETE AND FULLY OPERATIONAL LOW VOLTAGE SYSTEMS PER THE REQUIREMENTS OF THE OWNER, THE LOCAL AHJ AND THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE ALL PARTS AND PIECES REQUIRED FOR THESE LOW VOLTAGE SYSTEMS INCLUDING BUT NOT LIMITED TO RACKS, PATCH PANELS, ROUTERS, WIRELESS ACCESS POINTS, PATCH CABLES, ETC. SEE THE PERFORMANCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. LOW VOLTAGE SYSTEMS INCLUDE THE FOLLOWING: TELECOM, CATV, TWO WIFI NETWORKS, ACCESS CONTROL, AND FIRE ALARM. SEE ELECTRICAL DRAWINGS AND DIVISION 26, 27 AND 28 SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
19. THE TELECOM SYSTEM WIRING SHALL MEET TIA PERFORMANCE CRITERIA FOR CATEGORY 6.
20. WIRELESS ACCESS POINTS ARE TO BE PROVIDED BY THE LOW VOLTAGE CONTRACTOR TO PROVIDE COMPLETE WIFI COVERAGE FOR ALL AREAS OF THE BUILDING OUTSIDE OF THE SLEEPING UNITS FOR TWO NETWORKS; ONE SECURED FOR EMPLOYEES AND ONE UNSECURED FOR GUEST AND
21. THE DESIGN-BUILD FIRE ALARM CONTRACTOR SHALL DESIGN, SUBMIT FOR PLAN REVIEW, PERMIT AND PROVIDE COMPLETE AND FULLY OPERATIONAL FIRE ALARM SYSTEM MEETING THE REQUIREMENTS OF CODE, THE LOCAL AHJ AND THE FIRE MARSHAL. ANY DEVICES SHOWN ON THE ELECTRICAL DRAWINGS ARE SCHEMATIC FOR COORDINATION PURPOSES ONLY. SEE THE PERFORMANCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
22. THE ELECTRICAL AND FIRE ALARM CONTRACTORS SHALL MAKE ALL REQUIRED SUBMISSIONS TO THE AUTHORITIES HAVING JURISDICTION FOR PLAN REVIEW, PERMITS AND APPROVAL OF ALL ELECTRICAL AND FIRE ALARM SYSTEMS AND SHALL PAY ALL FEES ASSOCIATED WITH THESE SUBMISSIONS AND OBTAINING THE REQUIRED PERMIT(S). THE FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND PROVIDING SYSTEMS THAT MEET ALL REQUIREMENTS OF CODE AND THE LOCAL AHJ; ALL ADDITIONS, REVISIONS, RESUBMITTALS, ETC REQUIRED TO OBTAIN AHJ APPROVAL SHALL BE CARRIED OUT BY THE FIRE ALARM CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. PROVIDE A COPY OF THE FINAL APPROVED DRAWINGS WITH THE LOCAL AHJ'S APPROVAL STAMP TO THE OWNER FOR THEIR RECORDS.
23. WHERE "PROVIDE" IS NOTED ANYWHERE IN THE DRAWINGS AND / OR SPECIFICATIONS, THE CONTRACTOR SHALL ASSUME THAT THEY ARE BEING DIRECTED TO PROVIDE AND INSTALL THE REFERENCED EQUIPMENT, DEVICES, SUPPORTS, ETC UNLESS SPECIFICALLY NOTED OTHERWISE. ALL EQUIPMENT, DEVICES, SUPPORTS, ETC ARE TO BE INSTALLED PER CODE/ AHJ REQUIREMENTS AND MANUFACTURER INSTRUCTIONS.

9/27/2023

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SNO VALLEY SENIOR HOUSING

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CARNATION, WA 98014

GEORGINA M. ALEXANDRU
STATE OF WASHINGTON
43761
REGISTERED
PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION

Issuance
BID SET
Date
22 MAY 2023
Revisions

#	Date	Description

PROJECT NOTES

Drawn By: RA
Checked By (P.M.): RA
Checked By (Q.C.): RA
Project No. 21035

FOR SDCI USE ONLY

E0.2

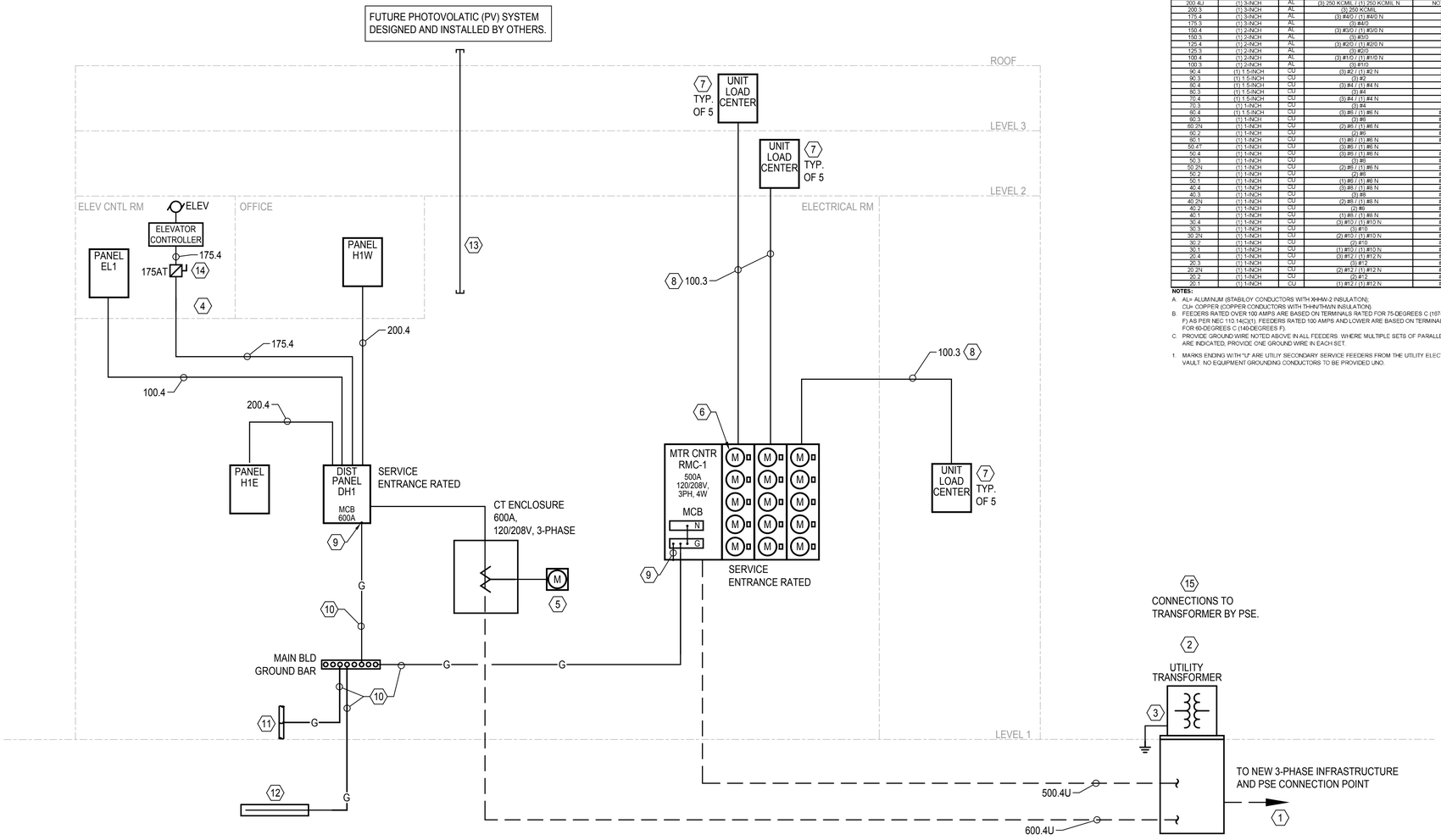
5/2023 12:28:48 PM

EV LOAD CALCS:

PARKING FOR RESIDENTIAL TENANTS:
22 TOTAL PARKING STALLS PROVIDED AT THE PROPERTY.
PER WAC FOR PROJECT PRIOR TO JULY 2023:
10% OF STALLS TO BE EV READY: 22 x 10% = 3 STALLS TO BE EV READY

ELECTRICAL SERVICE TO BE SIZED FOR 20% OF THE PARKING SPACES TO EVENTUALLY HAVE EV CHARGING STATIONS: 22 x 20% = 5 STALLS

5 STALLS @ 40A, 208V = 41.6 KVA; 115.6 AMPS @ 208V, 3-PHASE



FEEDER/ CIRCUIT SCHEDULE

MARK	CONDUIT (#SETS) SIZE	AL OR CU	CONDUCTORS PER SET PHASE / NEUTRAL (N) (QTY) SIZE	GROUND (1 PER SET UNO)
1000.4	(2) 4-INCH	AL	(3) 600 KCMIL / (1) 500 KCMIL N	#1/0
1000.3	(3) 4-INCH	AL	(3) 800 KCMIL	#4/0
800.4	(2) 3-INCH	AL	(3) 400 KCMIL / (1) 400 KCMIL N	#3/0
800.3	(3) 3-INCH	AL	(3) 400 KCMIL	#3/0
700.4	(2) 4-INCH	AL	(3) 700 KCMIL / (1) 700 KCMIL N	#3/0
700.3	(2) 4-INCH	AL	(3) 700 KCMIL	#2/0
600.4U	(2) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	NOTE #1
600.4	(2) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	#2/0
600.3	(2) 4-INCH	AL	(3) 500 KCMIL	#2/0
500.4U	(2) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	NOTE #1
500.4	(2) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	#1/0
500.3	(2) 3-INCH	AL	(3) 350 KCMIL	#1/0
450.4	(2) 3-INCH	AL	(3) 300 KCMIL / (1) 300 KCMIL N	#1/0
450.3	(2) 3-INCH	AL	(3) 300 KCMIL	#1/0
400.4	(2) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	#1
400.3	(2) 3-INCH	AL	(3) 250 KCMIL	#1
350.4	(1) 4-INCH	AL	(3) 700 KCMIL / (1) 700 KCMIL N	#1
350.3	(1) 4-INCH	AL	(3) 700 KCMIL	#1
300.4	(1) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	#2
300.3	(1) 4-INCH	AL	(3) 500 KCMIL	#2
250.4	(1) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	#2
250.3	(1) 3-INCH	AL	(3) 350 KCMIL	#2
225.4	(1) 3-INCH	AL	(3) 300 KCMIL / (1) 300 KCMIL N	#2
225.3	(1) 3-INCH	AL	(3) 300 KCMIL	#2
200.4	(1) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	#4
200.4U	(1) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	NOTE #1
200.3	(1) 3-INCH	AL	(3) 250 KCMIL	#4
175.4	(1) 3-INCH	AL	(3) #4/0 / (1) #4/0 N	#4
175.3	(1) 3-INCH	AL	(3) #4/0	#4
150.4	(1) 2-INCH	AL	(3) #3/0 / (1) #3/0 N	#4
150.3	(1) 2-INCH	AL	(3) #3/0	#4
125.4	(1) 2-INCH	AL	(3) #2/0 / (1) #2/0 N	#4
125.3	(1) 2-INCH	AL	(3) #2/0	#4
100.4	(1) 2-INCH	AL	(3) #1/0 / (1) #1/0 N	#6
100.3	(1) 2-INCH	AL	(3) #1/0	#6
90.4	(1) 1.5-INCH	CU	(3) #2 / (1) #2 N	#6
90.3	(1) 1.5-INCH	CU	(3) #2	#8
80.4	(1) 1.5-INCH	CU	(3) #4 / (1) #4 N	#8
80.3	(1) 1.5-INCH	CU	(3) #4	#8
70.4	(1) 1.5-INCH	CU	(3) #4 / (1) #4 N	#8
70.3	(1) 1-INCH	CU	(3) #4	#8
60.4	(1) 1.5-INCH	CU	(3) #6 / (1) #6 N	#10
60.3	(1) 1-INCH	CU	(3) #6	#10
60.2N	(1) 1-INCH	CU	(2) #6 / (1) #6 N	#10
60.2	(1) 1-INCH	CU	(2) #6	#10
60.1	(1) 1-INCH	CU	(1) #6 / (1) #6 N	#10
50.4T	(1) 1-INCH	CU	(3) #6 / (1) #6 N	#8
50.4	(1) 1-INCH	CU	(3) #6 / (1) #6 N	#10
50.3	(1) 1-INCH	CU	(3) #6	#10
50.2N	(1) 1-INCH	CU	(2) #6 / (1) #6 N	#10
50.2	(1) 1-INCH	CU	(2) #6	#10
50.1	(1) 1-INCH	CU	(1) #6 / (1) #6 N	#10
40.4	(1) 1-INCH	CU	(3) #8 / (1) #8 N	#10
40.3	(1) 1-INCH	CU	(3) #8	#10
40.2N	(1) 1-INCH	CU	(2) #8 / (1) #8 N	#10
40.2	(1) 1-INCH	CU	(2) #8	#10
40.1	(1) 1-INCH	CU	(1) #8 / (1) #8 N	#10
30.4	(1) 1-INCH	CU	(3) #10 / (1) #10 N	#10
30.3	(1) 1-INCH	CU	(3) #10	#10
30.2N	(1) 1-INCH	CU	(2) #10 / (1) #10 N	#10
30.2	(1) 1-INCH	CU	(2) #10	#10
30.1	(1) 1-INCH	CU	(1) #10 / (1) #10 N	#10
20.4	(1) 1-INCH	CU	(3) #12 / (1) #12 N	#12
20.3	(1) 1-INCH	CU	(3) #12	#12
20.2N	(1) 1-INCH	CU	(2) #12 / (1) #12 N	#12
20.2	(1) 1-INCH	CU	(2) #12	#12
20.1	(1) 1-INCH	CU	(1) #12 / (1) #12 N	#12

NOTES:
A. AL= ALUMINUM (STABILOY CONDUCTORS WITH XHHW-2 INSULATION).
CU= COPPER (COPPER CONDUCTORS WITH THHN/THWN INSULATION)
B. FEEDERS RATED OVER 100 AMPS ARE BASED ON TERMINALS RATED FOR 75-DEGREES C (167-DEGREES F) AS PER NEC 110.14(C)(1). FEEDERS RATED 100 AMPS AND LOWER ARE BASED ON TERMINALS RATED FOR 60-DEGREES C (140-DEGREES F).
C. PROVIDE GROUND WIRE NOTED ABOVE IN ALL FEEDERS. WHERE MULTIPLE SETS OF PARALLEL CONDUIT ARE INDICATED, PROVIDE ONE GROUND WIRE IN EACH SET.
1. MARKS ENDING WITH "U" ARE UTILITY SECONDARY SERVICE FEEDERS FROM THE UTILITY ELECTRICAL VAULT. NO EQUIPMENT GROUNDING CONDUCTORS TO BE PROVIDED UNO.

FLAG NOTES (X):

1. TO CONNECTION POINT WITH PUGET SOUND ENERGY (PSE). PSE TO PROVIDE NEW 3-PHASE PRIMARY INFRASTRUCTURE TO SITE. SEE DRAWING SITE PLAN FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION, ROUTING AND REQUIREMENTS WITH PSE. ALL WORK TO BE PER PSE REQUIREMENTS.
2. EXTERIOR PAD-MOUNTED TRANSFORMER. FINAL CONNECTIONS TO TRANSFORMER BY PSE. CONTRACTOR TO VISIBLY MARK EACH CONDUCTOR WITH PHASE AND SPECIFIC SERVICE IT FEEDS AND EXTEND EXCESS CABLE PER PSE STANDARDS.
3. UTILITY SERVICE GROUNDING SHALL BE IN ACCORDANCE WITH NEC 250.24(A) AND PSE REQUIREMENTS.
4. INSTALL FEEDERS FOR ELEVATORS PER LOCAL CODE REQUIREMENTS. CONFIRM EXACT CONNECTION REQUIREMENTS WITH ELEVATOR CONTRACTOR.
5. REMOTE 3-PHASE UTILITY METER SOCKET INSTALLED PER PSE REQUIREMENTS.
6. 100A, 1-PHASE UTILITY METER SOCKET INSTALLED PER PSE REQUIREMENTS.
7. 100A, 120/208V, 1-PHASE LOAD CENTER.
8. INSTALL ONE 100A, 208V, 3-WIRE "STABILOY" MC CABLE OR SER CABLE AS ALLOWED BY CODE WITH GROUNDING CONDUCTOR FROM THE ASSOCIATED RESIDENTIAL METER STACK TO EACH DWELLING UNIT LOAD CENTER.
9. EQUIPMENT BONDING JUMPER PER NEC 250-28, 250-102 AND TABLE 250-102(C)(1).
10. GROUNDING ELECTRODE COPPER CONDUCTOR PER NEC 250.66 AND TABLE 250.66: #3/0 AWG CU UNO.
11. UNDERGROUND WATER PIPE PER NEC 250-52(A)(1).
12. UFER GROUND PER NEC 250-52(A)(3).
13. PROVIDE (2) 4-INCH CONDUITS WITH PULLSTRING FROM ELECTRICAL ROOM TO ROOF FOR FUTURE PV ARRAY BY OTHERS. CAP, SEAL, AND MARK ALL CONDUIT ENDS.
14. PROVIDE ELEVATOR DISCONNECT PER CODE REQUIREMENTS. INCLUDE SURGE PROTECTION ON ELEVATOR DISCONNECTS PER NEC 620.51(E).
15. FINAL UTILITY DESIGN IS STILL PENDING WITH PSE. CONTRACTOR IS TO COORDINATE AIC RATING OF ALL ELECTRICAL EQUIPMENT BASED ON FAULT CALC'S PROVIDED BY PSE. FOR BID PURPOSES ASSUME ALL EQUIPMENT IS TO BE RATED FOR 65,000 AIC.

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SNO VALLEY SENIOR HOUSING

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CARNATION, WA 98014

GEORGINA M. ARIAS — STATE OF WASHINGTON — 43761 — REGISTERED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION

Issuance: BID SET
Date: 22 MAY 2023
Revisions

#	Date	Description

SINGLE-LINE DIAGRAM

Drawn By: RA
Checked By (P.M.): RA
Checked By (Q.C.): RA
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LOAD CALCULATIONS

SNO VALLEY SENIOR HOUSING APARTMENTS

PRELIMINARY LOAD CALCULATIONS 5/22/2023

PRELIMINARY LOAD CALCULATIONS

MAIN SERVICE:

ELEVATOR (1 AT 30 HP, 125%):	39.6	kVA	
ELEVATOR LTG/RECEPTS/EQPT:	7	kVA	
MAIN SERVICE:			
RESIDENTIAL UNITS (QTY = 15):	138.87	kVA	
(SEE ATTACHED CALCS)			
ALL DWELLING UNITS WILL BE PROVIDED WITH UTILITY METERS.			
HOUSE (COMMON/ OFFICE AREAS):			
LIGHTING:	7.00	kVA	
GENERAL RECEPTACLES:	10	kVA	
MECHANICAL:	18	kVA	
ELECT HEAT (NON-RES):	5	kVA	
WATER HEATING:	18	kVA	
EQUIPMENT:			
WASHERS (QTY = 4):	4.8	kVA	
DRYERS (QTY =4):	22	kVA	
OFFICE EQPT:	5	kVA	
MISCELLANEOUS:	15	kVA	
EV CHARGING (5):	41.6	kVA	
TOTAL HOUSE + ELEV :	193.00	kVA	535.71 AMPS
TOTAL BUILDING SERVICE :	331.87	kVA	
	921.17	AMPS @ 120/208V, 3-PHASE	
WITH 25% SPARE CAPACITY	414.832	kVA	
	1151.458	AMPS @ 120/208V, 3-PHASE	

RESIDENTIAL LOAD CALCULATIONS - SERVICE TOTAL RMC-1

DEMAND LOAD (kVA): 138.87 => 385.5 AMPS AT 208 V 3 PH

UNIT TYPE	QTY ON METER STACK	GEN LTG LOAD (kVA)	APPLIANCE S LOAD (kVA)	MOTOR LOAD (kVA)	SPACE HEATING/ AC LOAD	CLOTHES DRYERS QTY	CLOTHES DRYERS LOAD (kVA)	COOKING APPLIANCES 1.5< X < 3.5kW QTY	1.5< X < 3.5kW LOAD (kVA)	3.5kW < X < 8.75kW QTY	3.5kW < X < 8.75kW LOAD (kVA)	8.75kW < X < 12kW QTY	8.75kW < X < 12kW LOAD (kVA)
PLAN A - 1 BR	12	57.13	66.00	1.20	47.92	0	0.00	0	0.00	0	0.00	12	105.60
PLAN B - 1BR	3	14.10	16.50	0.30	11.98	0	0.00	0	0.00	0	0.00	3	26.40
TOTALS:	15	71.24	82.50	1.50	59.90	0	0.00	0	0.00	0	0.00	15	132.00

ADDITIONAL 25% OF LARGEST MOTOR: 0.03

METER STACK OPTIONAL CALCULATIONS: NEC 220, PART IV:

TOTAL CONNECTED METER STACK LOAD = 347.16 kVA
DEMAND FACTOR FROM TABLE 220.84 = 40%

TOTAL METER STACK LOAD PER NEC 220, PART IV OPTIONAL CALC = 138.87 kVA

UNIT TYPE: PLAN A - 1 BR **AREA (SF):** 587
DEMAND LOAD (kVA): 17.67 => 84.9 AMPS AT 208 V 1 PH

DWELLING UNIT CALCULATIONS: NEC 220, PART III:

GENERAL LIGHTING LOADS [220.12] =	AREA x 3VA/SF	=	1.76	kVA
SMALL-APPLIANCE CKTS [220.52(A)] =	2	CKTS x 1500VA	=	3.00	kVA
LAUNDRY CKTS [220.52(B)] =		CKTS x 1500VA	=	N/A	kVA
	SUBTOTAL (CONNECTED)	=	4.76	kVA
LTG LOAD DEMAND FACTORS PER NEC TABLE 220.42 FOR DWELLING UNITS:				
0 - 3,000VA:	100%	=	3.00	kVA
3,001VA - 120,000VA:	35%	=	0.62	kVA
> 120,000VA:	25%	=	0.00	kVA
	GENERAL LIGHTING LOAD - DEMAND	=	**3.62**	**kVA**

FIXED IN PLACE APPLIANCES [220.53]:	TYPE	QTY		LOAD (kVA EACH)		
REFRIGERATOR	1	AT	0.7	=	0.70	kVA
RANGE HOOD	1	AT	0.3	=	0.30	kVA
MICROWAVE		AT		=	0.00	kVA
DISHWASHER		AT		=	0.00	kVA
WASHER		AT		=	0.00	kVA
GARBAGE DISPOSAL		AT		=	0.00	kVA
WATER HEATER	1	AT	4.5	=	4.50	kVA
	SUBTOTAL (CONNECTED)			=	5.50	kVA
APPLIANCE DEMAND FACTOR [220.53]:	75%					
	GENERAL APPLIANCE LOAD - DEMAND			=	**4.13**	**kVA**

MOTORS [220.50]:	QTY		LOAD (kVA EACH)		
ERV	1	AT	0.1	=	0.10	kVA
DRYER EXHAUST FAN		AT		=	0.00	kVA
KITCHEN EXHAUST FAN		AT			0.00	kVA
+25% OF LARGEST MOTOR				=	0.03	kVA
	GENERAL MOTOR LOAD - DEMAND			=	**0.13**	**kVA**

100% AC EQUIP [220.50] / SPACE HEATING [220.51]			=	3.99	kVA
	QTY		LOAD (kVA EACH)		
CLOTHES DRYER [220.54]		AT		=	0.00	kVA
ELECTRIC COOKTOP [220.55]		AT		=	0.00	kVA
ELECTRIC OVEN [220.55]		AT		=	0.00	kVA
ELECTRIC RANGE [220.55]	1	AT	8.8	=	8.00	kVA
	TOTAL DWELLING UNIT LOAD PER NEC 220, PART III			=	**19.86**	**kVA**

DWELLING UNIT OPTIONAL CALCULATIONS: NEC 220, PART IV:

TOTAL CONNECTED LOAD W/O HEATING AND AC [220.82]		=	19.19	kVA
DEMAND FACTORS PER NEC 220.82(B):				
0 - 10kVA:	100%	=	10.00	kVA
> 10 kVA:	40%	=	3.67	kVA
ELECTRIC HEAT AND AC [220.82(C)]:				
LARGEST LOAD OF OPTIONS: HEAT PUMP W/O ELECT HEAT; 100% NAMEPLATE		=	3.99	kVA
TOTAL DWELLING UNIT LOAD PER OPTIONAL CALC: NEC 220, PART IV		=	**17.67**	**kVA**

UNIT TYPE: PLAN B - 1BR **AREA (SF):** 567
DEMAND LOAD (kVA): 17.64 => 84.8 AMPS AT 208 V 1 PH

DWELLING UNIT CALCULATIONS: NEC 220, PART III:

GENERAL LIGHTING LOADS [220.12] =	AREA x 3VA/SF	=	1.70	kVA
SMALL-APPLIANCE CKTS [220.52(A)] =	2	CKTS x 1500VA	=	3.00	kVA
LAUNDRY CKTS [220.52(B)] =		CKTS x 1500VA	=	N/A	kVA
	SUBTOTAL (CONNECTED)	=	4.70	kVA
LTG LOAD DEMAND FACTORS PER NEC TABLE 220.42 FOR DWELLING UNITS:				
0 - 3,000VA:	100%	=	3.00	kVA
3,001VA - 120,000VA:	35%	=	0.60	kVA
> 120,000VA:	25%	=	0.00	kVA
	GENERAL LIGHTING LOAD - DEMAND	=	**3.60**	**kVA**

FIXED IN PLACE APPLIANCES [220.53]:	TYPE	QTY		LOAD (kVA EACH)		
REFRIGERATOR	1	AT	0.7	=	0.70	kVA
RANGE HOOD	1	AT	0.3	=	0.30	kVA
MICROWAVE		AT		=	0.00	kVA
DISHWASHER		AT		=	0.00	kVA
WASHER		AT		=	0.00	kVA
GARBAGE DISPOSAL		AT		=	0.00	kVA
WATER HEATER	1	AT	4.5	=	4.50	kVA
	SUBTOTAL (CONNECTED)			=	5.50	kVA
APPLIANCE DEMAND FACTOR [220.53]:	75%					
	GENERAL APPLIANCE LOAD - DEMAND			=	**4.13**	**kVA**

MOTORS [220.50]:	QTY		LOAD (kVA EACH)		
ERV	1	AT	0.1	=	0.10	kVA
DRYER EXHAUST FAN		AT		=	0.00	kVA
KITCHEN EXHAUST FAN		AT		=	0.00	kVA
+25% OF LARGEST MOTOR				=	0.03	kVA
	GENERAL MOTOR LOAD - DEMAND			=	**0.13**	**kVA**

100% AC EQUIP [220.50] / SPACE HEATING [220.51]			=	3.99	kVA
	QTY		LOAD (kVA EACH)		
CLOTHES DRYER [220.54]		AT		=	0.00	kVA
ELECTRIC COOKTOP [220.55]		AT		=	0.00	kVA
ELECTRIC OVEN [220.55]		AT		=	0.00	kVA
ELECTRIC RANGE [220.55]	1	AT	8.8	=	8.00	kVA
	TOTAL DWELLING UNIT LOAD PER NEC 220, PART III			=	**19.84**	**kVA**

DWELLING UNIT OPTIONAL CALCULATIONS: NEC 220, PART IV:

TOTAL CONNECTED LOAD W/O HEATING AND AC [220.82]		=	19.13	kVA
DEMAND FACTORS PER NEC 220.82(B):				
0 - 10kVA:	100%	=	10.00	kVA
> 10 kVA:	40%	=	3.65	kVA
ELECTRIC HEAT AND AC [220.82(C)]:				
LARGEST LOAD OF OPTIONS: HEAT PUMP W/O ELECT HEAT; 100% NAMEPLATE		=	3.99	kVA
TOTAL DWELLING UNIT LOAD PER OPTIONAL CALC: NEC 220, PART IV		=	**17.64**	**kVA**

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EQUIPMENT SCHEDULES

MECHANICAL/ PLUMBING EQUIPMENT CONNECTION SCHEDULE

MARK	DESCRIPTION	LOCATION	ELECTRICAL CHARACTERISTICS VOLTAGE/ PH	kW	HP (WATTS)	MCA	MOCP	ALTERNATE POWER	NOTES:
WH-1	ELECTRIC WATER HEATER	SEE PLANS	208 / 1	4.50					
WH-2	ELECTRIC WATER HEATER	LEVEL 2	208 / 1	4.50					
CP-1	CIRCULATION PUMP	LEVEL 2	120 / 1		0.1				
SP-1	ELEVATOR SUMP PUMP	ELEVATOR PIT	120 / 1		1.0				2
EWH-1	ELECTRIC WALL HEATER	SPRINKLER ROOM	208 / 1	1.00					
EWH-2	ELECTRIC WALL HEATER	LEVEL 1 - LAUNDRY	208 / 1	1.00					
EWH-3	ELECTRIC WALL HEATER	LEVEL 3 - CORRIDOR	208 / 1	1.00					
EWH-4	ELECTRIC WALL HEATER	LEVEL 1 - STAIRWELL	208 / 1	1.00					
EWH-5	ELECTRIC WALL HEATER	LEVEL 1 - STAIRWELL	208 / 1	1.00					
HP-EMR/CU-EMR	SPLIT SYSTEM A/C	ELEV CONTROL RM	208 / 1			10	15		1, 3
ERV-1	ENERGY RECOVERY VENTILATOR	LVL 1 - OFFICE	120 / 1		(100)				4
ERV-2	ENERGY RECOVERY VENTILATOR	LVL 2 - LAUNDRY	120 / 1		(100)				4
ERV-3	ENERGY RECOVERY VENTILATOR	LVL 3 - LAUNDRY	120 / 1		(100)				4
ERV-R	ENERGY RECOVERY VENTILATOR	RESIDENTIAL UNITS	120 / 1		(100)				4
EF-1	EXHAUST FAN	JANITORS CLOSET	120 / 1		(10.2)				4
EF-2	EXHAUST FAN	LVL 1 - LAUNDRY	120 / 1		(10.2)				4
CU-1	HEAT PUMP OUTDOOR UNIT	LEVEL 2	208 / 1			17.2	20		
HP-1A	HEAT PUMP INDOOR UNIT	LEVEL 1	208 / 1			1			
HP-1B	HEAT PUMP INDOOR UNIT	LEVEL 1	208 / 1			1			
CU-2	HEAT PUMP OUTDOOR UNIT	LEVEL 2	208 / 1			17.2	20		
HP-2A	HEAT PUMP INDOOR UNIT	LEVEL 2	208 / 1			1			
HP-2B	HEAT PUMP INDOOR UNIT	LEVEL 2	208 / 1			1			
CU-R	HEAT PUMP OUTDOOR UNIT	LEVEL 2	208 / 1			17.2	20		
HP-R-1	HEAT PUMP INDOOR UNIT	RESIDENTIAL UNITS	208 / 1			1			
HP-R-2	HEAT PUMP INDOOR UNIT	RESIDENTIAL UNITS	208 / 1			1			
FDSD	FIRE SMOKE DAMPER	SEE PLANS	120 / 1						

GENERAL SCHEDULE NOTES: 5/22/2023

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND CONNECT COMPLETE DISCONNECTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT PER CODE AND MANUFACTURERS' REQUIREMENTS; CONFIRM EXACT CONNECTION LOCATIONS AND REQUIREMENTS WITH EQUIPMENT PROVIDERS. COORDINATE FINAL LOCATION OF DISCONNECTS WITH ALL OTHER TRADES; DISCONNECT SHALL BE ACCESSIBLE AFTER ALL WORK IS COMPLETE. PROVIDE PERMANENT LABELS ON ALL DISCONNECTS IDENTIFYING EQUIPMENT AND PANEL-CIRCUIT SERVED. DISCONNECTS ACCESSIBLE TO THE GENERAL PUBLIC WILL BE LOCKABLE WITH TAMPER RESISTANT HARDWARE.

B. MOTOR STARTERS TO BE PROVIDED BY MC WHERE FACTORY MOUNTED CONTROLS ARE PROVIDED. VARIABLE FREQUENCY DRIVES ARE BY MC. ALL OTHER STARTERS WILL BE PROVIDED BY THE EC. EC TO COORDINATE STARTER REQUIREMENTS WITH THE MECHANICAL AND PLUMBING CONTRACTORS. THE EC SHALL INSTALL AND CONNECT COMPLETE ALL STARTERS AND VFDS PER CODE AND MANUFACTURERS' INSTRUCTIONS.

C. INFORMATION IN THIS SCHEDULE IS BASED ON DRAWINGS PROVIDED BY THE MECHANICAL ENGINEER DATED 05/08/2023 AND THE PLUMBING ENGINEER DATED 05/17/2023.

SCHEDULE NOTES:

1. UNIT PROVIDED BY OTHERS WITH CONDENSATE PUMP. ELECTRICAL CONTRACTOR TO PROVIDE POWER AND DISCONNECT AND CONNECT COMPLETE PER CODE AND MANUFACTURER'S INSTRUCTIONS. FIELD VERIFY CONNECTION REQUIREMENTS AND LOCATIONS WITH MECHANICAL CONTRACTOR.
2. UNIT TO BE PROVIDED BY THE PLUMBING CONTRACTOR WITH CONTROL PANEL AND ASSOCIATED ACCESSORIES AND ALARMS. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL POWER AND LINE VOLTAGE CONTROL WIRING TO THE WALL MOUNTED CONTROLLER, FROM THE CONTROLLER TO THE PUMPS, FROM THE FLOAT SWITCH TO THE CONTROLLER, FROM THE ALARMS TO THE CONTROLLER, AND FROM THE CONTROLLER ALARM BELL PER CODE AND MANUFACTURER'S INSTRUCTIONS. EC TO COORDINATE ANY CONDUIT REQUIRED FOR ADDITIONAL CONTROLS AND LENGTHS OF PIGTAILS REQUIRED FOR CONTROL PANEL WITH PLUMBING CONTRACTOR.
3. INDOOR UNIT TO BE CIRCUITED THROUGH OUTDOOR UNIT. PROVIDE DISCONNECTS AT BOTH LOCATIONS PER CODE. COORDINATE EXACT CONNECTION
4. FAN TO RUN CONTINUOUSLY.

SIDER+BYERS
MECHANICAL + ELECTRICAL ENGINEERS
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31845 W COMMERCIAL ST.
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GEORGIANNA M. ARNOLD
STATE OF WASHINGTON
43761
REGISTERED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION

Issuance
BID SET

Date
22 MAY 2023

Revisions

#	Date	Description

LOAD CALCULATIONS & EQUIPMENT SCHEDULES

Drawn By: RA
Checked By (P.M.): RA
Checked By (Q.C.): RA
Project No. 21035

FOR SDCI USE ONLY

FEEDER/ CIRCUIT SCHEDULE

MARK	CONDUIT (#SETS) SIZE	CONDUCTORS PER SET AL OR CU	PHASE / NEUTRAL (N) (QTY) SIZE	GROUND (1 PER SET UNO)
1000.4	(3) 4-INCH	AL	(3) 600 KCMIL / (1) 600 KCMIL N	#4/0
1000.3	(3) 4-INCH	AL	(3) 600 KCMIL	#4/0
800.4	(3) 3-INCH	AL	(3) 400 KCMIL / (1) 400 KCMIL N	#3/0
800.3	(3) 3-INCH	AL	(3) 400 KCMIL	#3/0
700.4	(2) 4-INCH	AL	(3) 700 KCMIL / (1) 700 KCMIL N	#3/0
700.3	(2) 4-INCH	AL	(3) 700 KCMIL	#3/0
600.4U	(2) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	NOTE #1
600.4	(2) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	#2/0
600.3	(2) 4-INCH	AL	(3) 500 KCMIL	#2/0
500.4U	(2) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	NOTE #1
500.4	(2) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	#1/0
500.3	(2) 3-INCH	AL	(3) 350 KCMIL	#1/0
450.4	(2) 3-INCH	AL	(3) 300 KCMIL / (1) 300 KCMIL N	#1/0
450.3	(2) 3-INCH	AL	(3) 300 KCMIL	#1/0
400.4	(2) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	#1
400.3	(2) 3-INCH	AL	(3) 250 KCMIL	#1
350.4	(1) 4-INCH	AL	(3) 700 KCMIL / (1) 700 KCMIL N	#1
350.3	(1) 4-INCH	AL	(3) 700 KCMIL	#1
300.4	(1) 4-INCH	AL	(3) 500 KCMIL / (1) 500 KCMIL N	#2
300.3	(1) 4-INCH	AL	(3) 500 KCMIL	#2
250.4	(1) 3-INCH	AL	(3) 350 KCMIL / (1) 350 KCMIL N	#2
250.3	(1) 3-INCH	AL	(3) 350 KCMIL	#2
225.4	(1) 3-INCH	AL	(3) 300 KCMIL / (1) 300 KCMIL N	#2
225.3	(1) 3-INCH	AL	(3) 300 KCMIL	#2
200.4	(1) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	#4
200.4U	(1) 3-INCH	AL	(3) 250 KCMIL / (1) 250 KCMIL N	NOTE #1
200.3	(1) 3-INCH	AL	(3) 250 KCMIL	#4
175.4	(1) 3-INCH	AL	(3) #4/0 / (1) #4/0 N	#4
175.3	(1) 3-INCH	AL	(3) #4/0	#4
150.4	(1) 2-INCH	AL	(3) #3/0 / (1) #3/0 N	#4
150.3	(1) 2-INCH	AL	(3) #3/0	#4
125.4	(1) 2-INCH	AL	(3) #2/0 / (1) #2/0 N	#4
125.3	(1) 2-INCH	AL	(3) #2/0	#4
100.4	(1) 2-INCH	AL	(3) #1/0 / (1) #1/0 N	#6
100.3	(1) 2-INCH	AL	(3) #1/0	#6
90.4	(1) 1.5-INCH	CU	(3) #2 / (1) #2 N	#8
90.3	(1) 1.5-INCH	CU	(3) #2	#8
80.4	(1) 1.5-INCH	CU	(3) #4 / (1) #4 N	#6
80.3	(1) 1.5-INCH	CU	(3) #4	#8
70.4	(1) 1.5-INCH	CU	(3) #4 / (1) #4 N	#8
70.3	(1) 1-INCH	CU	(3) #4	#6
60.4	(1) 1.5-INCH	CU	(3) #6 / (1) #6 N	#10
60.3	(1) 1-INCH	CU	(3) #6	#10
60.2N	(1) 1-INCH	CU	(2) #6 / (1) #6 N	#10
60.2	(1) 1-INCH	CU	(2) #6	#10
60.1	(1) 1-INCH	CU	(1) #6 / (1) #6 N	#10
50.4T	(1) 1-INCH	CU	(3) #6 / (1) #6 N	#8
50.4	(1) 1-INCH	CU	(3) #6 / (1) #6 N	#10
50.3	(1) 1-INCH	CU	(3) #6	#10
50.2N	(1) 1-INCH	CU	(2) #6 / (1) #6 N	#10
50.2	(1) 1-INCH	CU	(2) #6	#10
50.1	(1) 1-INCH	CU	(1) #6 / (1) #6 N	#10
40.4	(1) 1-INCH	CU	(3) #8 / (1) #8 N	#10
40.3	(1) 1-INCH	CU	(3) #8	#10
40.2N	(1) 1-INCH	CU	(2) #8 / (1) #8 N	#10
40.2	(1) 1-INCH	CU	(2) #8	#10
40.1	(1) 1-INCH	CU	(1) #8 / (1) #8 N	#10
30.4	(1) 1-INCH	CU	(3) #10 / (1) #10 N	#10
30.3	(1) 1-INCH	CU	(3) #10	#10
30.2N	(1) 1-INCH	CU	(2) #10 / (1) #10 N	#10
30.2	(1) 1-INCH	CU	(2) #10	#10
30.1	(1) 1-INCH	CU	(1) #10 / (1) #10 N	#10
20.4	(1) 1-INCH	CU	(3) #12 / (1) #12 N	#12
20.3	(1) 1-INCH	CU	(3) #12	#12
20.2N	(1) 1-INCH	CU	(2) #12 / (1) #12 N	#12
20.2	(1) 1-INCH	CU	(2) #12	#12
20.1	(1) 1-INCH	CU	(1) #12 / (1) #12 N	#12

NOTES:

A. AL= ALUMINUM (STABILOY CONDUCTORS WITH XHHW-2 INSULATION);
CU= COPPER (COPPER CONDUCTORS WITH THHN/THWN INSULATION).

B. FEEDERS RATED OVER 100 AMPS ARE BASED ON TERMINALS RATED FOR 75-DEGREES C (167-DEGREES F) AS PER NEC 110.14(C)(1). FEEDERS RATED 100 AMPS AND LOWER ARE BASED ON TERMINALS RATED FOR 60-DEGREES C (140-DEGREES F).

C. PROVIDE GROUND WIRE NOTED ABOVE IN ALL FEEDERS. WHERE MULTIPLE SETS OF PARALLEL CONDUIT ARE INDICATED, PROVIDE ONE GROUND WIRE IN EACH SET.

1. MARKS ENDING WITH "U" ARE UTILIY SECONDARY SERVICE FEEDERS FROM THE UTILITY ELECTRICAL VAULT. NO EQUIPMENT GROUNDING CONDUCTORS TO BE PROVIDED UNO.

BRANCH CIRCUIT LENGTH LIMITS

VOLTAGE	AMPS ON CKT NOT TO EXCEED	KVA ON CKT NOT TO EXCEED	MAXIMUM CIRCUIT LENGTH (FT) BASED ON CONDUCTOR SIZES INDICATED #12 AWG	#10 AWG	#8 AWG	#6 AWG
120V / 1-PHASE	2	0.24	505	845	1295	2055
	3	0.36	335	560	865	1370
	4	0.48	250	420	645	1025
	6	0.72	165	275	430	685
	8	0.96	125	210	320	510
	10	1.20	100	165	255	410
	12	1.44	80	140	215	340
	14	1.68	70	120	185	290
	16	1.92	60	105	160	255
	18	2.16	55	90	140	225
	20	2.40	50	80	125	205
	25	3.00		65	100	160
	30	3.60		55	85	135
208V/ 1-PHASE	2	0.42	880	1465	2250	3560
	4	0.83	440	730	1125	1780
	6	1.25	290	485	750	1185
	8	1.66	220	365	560	890
	10	2.08	175	290	450	710
	12	2.50	145	240	375	590
	14	2.91	125	205	320	505
	16	3.33	110	180	280	445
	18	3.74	95	160	250	395
	20	4.16	85	145	225	355
	25	5.20		115	180	285
	30	6.24		95	150	235
	35	7.28			125	200
	40	8.32			110	175
	45	9.36				155
	50	10.40				140
208V/ 3-PHASE	2	0.72	1000	1695	2600	4120
	4	1.44	500	845	1300	2060
	6	2.16	335	565	865	1370
	8	2.88	250	420	650	1030
	10	3.60	200	335	520	820
	12	4.32	165	280	430	685
	14	5.04	145	240	370	585
	16	5.76	125	210	325	515
	18	6.48	110	185	285	455
	20	7.21	100	165	260	410
	25	9.01		135	205	325
	30	10.81		110	170	270
	35	12.61			145	235
	40	14.41			130	205
	45	16.21				180
	50	18.01				160

NOTES: 5/22/2023

A. CIRCUIT LENGTHS INDICATED IN THIS SCHEDULE ARE INTENDED TO LIMIT TOTAL VOLTAGE DROP ON BRANCH CIRCUITS TO 3% AND ARE BASED ON COPPER CONDUCTORS.

B. WHERE CONDUCTORS ARE INCREASED IN SIZE TO LIMIT VOLTAGE DROP, EQUIPMENT GROUNDING CONDUCTOR SHALL ALSO BE INCREASED IN SIZE PROPORTIONATELY PER NEC 250.122(B).

DIST PANEL DH1

LOCATION: ELECTRICAL ROOM
NORMAL POWER — FED FROM: XFR
BUS RATING: 600 AMPS — MLO OR MCB: MCB — 600 AMPS
VOLTAGE: 120 / 208 V — 3-PHASE, 4-WIRE
A/C: SEE SINGLE-LINE DIAGRAM

LOADS #	DESCRIPTION	CONN LOAD TYPE	CONN LOAD kVA	CKT TAG	CB AMPS/ #P
1	PANEL H1W	SUBFEED	35.25	1-LINE	200 / 3
2	PANEL H1E	SUBFEED	35.37	1-LINE	200 / 3
3	PANEL EL1	SUBFEED	6.94	1-LINE	100 / 3
4	ELEVATOR	M	31.70	1-LINE	175 / 3
5	SPACE				/
6	EV CHARGING (1)	C	6.66	40.2N	40 / 2
7	EV CHARGING (1)	C	6.66	40.2N	40 / 2
8	EV CHARGING (1)	C	6.66	40.2N	40 / 2
9	FUTURE EV CHARGING (1)	C	6.66	40.2N	40 / 2
10	FUTURE EV CHARGING (1)	C	6.66	40.2N	40 / 2
11	SPACE				/
12	SPACE				/
13	SPACE				/
14	FUTURE PV ARRAY	SUBFEED	0.00	1-LINE	200 / 3
					/

		CONNECTED LOAD		DEMAND FACTOR	DEMAND LOAD	
L	= LIGHTING	2.58	kVA	125%	3.22	kVA
R	= RECEPTACLES	10.80	kVA	NEC 220.44	10.40	kVA
M	= MOTORS	34.52	kVA	100%	34.52	kVA
	PLUS 25% OF LARGEST MOTOR	31.70	kVA	25%	7.93	kVA
C	= CONTINUOUS	53.98	kVA	125%	67.47	kVA
N	= NON-CONTINUOUS	40.67	kVA	100%	40.67	kVA
K	= KITCHEN	0.00	kVA	NEC 220.56	0.00	kVA

TOTAL CONNECTED SERVICE LOAD: 142.55 KVA — 395.67 AMPS

TOTAL DEMAND SERVICE LOAD: 164.21 KVA — 455.80 AMPS

NOTES:

1. PROVIDE 30mA GROUND FAULT EQUIPMENT PROTECTION BREAKER

5/22/2023

LOAD CENTER - 1 BEDROOM

FED FROM: METER STACKS — LOCATION: DWELLING UNITS
NORMAL POWER — VOLTAGE: 120 / 208 V — 1-PHASE, 3-WIRE — FLUSH-MOUNTED
A/C: SEE SINGLE-LINE DIAGRAM — BUS RATING: 100 AMPS — MLO OR MCB: MLO — 100 AMPS

CKT #	DESCRIPTION	CKT TAG	CB AMPS/ #P	PH	CB AMPS/ #P	CKT TAG	DESCRIPTION	CKT #
1	BATHROOM EXH-R (1)	20.1	20 / 1	A	40 / 2	40.2N	RANGE	2
3	GEN LTG, RECEPTS, SD (1)	20.1	20 / 1	B			-	4
5	RECEPTS, MEDIA PNL (1)	20.1	20 / 1	A	20 / 2	20.2N	HEAT PUMP CLR, HP-R1, HP-R2	6
7	REFRIGERATOR, EXHAUST HOOD (2)	20.1	20 / 1	B			-	8
9	GENERAL KITCHEN APPLIANCE (1)	20.1	20 / 1	A	30 / 2	30.2N	WATER HEATER (WH-1)	10
11	GENERAL KITCHEN APPLIANCE (1)	20.1	20 / 1	B			-	12
13	BEDROOM 1 RECEPTS, LTS, SD (1)	20.1	20 / 1	A				14
15				B				16
17				A				18
19				B				20
21	SURGE PROTECTION DEVICE		20 / 2	A				22
23	-			B				24

NOTES:

A. SEE RESIDENTIAL DWELLING UNIT CALCULATIONS ON DWG FOR RESIDENTIAL LOAD CENTER CALCULATIONS
B. SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR CONDUIT AND CONDUCTOR INFORMATION PER CIRCUIT TAG.

CIRCUIT NOTES (X):

1. PROVIDE COMBO ARC-FAULT CIRCUIT INTERRUPTER BREAKER.
2. PROVIDE COMBO 5mA GFCI COMBO ARC-FAULT CIRCUIT INTERRUPTER BREAKER WHERE RECEPTACLE IS WITHIN 6FT OF SINK EDGE. OTHERWISE PROVIDE COMBO ARC-FAULT CIRCUIT INTERRUPTER BREAKER

PANEL H1E

NORMAL POWER — VOLTAGE: 120 / 208 V — 3-PHASE, 4-WIRE — FED FROM: DIST PANEL DH1 — LOCATION: ELECTRICAL ROOM — SURFACE-MOUNTED
A/C: SEE SINGLE-LINE DIAGRAM — BUS RATING: 200 AMPS — MLO OR MCB: MLO — 200 AMPS

CKT #	DESCRIPTION	CONN LOAD TYPE	CONN LOAD kVA	CKT TAG	CB AMPS/ #P	PH	CB AMPS/ #P	CKT TAG	CONN LOAD TYPE	CONN LOAD kVA	DESCRIPTION	CKT #
1	LVL 1 - EAST EXH FANS - EF-1, EF-2	M	0.12	20.1	20 / 1	A	20 / 1	20.1	N	1.20	LVL 1 - LAUNDRY - WASHER (1)	2
3	LVL 1 - LAUNDRY RM - SWH-2	C	1.00	20.2N	20 / 2	B	30 / 2	30.2N	N	5.00	LVL 1 - LAUNDRY - DRYER (1)	4
5	"					C					"	6
7	LVL 1 - LAUNDRY RM - WH-1	C	4.50	20.2N	20 / 2	A	20 / 1	20.1	N	0.24	LVL 1 - LAUNDRY CARD READER	8
9	"					B	20 / 1	20.1	R	0.54	RECEPTS - EAST STAIRS LVL 1 - 3	10
11	LVL 1 - SPRINKLER RM - EWH-1	C	1.00	20.2N	20 / 2	B	20 / 1	20.1	R	1.26	RECEPTS - EAST	12
13	"					C	20 / 1	20.1	R	1.62	RECEPTS - JANITOR, CORRIDOR	14
15	LVL 1 - EAST AUTO-OPENER	N	1.20	20.1	20 / 1	B	20 / 1	20.1	R	0.36	TELECOM DEDICATED RECEPT	16
17	LVL 1 - JANITOR CLOSET - WH-1	C	4.50	20.2N	20 / 2	C	20 / 1	20.1	L	0.28	LTG - STAIRS	18
19	"					A	20 / 1	20.1	L	0.78	LTG - LVL 1	20
21	LVL 1 - EAST STAIR - EWH-5	C	1.00	20.2N	20 / 2	B	20 / 1	20.1	L	0.60	LTG - LVL 2	22
23	"					C	20 / 1	20.1	L	0.33	LTG - LVL 3	24
25	LVL 1 - ELEC RM - FACP	N	0.60	20.1	20 / 1	A	20 / 1	20.1	L	0.37	LTG - EXTERIOR	26
27	LVL 1 - ELEC RM - LCP	N	0.60	20.1	20 / 1	B	20 / 1			0.00	SPARE	28
29	LVL 2 - CONDENSING UNIT CU-1	N	3.58	20.2N	20 / 2	C	20 / 1			0.00	SPARE	30
31	"					A	20 / 1			0.00	SPARE	32
33	LVL 2 - CONDENSING UNIT CU-2	N	3.58	20.2N	20 / 2	B	20 / 1			0.00	SPARE	34
35	"					C	20 / 1			0.00	SPARE	36
37	LVL 3 - CORRIDOR - EWH-3	C	1.00	20.2N	20 / 2	B	20 / 1			0.00	SPARE	38
39	"					C	20 / 1			0.00	SPARE	40
41	SPARE		0.00		20 / 1	C	20 / 1			0.00	SPARE	42

		CONNECTED LOAD		DEMAND FACTOR	DEMAND LOAD	
L	= LIGHTING	2.36	kVA	125%	2.95	kVA
R	= RECEPTACLES	3.78	kVA	NEC 220.44	3.78	kVA
M	= MOTORS	0.12	kVA	100%	0.12	kVA
	PLUS 25% OF LARGEST MOTOR	0.12	kVA	25%	0.03	kVA
C	= CONTINUOUS	13.00	kVA	125%	16.25	kVA
N	= NON-CONTINUOUS	16.00	kVA	100%	16.00	kVA
K	= KITCHEN	0.00	kVA	75%	0.00	kVA

PANEL CONNECTED TOTAL: 35.25 kVA — 97.85 AMPS
PANEL DEMAND TOTAL: 39.12 kVA — 108.59 AMPS

NOTES:

A. SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR CONDUIT AND CONDUCTOR INFORMATION PER CIRCUIT TAG.

CIRCUIT NOTES (X):

1. PROVIDE 30mA GROUND FAULT EQUIPMENT PROTECTION BREAKER.
2. PROVIDE HANDLE LOCK ONS

5/22/2023

PANEL H1W

NORMAL POWER — VOLTAGE: 120 / 208 V — 3-PHASE, 4-WIRE — FED FROM: DIST PANEL DH1 — LOCATION: LEVEL 1 OFFICE — FLUSH-MOUNTED
A/C: SEE SINGLE-LINE DIAGRAM — BUS RATING: 200 AMPS — MLO OR MCB: MLO — 200 AMPS

CKT #	DESCRIPTION	CONN LOAD TYPE	CONN LOAD kVA	CKT TAG	CB AMPS/ #P	PH	CB AMPS/ #P	CKT TAG	CONN LOAD TYPE	CONN LOAD kVA	DESCRIPTION	CKT #
1	LVL 1 - HP-1A, HP-1B	N	0.42	20.2N	20 / 2	A	20 / 1	20.1	N	1.20	LVL 2 - LAUNDRY - WASHER (1)	2
3	"					B	30 / 2	30.2N	N	5.00	LVL 2 - LAUNDRY - DRYER (1)	4
5	LVL 1 - LVL 3 - ERV-1, ERV-2, ERV-3	M	0.30	20.1	20 / 1	C					"	6
7	LVL 1 - WEST STAIR - EWH-4	C	1.00	20.2N	20 / 2	A	20 / 1	20.1	N	1.20	LVL 2 - LAUNDRY - WASHER (1)	8
9	"					B	30 / 2	30.2N	N	5.00	LVL 2 - LAUNDRY - DRYER (1)	10
11	LVL 1 - AUTO OPENER	N	1.20	20.1	20 / 1	C					"	12
13	LVL 1 - LVL 3 - MAG HOLD OPEN	N	0.48	20.1	20 / 1	A	20 / 1	20.1	N	0.24	LVL 2 - LAUNDRY CARD READER	14
15	LVL 2 - LAUNDRY RM - WH-2	C	4.50	30.2N	30 / 2	B	20 / 1	20.1	N	1.20	LVL 3 - LAUNDRY - WASHER (1)	16
17	"					C	30 / 2	30.2N	N	5.00	LVL 3 - LAUNDRY - DRYER (1)	18
19	LVL 2 - HP-2A, HP-2B	N	0.42	20.2N	20 / 2	A					"	20
21	"					B	20 / 1	20.1	N	0.24	LVL 3 - LAUNDRY CARD READER	22
23	LVL 2 - LVL 3 - FCSD (2)	M	0.36	20.1	20 / 1	C	20 / 1	20.1	R	0.90	RECEPTS - LVL 1 OFFICE	24
25	LVL 2 - LAUNDRY RM - CP-1	M	0.12	20.1	20 / 1	A	20 / 1	20.1	R	0.90	RECEPTS - LVL 1 OFFICE	26
27	SPARE		0.00		20 / 1	B	20 / 1	20.1	R	0.72	RECEPTS - WEST EXTERIOR	28
29	E-BIKE CHARGING	C	1.20	20.1	20 / 1	C	20 / 1	20.1	R	0.54	RECEPTS - WEST STAIR LVL 1 - 3	30
31	SPARE		0.00		20 / 1	A	20 / 1	20.1	R	1.26	RECEPTS - LVL 1 WEST GENERAL	32
33	SPARE		0.00		20 / 1	B	20 / 1	20.1	R	1.44	RECEPTS - LVL 2 WEST GENERAL	34
35	SPARE		0.00		20 / 1	C	20 / 1	20.1	R	0.54	RECEPTS - LVL 3 WEST GENERAL	36
37	SPARE		0.00		20 / 1	A	20 / 1			0.00	SPARE	38
39	SPARE		0.00		20 / 1	B	20 / 1			0.00	SPARE	40
41	SPARE		0.00		20 / 1	C	20 / 1			0.00	SPARE	42

		CONNECTED LOAD		DEMAND FACTOR	DEMAND LOAD	
L	= LIGHTING	0.00	kVA	125%	0.00	kVA
R	= RECEPTACLES	6.30	kVA	NEC 220.44	6.30	kVA
M	= MOTORS	0.78	kVA	100%	0.78	kVA
	PLUS 25% OF LARGEST MOTOR	0.36	kVA	25%	0.09	kVA
C	= CONTINUOUS	8.70	kVA	125%	8.38	kVA
N	= NON-CONTINUOUS	21.59	kVA	100%	21.59	kVA
K	= KITCHEN	0.00	kVA	75%	0.00	kVA

PANEL CONNECTED TOTAL: 35.37 kVA — 98.18 AMPS
PANEL DEMAND TOTAL: 37.14 kVA — 103.06 AMPS

NOTES:

A. SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR CONDUIT AND CONDUCTOR INFORMATION PER CIRCUIT TAG.

CIRCUIT NOTES (X):

1. PROVIDE 30mA GROUND FAULT EQUIPMENT PROTECTION BREAKER.
2. PROVIDE HANDLE LOCK ONS

5/22/2023

PANEL EL1

NORMAL POWER — VOLTAGE: 120 / 208 V — 3-PHASE, 4-WIRE — FED FROM: DIST PANEL DH1 — LOCATION: ELEVATOR CONTROL ROOM — SURFACE-MOUNTED
A/C: SEE SINGLE-LINE DIAGRAM — BUS RATING: 100 AMPS — MLO OR MCB: MLO — 100 AMPS

CKT #	DESCRIPTION	CONN LOAD TYPE	CONN LOAD kVA	CKT TAG	CB AMPS/ #P	PH	CB AMPS/ #P	CKT TAG	CONN LOAD TYPE	CONN LOAD kVA	DESCRIPTION	CKT #
1	RECEPTS - ELEV. MACHINE RM	R	0.36	20.1	20 / 1	A	20 / 1	20.1	R	0.18	RECEPTS - ELEV PIT	2
3	LTG - ELEV. MACHINE RM	L	0.06	20.1	20 / 1	B	20 / 1	20.1	L	0.08	LTG - ELEV PIT	4
5	ELEV #1 CONTROLLER	N	1.00	20.1	20 / 1	C	20 / 1	20.1	R	0.18	RECEPTS - ELEV HOISTWAY	6
7	ELEV #1 LTS AND FAN	C	1.00	20.1	20 / 1	A	20 / 1	20.1	L	0.08	LTG - ELEV HOISTWAY	8
9	CU-EMRM-ELEMR	N	2.08	20.2N	15 / 2	B	20 / 1	20.1		0.00	SPARE	10
11	"					C	20 / 1	20.1		0.00	SPARE	12
13	ELEVATOR SUMP PUMP SP-1 (1)	M	1.92	30.1	25 / 1	A	20 / 1	20.1		0.00	SPARE	14
15	SPACE					B	20 / 1	20.1		0.00	SPARE	16
17	SPACE					C					SPACE	18
19	SPACE					A					SPACE	20
21	SPACE					B					SPACE	22
23	SPACE					C					SPACE	24
25	SPACE					A					SPACE	26
27	SPACE					B					SPACE	28
29	SPACE					C					SPACE	30

		CONNECTED LOAD		DEMAND FACTOR	DEMAND LOAD	
L	= LIGHTING	0.22	kVA	125%	0.28	kVA
R	= RECEPTACLES	0.72	kVA	NEC 220.44	0.72	kVA
M	= MOTORS	1.92	kVA	100%	1.92	kVA
	PLUS 25% OF LARGEST MOTOR	1.92	kVA	25%	0.48	kVA
C	= CONTINUOUS	1.00	kVA	125%	1.25	kVA
N	= NON-CONTINUOUS	3.08	kVA	100%	3.08	kVA
K	= KITCHEN	0.00	kVA	75%	0.00	kVA

PANEL CONNECTED TOTAL: 6.94 kVA — 19.26 AMPS
PANEL DEMAND TOTAL: 7.72 kVA — 21.44 AMPS

NOTES:

A. SEE FEEDER AND BRANCH CIRCUIT SCHEDULE FOR CONDUIT AND CONDUCTOR INFORMATION PER CIRCUIT TAG.

CIRCUIT NOTES (X):

1. PROVIDE 30mA GROUND FAULT EQUIPMENT PROTECTION BREAKER.

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PANEL SCHEDULES

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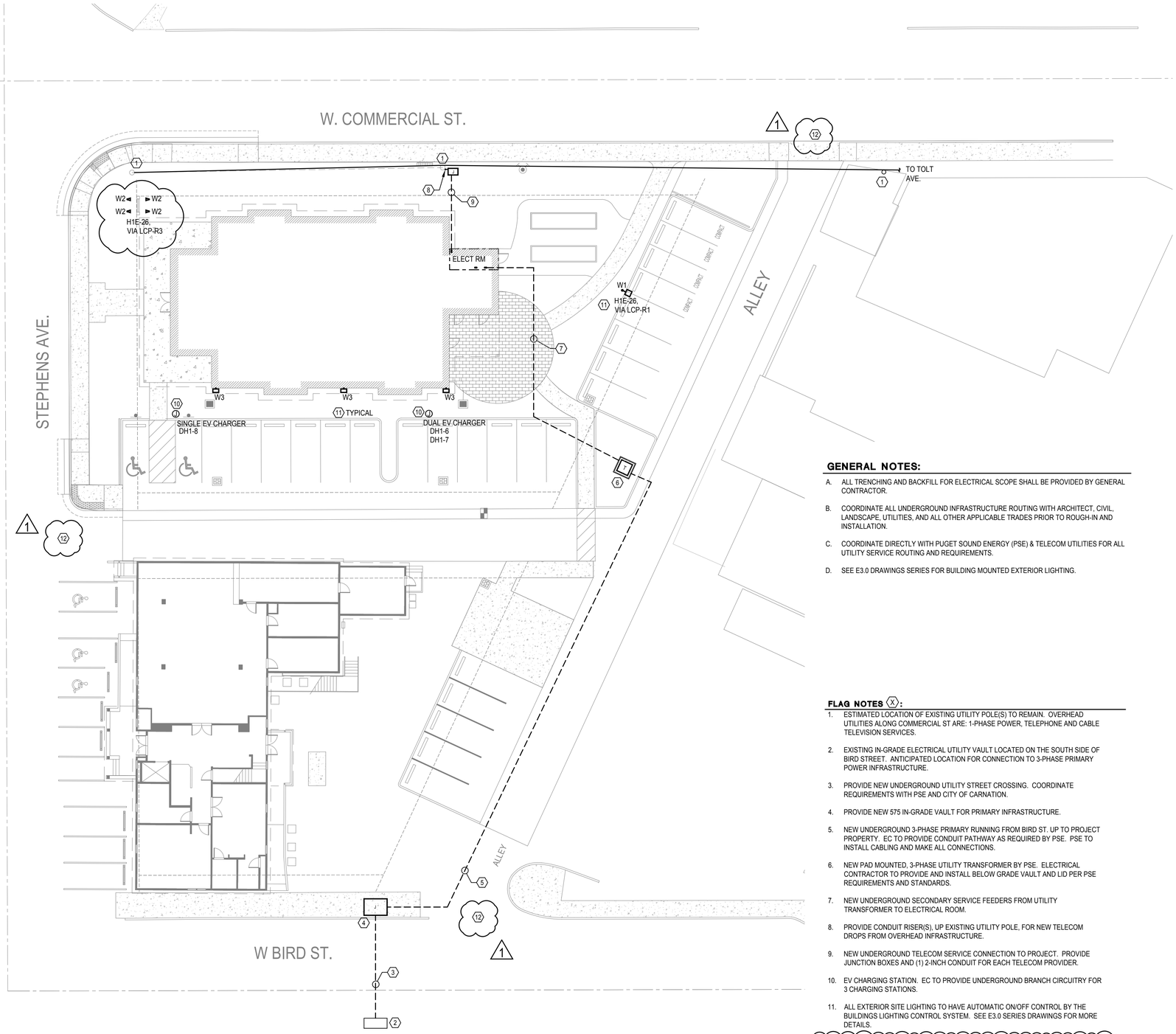

ELECTRICAL SITE PLAN
SCALE: 1/16"=1'-0"

GENERAL NOTES:

A. ALL TRENCHING AND BACKFILL FOR ELECTRICAL SCOPE SHALL BE PROVIDED BY GENERAL CONTRACTOR.

B. COORDINATE ALL UNDERGROUND INFRASTRUCTURE ROUTING WITH ARCHITECT, CIVIL, LANDSCAPE, UTILITIES, AND ALL OTHER APPLICABLE TRADES PRIOR TO ROUGH-IN AND INSTALLATION.

C. COORDINATE DIRECTLY WITH PUGET SOUND ENERGY (PSE) & TELECOM UTILITIES FOR ALL UTILITY SERVICE ROUTING AND REQUIREMENTS.

D. SEE E3.0 DRAWINGS SERIES FOR BUILDING MOUNTED EXTERIOR LIGHTING.

FLAG NOTES (X):

1. ESTIMATED LOCATION OF EXISTING UTILITY POLE(S) TO REMAIN. OVERHEAD UTILITIES ALONG COMMERCIAL ST ARE: 1-PHASE POWER, TELEPHONE AND CABLE TELEVISION SERVICES.
2. EXISTING IN-GRADE ELECTRICAL UTILITY VAULT LOCATED ON THE SOUTH SIDE OF BIRD STREET. ANTICIPATED LOCATION FOR CONNECTION TO 3-PHASE PRIMARY POWER INFRASTRUCTURE.
3. PROVIDE NEW UNDERGROUND UTILITY STREET CROSSING. COORDINATE REQUIREMENTS WITH PSE AND CITY OF CARNATION.
4. PROVIDE NEW 575 IN-GRADE VAULT FOR PRIMARY INFRASTRUCTURE.
5. NEW UNDERGROUND 3-PHASE PRIMARY RUNNING FROM BIRD ST. UP TO PROJECT PROPERTY. EC TO PROVIDE CONDUIT PATHWAY AS REQUIRED BY PSE. PSE TO INSTALL CABLING AND MAKE ALL CONNECTIONS.
6. NEW PAD MOUNTED, 3-PHASE UTILITY TRANSFORMER BY PSE. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL BELOW GRADE VAULT AND LID PER PSE REQUIREMENTS AND STANDARDS.
7. NEW UNDERGROUND SECONDARY SERVICE FEEDERS FROM UTILITY TRANSFORMER TO ELECTRICAL ROOM.
8. PROVIDE CONDUIT RISER(S), UP EXISTING UTILITY POLE, FOR NEW TELECOM DROPS FROM OVERHEAD INFRASTRUCTURE.
9. NEW UNDERGROUND TELECOM SERVICE CONNECTION TO PROJECT. PROVIDE JUNCTION BOXES AND (1) 2-INCH CONDUIT FOR EACH TELECOM PROVIDER.
10. EV CHARGING STATION. EC TO PROVIDE UNDERGROUND BRANCH CIRCUITRY FOR 3 CHARGING STATIONS.
11. ALL EXTERIOR SITE LIGHTING TO HAVE AUTOMATIC ON/OFF CONTROL BY THE BUILDINGS LIGHTING CONTROL SYSTEM. SEE E3.0 SERIES DRAWINGS FOR MORE DETAILS.
12. PUGET SOUND ENERGY (PSE) TO PROVIDE STREET LIGHTING ILLUMINATION, BASED ON CITY OF CARNATION STANDARDS & REQUIREMENTS, AT THE ALLEY INTERSECTIONS OF COMMERCIAL ST, STEPHENS AVE AND BIRD ST. CONTRACTOR AND OWNER TO COORDINATE WITH PSE ON THE DESIGN AND INSTALLATION SCHEDULE. ALL STREET LIGHTING PLANS MUST BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.

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ELECTRICAL SITE PLAN

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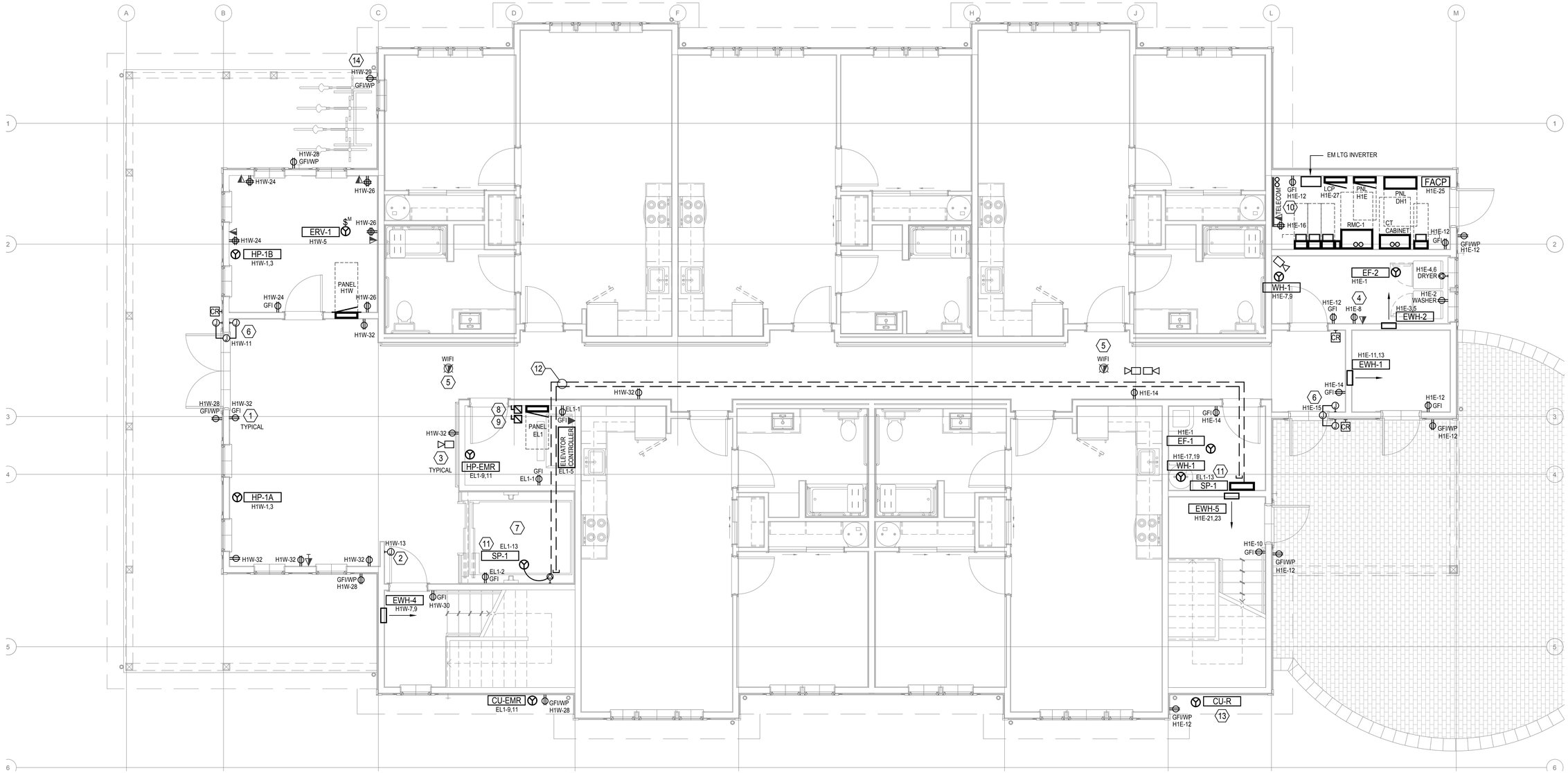
ALL LOW VOLTAGE SYSTEMS ARE DESIGN-BUILD. LOW VOLTAGE DEVICES SHOWN IN THIS SET ARE FOR COORDINATION AND SCOPE INTENT PURPOSES ONLY. SEE LOW VOLTAGE CONTRACTOR'S DRAWING SET FOR EQUIPMENT AND DEVICE QUANTITIES AND LOCATIONS.



MAIN LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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

GENERAL NOTES:

A. PROVIDE TAMPER-PROOF RECEPTACLES IN ALL BUILDING AREAS ACCESSIBLE TO GENERAL PUBLIC AND IN RESIDENTIAL UNITS.

B. SEE ENLARGED DWELLING UNIT PLANS, SHEET E5.01, FOR EQUIPMENT AND DEVICE QUANTITIES AND LOCATIONS IN THE DWELLING UNIT.

C. ALL TELE/DATA CABLING SHALL BE CAT6 UNLESS NOTED OTHERWISE.

D. ALL TELE/DATA OUTLETS SHALL BE PROVIDED WITH (2) CABLE DROPS UNLESS NOTED OTHERWISE.

FLAG NOTES (X):

1. INSTALL GFI RECEPTACLE TO SATISFY NEC 210.63 AND 210.8(E), EQUIPMENT REQUIRING SERVICING. FIELD VERIFY EXACT LOCATION WITH MECHANICAL CONTRACTOR.
2. PROVIDE CONNECTION FOR MAGNETIC DOOR HOLDS AND CONNECT TO THE FIRE ALARM SYSTEM PER CODE AND AHJ. CONFIRM CONNECTION LOCATIONS AND REQUIREMENTS.
3. PRELIMINARY CCTV CAMERA LOCATION; COORDINATE ACTUAL LOCATIONS WITH OWNER.
4. PROVIDE ELECTRICAL CONNECTION AND DATA DROP FOR CREDIT CARD PAYMENT EQUIPMENT FOR LAUNDRY EQUIPMENT. FIELD VERIFY EXACT LOCATION WITH ARCHITECT AND OWNER.
5. PRELIMINARY WI-FI SYSTEM NETWORK LOCATION, COORDINATE ACTUAL LOCATIONS WITH OWNER'S IT STAFF. PROVIDE (2) CAT6 DROPS FROM THE MDF TO EACH WIFI LOCATION. COORDINATE WITH OWNER ON WHO PROVIDES THE WIFI EQUIPMENT.
6. ADA DOOR OPENER SYSTEMS PROVIDED BY OTHERS; INSTALLED AND CONNECTED COMPLETE BY ELECTRICAL CONTRACTOR PER CODE AND MANUFACTURER'S INSTRUCTIONS. WHERE ACCESS CONTROL IS PART OF THE SYSTEM, COORDINATE ACCESS CONTROL REQUIREMENTS WITH LOW VOLTAGE CONTRACTOR.
7. FIELD VERIFY EXACT ELEVATOR EQUIPMENT LOCATIONS AND AREA LAYOUTS WITH THE GENERAL CONTRACTOR AND ELEVATOR CONTRACTOR; DRAWING IS DIAGRAMMATIC. INSTALL ALL EQUIPMENT AND DEVICES PER CODE REQUIREMENTS. DO NOT COMBINE HOMERUNS WITH THOSE SERVING NON-ELEVATOR SYSTEMS.
8. PROVIDE LOCKABLE SHUNT TRIP BREAKER OR FUSED DISCONNECT FOR EACH ELEVATOR PER AHJ REQUIREMENTS. PROVIDE PERMANENT LABELING IDENTIFYING SPECIFIC ELEVATOR AND CIRCUIT SERVED. LOCATE PER CODE REQUIREMENTS. SEE SINGLE-LINE DIAGRAM FOR FEEDER SIZING.
9. PROVIDE LOCKABLE DISCONNECT FOR EACH ELEVATOR FOR CAB LIGHTS AND FAN PER CODE REQUIREMENTS. PROVIDE PERMANENT LABELING IDENTIFYING "ELEVATOR X CAB LTS & FAN" AND CIRCUIT SERVED.
10. INSTALL FIRE RATED BACKBOARDS MOUNTED TO WALLS INDICATED (PROVIDE TEN 4-FT X 8-FT SHEETS MINIMUM). PROVIDE A/C GRADE SHEETS 4-FT X 8-FT X 3/4-INCH. TOP OF SHEETS TO BE AT 8'-6" AFF. ALL EDGES ARE TO BE SMOOTH AND SPLINTER-FREE. PAINT TO MATCH FINISHED WALLS WITH FIRE RETARDANT PAINT.
11. CONNECTION TO ELEVATOR PIT SUMP PUMP & CONTROL PANEL. PROVIDE LINE VOLTAGE CONNECTION TO CONTROL PANEL IN MECHANICAL ROOM AND, IN CONDUIT, RUN 20AMP, 208V/1PH CABLING FROM THE CONTROLLER TO A 208V/1PH RECEPTACLE, WITH WHILE-IN-USE WEATHERPROOF COVER, MOUNTED IN ELEVATOR PIT. ALSO PROVIDE (1) 3/4" CONDUIT WITH PULL-STRING FROM CONTROL PANEL INTO PIT FOR CONTROL WIRING. VERIFY ALL LOCATIONS WITH PLUMBING CONTRACTOR. VERIFY CODE REQUIREMENTS AND COMPLIANCE WITH ELEVATOR INSPECTOR.
12. UNDERGROUND CONDUIT AND CONDUCTOR ROUTING BETWEEN ELEVATOR SUMP PUMP AND CONTROL PANEL LOCATED IN JANITOR'S CLOSET. CONFIRM FINAL ROUTING WITH ARCHITECT AND GENERAL CONTRACTOR.
13. CONNECTION TO OUTDOOR HEAT PUMP: PROVIDE BRANCH CIRCUIT CONNECTION FROM ASSOCIATED UNIT LOAD CENTER. COORDINATE WITH MECHANICAL CONTRACTOR.
14. RECEPTACLE FOR ELECTRIC BIKE. COORDINATE LOCATION WITH ARCHITECT PRIOR TO ROUGH IN.

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MAIN LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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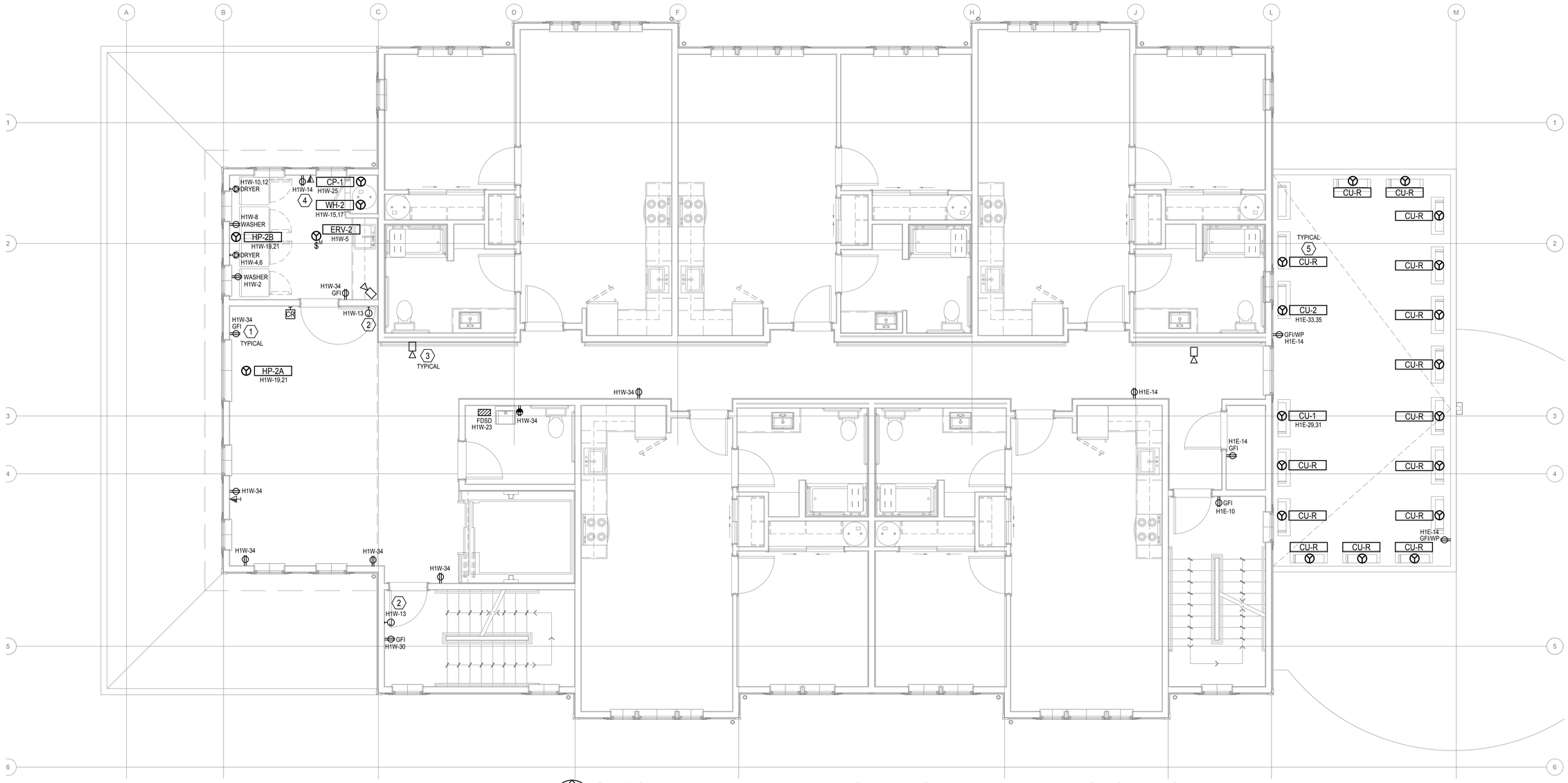
ALL LOW VOLTAGE SYSTEMS ARE DESIGN-BUILD. LOW VOLTAGE DEVICES SHOWN IN THIS SET ARE FOR COORDINATION AND SCOPE INTENT PURPOSES ONLY. SEE LOW VOLTAGE CONTRACTOR'S DRAWING SET FOR EQUIPMENT AND DEVICE QUANTITIES AND LOCATIONS.



SECOND LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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

GENERAL NOTES:

A. PROVIDE TAMPER-PROOF RECEPTACLES IN ALL BUILDING AREAS ACCESSIBLE TO GENERAL PUBLIC AND IN RESIDENTIAL UNITS.

B. SEE ENLARGED DWELLING UNIT PLANS, SHEET E5.01, FOR EQUIPMENT AND DEVICE QUANTITIES AND LOCATIONS IN THE DWELLING UNIT.

C. ALL TELE/DATA CABLING SHALL BE CAT6 UNLESS NOTED OTHERWISE.

D. ALL TELE/DATA OUTLETS SHALL BE PROVIDED WITH (2) CABLE DROPS UNLESS NOTED OTHERWISE.

FLAG NOTES (X):

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2. PROVIDE CONNECTION FOR MAGNETIC DOOR HOLDS AND CONNECT TO THE FIRE ALARM SYSTEM PER CODE AND AHJ. CONFIRM CONNECTION LOCATIONS AND REQUIREMENTS.
3. PRELIMINARY CCTV CAMERA LOCATION; COORDINATE ACTUAL LOCATIONS WITH OWNER.
4. PROVIDE ELECTRICAL CONNECTION AND DATA DROP FOR CREDIT CARD PAYMENT EQUIPMENT FOR LAUNDRY EQUIPMENT. FIELD VERIFY EXACT LOCATION WITH ARCHITECT AND OWNER.
5. CONNECTION TO OUTDOOR HEAT PUMPS: PROVIDE BRANCH CIRCUIT CONNECTION FROM ASSOCIATED UNIT LOAD CENTER. COORDINATE WITH MECHANICAL CONTRACTOR.

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SECOND LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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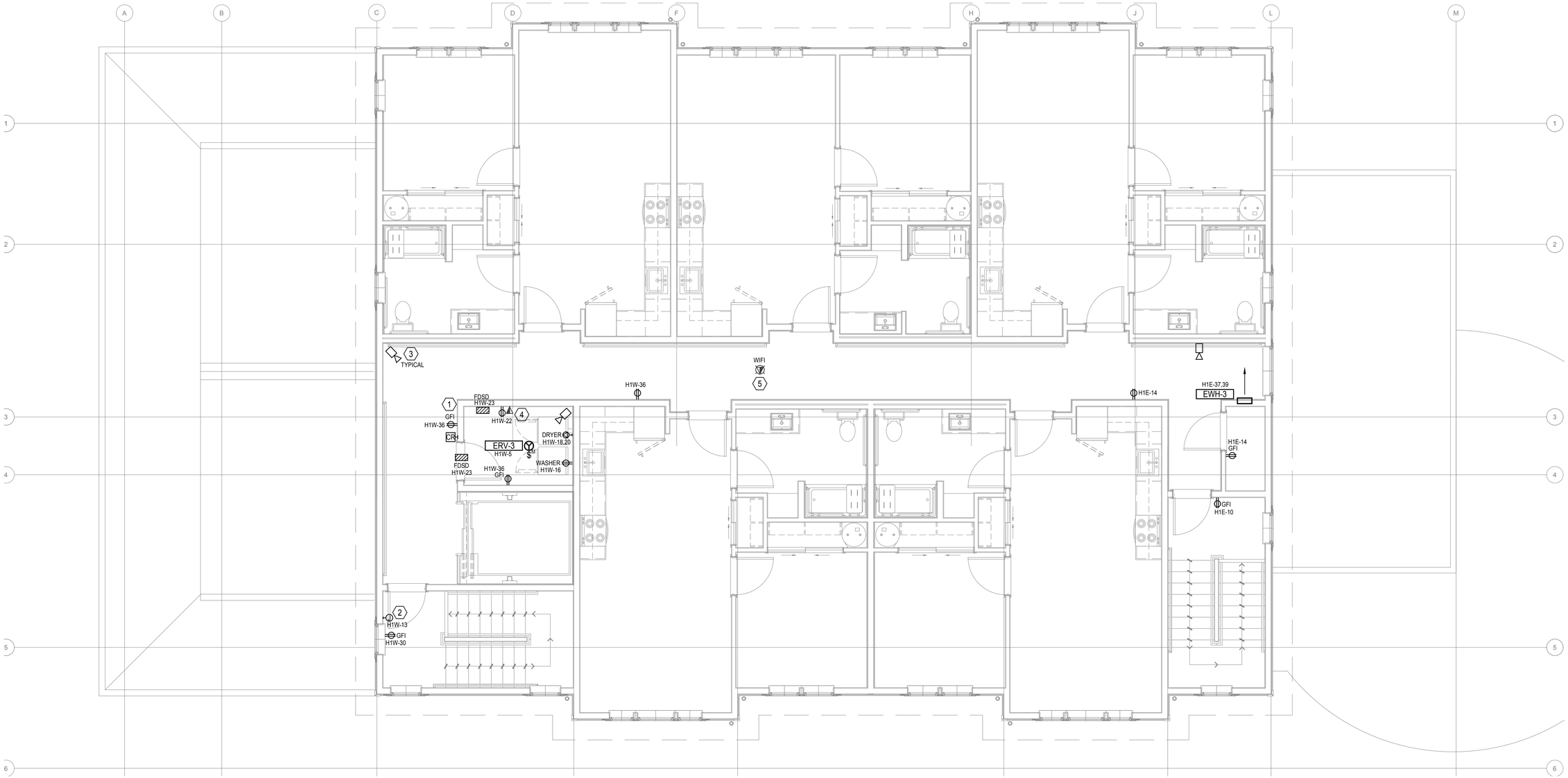

THIRD LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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

GENERAL NOTES:

A. PROVIDE TAMPER-PROOF RECEPTACLES IN ALL BUILDING AREAS ACCESSIBLE TO GENERAL PUBLIC AND IN RESIDENTIAL UNITS.

B. SEE ENLARGED DWELLING UNIT PLANS, SHEET E5.01, FOR EQUIPMENT AND DEVICE QUANTITIES AND LOCATIONS IN THE DWELLING UNIT.

C. ALL TELE/DATA CABLING SHALL BE CAT6 UNLESS NOTED OTHERWISE.

D. ALL TELE/DATA OUTLETS SHALL BE PROVIDED WITH (2) CABLE DROPS UNLESS NOTED OTHERWISE.

FLAG NOTES (X):

1. INSTALL GFI RECEPTACLE TO SATISFY NEC 210.63 AND 210.8(E), EQUIPMENT REQUIRING SERVICING. FIELD VERIFY EXACT LOCATION WITH MECHANICAL CONTRACTOR.
2. PROVIDE CONNECTION FOR MAGNETIC DOOR HOLDS AND CONNECT TO THE FIRE ALARM SYSTEM PER CODE AND AHJ. CONFIRM CONNECTION LOCATIONS AND REQUIREMENTS.
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5. PRELIMINARY WI-FI SYSTEM NETWORK LOCATION, COORDINATE ACTUAL LOCATIONS WITH OWNER'S IT STAFF. PROVIDE (2) CAT6 DROPS FROM THE MDF TO EACH WIFI LOCATION. OWNER TO PROVIDE WIFI EQUIPMENT.

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THIRD LEVEL PLAN - POWER & PRELIMINARY SYSTEMS

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LUMINAIRE SCHEDULE

MARK	DESCRIPTION	LAMP / LUMENS COLOR TEMP CRI	BALLAST / DRIVER INFORMATION	TOTAL WATTS	VOLT	MOUNTING	RECESS DEPTH (IN)	MANUFACTURER	CATALOG NUMBER	NOTES:
C1	LED 7-INCH SURFACE DOWNLIGHT. UL LISTED DAMP LOCATION. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	1100 LUMENS 3000K 80+	0-10V DIMMING	15.0	120	CEILING		JUNO	JSF 7IN 10LM 30K MVOLT WH	1, 2
C2	LED 13-INCH SURFACE DOWNLIGHT. UL LISTED DAMP LOCATION. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS. PROVIDE WITH INTEGRAL EMERGENCY BATTERY PACK WHERE INDICATED.	1800 LUMENS 3000K 80+	0-10V DIMMING	20.0	120	CEILING		JUNO	JSF 11IN 18LM 30K MVOLT WH (E10WLCP / EBX)	1, 2
C3	LED 5-INCH SURFACE DOWNLIGHT. UL LISTED DAMP LOCATION. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	700 LUMENS 3000K 80+	0-10V DIMMING	10.0	120	CEILING		JUNO	JSF 5IN 07LM 30K MVOLT WH	
C4	26-INCH FLUSH MOUNT ROUND WITH DECORATIVE TRIM RINGS, LED SOURCE. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS. PROVIDE WITH INTEGRAL EMERGENCY BATTERY PACK WHERE INDICATED.	2000 LUMENS 3000K 80+	ELECTRONIC	30.0	120	CEILING		BROWNLEE	2420-25-H30-**-30K-(BBI)	1, 2
C5	37-INCH FLUSH MOUNT ROUND WITH DECORATIVE TRIM RINGS, LED SOURCE. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS. PROVIDE WITH INTEGRAL EMERGENCY BATTERY PACK WHERE INDICATED.	5300 LUMENS 3000K 80+	ELECTRONIC	70.0	120	CEILING		BROWNLEE	2420-37-H70-**-30K-(BBI)	1, 2
										1, 2
L1	LED 4-FT LENSED STRIP WITH DROP LENS. CHAIN-HANG OR SURFACE/ WALL-MOUNTED. PROVIDE WITH INTEGRAL EMERGENCY BATTERY PACK WHERE INDICATED.	3000 LUMENS 3000K 80+	ELECTRONIC	27.0	120	VARIOUS		LITHONIA	ZL1D L48 SMR 3000LM FST MVOLT 30K 80CRI	1, 2
L2	SURFACE MOUNTED ARCHITECTURAL LINEAR, 4-INCH SQUARE HOUSING, FROSTED ACRYLIC DIFFUSER	3200 LUMENS 3000K 80+	0-10V DIMMING	35.0	120	CEILING		LEDALITE	2911L 930 30 QN 04 DE1 * SF	
L3	SURFACE MOUNTED LINEAR WALL WASHER, FROSTED ACRYLIC DIFFUSER, 4-FOOT LENGTH	277 LUMENS / FT 3000K 80+	0-10V DIMMING	3W/FT	120	CEILING		LUMINII	BOS-36"-HE48SO-30K-F-FC-**-B PDCU-D-30-24	
L4	WALL MOUNTED LINEAR VANITY FIXTURE, FROSTED ACRYLIC DIFFUSER, 4-FOOT LENGTH	2000 LUMENS 3000K 80+	ELECTRONIC	30.0	120	CEILING		BIRCHWOOD	NOL-LED-225-HLO-30-4-**-FW-120-EB-SM	
L5	LED LINEAR VAPORTIGHT LUMINAIRE. LUMINAIRE TO BE IP 66 CERTIFIED AND NOT MORE THAN 4-INCHES DEEP PER ELEVATOR CODE. PROVIDE WITH INTEGRAL BATTERY PACK.	4000 LUMENS 4000K 80+	ELECTRONIC	40.0	120	WALL		LITHONIA	DMW2-L24-4000LM-PFL-MD-MVOLT-GZ10-30K-80CRI-E10WCP	1, 2, 3
S1X	LED 4-FT LINEAR STAIRWELL LUMINAIRE WITH INTEGRAL OCCUPANCY SENSOR. WHEN NO OCCUPANCY IS DETECTED FOR 15 MINUTES LUMINAIRE TO AUTOMATICALLY DIM DOWN TO 50% OUTPUT. UPON DETECTION OF OCCUPANCY, LUMINAIRE TO AUTOMATICALLY RAISE TO 100% OUTPUT. OCCUPANCY SENSOR TO FAIL ON. PROVIDE WITH INTEGRAL EMERGENCY LIGHTING BATTERY PACK WITH AT LEAST	3900 LUMENS 3000K 80+	0-10V DIMMING	34.4	120	WALL / SURFACE		H.W. WILLIAMS	SLF-4-L52-8-30-HIA-OCCSS SBR-10-D-UNV - DIM-UNV	1, 2, 3
U1	LED VANITY FIXTURE, 3-FOOT LENGTH, FROSTED DIFFUSER. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	2200 LUMENS 3000K 90+	ELECTRONIC	20.0	120	SURFACE		LUMENCIA	LLFL2105D-30K-MCT-**-ORB	1, 2
U2	LED 7-INCH SURFACE MOUNT DOWNLIGHT, DAMP LABEL RATED FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	1000 LUMENS 3000K 80+	ELECTRONIC	13.0	120	CEILING		JUNO	JSF 7IN 10LM 30K 120 FRPC WH	1, 2
U3	LED 11-INCH SURFACE MOUNT DOWNLIGHT. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	1800 LUMENS 3000K 80+	ELECTRONIC	15.0	120	CEILING		JUNO	JSF 11IN 18LM 30K 120 FRPC WH	1, 2
U4	24-INCH FLUSH MOUNT ROUND WITH DECORATIVE TRIM RINGS, LED SOURCE. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	3000 LUMENS 3000K 80+	ELECTRONIC	39.0	120	CEILING		SATCO/NUVO	62-1738	1, 2
U5	SURFACE MOUNT 1X4 "CLOUD' FIXTURE, LED SOURCE. FROSTED ACRYLIC DIFFUSER FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	4000 LUMENS 3000K 80+	ELECTRONIC	52.0	120	CEILING		SATCO/NUVO	62-1741	1, 2
U6	SURFACE MOUNTED LINEAR UNDERCABINET LIGHT, LED SOURCE,. FIXTURE MUST HAVE EFFICACY OF AT LEAST 65 LUMENS PER WATT PER ENERGY CODE REQUIREMENTS.	300 LUMENS/FT 3000K 80+	ELECTRONIC	4W/FT	120	SURFACE		COOPER / HALO	HU30-SCT-24-*	1, 2
W1	POLE MOUNTED LED PARKING LOT LIGHT, FULL CUT-OFF, TYPE 4 DISTRIBUTION, PROVIDE ROUND STEEL POLE, INTEGRAL MOTION SENSOR FOR BI-LEVEL DIMMING FIXTURE TO BE MOUNTED AT 22-FEET AFF	8,000 LUMENS 3000K 80+	ELECTRONIC	90.0	120	WALL		CREE LIGHTING	ARE-EDR-4MB-R4-06-E-UL-**-525-HL-30K	1, 2, 3
W2	NOT USED									
W3	LED EXTERIOR ARCHITECTURAL AREA LIGHT. FULL CUTOFF, TYPE 4 FORWARD THROW DISTRIBUTION FIXTURE TO BE MOUNTED AT 18-FEET AFF	7000 LUMENS 3000K 80+	ELECTRONIC	58.0	120	WALL		MCGRAW-EDISON	ISS-SA1-E-730-U-T4FT-HSS	1, 2, 3
W4	LED EXTERIOR ARCHITECTURAL WALL SCONCE. FULL CUTOFF	1200 LUMENS 3000K 80+	ELECTRONIC	15.0	120	WALL		LITHONIA	WDGE1 LED P1 30K 80CRI VW MVOLT **	1, 2
X1	LED SELF-POWERED EXIT SIGN; WHITE WITH GREEN LETTERING.			1.5	120	VARIOUS				1, 2, 4

NOTES:

1. PROVIDE ALL PARTS, COMPONENTS, AND HARDWARE TO CONSTITUTE A COMPLETE INSTALLATION WITH OPTIONS INDICATED IN LUMINAIRE SCHEDULE. CATALOG NUMBERS FOR SUCH ITEMS ARE NOT INCLUDED IN SCHEDULE ABOVE.
2. COORDINATE ALL COLORS / FINISHES WITH ARCHITECT.
3. WHERE SWITCHING OF EMERGENCY LUMINAIRES IS INDICATED ON THE PLANS, PROVIDE UL 924 BYPASS DEVICES PER CODE REQUIREMENTS.
4. SEE LIGHTING PLANS FOR MOUNTING AND FACES / ARROWS AT EACH LOCATION.

LIGHTING CONTROLS NARRATIVE :

CONTRACTOR TO PROVIDE A LIGHTING CONTROLS SYSTEM IN COMPLIANCE WITH THE RESIDENTIAL PORTION OF THE 2018 WASHINGTON STATE ENERGY CODE. THE SYSTEM IS TO OPERATE IN THE FOLLOWING MANNER:

- THE LIGHTING CONTROL PANEL SHALL BE CAPABLE OF PROVIDING ALL THE FOLLOWING OPERATIONS LISTED HERE
- ALL EXTERIOR LIGHTING (INCLUDING PARKING LOT, AREA, & BUILDING MOUNTED FIXTURES) ARE TO HAVE AUTOMATIC ON/OFF ACTIVATION VIA THE LIGHTING CONTROL PANEL TIME CLOCK.
- THE ENTRY VESTIBULE, LOUNGE AREAS (L1 & L2) AND CORRIDORS WILL REMAIN ON AT ALL TIMES.
  - -- MANUAL DIMMING SWITCHES ARE TO BE PROVIDED IN THE LOUNGE SPACES FOR MANUAL ADJUSTMENT OF THE LIGHTING LEVELS. SWITCH-LEGS AND CONTROL ZONES ARE INDICATED ON FIXTURE CIRCUIT TAGS.
  - -- WHERE INDICATED OCCUP0ANCY SENSORS ARE PROVIDED IN THE CORRIDORS FOR BI-LEVEL DIMMING OF THE CORRIDOR LIGHTING WHEN THE SPACE IS UNOCCUPIED.
- ALL ENCLOSED OFFICES, STORAGE, LAUNDRY ROOMS, ETC WILL HAVE A LOCAL VACANCY SENSOR FOR AUTOMATIC OFF AND A WALL SWITCH FOR MANUAL ACTIVATION OF FIXTURES.
- THE STAFF OPEN OFFICE IS TO BE CONTROLLED VIA LOCAL VACANCY SENSORS AND MANUAL ON DIMMING SWITCHES. THE ADJACENT CORRIDOR IS TO HAVE OCCUPANCY SENSORS FOR AUTOMATIC ON/OFF ACTIVATION.
- ALL RESTROOMS WILL HAVE A LOCAL OCCUPANCY SENSOR FOR AUTOMATIC ON AND OFF ACTIVATION OF FIXTURES.
- ALL DWELLING UNITS ARE STAND ALONE RESIDENTIAL SPACES WITH MANUAL CONTROL SWITCHES. SEE SHEET E5.1 FOR MORE INFORMATION.

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LUMINAIRE SCHEDULE

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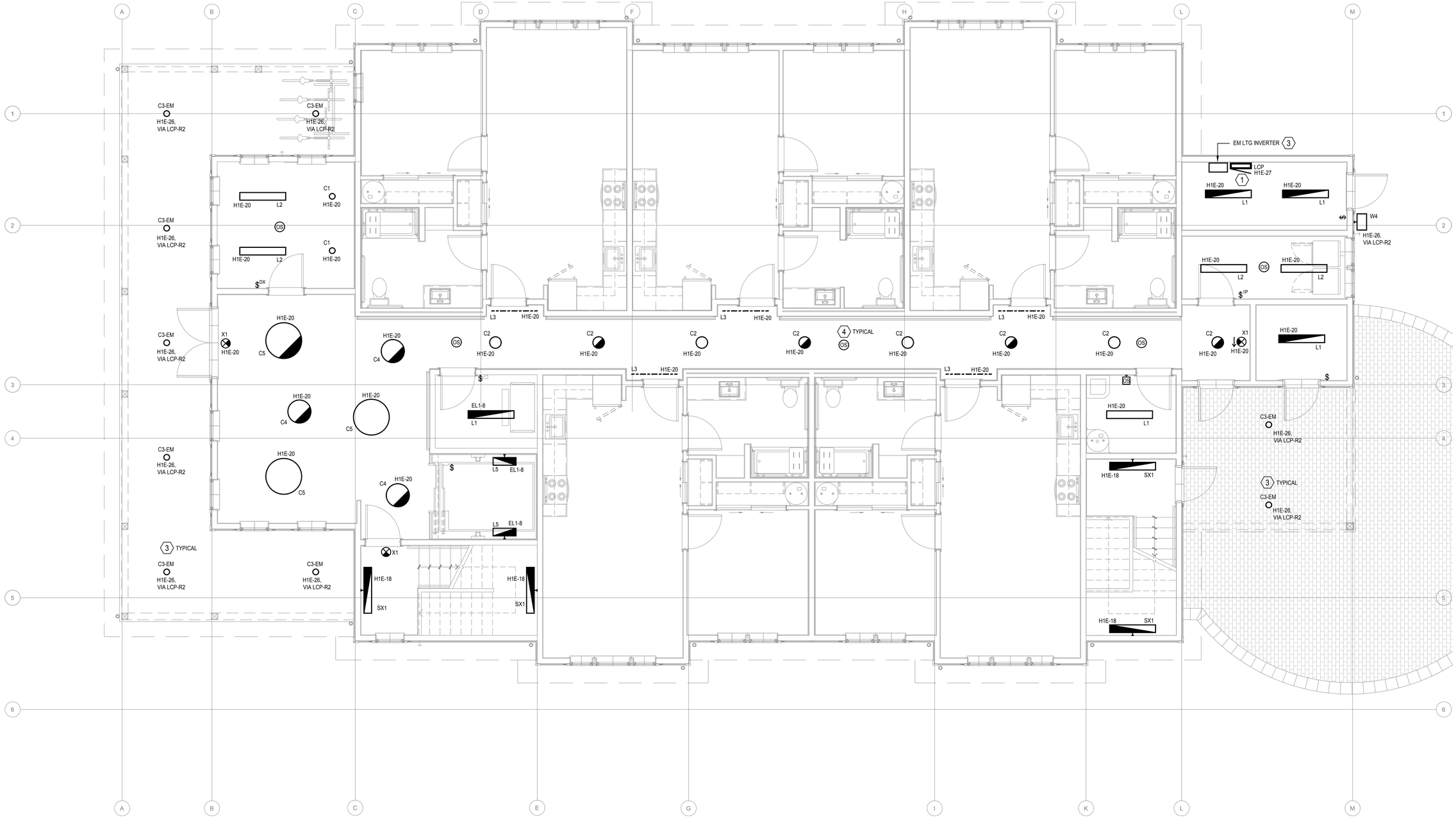

MAIN LEVEL PLAN - LIGHTING PLAN

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

GENERAL NOTES:

A. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "EM" (W4-EM FOR EXAMPLE) INDICATE EMERGENCY LIGHTING THAT SHALL BE POWERED VIA EMERGENCY LIGHTING INVERTER. PROVIDE UL 924 DEVICES AS NEEDED FOR CONTROLS INTENT SHOWN.

B. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "X" (S1X FOR EXAMPLE) ARE TO BE PROVIDED WITH INTEGRAL BATTERY PACKS. SEE LUMINAIRE SCHEDULE.

C. SEE LIGHTING CONTROL NARRATIVE ON SHEET E3.0 FOR FUNCTIONALITY OF CONTROL SYSTEM.

FLAG NOTES (X):

1. LIGHTING CONTROL PANEL. PROVIDE DIGITAL, LIGHTING CONTROLS SYSTEM WITH TIME CLOCK ON/OFF ACTIVATION CAPABILITIES. PROVIDE DEDICATED 120V CIRCUIT TO POWER LCP.

2. ALL EXTERIOR BUILDING MOUNTED AND SITE LIGHTING FIXTURES SHALL BE AUTOMATICALLY CONTROLLED ON/OFF BY THE LIGHTING CONTROL SYSTEM, VIA CENTRAL TIME CLOCK OR PHOTOCELL.

3. PROVIDE EMERGENCY INVERTER FOR EXTERIOR BUILDING MOUNTED FIXTURES ALONG THE EGRESS PATHWAY. INVERTER TO HAVE MINIMUM OF 325 WATTS OF BACKUP CAPACITY. LOCATE INVERTER IN MAIN ELECTRICAL ROOM. PROVIDE PERMANENT LABELING IDENTIFYING LOCATION OF LUMINAIRES SERVED AND CIRCUIT.

4. PROVIDE EXTENDED RANGE OCCUPANCY SENSORS IN THE CORRIDOR. ALL CEILING MOUNTED LUMINAIRES IN CORRIDOR ARE TO AUTOMATICALLY DIM DOWN TO 50% OUTPUT WHEN THE AREA IS UNOCCUPIED FOR 15 MINUTES. OCCUPANCY SENSORS ARE TO BE CONNECTED SUCH THAT OCCUPANCY DETECTED BY ANY SENSOR IN A CORRIDOR WILL TURN ON / HOLD ON ALL LUMINAIRES IN THAT CORRIDOR. FIELD VERIFY EXACT LOCATION FOR SENSORS WITH ALL OTHER TRADES TO ENSURE FULL COVERAGE OF CORRIDOR.

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MAIN LEVEL PLAN - LIGHTING PLAN

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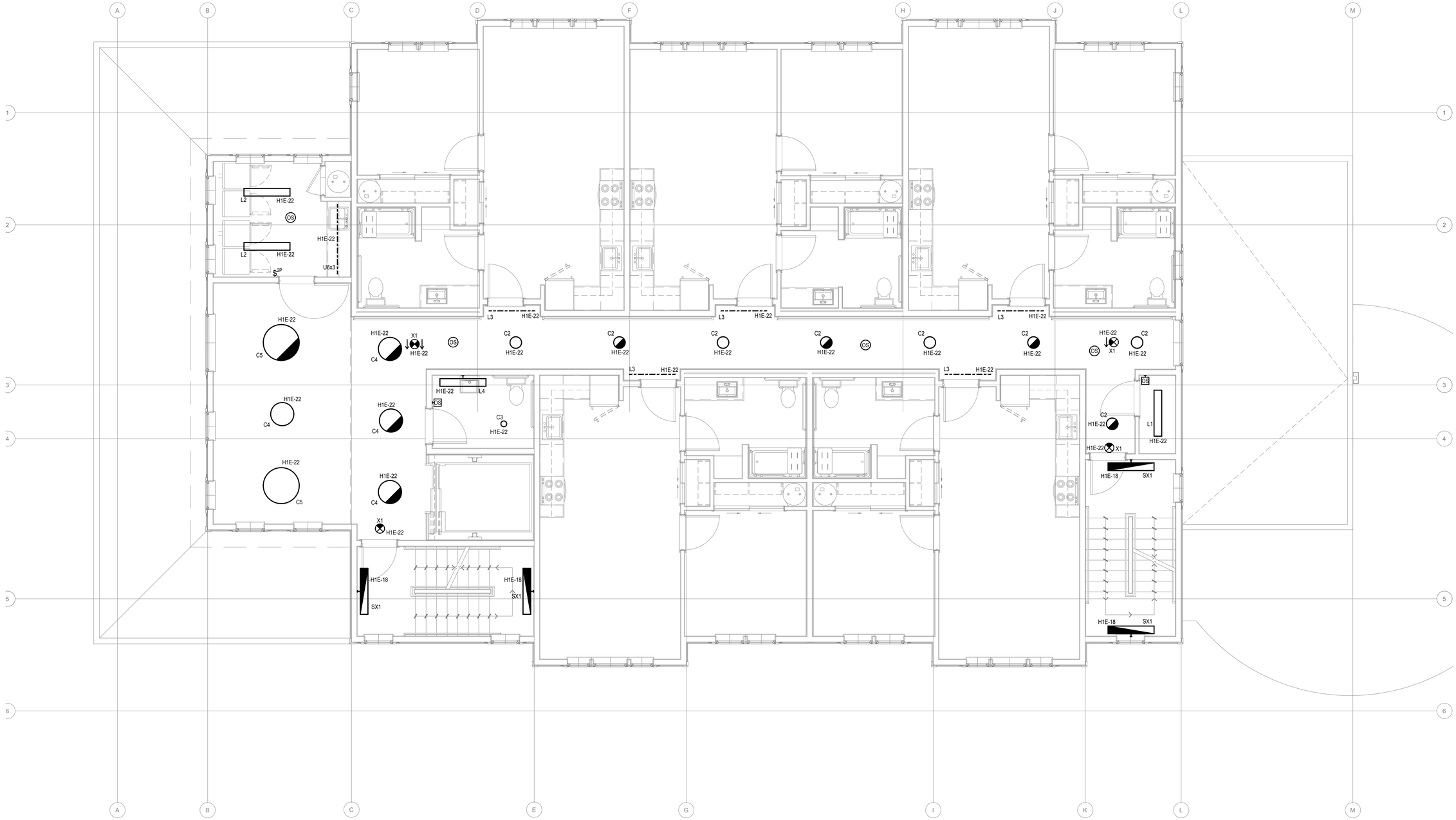

SECOND LEVEL PLAN - LIGHTING PLAN
SCALE: 1/4"=1'-0"

GENERAL NOTES:

A. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "EM" (W4-EM FOR EXAMPLE) INDICATE EMERGENCY LIGHTING THAT SHALL BE POWERED VIA EMERGENCY LIGHTING INVERTER. PROVIDE UL 924 DEVICES AS NEEDED FOR CONTROLS INTENT SHOWN.

B. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "X" (S1X FOR EXAMPLE) ARE TO BE PROVIDED WITH INTEGRAL BATTERY PACKS. SEE LUMINAIRE SCHEDULE.

C. SEE LIGHTING CONTROL NARRATIVE ON SHEET E3.0 FOR FUNCTIONALITY OF CONTROL SYSTEM.

FLAG NOTES (X):

1. LIGHTING CONTROL PANEL. PROVIDE DIGITAL, LIGHTING CONTROLS SYSTEM WITH TIME CLOCK ON/OFF ACTIVATION CAPABILITIES. PROVIDE DEDICATED 120V CIRCUIT TO POWER LCP.

2. ALL EXTERIOR BUILDING MOUNTED AND SITE LIGHTING FIXTURES SHALL BE AUTOMATICALLY CONTROLLED ON/OFF BY THE LIGHTING CONTROL SYSTEM, VIA CENTRAL TIME CLOCK OR PHOTOCELL.

3. PROVIDE EMERGENCY INVERTER FOR EXTERIOR BUILDING MOUNTED FIXTURES ALONG THE EGRESS PATHWAY. INVERTER TO HAVE MINIMUM OF 325 WATTS OF BACKUP CAPACITY. LOCATE INVERTER IN MAIN ELECTRICAL ROOM. PROVIDE PERMANENT LABELING IDENTIFYING LOCATION OF LUMINAIRES SERVED AND CIRCUIT.

4. PROVIDE EXTENDED RANGE OCCUPANCY SENSORS IN THE CORRIDOR. ALL CEILING MOUNTED LUMINAIRES IN CORRIDOR ARE TO AUTOMATICALLY DIM DOWN TO 50% OUTPUT WHEN THE AREA IS UNOCCUPIED FOR 15 MINUTES. OCCUPANCY SENSORS ARE TO BE CONNECTED SUCH THAT OCCUPANCY DETECTED BY ANY SENSOR IN A CORRIDOR WILL TURN ON / HOLD ON ALL LUMINAIRES IN THAT CORRIDOR. FIELD VERIFY EXACT LOCATION FOR SENSORS WITH ALL OTHER TRADES TO ENSURE FULL COVERAGE OF CORRIDOR.

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SECOND LEVEL PLAN - LIGHTING PLAN

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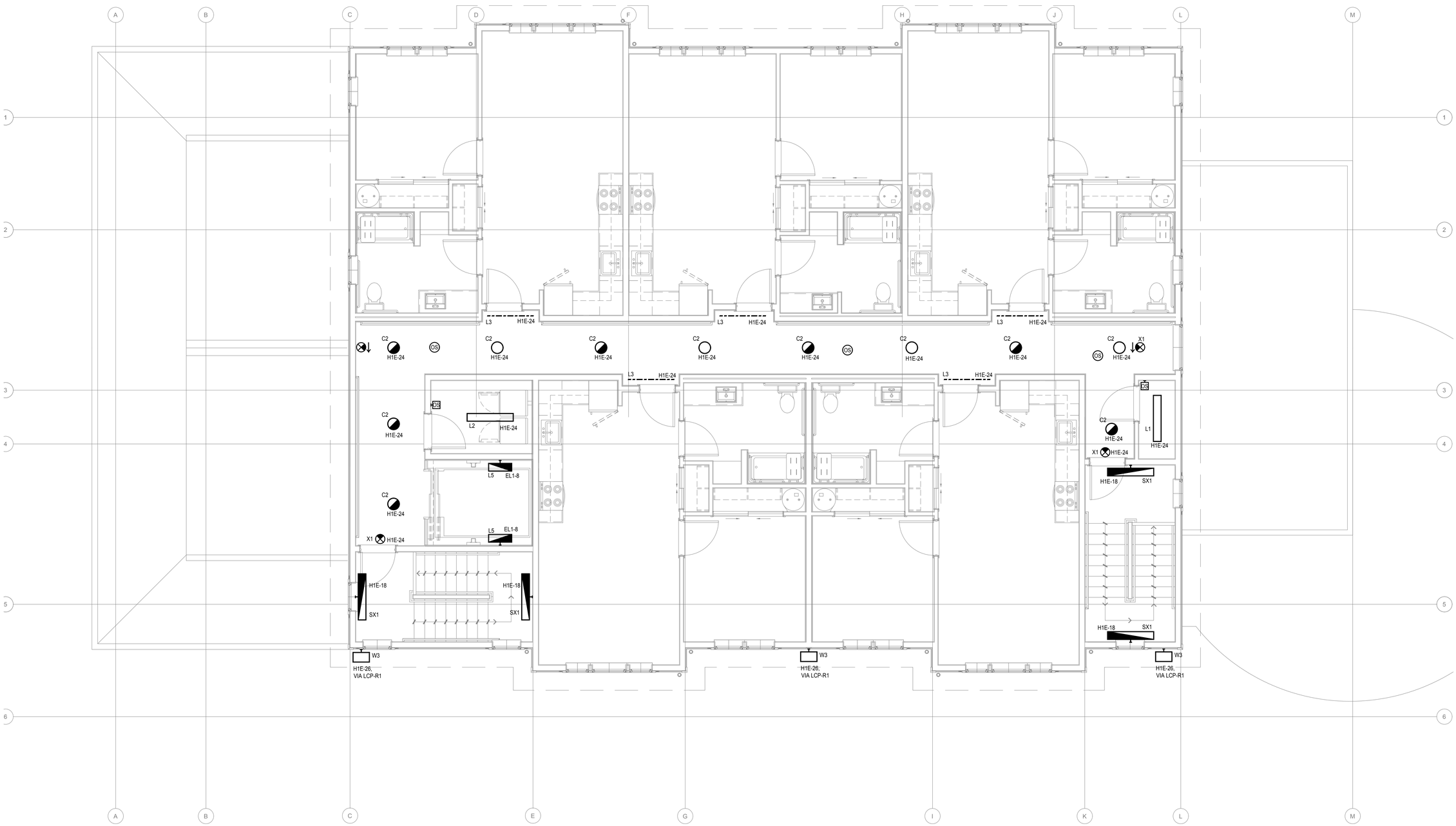

THIRD LEVEL PLAN - LIGHTING PLAN

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

GENERAL NOTES:

A. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "EM" (W4-EM FOR EXAMPLE) INDICATE EMERGENCY LIGHTING THAT SHALL BE POWERED VIA EMERGENCY LIGHTING INVERTER. PROVIDE UL 924 DEVICES AS NEEDED FOR CONTROLS INTENT SHOWN.

B. LIGHTING FIXTURE TYPES MARKED WITH SUFFIX "X" (S1X FOR EXAMPLE) ARE TO BE PROVIDED WITH INTEGRAL BATTERY PACKS. SEE LUMINAIRE SCHEDULE.

C. SEE LIGHTING CONTROL NARRATIVE ON SHEET E3.0 FOR FUNCTIONALITY OF CONTROL SYSTEM.

FLAG NOTES (X):

1. LIGHTING CONTROL PANEL. PROVIDE DIGITAL, LIGHTING CONTROLS SYSTEM WITH TIME CLOCK ON/OFF ACTIVATION CAPABILITIES. PROVIDE DEDICATED 120V CIRCUIT TO POWER LCP.

2. ALL EXTERIOR BUILDING MOUNTED AND SITE LIGHTING FIXTURES SHALL BE AUTOMATICALLY CONTROLLED ON/OFF BY THE LIGHTING CONTROL SYSTEM, VIA CENTRAL TIME CLOCK OR PHOTOCELL.

3. PROVIDE EMERGENCY INVERTER FOR EXTERIOR BUILDING MOUNTED FIXTURES ALONG THE EGRESS PATHWAY. INVERTER TO HAVE MINIMUM OF 325 WATTS OF BACKUP CAPACITY. LOCATE INVERTER IN MAIN ELECTRICAL ROOM. PROVIDE PERMANENT LABELING IDENTIFYING LOCATION OF LUMINAIRES SERVED AND CIRCUIT.

4. PROVIDE EXTENDED RANGE OCCUPANCY SENSORS IN THE CORRIDOR. ALL CEILING MOUNTED LUMINAIRES IN CORRIDOR ARE TO AUTOMATICALLY DIM DOWN TO 50% OUTPUT WHEN THE AREA IS UNOCCUPIED FOR 15 MINUTES. OCCUPANCY SENSORS ARE TO BE CONNECTED SUCH THAT OCCUPANCY DETECTED BY ANY SENSOR IN A CORRIDOR WILL TURN ON / HOLD ON ALL LUMINAIRES IN THAT CORRIDOR. FIELD VERIFY EXACT LOCATION FOR SENSORS WITH ALL OTHER TRADES TO ENSURE FULL COVERAGE OF CORRIDOR.

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THIRD LEVEL PLAN - LIGHTING PLAN

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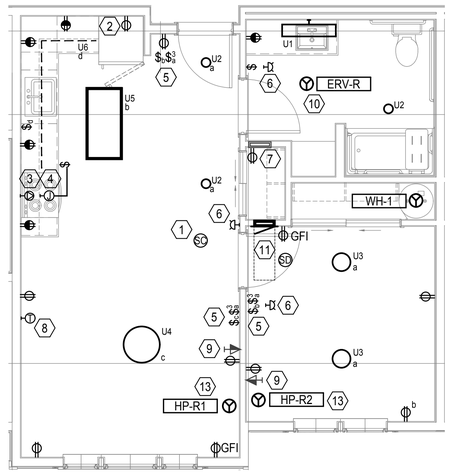
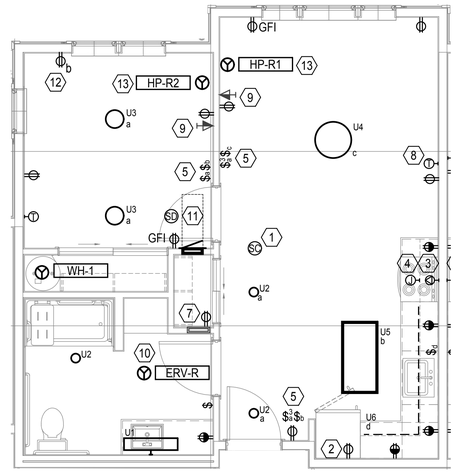
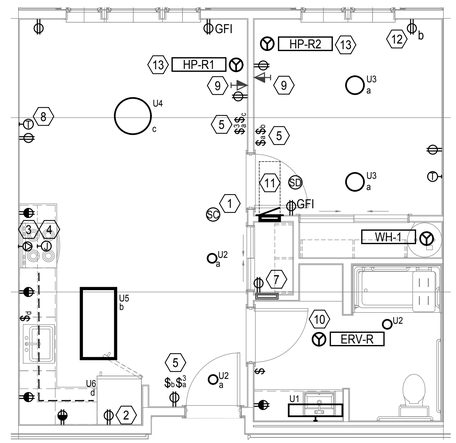


1 **PLAN A - 1BR TYPE A**
1/4"=1'-0"



2 **PLAN A - 1BR**
1/4"=1'-0"



2 **PLAN B - 1BR**
1/4"=1'-0"

GENERAL NOTES:

A. PROVIDE TAMPER-PROOF RECEPTACLES FOR ALL DEVICES IN RESIDENTIAL UNITS

FLAG NOTES (X):

1. COMBINATION SMOKE DETECTOR / CARBON MONOXIDE ALARM. FINAL LOCATION AS REQUIRED BY FIRE MARSHAL. TYPICAL.
2. RECEPTACLE FOR REFRIGERATOR. FIELD VERIFY EXACT LOCATION. PROVIDE AFCI/GFCI BREAKER WHERE REFRIGERATOR IS WITHIN 6 FEET OF THE SINK.
3. CONNECTION FOR RANGE. FIELD VERIFY EXACT LOCATION. CONFIRM FINAL CONNECTION REQUIREMENTS WITH EQUIPMENT PROVIDER.
4. CONNECTION FOR RANGE EXHAUST HOOD. IN TYPE A UNITS, PROVIDE WITH MANUAL SWITCH MOUNTED AT OPEN KNEE COUNTER AREA FOR ACCESSIBLE ON/ OFF CONTROLS. FIELD VERIFY EXACT LOCATIONS.
5. GANG SWITCHES UNDER ONE FACEPLATE.
6. PROVIDE STROBES FOR FIRE ALARM IN TYPE A UNITS.
7. PROVIDE MEDIA PANEL/ SMART BOX WITH INTEGRAL RECEPTACLE FOR PHONE, DATA AND CATV SERVICE FOR THE DWELLING UNIT. PROVIDE BOX LARGE ENOUGH TO ACCOMMODATE FUTURE ROUTER/ GATEWAY DEVICE. FIELD VERIFY EXACT LOCATION.
8. PROVIDE A PROGRAMMABLE 2-POLE THERMOSTAT IN THE LIVING AREA. FIELD VERIFY EXACT LOCATION WITH OWNER AND ARCHITECT.
9. COMBINATION COAX/ CAT6 OUTLET.
10. CONNECTION TO RESIDENTIAL UNIT ERV, VERIFY REQUIREMENTS (SEE MECHANICAL DRAWINGS).
11. TYPICAL UNIT LOAD CENTER.
12. SWITCHED RECEPTACLE.
13. CONNECTION FOR HEAT PUMP. COORDINATE WITH MECHANICAL CONTRACTOR ON INSTALLATION REQUIREMENTS.

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