SKYWAY RESOURCE CENTER

BID SET VOLUME 2 DRAWINGS

PROJECT NO. 2052

25 AUGUST 2023

Owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

Architect
Schemata Workshop

1720 12th Avenue
Seattle, WA 98122
CONTACT: Geoff Anderson, AIA
e. geoff@schemataworkshop.com
v. (206) 743.9437

Structural Engineer
Quantum Consulting Engineers LLC

1511 Third Avenue, Suite 323
Seattle, WA 98101
CONTACT: Travis Michaud, PE, SE
e. tmichaud@quantumce.com
v. (206) 957.3917

Landscape Architect
Nakano Associates

3902 S Ferdinand St. #201
Seattle, WA 98118
CONTACT: Ida Ottesen, PLA, ASLA
e. io@nakanoassociates.com
v. (206) 292.9392

MEP Engineer
Sazan Group Inc.

600 Stewart St. Suite 1400
Seattle, WA 98101
CONTACT: Tom Marseille, PE
e. tmarseille@sazan.com
v. (206) 267.1700

Building Envelope Engineer
4EA Building Science

12721 30th Avenue NE, Second Floor
Seattle, WA 98125
CONTACT: Jeff Speert, AIA
e. jeffs@team4ea.com
v. (206) 728.2358

Cost Estimating
Rick Charbonneau Architectural Consulting

22247 Dorre Don Way SE
Maple Valley, WA 98058
CONTACT: Rick Charbonneau
e. rickcharb@msn.com
v. (206) 795.9401

BID SET

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY, WA
98178

25 AUGUST 2023

SYMBOLS

COLUMN GRID LINE

EXTERIOR ELEVATION

BUILDING SECTION

INTERIOR ELEVATION

CALLOUT

DIMENSION LINE — 1 3/4"

LEADER

VERTICAL DATUM / WORKPOINT — EL 0'-0" / T.O. WALL

LINE BELOW OR BEYOND

LINE ABOVE

ROOM IDENTIFICATION — ROOM NAME / No. / 000 NSF

WALL TYPE

WINDOW

REVISION

NORTH ARROW

PROPERTY LINE

SETBACK LINE

SAFETY GLASS

SMOKE DETECTOR

CARBON MONOXIDE DETECTOR

EXIT SIGN (ARROW INDICATES DIRECTION)

OCCUPANT LOAD SIGNAGE

1-HR FIRE RATED WALL

2-HR FIRE RATED WALL

3-HR FIRE RATED WALL

ABBREVIATIONS

AB	ANCHOR BOLT	HP	HIGH POINT
A/C	AIR CONDITIONING	HT	HEIGHT
ACT	ACOUSTICAL TILE	IGU	INSULATED GLASS UNIT
ACP	ACOUSTICAL CEILING PANEL	INSUL	INSULATION
ADJ	ADJUSTABLE	INT	INTERIOR
AFF	ABOVE FINISHED FLOOR	JBOX	JUNCTION BOX
ALUM	ALUMINUM	MAX	MAXIMUM
AR	AREA OF REFUGE	MECH	MECHANICAL
L	ANGLE	MTD	MOUNTED
BLDG	BUILDING	MTL	METAL
BO	BOTTOM OF	MFR	MANUFACTURER
BYD	BEYOND	MIN	MINIMUM
CIP	CAST IN PLACE	NIC	NOT IN CONTRACT
CT	CERAMIC TILE	NTS	NOT TO SCALE
CJ	CONSTRUCTION JOINT	O/	OVER
℄	CENTER LINE	OC	ON CENTER
CLR	CLEAR	OPNG	OPENING
CLG	CEILING	OPP	OPPOSITE
CMU	CONCRETE MASONRY UNIT	OD	OVERFLOW DRAIN
CO	CLEANOUT	PL	PLATE
COL	COLUMN	P	PROPERTY LINE
CONC	CONCRETE	PLAM	PLASTIC LAMINATE
CONN	CONNECTION	PLYWD	PLYWOOD
CONT	CONTINUOUS	PT	PRESSURE TREATED
CPT	CARPET	PVC	POLY VINYL CHLORIDE
DEMO	DEMOLISH	RAD	RADIUS
DIA	DIAMETER	RB	RUBBER BASE
DTL	DETAIL	RD	ROOF DRAIN
DIM	DIMENSION	REF	REFERENCE/REFER TO
DS	DOWNSPOUT	REINF	REINFORCED/ING
DW	DISH WASHER	RES	RESILIENT
DWG	DRAWING	RM	ROOM
EA	EACH	RO	ROUGH OPENING
ELEC	ELECTRICAL	R.O.W.	RIGHT OF WAY
ELEV	ELEVATION	SD	SMOKE DETECTOR
ENCL	ENCLOSURE	SF	SQUARE FOOT/FEET
EQ	EQUAL	SHT	SHEET
EXH	EXHAUST	SIM	SIMILAR
(E)	EXISTING	SPECS	SPECIFICATIONS
EXT	EXTERIOR	SQ	SQUARE
FD	FLOOR DRAIN	STD	STANDARD
FEC	FIRE EXTINGUISHER CABINET	STL	STEEL
FDC	FIRE DEPARTMENT CONNECTION	STOR	STORAGE
FDN	FOUNDATION	STRUCT	STRUCTURAL
FF	FINISH FLOOR	SS	STAINLESS STEEL
FL	FLOOR	SUSP	SUSPENDED
FE	FIRE EXTINGUISHER	TEL	TELEPHONE
FEC	FIRE EXTINGUISHER CABINET	T&G	TONGUE AND GROOVE
FO	FINISHED OPENING	T.O.	TOP OF
FOC	FACE OF CONCRETE	TYP	TYPICAL
FOIC	FURNISHED BY OWNER INSTALLED BY CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
		VCT	VINYL COMPOSITION TILE
FOIO	FURNISHED BY OWNER INSTALLED BY OWNER	VERT	VERTICAL
		VIF	VERIFY IN FIELD
FOF	FACE OF FINISH	W/	WITH
FOM	FACE OF MASONRY	WH	WATER HEATER
FOS	FACE OF STUD	WD	WOOD
FTG	FOOTING	WDW	WINDOW
GA	GAUGE	WP	WORK POINT
GALV	GALVANIZE(D)	WR	WATER RESISTANT
GWB	GYPSUM WALL BOARD	WRB	WEATHER RESISTANT BARRIER
HB	HOSE BIB	WS	WEATHER STRIPPING
HDWD	HARDWOOD	WWF	WELDED WIRE FABRIC
HDWR	HARDWARE		
HM	HOLLOW METAL		
HORIZ	HORIZONTAL		

PROJECT DESCRIPTION

CONVERT THE DONATED FORMER U.S. BANK BUILDING INTO A COMMUNITY RESOURCE CENTER WITH MULTIPLE SERVICE PROVIDERS SATISFYING THE NEEDS OF HEALTH AND WELLNESS, ECONOMIC EMPOWERMENT, EDUCATIONAL ADVANCEMENT, AND CHARACTER AND LEADERSHIP. BRING THE 1960S BUILDING UP TO CURRENT CODES AND STANDARDS, IMPROVE THE BUILDING AND SITE TO CREATE A COMMUNITY HUB IN THE CENTER OF THE SKYWAY NEIGHBORHOOD

APPLICANT INFORMATION

NAME: SCHEMATA WORKSHOP

ADDRESS: 1720 12TH AVE
SEATTLE, WA 98122

CONTACT: GEOFF ANDERSON
PHONE: (206) 285.1589
E-MAIL: GEOFF@SCHEMATAWORKSHOP.COM

OWNER INFORMATION

NAME: KING COUNTY HOUSING AUTHORITY

ADDRESS: 600 ANDOVER PARK W.
SEATTLE, WA 98188

CONTACT: SUNNIE PARK
PHONE: (206) 394.3757
E-MAIL: SUNP@KCHA.ORG

PROJECT INFORMATION

ADDRESS: 12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY, WA 98178

PARCEL NO.: 7580200190

LEGAL DESCRIPTION: SCENIC RIDGE HEIGHTS ADD 1 LESS POR SWLY OF LN BEG N 00-25-53 E 26.53 FT FR SW COR TH S 54-55-24 E & ALL 2

LOT AREA: 25,119 SF (0.58 ACRES)

ZONING: COMMUNITY BUSINESS, SPECIAL DISTRICT OVERLAY 050 (PEDESTRIAN-ORIENTED COMMERCIAL DEVELOPMENT)

APPLICABLE CODES: THE INTERNATIONAL BUILDING CODE, 2018 EDITION, WITH WASHINGTON STATE AMMENDMENTS
THE INTERNATIONAL EXISTING BUILDING CODE, 2018 EDITION

WSEC CLOSE OUT DOCUMENTATION

project close out documentation is required including applicable calculations, WSEC envelope compliance reports, and fenestration NFRC rating certificates

SHEET INDEX

VOLUME 1

VOLUME 2

VICINITY MAP

LOCATION MAP

schemata workshop

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
e geoff@schemataworkshop.com

owner
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600 Andover Park W.
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SKYWAY RESOURCE CENTER

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WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES

NO.	DATE	DESCRIPTION

REVISIONS

AHJ STAMP

R404 REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON
8/25/2023

Architect Project No: 2052
Author: MC / KH
Checker: MM / GA

GENERAL PROJECT INFORMATION AND SHEET INDEX

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GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC).

2. THIS STRUCTURE HAS BEEN ANALYZED AND REINFORCED FOR MINIMUM MAINTENANCE IN ACCORDANCE WITH THE INTERNATIONAL EXISTING BUILDING CODE (IEBC) SECTIONS 502, 503 & CHAPTER 4 AND IS WITHIN THE CURRENT PRACTICE FOR THE RENOVATION OF EXISTING BUILDINGS OF THIS AGE AND TYPE OF CONSTRUCTION. THIS STRUCTURE HAS NOT BEEN ANALYZED OR DESIGNED FOR A COMPLETE SEISMIC UPGRADE.

3. DESIGN LOADING CRITERIA

ROOF SNOW LOAD	25 PSF
ROOF DEAD LOAD ALLOWANCE FOR PV PANELS (IN DESIGNATED AREAS)	9 PSF
FLOOR LIVE LOAD (OFFICES)	50 PSF
PARTITION LIVE LOAD	15 PSF
MECHANICAL UNITS	WEIGHTS FURNISHED BY MANUFACTURER

WIND : ANALYSIS PROCEDURE: ASCE 7-16 CHAPTER 27 "PART 1 - BUILDINGS OF ALL HEIGHTS"
RISK CATEGORY II
97 MPH
EXPOSURE "B"
TOPOGRAPHIC FACTOR Kzt = 1.0
WIND BASE SHEAR, NORTH/SOUTH Vn = 23 K
WIND BASE SHEAR, EAST/WEST Vn = 18 K

CLADDING / WINDOW DESIGN PRESSURE (MAX.)	32 PSF
ROOFING DESIGN PRESSURE NOT AT A CORNER (MAX.)	32 PSF
ROOFING DESIGN PRESSURE AT CORNER (MAX.)	43 PSF

THE DESIGN WIND PRESSURES LISTED ABOVE ARE INWARD OR OUTWARD AND ARE BASED ON AN EFFECTIVE WIND AREA OF 10 SQUARE FEET NEAR A BUILDING CORNER, U.O.N. CORNER AND OTHER ZONES ARE DEFINED BY FIGURE 30.3-1, 30.3-2A TO 2I AND 30.3-5A TO 5B IN ASCE 7-16. REDUCED DESIGN PRESSURES MAY BE CALCULATED USING ASCE 7. NOTE THAT THE DESIGN WIND PRESSURES NOTED ABOVE ARE ULTIMATE VALUES PER THE 2018 IBC AND SHALL BE MULTIPLIED BY 0.6 FOR ALLOWABLE STRESS DESIGN.

EARTHQUAKE :
NEW LATERAL ELEMENT ANALYSIS PROCEDURE: IBC "EQUIVALENT LATERAL FORCE PROCEDURE"
SEISMIC DESIGN CATEGORY (SDC) = D
RISK CATEGORY = II
SEISMIC SITE CLASS = D
IMPORTANCE FACTOR Ie = 1.0
MAPPED MCE S_s = 1.47; S_1 = 0.50
DESIGN ACCELERATION S_{ds} = 1.18; S_{d1} = 0.60
BUILDING SEISMIC RESISTING SYSTEM: WOOD PANEL BEARING SHEAR WALL, R = 6.5
SEISMIC RESPONSE COEFFICIENT: Cs = 0.181
BUILDING TOTAL SEISMIC BASE SHEAR Vs = 59 K

ENTRY TRELLIS SEISMIC RESISTING SYSTEM: STEEL ORDINARY CONCENTRICALLY BRACED FRAMES, R = 3.25
ENTRY TRELLIS SEISMIC RESPONSE COEFFICIENT: Cs = 0.363
ENTRY TRELLIS SEISMIC BASE SHEAR Vs = 2 K

EXISTING LATERAL ELEMENT ANALYSIS PROCEDURE: ASCE41-17 SECTION 4.4.3.3 QUICK CHECK PROCEDURE
LEVEL OF SEISMICITY = HIGH
RISK CATEGORY = II
SEISMIC SITE CLASS = D
BASIC PERFORMANCE OBJECTIVE = COLLAPSE PREVENTION
SEISMIC HAZARD = BSE-2E
MAPPED MCE S_s = 1.08; S_1 = 0.36
DESIGN ACCELERATION S_{XS} = 1.29; S_{X1} = 0.701
BUILDING TYPE: UNREINFORCED MASONRY BEARING WALLS URM (WITH FLEXIBLE DIAPHRAGMS), Ms = 1.75
URM SEISMIC BASE SHEAR Vj = 176 K

4. LATERAL LOADS ARE TRANSFERRED BY THE ROOF AND FLOOR DIAPHRAGMS TO THE SHEAR WALLS OR BRACED FRAMES. FORCES ARE BASED ON THE TRIBUTARY AREA FOR EACH SHEAR WALL AND ARE CARRIED BY THE SHEAR WALLS TO THE FOUNDATION.

5. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

6. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.

7. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THEIR 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 OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

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

10. 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. WHERE INFORMATION ON THE DRAWINGS IS IN CONFLICT WITH THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. DO NOT SCALE THE DRAWINGS.

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

12. SHOP DRAWINGS FOR REINFORCING STEEL AND STRUCTURAL STEEL SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

13. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND 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.

14. 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.

15. DEFERRED SUBMITTALS OF DESIGN BUILD COMPONENTS SHALL BEAR THE STAMP AND SIGNATURE OF A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. DEFERRED SUBMITTALS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE AND SHALL INCLUDE DESIGN CALCULATIONS WITH THE ENGINEER'S STAMP.

THE FOLLOWING COMPONENTS SHALL BE DEFERRED SUBMITTALS FOR THIS PROJECT:
CURTAIN WALL SYSTEMS, RAILINGS, STAIRS.

16. MECHANICAL UNIT CONNECTIONS TO THE BUILDING SHALL BE DESIGNED BY THE MANUFACTURER FOR THE DESIGN CRITERIA AND CONDITIONS SHOWN ON THE STRUCTURAL DRAWINGS.° MANUFACTURER SHALL SUBMIT DETAIL DRAWINGS AND CALCULATIONS, BOTH OF WHICH BEAR THE STAMP AND SIGNATURE OF A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER.° MANUFACTURER'S ENGINEER SHALL BE RESPONSIBLE FOR DESIGN, CODE CONFORMANCE, AND CONNECTION OF THE UNIT TO THE BASIC STRUCTURE.° ALL NECESSARY BRACING, TIES, ANCHORAGE, DISTRIBUTION MEMBERS, AND SIMILAR ELEMENTS SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH SUBMITTED DRAWINGS AND CALCULATIONS.

17. SPECIAL INSPECTION: CONCRETE CONSTRUCTION, STRUCTURAL STEEL FABRICATION AND ERECTION (INCLUDING FIELD WELDING AND HIGH-STRENGTH FIELD BOLTING), AND EPOXY GROUTED INSTALLATIONS SHALL BE SUPERVISED IN ACCORDANCE WITH IBC SECTIONS 1704 & 1705 AND THE PROJECT SPECIFICATIONS BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE OWNER. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER, CONTRACTOR AND BUILDING OFFICIAL. ANY MATERIALS WHICH FAIL TO MEET PROJECT SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

GEOTECHNICAL

18. FOUNDATION NOTES: ALLOWABLE SOIL PRESSURE AND LATERAL EARTH PRESSURE ARE ASSUMED AND THEREFORE MUST BE VERIFIED IN THE FIELD. IF SOILS ARE FOUND TO BE OTHER THAN ASSUMED, NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE FOUNDATION REDESIGN.

FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) 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. UNLESS OTHERWISE NOTED, FOOTINGS SHALL BE CENTERED UNDER COLUMNS OR WALLS ABOVE.

THE STRUCTURAL DESIGN IS BASED ON THE FOLLOWING ASSUMED VALUES:
ALLOWABLE SOIL PRESSURE 1,500 PSF

RENOVATION

19. DEMOLITION: VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED AND IN A MANNER SUITABLE TO THE WORK SEQUENCES. EXISTING REINFORCING SHALL BE SAVED WHERE AND AS NOTED ON THE PLANS. SAW CUTTING, IF AND WHERE USED, SHALL NOT CUT EXISTING REINFORCING THAT IS TO BE SAVED. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 40 PSF.

A. ALL NEW OPENINGS THROUGH EXISTING WALLS, SLABS AND BEAMS SHALL BE ACCOMPLISHED BY SAW CUTTING WHEREVER POSSIBLE.
B. VERIFY ALL EXISTING CONDITIONS AND LOCATION OF MEMBERS PRIOR TO CUTTING ANY OPENINGS.
C. SMALL ROUND OPENINGS SHALL BE ACCOMPLISHED BY CORE DRILLING, IF POSSIBLE.
D. WHERE NEW REINFORCING TERMINATES AT EXISTING CONCRETE, REBAR DOWELS EPOXIED INTO THE EXISTING CONCRETE SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING, UNLESS OTHERWISE NOTED ON PLANS.

20. ALL EXTERIOR WALLS SHALL BE INSPECTED AND REPAIRED AS FOLLOWS:
SCRAPE ALL LOOSE AND WEAKENED MORTAR OUT TO FULL DEPTH OF THE DETERIORATION; REMOVE AND REPLACE ANY LOOSE MASONRY UNITS; CHECK FOR LOOSE FACING BRICK VENEERS; TUCK POINT ALL JOINTS SOLID. ALL MASONRY RESTORATION AND REPAIR SHALL BE PERFORMED IN SUCH A MANNER THAT THE EXISTING STRUCTURE IS NOT WEAKENED OR LEFT UNSUPPORTED DURING THE PROCESS OF THE WORK. ALL EXTERIOR APPENDAGES SUCH AS FIRE ESCAPES, CORNICES AND EYEBROWS SHALL BE INSPECTED FOR STRUCTURAL INTEGRITY AND THE CONDITION OF THE CONNECTIONS TO THE STRUCTURE. NOTIFY THE STRUCTURAL ENGINEER AS TO THE FINDINGS OF THIS INSPECTION.

21. CHECK FOR DRYROT AT ALL EXTERIOR WALLS, EXISTING TOILET ROOM FLOORS AND WALLS, AREAS SHOWING WATER STAINS, AND ALL WOOD MEMBERS IN BASEMENT AND CRAWL SPACES. ALL ROT SHALL BE REMOVED AND DAMAGED MEMBERS SHALL BE REPLACED OR REPAIRED AS DIRECTED BY THE STRUCTURAL ENGINEER OR ARCHITECT.

CONCRETE

22. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301. CONSTRUCTION TOLERANCES SHALL NOT EXCEED THOSE LISTED IN ACI 117. 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 (BEFORE THE ADDITION OF ADMIXTURES). THE WATER/CEMENT RATIO SHALL NOT EXCEED 0.55 FOR FOOTINGS AND 0.45 FOR ALL SLABS AND EXPOSED CONCRETE UNLESS OTHERWISE NOTED. EXCEPT FOR FOOTINGS AND SLAB ON GRADE, AGGREGATE SIZE SHALL NOT EXCEED 3/4".

THE MINIMUM AMOUNT OF CEMENT AND THE MAXIMUM SLUMP MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. (THE W/C RATIO LIMITS STILL APPLY). THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, CEMENTITIOUS MATERIAL, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 301. CHEMICAL ADMIXTURES AND FLY ASH SHALL CONFORM TO ASTM C494 AND C618 RESPECTIVELY. FLY ASH PERCENTAGE OF TOTAL CEMENTITIOUS MATERIAL SHALL NOT EXCEED 20%. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY TO CONTRACT DOCUMENTS. CONTRACTOR MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-14 TABLE 19.3.3.1. ALL CONCRETE EXPOSED TO THE WEATHER AND ALL GARAGE SLABS-ON-GRADE SHALL OBTAIN A 28-DAY STRENGTH f'c OF 3,500 PSI IN ACCORDANCE WITH ACI 318 TABLE 19.3.2.1 AND IBC SECTION 1904.1. ALL CONCRETE TO RECEIVE A STEEL TROWELED FINISH SHALL NOT BE AIR-ENTRAINED.

23. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy = 60,000 PSI. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315 AND 318. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH "THE REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE." PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

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

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST EARTH	3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER	2"
SLABS AND WALLS (INTERIOR FACE)	1"

25. NON-SHRINK GROUT SHALL BE NON-METALLIC CONFORMING TO ASTM C1107 AND BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (5000 PSI MINIMUM).

26. POLYSTYRENE (RIGID INSULATION) LIGHTWEIGHT STRUCTURAL FILL PLACED BELOW CONCRETE SLABS SHALL BE RIGID CELLULAR POLYSTYRENE CONFORMING TO ASTM D6817 OR ASTM C578, WITH A MINIMUM COMPRESSIVE RESISTANCE OF 5 PSI @ 1% DEFORMATION AND A MINIMUM COMPRESSIVE RESISTANCE OF 15 PSI @ 10 % DEFORMATION, U.O.N. MAXIMUM DENSITY SHALL BE 2.0 PCF. OFFSET BLOCK JOINTS BETWEEN ADJACENT LAYERS AND ATTACH BLOCKS PER THE MANUFACTURER'S RECOMMENDATIONS.

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
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BID SET

2052
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SANDRO K. KODANI — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

GENERAL STRUCTURAL NOTES

S100

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GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

ANCHORAGE

27. DRIVE PINS, SHOT PINS AND OTHER POWDER-ACTUATED FASTENERS SHALL BE LOW VELOCITY TYPE FASTENERS AS MANUFACTURED BY HILTI CORPORATION. WHEN CALLED FOR IN THE DRAWINGS, PROVIDE THE APPROPRIATE FASTENER AS NOTED IN THE TABLE BELOW FOR EACH GIVEN APPLICATION. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORTS NO. ESR-2269 FOR THE X-U FASTENERS AND ESR-2379 FOR THE X-CP FASTENERS. MINIMUM EMBEDMENT IN CONCRETE SHALL BE 1" UNLESS OTHERWISE NOTED. MAINTAIN AT LEAST 3" TO NEAREST CONCRETE EDGE AND 4" CENTER TO CENTER SPACING. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES.

ALLOWABLE APPLICATION	ALLOWABLE FASTENER TYPE	SHEAR CAPACITY (LBS)	TENSION CAPACITY (LBS)
2X TREATED LUMBER TO CONCRETE (2000 PSI MIN.)	X-CP 72 P8 S23 w/ 1.33" EMBED	250	175
2X TREATED TO STRUCTURAL STEEL (3/16" MIN, 36 OR 50 KSI)	X-U 52 MX PLUS R-23 WASHERS	250	175

28. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) INTO CONCRETE SHALL BE INSTALLED USING "SET-3G" ADHESIVE ANCHOR AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-4057, INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION OF INSTALLATION IS REQUIRED.

29. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) INTO GROUT FILLED CMU SHALL BE INSTALLED USING "SET-XP" ADHESIVE ANCHOR AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH IAPMO UES REPORT NO. ER-265, INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION OF INSTALLATION IS REQUIRED.

30. EPOXY RENOVATION ANCHORS TO EXISTING UNREINFORCED MASONRY WALLS SPECIFIED ON THE DRAWINGS SHALL BE "ET-HP" ADHESIVE AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-3638, INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N., AND APPROPRIATE SCREEN TUBE SIZE PER MANUFACTURER'S RECOMMENDATION WHERE REQUIRED. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION OF INSTALLATION IS REQUIRED. RODS SHALL BE OF THREADED ASTM A36 MATERIAL UNLESS OTHERWISE NOTED.

MASONRY

31. GROUT SHALL CONFORM TO IBC REQUIREMENTS AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS, DESIGN F'm = 2,000 PSI. FULL STRESSES ARE REQUIRED. STRENGTH SHALL BE VERIFIED BY THE UNIT STRENGTH METHOD IN ACCORDANCE WITH TMS 602-16.

STEEL

32. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON THE LATEST EDITIONS OF THE A.I.S.C. SPECIFICATIONS AND CODES:

    A. AISC - STEEL CONSTRUCTION MANUAL, 15TH EDITION
    B. AISC 303-16 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
    C. 2014 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS.

33. STRUCTURAL STEEL, WIDE FLANGE (W AND WT) SHAPES SHALL CONFORM TO ASTM A992, Fy = 50 KSI; ALL OTHER ROLLED SHAPES SHALL CONFORM TO ASTM A36, Fy = 36 KSI. STEEL PLATE SHALL CONFORM TO ASTM A36, Fy = 36 KSI. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B, Fy = 35 KSI. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE C, Fy = 50 KSI. CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36, Fy = 36 KSI.

34. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.

35. ALL A325 CONNECTION BOLTS SHALL BE INSTALLED TO THE SNUG-TIGHT CONDITION PER RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. ALL NUTS SHALL CONFORM TO ASTM A563. ALL WASHERS SHALL CONFORM TO ASTM F436 OR ASTM F959 TYPE 325. ALL BOLT HOLES SHALL BE STANDARD SIZE UNLESS OTHERWISE NOTED.

36. ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND A.W.S. STANDARDS AND SHALL BE PERFORMED BY W.A.B.O. CERTIFIED WELDERS USING E70 XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY A.W.S.) SHALL BE USED. ALL WELDING SHALL BE PERFORMED BY WELDERS WITH AWS / W.A.B.O. CERTIFICATION WITH THE MATERIAL AND METHOD REQUIRED.

    SHOP DRAWINGS SHALL SHOW ALL WELDING WITH AWS A2.4 SYMBOLS. WELDS SHOWN ON DRAWINGS ARE MINIMUM SIZES. INCREASE WELD SIZE TO AWS MINIMUM SIZES BASED ON PLATE THICKNESS. MINIMUM WELDING SHALL BE 3/16-INCH. THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD ARROWS ARE SHOWN WHERE A FIELD WELD IS REQUIRED BY THE STRUCTURAL DESIGN; THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP OR FIELD WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL DELIVERY AND ERECTION.

WOOD

37. FRAMING LUMBER: SHALL BE KILN DRIED OR MC-19 (MOISTURE CONTENT LESS THAN 19%), AND GRADED AND MARKED IN CONFORMANCE WITH W.C.L.I.B. STANDARD NO. 17 GRADING RULES FOR WEST COAST LUMBER. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS (2X, 3X, AND 4X MEMBERS)	DOUGLAS FIR NO. 2
BEAMS AND STRINGERS (INCLUDING 6 X AND LARGER MEMBERS)	DOUGLAS FIR NO. 1
POSTS AND TIMBERS	DOUGLAS FIR NO. 1
STUDS, PLATES & MISCELLANEOUS LIGHT FRAMING (AS NOTED ON PLANS / DETAILS)	DOUGLAS FIR NO. 2

38. GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM D3737 AND ANSI A190.1 STANDARDS. EACH MEMBER SHALL BEAR AN A.I.T.C. IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN A.I.T.C. CERTIFICATE OF CONFORMANCE. CERTIFICATES OF CONFORMANCE MUST BE MADE AVAILABLE TO BUILDING INSPECTORS. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, Fb = 2,400 PSI, Fv = 240 PSI, E = 1,800 KSI. CAMBER ALL SIMPLE SPAN GLULAM BEAMS TO 5,000' RADIUS UNLESS SHOWN OTHERWISE ON THE PLANS.

39. LAMINATED VENEER LUMBER (LVL) SHALL BE DESIGNED AND MANUFACTURED PER ASTM D5456. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, AND THE INDEPENDENT INSPECTION AGENCY'S LOGO. ALL LAMINATED VENEER LUMBER SHALL BE MANUFACTURED USING DOUGLAS FIR VENEER GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. MINIMUM STRUCTURAL PROPERTIES ARE AS FOLLOWS:

    Fb = 2600 PSI, E = 2.0 x 10^6 PSI, Fv = 285 PSI

    DESIGN SHOWN ON PLANS IS BASED ON MATERIALS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

40. LAMINATED STRAND LUMBER (LSL) SHALL BE DESIGNED AND MANUFACTURED PER ASTM D5456. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, AND THE INDEPENDENT INSPECTION AGENCY'S LOGO. ALL LAMINATED STRAND LUMBER SHALL BE MANUFACTURED USING A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559. MINIMUM STRUCTURAL PROPERTIES ARE AS FOLLOWS:

    RIM JOISTS AND BLOCKING (1-1/4" MINIMUM THICKNESS AT NON-SHEAR WALLS; SEE SCHEDULE FOR MINIMUM THICKNESS AT SHEAR WALLS):
    Fb = 1700 PSI, E = 1.3 x 10^6 PSI, Fv = 400 PSI

    DESIGN SHOWN ON PLANS IS BASED ON MATERIALS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

41. WOOD I-JOIST DESIGN SHOWN ON PLANS IS BASED ON JOISTS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE I-JOIST MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALTERNATE JOIST HANGERS AND OTHER HARDWARE MAY BE SUBSTITUTED FOR ITEMS SHOWN PROVIDED THEY HAVE I.C.C. OR IAPMO UES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH WOOD JOIST PROVIDED. GLUE FLOOR JOISTS TO SHEATHING AS REQUIRED BY THE JOIST MANUFACTURER.

42. WOOD SHEATHING SHALL BE APA RATED, EXTERIOR GLUE; EXPOSURE 1, IN CONFORMANCE WITH THE REQUIREMENTS FOR THEIR TYPE IN DOC PS-1 OR PS-2. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS.

    UNLESS OTHERWISE NOTED ON THE PLANS, ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED TONGUE-AND-GROOVE 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 (2) 10d-F NAILS AT EACH END, UNLESS OTHERWISE NOTED. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2X BLOCKING AT ALL UNFRAMED PANEL EDGES AND NAIL WITH EDGE NAILING SPACED PER PLANS. WHERE NOT NOTED OTHERWISE, NAIL PANEL EDGES WITH 8d NAILS @ 6" O.C. EDGES, 12" O.C. IN THE FIELD.

43. ALL WOOD EXPOSED TO WEATHER, OR BEARING ON UNPROTECTED CONCRETE OR MASONRY BELOW GRADE, OR BEARING ON UNPROTECTED CONCRETE OR MASONRY LESS THAN 8" FROM EXPOSED EARTH SHALL BE PRESSURE-TREATED, U.O.N. PRESSURE TREATMENT SHALL BE WITH AN APPROVED PRESERVATIVE CONFORMING TO AMERICAN WOOD PRESERVERS ASSOCIATION U1 AND M4 AND SHALL BE BRANDED WITH A QUALITY CONTROL AGENCY MARK BY THE AWPA OR EQUAL. ALL METAL HARDWARE IN CONTACT WITH TREATED WOOD SHALL BE PROTECTED WITH A G185 GALVANIZED COATING (ZMAX) OR BETTER. ALL NAILS IN TREATED WOOD SHALL BE HOT-DIP GALVANIZED OR BETTER. PROVIDE 2 LAYERS OF 30# ASPHALT IMPREGNATED BUILDING PAPER BETWEEN NON-PRESSURE-TREATED LEDGERS, BLOCKING, ETC., AND CONCRETE OR MASONRY.

44. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NO. C-C-2021. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE I.C.C. OR IAPMO UES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. CONNECTORS SHALL BE SIZED TO MATCH THE SIZE OF THE FRAMING MEMBERS BEING CONNECTED. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. UNLESS NOTED OTHERWISE, ALL NAILS SHALL BE COMMON. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED. ALL BOLTS TIGHTENED TO SNUG TIGHT.

45. WOOD FASTENERS:

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

DRAWING ID	NAIL NAME	NAIL DIAMETER	NAIL LENGTH
"6d"	6d Common	0.113"	2"
"8d Box"	8d Box	0.113"	2-1/2"
"8d"	8d Common	0.131"	2-1/2"
"10d-F"	10d Framer	0.131"	3"
"10d"	10d Shear	0.148"	2-1/4"
"16d"	16d Sinker	0.148"	3-1/4"

    IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

    B. NAILS - SHEATHING FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

    C. SCREWS SHALL BE WOOD SCREWS OF THE DIAMETER AND LENGTH NOTED ON THE DRAWINGS. SDS FASTENERS ARE SIMPSON STRONG DRIVE SCREWS.

    D. HOT DIPPED GALVANIZED NAILS, BOLTS AND METAL PLATES - ALL NAILS, BOLTS AND METAL PLATES IN CONTACT WITH PRESSURE TREATED (INCLUDING FIRE-RETARDANT TREATED) LUMBER SHALL BE HOT DIPPED GALVANIZED.

46. 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 IBC. 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. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. TIGHTEN BOLTS AND LAG SCREWS SNUGLY AGAINST WOOD FRAMING AFTER WOOD HAS REACHED SPECIFIED MOISTURE CONTENT.

    B. WALL FRAMING: ALL BEARING AND SHEAR WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2 x 4 STUDS @ 16" O.C. AT INTERIOR WALLS AND 2 x 6 @ 16" O.C. AT EXTERIOR WALLS. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL BEARING AND SHEAR WALLS AND AT EACH SIDE OF ALL OPENINGS. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW.

    ALL BEARING STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS AT 8" O.C. STAGGERED OR BOLTED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS WITH 3"x3"x1/4" PLATE WASHERS @ 4'-0" O.C., UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH 10d-F NAILS @ 8" O.C. STAGGERED. REFER TO THE PLANS AND SHEAR WALL SCHEDULE FOR REQUIRED SHEATHING AND NAILING. WHEN NOT OTHERWISE NOTED, PROVIDE GYPSUM WALLBOARD ON INTERIOR SURFACES ATTACHED TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING WITH SCREWS AT 8" O.C. USE 1-1/4 " W #6 SCREWS FOR 1/2" GWB AND 5/8" GWB WHERE OCCURS. VERIFY THE FIRE ASSEMBLY REQUIREMENTS WHERE APPLICABLE WITH THE ARCHITECT.

    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. NAIL ALL MULTI-JOIST BEAMS TOGETHER WITH 10d-F NAILS @ 8" O.C. STAGGERED UNLESS OTHERWISE NOTED.

    D. POSITIVE CONNECTIONS: PROVIDE THE FOLLOWING SIMPSON CONNECTORS AT TYPICAL FRAMING UNLESS OTHERWISE NOTED ON PLAN OR DETAIL. PROVIDE BC BASE WHERE POST BEARS ON WOOD FRAMING BELOW. PROVIDE LUS SERIES HANGERS FOR 2X FLOOR AND ROOF JOISTS. CONNECTORS SHALL BE SIZED TO MATCH THE SIZE OF THE FRAMING MEMBERS BEING CONNECTED.

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
e geoff@schemataworkshop.com

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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GENERAL STRUCTURAL NOTES

S101

GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

47. WOOD SHEATHING INSTALLED OVER DECKING SHALL BE APA RATED, EXTERIOR GLUE; EXPOSURE 1, IN CONFORMANCE WITH THE REQUIREMENTS FOR THEIR TYPE IN DOC PS-1 OR PS-2. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND SPECIAL NAILING REQUIREMENTS.

UNLESS OTHERWISE NOTED ON THE PLANS, ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH FACE GRAIN PERPENDICULAR TO DECKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS. NAIL SHEATHING TO DECKING WITH 6d GALVANIZED ROOFING NAILS (0.120" DIA.) X 1.75" NAILS AT 6" O.C. EDGES AND 12" O.C. EACH WAY IN THE FIELD. OFFSET PANEL EDGES PARALLEL AND ADJACENT TO DECKING JOINT BY 1" MINIMUM.

STRUCTURAL OBSERVATION

AS NOTED IN IBC SECTION 1704.6, STRUCTURAL OBSERVATION IS REQUIRED FOR THIS PROJECT. STRUCTURAL OBSERVATION MEANS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, INCLUDING BUT NOT LIMITED TO, THE ELEMENTS AND CONNECTIONS AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY OF THE INSPECTIONS REQUIRED BY IBC SECTIONS 110 AND 1704.

IN OUR STRUCTURAL OBSERVATION, WE WILL SELECT PORTIONS OF WORK TO REVIEW CLOSELY AS WELL AS OBSERVE THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. SUCH REVIEW PROCEDURES WILL BE CONDUCTED IN ACCORDANCE WITH COMMONLY ACCEPTED STANDARDS OF PRACTICE. THE BUILDING OFFICIAL UNDERSTANDS THAT SUCH PROCEDURES INDICATE ACTUAL CONDITIONS ONLY WHERE THE REVIEW IS PERFORMED AND THAT THE RESULTS WILL BE INFERRED TO EXIST IN OTHER AREAS NOT REVIEWED.

THE BUILDING OFFICIAL ALSO RECOGNIZES THAT STRUCTURAL REVIEW IS A TECHNIQUE EMPLOYED TO MINIMIZE THE RISK OF PROBLEMS ARISING DURING CONSTRUCTION. STRUCTURAL OBSERVATION BY THE DESIGN PROFESSIONAL DOES NOT CONSTITUTE WARRANTY OR GUARANTEE OF ANY TYPE. IN ALL CASES, THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR THE QUALITY OF WORK AND FOR ADHERENCE TO THE APPROVED PLANS AND SPECIFICATIONS.

ABBREVIATIONS

@	At	L	Angle
d	Penny (Nails)	LB.	Pound
ϕ	Diameter	LL	Live Load
°	Degrees	LLH	Long Leg Horizontal
...#	Pounds	LLV	Long Leg Vertical
#...	Number	LONGIT.	Longitudinal
		LT. WT.	Lightweight
(A)	Above		
A.B.	Anchor Bolt	MAX.	Maximum
ADD'L	Additional	MECH.	Mechanical
ALT.	Alternate	MEZZ.	Mezzanine
APPROX.	Approximate	MF	Moment Frame
ARCH.	Architect	MFR.	Manufacturer
		MIN.	Minimum
(B)	Below	MISC.	Miscellaneous
B/	Bottom of	MK.	Mark
BF	Braced Frame		
BLKG.	Blocking	(N)	New
BLDG.	Building	N.	North
BM.	Beam	N.S.	Near Side
BOT.	Bottom	NOM.	Nominal
BRG.	Bearing	NTS	Not to Scale
BTWN.	Between		
		O.C.	On Center
CL or ℄	Centerline	O.D.	Outside Diameter
C	Camber	O.F.	Outside Face
CIP	Cast In Place	O.H.	Overhang
C.J.	Construction Joint or Control Joint	OPNG.	Opening
CJP	Complete Joint Penetration	OPP.	Opposite
CLG.	Ceiling		
CLR.	Clear	PAF	Powder Actuated Fastener
CMU	Concrete Masonry Unit	PC	Precast
COL.	Column	PERM.	Permanent
CONC.	Concrete	PERP.	Perpendicular
CONN.	Connections	PJP	Partial Joint Penetration
CONST.	Construction	PL or ℗	Plate
CONT.	Continuous	PLF	Pounds per linear Foot
CSK.	Countersink	PLYWD	Plywood
		PREFAB.	Prefabricated
DBA	Deformed Bar Anchor	PSF	Pounds per Square Foot
DBL.	Double	PSI	Pounds per Square Inch
DEG.	Degree	P.T. or PT	Post-Tensioning
DF	Doug Fir-Larch	P/T	Pressure-Treated
DIA.	Diameter		
DIAG.	Diagonal	RAD.	Radius
DIAPH.	Diaphragm	REF.	Reference
DIM.	Dimension	REINF.	Reinforce or Reinforcement
DN.	Down	REQD.	Required
DO	Ditto	REV.	Revise
DTL.	Detail	R.O.	Rough Opening
DTP	Double Top Plate		
DWG.	Drawing	S.	South
		SCH. or SCHED.	Schedule
(E)	Existing	SECT.	Section
E.	East	SHT.	Sheet
EA.	Each	SIM.	Similar
E.F.	Each Face	SOG	Slab On Grade
EL.	Elevation	SPEC.	Specification
ELEV.	Elevator	SQ.	Square
EMBED.	Embedment Length	SQ. FT.	Square Feet
ENGR.	Engineer	SQ. IN.	Square Inch(es)
EQ.	Equal	SPF	Spruce-Pine-Fir
E.W.	Each Way	S.S.	Stainless Steel
EXP.	Expansion	STD.	Standard
EXT.	Exterior	STIFF.	Stiffener
		STL.	Steel
FDN.	Foundation	STR.	Structural
FIN.	Finish	SUB.	Substitute
FLR.	Floor	SYM.	Symmetrical
FRP	Fiber Reinforced Polymer		
F.S.	Far Side	T/	Top of
FT.	Foot or Feet	T&B	Top and Bottom
FTG.	Footing	T&G	Tongue & Groove
		TEMP.	Temporary
GA.	Gauge	THRU	Through
GALV.	Galvanized	T.O.C.	Top of Concrete
GL	Glue Laminated	T.O.S.	Top of Steel
GWB	Gypsum Wall Board	T.O.W.	Top of Wall
		TRANS.	Transverse
HDG	Hot Dipped Galvanized	TS	Tube Steel
HDR.	Header	TYP.	Typical
HF	Hem Fir		
HGR.	Hanger	U.O.N.	Unless Otherwise Noted
HORIZ.	Horizontal		
HSS	Hollow Structural Section	VERT.	Vertical
HT.	Height	VIF	Verify in Field
I.D.	Inside Diameter	W.	West
I.F.	Inside Face	W/ or w/	With
IN.	Inch	W.H.S.	Welded Headed Stud
INFO.	Information	W/O	Without
INT.	Interior	W.P.	Work Point
		W.T.S.	Welded Threaded Stud
JT.	Joint	WWF	Welded Wire Fabric
K	Kips	X SECT.	Cross Section
KSF	Kips per Square Foot	X-STR	Extra Strong
KSI	Kips per Square Inch	XX-STR	Double Extra Strong

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
e geoff@schemataworkshop.com

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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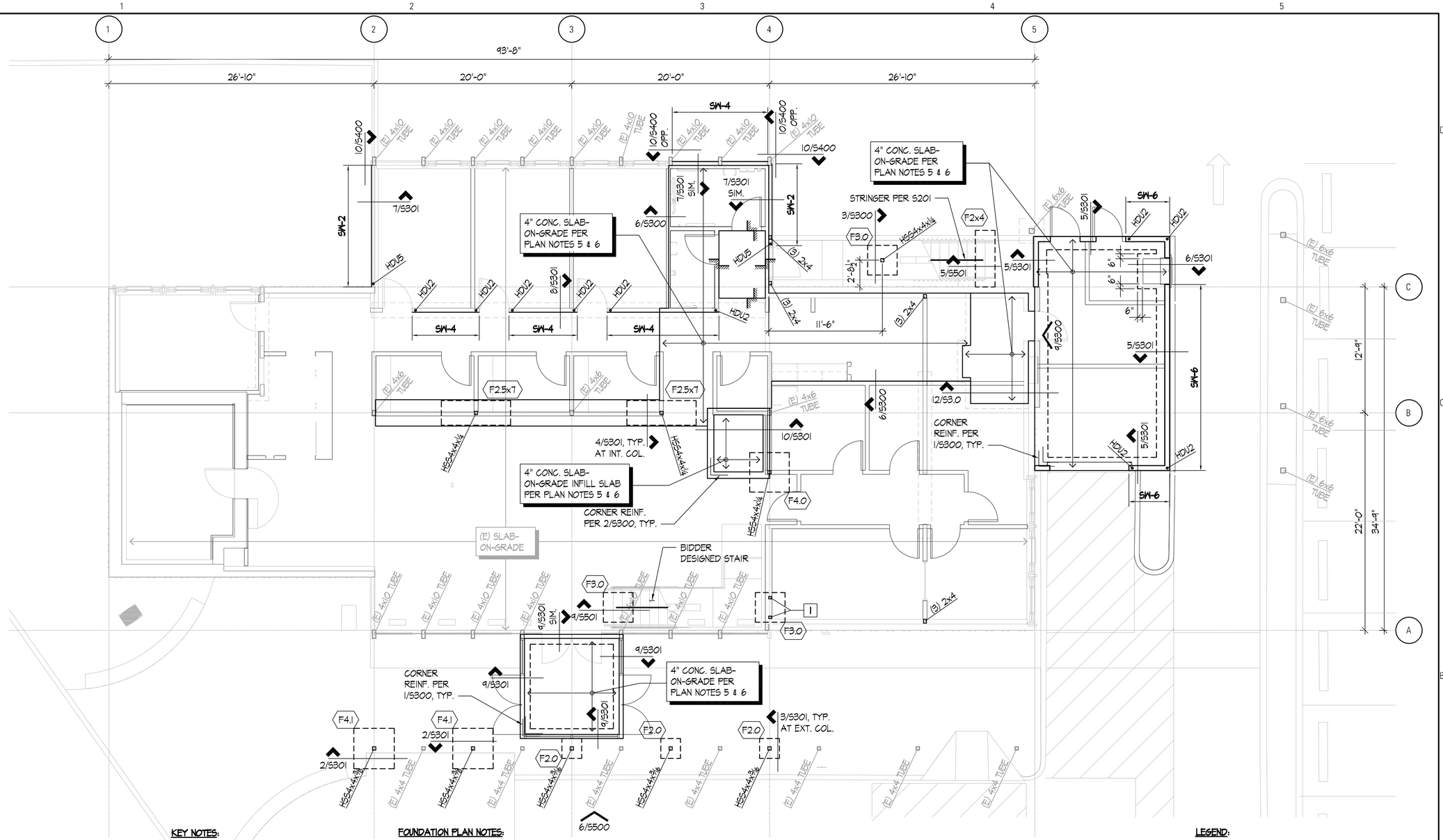
SANDRO K. KODAMA — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

GENERAL STRUCTURAL NOTES

S102



FOUNDATION PLAN

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

KEY NOTES:

1 (2) 2x4 TRIMMER w/ (2) 2x4 KING STUD

FOUNDATION PLAN NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND MANUFACTURER'S DRAWINGS BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
2. ALL EXISTING INFORMATION IS ASSUMED AND SHALL BE FIELD VERIFIED. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
3. FOR STRUCTURAL GENERAL NOTES AND ABBREVIATIONS SEE SHEETS S100 TO S102.
4. FOR TYPICAL CONCRETE & FOUNDATION DETAILS SEE SHEETS S300 TO S301.
5. SLAB-ON-GRADE SHALL BE 4" THICK CONCRETE REINFORCED WITH #4 @ 16" O.C. EACH WAY AT MID-DEPTH, U.O.N. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SUB-GRADE MOISTURE BARRIER AND ELEVATIONS, ETC.
6. FOR SLAB-ON-GRADE JOINTS, SEE DETAIL 5/S300.
7. WHERE NEW CONCRETE IS CAST AGAINST EXISTING CONCRETE FOUNDATIONS, DRILL AND EPOXY #4 DOWELS x 3'-0" LONG TO LAP WITH THE NEW FOOTING LONGITUDINAL REINFORCING (5" MINIMUM EMBEDMENT).
8. ALL WOOD BEARING ON UNPROTECTED CONCRETE OR MASONRY, EXPOSED TO WEATHER, OR WITHIN 8" OF FINISHED GRADE SHALL BE PRESSURE-TREATED, U.O.N.
9. FOR SILL PLATE ANCHOR BOLT LAYOUT TO CONCRETE FOUNDATION WALLS AND SLABS, SEE DETAIL 1/S400.
10. ALL BEARING AND SHEAR WALLS SHALL BE 2x4 @ 16" O.C. MINIMUM.
11. Fx.x INDICATES SPREAD FOOTING TYPE, SEE 12/S301 FOR SCHEDULE.
12. SW-x INDICATES SHEAR WALL AT THIS LEVEL. SEE SHEAR WALL SCHEDULE 8/S400 FOR SHEATHING, BLOCKING, NAILING, AND ANCHOR BOLT REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE SHEATHED PER SW-6 CRITERIA U.O.N.
13. HDUx INDICATES HOLDOWN TO CONCRETE FOUNDATION WALLS OR FOOTINGS. SEE 12/S400 FOR HOLDOWN DETAIL. USE MIN. (2) 2x POST U.O.N.

LEGEND:

Fx.x INDICATES SPREAD FOOTING. SEE 12/S301 FOR SCHEDULE

INDICATES FOOTING

INDICATES FOUNDATION WALL, WOOD BEARING WALL OR SHEAR WALL ABOVE FLOOR FRAMING

INDICATES NON-BEARING/ NON-SHEAR WALL ABOVE

HDUx INDICATES HOLDOWN TYPE AT THIS LEVEL. SEE PLAN NOTE 13

INDICATES COLUMN, SIZE CALLED OUT AT BOTTOM OF COLUMN

INDICATES SLAB STEP PER 10/S300

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
e geoff@schemataworkshop.com

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v. (206) 394.3757

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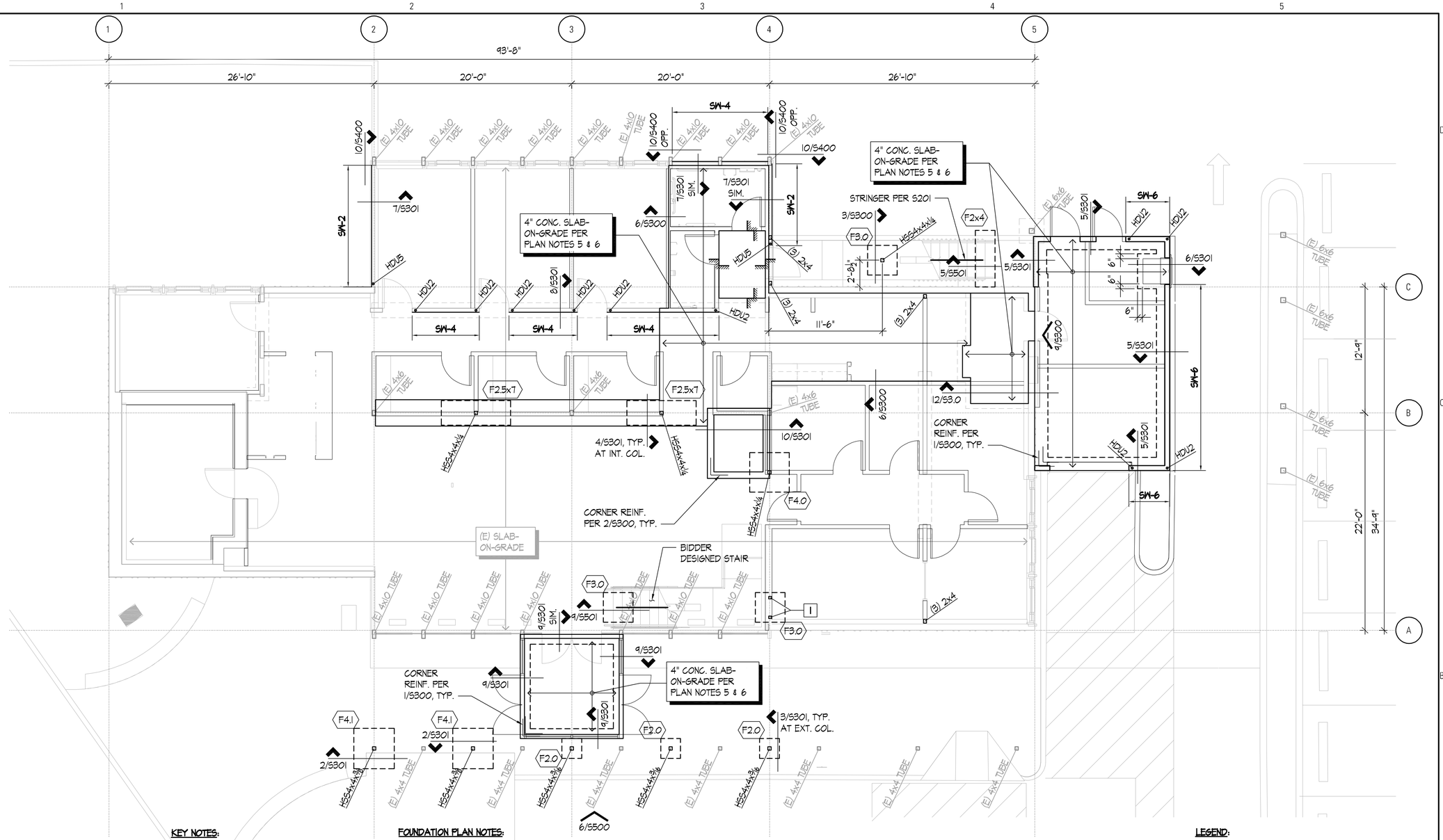
FOUNDATION PLAN

S200

File: 137-s200.dwg Plotted: Thu, 08/17/2023 9:14 am



KEY NOTES:

1 (2) 2x4 TRIMMER w/ (2) 2x4 KING STUD

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3. FOR STRUCTURAL GENERAL NOTES AND ABBREVIATIONS SEE SHEETS S100 TO S102.
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5. SLAB-ON-GRADE SHALL BE 4" THICK CONCRETE REINFORCED WITH #4 @ 16" O.C. EACH WAY AT MID-DEPTH, U.O.N. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SUB-GRADE MOISTURE BARRIER AND ELEVATIONS, ETC.
6. FOR SLAB-ON-GRADE JOINTS, SEE DETAIL 5/S300.
7. WHERE NEW CONCRETE IS CAST AGAINST EXISTING CONCRETE FOUNDATIONS, DRILL AND EPOXY #4 DOWELS x 3'-0" LONG TO LAP WITH THE NEW FOOTING LONGITUDINAL REINFORCING (5" MINIMUM EMBEDMENT).
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9. FOR SILL PLATE ANCHOR BOLT LAYOUT TO CONCRETE FOUNDATION WALLS AND SLABS, SEE DETAIL 1/S400.
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12. SW-x INDICATES SHEAR WALL AT THIS LEVEL. SEE SHEAR WALL SCHEDULE 8/S400 FOR SHEATHING, BLOCKING, NAILING, AND ANCHOR BOLT REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE SHEATHED PER SW-6 CRITERIA U.O.N.
13. HDUx INDICATES HOLDOWN TO CONCRETE FOUNDATION WALLS OR FOOTINGS. SEE 12/S400 FOR HOLDOWN DETAIL. USE MIN. (2) 2x POST U.O.N.

LEGEND:

- Fx.x — INDICATES SPREAD FOOTING. SEE 12/S301 FOR SCHEDULE
- INDICATES FOOTING
- INDICATES FOUNDATION WALL, WOOD BEARING WALL OR SHEAR WALL ABOVE FLOOR FRAMING
- INDICATES NON-BEARING/ NON-SHEAR WALL ABOVE
- HDUx — INDICATES HOLDOWN TYPE AT THIS LEVEL. SEE PLAN NOTE 13
- INDICATES COLUMN, SIZE CALLED OUT AT BOTTOM OF COLUMN
- INDICATES SLAB STEP PER 10/S300

ALTERNATE FOUNDATION PLAN

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

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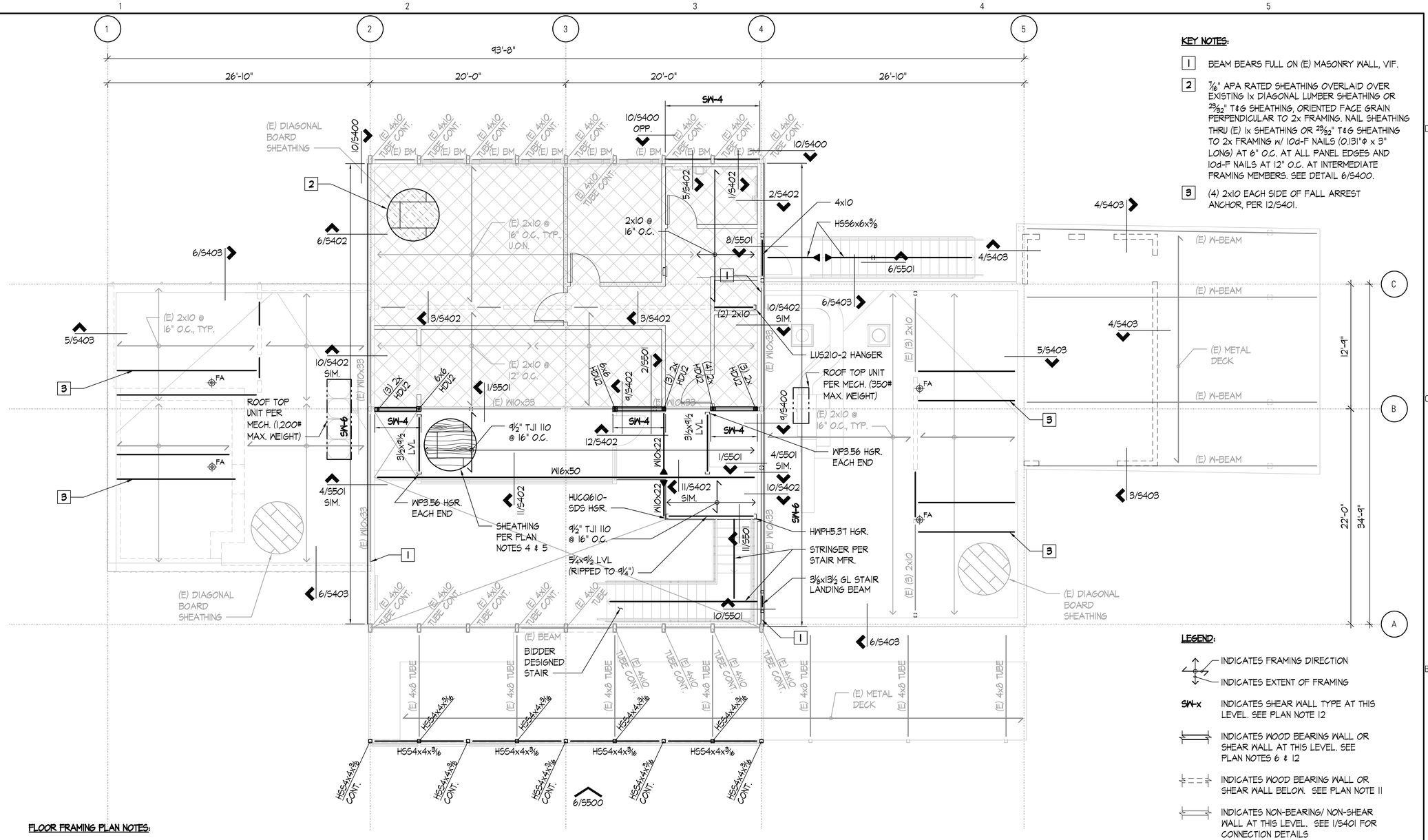
S200 - ALT



KEY NOTES:

1. BEAM BEARS FULL ON (E) MASONRY WALL, TYP.
2. 7/16" APA RATED SHEATHING OVERLAID OVER EXISTING 1x DIAGONAL LUMBER SHEATHING OR 23/32" T&G SHEATHING, ORIENTED FACE GRAIN PERPENDICULAR TO 2x FRAMING. NAIL SHEATHING THRU (E) 1x SHEATHING OR 23/32" T&G SHEATHING TO 2x FRAMING W/ 10d-F NAILS (0.131"Φ x 3" LONG) AT 6" O.C. AT ALL PANEL EDGES AND 10d-F NAILS AT 12" O.C. AT INTERMEDIATE FRAMING MEMBERS. SEE DETAIL 6/S400.
3. (4) 2x10 EACH SIDE OF FALL ARREST ANCHOR, PER 12/S401.

FLOOR FRAMING PLAN NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ON THE STRUCTURAL PLANS ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR WITH THE ARCHITECTURAL DRAWINGS BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER IMMEDIATELY.
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3. SEE SHEETS S100, S101 AND S102 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS. SEE SHEETS S400, S401 AND S402 FOR TYPICAL WOOD & FLOOR DETAILS.
4. TYPICAL FLOOR FRAMING CONSISTS OF 23/32" APA RATED T&G SHEATHING (INDEX 48/24), LAID FACE GRAIN PERPENDICULAR OVER 9½" TJI 110 JOISTS AT 16" O.C. HANG TJI JOISTS WITH ITS TOP FLANGE HANGERS TYPICAL AT FLUSH BEAMS, U.O.N.
5. NAIL FLOOR SHEATHING TO FRAMING WITH 8d NAILS (0.131"Φ x 2.5" LONG) AT 6" O.C. AT ALL PANELS EDGES AND 8d NAILS AT 12" O.C. AT INTERMEDIATE FRAMING MEMBERS). SEE DETAIL 6/S400.
6. ALL BEARING AND SHEAR WALLS SHALL BE 2x4 @ 16" O.C. MINIMUM.
7. POSTS INDICATED ARE AT THIS LEVEL. ALL POSTS NOT SPECIFIED SHALL BE (2) 2x U.O.N. SOLID SAWN MEMBERS OF EQUIVALENT SIZE MAY BE SUBSTITUTED FOR BUILT-UP MEMBERS (SUCH AS A 4x6 FOR (3) 2x4).
8. PROVIDE SOLID OR BUILT-UP WOOD POSTS BENEATH THE ENDS OF ALL FLOOR BEAMS AND ALL POSTS ABOVE FOR FULL BEARING. PROVIDE BLKG. AT JOISTS PER DETAIL 7/S401.
9. ALL HEADERS NOT SHOWN ON PLAN SHALL BE (2) 2x10 FOR EXTERIOR BEARING WALLS AND (2) 2x10 FOR INTERIOR BEARING WALLS. SEE 10/S401 FOR HEADER DETAIL.
10. FOR TOP PLATE SPLICE SEE DETAIL 6/S401.
11. ALIGN A JOIST OR JOIST BLOCKING OVER THE FULL LENGTH OF ALL BEARING/SHEAR WALLS. SEE 8/S400 FOR SPECIAL SHEAR WALL BLOCKING REQUIREMENTS.
12. SW-x INDICATES SHEAR WALL AT THIS LEVEL. SEE SHEAR WALL SCHEDULE 8/S400 FOR SHEATHING, BLOCKING, NAILING, AND ANCHOR BOLT REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE SHEATHED PER SW-6 CRITERIA, U.O.N.
13. HDUx INDICATES HOLDOWN TO STEEL BEAM. SEE 8/S402 FOR HOLDOWN DETAIL. USE MIN. (3) 2x POST U.O.N.

LEGEND:

- INDICATES FRAMING DIRECTION
- INDICATES EXTENT OF FRAMING
- SW-x INDICATES SHEAR WALL TYPE AT THIS LEVEL. SEE PLAN NOTE 12
- INDICATES WOOD BEARING WALL OR SHEAR WALL AT THIS LEVEL. SEE PLAN NOTES 6 & 12
- INDICATES WOOD BEARING WALL OR SHEAR WALL BELOW. SEE PLAN NOTE 11
- INDICATES NON-BEARING/ NON-SHEAR WALL AT THIS LEVEL. SEE 1/S401 FOR CONNECTION DETAILS
- INDICATES HEADER MEMBER. SEE PLAN NOTE 9
- (#)2x INDICATES MULTIPLE STUD POST AT THIS LEVEL. SEE PLAN NOTE 7
- HDUx INDICATES HOLDOWN TYPE AT THIS LEVEL. SEE PLAN NOTE 13
- #x INDICATES COLUMN, SIZE CALLED OUT AT BOTTOM OF COLUMN
- INDICATES A MOMENT CONNECTION PER 7/S501
- FA INDICATES FALL ARREST ANCHOR. SEE 12/S401
- INDICATES EXTENT OF SHEATHING OVERLAY PER KEY NOTE 2

LEVEL 2 AND LOW ROOF FRAMING PLAN

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

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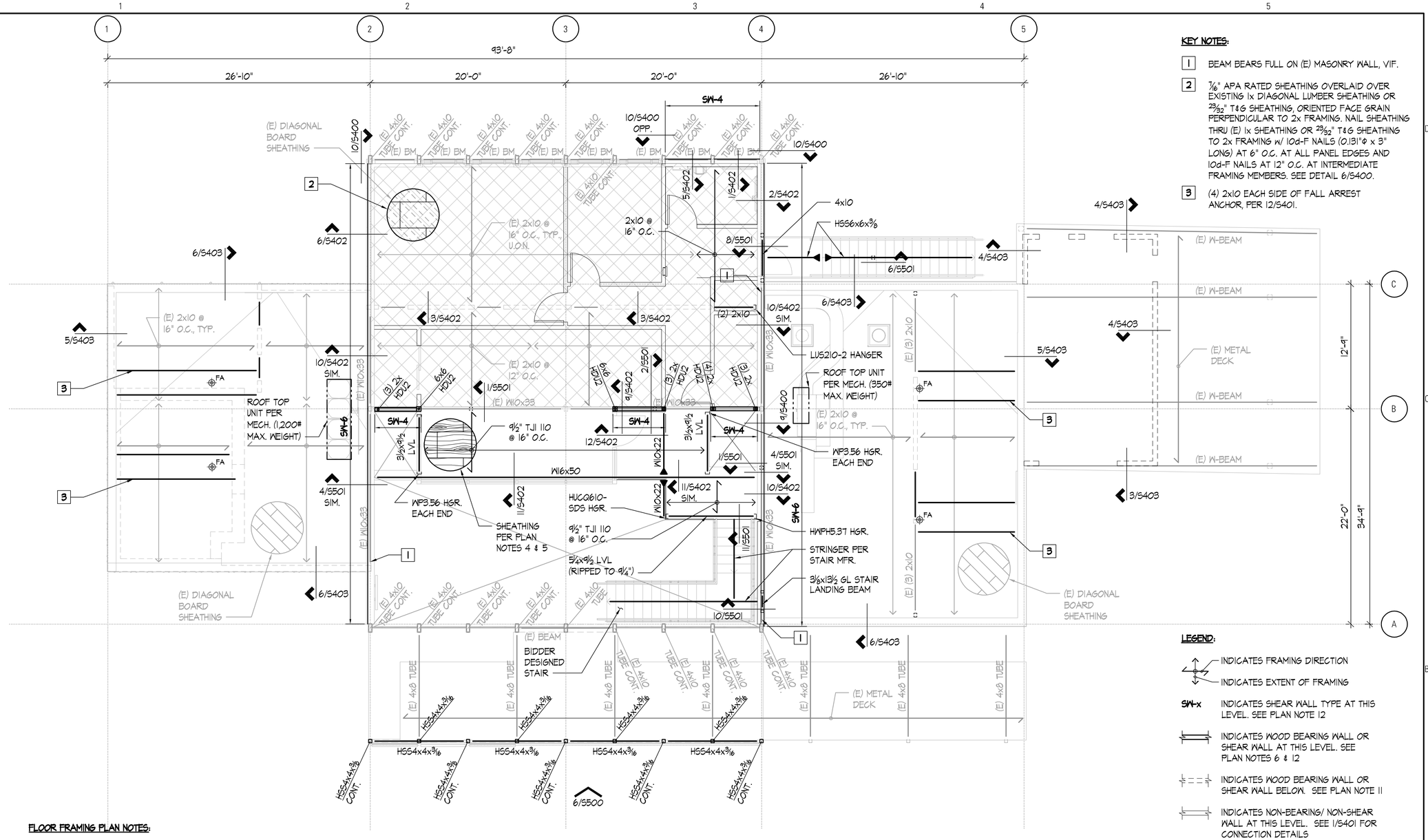
LEVEL 2 AND LOW ROOF FRAMING PLAN

S201



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3. (4) 2x10 EACH SIDE OF FALL ARREST ANCHOR, PER 12/S401.

LEGEND:

- INDICATES FRAMING DIRECTION
- INDICATES EXTENT OF FRAMING
- SW-x — INDICATES SHEAR WALL TYPE AT THIS LEVEL. SEE PLAN NOTE 12
- INDICATES WOOD BEARING WALL OR SHEAR WALL AT THIS LEVEL. SEE PLAN NOTES 6 & 12
- INDICATES WOOD BEARING WALL OR SHEAR WALL BELOW. SEE PLAN NOTE 11
- INDICATES NON-BEARING/ NON-SHEAR WALL AT THIS LEVEL. SEE 1/S401 FOR CONNECTION DETAILS
- INDICATES HEADER MEMBER. SEE PLAN NOTE 9
- (#)2X — INDICATES MULTIPLE STUD POST AT THIS LEVEL. SEE PLAN NOTE 7
- HDUx — INDICATES HOLDOWN TYPE AT THIS LEVEL. SEE PLAN NOTE 13
- x2 — INDICATES COLUMN, SIZE CALLED OUT AT BOTTOM OF COLUMN
- INDICATES A MOMENT CONNECTION PER 7/S501
- FA — INDICATES FALL ARREST ANCHOR. SEE 12/S401
- INDICATES EXTENT OF SHEATHING OVERLAY PER KEY NOTE 2

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5. NAIL FLOOR SHEATHING TO FRAMING WITH 8d NAILS (0.131"Φ x 2.5" LONG) AT 6" O.C. AT ALL PANELS EDGES AND 8d NAILS AT 12" O.C. AT INTERMEDIATE FRAMING MEMBERS). SEE DETAIL 6/S400.
6. ALL BEARING AND SHEAR WALLS SHALL BE 2x4 @ 16" O.C. MINIMUM.
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8. PROVIDE SOLID OR BUILT-UP WOOD POSTS BENEATH THE ENDS OF ALL FLOOR BEAMS AND ALL POSTS ABOVE FOR FULL BEARING. PROVIDE BLKG. AT JOISTS PER DETAIL 7/S401.
9. ALL HEADERS NOT SHOWN ON PLAN SHALL BE (2) 2x10 FOR EXTERIOR BEARING WALLS AND (2) 2x10 FOR INTERIOR BEARING WALLS. SEE 10/S401 FOR HEADER DETAIL.
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13. HDUx — INDICATES HOLDOWN TO STEEL BEAM. SEE 8/S402 FOR HOLDOWN DETAIL. USE MIN. (3) 2x POST U.O.N.

ALTERNATE
LEVEL 2 AND LOW ROOF FRAMING PLAN

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

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ALTERNATE
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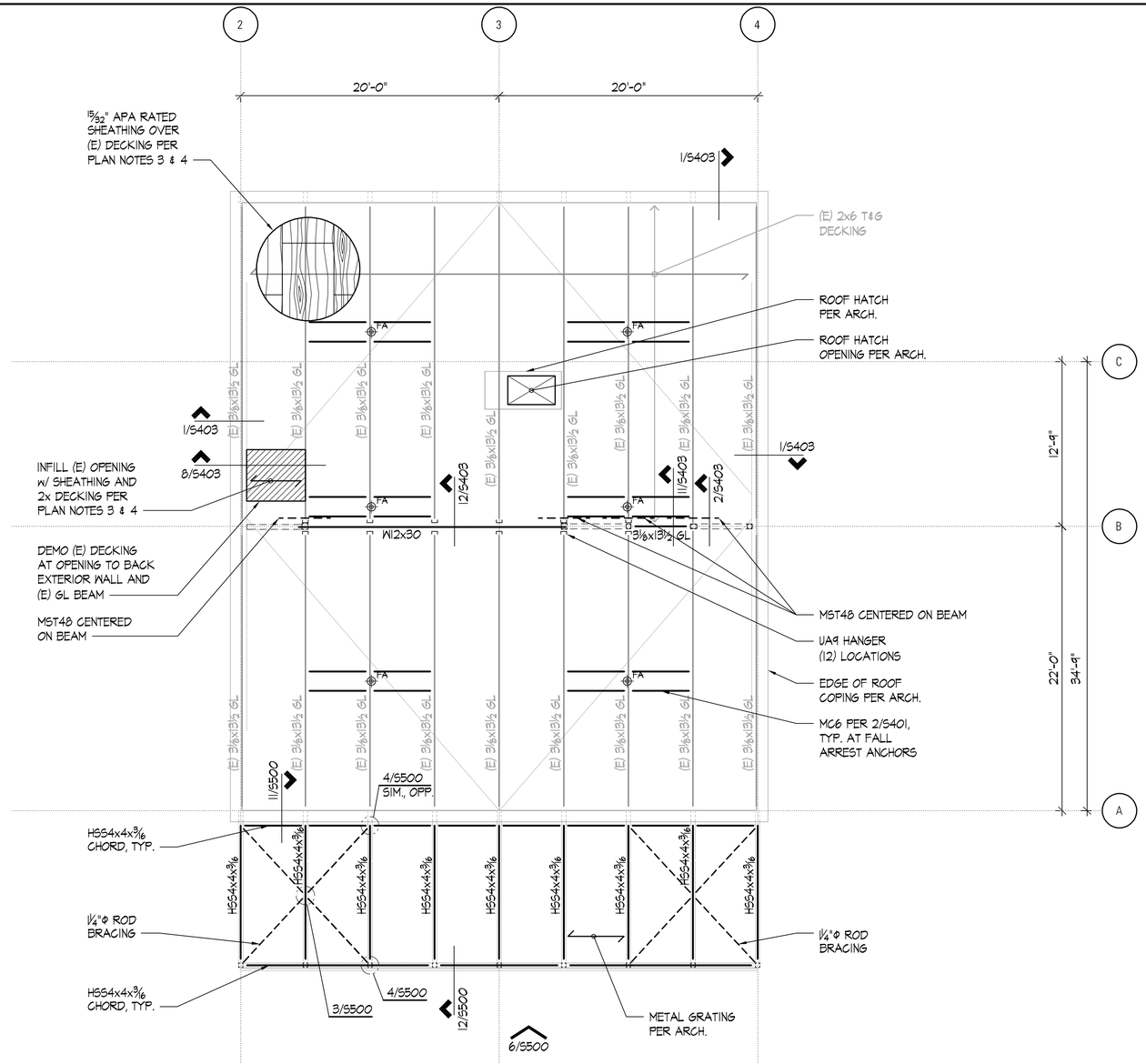
S201 - ALT



ROOF FRAMING PLAN

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

ROOF FRAMING PLAN NOTES:

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2. SEE SHEETS S100, S101 AND S102 FOR GENERAL STRUCTURAL NOTES AND ABBREVIATIONS. SEE SHEETS S400, S401 AND S403 FOR TYPICAL WOOD & ROOF DETAILS.
3. TYPICAL ROOF FRAMING CONSISTS OF 15/32" APA RATED SHEATHING (INDEX 32/16), LAID FACE GRAIN PERPENDICULAR OVER (E) T&G 2x ROOF DECKING, SPANNING BETWEEN (E) 3⅛x13½ GL BEAMS.
4. NAIL ROOF SHEATHING TO FRAMING WITH 6d GALVANIZED ROOFING NAILS (0.120"Φx1.75" LONG) AT 6" O.C. AT ALL PANELS EDGES AND AT 12" O.C. IN THE FIELD, PER GENERAL NOTES.
5. PROVIDE SOLID OR BUILT-UP WOOD POSTS BENEATH THE ENDS OF ALL ROOF BEAMS FOR FULL BEARING.
6. FOR TOP PLATE SPLICE SEE DETAIL 6/S401.

LEGEND:

- INDICATES FRAMING DIRECTION
- INDICATES EXTENT OF FRAMING
- INDICATES WOOD BEARING WALL OR SHEAR WALL BELOW. SEE PLAN NOTE 6
- FA — INDICATES FALL ARREST ANCHOR. SEE 2/S401

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ROOF FRAMING PLAN

S202

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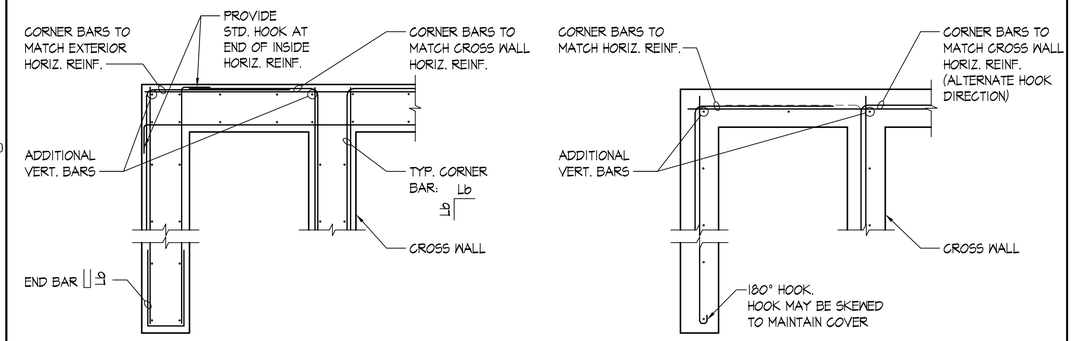


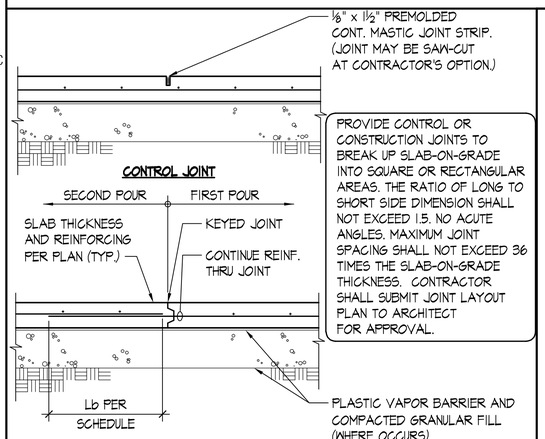
DOUBLE CURTAIN

SINGLE CURTAIN

NOTE:
SEE SCHEDULE FOR SPLICES & DEVELOPMENT LENGTHS

PLAN VIEW

TYPICAL CORNER AND WALL END BAR ARRANGEMENT AT CONCRETE WALLS OR FOOTINGS SCALE: NONE **2**

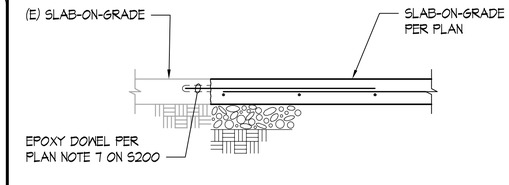


CONTROL JOINT

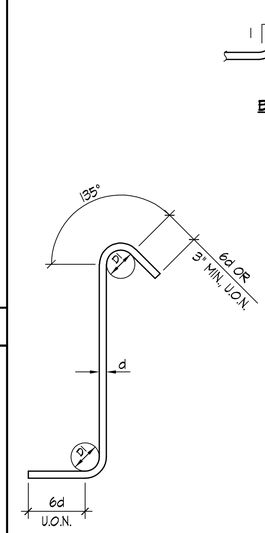
PROVIDE CONTROL OR CONSTRUCTION JOINTS TO BREAK UP SLAB-ON-GRADE INTO SQUARE OR RECTANGULAR AREAS. THE RATIO OF LONG TO SHORT SIDE DIMENSION SHALL NOT EXCEED 1.5. NO ACUTE ANGLES. MAXIMUM JOINT SPACING SHALL NOT EXCEED 36 TIMES THE SLAB-ON-GRADE THICKNESS. CONTRACTOR SHALL SUBMIT JOINT LAYOUT PLAN TO ARCHITECT FOR APPROVAL.

CONSTRUCTION JOINT

TYPICAL SLAB-ON-GRADE JOINTS SCALE: NONE **5**



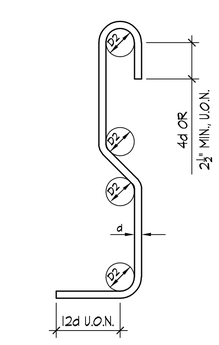
NEW / EXISTING SLAB-ON-GRADE INTERFACE SCALE: NONE **6**



BAR OFFSET

D1 = 1½" FOR #3
D1 = 2" FOR #4
D1 = 2½" FOR #5

HOOKS & BENDS FOR STIRRUPS & TIES



D2 = 6d FOR #3 TO #8
D2 = 8d FOR #9 TO #11
D2 = 10d FOR #14 & #18

STD. BAR HOOKS & BENDS

TYPICAL REBAR BENDS SCALE: NONE **7**

REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE

(FOR GRADE 60, UNCOATED BARS, NORMAL WEIGHT CONCRETE)

(I) MINIMUM STRAIGHT DEVELOPMENT LENGTH FOR BARS IN TENSION (L_d)

f'c = 3000 PSI		
BAR SIZE	TOP BARS	OTHER BARS
# 3	21"	16"
# 4	28"	22"
# 5	36"	27"
# 6	43"	33"
# 7	62"	48"
# 8	71"	55"

NOTE:
"TOP BARS" ARE HORIZONTAL BARS w/ MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM. IF CLEAR CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN 2 BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

(II) MINIMUM CLASS "B" LAP SPLICE LENGTH FOR BARS IN TENSION (L_b)

f'c = 3000 PSI		
BAR SIZE	TOP BARS	OTHER BARS
# 3	28"	21"
# 4	37"	28"
# 5	46"	36"
# 6	56"	43"
# 7	81"	62"
# 8	93"	71"

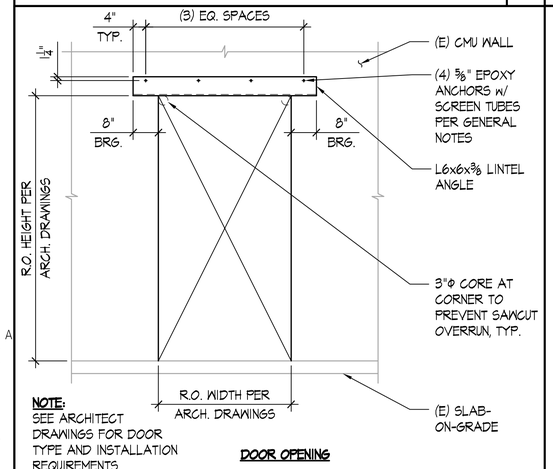
NOTE:
"TOP BARS" IN BEAMS ARE HORIZONTAL BARS w/ MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM. IF CLEAR CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN 2 BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 50%.

(III) MINIMUM EMBEDMENT LENGTHS FOR STANDARD END HOOKS (L_{dh})

f'c = 3000 PSI	
BAR SIZE	ALL BARS
# 3	6"
# 4	8"
# 5	10"
# 6	12"
# 7	13"
# 8	15"

NOTE:
IF SIDE COVER IS NOT EQUAL TO OR GREATER THAN 2½" AND/OR END COVER FOR HOOKS IS NOT EQUAL TO OR GREATER THAN 2", THEN VALUES SHALL BE INCREASED BY 43%.

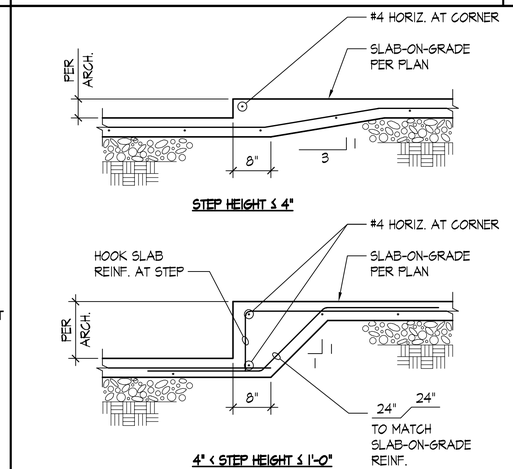
TYPICAL SPLICE SCHEDULE SCALE: NONE **8**



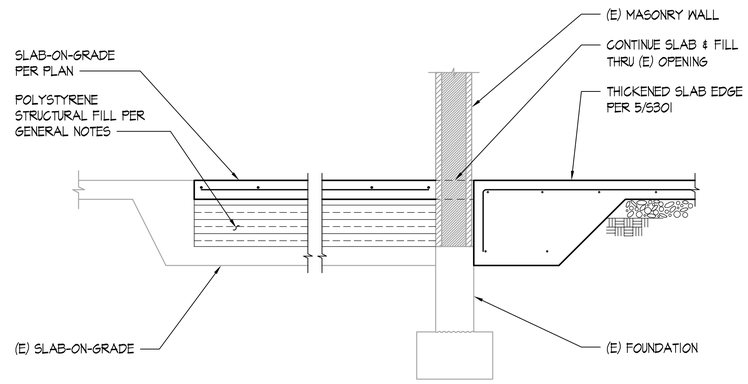
NOTE:
SEE ARCHITECT DRAWINGS FOR DOOR TYPE AND INSTALLATION REQUIREMENTS

DOOR OPENING

NEW OPENING IN (E) MASONRY WALL (MEP ROOM DOOR) SCALE: NONE **9**



TYPICAL SLAB-ON-GRADE STEP SCALE: NONE **10**



SLAB-ON-GRADE INFILL SCALE: NONE **12**

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
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SANDRO K. KODAMA — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

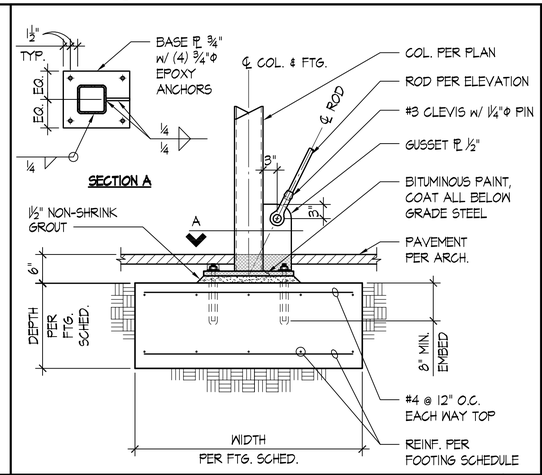
AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

CONCRETE DETAILS

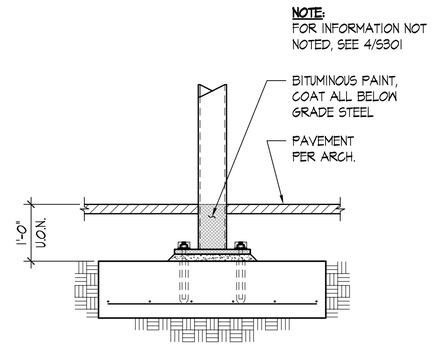
S300

File: 137-s300.dwg Plotted: Thu, 08/17/2023 9:11 am

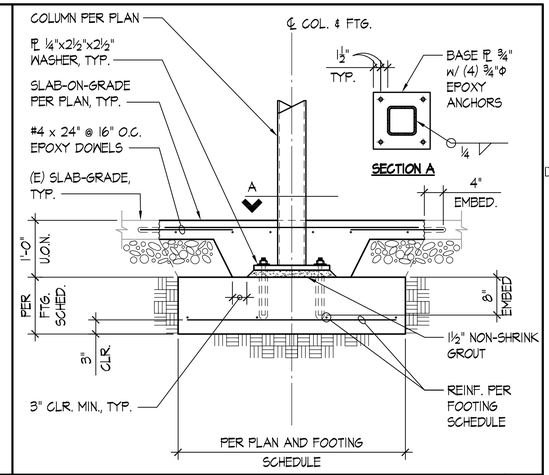


DETAIL SCALE: NONE | 1

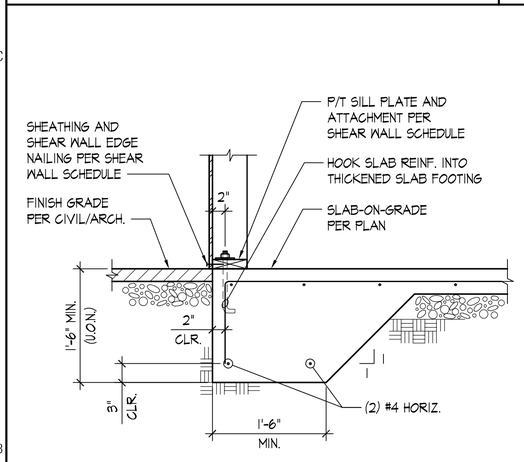
EXTERIOR SPREAD FOOTING SUPPORT BRACED FRAME HSS COLUMN SCALE: NONE | 2



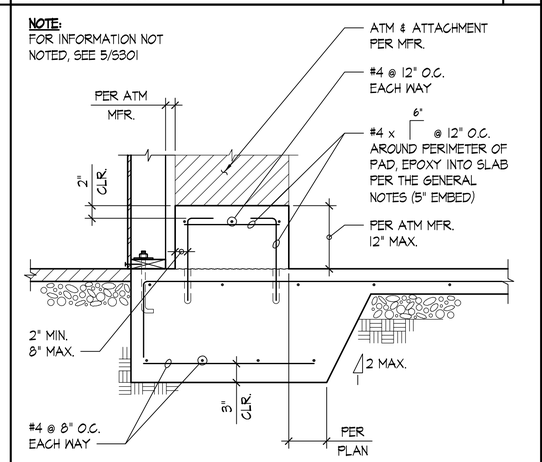
TYPICAL EXTERIOR SPREAD FOOTING SUPPORTING HSS COLUMN SCALE: NONE | 3



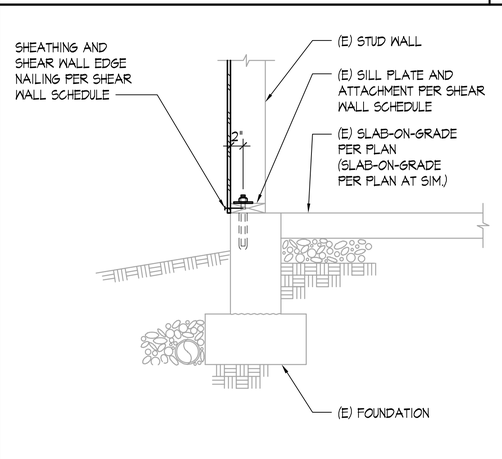
TYPICAL INTERIOR SPREAD FOOTING SUPPORTING HSS COLUMN SCALE: NONE | 4



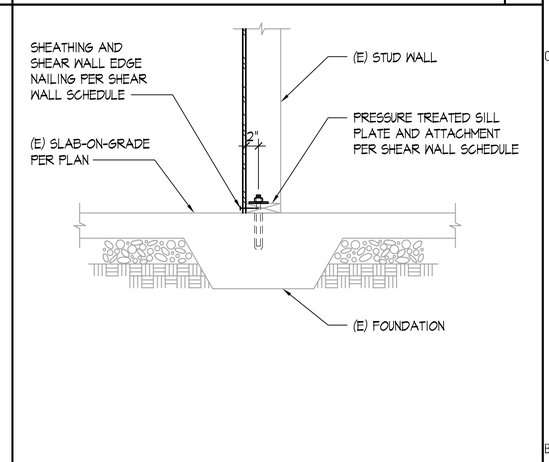
TYPICAL THICKENED SLAB AT BUILDING EDGE SCALE: NONE | 5



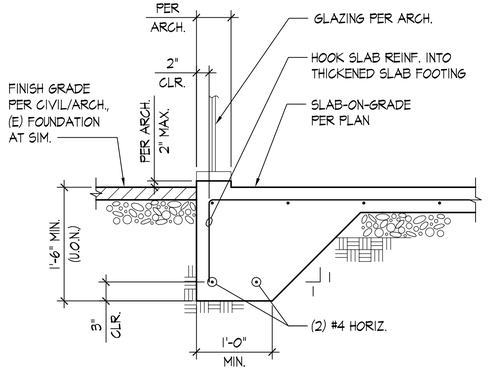
ATM PAD ON THICKENED EDGE SCALE: NONE | 6



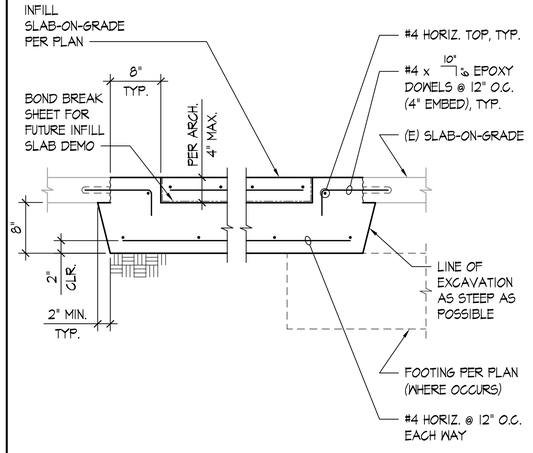
TYPICAL PERIMETER WALL CONNECTION TO (E) FOUNDATION SCALE: NONE | 7



TYPICAL INTERIOR WALL CONNECTION TO (E) FOUNDATION SCALE: NONE | 8



TYPICAL THICKENED SLAB AT VESTIBULE EDGE SCALE: NONE | 9



THICKENED SLAB AT LIFT SCALE: NONE | 10

DETAIL SCALE: NONE | 11

SPREAD FOOTING SCHEDULE SCALE: NONE | 12

SPREAD FOOTING SCHEDULE			
MARK	SIZE	REINFORCING	DETAIL
F2.0	2'-0" x 2'-0" x 0'-10"	(3) #4 E.W.	3 & 4/S301
F3.0	3'-0" x 3'-0" x 1'-0"	(4) #5 E.W.	9/S501
F4.0	4'-0" x 4'-0" x 1'-0"	(5) #5 E.W.	4/S301
F4.1	4'-0" x 4'-0" x 1'-6"	(5) #5 E.W.	2/S301
F2.5xT	2'-6" x T'-0" x 1'-0"	(6) #5 SHORT (4) #5 LONG	4/S301
F2x4	2'-0" x 4'-0" x 0'-10"	(5) #4 SHORT (3) #4 LONG	5/S501

NOTE:
ALLOWABLE SOIL BEARING PRESSURE IS 1.5 KSF

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TEL 206.957.3900
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architect
Schemata Workshop, Inc.
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CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
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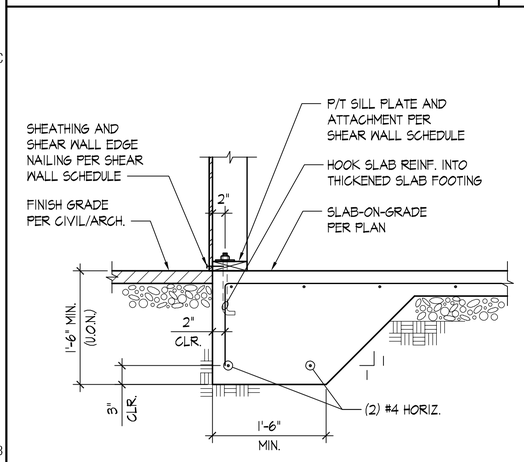
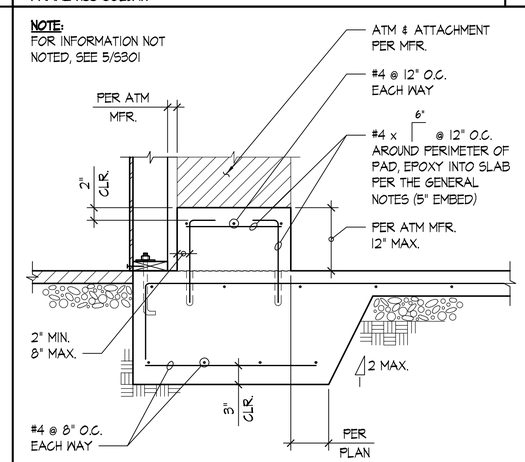
FOUNDATION DETAILS

S301

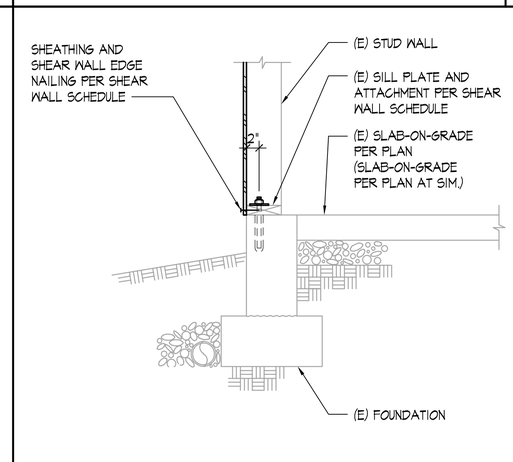
File: 137-s301.dwg Plotted: Thu, 08/17/2023 9:11 am



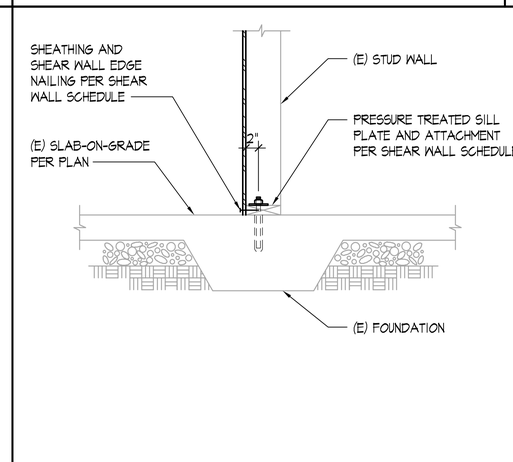
TYPICAL THICKENED SLAB AT BUILDING EDGE — SCALE: NONE — 5



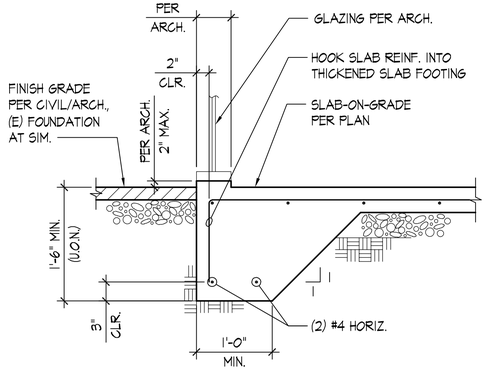
ATM PAD ON THICKENED EDGE — SCALE: NONE — 6



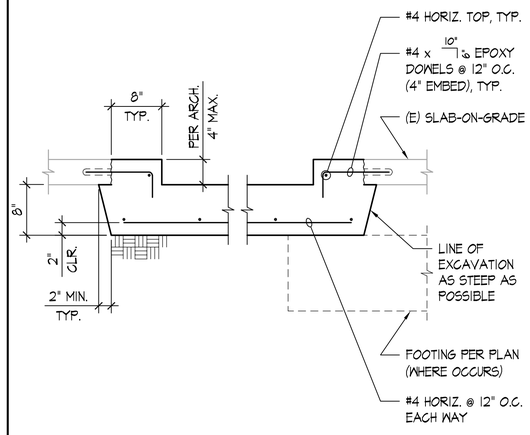
TYPICAL PERIMETER WALL CONNECTION TO (E) FOUNDATION — SCALE: NONE — 7



TYPICAL INTERIOR WALL CONNECTION TO (E) FOUNDATION — SCALE: NONE — 8



TYPICAL THICKENED SLAB AT VESTIBULE EDGE — SCALE: NONE — 9



THICKENED SLAB AT LIFT — SCALE: NONE — 10

DETAIL — SCALE: NONE — 11

SPREAD FOOTING SCHEDULE

MARK	SIZE	REINFORCING	DETAIL
F2.0	2'-0" x 2'-0" x 0'-10"	(3) #4 E.W.	3 & 4/S301
F3.0	3'-0" x 3'-0" x 1'-0"	(4) #5 E.W.	9/S501
F4.0	4'-0" x 4'-0" x 1'-0"	(5) #5 E.W.	4/S301
F4.1	4'-0" x 4'-0" x 1'-6"	(5) #5 E.W.	2/S301
F2.5xT	2'-6" x T'-0" x 1'-0"	(6) #5 SHORT (4) #5 LONG	4/S301
F2x4	2'-0" x 4'-0" x 0'-10"	(5) #4 SHORT (3) #4 LONG	5/S501

NOTE:
ALLOWABLE SOIL BEARING PRESSURE IS 1.5 KSF

SPREAD FOOTING SCHEDULE — SCALE: NONE — 12

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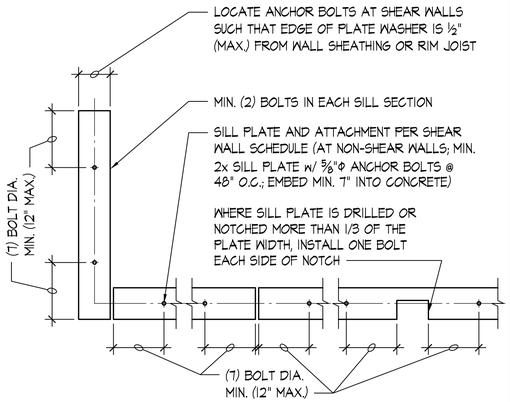
AHJ STAMP

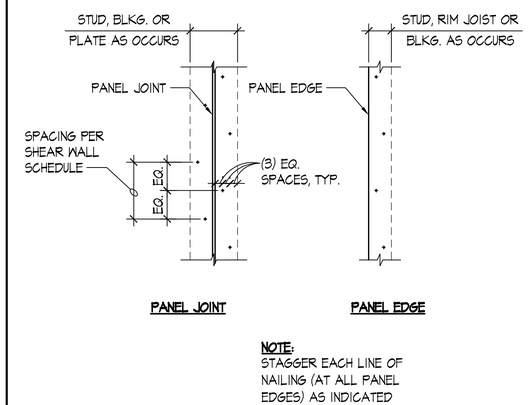
QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

ALTERNATE FOUNDATION DETAILS

S301 - ALT

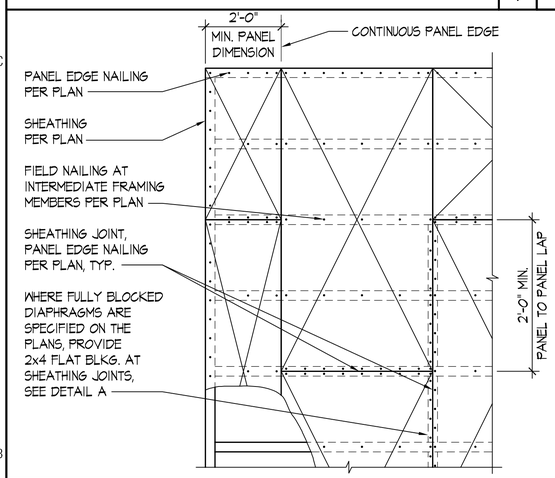


TYPICAL SILL PLATE BOLTING - PLAN VIEW SCALE: NONE

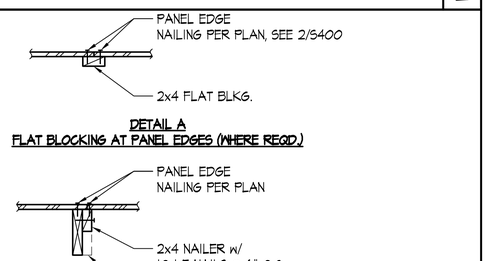


NOTE:
STAGGER EACH LINE OF NAILING (AT ALL PANEL EDGES) AS INDICATED

TYPICAL STAGGERED NAILING SCALE: NONE **2**



TYPICAL ROOF AND FLOOR DIAPHRAGM SHEATHING SCALE: NONE **6**



DETAIL A
FLAT BLOCKING AT PANEL EDGES (WHERE REQD.)

DETAIL B
PANEL EDGE NAILING AT JOIST SPLICE

NOTES:
1. RUN LONG DIMENSION OF SHEATHING PANELS PERPENDICULAR TO FRAMING.
2. WHERE FRAMING LAP SPLICE AND SHEATHING JOINTS ARE OFFSET, SEE DETAIL B ABOVE.

SHEAR WALL SCHEDULE

SHEAR WALL TYPE	SHEAR WALL SHEATHING (1)	PANEL EDGE FRAMING (2)(7)	PANEL EDGE NAILING (3)	BOTTOM PLATE ATTACHMENT			TOP PLATE ATTACHMENT	
				2x BOTTOM PLATE CONNECTION TO RIM JOIST OR BLOCKING BELOW	ANCHOR BOLTING OF SILL PLATE TO CONCRETE BELOW (4)(5)		RIM JOIST OR BLOCKING CONNECTION TO TOP PLATE (6)	
					3x PLATE	2x PLATE	INTERIOR WALL	EXTERIOR WALL
SW-6	7/16" APA ONE-SIDE SHTG.	2x	0.131"Φx2½" @ 6" O.C.	0.148"Φx3¼" @ 6" O.C. (9)	⅝"Φ @ 48" O.C.	⅝"Φ @ 48" O.C.	A35 @ 16" O.C.	LTP4 @ 16" O.C.
SW-4	7/16" APA ONE-SIDE SHTG.	3x OR (2) 2x	0.131"Φx2½" @ 4" O.C. (8)	0.148"Φx3¼" @ 4" O.C. (9)	⅝"Φ @ 48" O.C.	⅝"Φ @ 32" O.C.	A35 @ 16" O.C.	LTP4 @ 16" O.C.
SW-2	7/16" APA ONE-SIDE SHTG.	3x OR (2) 2x	0.131"Φx2½" @ 2" O.C. (8)	-	⅝"Φ @ 24" O.C.	⅝"Φ @ 16" O.C.	A35 @ 8" O.C.	LTP4 @ 8" O.C.

NOTES:

(1) INSTALL PANEL SHEATHING EITHER HORIZONTALLY OR VERTICALLY FOR THE ENTIRE LENGTH OF THE WALL PER PLAN. WALL STUD SPACING SHALL BE 16" O.C. MAXIMUM.

(2) ALL INTERMEDIATE WALL STUDS SHALL BE PER PLAN. PROVIDE BACKING FRAMING AT ALL PANEL EDGES INCLUDING HORIZONTAL BLOCKING PER THE SCHEDULE.

(3) PROVIDE NAILING TO ALL PANEL EDGES, TOP & BOTTOM PLATES AND HORIZONTAL BLOCKING. PROVIDE THE SAME NAILING PATTERN TO EACH MULTIPLE STUD OF THE BUILT-UP HOLD DOWN POST. NAIL PANEL TO INTERMEDIATE FRAMING MEMBERS w/ 0.131"Φ x 2-1/2" @ 12" O.C.

(4) EMBED CAST-IN-PLACE 5/8"Φ ANCHOR BOLTS 7" MIN. (OR EMBED ADHESIVE ANCHOR BOLTS 5 1/2" IN (E) CONCRETE; SEE STRUCTURAL NOTES). PROVIDE PLATE WASHER 3" x 3" x 1/4" AT EACH ANCHOR BOLT. SILL PLATES SHALL BE TREATED PER GENERAL NOTES, AND SHALL BE 2x OR 3x PER THE SCHEDULE. SEE DETAIL 1/S400 FOR OTHER REQUIREMENTS.

(5) PROVIDE HOT DIPPED GALVANIZED NAILS, BOLTS, OR METAL PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED MEMBERS.

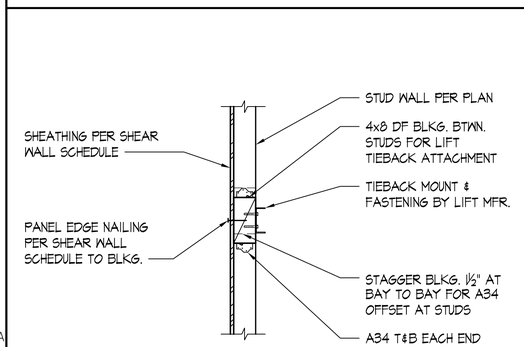
(6) PROVIDE 0.131"Φ x 1-1/2" LONG NAILS FOR CLIPS DIRECTLY ATTACHED TO FRAMING MEMBERS; PROVIDE 0.131"Φ x 2-1/2" LONG NAILS FOR CLIPS INSTALLED OVER FLOOR OR WALL SHEATHING ON FRAMING MEMBERS. SEE 6/S401 FOR TOP PLATE SPLICE.

(7) ALTERNATIVE TO 3x STUDS AND 3x HORIZ. BLOCKING IS (2) 2x STUDS/BLKG. NAILED TOGETHER WITH 0.148"Φ x 3" LONG NAILS WITH THE SAME SPACING AS THE PANEL EDGE NAILING PER THE SCHEDULE (STAGGER).

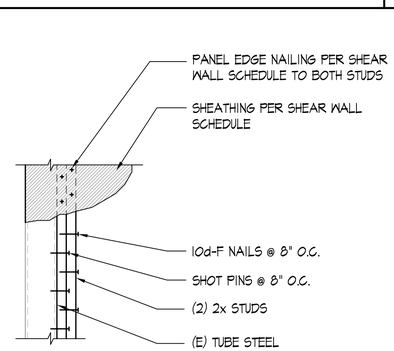
(8) STAGGER NAILS PER 2/S400.

(9) RIM JOIST/BLOCKING MINIMUM WIDTH OF 1¾". STAGGER NAILS PER 2/S400 WHERE SPACING IS LESS THAN 6" O.C.

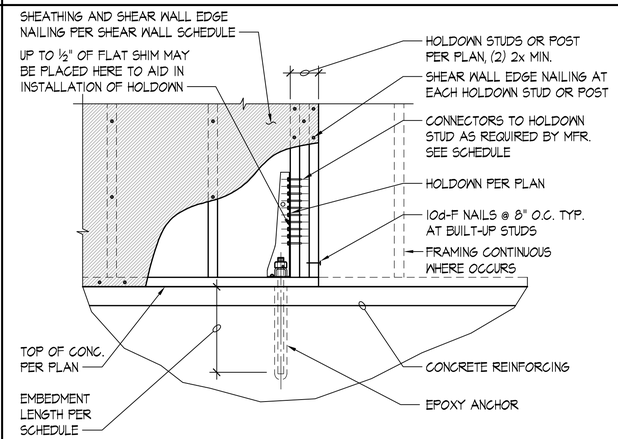
SHEAR WALL SCHEDULE - 8d NAILS SCALE: NONE **8**



LIFT BLOCKING SCALE: NONE **9**



TYPICAL SHEAR WALL AT (E) TUBE COLUMN SCALE: NONE **10**



HOLDOWN	ANCHOR BOLT Φ	ANCHOR BOLT IN CONCRETE EMBED LENGTH	CONNECTORS TO HOLDOWN STUDS
HDU2	⅝"Φ	8"	(6) ¼"x2½" SDS
HDU5	⅝"Φ	13"	(14) ¼"x2½" SDS

NOTE:
PROVIDE HOT DIPPED GALVANIZED NAILS, BOLTS, OR METAL PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED MEMBERS

TYPICAL HOLDOWN TO CONCRETE SCALE: NONE **12**

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
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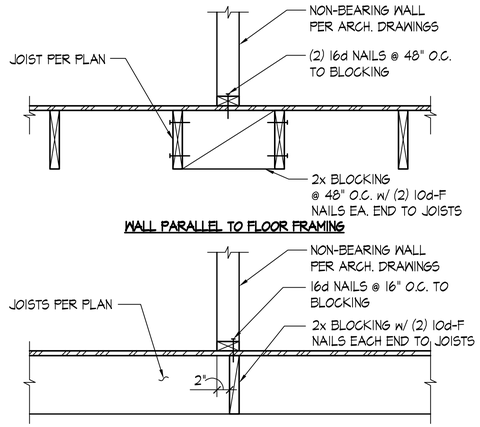
AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

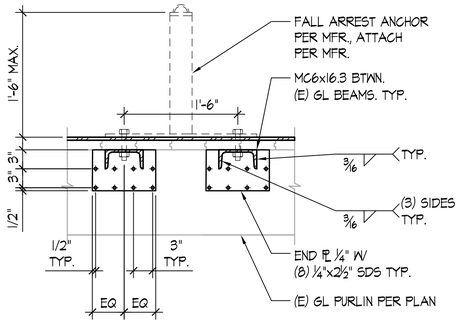
WOOD DETAILS

S400

File: 137--s400.dwg Plotted: Thu, 08/17/2023 9:12 am



TYPICAL NON-STRUCTURAL WALL SUPPORT (BOTTOM) - 2x JOIST SCALE: NONE | 1



TYPICAL FALL ARREST ANCHOR SUPPORT AT GLULAM PURLINS SCALE: NONE | 2

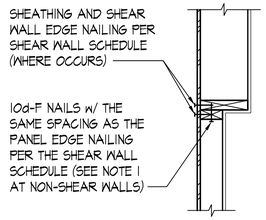
CEILING JOIST SCHEDULE	
SIZE	MAX. SPAN
2x4 @ 24" O.C. 2x4 @ 16" O.C.	8'-0" 9'-2"
2x6 @ 24" O.C. 2x6 @ 16" O.C.	12'-6" 14'-4"
2x8 @ 24" O.C. 2x8 @ 16" O.C.	16'-6" 19'-0"
2x10 @ 24" O.C. 2x10 @ 16" O.C.	21'-2" 24'-3"

NOTES:
CEILING JOIST TABLE BASED ON HF #2, Fb=850 PSI (REPETITIVE MEMBER USE), Fv = 150 PSI $E=1.3X10^6$ PSI, DEFL. < L/240

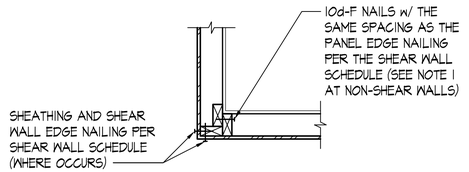
ATTIC LIVE LOAD = 10.0 PSF
CEILING DEAD LOAD = 5.0 PSF

CEILING JOIST SCHEDULE SCALE: NONE | 3

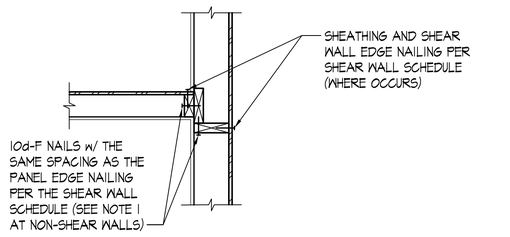
NOTES:
1. AT NON-SHEAR WALLS, NAIL STUDS TOGETHER WITH 10d-F NAILS @ 8" O.C.
2. ADDITIONAL STUDS REQUIRED AS NAILERS, ETC. ARE NOT SHOWN.



VARYING WALL SIZE

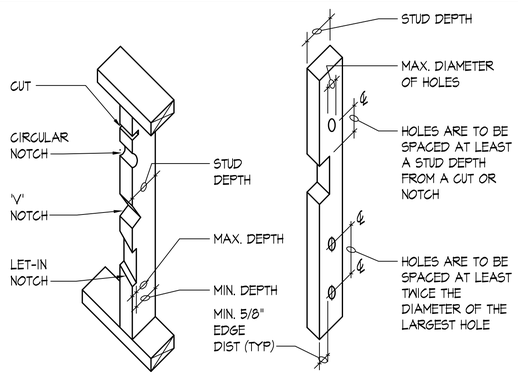


WALL CORNER



WALL INTERSECTION

TYPICAL WALL INTERSECTIONS SCALE: NONE | 8



A. CUTTING AND NOTCHING WOOD STUDS
(DO NOT NOTCH MORE THAN 3 ADJACENT STUDS w/o REVIEW BY ENGINEER)

BEARING WALL STUDS:

STUD SIZE	MAX. DEPTH OF SAW CUT OR NOTCH	MIN. DEPTH REMAINING AFTER CUT OR NOTCH
2x4	1/8"	2-3/8"
2x6	1-3/8"	4-1/8"
2x8	1-7/8"	5-3/8"

NON-BEARING WALL STUDS:

STUD SIZE	MAX. DEPTH OF SAW CUT OR NOTCH	MIN. DEPTH REMAINING AFTER CUT OR NOTCH
2x4	1-1/2"	2"
2x6	2-3/8"	3-1/8"
2x8	3"	4-1/4"

B. HOLES IN WOOD STUDS

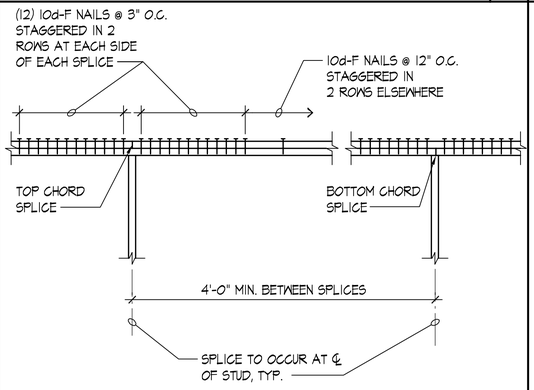
BEARING WALL:

STUD SIZE	MAX. DIAMETER OF HOLE
2x4	1-1/2"
2x6	2-3/8"
2x8	3"

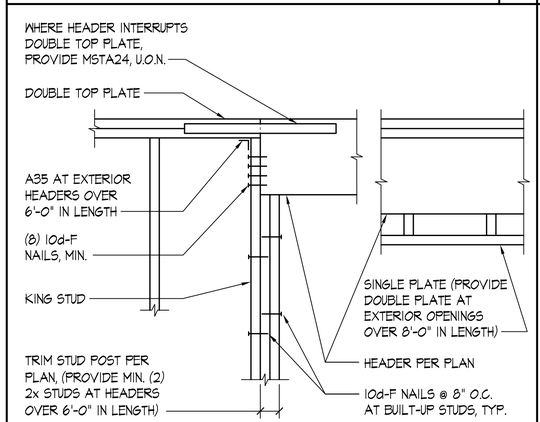
NON-BEARING WALL:

STUD SIZE	MAX. DIAMETER OF HOLE
2x4	2-1/4"
2x6	3-3/8"
2x8	4-1/2"

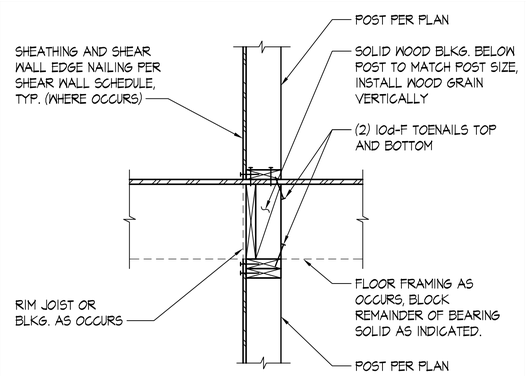
TYPICAL ALLOWABLE HOLES AND NOTCHES IN STUDS SCALE: NONE | 9



TYPICAL TOP PLATE SPLICE SCALE: NONE | 6

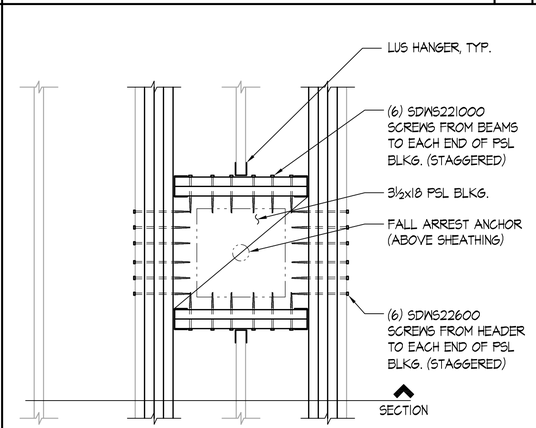


TYPICAL HEADER SCALE: NONE | 10

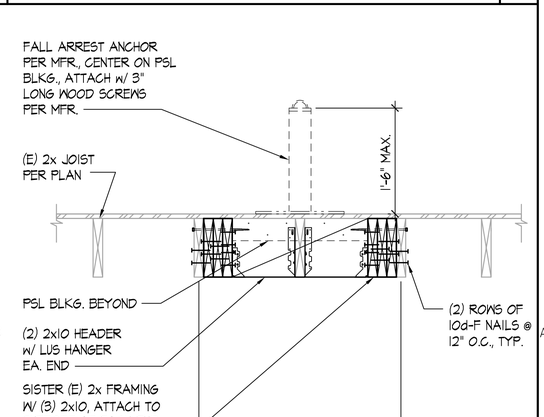


NOTE:
FRAMING CONDITIONS VARY, FOR INFORMATION NOT NOTED SEE PLAN & APPROPRIATE DETAILS

TYPICAL POST AT FLOOR SCALE: NONE | 7



PLAN



SECTION

TYPICAL FALL ARREST ANCHOR SUPPORT AT 2x JOISTS SCALE: NONE | 12

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SEATTLE, WA 98101
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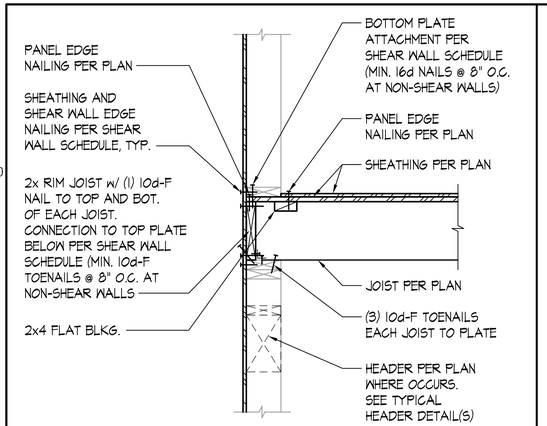
AHJ STAMP

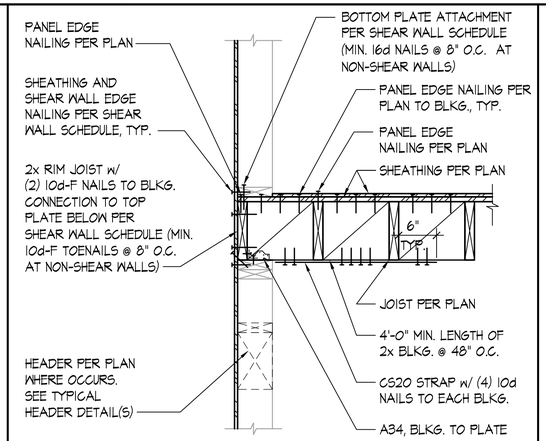
QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

WOOD DETAILS

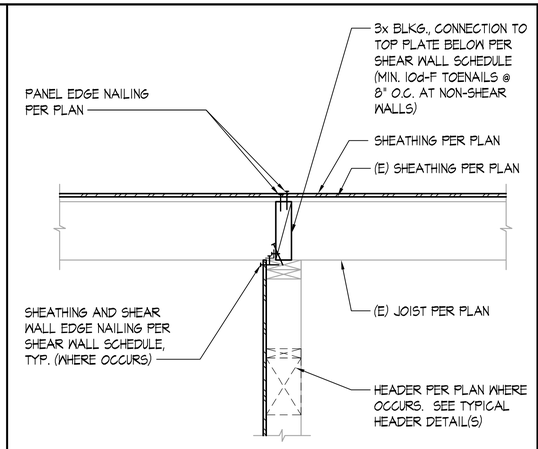
S401



TYPICAL EXTERIOR WALL - 2x JOIST PERPENDICULAR SCALE: NONE | 1



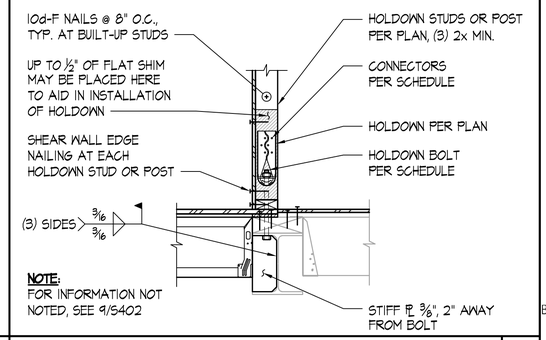
TYPICAL EXTERIOR WALL - 2x JOIST PARALLEL SCALE: NONE | 2



TYPICAL STRUCTURAL INTERIOR WALL - (E) 2x JOIST PERPENDICULAR SCALE: NONE | 3

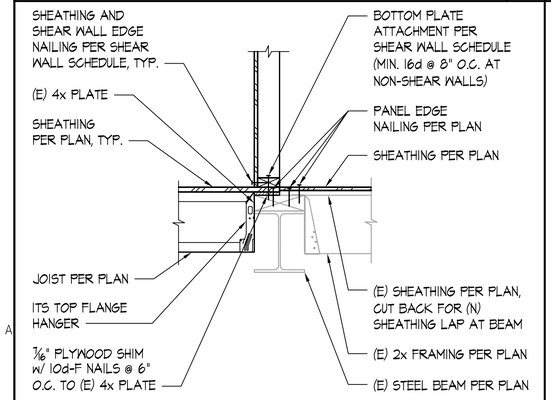
DETAIL SCALE: NONE | 4

HOLDOWN	BOLT Φ	CONNECTORS TO HOLDOWN STUDS
HDU2	⅝"Φ	(6) ¼"x2½" SDS



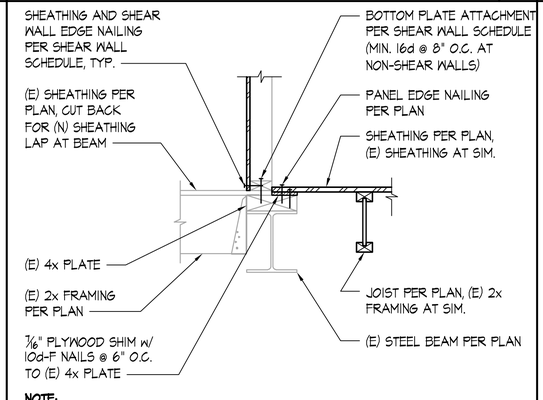
NOTE:
FOR INFORMATION NOT NOTED, SEE 9/S402

HOLDDOWN TO (E) STEEL BEAM SCALE: NONE | 8



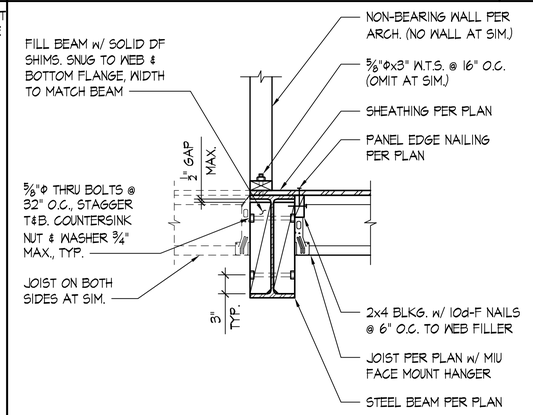
NOTE:
OPENING INSTEAD OF JOISTS PER PLAN AT SIM.

STRUCTURAL WALL TO PARALLEL (E) STEEL BEAM BELOW - FRAMING PERPENDICULAR SCALE: NONE | 9

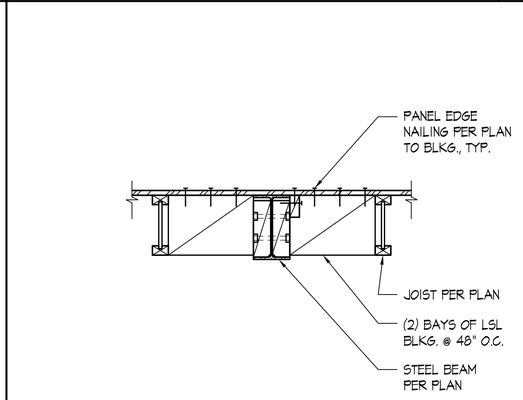


NOTE:
(E) FRAMING INSTEAD OF SHEATHING & JOISTS PER PLAN AT SIM.

EXTERIOR WALL TO PARALLEL (E) STEEL BEAM BELOW - FRAMING PERPENDICULAR AND PARALLEL SCALE: NONE | 10



TYPICAL WOOD JOIST TO STEEL BEAM - FACE MOUNT HANGER SCALE: NONE | 11



NOTE:
FOR INFORMATION NOT NOTED, SEE 11/S402

STEEL BEAM PARALLEL TO JOIST SCALE: NONE | 12

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1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
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SANDRO K. KODAMA — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

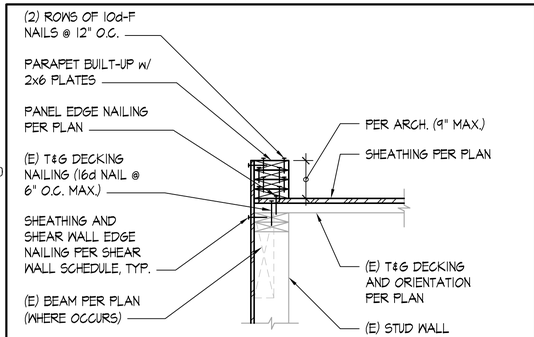
AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

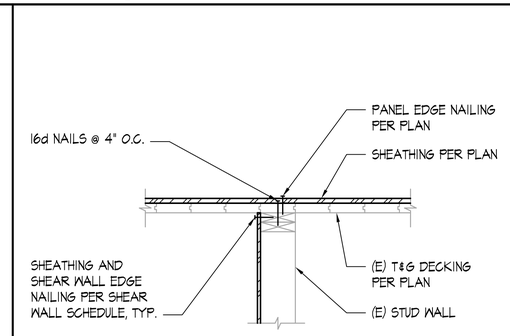
FLOOR DETAILS

S402

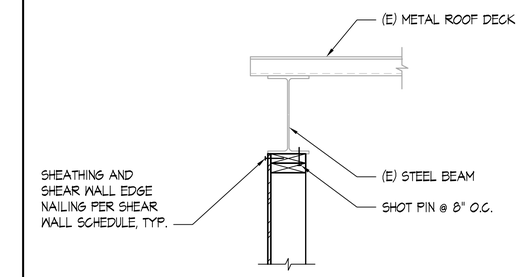
File: 137-s402.dwg Plotted: Thu, 08/17/2023 @ 12 am



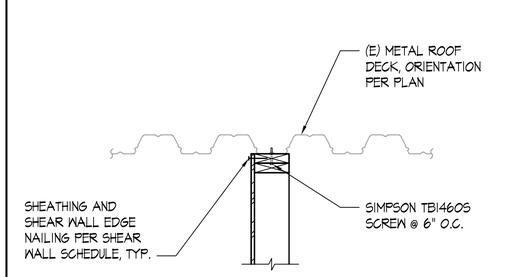
TYPICAL EXTERIOR WALL AT ROOF - T&G DECKING SCALE: 1"=1'-0" | 1



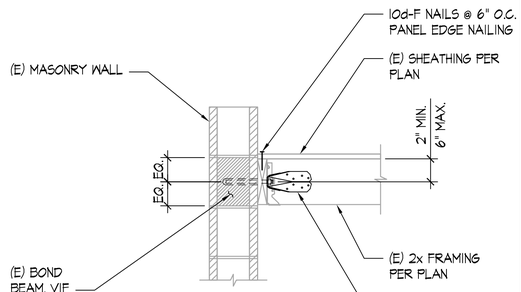
TYPICAL INTERIOR STRUCTURAL WALL AT ROOF - T&G DECKING SCALE: 1"=1'-0" | 2



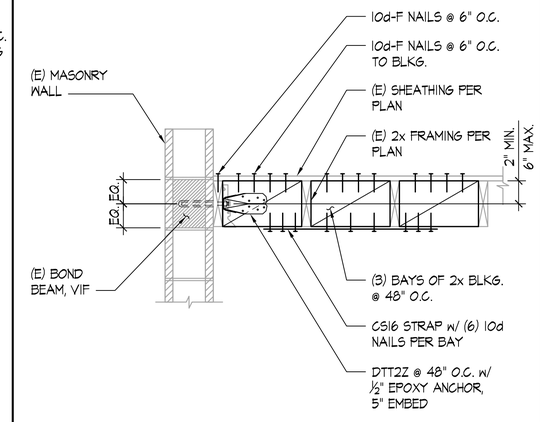
TYPICAL EXTERIOR WALL AT CANOPY ROOF BEAM - METAL DECK SCALE: 1"=1'-0" | 3



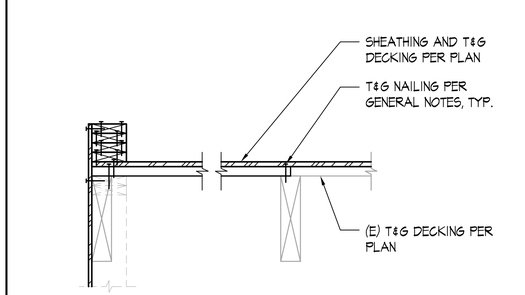
TYPICAL EXTERIOR WALL AT CANOPY ROOF - METAL DECK SCALE: 1"=1'-0" | 4



(E) MASONRY WALL RETROFIT CONNECTION - 2X FRAMING PERPENDICULAR SCALE: 1"=1'-0" | 5



(E) MASONRY WALL RETROFIT CONNECTION - 2X FRAMING PARALLEL SCALE: 1"=1'-0" | 6



NOTE:
FOR INFORMATION NOT NOTED, SEE 1/S403

EXISTING ROOF OPENING INFILL FRAMING SCALE: 1"=1'-0" | 8

DETAIL SCALE: 1"=1'-0" | 9

DETAIL SCALE: 1"=1'-0" | 10

WOOD ROOF BEAM - FACE MOUNT HANGER SCALE: 1"=1'-0" | 11

WOOD ROOF BEAM TO STEEL BEAM - FACE MOUNT HANGER SCALE: 1"=1'-0" | 12

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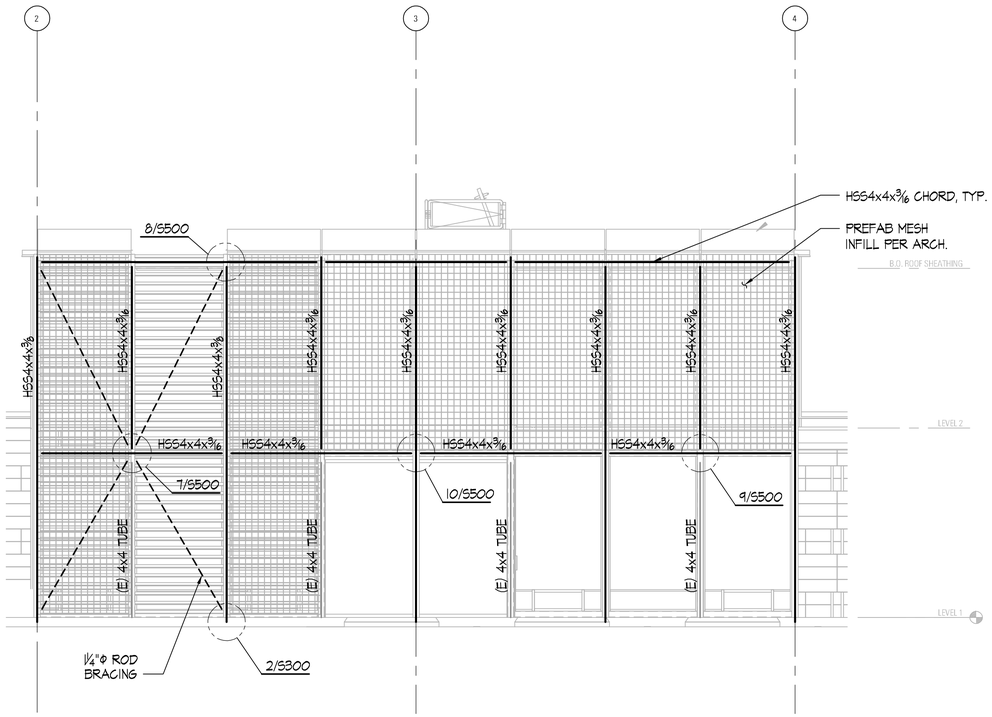
AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

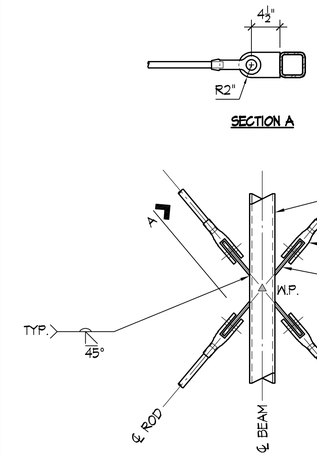
ROOF DETAILS

S403

File: 137-s403.dwg Plotted: Thu, 08/17/2023 9:12 am



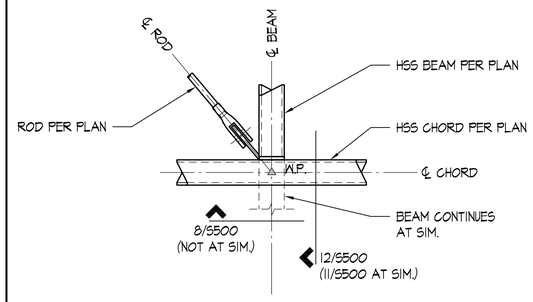
SUNSHADE FRAMING ELEVATION — SCALE: 1/4"=1'-0" — 6



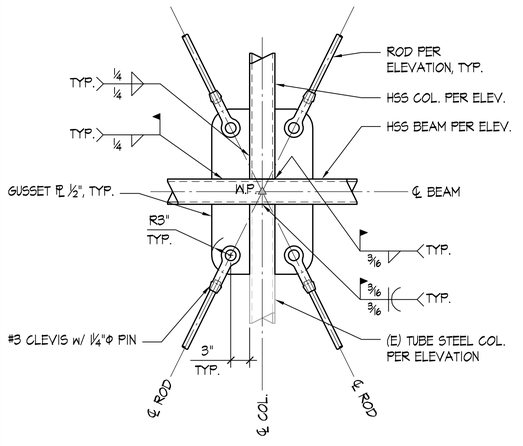
SECTION A

HORIZONTAL BRACE INTERSECTION — SCALE: 1"=1'-0" — 3

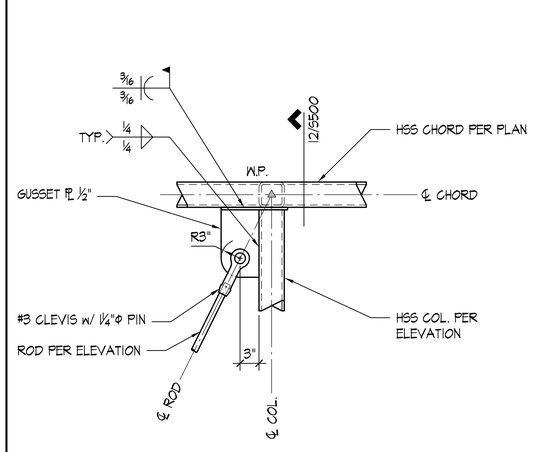
NOTE:
FOR INFORMATION NOT NOTED, SEE 3/S500



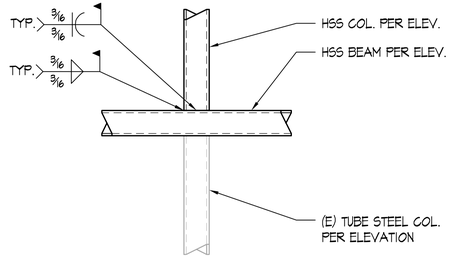
HORIZONTAL BRACE END CONNECTION — SCALE: 1"=1'-0" — 4



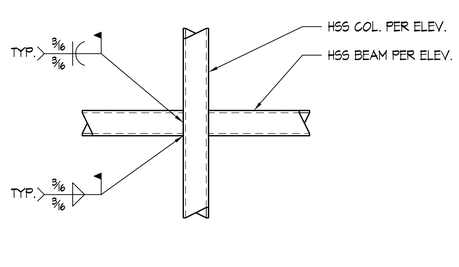
VERTICAL BRACE INTERSECTION — SCALE: 1"=1'-0" — 7



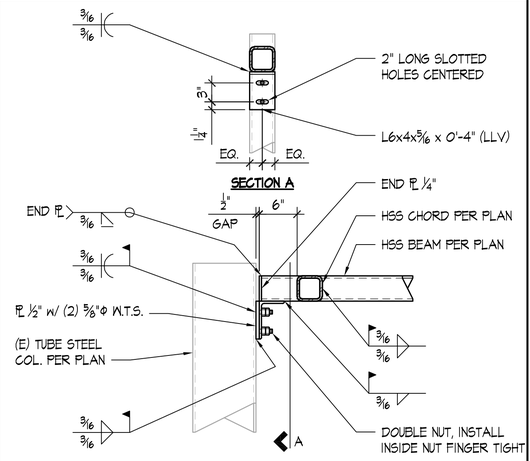
VERTICAL BRACE TOP CONNECTION — SCALE: 1"=1'-0" — 8



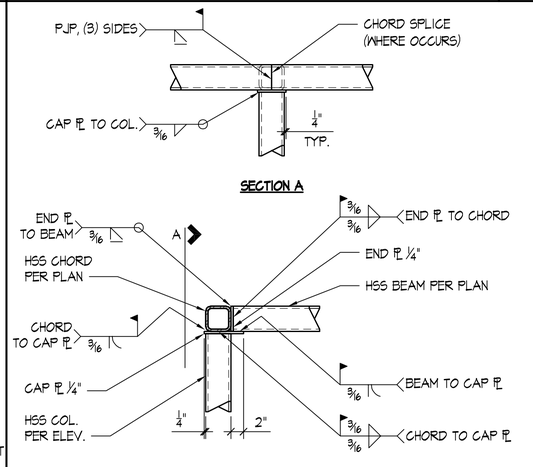
CONTINUOUS HSS MID BEAM TO HSS COLUMNS — SCALE: 1"=1'-0" — 9



HSS MID BEAM TO HSS COLUMN — SCALE: 1"=1'-0" — 10



HSS TOP BEAM TO (E) TUBE COLUMN — SCALE: 1"=1'-0" — 11



HSS TOP BEAM TO HSS COLUMN — SCALE: 1"=1'-0" — 12

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FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
1720 12th Avenue
Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
e geoff@schemataworkshop.com

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

SANDRO K. KODAMA — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

TRELLIS DETAILS

S500

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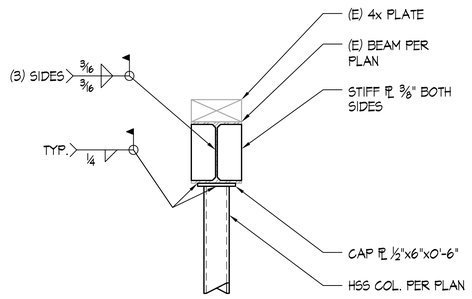
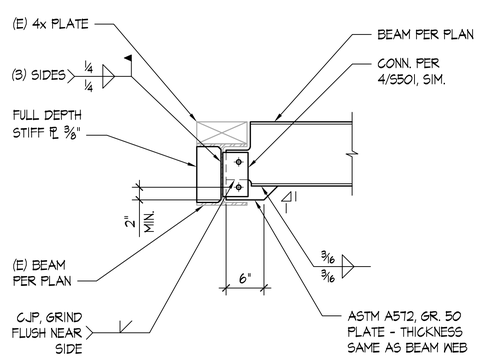
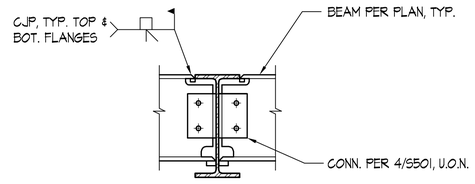


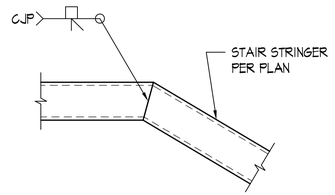
COLUMN CONNECTION TO EXISTING BEAM SCALE: 1"=1'-0" | 1



TYPICAL CONNECTION FOR BEAMS AT DIFFERENT ELEVATIONS SCALE: NONE | 2

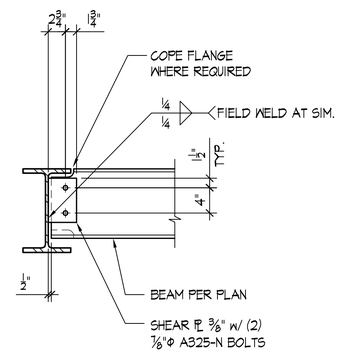


WF BEAM

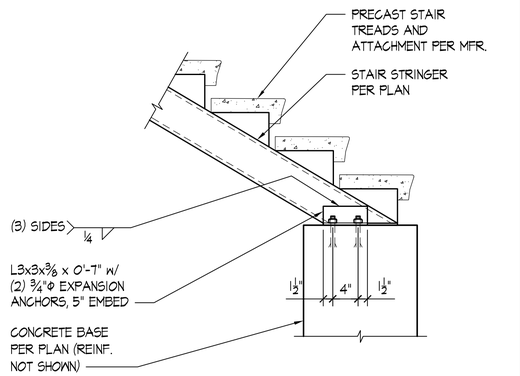


HSS STRINGER

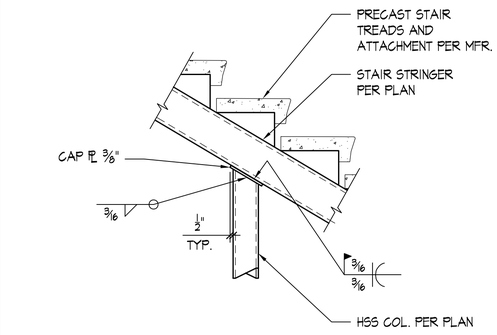
USE WHERE INDICATED BY —|— ON PLAN.



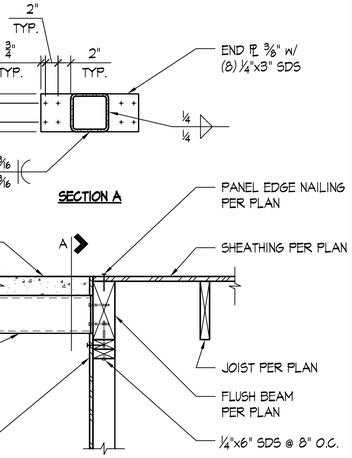
TYPICAL BOLTED BEAM CONNECTION SCALE: NONE | 4



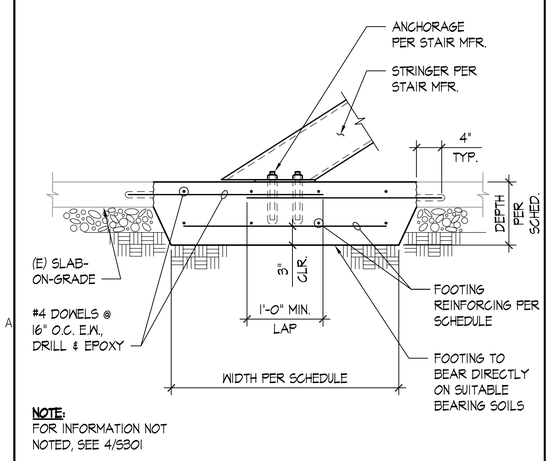
EXTERIOR STAIR TO CONCRETE BASE SCALE: NONE | 5



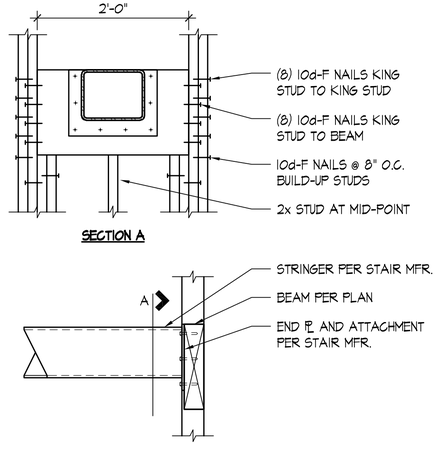
STAIR STRINGER INTERMEDIATE COLUMN SCALE: 1"=1'-0" | 6



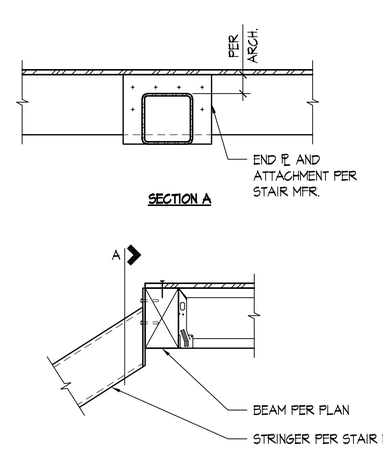
STAIR TOP ATTACHMENT SCALE: 1"=1'-0" | 8



STAIR STRINGER FOOTING SCALE: 1"=1'-0" | 9



STAIR STRINGER WALL CONNECTION SCALE: 1"=1'-0" | 10



STRINGER TO WOOD BEAM CONNECTION SCALE: 1"=1'-0" | 11

DETAIL SCALE: 1"=1'-0" | 12

File: 137-s501.dwg Plotted: Mon, 08/28/2023 11:46 am

QUANTUM CONSULTING ENGINEERS
1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

architect
Schemata Workshop, Inc.
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Seattle, WA 98122

CONTACT: Geoff Anderson, AIA
d 206 743 9437 c 206.819.9011
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e. SunP@kcha.org
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SANDRO K. KODAMA — STATE OF WASHINGTON — 36613 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

AHJ STAMP

QCE Project No: 22137.01
Author: SSK/TVM
Drafter: SC

STEEL AND STAIR DETAILS

S501

GENERAL NOTES

1. THE SCOPE OF THE MECHANICAL WORK CONSISTS OF WORK SHOWN ON THE PLANS AND AS DESCRIBED IN THE SPECIFICATIONS. IN CASE OF CONFLICT, THE SPECIFICATIONS SHALL GOVERN. PROVIDE A COMPLETE & FUNCTIONAL SYSTEM.
2. PERFORM ALL WORK IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND PAY FOR ALL FEES REQUIRED BY AUTHORITIES HAVING JURISDICTION. PAY ALL ROYALTIES OR FEES REQUIRED IN CONNECTION WITH THE USE OF PATENTED DEVICES AND SYSTEMS.
3. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR GENERAL CONSTRUCTION INCLUDING LOUVERS, CONCRETE EQUIPMENT PADS, FLASHING DETAILS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ROOM ELEVATIONS, LOCATE MECHANICAL DEVICES SUCH AS TEMPERATURE SENSORS, HUMIDISTATS, PANELS, ETC. SO THAT THEY DO NOT CONFLICT WITH GENERAL CONSTRUCTION (WAINSCOT, DOOR HARDWARE, ETC.) NOR WITH ELECTRICAL SYSTEM (LIGHT SWITCHES, SPEAKERS, OUTLETS, ETC.).
4. COORDINATE WITH OTHER TRADES:
   A. REFER TO ELECTRICAL DRAWINGS AND CONFIRM ELECTRICAL CHARACTERISTICS SHOWN FOR MECHANICAL EQUIPMENT (VOLTAGE, PHASE, HZ, ETC), MATCHES THAT OF THE MECHANICAL EQUIPMENT PROVIDED.
   B. PROVIDE ADEQUATE CLEARANCE OF MECHANICAL WORK FROM ELECTRICAL EQUIPMENT. MAINTAIN MINIMUM ACCESS OF 6-INCHES ABOVE CABLE TRAYS AND 18-INCHES TO THE SIDE OF CABLE TRAYS. CLEARANCE ABOVE CABLE TRAY SHOULD BE 1/2 THE WIDTH AND NOT LESS THAN 6-INCHES WHEN RUNNING PARALLEL WITH CABLE TRAY. AND NOT LESS THAN 6-INCHES WHEN RUNNING PERPENDICULAR TO THE CABLE TRAY.
5. ARRANGE EQUIPMENT SO THAT ACCESS CLEARANCES INDICATED BY DRAWINGS, REQUIRED BY CODES, OR RECOMMENDED BY MANUFACTURER ARE PROVIDED.
6. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ACCEPTED SUBMITTALS. INSTALL MATERIAL IN PROPER RELATION TO ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK.
7. THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND REPORT ANY CONDITION THAT PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.
8. COMPLY WITH SEATTLE ENERGY CODE SECTION C408.1.3 DOCUMENTATION REQUIREMENTS INCLUDING ALL LOCAL JURISDICTION AMENDMENTS. INCLUDE THE DEVELOPMENT OF CONSTRUCTION AND AS-BUILT DRAWINGS, PROJECT MANUALS, AND SYSTEM BALANCING REPORTS.
9. PURSUANT TO SECTION C408.1.3 OF THE SEATTLE ENERGY CODE, THE HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT THE CONTROL DEVICES, EQUIPMENT AND SYSTEMS ARE CALIBRATED, ADJUSTED, AND OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO ENSURE THEY OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
10. THE COMMISSIONING SPECIFICATION, INCLUDING ALL FUNCTIONAL TEST PROCEDURES, SHALL BE PROVIDED AND ENFORCED BY THE CONTRACTOR.
11. PROVIDE SEISMIC RESTRAINT IN ACCORDANCE WITH SBC AND ASCE STANDARD 7. SUBMIT CALCULATIONS BY LICENSED STRUCTURAL ENGINEER. PRODUCTS MAY CONFORM TO SMACNA SEISMIC RESTRAINT GUIDELINES.
12. PROVIDE A SINGLE SUBMITTAL OF ALL MECHANICAL EQUIPMENT AS SPECIFIED. AS A MINIMUM, SUBMIT PRODUCT DATA FOR ALL EQUIPMENT AND FIXTURES LISTED IN ACCOMPANYING SCHEDULES FOR APPROVAL.
13. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
14. ARRANGEMENT OF SYSTEMS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC, AND INDICATES THE MINIMUM REQUIREMENTS FOR PLUMBING AND MECHANICAL WORK. ADJUST TERMINAL UNIT LOCATIONS, BASED ON FIELD MEASUREMENTS, TO AVOID INSTALLATION ABOVE DESKS. SITE CONDITIONS SHALL DETERMINE THE ACTUAL ARRANGEMENT OF THE WORK. TAKE FIELD MEASUREMENTS BEFORE PREPARING SHOP DRAWINGS, OBTAIN APPROVAL OF SHOP DRAWINGS BEFORE BEGINNING FABRICATION. BE RESPONSIBLE FOR ACCURACY OF DIMENSIONS AND LAYOUT. OVERHEAD PIPING AND DUCTWORK SHALL BE ARRANGED TO OBTAIN MAXIMUM HEAD ROOM.
15. CLEAN AND PROTECT WORK FROM DAMAGE. RESTORE DAMAGED FINISHES. COVER ENDS OF PIPING AND DUCTWORK NOT ACTIVELY BEING WORKED ON.
16. MODIFY AND EXTEND EXISTING SERVICE TO ACCOMMODATE NEW WORK. RELOCATE EXISTING COMPONENTS AS REQUIRED FOR NEW SYSTEM. COORDINATE WITH BUILDING MANAGEMENT.
17. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
18. DO NOT CUT STRUCTURAL ELEMENTS WITHOUT PRIOR WRITTEN APPROVAL.
19. CONCEAL PIPING AND DUCTWORK TO THE GREATEST EXTENT POSSIBLE.
20. INSTRUCT OWNER IN PROPER OPERATION OF SYSTEMS.
21. DRAWINGS DO NOT SHOW ALL OFFSETS WHICH MAY BE REQUIRED. MAKE OFFSETS WITH FITTINGS USING THE LEAST ANGLE OF OFFSET POSSIBLE. DUCTWORK & PIPING SHALL BE ROUTED TO AVOID ALL STRUCTURAL SUPPORTS, AND COORDINATED WITH WORK OF OTHER TRADES.
22. MATERIALS, METHODS, AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE LATEST EDITION OF THE FOLLOWING CODES AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

    2018 SEATTLE BUILDING CODE (SBC)
    2018 SEATTLE MECHANICAL CODE (SMC)
    2018 SEATTLE PLUMBING CODE (SPC)
    2018 SEATTLE FIRE CODE (SFC)
    2018 SEATTLE ENERGY CODE (SEC) WITH LOCAL AMENDMENTS

REMODEL CONSTRUCTION NOTES

1. DEMOLITION: WORK REQUIRED IS NOTED ON PLANS. VERIFY WITH ON SITE CONDITION AND OWNER. SALVAGE EQUIPMENT FOR OWNER'S USE AS NOTED.
2. COORDINATE INTERRUPTIONS OF SERVICES PASSING THROUGH WORK AREA TO MINIMIZE DISRUPTION IN ADJACENT SPACES. COORDINATE WITH BUILDING OWNER.
3. INSTALL NEW WORK GENERALLY AS SHOWN. ADEQUATE SPACE HAS BEEN VERIFIED TO THE DEGREE POSSIBLE, BUT MAY REQUIRE MINOR RELOCATION OF SMALL CONDUIT AND CEILING WIRE. COORDINATE EXTENT OF RELOCATION WITH GENERAL CONSTRUCTION WORK.
4. COORDINATE WORK WITH GENERAL CONSTRUCTION TO MINIMIZE DUST & DUST MIGRATION.

PIPING NOTES

1. SANITARY, WASTE, AND VENT PIPING (PLASTIC NOT ALLOWED) SHALL BE NO-HUB CAST IRON OR DWV COPPER.
2. HOT AND COLD WATER PIPING SHALL BE HARD DRAWN COPPER TUBING: TYPE L, ASSEMBLED WITH WROT COPPER FITTINGS AND LEAD-AND ANTIMONY-FREE SOLDER.
3. INSULATE ALL HOT AND COLD WATER PIPING WITH GLASS FIBER INSULATION WITH ALL SERVICE JACKET. USE HEAT BONDING TAPE TO CLOSE INSULATION; STAPLES AND PRESSURE TAPE ARE PROHIBITED.
4. PROVIDE ALL REQUIRED ACCESSORIES INCLUDING SHUT-OFFS AND CLEAN-OUTS. PROVIDE COMPONENTS WHICH PREVENT BACK-SIPHONAGE OR CROSS-CONNECTIONS. PROVIDE ISOLATION DEVICES TO REDUCE SOUND TRANSMISSION.
5. PROVIDE STOPS FOR EACH WATER CONNECTION TO EACH FIXTURE OR ITEM OF EQUIPMENT.
6. DISINFECT WATER DISTRIBUTION SYSTEM. FLUSH AND TEST ALL SYSTEMS FOR PROPER OPERATION. ADJUST SYSTEM TO PREVENT WATER HAMMER.
7. REFER TO PIPING DIAGRAMS AND DETAILS FOR REQUIRED FITTINGS, VALVES, ETC. FLOOR PLANS AND SECTIONS INDICATE EQUIPMENT LOCATIONS AND GENERAL PIPE ROUTING ONLY.
8. REFER TO CIVIL DRAWINGS FOR UTILITY WORK 5'-0" BEYOND THE BUILDING LINE.

2018 SEATTLE ENERGY CODE COMPLIANCE

1. PIPING SHALL BE INSULATED AS REQUIRED BY SECTION C403.10.3 OF THE SEC AND AS SPECIFIED IN THE CONTRACT DOCUMENTS.

SYSTEM TEMP (F)		PIPE DIAMETER				
		<1.0"	1.0" - 1.5"	1.5" - 4"	4" - 8"	>8"
		INSULATION THICKNESS (IN)				
<350	0.32 - 0.34	4.5	5.0	5.0	5.0	5.0
251-350	0.29 - 0.32	3.0	4.0	4.5	4.5	4.5
201-250	0.27 - 0.30	2.5	2.5	2.5	3.0	3.0
141-200	0.25 - 0.29	1.5	1.5	2.0	2.0	2.0
105-140	0.21 - 0.28	1.0	1.0	1.5	1.5	1.5
40-60	0.21 - 0.27	0.5	0.5	1.0	1.0	1.0
<40	0.20 - 0.26	0.5	1.0	1.0	1.0	1.5

ABBREVIATIONS

A	AIR, AMP
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM, ACOUSTICAL LINING
ARRGT	ARRANGEMENT
ATM	ATMOSPHERE
BC	BLOWER COIL
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STEEL
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CLG	CEILING, COOLING
CNTFGL	CENTRIFUGAL
CO	CLEANOUT
CONC	CONCRETE
COND	CONDENSATE
CONT	CONTINUE, CONTROL
COMP	COMPRESSOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CV	CONSTANT VOLUME
CVTR	CONVERTER
CW	COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
dB	DECIBELS
DB	DRY BULB
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DEG	DEGREE
DF	DRINKING FOUNTAIN
DI	DE-IONIZED
DIA	DIAMETER
DMPR	DAMPER
DN	DOWN
DS	DOWNSPOUT
E	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
EL	ELEVATION
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT, FIRE LINE
FD	FIRE DAMPER, FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FLTR	FILTER
FM	FLOW METER
FOB	FLAT ON BOTTOM
FO	FLAT OVAL
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
FT	FEET, FAN TERMINAL
FV	FACE VELOCITY
GA	GAGE
GAL	GALLONS
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
H	HUMIDIFIER, HEIGHT
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HEX	HEAT EXCHANGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER, HEAT PUMP
HPS	HIGH PRESSURE STEAM
HTG	HEATING
HW	HOT WATER
HWC	HOT WATER CIRCULATING
HWP	HOT WATER PUMP
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HZ	HERTZ
ID	INSIDE DIAMETER, INDIRECT DRAIN
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCH
INIT	INITIAL
INT	INTERIOR
IPLV	INTEGRATED PART LOAD VALUE
KW	KILOWATT
KWH	KILOWATT HOURS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND, LINEAR BAR
LBS	POUNDS
LD	LINEAR DIFFUSER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MD	MANUAL DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MOD	MOTOR OPERATED DAMPER
MTR	MOTOR
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NUMBER, NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
ORD	OVERFLOW ROOF DRAIN
ORL	OVERFLOW RAIN LEADER
P	PUMP, PLUMBING
PD	PRESSURE DROP
PH	PHASE
POC	POINT OF CONNECTION
POS	POSITIVE
PR	PUMPED RETURN
P/T	PRESSURE/TEMPERATURE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR
RD	ROOF DRAIN
REF	REFERENCE
REQD	REQUIRED
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELIEF HOOD; RELATIVE HUMIDITY
RL	RAIN LEADER
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
S	SOIL
SA	SUPPLY AIR
SD	STORM DRAIN, SMOKE DAMPER
SENS	SENSIBLE
SEER	SEASONAL ENERGY EFFICIENCY RATING
SF	SUPPLY FAN, SQUARE FEET
SG	SUPPLY GRILLE
SL	SOUNDLINING
SP	STATIC PRESSURE
SPR	SPRINKLER
SS	STAINLESS STEEL, SANITARY SEWER
STP	STANDPIPE
T	THERMOSTAT
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TOT	TOTAL
TP	TRAP PRIMER, TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TU	TERMINAL UNIT
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT, VOLT
VA	VALVE
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WASTE, WATER, WATT, WIDTH
WB	WET BULB
WG	WATER GAGE
WH	WATER HEATER, WALL HYDRANT
WTR	WATER

VICINITY MAP

LOCATION MAP

PLUMBING SHEET INDEX

PHSKC STAMP

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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PATRICK M. LO — STATE OF WASHINGTON — 31848 — REGISTERED PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: TB
Checker: TM

GENERAL NOTES, ABBREVIATIONS, & SHEET INDEX

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SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
1	DRAWING CONSTRUCTION ("FLAG") NOTE
X-XX	EQUIPMENT IDENTIFIER
	MATCHLINE
	REVISION CLOUD (ENCIRCLES DRAWING CHANGES MADE SINCE THE PREVIOUS RELEASE)
1	REVISION REFERENCE
	EXISTING TO BE REMOVED (HATCH)
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING INFORMATION
	POINT OF CONNECTION
X / XX.XX	DETAIL REFERENCE DETAIL IDENTIFICATION NUMBER SHEET WHERE DETAIL IS DRAWN
X / XX.XX	ELEVATION REFERENCE ELEVATION IDENTIFICATION NUMBER SHEET WHERE ELEVATION IS DRAWN
X / XX.XX	SECTION REFERENCE SECTION IDENTIFICATION NUMBER SHEET WHERE SECTION IS DRAWN
N	NORTH REFERENCE

SYMBOLS LEGEND - PIPING

SYMBOL	DESCRIPTION
	SOIL OR WASTE
	VENT
RL	RAIN LEADER
ORL	OVERFLOW RAIN LEADER
ID	INDIRECT DRAIN
CW	COLD WATER
HW	HOT WATER
HWC	HOT WATER CIRCULATING
140°HW	140° POTABLE HOT WATER
120°HW	120° POTABLE HOT WATER
F	FIRE
SPR	SPRINKLER
STP	STANDPIPE
HPS	HIGH PRESSURE STEAM
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
	REDUCER, CONCENTRIC
	WYE STRAINER WITH CAPPED HOSE END BLOWDOWN VALVE
	ANGLE VALVE
	AUTOMATIC CONTROL VALVE - TWO WAY (PNEUMATIC OPERATOR SHOWN)
M	AUTOMATIC CONTROL VALVE - THREE WAY (ELECTRIC OPERATOR SHOWN)
	BUTTERFLY VALVE
	FLEXIBLE CONNECTION IN PIPING
MAV AAV	MANUAL AIR VENT (MAV), AUTOMATIC AIR VENT (AAV)
	PRESSURE GAUGE
	THERMOMETER
	THERMOMETER WELL
	SIGHT GLASS
	HOSE BIB

SYMBOLS LEGEND - PIPING & AIRFLOW DIAGRAMS

SYMBOL	DESCRIPTION
	PIPING OR DUCTED AIRFLOW
	NON-DUCTED AIRFLOW
	ELECTRICAL CONNECTION
	FLOW CONTINUATION ARROW
	COMPLEX INTERLOCK (ELEC., PNEUMATIC, ETC.)
	CONNECTION TO CENTRAL MONITORING AND CONTROL SYSTEM (CMCS)
	PUMP
	CENTRIFUGAL FAN
M	ELECTRIC MOTOR/STARTER ASSEMBLY
M	ELECTRIC MOTOR OPERATOR (VALVES AND DAMPERS)
	FLOOR DRAIN
	FUNNEL DRAIN
	FLOOR SINK (SQUARE AND ROUND)
	FLOW DIRECTION

SYMBOLS LEGEND - PIPING

SYMBOL	DESCRIPTION
S / F/T	STEAM TRAP ASSEMBLY F/T = FLOAT AND THERMOSTATIC F = FLOAT T = THERMOSTATIC B = BUCKET IB = INVERTED BUCKET I = IMPULSE O = ORIFICE
A	PIPE ANCHOR
	PIPE ALIGNMENT GUIDE
G	CONTROL VALVE STATION
PS	PIPE SUPPORT
P/T	PRESSURE/TEMPERATURE TEST PORT
	CAP
	PLUG
	UNION
	WYE STRAINER
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BALANCING OR PLUG VALVE
	NEEDLE VALVE
	PRESSURE REDUCING VALVE
	BALANCING/MEASURING VALVE
	RELIEF VALVE
	CHECK VALVE
	PIPE TURNING DOWN / AWAY
	PIPE TURNING UP / TOWARDS
	PIPE DOWN TEE
	PIPE DOWN TEE / AWAY
	PIPE UP TEE / TOWARDS

PHSKC STAMP

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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AHJ STAMP

PATRICK M. TUTT
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: TB
Checker: TM

LEGEND

P0.01

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WATER SERVICE CALCULATION

ITEM	DESCRIPTION		FIXTURE UNIT EACH	TOTAL UNITS (COMB)	(.75) COLD WATER	(.75) HOT WATER
1	HOSE BIBB		2.50	2.50	2.50	0.00
2	HOSE BIBB (EACH ADDITIONAL)		1.00	2.00	2.00	0.00
3	LAVATORIES (L-1)		1.00	3.00	2.25	2.25
0	BATHTUB/SHOWER (BT-1)		4.00	0.00	0.00	0.00
0	CLOTHESWASHER (WB-1)		4.00	0.00	0.00	0.00
1	KITCHEN SINKWDISHWASHER (KS-1)		3.00	3.00	2.25	2.25
1	KITCHEN SINK (KS-1)		3.00	3.00	2.25	2.25
0	SHOWER (SH-1)		2.00	0.00	0.00	0.00
3	WATER CLOSETS (WC-1)		2.50	7.50	7.50	0.00
1	MOP SINK (MS-1)		3.00	3.00	2.25	2.25
1	DRINKING FOUNTAIN		1.00	1.00	1.00	0.00
1	TRAP PRIMER		1.00	1.00	1.00	0.00
	FIXTURE UNIT SUBTOTAL			26.00	23.00	9.00
	FLOW IN GPM			18.00		
	EXISTING IRRIGATION--RECONNECT W/ NEW METER			N/A		
	TOTAL GPM AT CITY POINT OF CONNECTION			**52**		
	TOTAL FIXTURE UNITS AT CITY POINT OF CONNECTION			**26**		
a.	MINIMUM DAILY SERVICE PRESSURE			52		psi
b.	STATIC HEAD LOSS .434 /FT X		10	4.34		psi
c.	WATER METER PRESSURE DROP			3		psi
d.	BACKFLOW PREVENTER			8		psi
e.	BOOSTER PUMPS			0		psi
f.	PRESSURE REQUIRED AT FIXTURE			25		psi
	PRESSURE AVAILABLE FOR					
	FRICTION LOSS, a - b - c - d + e - f			11.66		psi
	TOTAL EQUIVALENT PIPE LENGTH					
40	FT. PLUS FITTINGS	X	1.3	52		ft
	MAXIMUM FRICTION LOSS					
	PRESS. AVAIL. X 100'/EQUIV. LENGTH			22.423		psi
	SIZING BASED ON CHAPTER 6 TABLE 610.3 & SECTION 610.12					
	BUILDING COLD WATER MAIN			1"		
	BUILDING HOT WATER MAIN			1"		
						watercalc 08/17/23

SANITARY CALCULATION

QUANTITY	DESCRIPTION	UNITS PER PUBLIC GENERAL	TOTAL UNITS
1	FLOOR DRAIN NOT SERVING A FIXTURE	2.00	0.00
1	FUNNEL DRAIN	2.00	2.00
1	MOP SINK	3.00	3.00
1	DRINKING FOUNTAIN	1.00	1.00
2	KITCHEN SINK W/DISHWASHER (KS-1)	2.00	4.00
3	LAVATORY (L-1)	1.00	3.00
0	SHOWER (SH-1)	2.00	0.00
0	TUB/SHOWER (BT-1)	2.00	0.00
3	WATER CLOSET	3.00	9.00
	TOTAL FIXTURE UNITS		22.00
	MINIMUM BUILDING GRAVITY DRAIN SIZE = 4" AT 1/8"/FT SLOPE		
	EXISTING SEWER LATER POINT OF CONNECTION IS 6-INCH SIZE		
	FIXTURE LOADING, DFU IS 21.		
			sancalc 05/02/23

WATER HEATER SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	TANK DESCRIPTION	TEMP RISE DEG F	RECOVERY RATE GPH	LWT DEG F	ELECTRICAL V/PH/HZ	DIMENSIONS W X HEIGHT X DEPTH IN	OPERATING WEIGHT LBS	REMARKS
WH-1	MEP	BUILDING	AO SMITH	DSE 10-6	GLASS LINED	100	25	140	208/60/1	28.13"x18"	200	1, 2

REMARKS:

1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS
2. WATER HEATERS SHALL BE NSF 61 COMPLIANT.

CIRC PUMP SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	TYPE	CONNECTION SIZE (IN)	GPM	FT HD	HP	ELECTRICAL FLA	ELECTRICAL V/PH/HZ	WEIGHT (LBS)	REMARKS
CP-1	PLUMBING	DOMESTIC WATER RECIRC	GRUNDFOS	ALPHA2 15-55FRILC	INLINE	1/2"	1	10	1/16	0.65	115/60/1	8	1

REMARKS:

1. INSTALL PER MANUFACTRURERS RECOMMENDATIONS.

EXPANSION TANK SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	TYPE	NFS 61 CERTIFIED	CONNECTION SIZE	OPERATING WEIGHT LBS	
ET-1	MEP 113	WH-1 BUILDING WATER SYSTEM	AMTROL	ST-5C-OD	ASME DIAPHRAGM	YES	3/4"	14	

REMARKS:

1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS

TEMPERATURE MIXING VALVE SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	ASSE LISTED	CONNECTION SIZE	OPERATING WEIGHT LBS	REMARKS
TMV-1	MEP	BUILDING WATER SYSTEM	LEONARD	TM-2624-LF	ASSE 1017	1-1/4"	4	1
TMV-2	RESTROOMS	ALL RESTROOM LAVS	LEONARD	270-LF	ASSE 1017	1/2"	-	1

REMARKS:

1. LEAD FREE

REDUCED PRESSURE BACKFLOW PREVENTER SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL NUMBER	TYPE	GPM	CONNECTION SIZE	OPERATING WEIGHT LBS	REMARKS
RPBP-1.2	MEP 113	BUILDING WATER SUPPLY	WATTS	LF009	REDUCED PRESSURE BACKFLOW PREVENTER	18	1"	15	1

REMARKS:

1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS, PROVIDE FACTORY AIR GAP.

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	ROUGH-IN CONNECTION IN W	V	CW	HW	RL	REMARKS
FD-1	FLOOR DRAIN FD-1	2	2	--	--	--	SIOUX CHIEF 833 SERIES WITH 5 INCH TOP AND SHIM KIT. TRAP PRIMER REQUIRED.
FFD-1	FUNNEL DRAIN	2	2				SIOUX CHIEF 860 SERIES, CAST IRON WITH ROUND ALUMINUM CONDENSATE FUNNEL. TRAP PRIMER REQUIRED.
RD/OD-1	COMBINATION ROOF AND OVERFLOW DRAIN	=	--	--	--	3	ZURN Z165 COMBINATION ROOF DRAIN AND OVERFLOW
DN-1	DOWNSPOUT NOZZLE	-	--	--	--	3	RECTORSEAL 1- INCH DRAIN PIPE WITH BIRD SCREEN.
TP-1	TRAP PRIMER	--	--	1/2	--	--	PRECISION PLUMBING PRODUCTS MP500-12V MINI PRIME BATTERY OPERATED TRAP PRIMING MANIFOLD
HB-1	HOSE BIBB	--	--	3/4	--	--	WOODFORD MFG. MODEL 67, 3/4" HAS BRASS FREEZELESS NIDEL WITH VB/BFP. HOSE BIBB SHALL BE SNF 61 COMPLIANT.
DF-1	DRINKING FOUNTAIN	2	2	1/2	--	--	ELKAY ezH20 MODEL LZS8WSLK BOTTLE FILLING STATION W/ SINGLE ADA COLLER FILTERED REFRIGERATED, LIGHT GRAY,
L-1	WALL HUNG LAVATORY	2	2	1/2	1/2	--	AMERICAN STANDARD DECLYN WALL-HUNG LAVATORY. AMERICAN STANDARD INSBROOK SELECTRONIC LAV FAUCET. DEARBORN CHROME P-TRAP. BRASSCRAFT KTXXXX STOPS, FLUIDMASTER LAV RISERS, PASCO 1230. VALVE SHALL BE NSF 61 COMPLIANT.
WC-1	WATER CLOSET, TANK TYPE	3	2	1/2	--	--	WESTERN POTTERY B872/TBHP, ADA COMPLIANT, WHITE, 1.28 GPF. BEMIS 1500EC WHITE MOLD WOOD SEAT. BRASS CRAFT KTXXXX STOP. FLUIDMASTER RISER, PASCO 1230, HERCULES WAX RING, PASCO BOLT KIT,
KS-1	KITCHEN SINK	2	2	1/2	1/2	--	ELKAY CR1721 STAINLESS STEEL SINGLE BOWL DROP-IN SINK. CLEVELAND CFG 76162 ONE HANDLE HIGH ARC FAUCET. JOMAR SS-306 DEEP CUP BASKET STRAINER, DEARBORN 704 P-TRAP, FLUIDMASTER RISER, PASCO 1230, FIXTURE SHALL BE NSF 61 COMPLIANT.
MS-1	MOP SINK	3	2	3/4	3/4	--	MUSTEE 63M 24x24x10 WHITE, SERVICE FAUCET63.600A DUAL HANDLE SINK FAUCET W/ TOP REINFORCING BAR AND PAIL HOOK ON SPOUT, WALL GUARDS 67.2424 TWO PANELS AND BRACKET FOR CORNER.

REMARKS:

1. COORDINATE MOUNTING HEIGHTS AND HANDING WITH ARCHITECTURAL DRAWINGS AND FIELD CONDITIONS.
2. MANUFACTURER LISTED IS BASIS OF DESIGN. PROVIDE LISTED OR EQUAL APPROVED BY OWNER.

PHSKC STAMP

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

PATRICK M. LOFG
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: TB
Checker: TM

PLUMBING SCHEDULES

P2.00

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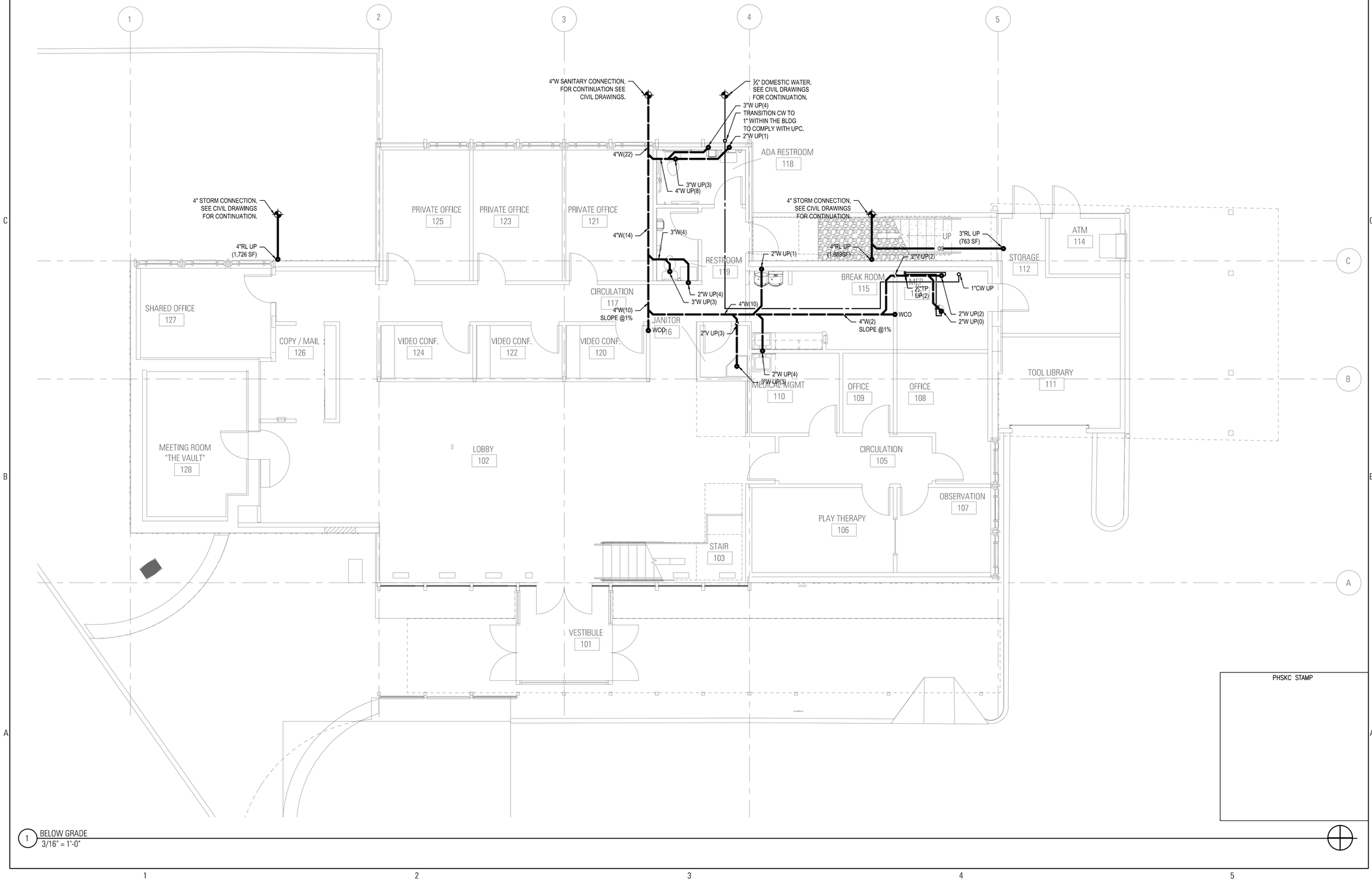

PHSKC STAMP

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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BRYN-MAWR-SKYWAY,
WA 98178

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PATRICK M. TUTTLE
STATE OF WASHINGTON
31848
REGISTERED PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
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PLUMBING PLAN - BELOW GRADE

P3.00

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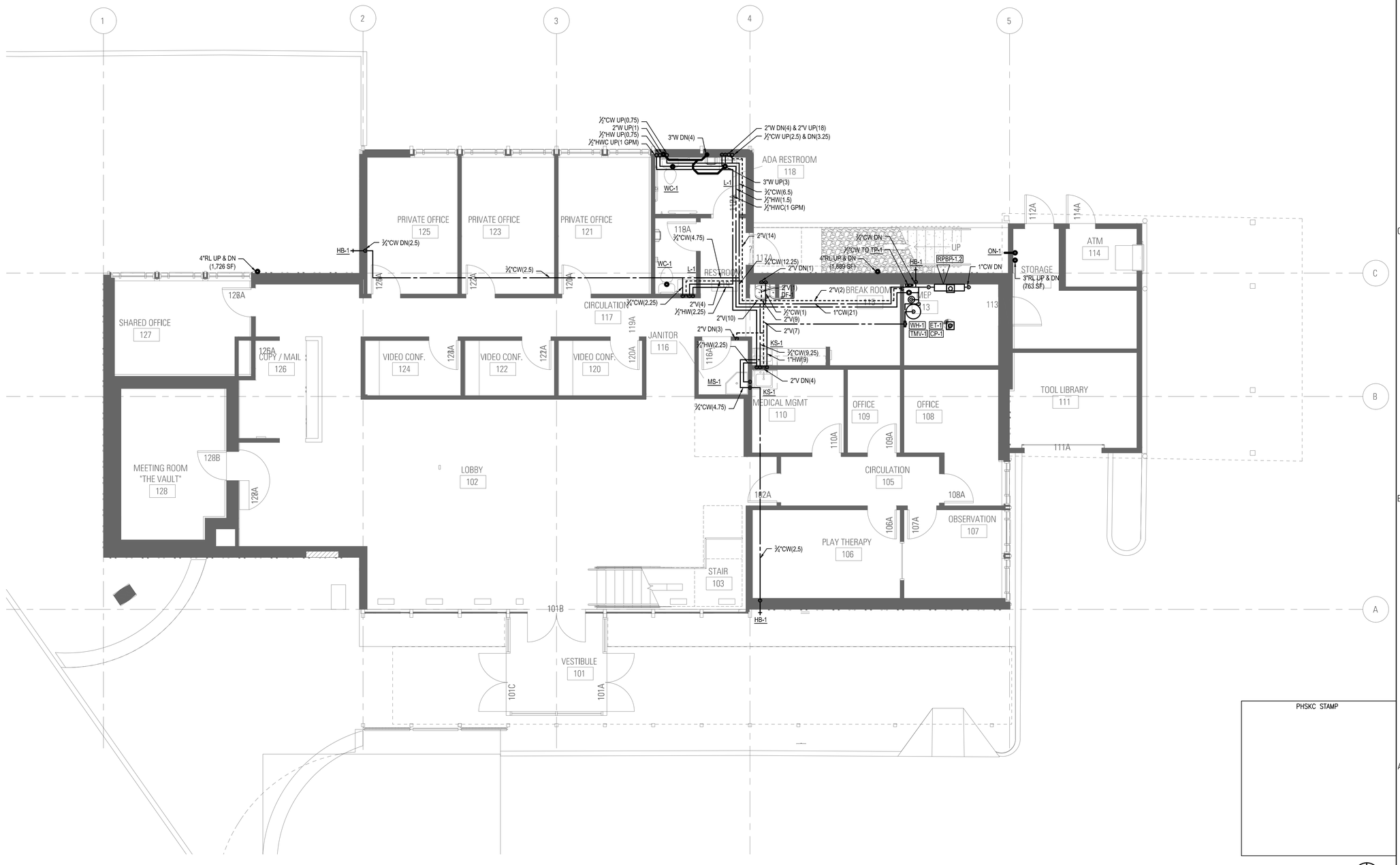
SHEET NOTES

1. REDUCED FIXTURE LOADING FOR ADDITIONAL HOSE BIBBS IS USED WHERE SIZING TOTAL BUILDING DEMAND FOR PIPE SIZING WHERE MORE THAN ONE HOSE BIBB IS SUPPLIED IS SUPPLIED BY A SEGMENT OF WATER DISTRIBUTION PIPE. PER UPC TABLE 610.3, NOTE 8.

FLAG NOTES

1. SEE DOMESTIC HEADER ASSEMBLY DETAIL 2/P7.00.



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

PHSKC STAMP

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
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AHJ STAMP

PATRICK M. LUCE
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
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PLUMBING PLAN - LEVEL 1

P3.01

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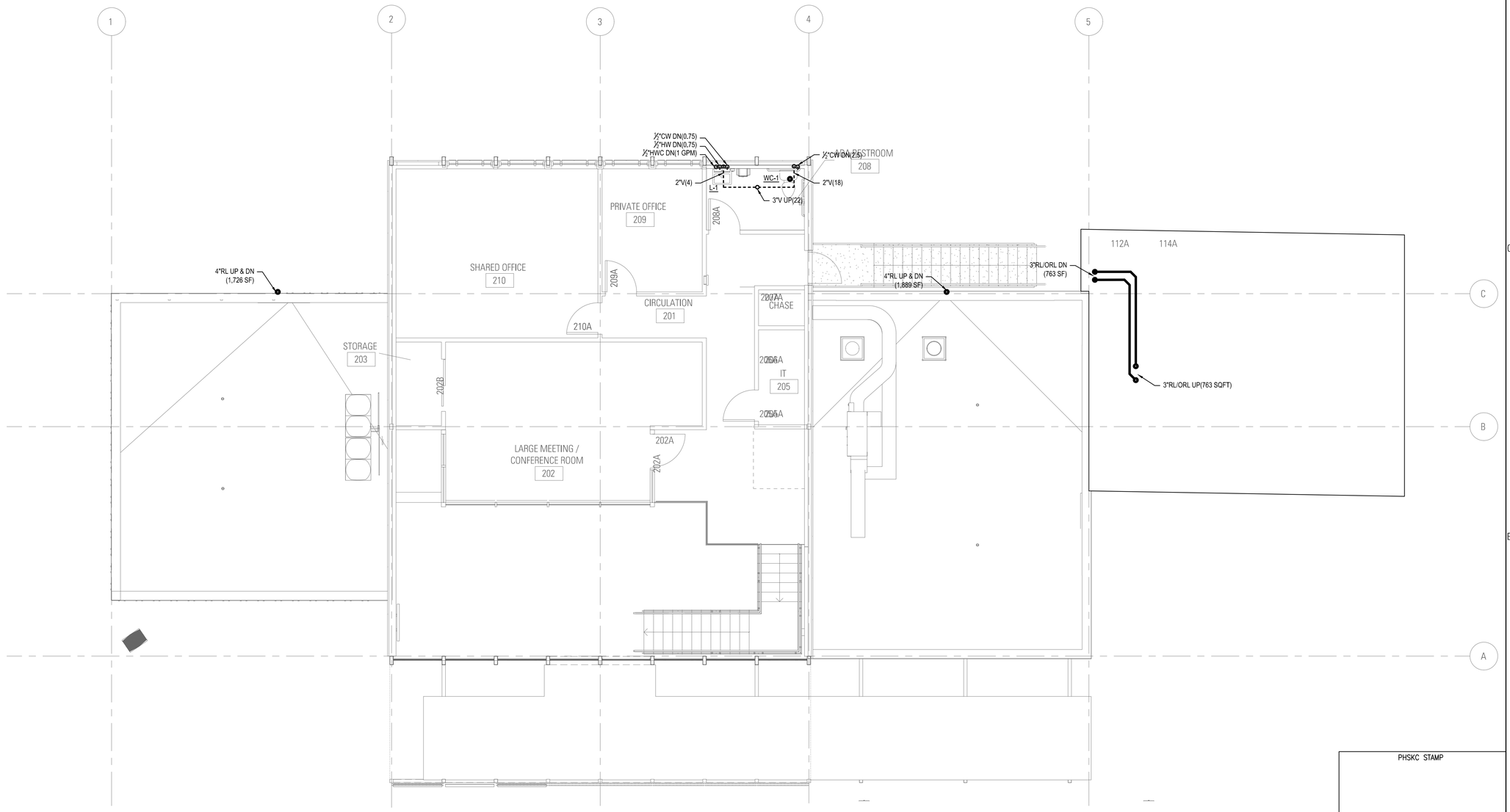
FLAG NOTES

1. SCUPPER OVERFLOW, 4" RL DN.



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

PHSKC STAMP

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
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ISSUANCES
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AHJ STAMP

PATRICK M. TUTTLE
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

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Checker: TM

PLUMBING PLAN - LEVEL 2

P3.02

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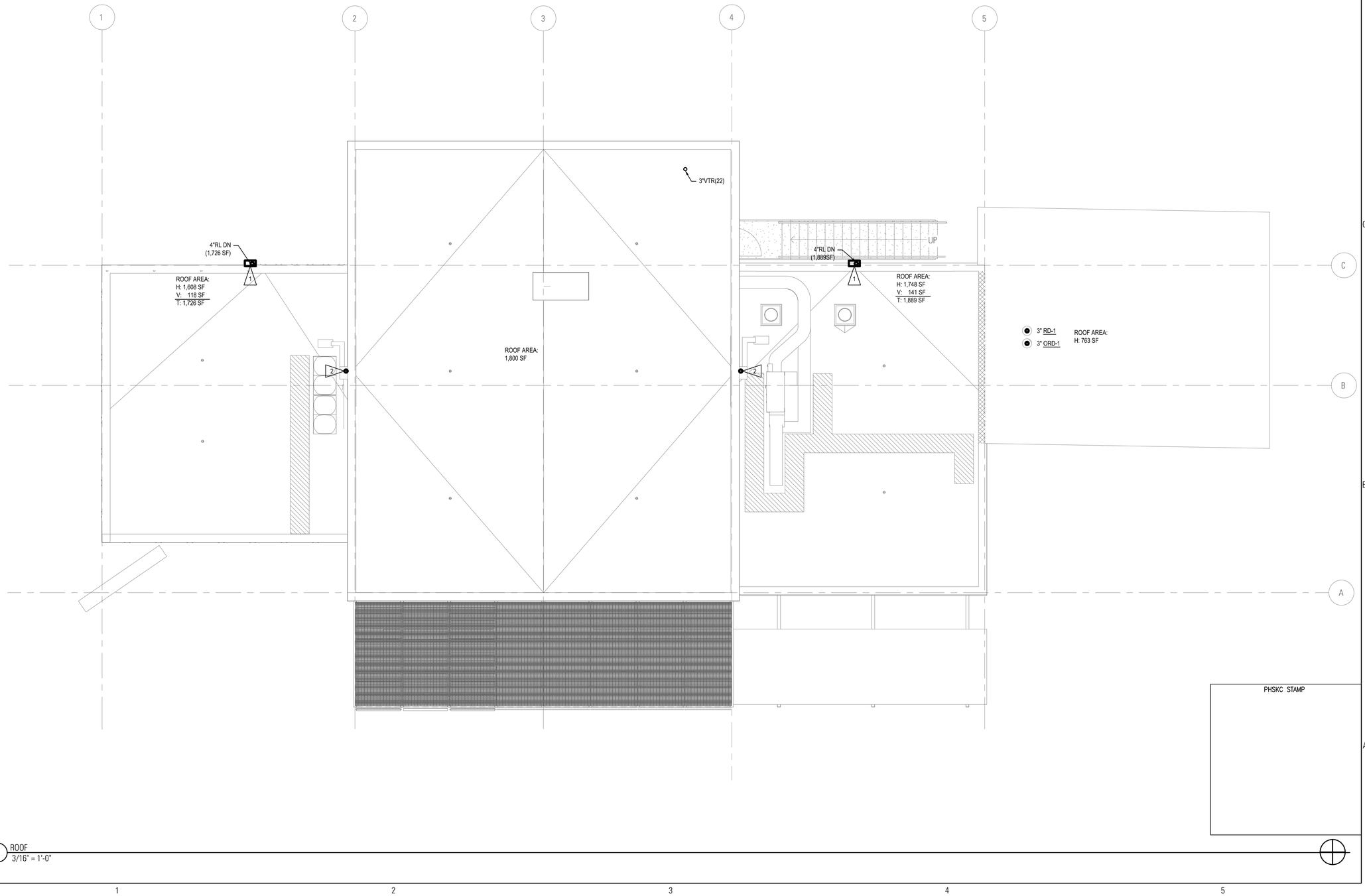
FLAG NOTES

1. SCUPPER OVERFLOW, 4" RL DN.
2. DOWNSPOUT TO LOWER ROOF, 900 SF EACH.



1 ROOF
3/16" = 1'-0"

PHSKC STAMP

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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AHJ STAMP

PATRICK M. TIMM
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

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PLUMBING PLAN - ROOF

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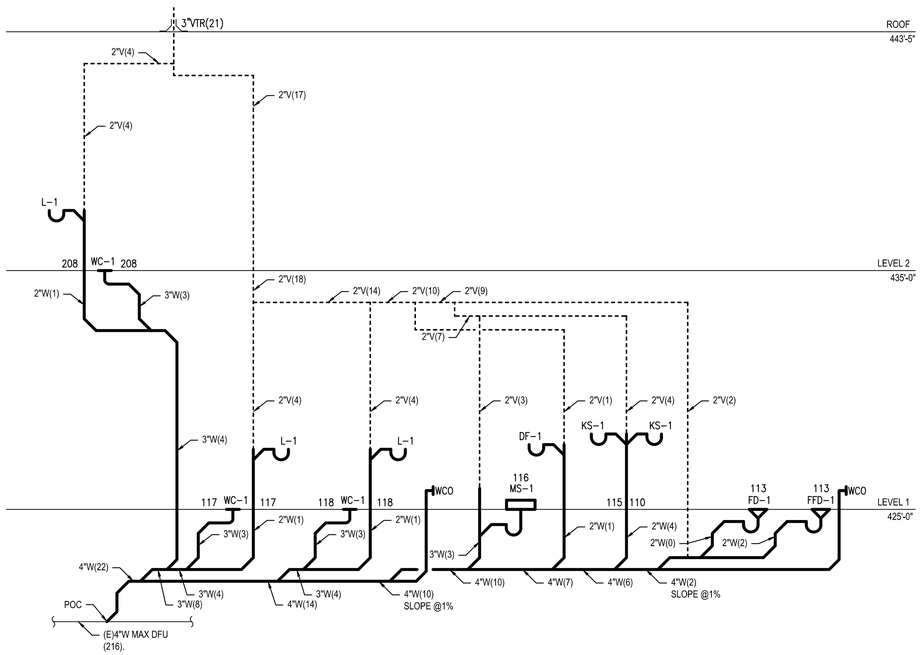
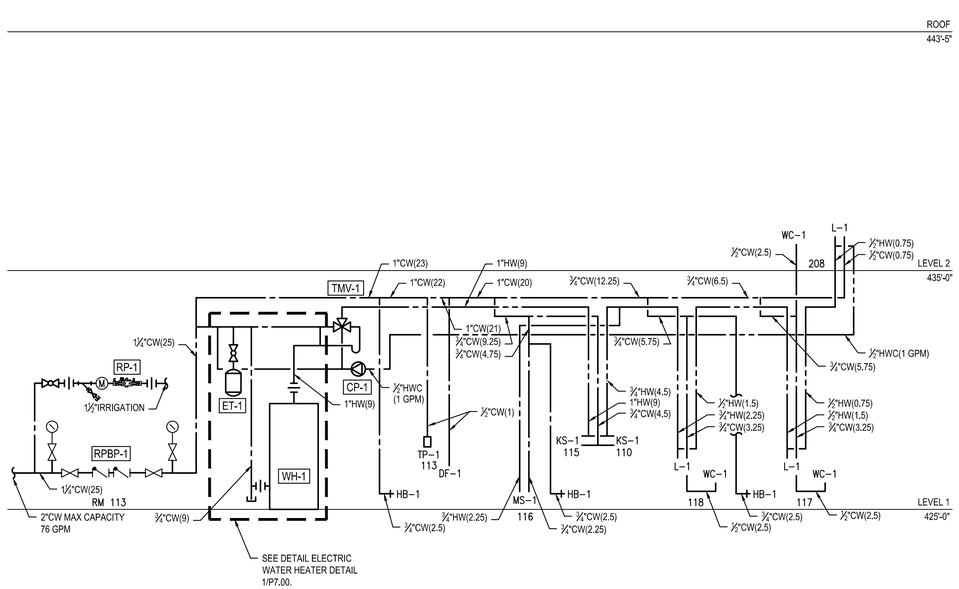


WASTE & VENT RISER DIAGRAM

SCALE: NTS



DOMESTIC WATER RISER DIAGRAM

SCALE: NTS

PHSKC STAMP

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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PATRICK M. LUCE
STATE OF WASHINGTON
31848
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PROFESSIONAL ENGINEER
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DIAGRAMS

P6.00

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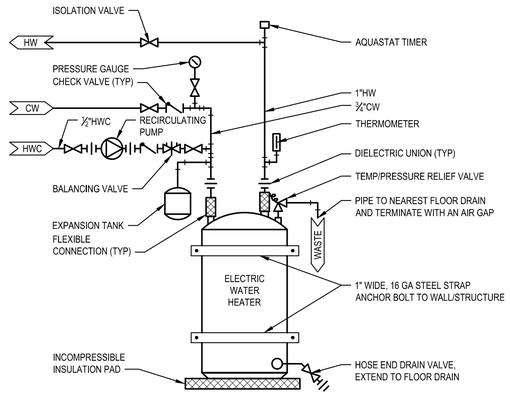
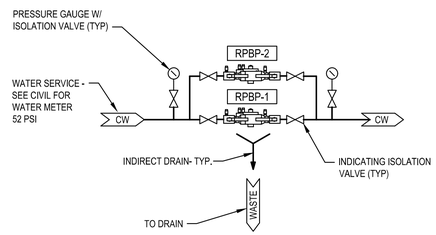


ELECTRIC WATER HEATER DIAGRAM WITH RECIRC. PUMP

1

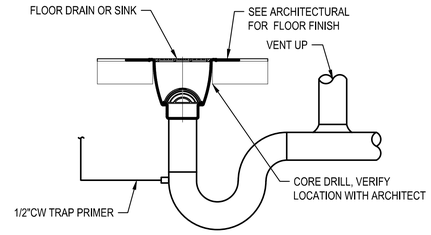
SCALE: NTS



WATER ENTRY DETAIL

2

SCALE: NTS



NOTE:
1. FOR PIPE SIZES SEE FLOOR PLAN

FLOOR DRAIN DETAIL

3

SCALE: NTS

PHSKC STAMP

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
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STATE OF WASHINGTON
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PLUMBING DETAILS

P7.00

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GENERAL NOTES

1. THE SCOPE OF THE MECHANICAL WORK CONSISTS OF WORK SHOWN ON THE PLANS AND AS DESCRIBED IN THE SPECIFICATIONS. IN CASE OF CONFLICT, THE SPECIFICATIONS SHALL GOVERN. PROVIDE A COMPLETE & FUNCTIONAL SYSTEM.

2. PERFORM ALL WORK IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND PAY FOR ALL FEES REQUIRED BY AUTHORITIES HAVING JURISDICTION. PAY ALL ROYALTIES OR FEES REQUIRED IN CONNECTION WITH THE USE OF PATENTED DEVICES AND SYSTEMS.

3. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR GENERAL CONSTRUCTION INCLUDING LOUVERS, CONCRETE EQUIPMENT PADS, FLASHING DETAILS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ROOM ELEVATIONS, LOCATE MECHANICAL DEVICES SUCH AS TEMPERATURE SENSORS, HUMIDISTATS, PANELS, ETC. SO THAT THEY DO NOT CONFLICT WITH GENERAL CONSTRUCTION (WAINSCOT, DOOR HARDWARE, ETC.) NOR WITH ELECTRICAL SYSTEM (LIGHT SWITCHES, SPEAKERS, OUTLETS, ETC.).

4. COORDINATE WITH OTHER TRADES:
   A. REFER TO ELECTRICAL DRAWINGS AND CONFIRM ELECTRICAL CHARACTERISTICS SHOWN FOR MECHANICAL EQUIPMENT (VOLTAGE, PHASE, HZ, ETC). MATCHES THAT OF THE MECHANICAL EQUIPMENT PROVIDED.
   B. PROVIDE ADEQUATE CLEARANCE OF MECHANICAL WORK FROM ELECTRICAL EQUIPMENT. MAINTAIN MINIMUM ACCESS OF 6-INCHES ABOVE CABLE TRAYS AND 18-INCHES TO THE SIDE OF CABLE TRAYS. CLEARANCE ABOVE CABLE TRAY SHOULD BE 1/2 THE WIDTH AND NOT LESS THAN 6-INCHES WHEN RUNNING PARALLEL WITH CABLE TRAY. AND NOT LESS THAN 6-INCHES WHEN RUNNING PERPENDICULAR TO THE CABLE TRAY.

5. ARRANGE EQUIPMENT SO THAT ACCESS CLEARANCES INDICATED BY DRAWINGS, REQUIRED BY CODES, OR RECOMMENDED BY MANUFACTURER ARE PROVIDED.

6. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ACCEPTED SUBMITTALS. INSTALL MATERIAL IN PROPER RELATION TO ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK.

7. THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND REPORT ANY CONDITION THAT PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

8. COMPLY WITH SEATTLE ENERGY CODE SECTION C408.1.3 DOCUMENTATION REQUIREMENTS INCLUDING ALL LOCAL JURISDICTION AMENDMENTS. INCLUDE THE DEVELOPMENT OF CONSTRUCTION AND AS-BUILT DRAWINGS, PROJECT MANUALS, AND SYSTEM BALANCING REPORTS.

9. PURSUANT TO SECTION C408.1.3 OF THE SEATTLE ENERGY CODE, THE HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT THE CONTROL DEVICES, EQUIPMENT AND SYSTEMS ARE CALIBRATED, ADJUSTED, AND OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO ENSURE THEY OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

10. THE COMMISSIONING SPECIFICATION, INCLUDING ALL FUNCTIONAL TEST PROCEDURES, SHALL BE PROVIDED AND ENFORCED BY THE CONTRACTOR.

11. PROVIDE SEISMIC RESTRAINT IN ACCORDANCE WITH SBC AND ASCE STANDARD 7. SUBMIT CALCULATIONS BY LICENSED STRUCTURAL ENGINEER. PRODUCTS MAY CONFORM TO SMACNA SEISMIC RESTRAINT GUIDELINES.

12. PROVIDE A SINGLE SUBMITTAL OF ALL MECHANICAL EQUIPMENT AS SPECIFIED. AS A MINIMUM, SUBMIT PRODUCT DATA FOR ALL EQUIPMENT AND FIXTURES LISTED IN ACCOMPANYING SCHEDULES FOR APPROVAL.

13. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

14. ARRANGEMENT OF SYSTEMS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC, AND INDICATES THE MINIMUM REQUIREMENTS FOR PLUMBING AND MECHANICAL WORK. ADJUST TERMINAL UNIT LOCATIONS, BASED ON FIELD MEASUREMENTS, TO AVOID INSTALLATION ABOVE DESKS. SITE CONDITIONS SHALL DETERMINE THE ACTUAL ARRANGEMENT OF THE WORK. TAKE FIELD MEASUREMENTS BEFORE PREPARING SHOP DRAWINGS, OBTAIN APPROVAL OF SHOP DRAWINGS BEFORE BEGINNING FABRICATION. BE RESPONSIBLE FOR ACCURACY OF DIMENSIONS AND LAYOUT. OVERHEAD PIPING AND DUCTWORK SHALL BE ARRANGED TO OBTAIN MAXIMUM HEAD ROOM.

15. CLEAN AND PROTECT WORK FROM DAMAGE. RESTORE DAMAGED FINISHES. COVER ENDS OF PIPING AND DUCTWORK NOT ACTIVELY BEING WORKED ON.

16. MODIFY AND EXTEND EXISTING SERVICE TO ACCOMMODATE NEW WORK. RELOCATE EXISTING COMPONENTS AS REQUIRED FOR NEW SYSTEM. COORDINATE WITH BUILDING MANAGEMENT.

17. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

18. DO NOT CUT STRUCTURAL ELEMENTS WITHOUT PRIOR WRITTEN APPROVAL.

19. CONCEAL PIPING AND DUCTWORK TO THE GREATEST EXTENT POSSIBLE.

20. INSTRUCT OWNER IN PROPER OPERATION OF SYSTEMS.

21. DRAWINGS DO NOT SHOW ALL OFFSETS WHICH MAY BE REQUIRED. MAKE OFFSETS WITH FITTINGS USING THE LEAST ANGLE OF OFFSET POSSIBLE. DUCTWORK & PIPING SHALL BE ROUTED TO AVOID ALL STRUCTURAL SUPPORTS, AND COORDINATED WITH WORK OF OTHER TRADES.

22. MATERIALS, METHODS, AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE LATEST EDITION OF THE FOLLOWING CODES AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION (SEATTLE, WA).

    2018 INTERNATIONAL BUILDING CODE (IBC)
    2018 INTERNATIONAL MECHANICAL CODE (IMC)
    2018 UNIFORM PLUMBING CODE (UPC)
    2018 INTERNATIONAL FIRE CODE (IFC)
    2018 SEATTLE ENERGY CODE (SEC)

SHEETMETAL NOTES

1. PERFORM ALL SHEETMETAL WORK IN ACCORDANCE WITH CURRENT SMACNA STANDARDS.

2. DUCT SEALING SHALL MEET REQUIREMENTS LISTED IN CHAPTER 6 OF IMC AND WASHINGTON STATE ENERGY CODE WITH LOCAL AMENDMENTS. IN ADDITION, PROVIDE SEAL CLASS A FOR ALL DUCTWORK.

3. CONSTRUCT DUCTS WITH G-90 OR BETTER GALVANIZED STEEL (ASTM 527) LFQ.

4. CONSTRUCT RECTANGULAR DUCTWORK TO MEET ALL FUNCTIONAL CRITERIA DEFINED IN CHAPTER 11, OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS. PROVIDE DIAGONAL CREASING OR BEADING ON ALL PANELS WIDER THAN 18-INCHES, AND PANELS LESS THAN 18 GAGE. CONSTRUCT ROUND AND FLAT OVAL DUCTWORK IN ACCORDANCE WITH CHAPTER 3 OF SMACNA HDCS.

5. DUCTMATE, METU, OR W.D.C.I. DUCT CONNECTION SYSTEMS ARE ACCEPTABLE. DUCTS CONSTRUCTED USING THESE SYSTEMS WILL REFER TO THE MANUFACTURER'S GUIDELINES FOR SHEET GAGE, INTERMEDIATE REINFORCEMENT SIZE AND SPACING, AND JOINT REINFORCEMENTS.

6. PROVIDE COLLARS WHEREVER AN EXPOSED DUCT PASSES THROUGH A WALL, SLAB, OR CEILING:1-INCH WIDE, 18-GAGE ANGLE WITH MITERED CORNERS & SEAL WITH FIBERGLASS AND MASTIC.

7. SPIN-IN FITTINGS SHALL BE CONICAL TYPE WITH VOLUME DAMPER, AND QUADRANT; FLEX MASTER ELGEN OR EQUIVALENT.

8. ELBOWS IN RECTANGULAR OR SQUARE DUCTWORK SHALL HAVE AN INSIDE RADIUS EQUAL TO DIMENSION OF ELBOW IN THE PLANE OF THE TURN.

9. ELBOWS IN ROUND DUCTWORK SHALL HAVE THE INSIDE RADIUS EQUAL TO DIMENSION OF ELBOW IN THE PLANE OF THE TURN. USE SEGMENTED, STANDING SEAM, PLEATED, OR STAMPED ELBOWS. ADJUSTABLE ELBOWS ARE ALLOWED IF RADIUS CONFORMS TO ABOVE.

10. SQUARE CORNER INSERTS (TURNING VANES) SHALL BE SMACNA FIG. 4.3 DOUBLE THICKNESS, RUNNER TYPE 2 WITH 2-1/8-INCH SPACING.

11. VOLUME DAMPERS ARE NOT SHOWN GENERALLY. INCLUDE A DAMPER IN THE DUCT TO EACH SUPPLY, EXHAUST, OR RETURN OPENING; ALSO IN EACH BRANCH DUCT WHERE THREE OR MORE OPENINGS ARE ASSOCIATED WITH THE BRANCH. LOCATE DAMPERS AT A POINT WHERE THE DUCT IS ACCESSIBLE; AS FAR FROM THE OUTLET AS POSSIBLE. DO NOT PROVIDE VOLUME DAMPER ON SUPPLY DUCTWORK UPSTREAM OF TERMINAL UNITS. DAMPERS SHALL BE RUSKIN MD25 OR MDRS25.

12. THOROUGHLY CLEAN ALL DEBRIS FROM THE INSIDE OF ALL DUCTWORK AND PLENUMS.

13. MECHANICAL DRAWINGS SHOW APPROXIMATE LOCATIONS FOR GRILLES AND DIFFUSERS. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATIONS. AFTER SHOP DRAWINGS ARE COMPLETED VERIFY EXACT LOCATION OF GRILLES AND DIFFUSERS IN THE FIELD. ENSURE THAT DIFFUSER AND GRILLE FRAMES MATCH CEILING TYPES AND FINISH PRIOR TO ORDERING.

14. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH A SLIP JOINT MADE USING FIRE RESISTANT MASTIC AND CLAMP, IDEAL "SNAP-LOCK" OR VENTLOCK "SURETIGHT NO. 670" AT EACH END. SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DO NOT INSTALL WITH ABRUPT BENDS OR OFFSETS. MAXIMUM LENGTH 5-FEET. LOW PRESSURE INSULATED FLEXIBLE DUCT SHALL BE THERMAFLEX MK-E. HIGH PRESSURE INSULATED FLEXIBLE DUCT SHALL BE THERAMFLEX MK-C.

REMODEL CONSTRUCTION NOTES

1. DEMOLITION: WORK REQUIRED IS NOTED ON PLANS. VERIFY WITH ON SITE CONDITION AND OWNER. SALVAGE EQUIPMENT FOR OWNER'S USE AS NOTED.

2. COORDINATE INTERRUPTIONS OF SERVICES PASSING THROUGH WORK AREA TO MINIMIZE DISRUPTION IN ADJACENT SPACES. COORDINATE WITH BUILDING OWNER.

3. INSTALL NEW WORK GENERALLY AS SHOWN. ADEQUATE SPACE HAS BEEN VERIFIED TO THE DEGREE POSSIBLE, BUT MAY REQUIRE MINOR RELOCATION OF SMALL CONDUIT AND CEILING WIRE. COORDINATE EXTENT OF RELOCATION WITH GENERAL CONSTRUCTION WORK.

4. COORDINATE WORK WITH GENERAL CONSTRUCTION TO MINIMIZE DUST & DUST MIGRATION.

PIPING NOTES

1. SANITARY, WASTE, AND VENT PIPING (PLASTIC NOT ALLOWED) SHALL BE NO-HUB CAST IRON OR DWV COPPER.

2. HOT AND COLD WATER PIPING SHALL BE HARD DRAWN COPPER TUBING: TYPE L, ASSEMBLED WITH WROT COPPER FITTINGS AND LEAD-AND ANTIMONY-FREE SOLDER.

3. INSULATE ALL HOT AND COLD WATER PIPING WITH GLASS FIBER INSULATION WITH ALL SERVICE JACKET. USE HEAT BONDING TAPE TO CLOSE INSULATION; STAPLES AND PRESSURE TAPE ARE PROHIBITED.

4. PROVIDE ALL REQUIRED ACCESSORIES INCLUDING SHUT-OFFS AND CLEAN-OUTS. PROVIDE COMPONENTS WHICH PREVENT BACK-SIPHONAGE OR CROSS-CONNECTIONS. PROVIDE ISOLATION DEVICES TO REDUCE SOUND TRANSMISSION.

5. PROVIDE STOPS FOR EACH WATER CONNECTION TO EACH FIXTURE OR ITEM OF EQUIPMENT.

6. DISINFECT WATER DISTRIBUTION SYSTEM. FLUSH AND TEST ALL SYSTEMS FOR PROPER OPERATION. ADJUST SYSTEM TO PREVENT WATER HAMMER.

7. REFER TO PIPING DIAGRAMS AND DETAILS FOR REQUIRED FITTINGS, VALVES, ETC. FLOOR PLANS AND SECTIONS INDICATE EQUIPMENT LOCATIONS AND GENERAL PIPE ROUTING ONLY.

8. REFER TO CIVIL DRAWINGS FOR UTILITY WORK 5'-0" BEYOND THE BUILDING LINE.

ENERGY CODE MECHANICAL NOTES

1. HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT, EXCEPT DURING DEFROST, PREVENT SUPPLEMENTARY HEAT OPERATION WHEN THE HEAT PUMP CAN MEET THE HEATING LOAD.

2. WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL PROVIDE A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM.

3. EACH HVAC SYSTEM SHALL HAVE CONTROLS THAT VARY THE START-UP TIME OF THE SYSTEM TO JUST MEET THE TEMPERATURE SET POINT AT TIME OF OCCUPANCY.

4. EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

5. BOTH OUTDOOR AIR SUPPLY AND EXHAUST SHALL BE EQUIPPED WITH NOT LESS THAN CLASS I MOTORIZED DAMPERS.

6. WHERE A HUMIDITY CONTROL DEVICE EXISTS IT SHALL BE SET TO MAINTAIN A DEADBAND OF AT LEAST 10% RELATIVE HUMIDITY WHERE NO ACTIVE HUMIDIFICATION OR DEHUMIDIFICATION TAKES PLACE.

7. DEMAND CONTROLLED VENTILATION (DCV) SHALL BE INCLUDED FOR SPACES LARGER THAN 500 FT2 FOR SIMPLE SYSTEMS AND SPACES LARGER THAN 150 FT2 FOR MULTIPLE ZONE SYSTEMS.

8. ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF LOW-PRESSURE SUPPLY AND RETURN DUCTS SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

   EXCEPTION(S):
   A. CONTINUOUSLY WELDED AND LOCKING-TYPE LONGITUDINAL JOINTS AND SEAMS ON DUCTS OPERATING AT STATIC PRESSURES LESS THAN 2 INCHES W.G. PRESSURE CLASSIFICATION.

9. PROVIDE AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER.

ABBREVIATIONS

A	AIR, AMP
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM, ACOUSTICAL LINING
ARRGT	ARRANGEMENT
ATM	ATMOSPHERE
BC	BLOWER COIL
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STEEL
BTUH	BRITISH THERMAL UNITS PER HOUR
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CLG	CEILING, COOLING
CNTFGL	CENTRIFUGAL
CO	CLEANOUT
CONC	CONCRETE
COND	CONDENSATE
CONT	CONTINUE, CONTROL
COMP	COMPRESSOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CU	CONDENSING UNIT
CU FT	CUBIC FEET
CV	CONSTANT VOLUME
CVTR	CONVERTER
CW	COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
dB	DECIBELS
DB	DRY BULB
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DEG	DEGREE
DF	DRINKING FOUNTAIN
DI	DE-IONIZED
DIA	DIAMETER
DMPR	DAMPER
DN	DOWN
DS	DOWNSPOUT
E	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
EL	ELEVATION
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT, FIRE LINE
FD	FIRE DAMPER, FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FLA	FULL LOAD AMPS
FLR	FLOOR
FLTR	FILTER
FM	FLOW METER
FOB	FLAT ON BOTTOM
FO	FLAT OVAL
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSD	FIRE SMOKE DAMPER
FT	FEET, FAN TERMINAL
FV	FACE VELOCITY
GA	GAGE
GAL	GALLONS
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
H	HUMIDIFIER, HEIGHT
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HEX	HEAT EXCHANGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER, HEAT PUMP
HPS	HIGH PRESSURE STEAM
HTG	HEATING
HW	HOT WATER
HWC	HOT WATER CIRCULATING
HWP	HOT WATER PUMP
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HZ	HERTZ
ID	INSIDE DIAMETER, INDIRECT DRAIN
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCH
INIT	INITIAL
INT	INTERIOR
IPLV	INTEGRATED PART LOAD VALUE
KW	KILOWATT
KWH	KILOWATT HOURS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND, LINEAR BAR
LBS	POUNDS
LD	LINEAR DIFFUSER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MD	MANUAL DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MOD	MOTOR OPERATED DAMPER
MTR	MOTOR
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NUMBER, NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
ORD	OVERFLOW ROOF DRAIN
ORL	OVERFLOW RAIN LEADER
P	PUMP, PLUMBING
PD	PRESSURE DROP
PH	PHASE
POC	POINT OF CONNECTION
POS	POSITIVE
PR	PUMPED RETURN
P/T	PRESSURE/TEMPERATURE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR
RD	ROOF DRAIN
REF	REFERENCE
REQD	REQUIRED
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELIEF HOOD, RELATIVE HUMIDITY
RL	RAIN LEADER
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
S	SOIL
SA	SUPPLY AIR
SD	STORM DRAIN, SMOKE DAMPER
SENS	SENSIBLE
SEER	SEASONAL ENERGY EFFICIENCY RATING
SF	SUPPLY FAN, SQUARE FEET
SG	SUPPLY GRILLE
SL	SOUNDLINING
SP	STATIC PRESSURE
SPR	SPRINKLER
SS	STAINLESS STEEL, SANITARY SEWER
STP	STANDPIPE
T	THERMOSTAT
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TOT	TOTAL
TP	TRAP PRIMER, TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TU	TERMINAL UNIT
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VENT, VOLT
VA	VALVE
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WASTE, WATER, WATT, WIDTH
WB	WET BULB
WG	WATER GAGE
WH	WATER HEATER, WALL HYDRANT
WTR	WATER

MECHANICAL SHEET INDEX

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP

Architect Project No: 2052
Author: GSB
Checker: PMJ

GENERAL NOTES, ABBREVIATIONS AND SHEET INDEX

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SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
1	DRAWING CONSTRUCTION ("FLAG") NOTE
X-XX	EQUIPMENT IDENTIFIER
	MATCHLINE
	REVISION CLOUD (ENCIRCLES DRAWING CHANGES MADE SINCE THE PREVIOUS RELEASE)
1	REVISION REFERENCE
	EXISTING TO BE REMOVED (HATCH)
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING INFORMATION
	POINT OF CONNECTION
X / XX.XX	DETAIL REFERENCE DETAIL IDENTIFICATION NUMBER SHEET WHERE DETAIL IS DRAWN
X / XX.XX	ELEVATION REFERENCE ELEVATION IDENTIFICATION NUMBER SHEET WHERE ELEVATION IS DRAWN
X / XX.XX	SECTION REFERENCE SECTION IDENTIFICATION NUMBER SHEET WHERE SECTION IS DRAWN
N	NORTH REFERENCE

SYMBOLS LEGEND - AIR HANDLING

SYMBOL	DESCRIPTION
	ROUND, 90° ELBOW, R/W OR R/D = 1.5
	RECTANGULAR, 90° ELBOW, R/W OR R/D = 1.5
	RECTANGULAR OR ROUND, 90° ELBOW, R/W OR R/D = 1.5
	SQUARE CORNER ELBOW WITH TURNING VANES
	45° BRANCH CONNECTION
	RECTANGULAR BRANCH TO RECTANGULAR DUCT CONNECTION WITH 45° TAPER
	ROUND OR RECTANGULAR BRANCH TO ROUND OR RECTANGULAR DUCT CONNECTION
	ROUND BRANCH TO RECTANGULAR DUCT CONNECTION
	ROUND BRANCH TO ROUND DUCT CONNECTION
	TRANSITION OR REDUCER - NOTED FOT (FLAT ON TOP) OR FOB (FLAT ON BOTTOM) IF REQUIRED
	RECTANGULAR TO ROUND TRANSITION

SYMBOLS LEGEND - AIR HANDLING

SYMBOL	DESCRIPTION
	POSITIVE PRESSURE DUCT - TURNING TOWARD
	POSITIVE PRESSURE DUCT - TURNING AWAY
	NEGATIVE PRESSURE DUCT - TURNING TOWARD
	NEGATIVE PRESSURE DUCT - TURNING AWAY
	ROUND DUCT - TURNING TOWARD
	ROUND DUCT - TURNING AWAY
	FLAT-OVAL DUCT - TURNING TOWARD
	FLAT-OVAL DUCT - TURNING AWAY
R	INCLINE RISE (R) OR DROP (D) IN DIRECTION OF ARROW
	FLEXIBLE CONNECTION
AD AP	ACCESS DOOR (AD) OR ACCESS PANEL (AP)
	VOLUME DAMPER
FD FD	FIRE DAMPER
SD SD	SMOKE DAMPER
FSD FSD	FIRE SMOKE DAMPER
M M	MOTOR OPERATED DAMPER
BDD BDD	BACKDRAFT DAMPER
	FLEXIBLE DUCT

SYMBOLS LEGEND - AIR HANDLING

SYMBOL	DESCRIPTION
X-XX	EQUIPMENT WITH EQUIPMENT IDENTIFICATION
T	THERMOSTAT
A 10X10 000	DIFFUSER IDENTIFIER CONNECTION SIZE AIR FLOW (CFM) DIFFUSER TYPE MARK
	CEILING SUPPLY DIFFUSER
	CEILING RETURN DIFFUSER
	AIRFLOW, SUPPLY
	AIRFLOW, RETURN

DUCT CONSTRUCTION SCHEDULE

DUCT LOCATION	DUCT TYPE	DUCT SERVICE	PRESSURE CLASS (IN)	MIN SMACNA SEAL CLASS	DUCT MATERIAL
UNCONDITIONED	SUPPLY	FAN COIL, FURNACES, HEAT PUMPS AND TERMINAL UNITS	2	B	GA
		CONSTANT VOLUME AIR HANDLING UNITS	2	B	GA
	RETURN	FAN COIL, FURNACES, HEAT PUMPS AND TERMINAL UNITS	2	B	GA
		AIR HANDLING UNITS	2	B	GA
	EXHAUST	EXHAUST FANS	2	C	GA
		AIR HANDLING UNITS	2	C	GA
	OUTDOOR AIR	FAN COIL, FURNACES, HEAT PUMPS AND TERMINAL UNITS	2	C	GA
		AIR HANDLING UNITS	2	C	GA
CONDITIONED	SUPPLY	CONSTANT VOLUME AIR HANDLING UNITS	2	C	GA
		VARIABLE VOLUME AIR HANDLING UNITS	4	A	GA
	RETURN	FAN COIL, FURNACES, HEAT PUMPS AND TERMINAL UNITS	2	C	GA
		AIR HANDLING UNITS	2	C	GA
	OUTDOOR AIR	FAN COIL, FURNACES, HEAT PUMPS AND TERMINAL UNITS	2	C	GA
		AIR HANDLING UNITS	2	C	GA

DUCT SYSTEMS INSULATION SCHEDULE - CLIMATE ZONE 4

LOCATION OF DUCT	DUCT SYSTEM TYPE	DUCT CONFIGURATION	INSULATION TYPE	MINIMUM R-VALUE, INSULATION THICKNESS	REMARKS
DUCT NOT WITHIN CONDITIONED SPACE	SUPPLY, RETURN, EXHAUST MIXED, TRANSFER AIR DUCTS	RECTANGULAR - EXPOSED	RIGID BOARD	R-7, 1 LAYER, 2 INCH THICK	1,2,5
		RECTANGULAR - CONCEALED	DUCT WRAP	R-7, 1 LAYER, 3 INCH THICK	1,2,5
		ROUND AND OVAL	DUCT WRAP	R-7, 1 LAYER, 3 INCH THICK	1,2,5
OUTSIDE THE BUILDING	OUTSIDE AIR	ALL	DUCT WRAP OR RIGID	R-8, 1 LAYER, 3 INCH THICK	1,2
DUCT WITHIN CONDITIONED SPACE	SUPPLY, RETURN, EXHAUST GENERATOR EXHAUST, RELIEF AND TRANSFER AIR DUCTS	RECTANGULAR - EXPOSED	RIGID BOARD	R-3.3, 1 INCH THICK	1,2,3
		RECTANGULAR - CONCEALED	DUCT WRAP	R-3.3, 1 LAYER, 1-1/2 INCH THICK	1,2,3
		ROUND AND OVAL - CONCEALED	DUCT WRAP	R-3.3, 1 LAYER, 1-1/2 INCH THICK	1,2,3

REMARKS:

1. INSULATE OUTSIDE, EXHAUST, AND RELIEF AIR DUCTS FROM BUILDING ENVELOPE TO BACKDRAFT/MOTORIZED DAMPER WITH R-VALUE EQUAL TO BUILDING ENVELOPE THICKNESS.
2. REQUIREMENTS APPLY TO THE DUCT TYPE LISTED, WHETHER HEATED OR MECHANICALLY COOLED DUCTS REQUIRING INSULATION SHALL HAVE A VAPOR RETARDER, WITH A PERM RATING NOT GREATER THAN 0.5 AND ALL JOINTS SEALED.
3. R-3.3; 1.0 INCH TO 3.0 LB/FT3 DUCT LINER, MINERAL OR GLASS FIBER BLANKET OF EQUIVALENT TO PROVIDE AND INSTALLED TOTAL THERMAL RESISTANCE OF AT LEAST R-3.3.
4. R-5.3; 2.0 INCH 0,75LB/FT3 MINERAL OR GLASS FIBER BLANKET, 1.5 INCH 1.5 TO 3.0 LB/FT3 DUCT LINER, MINERAL OR GLASS FIBER BLANKET, 1.5 INCH 3.0 TO 7.0 LB/FT3 MINERAL OR GLASS FIBER BOARD OR EQUIVALENT TO PROVIDE AN INSTALLED TOTAL THERMAL RESISTANCE OF AT LEST R-5.3.
5. R-7; 3.0 INCH 0,75LB/FT3 MINERAL OR GLASS FIBER BLANKET, 2.0 INCH 1.5 TO 3.0 LB/FT3 DUCT LINER, MINERAL OR GLASS FIBER BLANKET, 2.0 INCH 3.0 TO 7.0 LB/FT3 MINERAL OR GLASS FIBER BOARD OR EQUIVALENT TO PROVIDE AN INSTALLED TOTAL THERMAL RESISTANCE OF AT LEAST R-7.

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

Architect Project No: 2052
Author: GSB
Checker: PMJ

LEGEND AND CODE TABLES

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Mechanical Requirements List, pg 1 of 25

The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.
For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

Project:
Skyway Resource Center - 2018 WSEC
12610 76th Ave S
Bryn-Mawr-Skyway, WA 98178

Date: 2022-12-22

Applies	Code Section	Code Provision	Compliance Information Required In Permit Documentation	Location in Documents	Building Department Notes
SCOPE					
	C103.1	Construction documents - General	For a shell & core or tenant space (first build-out) project, indicate if there is no mechanical scope included in the project.		
NA	C103.1	Construction documents - General	For an alteration project, indicate if there is no mechanical scope included in the project.		
PERFORMANCE CRITERIA & SYSTEM DESIGN					
NA	C403.1	Exempt process equipment	Identify equipment used by manufacturing, industrial or commercial processes that are not for space conditioning or maintaining comfort and amenities for occupants; identify provisions applicable to this equipment per C403.1 exception		
YES	C403.1.1	HVAC total system performance ratio (TSPR)	For systems serving office, retail, library or education occupancies, provide a TSPR report that demonstrates the proposed design ratio is equal to or greater than the standard reference design ratio, or exception applied		
YES	C403.1.2	Calculation of heating and cooling loads	Provide load calculations performed per ASHRAE Std 183 or equivalent, using design parameters per C302 and Appendix C; include load adjustments to account for energy recovery		
NA	C403.1.3	Data centers	Provide documentation that demonstrates that data center systems comply with the maximum allowed Design MLC and Annualized MLC per ASHRAE 90.4 with 2018 WSEC adjustments per climate zone		
YES	C403.2.1 C403.4.2.2	Zone isolation	If there are HVAC zones that are intended to be occupied non-simultaneously, identify isolation zone areas on plans; if multiple zones intended to be occupied simultaneously will be combined into a single isolation zone, include on plans that the combined zone area does not exceed 25,000 sf and does not include more than one floor; or exception applied		
NA			Indicate locations of associated zone isolation dampers in HVAC distribution system		
YES			Refer to HVAC Controls section in Requirements List for applicable automatic setback and shutdown controls requirements		
EQUIPMENT SELECTION & PERFORMANCE					

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YES	C403.3.1	Equipment and system sizing	Indicate that output capacities of heating and cooling equipment and systems are no greater than the smallest available equipment size that exceeds the calculated loads; note exceptions applied		
YES	C403.3.2 C403.9.1	HVAC equipment performance requirements (efficiency)	Provide equipment schedules on plans and in WSEC mechanical equipment compliance reports; indicate equipment type, calculated loads, capacity, rated and WSEC minimum efficiencies for all heating and cooling equipment; include supply and ventilation air cfms and operating hours for all air systems; identify heating and cooling equipment that does not have a corresponding WSEC minimum efficiency (manufacturer rated)		
YES	C405.8	Electric motor efficiency	List all motors ≥ 1/12 hp (that are not integral to a rated piece of equipment) in the mechanical or electrical equipment schedules on plans; indicate motor type and applicable efficiency table, hp, rpm, number of poles and rated efficiency, or exception applied		
NA	C403.3.2	Gas and oil-fired forced air furnace and unit heaters	For forced air furnaces with capacity ≥ 225,000 Btu/h and all unit heaters, indicate in equipment schedule intermittent ignition or IID, flue or draft damper, and rated jacket loss		
NA	C403.3.2.4	Packaged electric heating / cooling equipment	Verify all packaged electric equipment with > 6,000 Btu/h cooling capacity and any amount of heating is a heat pump; include in equipment schedules		
NA	C403.3.3	Hot gas bypass limitation for DX cooling equipment	For cooling equipment with hot gas bypass, provide either multiple step unloading or continuous capacity modulation; indicate bypass capacity per Table C403.3.3		
NA	C403.3.2.5	Humidification	For cooling systems with humidification equipment that are also required to have air economizer, indicate humidifier is adiabatic (direct evaporative or fog atomization), or exception applied		
	C403.3.2	Hydronic equipment	Refer to Requirements List section Hydronic Systems - Equipment Selection & Performance for selection criteria specific to chillers and boilers		
NA	C403.9	Heat rejection equipment	Refer to Requirements List section Heat Rejection Systems - Equipment Selection & Performance for selection criteria specific to cooling towers, dry coolers and condensers (air-cooled and evaporative)		
EQUIPMENT SELECTION & PERFORMANCE - DEDICATED OUTSIDE AIR SYSTEMS (DOAS)					

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YES	C403.3.5 C403.3.5.4	Dedicated outdoor air systems	For buildings with occupancies required to comply with the DOAS provisions per Table C403.3.5, identify on plans all occupancies in the building and indicate which occupied spaces are required to have ventilation air delivered by a DOAS; or exception applied		
NA			If natural ventilation exception is applied, identify these spaces on plans; indicate operable window area complies with IMC Section 402; provide documentation describing how required ventilation will be provided during all occupied hours, including during inclement weather		
NA			If high efficiency VAV exception is applied, identify these spaces on plans; refer to Single Zone VAV section for Groups A-1, A-2 and A-3 occupancy classifications, or Multiple Zone VAV for other than Groups A-1, A-2 and A-3 (per Table C403.3.5)		
NA			If compliance with the DOAS provisions is deemed to be impractical, provide documentation that demonstrates the alternate design strategy applied that achieves a comparable level of energy efficiency, as pre-approved by the AHJ		
NA			Refer to Requirements List section after Multiple-Zone Air Systems for High Efficiency Multiple-Zone VAV Systems exception to C403.3.5 DOAS		
NA			Refer to Requirements List section after High Efficiency Multiple-Zone Air Systems for High Efficiency Single-Zone VAV Systems exception to C403.3.5 DOAS		
YES	C403.3.5.1	DOAS energy recovery method and effectiveness	For all DOAS systems, indicate exhaust air ER method and basis of rated effectiveness (sensible or latent); indicate ≥ 60% sensible or ≥ 50% enthalpy ER effectiveness based on delta between outdoor air and return air enthalpies at design conditions; or exception applied		
NA			If applying exception for DCV, identify occupant load in space and airflow control configured to reduce ventilation rate by ≥ 50% when occupancy is less than design occupancy		
YES	C403.3.5.1	DOAS fan power	For DOAS with total system fan hp < 5 hp, indicate total system fan power does not exceed 1 watt per cfm	M2.00	
NA			For DOAS with total system fan hp ≥ 5 hp, indicate total system fan power complies with fan power limitation per Section C403.8.1		

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YES	C403.3.5.2	Heating / cooling system controls with DOAS	Indicate systems and equipment associated with the delivery of zone level heating and cooling (fans, hydronic pumps, primary air dampers, etc) are configured to shut off, and central equipment is configured to turn down, when there is no call for heating or cooling in the zone they serve	M8.00	
NA			If applying Exception to heating / cooling fans used for air mixing in the space during deadband periods, include fan watts per cfm in equipment schedule		
YES	C403.3.5.3	Decoupled DOAS supply air	Indicate method of delivery of DOAS supply air to the occupied space (directly into space, downstream of terminal heating / cooling coils); or exception applied	Directly to space	
NA	C403.6.1	Multiple zone DOAS	For DOAS serving multiple zones, indicate controls configured to reduce the volume of outdoor air in each zone independently when the zone is unoccupied; or exception applied		
ADDITIONAL EFFICIENCY CREDITS - DEDICATED OUTSIDE AIR SYSTEMS (DOAS)					
NA	C406.6	DOAS	For building occupancies not subject to the requirements of Section C403.3.5, so comply with this additional efficiency credit, provide calculations that demonstrate 90% or more of the total floor area of all occupied, conditioned spaces are served by a DOAS per C403.3.5		
NA	C406.7	High performance DOAS - Energy recovery effectiveness and fan power	For all building occupancies, to comply with this additional efficiency credit, demonstrate compliance with C406.6		
NA			Indicate energy recovery sensible effectiveness of all DOAS is ≥ 80%		
NA			For each system, indicate that total system fan power does not exceed 0.5 watts per cfm		
FANS AND FAN CONTROLS					
YES	C403.8.1	Fan power limitation	For all HVAC fan systems that provide heating and / or cooling and all DOAS, provide system total nameplate hp in equipment schedules on project plans	m2.00	
NA			For all applicable HVAC systems with total fan motor nameplate hp > 5hp, verify fan system motor hp or bhp complies with fan power limits per equations in Table C403.8.1(1)		
YES			Terminal units installed in conjunction with a DOAS (hydronic heat pumps, VRF heat pumps, chilled/hot water terminal units, variable volume terminal units) shall be treated as independent air-handling units for purposes of fan power calculations	m2.00	

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NA	C403.8.2	Motor nameplate hp	For all applicable HVAC systems with total fan motor nameplate hp > 5hp, indicate fan motors specified are the smallest available motor hp size greater than fan bhp, note exceptions applied		
YES	C405.8	Fractional hp fan motors	For all fractional hp fan motors (1/12 - 1 hp), indicate that motors comply with applicable WSEC efficiency tables; if motor type is not listed in an efficiency table, indicate whether fan has an electronically commutated motor, has motor rated efficiency of at least 70%, or exception applied	m2.00	
NA	C403.8.3	Fan efficiency	For individual fans > 5hp, and multiple fans combined in series or parallel that operate as the functional equivalent of a single fan with a combined total motor hp > 5hp, indicate in equipment schedule that rated FEG for all applicable fans is ≥ 67, or exception applied; indicate these fans are sized so total efficiency is within 15% of the fan maximum total efficiency		
NA	C403.8.4	Group R occupancy exhaust fan efficacy	For all exhaust fans ≤ 400 cfm in Group R occupancies, indicate in equipment schedule the fan flow rate and efficacy (cfm/watt), or exception applied; refer to Table C403.8.4		
NA	C403.2.3	Variable flow capacity - fans	For fan motors ≥ 7.5 hp, indicate method of variable flow control (VSD or equivalent method) in equipment schedule, or exception applied		
NA	C403.8.5.1	Fan airflow control	For DX air handling units with cooling capacity ≥ 42,000 Btu/h and evaporative and chilled water air handling units with fan ≥ 0.25 hp, indicate whether system is single zone or multiple zone and related control method (cooling capacity controlled in response to space temperature, space temperature is controlled by modulating supply airflow, or both)		
NA			For mechanical cooling systems (includes DX and chilled water coils) that control cooling capacity in response to space temperature - Provide a minimum of two stages of fan control; indicate minimum fan speed is ≤ 66% of full speed drawing ≤ 40% of full speed fan power during periods of low cooling or ventilation only		

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NA			For other mechanical cooling systems (includes DX and chilled water coils) that control space temperature by modulating airflow (in lieu of, or in addition to, controlling capacity in response to space temperature) - Provide fan controls for modulating supply airflow; indicate minimum fan speed is ≤ 50% of full speed drawing ≤ 30% of full speed fan power during periods of low cooling or ventilation only; or exception applied		
ADDITIONAL EFFICIENCY PACKAGE OPTION, MORE EFFICIENT HVAC EQUIPMENT & FAN PERFORMANCE - MUST COMPLY WITH ALL 3 PROVISIONS TO BE ELIGIBLE					
NA	C406.2.1	HVAC system selection	To comply with this additional efficiency credit, provide calculations that demonstrate (based on heating and cooling output capacity) that 90% or more of all HVAC equipment serving conditioned floor areas have a corresponding WSEC listed efficiency; or exception applied		
NA	C406.2.2	Minimum equipment efficiency	In addition to system selection requirement, indicate that all associated heating and cooling equipment have a rated efficiency for all equipment performance criteria (heating, cooling, full load, part load) that is at least 15% better than the listed WSEC efficiency; include specific equipment exceptions applied		
NA			For systems required to provide a TSPR report per C403.1.1, demonstrate that the proposed design ratio is at minimum 10% higher than the standard reference design ratio		
NA			For projects complying via weighted average efficiency exception, include calculations that demonstrate the overall average better than code efficiency of all equipment performance criteria for all equipment is ≥ 15%; indicate that all equipment has at least 5% better than code efficiency		
NA			For systems serving low energy and semi-heated spaces, indicate that 90% or more of installed heating output capacity is provided by electric infrared or gas-fired radiant equipment for localized heating applications only		
NA	C406.2.3	Minimum fan efficiency grade	In addition to system selection and efficiency requirements, indicate rated FEG of all ≥ 1 hp (750 watt) stand alone supply, return and exhaust fans is ≥ 71; indicate these fans are sized so the fan efficiency at design conditions is within 10% of the maximum total or static efficiency		
VENTILATION, EXHAUST & ENERGY RECOVERY					
YES	C403.2.2.1	Ventilation	Indicate method of ventilation air delivery (natural or mechanical) for each zone	Mechanical	

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YES			If mechanically delivered, indicate that ventilation systems are configured to provide not more than 150% of, but at least the minimum required volume of outdoor air to each zone per IMC, ASHRAE 62.1 or other applicable code (WAC, OSHA, etc); or exception applied	M0.00	
YES			If delivered via natural ventilation, identify required elements per IMC including: minimum openable area to the outdoors or qualifying adjoining spaces; criteria for ensuring required ventilation is provided during all occupied hours of the year (including during inclement outdoor conditions)		
YES	C403.2.2.2	Exhaust	Indicate that exhaust systems are configured to provide not more than 150% of, but at least the minimum required volume from each zone per IMC, or other applicable code (WAC, OSHA, etc); or exception applied	M0.00	
NA	C403.4.2.4	Exhaust system off-hour controls	Refer to Requirements List section HVAC Controls for off-hour controls requirements for exhaust systems		
	C403.3.6	Balanced ventilation for Group R-2 occupancy	For Group R-2 dwelling and sleeping units, indicate that each habitable space is provided with a balanced ventilation system; indicate system is provided with energy recovery with 60% sensible recovery effectiveness		
NA	C403.7.1	Demand controlled ventilation	Identify spaces > 500 sf with occupant load ≥ 25 people/1,000 sf per IMC; for each space indicate whether it is served by an HVAC system with total design ventilation air > 3,000 cfm, and / or the system has airside economizer or automatic modulating outdoor air damper; indicate controls are configured to provide demand controlled ventilation or provide supporting documentation for applied exception		
NA	C403.7.2	Occupancy sensors	For gyms, classrooms, auditoriums, conference rooms and other spaces with occupant load ≥ 25 people/1,000 sf per IMC, that have an area > 500 sf, indicate occupancy-based ventilation air control when space is unoccupied and method (closes outdoor air damper or shuts-off equipment); or alternate means provided to automatically reduce ventilation air when space is partially occupied; or exception applied		
YES	C403.7.3	Ventilation air heating control	For ventilation air systems that operate in conjunction with heating and cooling systems, indicate that ventilation air is tempered (via heating or heat recovery) to no greater than 60F when the space conditioning system is in cooling mode	M2.00	

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	C403.7.4.2	Ventilation controls for Group R-1 guestrooms	Refer to Requirements List section HVAC Controls for Group R-1 temperature setback and set-up controls		
			Indicate method of ventilation and exhaust isolation for each guest room and automatic controls that are configured to turn off ventilation and exhaust airflow when each room is unoccupied		
	C403.8.4	Group R occupancy exhaust fan efficacy	Refer to Requirements List section Fans & Fan Controls		
	C403.7.5 C403.7.5.1	Enclosed loading dock ventilation	For enclosed loading docks, indicate ventilation / exhaust system method of activation (gas detection system for CO and NO2, or occupancy sensors), and control method (staged or modulating)		
	C403.7.5 C403.7.5.2	Enclosed parking garage ventilation	For enclosed parking garages, indicate ventilation / exhaust system activated by gas detection system for CO and NO2, and control method (staged or modulating); or exception applied		
NA	C403.7.6	Ventilation / exhaust systems energy recovery	For systems with design ventilation air > 5,000 cfm, or design supply air cfm and % ventilation air exceeding the values in Tables C403.7.6(1) or (2), indicate exhaust air energy recovery method; or exception applied with supporting calculations		
NA			For rooms served by multiple systems with aggregate design ventilation air > 5,000 cfm, or aggregate design supply air cfm and % ventilation air exceeding the values in Tables C403.7.6(1) or (2), indicate exhaust air energy recovery method; or exception applied with supporting calculations		
NA			Indicate energy recovery rated effectiveness that increases outdoor air enthalpy by ≥ 50% based on delta between outdoor air and return air enthalpies at design conditions		
	C403.7.7.1.1 C403.7.7.1.2 C403.7.7.1.3	Kitchen exhaust hood system	Indicate on plans the type, duty, UL rating and exhaust airflow rate of each kitchen hood		
			Provide calculations that show a balanced accounting of total kitchen exhaust (include all hoods) with % of / supply air, transfer air from adjacent spaces, and make-up air		
			For hoods with make-up air drawn directly into the exhaust air cavity of each hood, indicate that replacement air does not exceed 10% of hood exhaust airflow rate		
			For kitchens with total hood exhaust exceeding 2,000 cfm, indicate that each hood is UL 710 rated and maximum exhaust airflow rate of each hood is per Table C403.7.7.1.2; or exception applied		

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP

PATRICK M. THOMAS
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: GSB
Checker: PMJ

WSEC COMPLIANCE SHEET

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The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.
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			For kitchens with total hood exhaust exceeding 2,000 cfm, indicate energy efficiency compliance method (demand ventilation, energy recovery, or transfer air that would otherwise be exhausted); or exception applied	
	C403.7.7.2	Laboratory exhaust systems energy recovery	For buildings with total lab exhaust > 5,000 cfm, indicate method of energy recovery used to pre-condition laboratory make-up air; energy recovery effectiveness (min 25°F increase in outside air temperature); or alternative method per exception (VAV exhaust, semi-conditioned makeup, or CERM calculation)	
NA	C403.7.7.3	Transfer air	For spaces where conditioned supply air is utilized as transfer air to balance mechanical exhaust, indicate basis of transfer airflow (supply required to meet loads, health/safety requirement, air that would normally be exhausted); or exception applied	
YES	C403.7.8.1 C403.7.8.3	Shutoff dampers for building isolation	Indicate locations of outdoor air intake, exhaust and relief outlet dampers on plans; indicate whether dampers are Class 1 motorized, or gravity and exception applied (include leakage rating, cfm/sf)	
			Indicate location of stairway and elevator hoistway shaft vent dampers on plans; verify dampers are Class 1 motorized; or exception applied	
	C403.7.8.2 C403.7.8.3	Shutoff dampers for return air	Indicate locations of return air dampers that are integral to airside economizer operation; verify dampers are motorized; indicate whether dampers are Class 1, or within packaged equipment eligible for leakage rating exception (include leakage rating, cfm/sf)	
NA	C403.7.8.4	Damper actuation	Indicate automatic controls configured to close outdoor air intake, exhaust and relief outlet dampers during unoccupied equipment operation; not including economizer cooling, night flush or IMC required outdoor air / exhaust	
			Indicate method of activation of stairway and elevator hoistway shaft vent dampers (fire alarm or interruption of power)	
	C404.11.4	Exhaust system energy recovery for heated indoor pools and permanent spas	For buildings with pools or spas with water surface area > 200 sf, indicate exhaust air energy recovery method and use of waste heat (preheat ventilation air, pool water or service hot water); or exception applied	
			Indicate energy recovery system has the rated effectiveness and is configured to decrease the exhaust air temperature at design conditions by ≥ 36°F	

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HVAC CONTROLS

YES	C403.4.1	Thermostatic controls (thermostats and humidistats)	Indicate locations of thermostatic and humidity control devices and the zones they serve on plans, including perimeter system zones	Floor plans
			Where adjacent (neighboring) zones are controlled by separate thermostats (including perimeter systems used to offset heat gain or loss), and are connected by permanent openings > 10% of either zone of area, indicate controls configured to prevent adjacent zones from operating in conflicting modes (one in heat, other in cool); applies to adjacent perimeter zones, adjacent nonperimeter zones, and adjacent perimeter and nonperimeter zones	
			If applying Exception 2 to nonperimeter zones adjacent to perimeter zones, indicate that setpoints and deadband settings in these zones are coordinated so cooling in a nonperimeter zone does not occur until the temperature in that zone is 5°F higher than the adjacent perimeter zone temperature in heating	
NA			If applying Exception 3 for DOAS, indicate supply air temperature heating setpoint is ≤ 65°F and cooling setpoint is ≥ 72°F, or method of supply air temperature reset	
NA	C403.4.1.1	Heat pump supplementary heat	Indicate staged heating operation with compression as the first stage of heating and supplemental heating controlled with outdoor lock-out temperature set to 40°F or less	
	C403.4.1.2	Deadband	Indicate zone thermostatic controls configured with 5°F minimum deadband for systems that control both heating and cooling	
	C403.4.1.3	Setpoint overlap restriction (thermostats)	If separate heating and cooling thermostatic control devices are used to serve a zone, indicate locations of both thermostatic control devices and the zone they serve on plans	
			Indicate a limit switch, mechanical stop or DDC control with programming to prevent simultaneous heating and cooling	
NA	C403.4.1.4	Heated or cooled vestibules	Indicate thermostatic controls within heating or cooled vestibules with a heating setpoint ≤ 60°F and cooling setpoint ≥ 85°F; indicate controls are configured to turn off heating when outdoor temperature is > 45°F; or note exception applied	
NA	C403.4.1.4	Heated air curtains	Indicate controls are configured to turn off air curtain heating when outdoor temperature is > 45°F	

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NA	C403.4.1.6	Door switches for HVAC system thermostatic control	Where doors open to the outdoors from a conditioned space, indicate automatic controls configured to setback the HVAC system(s) when the door is open for > 5 minutes; indicate method of HVAC system setback control (turns off the HVAC system or resets the heating setpoint to 55°F and cooling setpoint to 85°F), or exception applied		
YES	C403.4.2 C403.4.2.1 C403.4.2.2	Automatic setback and shutdown	Indicate zone thermostatic controls configured with required automatic setback and manual override functions, setback temperatures, and control method (automatic time clock or 7 day programmable controls); note exceptions applied	M8.00	
NA	C403.4.2.3	Automatic (optimum) start and stop	Indicate all HVAC systems are provided with automatic start and stop controls; indicate start controls are configured to adjust the equipment start time as required to bring each area served up to design temperature just prior to scheduled occupancy; indicate stop controls are configured to reduce heating setpoint and increase cooling setpoint by at least 2°F prior to scheduled unoccupied periods		
NA	C403.4.2.4	Exhaust system off-hour controls	For exhaust systems serving conditioned spaces in all occupancies other than Group R, indicate method of control and that controls are configured to turn exhaust systems on and off in concert with the ventilation air systems providing their make-up air, or exception applied		
NA	C403.4.2.5	Transfer and destratification fan system off-hour controls	For transfer fan or mixing fan systems serving conditioned spaces in all occupancies other than Group R, indicate method of control and that controls are configured to turn fans on and off in concert with the associated HVAC systems, or exception applied		
NA	C403.4.7	Combustion heating equipment	For combustion heating equipment other than boilers or radiant heaters with output capacity > 225,000 Btu/h, indicate modulating or staged combustion control		
NA	C403.4.7.1	Combustion decorative vented appliance, combustion fireplace and fire pit controls	Indicate controls that are configured to limit operation of combustion appliance, fireplace and fire pit to ≤ 1 hour without override, or that occupancy sensor controls are provided		

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	C403.7.4.1	Temperature setpoint controls for Group R-1 guestrooms	For hotels / motels with over 50 guest rooms, indicate automatic controls for HVAC equipment serving guest rooms are configured to setback (heating) and set-up (cooling) temperature setpoint by at least 4°F when room is unoccupied, and adjust setpoint to 60°F (heating) and 80°F (cooling) when room is unrented / vacated; indicate control method - activated by room entry, occupancy sensor or networked guestroom control system	
	C403.7.4.2	Ventilation controls for Group R-1 guestrooms	Refer to Requirements List section Ventilation, Exhaust & Energy Recovery	
	C403.4.9 C403.4.10	Thermostatic controls for Group R2 / R3 dwelling units and Group R2 sleeping units	For primary space conditioning systems, indicate 5-2 programmable thermostats capable of two setback periods per day; indicate each non-primary system is provided with at minimum an adjustable thermostat, or exception applied. For all thermostats indicate purpose (heating only, cooling only, or both) and required temperature range; indicate thermostats are configured for at minimum a 5°F deadband	
YES	C403.4.11.1 C403.4.11.2 C403.4.11.3	DDC system applications, controls and display	Provide central and zone level DDC controls as required based on system application, capacity or size thresholds and other qualification per Table C403.4.11.1	M8.00
YES			Identify all DDC system input / output control points in project documents	M8.00
NA			Indicate control capability includes monitoring zone and system level demand for fan pressure, pump pressure, heating and cooling; indicate capability to transfer demand information from zones to air / hydronic distribution system controllers, and to central plant systems and equipment controllers	
YES			Indicate system has the capability for trending and graphically displaying input / output points	M0.00 and M8.00
NA	C403.5.1	DX air handler variable cooling control(Located under Integrated Economizer Control)	For DX air handlers with cooling capacity ≥ 65,000 Btu/h, indicate number of cooling stages provided and method (multiple compressors and / or variable speed compressors); indicate minimum displacement (capacity reduction) as % of full load; indicate thermostats are configured with the same number of cooling stages and displacement	
NA			Indicate control method (cooling capacity controlled in response to space temperature, space temperature controlled by modulating supply airflow, or both)	

DUCTWORK, SHAFTS AND PLENUMS

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YES	C403.10.1.1 C403.10.2	Duct construction	Indicate on plans that all ductwork is constructed and sealed per IMC	M0.01	
NA			For outdoor air ductwork, also indicate on plans that ductwork meets air leakage requirements per C402.5 and vapor retarder requirements per the IBC		
YES	C403.10.2.1 C403.10.2.2 C403.10.2.3	Duct pressure classifications	Identify location of low, medium and high pressure ductwork on plans	M0.01	
NA	C403.10.2.3	High pressure duct leakage test	Indicate high pressure duct leakage testing requirements on plans; provide test results to jurisdiction when completed		
NA	C403.10.1.1 C403.10.1.2	Duct insulation	For outdoor air ductwork located within conditioned space (upstream or downstream of shutoff damper), identify climate zone and indicate ductwork insulation R-value per Table C403.10.1.1 on plans; or exception applied		
NA			For supply and return air ductwork located within unconditioned space or outdoors, identify climate zone and indicate ductwork insulation R-value per Table C403.10.1.2 on plans; or exception applied		
YES			For supply air ductwork located within conditioned space, identify on plans if design supply air temperature is < 55°F or > 105°F; indicate ductwork insulation R-value per Table C403.10.1.2 on plans; or exception applied	M0.01	
YES			For return and exhaust air ductwork located within conditioned space (upstream of the shutoff damper) and downstream of an energy recovery media, indicate ductwork insulation R-value per Table C403.10.1.2; or exception applied	M0.01	
NA			For exhaust and relief air ductwork located within conditioned space and downstream of the shutoff damper, indicate ductwork insulation R-value per Table C403.10.1.2; or exception applied		
	C403.10.1.1 C402.1.3	Shaft and plenum insulation	For outdoor air shafts and plenums, indicate on plans that the R-value of insulation on these elements complies with Table C402.1.3 for steel-framed walls		

PIPING

	C403.10.3	Piping insulation	Indicate design temperature range of fluid conveyed in piping and thickness of insulation (in inches) on hydronic piping plans; or exception applied		
	C403.10.3.1	Protection of piping insulation	Indicate method of protection of pipe insulation from damage / degredation on hydronic piping plans		

Mechanical Requirements List, pg 14 of 25

The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.
For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

ECONOMIZERS

	C403.5	Air economizer required	Identify all cooling systems requiring air economizer controls in equipment schedules on plans and in WSEC mechanical equipment compliance reports		
			Indicate all systems utilizing air economizer exceptions in WSEC mechanical equipment compliance report, including those with water-side economizer in lieu of air economizer; indicate on plans and in WSEC mechanical equipment compliance reports all eligible exception(s) taken and measures to comply with exception(s)		
	C403.4.1 C403.5.1	Integrated economizer operation - air and water	Indicate air and water-side economizers are configured for partial cooling operation even where additional mechanical cooling is required to meet the load		
			For DX air handlers with single or multiple stages of mechanical cooling; indicate controls are configured with air economizer as the first stage of cooling		
			Refer to Requirements List section HVAC Controls for additional requirements for DX air handlers		
	C403.5.2	Economizer heating system impact - air and water	Verify control method of HVAC systems with economizers does not increase building heating energy usage during normal operation		
	C403.5.3.1	Air economizer capacity	Indicate modulating outdoor air and return air dampers are configured to provide up to 100% outdoor air for cooling		
	C403.5.1 C403.5.3.2	Air economizer controls and integrated operation	Indicate that economizer controls are configured to provide partial economizer cooling when additional mechanical cooling is also required to meet the cooling load		
			Indicate that control of economizer dampers is not based only on mixed air temperature; or exception applied for systems with cooling capacity ≤ 65,000 Btu/h		
	C403.5.3.3	Air economizer high limit controls	Indicate high limit shut-off control method and required high limit per Table C403.5.3.3		
	C403.5.3.4	Relief of excess outdoor air	Refer to Requirements List section Ventilation, Exhaust & Energy Recovery		
NA			Indicate relief air outlets are sized and configured to relieve excess building air during air economizer operation to prevent building over-pressurization		
NA			Indicate relief air outlet are located to avoid recirculation into the building		

Mechanical Requirements List, pg 25 of 25

The following information is necessary to check a mechanical permit application for compliance with the mechanical systems and equipment requirements in the Washington State Energy Code, Commercial Provisions.
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	C408.1.2.2	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems		
	C408.2.2	Air system and hydronic system balancing	Indicate in plans that air and fluid flow rates shall be tested and balanced within the tolerances defined in the specifications; indicate systems shall be balanced in a manner to first minimize throttling losses, then adjusted to meet design flow conditions		
	C408.2.2.1	Air system balancing devices	Indicate devices that provide the capability to balance all supply air outlets, zone terminals and air handling equipment requiring system balancing		
	C408.2.2.2	Hydronic system balancing devices	Indicate devices that provide the capability to isolate, balance and measure flow across all hydronic equipment requiring system balancing including heating and cooling coils and pumps; or exception applied		

PROJECT CLOSE OUT DOCUMENTATION

YES	C103.6	Documentation and project close out submittal requirements	Indicate in plans that project close out documentation and training of building operations personnel is required for all mechanical components, equipment and systems governed by this code; indicate close out documentation shall include: record documents, O&M manuals, applicable WSEC mechanical equipment compliance reports and calculations	M0.00	

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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WSEC COMPLIANCE SHEET

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VARIABLE REFRIGERANT FLOW FAN COIL SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN		TYPE	SUPPLY AIRFLOW (CFM)	FAN SPEED SETTING	EXT SP (IN WG)	COOLING CAPACITY			HEATING CAPACITY				SOUND PRESSURE PER FAN SPEED (dBA)	OPERATING WEIGHT (LBS)	REMARKS
			MANUFACTURER	SERIES					COOLING LOAD		OA DESIGN TEMP (DEG F)	TOTAL LOAD (MBH)	OA DESIGN TEMP (DEG F)	MCA/MFS	V/PH/HZ			
									SENSIBLE LOAD (MBH)	TOTAL LOAD (MBH)								
FCU-01	VAULT MTG RM 127	VAULT MTG RM 127	MITSUBISHI	TPKFYP008LM140A	WALL	195	HIGH	-	4,277	5,773	83	4,719	24	0.24/0.24/15	208/60/1	22-27-31-35	26	1,2,3,4,5,6,8
FCU-02	PRIVATE OFFICE 126	PRIVATE OFFICE 126	MITSUBISHI	TPKFYP004LM140A	WALL	105	HIGH	-	2,223	2,787	83	2,870	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-03	PRIVATE OFFICE 124	PRIVATE OFFICE 124	MITSUBISHI	TPKFYP004LM140A	WALL	125	HIGH	-	2,634	3,194	83	3,634	24	0.24/0.19/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-04	PRIVATE OFFICE 122	PRIVATE OFFICE 122	MITSUBISHI	TPKFYP004LM140A	WALL	120	HIGH	-	2,528	3,018	83	2,303	24	0.24/0.19/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-05	PRIVATE OFFICE 120	PRIVATE OFFICE 120	MITSUBISHI	TPKFYP004LM140A	WALL	120	HIGH	-	2,588	3,018	83	2,303	24	0.24/0.19/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-06	VIDEO CONF RMS 119,121,123	CORRIDOR	MITSUBISHI	TPEFYP006MA144A	DUCTED	150	HIGH	0.6	2,111	2,670	83	670	24	1.75/15	208/60/1	24-28-30	49	1,2,3,4,5,6,7,8
FCU-07	BREAKROOM 115	BREAKROOM 115	MITSUBISHI	TPKFYP004LM140A	WALL	120	HIGH	-	2,491	3,090	83	2,195	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-08	MEDICAL MGMT 110	MEDICAL MGMT 110	MITSUBISHI	TPKFYP004LM140A	WALL	60	HIGH	-	1,266	1,624	83	386	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-09	PRIVATE OFFICE 108	PRIVATE OFFICE 108	MITSUBISHI	TPKFYP004LM140A	WALL	150	HIGH	-	3,353	3,721	83	2,085	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-10	PLAY THERAPY 106	PLAY THERAPY 106	MITSUBISHI	TPKFYP004LM140A	WALL	90	HIGH	-	1,973	2,342	83	2,685	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-11	OBSERVATION 107	OBSERVATION 107	MITSUBISHI	TPKFYP008LM140A	WALL	185	HIGH	-	4,071	4,478	83	3,273	24	0.24/0.24/15	208/60/1	22-27-31-35	26	1,2,3,4,5,6,8
FCU-12	LOW LOBBY 102	LOW LOBBY 102	MITSUBISHI	TPKFYP024KM142A	WALL	250	HIGH	-	19,303	23,196	83	27,000	24	0.63(230V)/15	230/60/1	39-49	48	1,2,3,4,5,6,8
FCU-13	LOW LOBBY 102	LOW LOBBY 102	MITSUBISHI	PLFY-EP24NEMU-E1R1	CASSETTE	640	LOW	-	19,303	23,196	83	27,000	24	0.54(230V)/15	230/60/1	28-30-32-34	55	1,2,3,4,5,6,8
FCU-14	SHARED OFFICE 210	SHARED OFFICE 210	MITSUBISHI	TPKFYP012LM140A	WALL	285	HIGH	-	6,222	7,308	83	5,873	24	0.24/0.24/15	208/60/1	24-31-37-41	26	1,2,3,4,5,6,8
FCU-15	PRIVATE OFFICE 209	PRIVATE OFFICE 209	MITSUBISHI	TPKFYP004LM140A	WALL	120	HIGH	-	2,724	3,106	83	2,892	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8
FCU-16	LARGE MEETING RM 202	LARGE MEETING RM 202	MITSUBISHI	TPKFYP012LM140A	WALL	330	HIGH	-	7,604	10,325	83	3,398	24	0.24/0.24/15	208/60/1	24-31-37-41	26	1,2,3,4,5,6,8
FCU-17	HIGH LOBBY 102	HIGH LOBBY 102	MITSUBISHI	TPKFYP030KM142A	WALL	850	HIGH	-	22,087	30,000	83	22,434	24	0.63(230V)/15	230/60/1	43-49	48	1,2,3,4,5,6,8
FCU-18	HIGH LOBBY 102	HIGH LOBBY 102	MITSUBISHI	TPKFYP030KM142A	WALL	850	HIGH	-	22,087	30,000	83	22,434	24	0.63(230V)/15	230/60/1	43-49	48	1,2,3,4,5,6,8
FCU-19	IT CLOSET 205	IT CLOSET 205	MITSUBISHI	TPKFYP012LM140A	WALL	175	HIGH	-	7,973.5	11,722	83	8,907.7	24	0.24/0.24/15	208/60/1	34-37-40-43	26	1,2,3,4,5,6,8
FCU-20	OFFICE 109	OFFICE 109	MITSUBISHI	TPKFYP004LM140A	WALL	150	HIGH	-	3,353	3,721	83	2,085	24	0.24/0.24/15	208/60/1	22-24-26-28	25	1,2,3,4,5,6,8

REMARKS:
1. PROVIDE HIGH STATIC INDOOR UNIT WITH A SINGLE SUPPLY AIR OUTLET OPENING.
2. FACTORY PROVIDED INTEGRAL DRAIN PAN AND WATER LEVEL DETECTION SENSOR TO SHUT DOWN INDOOR UNIT IN THE EVENT OF CONDENSATE OVERFLOW ON INDOOR UNITS.
3. PROVIDE MERV 8 FILTER INSTALLED AT AIR INTAKE SIDE OF UNIT. INTAKE PLENUM BY SHEETMETAL CONTRACTOR IF REQUIRED.
4. PROVIDE TEMPERATURE SENSORS; ONE FOR EACH INDOOR UNIT. THERMOSTAT TO BE BY FAN COIL MAUFACTURER AND BE A TOUCHSCREEN PROGRAMMABLE UNIT.
5. PROVIDE 410A REFRIGERANT. LINE SET REFRIGERANT PIPING SIZED BY MANUFACTURER. INSULATE ALL REFRIGERANT LINES AND FITTINGS.
6. SYSTEM MUST BE INSTALLED BY A CERTIFIED INSTALLER. SUPPORT UNIT AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE VIBRATION ISOLATION AS REQUIRED.
7. PROVIDE INSULATED SUPPLY AIR PLENUM.
8. PROVIDE MANUFACTURER APPROVED EXTERNAL CONDENSATE PUMP POWERED VIA FAN COIL.

VARIABLE REFRIGERANT FLOW HEAT PUMP SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN SERIES	MODULES	COOLING CAPACITY				HEATING CAPACITY				ELECTRICAL DATA						MAXIMUM SOUND PRESSURE (dBA)	OPERATING WEIGHT (LBS)	REMARKS
						NOMINAL TOTAL LOAD (BTU/h)	CORRECTED TOTAL LOAD (BTU/h)	OA DESIGN TEMP (DEG F)	COOLING EFFICIENCY (IEER/EER)	NOMINAL TOTAL LOAD (BTU/h)	CORRECTED TOTAL LOAD (BTU/h)	OA DESIGN TEMP (DEG F)	HEATING COP @ 47 DEG. F.	CONDENSER FAN		COMPRESSOR (KW)	MCA	MOCP	V/PH/HZ			
														MOTOR (HP)	CONTROL							
HP-1	ROOFTOP	ALL ZONES	MITSUBISHI	TURYP1923BN40AN	P96, P96	192,000	201,026	85	27.5 / 12.7	215,000	184,100	20.4	3.74				33/30, 33/30	50/45, 50/45	208/230V / 3PH / 60	61.5 / 63	576 / 576	1,2,3,4,5,6,7

REMARKS:
1. PROVIDE FACTORY MOTOR STARTERS. SEE ELECTRICAL DRAWINGS FOR SEPARATE DISCONNECT SWITCH.
2. PROVIDE 120V / 1Ø CONVENIENCE OUTLET ON A SEPARATE CIRCUIT UNLESS OUTLET IS AVAILABLE WITHIN 25 FEET OF EQUIPMENT PER LATEST VERSION OFNEC 210.63.
3. COMPRESSOR FOR OUTDOOR UNIT TO BE OPERATING WITH VARIABLE SPEED DRIVE (VSD).
4. FACTORY PROVIDED INTEGRAL CRANKCASE HEATER.
5. OUTDOOR UNIT CONSIST OF (2) P-96 MODULES. PROVIDE TWINNING KIT CMY-R200NCBK. MOUNT UNITS ON ROOFTOP CURB PROVIDED BY GENERAL CONTRACTOR.
6. SYSTEM MUST BE INSTALLED BY A MITSUBISHI CERTIFIED INSTALLER.
7. PROVIDE ONE AE-200A MASTER CONTROLLER. INTERFACE TO HP-1. CONTROLLER REQUIRES 115V / 1PH POWER CONNECTION.

ENERGY RECOVERY VENTILATOR SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN		MODE	PERFORMANCE EFFECTIVENESS		SUPPLY AIR						RETURN AIR					ELECTRICAL				WEIGHT LBS	REMARKS
			MANUFACTURER	SERIES		SENSIBLE	TOTAL	AIRFLOW (CFM)	ESP (IN WG)	MOTOR (HP)	EAT DB (DEG F)	EAT WB (DEG F)	LAT DB (DEG F)	LAT WB (DEG F)	AIRFLOW (CFM)	ESP (IN WG)	MOTOR (HP)	EAT DB (DEG F)	EAT WB (DEG F)	VFDS	MCA	MOCP	SINGLE POINT V/PH/HZ		
ERV-1	ROOF	ALL ZONES	RENEWAIRE	HE1XRT	SUMMER	78.1	65.9	620	0.75	0.5	83	64	77.1	62.4	585	0.75	0.5	75	62.5	YES	10.8	15	208/230V/1PH/60	346	1,2,3,4
					WINTER	-	74.7	620	0.75	0.5	24	20.5	58	43.8	585	0.75	0.5	70	51.4						

REMARKS:
1. PROVIDE 2" DEEP MERV 8 PRE-FILTER PRIOR TO SUPPLY AND EXHAUST FANS
2. INSTALL UNIT ON MANUFACTURER'S ROOF CURB. MINIMUM HEIGHT 14"
3. PROVIDE ALL DAMPERS AS REQUIRED BY THE ENERGY CODE. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL COMPONENTS REQUIRED FOR CONTROL AS PER THE SEQUENCE OF OPERATIONS.
4. UNIT TO HAVE "DIDO" CONTROL BOARD FOR INTEGRATION INTO MANUFACTURER OF VRF EQUIPMENT CONTROLS FOR ENABLE/DISABLE TIME SCHEDULING FROM THE VRF CONTROL FRONT END.

DIFFUSER-GRILLE SCHEDULE

EQUIP. NO	LOCATION	SERVICE	BASIS OF DESIGN		DESCRIPTION	MAXIMUM SOUND PRESSURE (dBA)	REMARKS
			MANUFACTURER	SERIES			
CD-1	CEILING	SUPPLY DIFFUSER	TITUS	MCD	4-WAY ADJUSTABLE, MODULAR CORE DIFFUSER		1,2,3
SWG-1	WALL	SUPPLY GRILLE	TITUS	300RL	DOUBLE DEFLECTION GRILLE		1,3,4
DG-1	DUCT	SUPPLY GRILLE	TITUS	300RL	DOUBLE DEFLECTION GRILLE		1,3,4
RG-1	CEILING	RETURN GRILLE	TITUS	50F	EGGCRATE RETURN GRILLE		1,3,5
EG-1	CEILING/WALL	EXHAUST GRILLE	TITUS	350FL	SINGLE DEFLECTION GRILLE		1,6

REMARKS:
1. SEE MECHANICAL FLOOR PLANS FOR DUCT SIZE AND CFM
2. STEEL, WHITE, ROUND NECK, SEE MECHANICAL FLOOR PLANS FOR NECK SIZE
3. BORDER TO MATCH WALL TYPE
4. STEEL, WHITE, 3/4" BLADE SPACING
5. STEEL, WHITE, CORE ONLY IN ACT, 1/2"X1/2"X1/2" GRID
6. ALUMINUM, WHITE, FOR GWB CEILING OR WALL MOUNT, 3/4" BLADE SPACING, 35 DEG. FIXED DEFLECTION

VRF HEAT RECOVERY BRANCH CIRCUIT CONTROLLER SCHEDULE

EQUIP NO.	SYSTEM	BASIS OF DESIGN		TYPE	PORTS	VOLTAGE / PHASE	POWER COOLING 208V (KW)	POWER HEATING 208V (KW)	REMARKS
		MANUFACTURER	SERIES						
BC-1	HP-1	MITSUBISHI	TCMBM1016JA11N4BV	MAIN	16	208V/1-PH	0.258	0.137	1,2,3,4
SBC-1	HP-1	MITSUBISHI	TCMBS0104KB11N4BV	SUB	4	208V/1-PH	0.061	0.03	
REMARKS:									

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

PATRICK M. LUCE
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: GSB
Checker: PMJ

SCHEDULES

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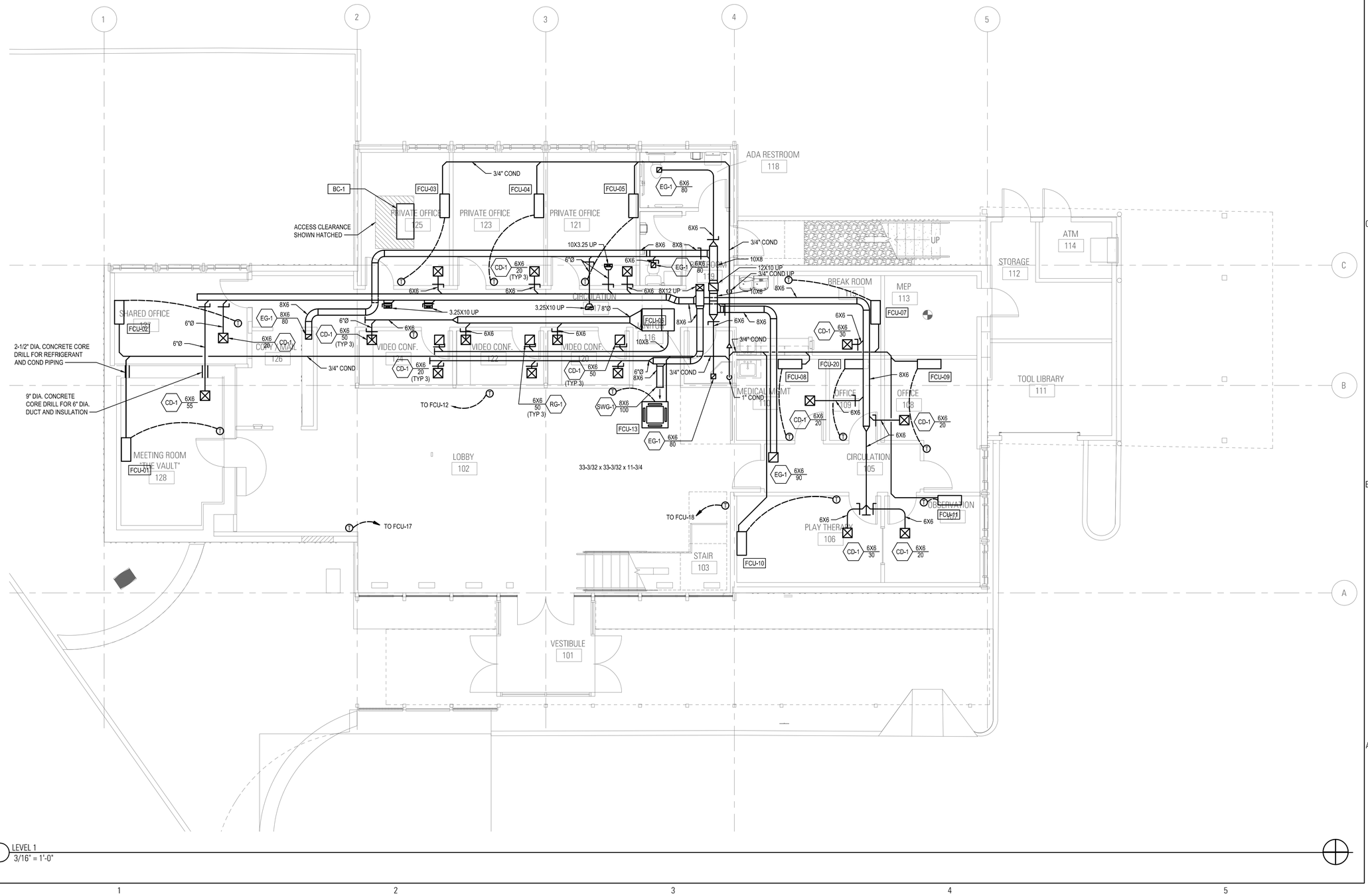
SHEET NOTES

1. PROVIDE CONDENSATE PIPING FOR ALL FAN COIL UNITS. EACH FAN COIL UNIT TO INCLUDE FACTORY CONDENSATE PUMP. SEE MANUFACTURER'S INSTALLATION MANUAL FOR PIPE CONNECTION SIZE (MIN. SIZE IS 3/4"). PER PLAN, ROUTE PIPING TO JANITOR'S SINK ON FLOOR ONE. SLOPE CONDENSATE MAIN PIPING AT 1/8" PER FT.



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

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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PATRICK M. JOHNSON
STATE OF WASHINGTON
31848
REGISTERED PROFESSIONAL ENGINEER
08/22/2023

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Checker: PMJ

HVAC PLAN - LEVEL 1

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SHEET NOTES

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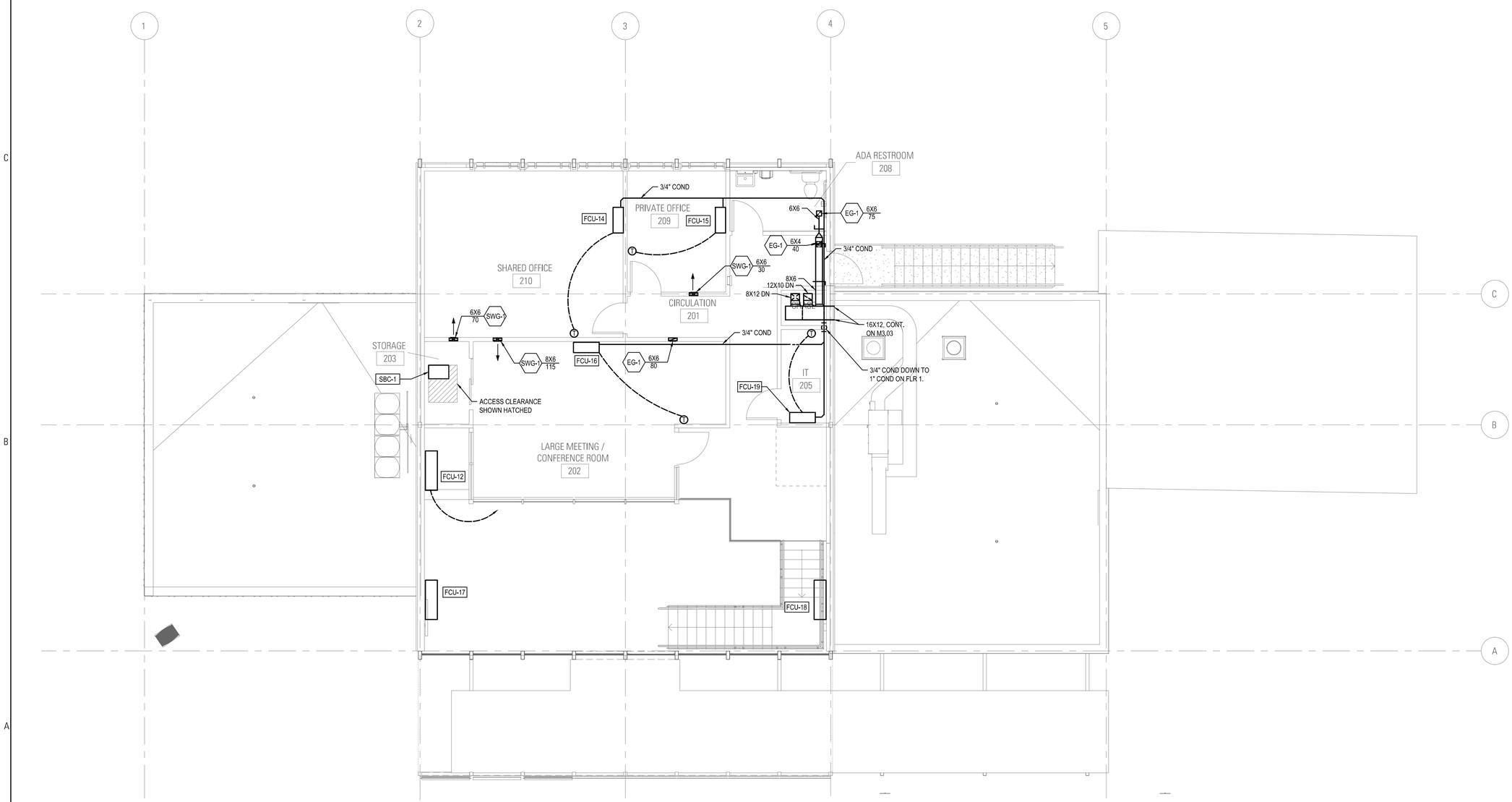

1 LEVEL 2
3/16" = 1'-0"

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SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
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AHJ STAMP

PATRICK M. JOHNSON
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

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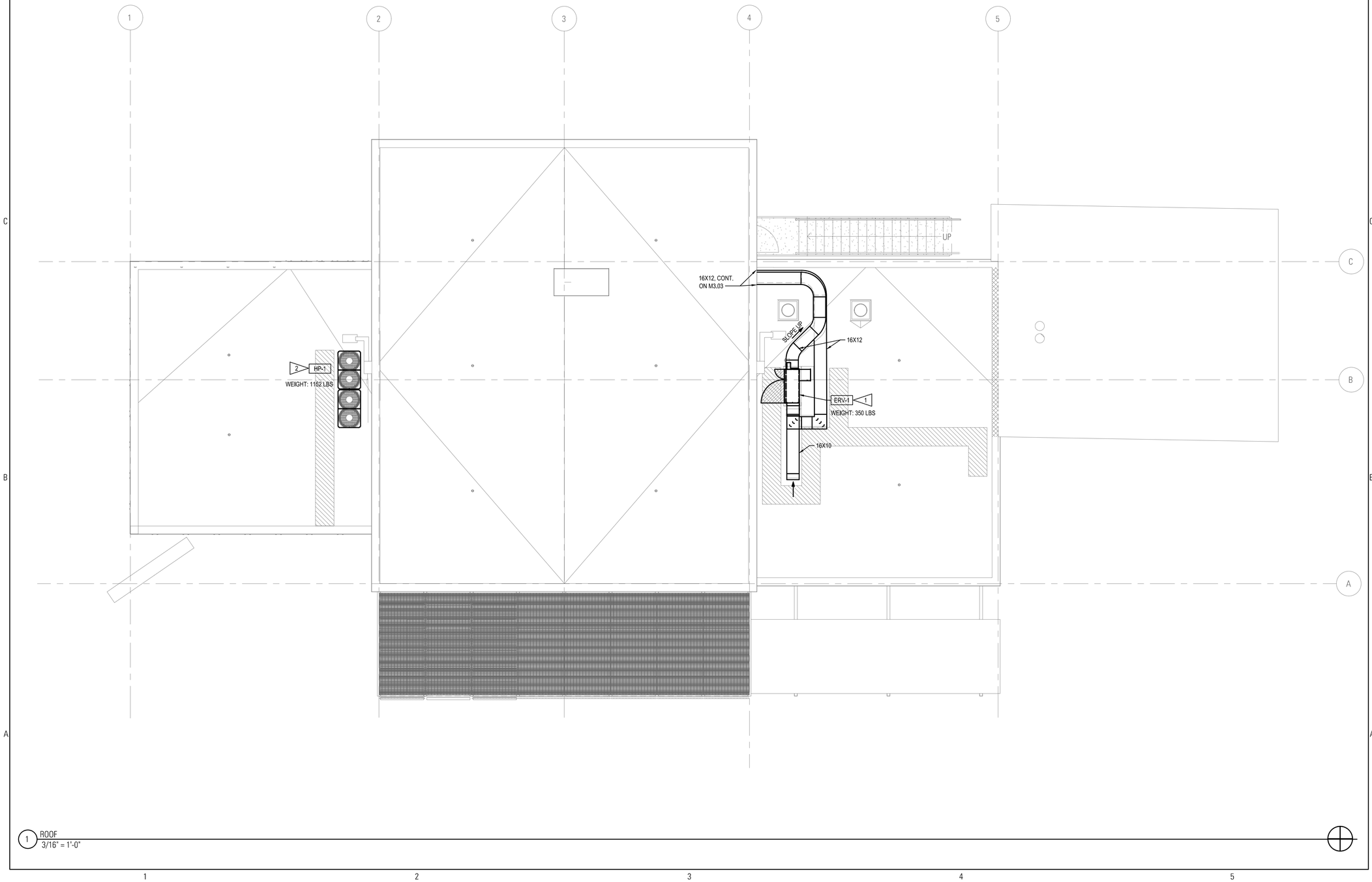
HVAC PLAN - LEVEL 2

M3.02

FLAG NOTES

1. PROVIDE ENERGY RECOVERY VENTILATOR ERV-01 ON ROOF. MAINTAIN 10'-0" DISTANCE FROM BUILDING EDGE.
2. PROVIDE VRF HEAT PUMP HP-1 ON ROOF. MAINTAIN 10'-0" DISTANCE FROM BUILDING EDGE.



1 ROOF
3/16" = 1'-0"

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

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v. (206) 394.3757

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WA 98178

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AHJ STAMP

PATRICK M. JOY
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: GSB
Checker: PMJ

HVAC PLAN - ROOF

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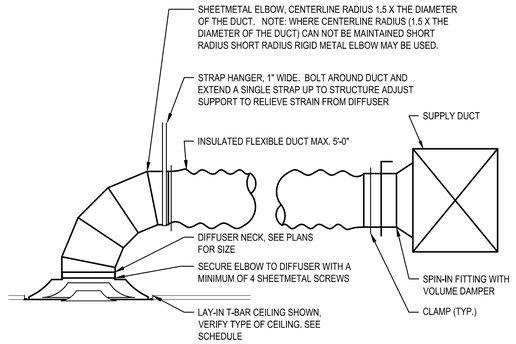
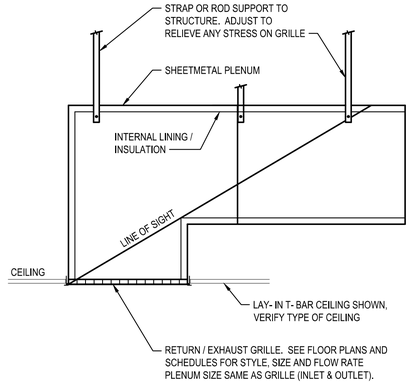


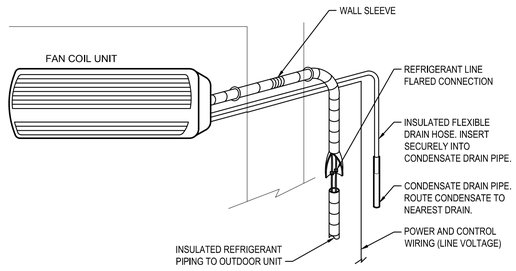
CEILING DIFFUSER DETAIL 1

SCALE: NTS



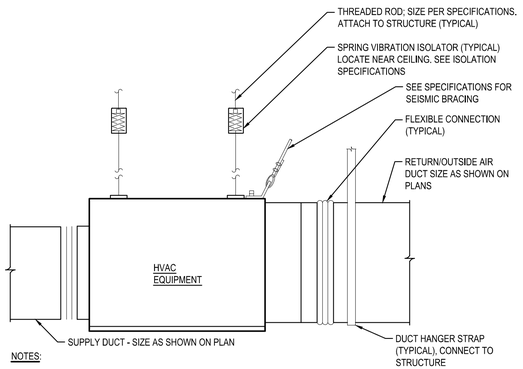
RETURN AIR GRILLE DETAIL 2

SCALE: NTS



INDOOR SPLIT-SYSTEM WALL MOUNT 3

SCALE: NTS

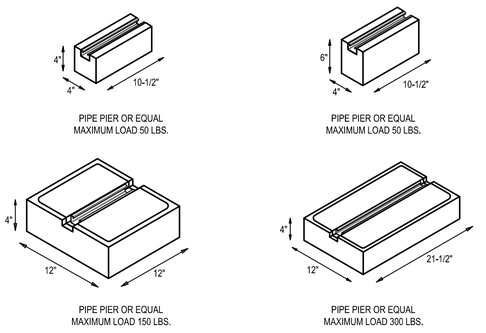


NOTES:

1. MAINTAIN ACCESS CLEARANCES FOR SERVICE OF FILTERS, AND BLOWER, ALLOW MINIMUM 42" TO ALL ACCESS PANELS.
2. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. MECHANICAL CONTRACTOR'S SEISMIC ENGINEER TO PROVIDE DETAIL OF ISOLATORS AND SWAY BRACING.

ABOVE CEILING EQUIPMENT DETAIL 4

SCALE: NTS

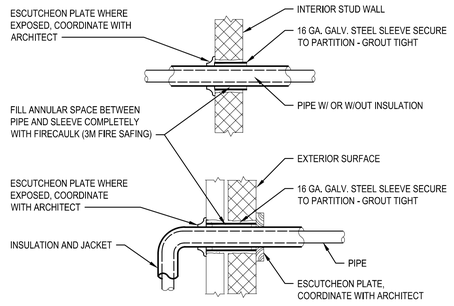


NOTES:

1. CENTER LOAD ON PIER AND/OR DISTRIBUTE WEIGHT EVENLY ACROSS THE ASSEMBLY.
2. ATTACH PIPING USING STANDARD STRUT CLAMPS & ACCESSORIES.

ROOF PIPE SUPPORT DETAIL 5

SCALE: NTS

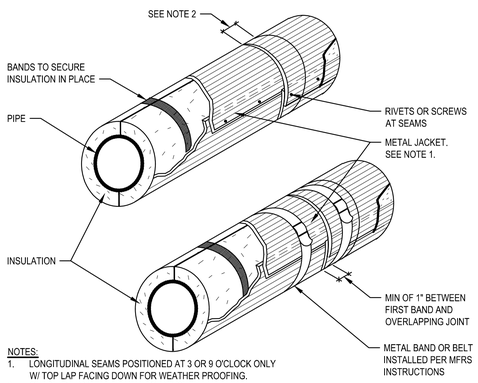


NOTES:

1. SIMILAR FOR NON-INSULATED PIPE AND CONDUIT.
2. SIMILAR FOR MASONRY OR CONCRETE WALL EXCEPT CORE DRILL OR CAST IN PLACE.
3. APPLIES FOR PLUMBING, HVAC, AND FIRE PROTECTION.

PIPE PENETRATION THRU WALLS DETAIL 6

SCALE: NTS



NOTES:

1. LONGITUDINAL SEAMS POSITIONED AT 3 OR 9 O'CLOCK ONLY W/ TOP LAP FACING DOWN FOR WEATHER PROOFING.
2. OVERLAP JACKET A MINIMUM OF 1-1/2".

FIELD APPLIED METAL JACKETING OVER PIPE INSULATION DETAIL 7

SCALE: NTS

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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2052
25 AUGUST 2023

ISSUANCES
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AHJ STAMP

PATRICK M. JONES
STATE OF WASHINGTON
31848
REGISTERED
PROFESSIONAL ENGINEER
08/22/2023

Architect Project No: 2052
Author: GSB
Checker: PMJ

HVAC DETAILS

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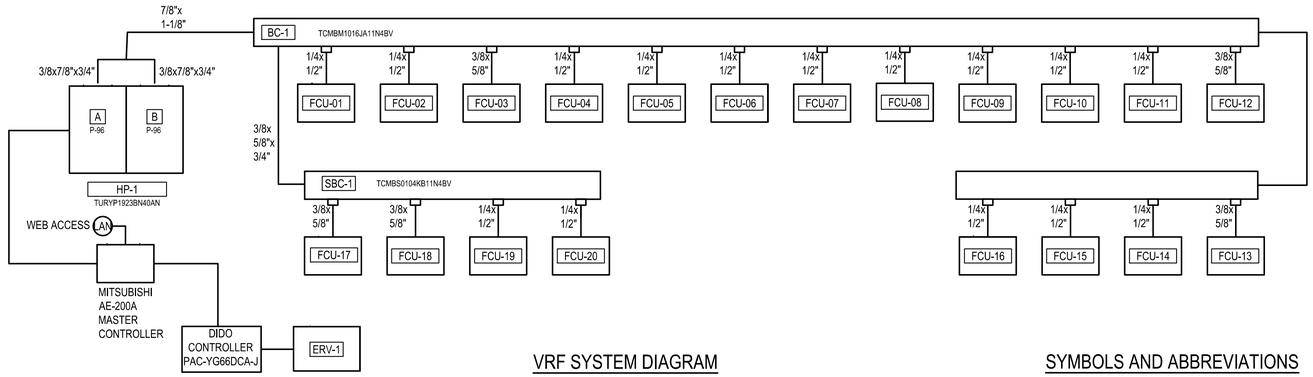
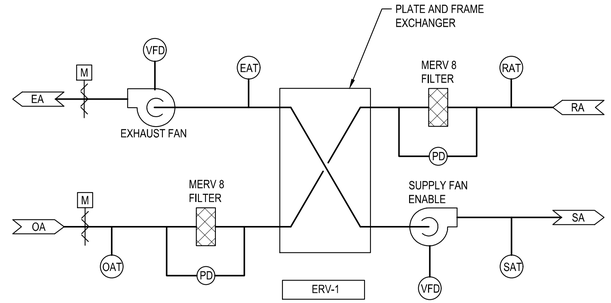


VRF SYSTEM DIAGRAM



VRF SYSTEM SEQUENCE OF OPERATION

VRF SYSTEM INDOOR/OUTDOOR UNITS (WITH FACTORY CONTROLS)

1. INDOOR VRF EVAPORATOR UNITS (FCU-1 THROUGH FCU-20):
   a. ALL EVAPORATOR UNITS SHALL OPERATE TO MAINTAIN ROOM TEMPERATURE OF 70F.
   b. ALL EVAPORATOR UNITS SHALL OPERATE PER TIME-OF-DAY SCHEDULE SET BY OWNER.
   c. THE FOLLOWING SHALL CAUSE THE EVAPORATOR UNITS TO SHUT DOWN:
      1) OPERATOR SHUT DOWN.
   d. THE FOLLOWING SHALL CAUSE THE EVAPORATOR UNITS TO START:
      1) WHEN THE EVAPORATOR UNIT IS IN OCCUPIED MODE, THE CONTROL SEQUENCE WILL STEP THROUGH THE STARTING PROCESS.
      2) BASIC OPERATING SCHEDULE: SEE ABOVE.
      3) NIGHT SETBACK.
   e. DISCHARGE AIR TEMPERATURE CONTROL: EVAPORATOR UNIT CAPACITY SHALL MODULATE IN SEQUENCE WITH DEMAND OF THE ROOM THERMOSTAT.
      1) COOLING AND HEATING SHALL MODULATE TO MEET THE DISCHARGE AIR TEMPERATURE CONTROL IN A STABLE MANNER.
   f. NIGHT SETBACK:
      1) PROVIDE SEVEN-DAY SCHEDULE OF OPERATION.
      2) IF INTERIOR TEMPERATURE DROPS BELOW 60 DEGREES F, THE OUTDOOR HEAT PUMP SHALL ENERGIZE AND THE EVAPORATOR UNITS SHALL OPERATE UNTIL SPACE TEMPERATURE RISES TO 65° F.
   g. MONITOR THE FOLLOWING ON EACH EVAPORATOR UNIT:
      1) FAN COIL UNIT OPERATION
      2) ROOM TEMPERATURE SET-POINT
      3) ROOM TEMPERATURE
      4) AIR FLOW
      5) DISCHARGE AIR TEMPERATURE

2. OUTDOOR MULTI-ZONE HEAT PUMP UNITS (HP-1):
   a. THE HEAT PUMP OPERATES BASED ON TIME-OF-DAY SCHEDULE UNLESS MANUALLY SHUT DOWN.
   b. THE HEAT PUMP IS CONTROLLED BY AN INTEGRAL MICROPROCCESSOR AND MODULATES COMPRESSOR CAPACITY BASED ON BUILDING LOAD.
   c. MONITOR THE FOLLOWING ON THE OUTDOOR HEAT PUMP UNIT:
      1) HEAT PUMP OPERATION.
      2) FAN STATUS.
3. MONITOR THE FOLLOWING:
   a. OUTSIDE AIR TEMPERATURE
   b. VRF SYSTEM COMMUNICATION STATE

4. THE FOLLOWNG SHALL SEND AN ALARM SIGNAL TO MITSUBISHI MAIN CONTROLLER:

   a. INDOOR FCU FAIL STATUS
   b. OUTDOOR HP FAN FAIL STATUS
   c. FCU DIRTY ALARM FILTER
   d. ERV-1 COMMON ALARM

SYMBOLS AND ABBREVIATIONS

- (EAT) — ENTERING AIR TEMPERATURE
- (RAT) — RETURN AIR TEMPERATURE
- (SAT) — SUPPLY AIR TEMPERATURE
- (OAT) — OUTSIDE AIR TEMPERATURE
- (PD) — PRESSURE DIFFERENTIAL
- (M) — MODULATING DAMPER
- (TS) — TEMPERATURE SENSOR
- (LAN) — LOCAL AREA NETWORK-WEB ACCESS
- DIDO — DIGITAL INPUT/DIGITAL OUTPUT CONTROLLER
- FCU — FAN COIL UNIT
- HP — HEAT PUMP
- ERV — ENERGY RECOVERY VENTILATOR

ENERGY RECOVERY VENTILATOR - SEQUENCE OF OPERATION - ERV-1

THE ENERGY RECOVERY VENTILATOR OPERATES CONTINUOUSLY TO PROVIDE VENTILATION AND HEATING FOR THE VRF SYSTEM. THE CONTRACTOR SHALL ALSO FURNISH A SOFTWARE SELECTABLE OCCUPIED SCHEDULE TO ALLOW SCHEDULING THE OPERATION OF THE EQUIPMENT ON A 7 DAY BASIS AT THE END USERS DISCRETION.

HEAT RECOVERY UNIT OCCUPIED MODE:

1. SUPPLY FAN OPERATES AT THE SCHEDULED AIRFLOW CFM , THE VARIABLE FREQUENCY DRIVE (VFD) WILL RAMP OR OR DOWN TO PROVIDE A CONSTANT SUPPLY AIR FLOW RATE AS THE UNIT FILTERS BECOME LOADED. IF THE MEASURED SUPPLY AIR FLOW VARIES FROM THE DESIRED AIR FLOW RATE BY MORE THAN 10% (ADJUSTABLE) FOR MORE THAN 60 SECONDS (ADJUSTABLE) A SUPPLY AIR FLOW RATE ALARM WILL OCCUR.

2. EXHAUST FAN OPERATES AT THE SCHEDULED AIRFLOW CFM , THE VARIABLE FREQUENCY DRIVE (VFD) WILL RAMP OR OR DOWN TO PROVIDE A CONSTANT SUPPLY AIR FLOW RATE AS THE UNIT FILTERS BECOME LOADED. IF THE MEASURED SUPPLY AIR FLOW VARIES FROM THE DESIRED AIR FLOW RATE BY MORE THAN 10% (ADJUSTABLE) FOR MORE THAN 60 SECONDS (ADJUSTABLE) A SUPPLY AIR FLOW RATE ALARM WILL OCCUR.

3. OA AND EA DAMPERS SHALL BE FULLY OPEN WHENEVER SUPPLY AND EXHAUST FANS OPERATE AND SHALL BE FULLY CLOSED OTHERWISE.

4. THE FOLLOWING SYSTEM STATES SHALL HAVE THE ABILITY TO BE PROGRAMMED AND MONITORED AT THE ERV INTEGRAL CONTROLLER:

   a. DISCHARGE AIR TEMPERATURE
   b. FREEZE STAT TEMPERATURE
   c. FACE DAMPER POSITION (% OPEN)
   d. RA FILTER STATUS (1" ADJ)
   e. OA FILTER STATUS (1" ADJ)
   f. SA FAN STATUS
   g. EXH FAN STATUS
   h. VFD'S GENERAL TROUBLE

5. FREEZE STAT SAFETY TRIP-OUT:
   FREEZE STAT SHALL REQUIRE MANUAL RE-SET. UPON FREEZE STAT TRIP, THE SUPPLY AND EXHAUST FANS SHALL SHUT-DOWN, AND THE OA AND EA DAMPERS SHALL CLOSE AFTER FANS HAVE STOPPED.

HEAT RECOVERY UNIT UNOCCUPIED MODE:

1. UNOCCUPIED MODE TO BE DETERMINED BY THE OWNER.

VRF SYSTEM POINTS LIST

DESCRIPTION	DEVICE	VE ITEMS	POINT DI	POINT DO	POINT AI	POINT AO	ALARM HI	ALARM LO	ALARM FAIL	NOTES
INDOOR FCU ON/OFF			X	X						FACTORY CONTROLS
INDOOR FCU STATUS					X				X	FACTORY CONTROLS
INDOOR FCU FAN SPEED			X	X						FACTORY CONTROLS
OUTDOOR HP MODE					X					FACTORY CONTROLS
OUTDOOR HP FAN STATUS				X					X	FACTORY CONTROLS
FCU RETURN AIR TEMPERATURE	TS	OPTIONAL			X					FACTORY CONTROLS
FCU DISCHARGE AIR TEMPERATURE	TS				X					FACTORY CONTROLS
FCU MIXED AIR TEMPERATURE	TS				X					FACTORY CONTROLS
ROOM TEMPERATURE	TS				X					FACTORY CONTROLS
ROOM TEMPERATURE SETPOINT						X				FACTORY CONTROLS
OUTSIDE AIR TEMPERATURE	TS				X					FACTORY CONTROLS
OUTDOOR 1-CU1 FAN STATUS					X					FACTORY CONTROLS
DDC COMMUNICATION STATE						X				FACTORY CONTROLS
DDC ERROR CODE			X							FACTORY CONTROLS
PROHIBIT LOCAL ON/OFF			X							FACTORY CONTROLS
PROHIBIT LOCAL MODE			X	X						FACTORY CONTROLS

ENERGY RECOVERY VENTILATOR (ERV) POINTS LIST

DESCRIPTION	CONTROL SYMBOL	ANALOG INPUT	ANALOG OUTPUT	DIGITAL INPUT	DIGITAL OUTPUT	ALARM CAPABLE	SHOWN ON GRAPHICS	COMMENTS
SUPPLY FAN START/STOP	SS				X	X	X	MITSUBISHI FACTORY CONTROL INTEGRATION
SUPPLY FAN STATUS	CSR			X			X	MITSUBISHI FACTORY CONTROL INTEGRATION
EXHAUST FAN START/STOP	SS				X	X	X	MITSUBISHI FACTORY CONTROL INTEGRATION
EXHAUST FAN STATUS	CSR			X			X	MITSUBISHI FACTORY CONTROL INTEGRATION
ENTERING OUTSIDE AIR TEMPERATURE	TS	X						ERV FACTORY CONTROL INTEGRATION
DISCHARGE AIR TEMPERATURE	TS	X						ERV FACTORY CONTROL INTEGRATION
FILTER DIFFERENTIAL PRESSURE SWITCH	DPS			X		X		ERV FACTORY CONTROL INTEGRATION
FREEZE STAT	TS			X		X		ERV FACTORY CONTROL INTEGRATION
GENERAL/COMMON ALARM	SS			X		X	X	MITSUBISHI FACTORY CONTROL INTEGRATION
DOWNSTREAM DUCT AIR TEMPERATURE	TS	X						ERV FACTORY CONTROL INTEGRATION
AIRFLOW PROVING SWITCH	AS	X						ERV FACTORY CONTROL INTEGRATION

REMARKS

1. SUPPLY AND EXHAUST FAN START / STOP / STATUS POINTS LISTED TO BE INTEGRATED INTO THE MITSUBISHI SYSTEMS MASTER CONTROLLER VIA "DIDO" SUB-CONTROLLER (1 PER ERV UNIT).
2. ERV GENERAL/COMMON ALARM TO BE INTEGRATED INTO THE MITSUBISHI SYSTEM MASTER CONTROLLER VIA "DIDO" SUB-CONTROLLER.
3. ALL OTHER INDIVIDUAL ALARM POINTS ARE AVAILABLE AT THE ERV'S INTEGRAL CONTROLLER AND WILL COMMUNICATE A GENERAL / COMMON ALARM (PER #2 ABOVE)..

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

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Seattle, WA 98188
CONTACT: Sunnie Park
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v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
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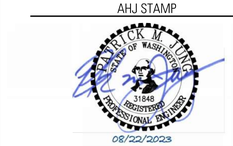

Architect Project No: 2052
Author: GSB
Checker: PMJ

HVAC CONTROLS

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GENERAL NOTES

1. SYMBOLS LEGENDS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. THE SYMBOLS REPRESENT THE TYPE OF DEVICES THAT MAY BE REQUIRED IN THE WORK; QUANTITIES AND LOCATIONS ARE AS SHOWN ON THE PLAN SHEETS.

2. PROVIDE 3/4" CONDUIT & #12 CONDUCTORS UNLESS NOTED OTHERWISE. PROVIDE ONE NEUTRAL CONDUCTOR FOR EACH UNGROUNDED CONDUCTOR OF SINGLE PHASE LINE-NEUTRAL BRANCH CIRCUITS. DO NOT SHARE NEUTRAL CONDUCTORS.

3. EACH FEEDER AND BRANCH CIRCUIT CONDUIT SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NFPA 70, ARTICLE 250.

4. ALL ELECTRICAL EQUIPMENT IN PORTIONS OF THE BUILDING NOT BEING REMODELED SHALL BE LEFT IN WORKING CONDITION. RESTORE ANY CIRCUITS INTERRUPTED.

5. ALL NEW LIGHT FIXTURES AND FIXTURES IN AREAS ADJACENT DEMOLITION & CONSTRUCTION AREAS ARE TO BE THOROUGHLY CLEANED IMMEDIATELY PRIOR TO NOTICE OF SUBSTANTIAL COMPLETION.

6. THE FOLLOWING IS PART OF THIS PROJECT AND ALL COSTS PERTAINING THERETO SHALL BE INCLUDED IN THE BASE BID:

   A. NEW ELECTRICAL EQUIPMENT AND APPARATUS SHALL BE COORDINATED AND CONNECTED INTO THE EXISTING SYSTEM AS REQUIRED.

   B. POWER WIRING AND CABLE INSTALLATIONS SHALL BE CONCEALED ABOVE ACCESSIBLE CEILINGS AND IN WALLS. EXPOSED WIRING SHALL BE INSTALLED IN APPROVED SURFACE METAL RACEWAY WHERE INDICATED.

   C. WHERE EXISTING CONDUITS ARE INDICATED FOR REUSE, FIELD VERIFY INTEGRITY OF REUSED RACEWAYS PRIOR TO INSTALLATION OF CONDUCTORS. PROVIDE NEW RACEWAYS WHERE EXISTING ARE UNUSABLE.

   D. LOCATIONS OF ALL WALL MOUNTED DEVICES SUCH AS SWITCHES, RECEPTACLES, AND OUTLETS ARE SHOWN DIAGRAMMATICALLY. DETERMINE EXACT DEVICE LOCATIONS IN FIELD; COORDINATE INSTALLATIONS WITH FIXED CASEWORK, DOORS AND RELITES.

   E. PROVIDE PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS AS REQUIRED. PROVIDE SUITABLE FIRE RATED MATERIALS AND SEAL ALL CEILING, FLOOR, AND WALL PENETRATIONS TO MATCH FIRE RATING OF SURFACES PENETRATED.

LIGHTING AND RECEPTACLE NOTES

1. LIGHTING SYSTEMS SHALL BE PROVIDED WITH CONTROLS AS ZONED ON THE LIGHTING PLANS. SWITCHING AND DIMMING ZONES ARE INDICATED ADJACENT TO EACH FIXTURE.

2. MANUAL CONTROLS SHALL ALLOW OCCUPANTS TO UNIFORMLY REDUCE ILLUMINATION LEVELS AT LEAST 50%. EXCEPTION: CORRIDORS, RESTROOMS, LOBBIES, MECHANICAL, ELECTRICAL, AND INFORMATION TECHNOLOGY (IDF) ROOMS CONTROLLED BY OCCUPANCY SENSORS.

3. EACH AREA THAT IS REQUIRED TO HAVE A MANUAL CONTROL SHALL ALSO HAVE AUTOMATIC TIME SWITCH CONTROL. PROVIDE TIMED OVERRIDE SWITCHES THAT WILL SERVE A MAXIMUM AREA OF 2500 S.F. IN LOCATIONS SHOWN ON PLANS. EXCEPTIONS:

   A. EMERGENCY EGRESS LIGHTING CONTROLLED BY OCCUPANCY SENSORS.
   B. LIGHTING IN SPACES CONTROLLED BY OCCUPANCY SENSORS.

4. LUMINARIES PROVIDING MEANS OF EGRESS ILLUMINATION AND HAVING BOTH NORMAL AND EMERGENCY POWER SOURCES SHALL BE CONTROLLED BY A COMBINATION OF U.L. 924 LISTED EMERGENCY RELAYS AND OCCUPANCY SENSORS THAT ENABLES THE LIGHTING TO BE SHUT OFF WHEN THE AREAS SERVED ARE UNOCCUPIED AND AUTOMATICALLY ILLUMINATES IN THE EVENT OF NORMAL POWER SOURCE FAILURE.

5. THE MAXIMUM LIGHTING POWER THAT MAY BE CONTROLLED FROM A SINGLE SWITCH OR AUTOMATIC CONTROL SHALL NOT EXCEED THAT WHICH IS PROVIDED BY A 20 AMPERE CIRCUIT LOADED TO NOT MORE THAN 80 PERCENT.

6. PROVIDE FUNCTIONAL TESTING OF AUTOMATIC LIGHTING CONTROLS. SUBMIT WRITTEN PROCEDURES FOR FUNCTIONAL TESTING OF ALL AUTOMATIC CONTROLS WITH DESCRIPTION OF THE EXPECTED SYSTEM RESPONSE.

ABBREVIATIONS

@	AT
A/C	AIR CONDITIONING(ER)
A (AMP)	AMPERE
AC	ABOVE COUNTER, ALTERNATING CURRENT
ADJ	ADJUSTABLE
ADJT	ADJACENT
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
ANN	ANNUNCIATOR
ARCH	ARCHITECT; ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKBD	BACKBOARD
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CAP	CAPACITY
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COM	COMMUNICATION
CPS	CYCLES PER SECOND
CT	CURRENT TRANSFORMER
CTL	CONTROL
CU	COPPER
DC	DIRECT CURRENT
DISC SW	DISCONNECT SWITCH
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
E	EXIST, EAST
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ENTR	ENTRANCE
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQUIP/EQP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXH	EXHAUST
EXT	EXTERIOR
EXIST	EXISTING
F	FAHRENHEIT/FUSE
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FDR	FEEDER
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FSD	FIRE/SMOKE DAMPER
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
H	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HOA	HAND OFF AUTOMATIC
HOR	HORIZONTAL
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HW	HOT WATER
HZ	HERTZ
IBC	INTERNATIONAL BUILDING CODE
IC	INTERCOM
IES	ILLUMINATING
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LBS	POUNDS
LF	LINEAR FEET (FEET)
LRA	LOCKED ROTOR AMPS
LS	LIFE SAFETY
LT	LIGHT
LTG	LIGHTING
LV	LOW VOLTAGE
MAG	MAGNETIC
MAN	MANUAL
MAT	MATERIAL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MEZZ	MEZZANINE
MG	MOTOR GENERATOR
MH	METAL HALIDE / MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MS	MAGNETIC STARTER
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NORTH; NEUTRAL
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
NESC	NATIONAL ELECTRICAL SAFETY CODE
NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATIONS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OL	OVERLOAD
OS	OPTIONAL STANDBY
P	PRIMARY
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PULL BOX
PDZ	PRIMARY DAYLIGHT ZONE
PE	PHOTO ELECTRIC
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATOR VALVE
PNL	PANEL
POC	POINT OF CONNECTION
PWR	POWER
QTY	QUANTITY
R (R)	RELOCATE (D)
RAD	RADIUS
RECPT	RECEPTACLE
REF	REFRIGERATOR
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
S	SOUTH
SC	SECURITY
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DETECTOR
SDZ	SECONDARY DAYLIGHT ZONE
SEC	SEATTLE ELECTRICAL CODE
SECT	SECTION
SF	SUPPLY FAN
SHT	SHEET
SPD	SURGE PROTECTIVE DEVICE
SPEC	SPECIFICATION
SPL	SPECIAL
SQ	SQUARE
STOR	STORAGE
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEM
T	THERMOSTAT
TB	TERMINAL BOX
TC	TIME CLOCK
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
UFC	UNIFORM FIRE CODE
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UV	UNIT VENTILATOR
V	VOLT
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VM	VOLTMETER
VOL	VOLUME
W	WATT, WEST
W/	WITH
W/O	WITHOUT
WH	WATER HEATER
WHM	WATT HOUR METER
WP	WEATHERPROOF
X	REACTANCE
XFMR	TRANSFORMER
XMTR	TRANSMITTER
Z	IMPEDANCE
&	AND
I.E.:	THAT IS

ELECTRICAL SHEET INDEX

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

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WA 98178

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AHJ STAMP

Architect Project No: 2052
Author: SW
Checker: JTB

GENERAL NOTES, ABBREVIATIONS AND SHEET INDEX

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SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
	EXISTING TO BE REMOVED
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING INFORMATION
	POINT OF CONNECTION (POC) BETWEEN NEW AND EXISTING
XX / XDN	EQUIPMENT IDENTIFIER (XX = ABBREVIATION Y = EQUIPMENT SCHEDULE NUMBER)
1	DRAWING CONSTRUCTION ("FLAG") NOTE
X-XX	EQUIPMENT IDENTIFIER
XXX	RACEWAY/CABLE/CONDUCTOR ROUTING IDENTIFIER-REFER TO RACEWAY/CABLE/CONDUCTOR SCHEDULE
	MATCHLINE
	REVISION CLOUD (ENCIRCLES DRAWING CHANGES MADE SINCE THE PREVIOUS RELEASE)
1	REVISION REFERENCE
X / XX.XX	DETAIL REFERENCE DETAIL IDENTIFICATION NUMBER SHEET WHERE DETAIL IS DRAWN
X / XX.XX	ELEVATION REFERENCE ELEVATION IDENTIFICATION NUMBER SHEET WHERE ELEVATION IS DRAWN
X / XX.XX	SECTION REFERENCE SECTION IDENTIFICATION NUMBER SHEET WHERE SECTION IS DRAWN
N	NORTH REFERENCE

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
T	TRANSFORMER
X-XX-X	POLE-MOUNTED TRANSFORMER
	POLE
	WEATHERHEAD
	DELTA
	WYE
	MEDIUM VOLTAGE CABLE TERMINATOR
	LIGHTNING ARRESTORS
	SURGE ARRESTORS
	NEUTRAL GROUNDING RESISTOR
M	METER
MM	MICROPROCESSOR CONTROLLED MONITOR REFER TO SPECIFICATIONS FOR METERING VALUES AND PROTECTIVE FUNCTIONS
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
AM	INDICATING INSTRUMENT AM-AMMETER; VM-VOLTMETER; FM-FREQUENCY METER; kVAR-KILOVAR METER; kWH-KILOWATT HOUR METER; kWH/D-KILOWATT HOUR DEMAND METER
AS	INSTRUMENT SWITCH AS-AMMETER SWITCH; VS-VOLTMETER SWITCH; SS-SYNCHRONIZING SWITCH; SV-SUPERVISORY (LOCAL-REMOTE) SWITCH
	SEPARABLE CONNECTOR
52	DRAWOUT AC TYPE POWER CIRCUIT BREAKER

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
CB	CIRCUIT BREAKER ST - INDICATES SHUNT TRIP
CB xxxA/xP	ENCLOSED CIRCUIT BREAKER (PLAN VIEW) xxxA/xP - AMPS/POLES
xxxA/xP	ENCLOSED CIRCUIT BREAKER (ONE-LINE DIAGRAM) xxxA/xP - AMPS/POLES
G	BREAKER WITH EXTERNAL GROUND FAULT RELAY AND CT
G	CIRCUIT BREAKER WITH INTEGRAL GROUND FAULT PROTECTION
M	MOTOR-OPERATED CIRCUIT BREAKER
ST / G	SWITCH WITH EXTERNAL GROUND FAULT RELAY AND CT
	MOV SURGE PROTECTION
	RESISTOR
	FUSE
	MOTOR THERMAL OVERLOADS - (3) UNLESS OTHERWISE NOTED
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
SV	SOLENOID VALVE
M	MOTOR-OPERATED VALVE
T 65°	THERMOSTAT
	TERMINAL BLOCK
B	INDICATING LIGHT - TYPE AS NOTED A-AMBER; B-BLUE; G-GREEN; R-RED; W-WHITE
	BATTERY

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
	2-POSITION SELECTOR SWITCH
	3-POSITION SELECTOR SWITCH HAND-OFF-AUTOMATIC
	ON-OFF SELECTOR SWITCH
	2-CIRCUIT PUSHBUTTON
	PUSHBUTTON SWITCH MOMENTARY CONTACT
	EQUIPMENT CONNECTION
G	GENERATOR
M	MOTOR CONNECTION
M SD	SMOKE DAMPER
M FSD	FIRE SMOKE DAMPER
M	STARTER 3-POLE, NEMA SIZE 1 MINIMUM UNLESS NOTED OTHERWISE
	COMBINATION STARTER HP RATED, 3-POLE, NEMA SIZE 1 MINIMUM, UNLESS NOTED OTHERWISE - OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
	DISCONNECT SWITCH 3-POLE UNLESS NOTED OTHERWISE
	FUSED DISCONNECT SWITCH 3-POLE UNLESS NOTED OTHERWISE - OVERCURRENT PROTECTION AS REQUIRED BY EQUIPMENT MANUFACTURER OR AS NOTED
C	CONTACTOR
CR	RELAY COIL CR-CONTROL RELAY; TD-TIME DELAY RELAY; UV-UNDERVOLTAGE RELAY; M-MOTOR CONTACTOR;
$M	MOTOR-RATED SWITCH - SIZE OL PER MOTOR REQUIREMENTS
	EQUIPMENT EMERGENCY SHUTDOWN SWITCH

SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
	CONDUIT CONCEALED IN CEILING SPACE OR IN WALL. PROVIDE MINIMUM 3/4" WITH #12 AWG CONDUCTORS AND DEDICATED NEUTRAL EACH CIRCUIT UNLESS OTHERWISE NOTED ON PLAN. PROVIDE EQUIPMENT GROUNDING CONDUCTORS SIZED PER NFPA 70.
	FLEXIBLE METAL CONDUIT
	CONDUIT - CONCEALED IN OR UNDER FLOOR
UG	CONDUIT - ROUTED UNDERGROUND
LV	LOW-VOLTAGE WIRING (CLASS B)
	CONDUIT OR CABLE VERTICAL DOWN
	CONDUIT OR CABLE VERTICAL UP
	CONDUIT STUB - TERMINATE WITH BUSHING OR CAP IF UNDERGROUND
	BREAK LINE
	CONDUIT SEAL
	EXPANSION FITTING
A-1,3,5	BRANCH CIRCUIT NUMBERS PANEL DESIGNATION HOME RUN TO SOURCE OF SUPPLY
	CONDUCTORS - CONNECTED
	CONDUCTORS - NOT CONNECTED
J	JUNCTION BOX
PB	PULLBOX - SIZE AS INDICATED OR AS REQUIRED BY CODE
HH	HANDHOLE
MH	MANHOLE

SYMBOLS LEGEND - POWER

SYMBOL	DESCRIPTION
	480Y/277V, 3Ø, 4W PANELBOARD
	208Y/120V, 3Ø, 4W PANELBOARD
	EQUIPMENT CABINET - TYPE AS NOTED
XXX	PANELBOARD
	TRANSFER SWITCH (AUTO)
XXXXX	AMPERES SHORT CIRCUIT AVAILABLE (SYMMETRICAL)
#####	FEEDER TAG - REFER TO FEEDER SCHEDULE

SYMBOLS LEGEND - GROUNDING

SYMBOL	DESCRIPTION
	GROUND CONNECTION
	GROUND ROD
	GROUND WELL
	AIR TERMINAL

SYMBOLS LEGEND - WIRING DEVICES

SYMBOL	DESCRIPTION
$ / $XX	SINGLE-POLE WALL SWITCH MOUNT SWITCHES AT 48" AFF. TO TOP, UON. WALL SWITCH - SUBSCRIPT 2 = 2-POLE, 3 = 3-WAY, 4 = 4-WAY, K = KEYED, D = DIMMER LV = LOW-VOLTAGE, OS = OCCUPANCY SENSOR TYPE, OP = OCCUPANCY/PHOTOELECTRIC TYPE, WP = WEATHERPROOF LOWER CASE LETTER INDICATES SWITCHING GROUP MOUNT SWITCHES AT +48" AFF, TO TOP, UON. ANY COMBINATION OF SWITCH TYPES CAN BE USED (IE. 3K = 3-WAY KEYED SWITCH)
	SPECIAL PURPOSE RECEPTACLE TYPE AS SHOWN ON PLANS
	SINGLE SERVICE OR COMBINATION FLUSH MOUNTED FLOOR BOX. REFER TO FLOOR PLANS FOR DEVICES.
	SINGLE SERVICE OR COMBINATION FLUSH FLOOR POKE THRU. REFER TO FLOOR PLANS FOR DEVICES.
	POWER/COMM POLE - FLOOR TO CEILING.
	SURFACE MOUNTED FLOOR BOX (PEDESTAL TYPE).
	PUSH BUTTON
	SIMPLEX RECEPTACLE NEMA 5-20R, +18" AFF UON
	NEMA 5-20R, +18" AFF UON
T T	TAMPER RESISTANT, NEMA 5-20R, +18" AFF UON
S S	SWITCHED, NEMA 5-20R, +18" AFF UON
IG IG	ISOLATED GROUND, NEMA 5-20R, +18" AFF UON
	NEMA 5-20R W/ GROUND FAULT CIRCUIT INTERRUPTER, +18" AFF UON
	SPLIT WIRED, NEMA 5-20R, +18" AFF UON
	CONTROLLED, NEMA 5-20R, +18" AFF UON
	NEMA 5-20R, ABOVE COUNTER
	NEMA 5-20R WITH GROUND FAULT CIRCUIT INTERRUPTER, ABOVE COUNTER. COORDINATE WITH CASEWORK SHOP DRAWINGS AND ARCHITECTURAL DRAWINGS.
T T	TAMPER RESISTANT, NEMA 5-20R WITH GROUND FAULT CIRCUIT INTERRUPTER, ABOVE COUNTER. COORDINATE WITH CASEWORK SHOP DRAWINGS AND ARCHITECTURAL DRAWINGS.
	NEMA 5-20R, CONNECTED TO EMERGENCY CIRCUIT, +18" AFF UON
	NEMA 5-20R ON EMERGENCY CIRCUIT MOUNTED ABOVE COUNTER. COORDINATE WITH CASEWORK SHOP DRAWINGS AND ARCHITECTURAL DRAWINGS.
	CEILING-MOUNTED, NEMA 5-20R
	NEMA 5-20R WITH USB CHARGER - (2) TYPE A USB PORTS
T	TAMPER RESISTANT, NEMA 5-20R WITH USB CHARGER - (2) TYPE A USB PORTS

SYMBOLS LEGEND - LIGHTING

SYMBOL	DESCRIPTION
RL1 / A-1 / a / NL	LIGHT FIXTURE IDENTIFIER - REFER TO LIGHTING FIXTURE SCHEDULE PANEL NAME - CIRCUIT NUMBER SWITCH DESIGNATION SUBSCRIPT (IF APPLICABLE) * IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: RL1 / A-1 / a / NL
EM	"EM" ADJACENT TO LUMINAIRE INDICATES LUMINAIRE ON EMERGENCY CIRCUIT OR WITH BATTERY BACKUP
	2x4 LUMINAIRE
	1x4 LUMINAIRE
	2x2 LUMINAIRE
	LINEAR LUMINAIRE
	LINEAR WALL WASH LUMINAIRE
	WALL MOUNTED LUMINAIRE
	UNDER-CABINET LUMINAIRE
	STRIP LUMINAIRE
	DOWNLIGHT
	WALL WASH DOWNLIGHT LUMINAIRE
	WALL MOUNTED LUMINAIRE
	WALL MOUNTED DIRECTIONAL LUMINAIRE
	FLUSH OR PENDANT MOUNTED LIGHTING FIXTURE
	TRACK LIGHT - LENGTH AS INDICATED ON PLANS; NUMBER OF LUMINAIRES AS SHOWN
	POLE-MOUNTED LUMINAIRE - NUMBER OF LUMINAIRES AS SHOWN ON PLANS
	STREET LIGHT
	IN-GROUND LANDSCAPE LUMINAIRE
	ILLUMINATED EXIT SIGN - SINGLE FACE; ARROW INDICATES DIRECTION OF EGRESS, UNIVERSAL MOUNT
	ILLUMINATED EXIT SIGN - DOUBLE FACE; ARROW INDICATES DIRECTION OF EGRESS, UNIVERSAL MOUNT
	BATTERY-POWERED EMERGENCY WALLPACK
	COMBINATION BATTERY POWERED EMERGENCY WALLPACK AND ILLUMINATED EXIT SIGN
	CEILING MOUNTED NURSE CALL LIGHT
TC	TIME CLOCK - TYPE AS NOTED
PP	LIGHTING CONTROL SYSTEM POWER PACK
SB	SWITCH BYPASS DEVICE
RC	DIGITAL DIMMING ROOM CONTROLLER
ICS1-1	ILLUMINATION CONTROL STATION
INV	LIGHTING INVERTER
OS	CEILING MOUNTED OCCUPANCY SENSOR WITH POWER PACK AS REQUIRED - MULTI-TECHNOLOGY TYPE UNLESS NOTED: U = ULTRASONIC IR = PASSIVE INFRARED
PC	PHOTOELECTRIC CONTROL FOR DAYLIGHT HARVESTING

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP

JOHN TYLER BRAY
STATE OF WASHINGTON
52711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: SW
Checker: JTB

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SYMBOLS LEGEND - FIRE ALARM

SYMBOL	DESCRIPTION
ESR	FIRE ALARM SYSTEM CONTROL PANEL ESR - ELEVATOR STATUS/RECALL FAC - FIRE ALARM COMMUNICATOR FACP - FIRE ALARM CONTROL PANEL FAA OR FARA - FIRE ALARM ANNUNCIATOR HVA - HVAC OR EXHAUST STAIRWELL PRESSURIZATION LCD - FIRE ALARM LCD ANNUNCIATOR
FS	FIRE ALARM FLOW SWITCH
PS	HI/LO AIR PRESSURE SWITCH
TS	VALVE SUPERVISORY SWITCH
DH	MAGNETIC DOOR HOLD OPEN
PIV	POST INDICATOR VALVE SUPERVISORY SWITCH
F	FIRE ALARM PULL STATION
SD	FIRE/SMOKE DAMPER
SD	SMOKE DAMPER
F	FIRE ALARM HORN ONLY
XX	FIRE ALARM HORN STROBE, XX = CANDELA RATING
S	FIRE ALARM SPEAKER ONLY
XX	FIRE ALARM SPEAKER STROBE, XX = CANDELA RATING
XX	FIRE ALARM STROBE ONLY - WALL, XX = CANDELA RATING
XX	FIRE ALARM STROBE ONLY - CEILING, XX = CANDELA RATING
F	FIRE ALARM BELL
	FIRE FIGHTER PHONE JACK
F	HEAT DETECTOR, RATE OF RISE AND FIXED TEMPERATURE UON F - FIXED TEMPERATURE R - RATE OF RISE ONLY R/C - RATE COMPENSATION
S BT	SMOKE DETECTOR, PHOTOELECTRIC UON BT - BEAM TRANSMITTER BR - BEAM RECEIVER I - IONIZATION
S	FIRE ALARM DUCT SMOKE DETECTOR WITH SAMPLING TUBE
	FLAME DETECTOR
XX	GAS DETECTOR
AIM	ADDRESSABLE INPUT MODULE
AOM	ADDRESSABLE OUTPUT MODULE
IM ISO	ISOLATION MODULE
	FIRE ALARM EQUIPMENT CONNECTION
R	RELAY BLOCK

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LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMP TYPE	LUMEN OUTPUT/ CRI / CCT	BALLAST/DRIVER VOLTAGE	INPUT WATTS	MANUFACTURER	SCHEDULE NOTES
A1	RECESSED CEILING MOUNTED 24"x24" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, DRYWALL GRID ADAPTER.	LED	2000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	17	LITHONIA # ENVX-2X2-HRG-2000LM-80CRI-30K-MIN1-ZT-MVOLT, DGA22	
A1 EM	RECESSED CEILING MOUNTED 24"x24" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, DRYWALL GRID ADAPTER. 90 MINUTE SELF CONTAINED EMERGENCY BATTERY BACKUP.	LED	2000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	17	LITHONIA # ENVX-2X2-HRG-2000LM-80CRI-30K-MIN1-ZT-MVOLT-DGA22-E10WLCP	
A2	RECESSED CEILING MOUNTED 24"x24" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED.	LED	2000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	17	LITHONIA # ENVX-2X2-HRG-2000LM-80CRI-30K-MIN1-ZT-MVOLT	
A2 EM	RECESSED CEILING MOUNTED 24"x24" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, 90 MINUTE SELF CONTAINED EMERGENCY BATTERY BACKUP.	LED	2000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	17	LITHONIA # ENVX-2X2-HRG-2000LM-80CRI-30K-MIN1-ZT-MVOLT-E10WLCP	
A3	RECESSED CEILING MOUNTED 24"x24" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED.	LED	3300 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	30	LITHONIA # ENVX-2X2-HRG-3300LM-80CRI-30K-MIN1-ZT-MVOLT	
A4	RECESSED CEILING MOUNTED 24"x48" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED.	LED	3300 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	30	LITHONIA # ENVX-2X4-HRG-3300LM-80CRI-30K-MIN1-ZT-MVOLT	
A4 EM	RECESSED CEILING MOUNTED 24"x48" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, 90 MINUTE EMERGENCY BATTERY BACKUP.	LED	3300 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	30	LITHONIA # ENVX-2X4-HRG-3300LM-80CRI-30K-MIN1-ZT-MVOLT-E15WLCP	
A5	RECESSED CEILING MOUNTED 24"x48" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, DRYWALL GRID ADAPTER.	LED	3300 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	30	LITHONIA # ENVX-2X4-HRG-3300LM-80CRI-30K-MIN1-ZT-MVOLT-DGA24	
A5 EM	RECESSED CEILING MOUNTED 24"x48" LED TROFFER. ACRYLIC LENS, IP5X RATED OPTICS, DAMP LABEL, IC RATED, DRYWALL GRID ADAPTER, 90 MINUTE EMERGENCY BATTERY BACKUP.	LED	3300 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	30	LITHONIA # ENVX-2X4-HRG-3300LM-80CRI-30K-MIN1-ZT-MVOLT-DGA24-E15WLCP	
D1	RECESSED CEILING MOUNTED 6" DIAMETER OPEN APERTURE LED WALL WASHER. CLEAR CONE, SEMI-SPECULAR FINISH, 3 STEP MACADAM, IP55, WET LABEL (COVERED CEILING).	LED	1000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	10.4	LITHONIA #LDN6-30/10-LW6-AR-LSS-MVOLT-GZ10-TRW	
D2 EM	RECESSED CEILING MOUNTED 6" DIAMETER OPEN APERTURE LED WALL WASHER. CLEAR CONE, SEMI-SPECULAR FINISH, 3 STEP MACADAM, IP55, WET LABEL (COVERED CEILING), SELF CONTAINED EMERGENCY BATTERY.	LED	2000 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	22.5	LITHONIA #LDN6-30/20-LW6-AR-LSS-MVOLT-GZ10-TRW-EL	
E1 EM	WALL MOUNTED EXTERIOR CYLINDER DOWNLIGHT, WET LOCATION, MARINE GRADE DIE-CAST ALUMINUM, SILICON GASKET	LED	2566 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	29	LIGMAN UTA-31862-29W COB-AS-W30-01-120/277V-EMG	
L1	SUSPENDED 1 1/2"Wx2 3/8"Hx48"L LINEAR LENSED LED LUMINAIRE. FINISH PER ARCHITECT, FIELD VERY MOUNTING & SUSPENSION.	LED	800 LUMENS/FT +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	7.27W/FT	MARK LIGHTING #S1LD-LLP-MSL4-90CRI-30K-800LMF-DBW-MIN1-MVOLT-RALTBD-E35INV-ZT-MOUNTING	
L1 EM	SUSPENDED 1 1/2"Wx2 3/8"Hx48"L LINEAR LENSED LED LUMINAIRE. FINISH PER ARCHITECT, FIELD VERY MOUNTING & SUSPENSION, 35 WATT MICRO INVERTER.	LED	800 LUMENS/FT +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	7.27W/FT	MARK LIGHTING #S1LD-LLP-MSL4-90CRI-30K-800LMF-DBW-MIN1-MVOLT-RALTBD-E35INV-ZT-MOUNTING	
L2	RECESSED CEILING MOUNTED LENSED LINEAR LED.	LED	495 LUMENS/FT +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	4.5W/FT	A-LIGHTS #ACL5-LENGTH PER PLAN-LS-30K-U-HE-G-FINISH-D	
L2 EM	RECESSED CEILING MOUNTED LENSED LINEAR LED. 90 MINUTE EMERGENCY BATTERY BACKUP.	LED	495 LUMENS/FT +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	4.5W/FT	A-LIGHTS #ACL5-4-HE30K-U-LS-G-FINISH-D-E1	
P1	UNIVERSAL MOUNT LENSED LED INDUSTRIAL STRIP.	LED	4298 LUMENS +80 CRI; 40K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	35.3	LITHONIA #CSS L48 4000LM 40K 80CRI	
P2	SURFACE WALL MOUNTED LENSED LED WALL BRACKET.	LED	2050 LUMENS +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	18.7	LITHONIA #WL4-20L-MVOLT-GZ10-LP830	
P3	PENDANT MOUNTED 6" DOWNLIGHT, HEAVY GAUGE ALUMINUM WITH BLACK FINISH, WIDE BEAM SPREAD	LED	2650 LUMENS +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	27.7	PRESCOLITE #LRC-6RD-P-PCC-25L-30K-9-WD-DM1-S-XX-XX-BL	
P4	SUSPENDED CEILING MOUNTED 48"L LINEAR LENSED LED LUMINAIRE. DIRECT/INDIRECT DISTRIBUTION.	LED	587 LM/FT UP 572LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.0W/FT	A-LIGHTS #ACL2ST-4-IL5+DLS-30-U-BW+HE-S-FINISH-1D	
P8	SUSPENDED CEILING MOUNTED 96"L LINEAR LENSED LED LUMINAIRE. DIRECT/INDIRECT DISTRIBUTION.	LED	587 LM/FT UP 572LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.0W/FT	A-LIGHTS #ACL2ST-8-IL5+DLS-30-U-BW+HE-S-FINISH-1D	
P12	SUSPENDED CEILING MOUNTED 144"L LINEAR LENSED LED LUMINAIRE. DIRECT/INDIRECT DISTRIBUTION.	LED	587 LM/FT UP 572LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.0W/FT	A-LIGHTS #ACL2ST-12-IL5+DLS-30-U-BW+HE-S-FINISH-1D	
S1	SURFACE MOUNTED LED LINEAR 48"L, WET LOCATION RATED	LED	587 LM/FT UP +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	4.9W/FT	A-LIGHTS #ACL3ST-4-LS-30-U-BW-F-FINISH-D-PF-Q	
S1 EM	SURFACE MOUNTED LED LINEAR 48"L, WET LOCATION RATED, 90 MINUTE EMERGENCY BATTERY BACKUP	LED	587 LM/FT UP +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	4.9W/FT	A-LIGHTS #ACL3ST-4-LS-30-U-BW-F-FINISH-D-PF-Q-E	
S2	SURFACE MOUNTED 6" CYLINDER WALL WASH, HEAVY GAUGE ALUMINUM WITH BLACK FINISH	LED	1000 LM +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	12	PRESCOLITE #LTC-6RW-S-10L-30-9-WW-DM1-S-XX-XX-BL	
S3	SURFACE MOUNTED 20" ROUND DIRECT, .177" THICK CONCAVED THERMOFORMED DIFFUSER, ROLLED ALUMINUM EXTRUDED HOUSING, TEXTURED BLACK FINISH	LED	2025 LM +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	27.7	A-LIGHTS #ATL2-20-DLS-30-CRI-U-F-B-D	
S3 EM	SURFACE MOUNTED 20" ROUND DIRECT, .177" THICK CONCAVED THERMOFORMED DIFFUSER, ROLLED ALUMINUM EXTRUDED HOUSING, TEXTURED BLACK FINISH, 90 MINUTE EMERGENCY BATTERY BACKUP	LED	2025 LM +90 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	27.7	A-LIGHTS #ATL2-20-DLS-30-CRI-U-F-B-D-E1	
T1	RECESSED CEILING MOUNTED 12"x48" LED PANEL.	LED	3289 LUMENS +80 CRI; 35K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	28.4	LITHONIA #CPX AL07 SWW7 M4X	
T2	NOT USED						
W2	SURFACE WALL MOUNTED 24"L LENSED LED WALL BRACKET. DIRECT/INDIRECT DISTRIBUTION. ADA COMPLIANT SETOFF BRACKET MOUNTING.	LED	575 LM/FT UP 584 LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.8 W/FT	A-LIGHTS #ALD2ST-2-IL5+DLS-30-U-ASY+HE-H-FINISH-D	
W3	SURFACE WALL MOUNTED 36"L LENSED LED WALL BRACKET. DIRECT/INDIRECT DISTRIBUTION. ADA COMPLIANT SETOFF BRACKET MOUNTING.	LED	575 LM/FT UP 584 LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.8 W/FT	A-LIGHTS #ALD2ST-3-IL5+DLS-30-U-ASY+HE-H-FINISH-D	
W3 EM	SURFACE WALL MOUNTED 36"L LENSED LED WALL BRACKET. DIRECT/INDIRECT DISTRIBUTION. ADA COMPLIANT SETOFF BRACKET MOUNTING, 90 MINUTE EMERGENCY BATTERY BACKUP.	LED	575 LM/FT UP 584 LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.8 W/FT	A-LIGHTS #ALD2ST-3-IL5+DLS-30-U-ASY+HE-H-FINISH-D-E1	
W4	SURFACE WALL MOUNTED 48"L LENSED LED WALL BRACKET. DIRECT/INDIRECT DISTRIBUTION. ADA COMPLIANT SETOFF BRACKET MOUNTING.	LED	575 LM/FT UP 584 LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.8 W/FT	A-LIGHTS #ALD2ST-4-IL5+DLS-30-U-ASY+HE-H-FINISH-D	
W4 EM	SURFACE WALL MOUNTED 48"L LENSED LED WALL BRACKET. DIRECT/INDIRECT DISTRIBUTION. ADA COMPLIANT SETOFF BRACKET MOUNTING, 90 MINUTE EMERGENCY BATTERY BACKUP.	LED	575 LM/FT UP 584 LM/FT DN +80 CRI; 30K CCT	ELECTRONIC 120-277V 0-10V DIMMABLE	9.8 W/FT	A-LIGHTS #ALD2ST-4-IL5+DLS-30-U-ASY+HE-H-FINISH-D-E1	
(E) P	LED REPLACEMENT LAMP FOR EXISTING INCANDESCENT PENDANT LUMINAIRE. MATCH EXISTING LAMP LUMEN OUTPUT.	LED	+90 CRI; 30K CCT	120V	40		
EM	SURFACE MOUNTED SELF CONTAINED EMERGENCY LIGHTING UNIT.	LED		ELECTRONIC 120-277V	3.15	LITHONIA #ELM4L	
EX	UNIVERSAL SURFACE MOUNTED LED EXIT SIGN WITH 90 MINUTE BATTERY BACKUP. FLAME RETARDANT, IMPACT RESISTANT, THERMOPLASTIC HOUSING, GREEN LETTERS, CHEVRONS AS INDICATED ON PLANS.	LED		ELECTRONIC 120-277V	1	LITHONIA #EXRG EL M6	
EX1	SURFACE MOUNTED COMBINATION SELF CONTAINED EMERGENCY LIGHTING UNIT AND LED EXIT SIGN. FLAME RETARDANT, IMPACT RESISTANT, THERMOPLASTIC HOUSING, GREEN LETTERS, CHEVRONS AS INDICATED ON PLANS.	LED		ELECTRONIC 120-277V	3	LITHONIA #LHQM LED	

GENERAL NOTES:
A. LUMEN VALUES LISTED REPRESENT A MINIMUM ESTIMATED INITIAL OUTPUT FROM LUMINAIRE.
B. LUMINAIRE BALLASTS, DRIVERS, POWER SUPPLIES, AND TRANSFORMERS SHALL BE COMPATIBLE WITH DIMMERS AND LIGHTING CONTROL SYSTEM.
C. PROVIDE ALL NECESSARY POWER SUPPLIES, DRIVERS, CABLES, JUMPER CABLES, POWER FEEDS, TERMINATORS & CONTROL INTERFACES FOR A COMPLETE OPERATIONAL SYSTEM.

SCHEDULE NOTES:

Lighting, Motor and Electrical Requirements List, pg 1 of 10

The following information is necessary to check a permit application for compliance with the lighting systems, motors and electrical system requirements in the Washington State Energy Code, Commercial Provisions.
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Project:
Skyway Resource Center - 2018 WSEC
12610 76th Ave S
Bryn-Mawr-Skyway, WA 98178

Date: 2023-03-17

Applies	Code Section	Component	Compliance Information Required In Permit Documentation	Location in Documents	Building Department Notes
LIGHTING SCOPE					
	C103.1	Construction documents - General	For a shell & core or tenant space (first build-out) project, indicate if there is no lighting scope included in the project.		
YES	C103.1	Construction documents - General	For an alteration project, indicate if there is no lighting scope included in the project.		
LIGHTING CONTROLS					
YES	C405.2	Lighting controls, general	For all lighting fixtures, indicate lighting control method on plans for spaces and lighting zone(s) served, or exception taken		
	C405.2, Option 2	Luminaire level lighting controls (LLLC)	Indicate on plans all fixtures provided with LLLC in lieu of C405.2 lighting controls; provide description of control capabilities and performance parameters		
	C405.2.5, Item 3 C405.2.1.1 C405.2.3.1	Lighting in dwelling units (dormitory, hotel and all other than multifamily)	Indicate method of automatic control of all installed luminaires in dwelling units in buildings other than multifamily (occupancy or light reduction controls)		
	C405.2.5, Item 2	Lighting in sleeping units	Indicate method of automatic off control of all installed luminaires in sleeping units (vacancy or key card control); also refer to Receptacles		
YES	C405.2.3 C405.2.3.1 C405.2.5	Manual controls	Indicate on plans the method of manual lighting control, location of manual control device and the area or specific application it serves		
YES	C405.2.3.1 C405.2.1.1 C405.2.4	Manual interior light reduction controls	Indicate on plans which method of manual 50% lighting load reduction is provided, or indicate applicable exception		
YES	C405.2.1 C405.2.2.1 C405.2.1, Exception 3	Method of automatic shut-off control	Indicate on plans the method of automatic shut-off control during unoccupied periods (occupancy sensor, time switch or digital timer switch) for all lighting zones		
YES	C405.2.1	Occupant sensor controls	Indicate on plans all luminaires that are controlled by occupant sensor controls; indicate controls are configured to turn luminaires 100% off when the space is unoccupied		
NA	C405.2.1 C405.2.1.1	Occupant sensor controls	Indicate if occupant sensor controls are configured to be manual on or automatic on to not more than 50% power; indicate spaces eligible for exception that allows automatic on to 100% power		

Lighting, Motor and Electrical Requirements List, pg 2 of 10

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NA	C405.2.1.2	Occupant sensor controls - warehouses spaces	Indicate each aisleway and corridor within a warehouse space are designated as separate zones that are independently controlled		
NA			Indicate occupant sensors are configured to automatically reduce lighting power by 50% when the zone is unoccupied and 100% off after the zone is unoccupied for over 20 minutes; indicate controls are configured to automatically restore lighting to full power when the zone or space is occupied		
YES	C405.2.1.3	Occupant sensor controls - open plan office areas	For open plan office areas larger than 300 sf, indicate general lighting is provided with vacancy controls that reduce lighting power by not less than 80% and are configured to turn luminaires 100% off when the space is unoccupied; indicate that no individual control zone area exceeds 600 sf		
	C405.2.1.4	Occupant sensor controls – parking garages	Indicate parking garage general lighting is provided with vacancy controls that reduce lighting power by not less than 30% and are configured to turn luminaires 100% off when no vehicles or pedestrians are present, unless eligible for an exception; indicate that no individual control zone area exceeds 3,600 sf		
NA	C405.2.1.5	Occupant sensor controls - enclosed fire-rated stairwells	Indicate stairway lighting is provided with vacancy controls that reduce lighting power by not less than 50% when the stairway in unoccupied		
NA	C405.2.2.1	Automatic time switch controls	Indicate spaces on plans where time switch controls turn luminaires 100% off during unoccupied hours		
NA			Indicate spaces on plans where time switch controls are configured to turn on lighting to full power versus 50% power		
NA			Indicate locations of override switches on plans and the lighting zone(s) served; indicate that the area(s) served by each override switch does not exceeds 5,000 sf		
NA	C405.2.1, Exception 3	Digital timer switch	Indicate digital timer switch control includes: manual on/off, time delay, audible and visual indication of impending time-out		
YES	C405.2.4.2 C405.2.4.3	Daylight zones - Sidelit and toplit	Indicate primary and secondary sidelit daylight zone floor areas on plans		
NA			Indicate toplit daylight zone floor areas on plans		
NA			For small vertical fenestration assemblies (rough opening less than 10 percent of primary daylight zone floor area) where daylight responsive controls are not required, provide fenestration area to daylight zone floor area calculation(s)		

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP
JOHN TYLER BRAM
STATE OF WASHINGTON
22711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: SW
Checker: JTB

LUMINAIRE SCHEDULE & WSEC LIGHTING COMPLIANCE FORMS

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Lighting, Motor and Electrical Requirements List, pg 3 of 10

YES	C405.2.4	Daylight responsive controls	Indicate on plans lighting zone(s) served by daylight responsive controls; indicate that the area served by each control device does not exceeds 2,500 sf			
NA			Identify sidelit and toplit daylight zones that are not provided with daylight sensing controls and the exception(s) that apply			
YES	C405.2.4.1.1	Daylight responsive controls	Indicate on plans the lighting load reduction method (continuous dimming, or stepped dimming that provides at least two even steps between 0%-100% of rated power)			
NA	C405.2.4.1	Daylight responsive controls	Indicate that daylight sensing controls are configured to completely shut off all controlled lights in the lighting zone			
NA	C405.2.5	Additional controls - Specific application lighting controls	Identify spaces and lighting fixtures on plans that require specific application lighting controls per this section			
NA	C405.2.5, Item 1	Display and accent lighting	Indicate on plans that manual controls are provided that control display, accent lighting and display case lighting independently from both general area lighting and other lighting applications within the same space			
NA			Indicate manual and automatic (occupant sensor or time switch) lighting control methods			
	C405.2.5, Item 3	Hotel/motel guest rooms	Indicate method of automatic control - vacancy or captive key control of all installed luminaires and switched receptacles in guest room			
NA	C405.2.5, Item 1	Supplemental task lighting	Indicate method and location of manual and automatic shut-off control (occupant sensor or time switch) for supplemental task lighting, including under-shelf or under-cabinet lighting			
NA	C405.2.5, Item 1	Lighting equipment for sale or demonstration	Indicate on plans that lighting equipment for sale or demonstration are controlled independently from both general area lighting and other lighting applications within the same space			
NA			Indicate manual and automatic (occupant sensor or time switch) lighting control methods			
NA	C405.2.5, Item 4	Lighting for non-visual applications	Identify all eligible non-visual lighting applications on plans; indicate that the area served by each control device does not exceeds 4,000 sf			
NA			Indicate on plans that non-visual lighting are controlled independently from both general area lighting and other lighting applications within the same space			

Lighting, Motor and Electrical Requirements List, pg 4 of 10

NA			Indicate method of manual lighting control and applicable automatic lighting control			
YES	C405.2.5, Item 5	Means of egress lighting	Identify on plans egress fixtures that function as both normal and emergency means of egress illumination			
YES			Provide calculation of lighting power density of total egress lighting			
NA			If total egress lighting power density is greater than 0.02 W/sq. ft., indicate on plans egress fixtures requiring automatic shut-off during unoccupied periods			
YES			Indicate method of automatic shut-off control			
NA	C405.4.1 C405.4.2	Lighting control of exempt interior lighting	Indicate that exempt interior lighting equipment and lighting located within spaces that are eligible for a lighting power exemption are controlled independently from non-exempt and general area lighting			
NA	C405.2.6	Exterior lighting controls	For decorative exterior lighting, indicate on plans automatic daylight shut-off controls, or exception taken			
YES			For exterior lighting that is not decorative, indicate on plans automatic daylight or time-switch shut-off controls and setback controls; or indicate exception taken			
NA			For lighting requiring setback controls, include control sequence that reduces lighting power by at least 30% between 12am-6am, or from 1 hour after closing to 1 hour before opening, or based upon motion sensor			
NA			For building facade and landscape lighting, indicate control sequence for shut-off control is based on dawn-to-dusk and business opening/closing schedule; indicate whether automatic or time switch controls will be provided for this function			
NA	C405.5.2	Lighting control of exempt exterior lighting	Indicate that exempt exterior lighting and lighting located within exterior areas/surfaces that eligible for a lighting power exemption are controlled independently from non-exempt exterior lighting			
NA	C405.5.4	Exterior gas-fired lighting appliances	Indicate ignition system is a method other then continuously burning pilot light			
YES	C405.2.7	Area controls - Master control switches and circuit power limit	Indicate location(s) of master control switch(es) intended to control multiple independent switches; circuit breaker may not be used as a master control switch			
YES			Verify that no 20 amp circuit controlled by a single switch or automatic control is loaded beyond 80%			
ADDITIONAL EFFICIENCY CREDIT - ENHANCED INTERIOR LIGHTING CONTROLS						

Lighting, Motor and Electrical Requirements List, pg 5 of 10

	C406.4	Enhanced digital lighting controls	To comply with additional efficiency credit, indicate on plans that interior lighting fixtures are configured with all of the following control functions, as applicable: 1) Each fixture is individually addressed, or exception taken; 2) Fixtures are configured for continuous dimming; 3) No more than eight fixtures are controlled by a single daylight sensor; 4) In enclosed and open office areas, illumination levels of overhead general area lighting is configured to be individually adjusted by occupants Include calculations that demonstrate the total lighting power of all interior lighting fixtures configured with enhanced lighting controls is no less than 90% of the total interior lighting power for the area the enhanced lighting controls credit is being applied to			
INTERIOR LIGHTING POWER & EFFICACY						
YES	C405.4.1 C405.4.2	Total connected interior lighting power	Include all luminaires in interior lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's watts per fixture for the installed lamp			
NA			Identify spaces eligible for lighting power exemption on plans and in WSEC interior lighting compliance reports; indicate the exception applied			
NA			Identify lighting equipment eligible for lighting power exemption in fixture schedule and in WSEC interior lighting compliance reports; indicate the exception applied			
	C405.1 C405.1.1	Lighting in dwelling units (multifamily)	For all installed luminaires, include lamp type and number of lamps in lighting fixture schedule; for lamps that are not LED, T-8 or small diameter fluorescent, indicate efficacy of other lamp types is 65 lumens per watt or greater For all installed luminaires, indicate in lighting fixture schedule whether complying via lighting power density or by qualifying lamp type; if by lamp type, include number of lamps For all installed luminaires, indicate in lighting fixture schedule whether complying via lighting power density or by qualifying lamp type; if by lamp type, include number of lamps			
INTERIOR LIGHTING POWER CALCULATION - INDICATE COMPLIANCE PATH TAKEN						
NA	C405.4.2.1	Building Area Method	Demonstrate that total proposed wattage per building area does not exceed maximum allowed wattage per building area; identify locations of building areas on plans; provide WSEC exterior lighting compliance reports			

Lighting, Motor and Electrical Requirements List, pg 6 of 10

YES	C405.4.2.2	Space-By-Space Method	Demonstrate that total proposed wattage does not exceed maximum allowed wattage; identify locations of space types on plans, including retail display areas and areas with display, highlight and decorative lighting; provide WSEC exterior lighting compliance reports			
ADDITIONAL EFFICIENCY CREDITS - REDUCED INTERIOR LIGHTING POWER DENSITY						
YES	C406.3.1 C406.3.2	Reduced interior lighting power density	To comply with additional efficiency credit, demonstrate that total connected interior lighting wattage is 10% or 20% less than the total maximum allowed lighting wattage for the area the reduced lighting power credit is being applied to; indicate whether lighting power allowance is based on the building area method or space-by-space method; provide WSEC exterior lighting compliance reports			
	C406.3	Reduced interior lighting power density - dwelling unit lamp efficacy	For project with dwelling units, to comply with additional efficiency credit indicate in lighting fixture schedule that lamps within installed interior luminaires have an efficacy rating of at least 65 lumens per watt; include number of lamps and provide calculations that demonstrate at least 95% of lamps have this efficacy rating			
EXTERIOR LIGHTING POWER & EFFICACY						
YES	C405.5.2	Total connected exterior lighting power	Include all luminaires in exterior lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's watts per fixture for the installed lamp			
YES			Identify exterior applications eligible for lighting power exemption on plans and in WSEC exterior lighting compliance reports; indicate exception applied			
YES	C405.5.3(1)	Exterior lighting zone	Indicate building exterior lighting zone as specified by the AHJ			
NA	C405.5.1	Exterior building grounds lighting	For building grounds fixtures rated at greater than 50 watts, indicate rated lamp efficacy (in lumens per watt) in fixture schedule			
EXTERIOR LIGHTING POWER CALCULATION						
YES	C405.5.3	Tradable allowances	Demonstrate that total proposed tradable surface wattage does not exceed maximum allowed tradable surface wattage (including base site allowance); identify locations of tradable surfaces on plans; provide WSEC exterior lighting compliance reports			

Lighting, Motor and Electrical Requirements List, pg 7 of 10

NA			Demonstrate that proposed wattage per non-tradable surface type does not exceed maximum allowed wattage per non-tradable surface type (including base site allowance remaining after tradable allowance calculation); identify locations of non-tradable surfaces on plans; provide WSEC exterior lighting compliance reports			
LIGHTING ALTERATIONS						
YES	C503.6.1	Interior and parking garage lighting fixture alterations	Where ≥ 50% of existing luminaires in an interior space or parking garage are replaced; indicate compliance path (building area or space-by-space method); include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed lighting wattage does not exceed maximum allowed per compliance path			
NA			Where < 50% of existing luminaires in an interior space or parking garage are replaced; indicate total existing lighting wattage in each space prior to alteration; include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed total lighting wattage in alteration area does not exceed total existing lighting wattage prior to alteration			
			Where ≥ 50% of existing exterior lighting wattage is replaced; include all new and existing-to-remain luminaires in WSEC exterior lighting compliance reports; indicate proposed total exterior lighting wattage does not exceed maximum allowed			
			Where < 50% of existing exterior lighting wattage is replaced; indicate total existing lighting wattage prior to alteration; include all new and existing-to-remain luminaires in WSEC interior exterior compliance reports; indicate proposed total exterior lighting wattage does not exceed total existing wattage prior to alteration			
YES	C503.6.2	Interior lighting wiring and circuiting alterations	Where new wiring is installed to serve new interior luminaires and /or luminaires are relocated to a new circuit; indicate manual and automatic lighting controls are provided (as applicable) - manual (C405.2.3); occupancy sensor (C405.2.1); light reduction (C405.2.3); daylight responsive (C405.2.4); specific application (C405.2.5)			
			Where new wiring is installed to serve new exterior luminaires and /or luminaires are relocated to a new circuit; indicate automatic lighting controls are provided (C405.2.6)			

Lighting, Motor and Electrical Requirements List, pg 8 of 10

YES	C503.6.3	Lighting panel alterations	Where a new interior and/or exterior lighting panel is installed or an existing panel is moved (all new raceway and conductor wiring), indicate all applicable lighting controls requirements apply			
	C503.6.4	Newly-created rooms	Where interior space(s) is reconfigured (permanently installed walls or ceiling-height partitions) to create new enclosed spaces, indicate all applicable lighting controls requirements apply			
YES	C504.2	Lighting repairs	Identify existing luminaires being upgraded with bulb and / or ballast replacement; indicate fixture alteration does not increase existing fixture wattage			
NA	C505.1	Change of interior space use	Identify spaces on plans where the building area type or space use type is being changed from one type to another per Tables C405.4.2(1) or (2)			
NA			Indicate compliance method (building area or space-by-space); include all new and existing-to-remain luminaires in WSEC interior lighting compliance reports; indicate proposed lighting wattage does not exceed maximum allowed per compliance path			
RECEPTACLES						
YES	C405.10	Controlled receptacles	Identify all controlled and uncontrolled receptacles on electrical plans in each space in which they are required; include receptacle configuration such as spacing between controlled and uncontrolled, duplex devices, etc			
YES			Provide schedule that lists the number of controlled and uncontrolled receptacles in each space where controlled receptacles are required - classrooms, private offices, open office areas, conference rooms, copy rooms, break rooms and modular partitions/workstations			
YES			Indicate on plans the method of automatic control for each controlled receptacle zone (occupant sensor or programmable time-of-day control); indicate that each zone served by a single controller does not exceed 5,000 sf			
	C405.2.5, Item 2	Switched receptacles in sleeping units	Indicate method of automatic off control of all switched receptacles in sleeping units (vacancy or key card control)			
NA	C503.6.6	Electrical receptacle alerations	Where new receptacles are added or replaced within an alteration project that is 5,000 sf or larger, indicate receptacles are provided with automatic controls per C405.10, or exception taken			
MOTORS, TRANSFORMERS, ELECTRIC METERS, INTERIOR TRANSPORTATION						

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

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BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

JOHN TYLER EBERT
STATE OF WASHINGTON
22711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: JTB
Checker: JTB

WSEC LIGHTING COMPLIANCE FORMS

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Lighting, Motor and Electrical Requirements List, pg 9 of 10

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	C405.6	Electrical transformers	Include electrical transformer schedule on electrical plans; indicate transformer type, size, efficiency, or exception taken		
YES	C405.11	Feeders and branch circuits	Provide documentation that demonstrates maximum voltage drop across feeders and branch circuits does not exceed 5%		
	C405.7	Dwelling unit electrical energy consumption	Indicate on electrical plans that each dwelling unit in Group R-2 has a separate electrical energy meter		
	C405.8	Electric motor efficiency	Include all motors, including fractional hp motors, in electric motor schedule on electrical plans; indicate motor type, horsepower, rpm, rated efficiency, or exception applied		
	C405.9.1	Elevator cabs	For luminaires in each elevator cab, provide calculations that demonstrate average efficacy is not less than 35 lumens per watt		
			For elevators that do not have an integral air conditioning system, indicate rated watts per cfm for elevator cab ventilation fans do not exceed 0.33 watts per cfm		
			Indicate automatic controls that de-energize lighting and ventilation fans when elevator is stopped and unoccupied for a period of 15 minutes or more		
	C405.9.2	Escalators and moving walks	Indicate escalators comply with ASME A17.1/CSA B44; automatic controls are configured to reduce operational speed to the minimum permitted when not in use		
	C405.9.3	Regenerative drive	Indicate all one-way down or reversible escalators are provided with a variable frequency regenerative drive		
DOCUMENTATION AND SYSTEM REQUIREMENTS TO SUPPORT COMMISSIONING (CX)					
YES	C408.4	Scope of electrical power and lighting systems commissioning	Indicate that all electrical systems (receptacles, transformers, motors, vertical and horizontal transportation) for which the WSEC requires control functions and / or configuration to perform specific functions are required to be commissioned		
YES			Where total building lighting load is > 20 kW, or where total lighting load of luminaires requiring daylight sensing and / or occupancy control > 10 kW, indicate that all automatic lighting control systems are required to be commissioned; or provide building lighting power calculation demonstrating eligibility for exception		
YES	C405.13 C408.1.1 C408.1.2 C408.1.4.2 C103.6.3	Commissioning requirements in construction documents	Indicate Cx requirements in plans and specifications for all applicable electrical and lighting control systems per C408		

Lighting, Motor and Electrical Requirements List, pg 10 of 10

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YES	C408.1.2 C408.1.2.1 C408.1.4 C103.6.3	Commissioning requirements in construction documents	Include general summary of Cx plan per C408.1.2 including: 1) Narrative description of activities; 2) Responsibilities of the Cx team; 3) Schedule of activities including verification of project close out documentation per C103.6; 4) Conflict of interest plan (if required)		
YES	C408.1.2 C408.1.4 C103.6.3	Commissioning requirements in construction documents	Include in general summary that a Cx project report and Compliance Checklist (Figure C408.1.4.1) shall be completed by the Certified Cx Professional and provided to the owner prior to the final electrical inspection		
YES	C408.4.1	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems		
PROJECT CLOSE OUT DOCUMENTATION					
YES	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including WSEC lighting compliance reports that document all interior and exterior lighting area and / or surface types, lighting power allowances and installed densities		
If "no" is selected for any question, provide explanation.					

LIGHTING COMPLIANCE SUMMARY

Project & Applicant Information	**Project Title**	Skyway Resource Center - 2018 WSEC	For Building Department Use: **Date: Mar 17, 2023**
	Project Address	12610 76th Ave S Bryn-Mawr-Skyway, WA 98178	
	Applicant Name	Gaurav Mehta	
	Applicant Phone	206-267-1700	
	Applicant Email	gmehta@sazan.com	

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial		**General Building Use Type**		Office, Government/Municipal	**Building Cond. Floor Area**	4,998
General Project Types	Alteration	**New Building or Addition**		**Alteration Lighting Scope**	Interior Lighting Exterior Lighting	**Project Cond. Floor Area**	4,998
		Lighting Scope				**Floors Above Grade**	2
						Compliance Method	Compliance Method 1 - General
Lighting Project Description	Provide new LED type luminaires in renovated space. Replace existing atrium incandescent pendant lamps with replacement lamps. Provide on/off control of common area lighting via astronomical timeclock. Provide occupancy/vacancy sensor control of offices and other individual spaces. Provide daylight harvesting at vertical fenestrations.						

Lighting Compliance Scope and Method	**Project Type**	**Interior / Exterior (Interior includes both interior & parking)**	**Luminaire Replacement Scope**	**Compliance Method**	**LPA Calculation Adjustment**	**Compliance Verification**
	Alteration	Interior Lighting	50% or more replaced	Space by space	No Calculation Adjustments allowed	**COMPLIES**
	Alteration	Exterior Lighting	50% or more replaced		Not applicable to exterior	**COMPLIES**
Additional Efficiency Options Included	Reduced lighting power density credit - 10% lower than LPA					

Project Title	**Skyway Resource Center - 2018 WSEC**	**Date**	**Mar 17, 2023**
Lighting Power Calculation	**ALTERATION - INTERIOR LIGHTING (50% or more replaced)**	**Compliance Verification**	**COMPLIES**
Compliance Method	**Space by space**	**LPA Calculation Adjustment**	**none**

Interior Lighting Power Allowance - Space by Space

General Space Type	Specific Space Type	Ceiling Height (Ft)	Gross Interior Area (SF)	LPA (Watts/SF)	Total Watts Allowed (SF x LPA x 1)	Total Proposed Watts (LPD + Display LPD)	Compliance Status
Conference/meeting/multipurpose			54	0.97	52		
Conference/meeting/multipurpose			52	0.97	50		
Conference/meeting/multipurpose			49	0.97	48		
Conference/meeting/multipurpose			166	0.97	161		
Conference/meeting/multipurpose			333	0.97	323		
Copy/print room			78	0.31	24		
Corridors	General		231	0.41	95		
Corridors	General		261	0.41	107		
Electrical/mechanical			29	0.43	13		
Electrical/mechanical			82	0.43	35		
Electrical/mechanical			20	0.43	9		
Electrical/mechanical			35	0.43	15		
Lobby	General		113	0.84	95		
Lobby	General		743	0.84	624		
Lounge/breakroom	General		129	0.59	76		
Office	Enclosed less than 250 sf		47	0.74	35		
Office	Enclosed less than 250 sf		119	0.74	88		
Office	Enclosed less than 250 sf		141	0.74	104		
Office	Enclosed less than 250 sf		141	0.74	104		
Office	Enclosed less than 250 sf		134	0.74	99		
Office	Enclosed less than 250 sf		139	0.74	103		
Office	Enclosed less than 250 sf		117	0.74	87		
Office	Enclosed > 250 sf		320	0.66	211		
Restroom	General		34	0.63	21		
Restroom	General		58	0.63	37		
Restroom	General		55	0.63	35		
Stairwell	General		99	0.49	49		
Storage room	General		109	0.38	41		
Storage room	General		129	0.38	49		
Storage room	Less than 50 sf		44	0.51	22		
Storage room	Less than 50 sf		35	0.51	18		
Healthcare facility	Corridor		83	0.71	59		
Healthcare facility	Exam/treatment room		82	1.40	115		
Healthcare facility	Physical therapy room		148	0.91	135		
Healthcare facility	Physical therapy room		101	0.91	92		
				Proposed Total LPD		**3081.7000000000003**	
	Totals				**3,230**	**3,081**	**COMPLIES**

Proposed Lighting Power Density

Fixture Type	Fixture ID	Quantity of Fixtures (#F)	Watts or Wattage Limit per Fixture (WpF)	Total Linear Feet (LF)	Watts per Linear Foot (WpLF)	Total Watts Proposed (#F x WpF) or (LF x WpLF)
Individual Fixtures						
Decorative	(E)P	10	40			400
Direct / indirect pendant	P4	3	36			108
Direct / indirect pendant	P8	3	72			216
Troffer	A1/EM	8	17			136
Troffer	A2/EM	9	17			153
Troffer	A3/EM,	10	30			300
Troffer	A4/EM	10	30			300
Troffer	A5/EM	8	30			240
Recessed downlight	D1	5	10			50
Recessed downlight	D2EM	1	23			23
Suspended	L1/EM	24	7			175
Wall-mounted	W2	1	20			20
Wall-mounted	W3/EM	4	30			120
Wall-mounted	W4/EM	5	40			200
Other fixture type	L2/EM	52	5			234
Other fixture type	P1	7	35			245
Other fixture type	P2	1	19			19
Other fixture type	S1/EM	12	5			59
Other fixture type	T1	2	28			57
Other fixture type	T2	1	28			28
Exempt Fixtures						
Due to safety or emergency considerations	EM	2				
Due to safety or emergency considerations	EX	7				
Due to safety or emergency considerations	EX1	1				
					Proposed Total LPD	**3081.7000000000003**

Project Title	**Skyway Resource Center - 2018 WSEC**	**Date**	**Mar 17, 2023**

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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AHJ STAMP

JOHN TYLER EARP
STATE OF WASHINGTON
52711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: JTB
Checker: JTB

WSEC LIGHTING COMPLIANCE FORMS

E2.02

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Proposed Fixtures Details	ALTERATION - INTERIOR LIGHTING (50% or more replaced)				
Fixture Type/Application	**Fixture ID**	**Location in Documents**	**Lamp Type**		**New or Existing-to-Remain**
Individual Fixtures					
Decorative	(E)P	E3.01	LED		Existing
	Fixture Description: EXISTING RETROFITTED WITH LED LAMP			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Direct / indirect pendant	P4	E3.01	LED		New
	Fixture Description: SUSPENDED DIRECT/INDIRECT			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Direct / indirect pendant	P8	E3.01	LED		New
	Fixture Description: SUSPENDED DIRECT/INDIRECT			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Troffer	A1/EM	E3.02	LED		New
	Fixture Description: RECESSED 2X2 TROFFER			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Troffer	A2/EM	E3.01	LED		New
	Fixture Description: RECESSED 2X2 TROFFER			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Troffer	A3/EM,	E3.01	LED		New
	Fixture Description: RECESSED 2X2 TROFFER			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Troffer	A4/EM	E3.01	LED		New
	Fixture Description: RECESSED 2X4 TROFFER			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Troffer	A5/EM	E3.02	LED		New
	Fixture Description: RECESSED 2X4 TROFFER			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Recessed downlight	D1	E3.01	LED		New
	Fixture Description: RECESSED DOWNLIGHT WITH WALLWASH OPTICS			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Recessed downlight	D2EM	E3.02	LED		New
	Fixture Description: RECESSED DOWNLIGHT			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Suspended	L1/EM	E3.02	LED		New
	Fixture Description: SUSPENDED DIRECT LINEAR			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Wall-mounted	W2	E3.02	LED		New
	Fixture Description: WALL MOUNTED DIRECT INDIRECT			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Wall-mounted	W3/EM	E3.01	LED		New
	Fixture Description: WALL MOUNTED DIRECT INDIRECT			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Wall-mounted	W4/EM	E3.01	LED		New
	Fixture Description: WALL MOUNTED DIRECT INDIRECT			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	L2/EM	E3.02	LED		New
	Fixture Description: RECESSED LINEAR			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	P1	E3.01	LED		New
	Fixture Description: INDUSTRIAL STRIP			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	P2	E	LED		New
	Fixture Description: WALL BRACKET			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	S1/EM	E3.01	LED		New
	Fixture Description: SURFACE LINEAR			Are these fixtures located within a daylight zone?: Yes, controls provided	
	Daylight zone location(s): Sidelit daylight zones (primary and/or secondary)			Dimming method: Continuous dimming	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	T1	E3.01	LED		New
	Fixture Description: LED PANEL			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Other fixture type	T2	E3.02	LED		New
	Fixture Description: LED PANEL			Are these fixtures located within a daylight zone?: No	
	Do these fixtures require specific application lighting controls?: None required				
Exempt Fixtures					
Due to safety or emergency considerations	EM	E3.01, E3.02			New
	Fixture Description: EMERGENCY BUGEYE				
Due to safety or emergency considerations	EX	E3.01, E3.02			New
	Fixture Description: EXIT SIGN				
Due to safety or emergency considerations	EX1	E3.01			New
	Fixture Description: EXIT SIGN WITH BUGEYE				

Project Title	Skyway Resource Center - 2018 WSEC	Date	Mar 17, 2023
Lighting Power Calculation	**ALTERATION - EXTERIOR LIGHTING (50% or more replaced)**	**Compliance Verification**	**COMPLIES**
Exterior Lighting Zone	**ZONE 3**	**Base Site Allowance**	**500**

Exterior Tradable Lighting Power Allowance

Tradable Surface	Tradable Surface Sub-Type	Surface Area (SF)	LPA (Watts/SF)	Linear Feet (LF)	LPA (Watts/LF)	Total Watts Allowed (LPA x SF) or (LPA x LF)	Total Tradable Proposed Watts	Tradable Compliance Status
Building entrances and exits	Entry canopies	427	0.40			171		
					Base Site Allowance	500		
					Totals	671	98	COMPLIES

Proposed Tradable Lighting Power Density

Fixture Type	Fixture ID	Tradable Surface Type	Quantity of Fixtures (#F)	Watts or Wattage Limit per Fixture (WpF)	Total Linear Feet (LF)	Watts per Linear Foot (WpLF)	Total Watts Proposed (#F x WpF) or (LF x WpLF)
Individual Fixtures							
Canopy	S1	Building entrances and exits - Entry canopies	5	20			98
						Tradable Proposed Total	**98**

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SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

Architect Project No: 2052
Author:
Checker:

WSEC LIGHTING COMPLIANCE FORMS

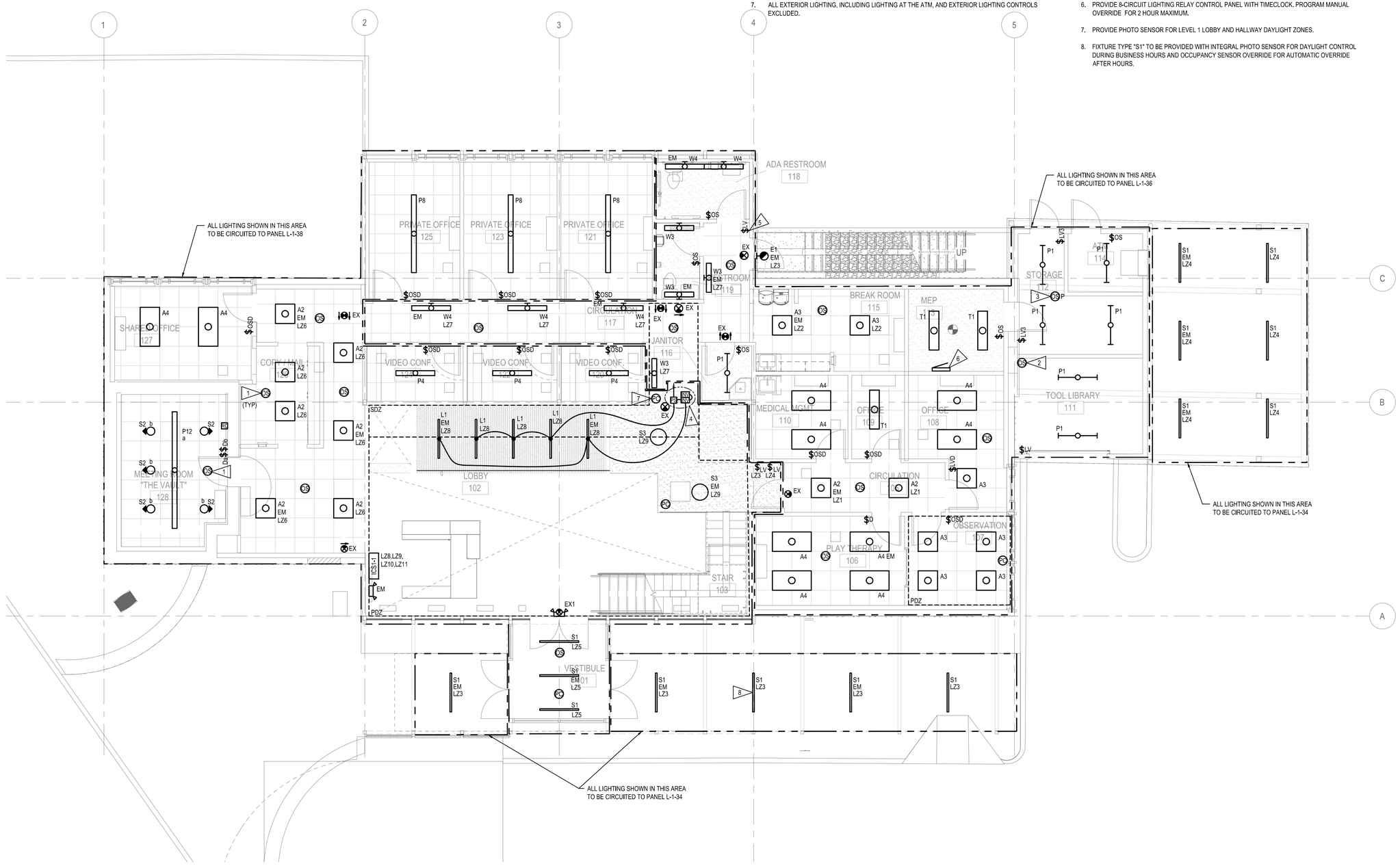
E2.03

SHEET NOTES

1. SEE SHEET E0.00 FOR GENERAL NOTES.
2. SEE SHEET E0.01 AND E0.02 FOR ELECTRICAL LEGENDS.
3. REFER TO SHEET E8.00 FOR PANEL SCHEDULES.
4. PROVIDE UNSWITCHED CONDUCTORS TO EXIT SIGNS, SELF CONTAINED EMERGENCY LIGHTING UNITS, SWITCH BYPASS DEVICES, AND EMERGENCY LUMINAIRES WITH BATTERY BACKUP.
5. PROGRAM SENSORS FOR VACANCY SENSOR OPERATION UNLESS OTHERWISE INDICATED.
6. CIRCUIT COMMON AREA LIGHTING (LOBBY 102, CIRCULATION 105, STAFF HALL, COPY/MAIL 126) TO LIGHTING RELAY PANEL (LRCP) WITH TIMECLOCK FUNCTION TO PROVIDE AUTOMATIC ON FROM 1 HOUR BEFORE NORMAL BUSINESS HOURS TO 1 HOUR AFTER NORMAL BUSINESS HOURS. VERIFY HOURS OF OPERATION WITH OWNER'S REPRESENTATIVE.
7. ALL EXTERIOR LIGHTING, INCLUDING LIGHTING AT THE ATM, AND EXTERIOR LIGHTING CONTROLS EXCLUDED.

FLAG NOTES

1. PROVIDE CEILING MOUNTED SENSOR PROGRAMMED FOR AUTO ON/AUTO OFF OCCUPANCY SENSOR OPERATION.
2. PROVIDE WALL MOUNTED SENSOR PROGRAMMED FOR AUTO ON/AUTO OFF OCCUPANCY SENSOR OPERATION.
3. PROVIDE PENDANT MOUNTED VACANCY SENSOR. MOUNT BOTTON OF SENSOR ALIGNED WITH BOTTOM OF LUMINAIRES. PROVIDE 1/2" GRS CONDUIT AS REQUIRED.
4. PROVIDE POWER SUPPLY AND MICRO-INVERTER. PROVIDE (1) INVERTER FOR EACH LUMINAIRE. REFER TO LUMINAIRE SCHEDULE. MOUNT ON CEILING IN ACCESSIBLE LOCATION. REFER TO LUMINAIRE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. PROVIDE MOMENTARY CONTACT SWITCH FOR AFTER HOURS OVERRIDE (2 HOUR MAXIMUM) OF COMMON AREA LIGHTING CONTROLS.
6. PROVIDE 8-CIRCUIT LIGHTING RELAY CONTROL PANEL WITH TIMECLOCK. PROGRAM MANUAL OVERRIDE FOR 2 HOUR MAXIMUM.
7. PROVIDE PHOTO SENSOR FOR LEVEL 1 LOBBY AND HALLWAY DAYLIGHT ZONES.
8. FIXTURE TYPE "S1" TO BE PROVIDED WITH INTEGRAL PHOTO SENSOR FOR DAYLIGHT CONTROL DURING BUSINESS HOURS AND OCCUPANCY SENSOR OVERRIDE FOR AUTOMATIC OVERRIDE AFTER HOURS.



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

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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AHJ STAMP

JOHN TYLER DEAM
STATE OF WASHINGTON
52711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: SW
Checker: JTB

LIGHTING PLAN - LEVEL 1

E3.01

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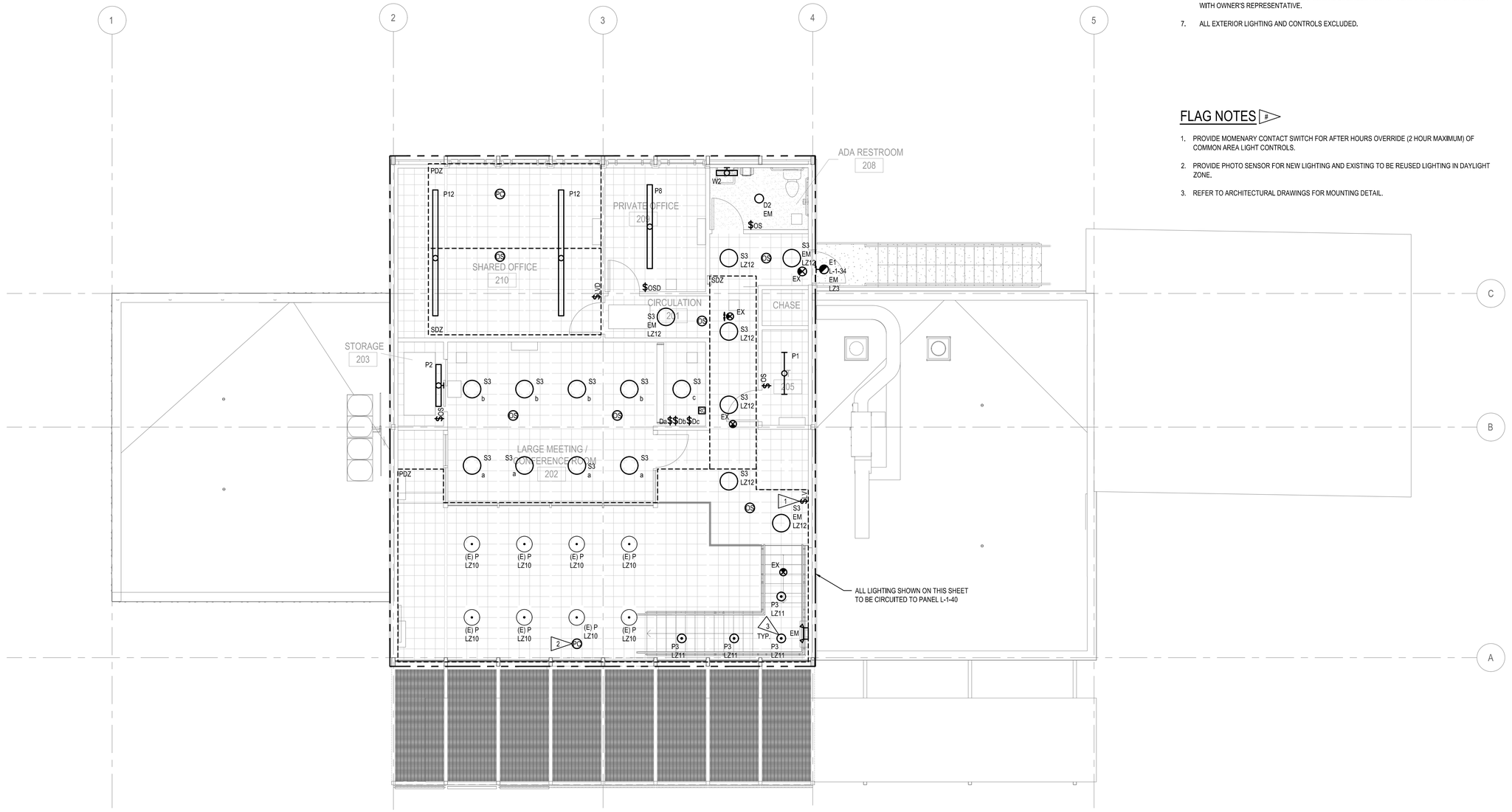

SHEET NOTES

1. SEE SHEET E0.00 FOR GENERAL NOTES.
2. SEE SHEET E0.01 AND E0.02 FOR ELECTRICAL LEGENDS.
3. REFER TO SHEET E8.00 FOR PANEL SCHEDULES.
4. PROVIDE UNSWITCHED CONDUCTORS TO EXIT SIGNS, SELF CONTAINED EMERGENCY LIGHTING UNITS, SWITCH BYPASS DEVICES, AND EMERGENCY LUMINAIRES WITH BATTERY BACKUP.
5. PROGRAM SENSORS FOR VACANCY SENSOR OPERATION UNLESS OTHERWISE INDICATED.
6. CIRCUIT COMMON AREA LIGHTING (CIRCULATION 201, STAIRS) TO LIGHTING RELAY PANEL (LRCP) WITH TIMECLOCK FUNCTION TO PROVIDE AUTOMATIC ON FROM 1 HOUR BEFORE NORMAL BUSINESS HOURS TO 1 HOUR AFTER NORMAL BUSINESS HOURS. VERIFY HOURS OF OPERATION WITH OWNER'S REPRESENTATIVE.
7. ALL EXTERIOR LIGHTING AND CONTROLS EXCLUDED.

FLAG NOTES

1. PROVIDE MOMENARY CONTACT SWITCH FOR AFTER HOURS OVERRIDE (2 HOUR MAXIMUM) OF COMMON AREA LIGHT CONTROLS.
2. PROVIDE PHOTO SENSOR FOR NEW LIGHTING AND EXISTING TO BE REUSED LIGHTING IN DAYLIGHT ZONE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAIL.

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

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

JOHN TYLER BEAM
STATE OF WASHINGTON
24711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
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LIGHTING PLAN - LEVEL 2

E3.02

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SHEET NOTES

1. REFER TO SHEET E-8.00 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
2. COORDINATE LOCATION OF ALL WALL MOUNTED ELECTRICAL DEVICES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
3. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
4. PROVIDE LABELS WITH CIRCUIT NUMBERS FOR ALL ELECTRICAL DEVICES.
5. ALL RECEPTACLES CIRCUITS THIS LEVEL TO BE CIRCUITED VIA PANEL "L-2", U.N.O.

FLAG NOTES

1. PROVIDE PEDESTAL MOUNTED WEATHERPROOF RECEPTACLES FOR EVENT/FOOD TRUCK POWER. PEDESTAL TO INCLUDE (2) 20A, 120V QUAD RECEPTACLES, (1) 30A, 208V, 1P RECEPTACLE AND (1) 50A, 208V, 1P RECEPTACLE. ALL RECEPTACLES SHALL HAVE GFCI PROTECTION IN ACCORDANCE WITH SEC 210.8(B)(4).
2. PROVIDE POWER CONNECTION TO EV CHARGING STATION AT THIS LOCATION.
3. PROVIDE CONTROLLED RECEPTACLES IN ACCORDANCE WITH C405.100F SEATTLE ENERGY CODE. CONNECT RECEPTACLES TO ROOM OCCUPANCY SENSOR FOR CONTROLS AND PROVIDE POWER PACKS FOR SWITCHING AS REQUIRED.
4. PROVIDE XXA, 208V, 1P WP OUTLET FOR UFSP COOLER POD.
5. ADDITIVE BID ALT #4 - EQUIPMENT CONNECTION TO LIFT. VERIFY CODE COMPLIANT ELECTRICAL DISCONNECT PROVIDED WITH LIFT IS INSTALLED AND OPERATIONAL.
6. PROVIDE 20A,120V CONNECTION TO CONTROLLER FOR HP-1.
7. PROVIDE UNDERGROUND CONDUIT TO RECEPTION DESK FOR FURNITURE MOUNTED RECEPTACLES.
8. PROVIDE ROUGH-IN FOR LIFT AS PART OF BASE BID. PROVIDE CONDUIT WITH PULL-STRING FROM PANEL TO LIFT LOCATION.
9. MOUNT RECEPTACLE ABOVE ATM RECEPTACLE.

ADA RESTROOM 118
PRIVATE OFFICE 123
PRIVATE OFFICE 121
RESTROOM 119
CIRCULATION 117
JANITOR 116
BREAK ROOM 115
STORAGE 112
ATM 114
SHARED OFFICE 127
COPY / MAIL 126
VIDEO CONF. 124
VIDEO CONF. 122
VIDEO CONF. 120
MEDICAL MGMT 110
OFFICE 109
OFFICE 108
TOOL LIBRARY 111
MEETING ROOM "THE VAULT" 128
LOBBY 102
CIRCULATION 105
CONFERENCE 107
PLAY THERAPY 106
STAIR 103
VESTIBULE 101
SCL METER
UP
XXA,208V,1P 26,28
WP
50A,208V,1P 40,42
30A,208V,1P 36,38
FCU-01
FCU-02
FCU-03
FCU-04
FCU-05
FCU-06
FCU-07
FCU-08
FCU-09
FCU-10
FCU-11
FCU-12
FCU-13
FCU-20
BC-1
CP-1
WH-1
LIFT-1
DP-1
SPD
LRCP
L-1
L-2
L-1/10

1 LEVEL 1
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SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

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Checker: JTB

POWER PLAN - LEVEL 1

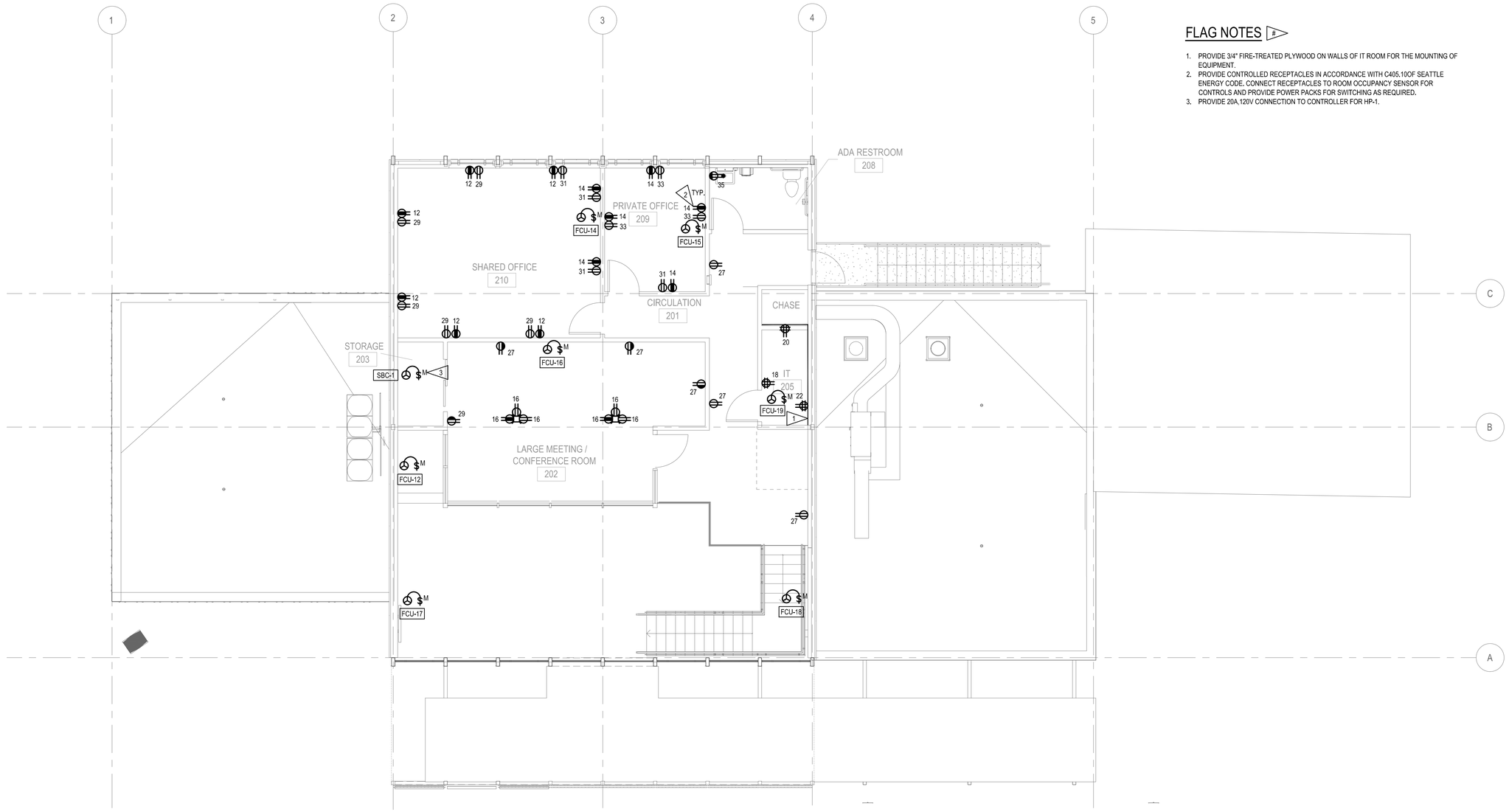
E4.01

SHEET NOTES

1. REFER TO SHEET E-8.00 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
2. COORDINATE LOCATION OF ALL WALL MOUNTED ELECTRICAL DEVICES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
3. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
4. PROVIDE LABELS WITH CIRCUIT NUMBERS FOR ALL ELECTRICAL DEVICES.
5. ALL RECEPTACLES CIRCUITS THIS LEVEL TO BE CIRCUITED VIA PANEL "L-2", U.N.O.

FLAG NOTES

1. PROVIDE 3/4" FIRE-TREATED PLYWOOD ON WALLS OF IT ROOM FOR THE MOUNTING OF EQUIPMENT.
2. PROVIDE CONTROLLED RECEPTACLES IN ACCORDANCE WITH C405.10OF SEATTLE ENERGY CODE. CONNECT RECEPTACLES TO ROOM OCCUPANCY SENSOR FOR CONTROLS AND PROVIDE POWER PACKS FOR SWITCHING AS REQUIRED.
3. PROVIDE 20A,120V CONNECTION TO CONTROLLER FOR HP-1.



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

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

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King County Housing Authority
600 Andover Park W.
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JOHN TYLER BEAM
STATE OF WASHINGTON
24711
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PROFESSIONAL ENGINEER
08/23/2023

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POWER PLAN - LEVEL 2

E4.02

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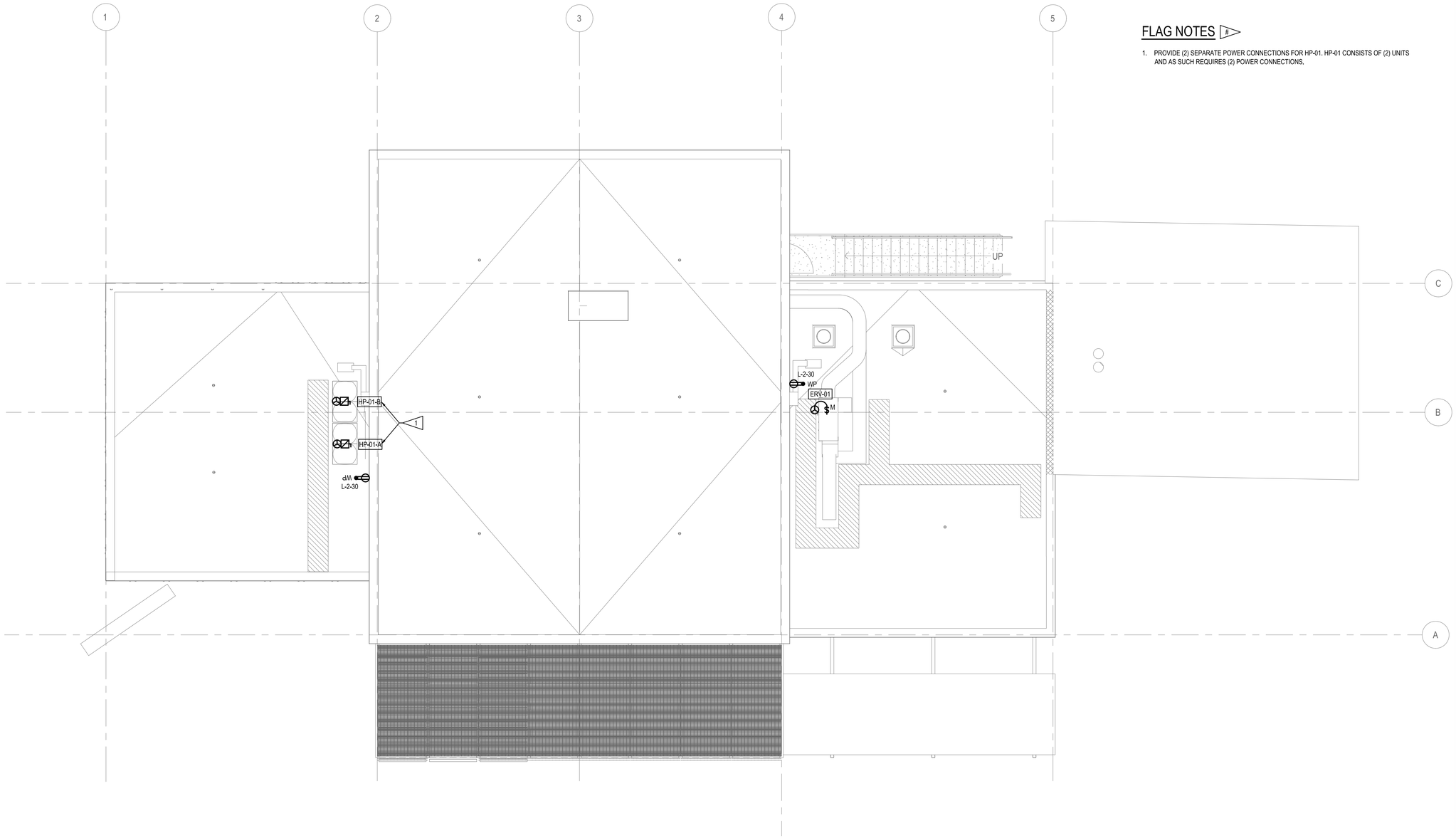
SHEET NOTES

1. REFER TO SHEET E-8.00 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
2. COORDINATE LOCATION OF ALL WALL MOUNTED ELECTRICAL DEVICES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
3. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
4. PROVIDE LABELS WITH CIRCUIT NUMBERS FOR ALL ELECTRICAL DEVICES.

FLAG NOTES

1. PROVIDE (2) SEPARATE POWER CONNECTIONS FOR HP-01. HP-01 CONSISTS OF (2) UNITS AND AS SUCH REQUIRES (2) POWER CONNECTIONS.



1 ROOF
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SÄZÄN
GROUP
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Seattle, Washington 98101
Tel 206.267.1700
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600 Andover Park W.
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CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

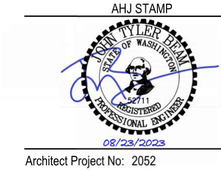
BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP



Architect Project No: 2052
Author: SW
Checker: JTB

POWER PLAN - ROOF

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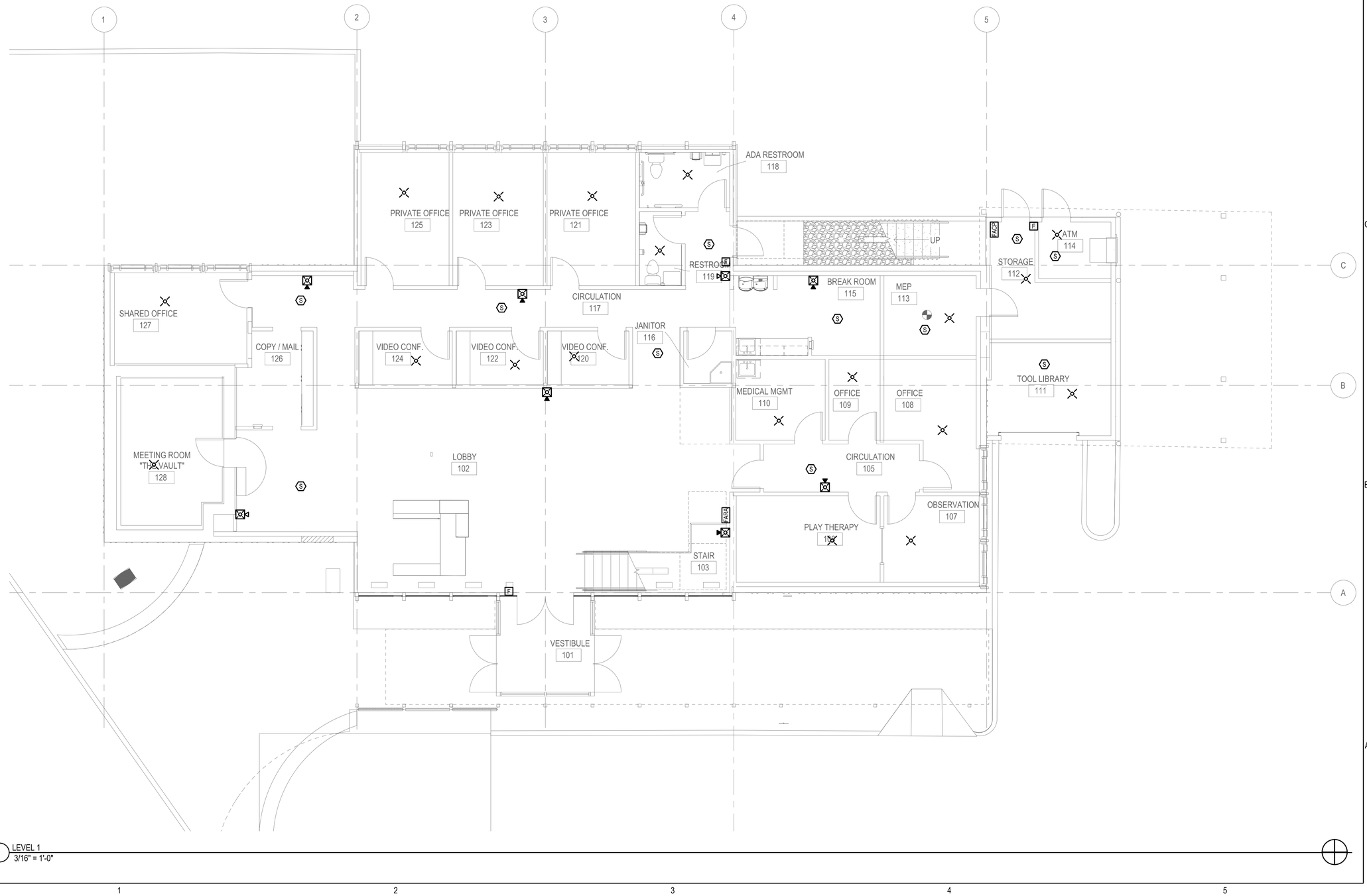
SHEET NOTES

1. FIRE ALARM DEVICES SHOWN ARE DIAGRAMMATIC, INTENDED TO PROVIDE DESIGN INTENT. FINAL FIRE ALARM SYSTEM SHALL BE BIDDER DESIGNED IN ACCORDANCE WITH ALL RELEVANT FIRE CODES INCLUDING SEATTLE BUILDING CODE, SEATTLE FIRE CODE, NFPA AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.



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

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SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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AHJ STAMP

JOHN TYLER BEAM
STATE OF WASHINGTON
24711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

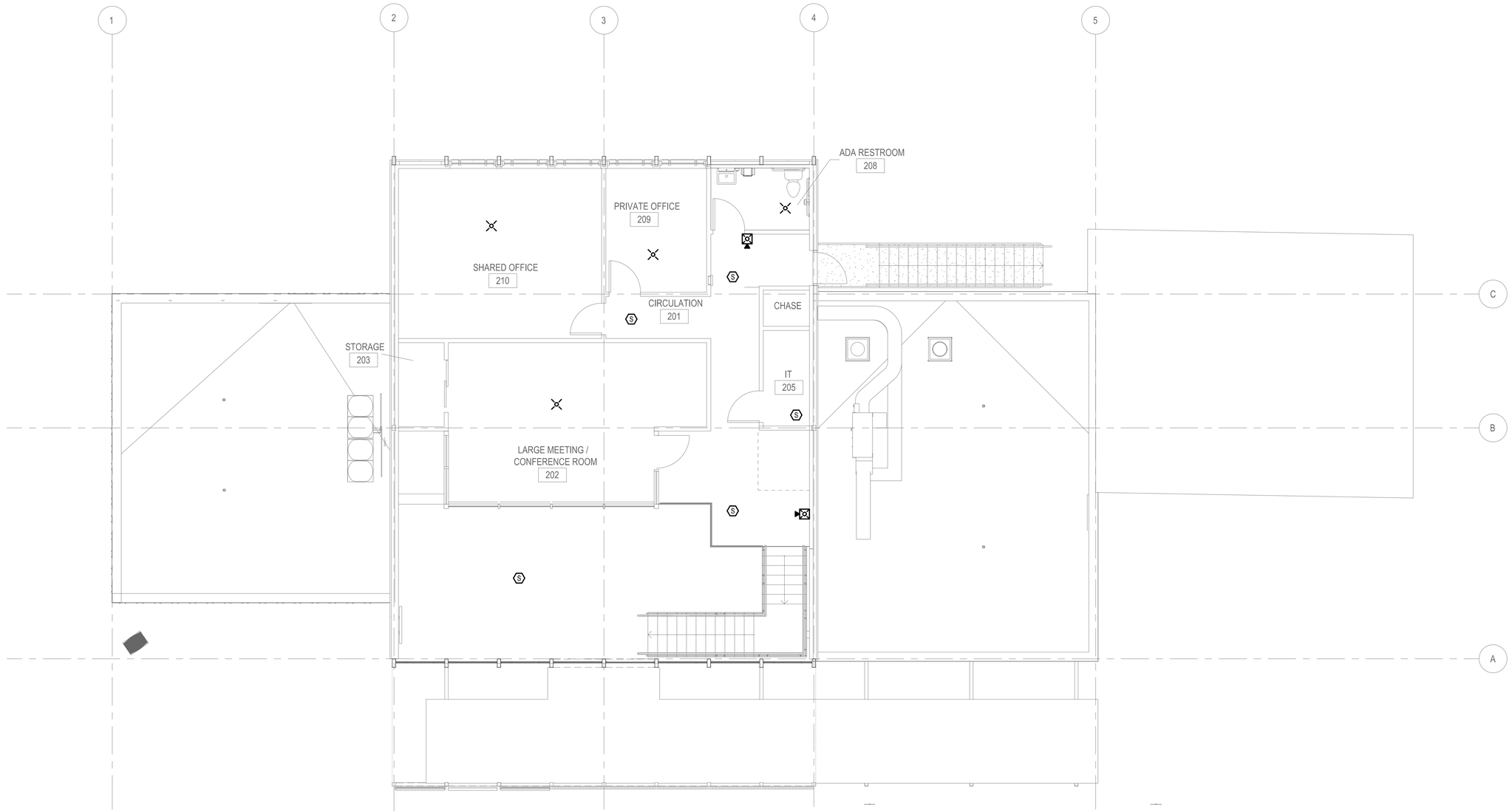
Architect Project No: 2052
Author: SW
Checker: JTB

FIRE ALARM PLAN - LEVEL 1

E5.01

SHEET NOTES

1. FIRE ALARM DEVICES SHOWN ARE DIAGRAMMATIC, INTENDED TO PROVIDE DESIGN INTENT. FINAL FIRE ALARM SYSTEM SHALL BE BIDDER DESIGNED IN ACCORDANCE WITH ALL RELEVANT FIRE CODES INCLUDING SEATTLE BUILDING CODE, SEATTLE FIRE CODE, NFPA AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.



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

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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WA 98178

BID SET

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AHJ STAMP

JOHN TYLER BEAM
STATE OF WASHINGTON
24711
REGISTERED
PROFESSIONAL ENGINEER
08/23/2023

Architect Project No: 2052
Author: SW
Checker: JTB

FIRE ALARM PLAN - LEVEL 2

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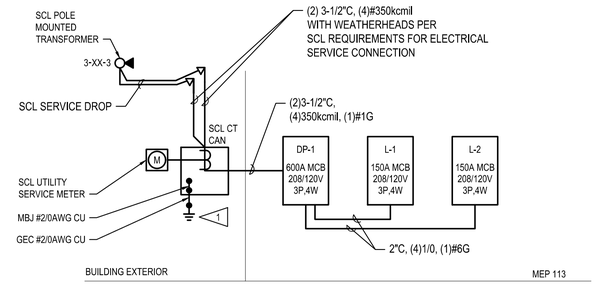

ELECTRICAL ONE-LINE DIAGRAM 1

SCALE: NTS

FLAG NOTES

1. PROVIDE GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC ARTICLE 250.50. AT CONTRACTOR'S OPTION, EXISTING GROUNDING ELECTRODE SYSTEM MAY BE USED PROVIDED REQUIREMENTS WITHIN NEC 250.50 ARE MET AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

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DIAGRAMS

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MECHANICAL EQUIPMENT CONNECTION SCHEDULE

SCHEDULE NOTES:
1) NEMA-3R FUSED DISCONNECT SWITCH.
2) PROVIDE MOTOR-RATED SWITCH AS DISCONNECT.
3) MANUFACTURER PROVIDED DISCONNECT SWITCH

ABBREVIATION:
FLA: FULL LOAD AMPERES
HP: HORSEPOWER
KW: KILOWATTS
MCA: MINIMUM CIRCUIT AMPACITY
MOCP: MAXIMUM OVERCURRENT PROTECTIVE DEVICE
MRS MOTOR RATED SWITCH
OFOI: OWNER-FURNISHED, OWNER-INSTALLED
OFCI: OWNER-FURNISHED, CONTRACTOR-INSTALLED
W: WATTS
WP: WEATHERPROOF

SCHEDULE GENERAL NOTE
1) DISCONNECTS ARE SHOWN AS FRAME RATING / FUSE
2) VENDER SUPPLIED DISCONNECT CONNECT TO EQUIPMENT.
3) OWNER SUPPLIED EQUIPMENT

NO.	EQUIPMENT DESCRIPTION	LOCATION	HP	KW	MCA	MOCP	VOLTAGE	PHASE	CONDUIT	WIRE SIZE	CIRCUIT NO.	DISCONNECT	NOTES
HP-01(A)	VRF HEAT PUMP	ROOF		11.87	33.00	50	208	3	1-1/4"	(3)#6, (1)#10G	DP-1/1,3,5	60A/50A	1
HP-01(B)	VRF HEAT PUMP	ROOF		11.87	33.00	50	208	3	1-1/4"	(3)#6, (1)#10G	DP-1/2,4,6	60A/50A	1
ERV-01	ENERGY RECOVERY VENTILATOR	ROOF		2.25	10.80	15	208	1	3/4"	(3)#12, (1)#12G	L-1/1,3	MRS	2
BC-1	VRF HEAT BRANCH CIRCUIT CONTROLLER			0.40			208	1	3/4"	(3)#12, (1)#12G	L-1/5,7	MRS	2
SBC-1	VRF HEAT BRANCH CIRCUIT CONTROLLER			0.09			208	1	3/4"	(3)#12, (1)#12G		MRS	2
FCU-01	VRF FAN COIL	VAULT MTG ROOM 127		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-02	VRF FAN COIL	PRIVATE OFFICE 126		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-03	VRF FAN COIL	PRIVATE OFFICE 124		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-04	VRF FAN COIL	PRIVATE OFFICE 122		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-05	VRF FAN COIL	PRIVATE OFFICE 120		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-06	VRF FAN COIL	CORRIDOR		0.36	1.75	15	208	1	3/4"	(3)#12, (1)#12G	L-1/9,11	MRS	2
FCU-07	VRF FAN COIL	BREAKROOM 115		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
FCU-08	VRF FAN COIL	MEDICAL MGMT 110		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
FCU-09	VRF FAN COIL	PRIVATE OFFICE108		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
FCU-10	VRF FAN COIL	PLAY THERAPY 106		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
FCU-11	VRF FAN COIL	OBSERVATION 107		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
FCU-12	VRF FAN COIL	LOW LOBBY 102		0.13	0.63	15	208	1	3/4"	(3)#12, (1)#12G	L-1/17,19	MRS	2
FCU-13	VRF FAN COIL	LOW LOBBY 102		0.13	0.63	15	208	1	3/4"	(3)#12, (1)#12G	L-1/17,19	MRS	2
FCU-14	VRF FAN COIL	SHARED OFFICE 210		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/21,23	MRS	2
FCU-15	VRF FAN COIL	PRIVATE OFFICE 209		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/21,23	MRS	2
FCU-16	VRF FAN COIL	LARGE MEETING RM 202		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/21,23	MRS	2
FCU-17	VRF FAN COIL	HIGH LOBBY 102		0.13	0.63	15	208	1	3/4"	(3)#12, (1)#12G	L-1/17,19	MRS	2
FCU-18	VRF FAN COIL	HIGH LOBBY 102		0.13	0.63	15	208	1	3/4"	(3)#12, (1)#12G	L-1/17,19	MRS	2
FCU-19	VRF FAN COIL	IT CLOSET 205		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/21,23	MRS	2
FCU-20	VRF FAN COIL	OFFICE 109		0.05	0.24	15	208	1	3/4"	(3)#12, (1)#12G	L-1/13,15	MRS	2
WH-1	WATER HEATER	MEP 113		6.00			208	1	1	(3)#8, (1)#10G	L-1/4,6	60A/40A	1
CP-1	CIRC PUMP	MEP 113	0.06	0.08			120	1	3/4"	(3)#12, (1)#12G	L-1/8	MRS	2
LIFT-1	LIFT - ADDITIVE BID ALT #3		2.00	1.63		15	120	1	3/4"	(3)#12, (1)#12G	L-1/2		3
EV-1	ELECTRIC VEHICLE CHARGER	PARKING		7.10			208	1	1"	(3)#8, (1)#10G	DP-1/8,10		
EV-2	ELECTRIC VEHICLE CHARGER	PARKING		7.10			208	1	1"	(3)#8, (1)#10G	DP-1/12,14		

PANEL 'DP-1' SCHEDULE

LOCATION: MEP | FED FROM: | VOLTAGE: 208Y/120 3-PH, 4-WIRE
GROUNDING: EQUIPMENT GROUND BUS | NEUTRAL: 100% RATED | TYPE: BOLT-IN C/B | DOOR-IN-DOOR | MOUNTING: SURFACE | NEMA 1 | SKIRTS: NONE | AIC RATING: 22 KA

600 A MAIN CIRCUIT BREAKER

CKT #	ITEM	NOTE	AMPS	POLE	LEFT	A	B	C	RIGHT	AMPS	POLE	NOTE	ITEM	CKT #
1	HP-01(A)		50	3	3,957	•	—	—	3,957	50	3		HP-01(B)	2
3	-		-	-	3,957	—	•	—	3,957	-	-		-	4
5	-		-	-	3,957	—	—	•	3,957	-	-		-	6
7			20	1		•	—	—	3,550	40	2		EV CHARGER	8
9			20	1		—	•	—	3,550	-	-		-	10
11			20	1		—	—	•	3,550	40	2		EV CHARGER	12
13			20	1		•	—	—	3,550	-	-		-	14
15			20	1		—	•	—		20	1			16
17			20	1		—	—	•		20	1			18
19			20	1		•	—	—		20	1			20
21			20	1		—	•	—		20	1			22
23			20	1		—	—	•		20	1			24
25			20	1		•	—	—		20	1			26
27			20	1		—	•	—		20	1			28
29			20	1		—	—	•		20	1			30
31			20	1		•	—	—		20	1			32
33			20	1		—	•	—		20	1			34
35			20	1		—	—	•		20	1			36
37	PANEL L-1		150	3		•	—	—		150	3		PANEL L-2	38
39	-		-	-		—	•	—		-	-		-	40
41	-		-	-		—	—	•		-	-		-	42

	A	B	C	
Total Connected Phase Load (VA):	33,204	32,314	30,644	(Includes Panel DP-1 SubPanels)
Total Connected Phase Load (Amp):	277	269	255	

PANEL 'DP-1' SCHEDULE — **Summarized Pnls: DP-1,L-1,L-2**

	Conn	D.F.	Dmnd	Conn	D.F.	Dmnd	
Appliance or Dedicated Circuit:		1.00			1.00		Appliance or Dedicated Circuit
Continuous Loads:		1.25			1.25		Continuous Loads
Appliance (Diversified Load):		1.00			1.00		Appliance (Diversified Load)
Electric Heat:		1.00		7.79	1.00	7.79	Electric Heat
Kitchen Equip (Count =):		1.00			1.00		Kitchen Equip (Count =)
Lighting:		1.25			1.25		Lighting
Motors and Compressors:	11.87	1.00	11.87	15.75	1.00	15.75	Motors and Compressors
Largest Motor:	11.87	1.25	14.84	11.87	1.25	14.84	Largest Motor
Miscellaneous:	14.20	1.00	14.20	14.79	1.00	14.79	Miscellaneous
Receptacle:		1.00		10.00	1.00	10.00	Receptacle
Recept Over 10 kVA:		0.50		35.96	0.50	17.98	Recept Over 10 kVA
Totals:	37.94		40.91	99.16		81.15	**Totals**
Demand Amps:			**113.64**			**225.42**	**Demand Amps**

NOTES:
1.
2.
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PANEL 'L-1' SCHEDULE

LOCATION: MEP | FED FROM: PANEL DP-1 | VOLTAGE: 208Y/120 3-PH, 4-WIRE
GROUNDING: EQUIPMENT GROUND BUS | NEUTRAL: 100% RATED | TYPE: BOLT-IN C/B | DOOR-IN-DOOR | MOUNTING: SURFACE | NEMA 1 | SKIRTS: NONE | AIC RATING: 22 KA

150 A MAIN CIRCUIT BREAKER

CKT #	ITEM	NOTE	AMPS	POLE	LEFT	A	B	C	RIGHT	AMPS	POLE	NOTE	ITEM	CKT #
1	ERV-01		15	2	1,125	•	—	—	1,630	20	1		LIFT - ADDITIVE BID ALT #3	2
3	-		-	-	1,125	—	•	—	3,000	40	2		WH-1	4
5	BC-1, SBC-1		20	2	245	—	—	•	3,000	-	-		-	6
7	-		-	-	245	•	—	—	100	20	1		CP-1	8
9	FCU-01, FCU-02, FCU-03, FCU-04, FCU-05, FCU-06		20	2	305	—	•	—	1,800	20	1		ATM	10
11	-		-	-	305	—	—	•		20	1		SPARE	12
13	FCU-07,FCU-08, FCU-09, FCU-10, FCU-11, FCU-20		20	2	200	•	—	—		20	1		SPARE	14
15	-		-	-	200	—	•	—		20	1		SPARE	16
17	FCU-12, FCU-13, FCU-17, FCU-18		20	2	290	—	—	•		20	1		SPARE	18
19	-		-	-	290	•	—	—		20	1		SPARE	20
21	FCU-14, FCU-15, FCU-16, FCU-19		20	2	100	—	•	—		20	1		SPARE	22
23	-		-	-	100	—	—	•		20	1		SPARE	24
25	SPARE		20	1		•	—	—		20	1		SPARE	26
27	SPARE		20	1		—	•	—		20	1		SPARE	28
29	SPARE		20	1		—	—	•		20	1		SPARE	30
31	SPARE		20	1		•	—	—		20	1		SPARE	32
33	SPARE		20	1		—	•	—	274	20	1		EXTERIOR LIGHTING	34
35	SPARE		20	1		—	—	•	1,130	20	1		LEVEL 1 LIGHTING	36
37	SPARE		20	1		•	—	—	931	20	1		LEVEL 1 LIGHTING	38
39	SPARE		20	1		—	•	—	1,258	20	1		LEVEL 2 LIGHTING	40
41	SPARE		20	1		—	—	•		20	1		SPARE	42

	A	B	C
Total Connected Phase Load (VA):	4,521	8,062	5,070
Total Connected Phase Load (Amp):	38	67	42

PANEL 'L-1' SCHEDULE

	Conn	D.F.	Dmnd
Appliance or Dedicated Circuit:		1.00	
Continuous Loads:		1.25	
Appliance (Diversified Load):		1.00	
Electric Heat:	7.79	1.00	7.79
Kitchen Equip (Count =):		1.00	
Lighting:	3.59	1.25	4.49
Motors and Compressors:	1.63	1.00	1.63
Largest Motor:	2.25	1.25	2.81
Miscellaneous:	2.39	1.00	2.39
Receptacle:		1.00	
Recept Over 10 kVA:		0.50	
Totals:	17.65		19.11
Demand Amps:			**53.09**

NOTES:
1.
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PANEL 'L-2' SCHEDULE

LOCATION: MEP | FED FROM: PANEL DP-1 | VOLTAGE: 208Y/120 3-PH, 4-WIRE
GROUNDING: EQUIPMENT GROUND BUS | NEUTRAL: 100% RATED | TYPE: BOLT-IN C/B | DOOR-IN-DOOR | MOUNTING: SURFACE | NEMA 1 | SKIRTS: NONE | AIC RATING: 22 KA

150 A MAIN CIRCUIT BREAKER

CKT #	ITEM	NOTE	AMPS	POLE	LEFT	A	B	C	RIGHT	AMPS	POLE	NOTE	ITEM	CKT #
1	LEVEL 1 RECEPTACLES		20	1	1,080	•	—	—	900	20	1		LEVEL 1 SWITCHED RECEPTACLES	2
3	LEVEL 1 RECEPTACLES		20	1	1,080	—	•	—	1,080	20	1		LEVEL 1 SWITCHED RECEPTACLES	4
5	LEVEL 1 RECEPTACLES		20	1	1,080	—	—	•	720	20	1		LEVEL 1 SWITCHED RECEPTACLES	6
7	LEVEL 1 RECEPTACLES		20	1	1,080	•	—	—	720	20	1		LEVEL 1 SWITCHED RECEPTACLES	8
9	LEVEL 1 RECEPTACLES		20	1	1,080	—	•	—	540	20	1		LEVEL 1 SWITCHED RECEPTACLES	10
11	LEVEL 1 RECEPTACLES		20	1	1,080	—	—	•	1,080	20	1		LEVEL 2 SWITCHED RECEPTACLES	12
13	LEVEL 1 RECEPTACLES		20	1	720	•	—	—	1,080	20	1		LEVEL 2 SWITCHED RECEPTACLES	14
15	LEVEL 1 RECEPTACLES		20	1	540	—	•	—	1,080	20	1		LEVEL 2 FLOOR BOXES	16
17	LEVEL 1 RECEPTACLES		20	1	1,080	—	—	•	1,000	20	1		LEVEL 2 SERVER ROOM	18
19	LEVEL 1 RECEPTACLES		20	1	1,080	•	—	—	1,000	20	1		LEVEL 2 SERVER ROOM	20
21	LEVEL 1 RECEPTACLES		20	1	1,080	—	•	—	1,000	20	1		LEVEL 2 SERVER ROOM	22
23	LEVEL 1 RECEPTACLES		20	1	1,080	—	—	•		20	1		SPARE	24
25	LEVEL 1 RECEPTACLES		20	1	900	•	—	—	1,000	20	2		COOLER POD	26
27	LEVEL 2 RECEPTACLES		20	1	1,080	—	•	—	1,000	-	-		-	28
29	LEVEL 2 RECEPTACLES		20	1	1,080	—	—	•	360	20	1		ROOF RECPTACLES	30
31	LEVEL 2 RECEPTACLES		20	1	720	•	—	—	1,920	20	1		EVENT POWER	32
33	LEVEL 2 RECEPTACLES		20	1	540	—	•	—	1,920	20	1		EVENT POWER	34
35	LEVEL 2 RECEPTACLES		20	1	180	—	—	•	2,400	30	2		EVENT POWER	36
37	SPARE		20	1		•	—	—	2,400	-	-		-	38
39	SPARE		20	1		—	•	—	4,100	50	2		EVENT POWER	40
41	SPARE		20	1		—	—	•	4,100	-	-		-	42

	A	B	C
Total Connected Phase Load (VA):	14,600	16,120	15,240
Total Connected Phase Load (Amp):	122	134	127

PANEL 'L-2' SCHEDULE

	Conn	D.F.	Dmnd
Appliance or Dedicated Circuit:		1.00	
Continuous Loads:		1.25	
Appliance (Diversified Load):		1.00	
Electric Heat:		1.00	
Kitchen Equip (Count =):		1.00	
Lighting:		1.25	
Motors and Compressors:		1.00	
Largest Motor:		1.25	
Miscellaneous:		1.00	
Receptacle:	10.00	1.00	10.00
Recept Over 10 kVA:	35.96	0.50	17.98
Totals:	45.96		27.98
Demand Amps:			**77.72**

NOTES:
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4.
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SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
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AHJ STAMP

Architect Project No: 2052
Author: SW
Checker: JTB

PANEL SCHEDULES

E8.00

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GENERAL NOTES

1. SYSTEM CABLING PATHWAYS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST CURRENT VERSION OF TIA-569.
2. CABLE SUPPORTS SHALL NOT BE PLACED MORE THAN 5' APART.
3. CABLE "SAG" BETWEEN SUPPORTS SHALL NOT EXCEED 12".
4. CABLE LENGTHS SHALL NOT EXCEED 295', INCLUDING PATCH CORD LENGTHS AT COMM ROOMS AND WORKSTATIONS. IF A CABLE LENGTH WILL EXCEED 295', INFORM THE ICT ENGINEER IMMEDIATELY BEFORE INSTALLATION.
5. CABLE MINIMUM BEND RADIUS AND MAXIMUM PULLING TENSION SHALL NOT BE EXCEEDED. REFER TO MANUFACTURER'S REQUIREMENTS AND REFERENCE DOCUMENTS.
6. CABLES SHALL BE INSTALLED IN CONTINUOUS LENGTHS FROM ORIGIN TO DESTINATION (NO SPLICES).
7. CABLES SHALL BE INSTALLED ABOVE FIRE-SPRINKLER SYSTEMS AND SUPPORTED INDEPENDENTLY OF SPRINKLER PIPING OR ANY ANCILLARY EQUIPMENT OR HARDWARE. THE CABLE SYSTEM AND SUPPORT HARDWARE SHALL BE INSTALLED SUCH THAT IT DOES NOT OBSTRUCT ACCESS DOORS FOR EQUIPMENT MAINTENANCE, VALVES, FIRE ALARM CONDUIT, BOXES, OR OTHER CONTROLLED DEVICES.
8. CABLES SHALL NOT BE ATTACHED TO CEILING GRID OR LIGHTING FIXTURE SUPPORT WIRES.
9. AT NO POINT SHALL CABLES REST ON ACOUSTIC CEILING GRIDS OR PANELS, OR BE ATTACHED TO ANY PORTION OF THE BUILDING MECHANICAL OR PIPING SYSTEMS. PROVIDE COMPLETE CABLE SUPPORT PATHWAYS CONSISTING OF CONDUIT, RACEWAY, LADDER RACK, CABLE TRAY, J-HOOKS OR BRIDAL RINGS.
10. ANY CABLE DAMAGED DURING INSTALLATION OR EXCEEDING RECOMMENDED INSTALLATION PARAMETERS SHALL BE REPLACED PRIOR TO FINAL ACCEPTANCE AT NO ADDITIONAL COST TO THE OWNER.
11. CABLES AND PATHWAYS SHALL BE CLEARLY LABELED IN ACCORDANCE WITH TIA-606-C.
12. PROVIDE "VELCRO" TYPE (HOOK AND LOOP) TIE WRAPS FOR BUNDLING / MANAGING HORIZONTAL AND BACKBONE CABLING. PLACE EVERY 5' FOR CABLE RUNS IN CEILING AND EVERY 18" AFTER ENTERING TELECOMMUNICATIONS ROOM. PLASTIC "ZIP-TIES" SHALL NOT BE PERMITTED WITHIN THE STRUCTURED CABLING SYSTEM.
13. HORIZONTAL UTP PAIR UNTWIST AT TERMINATIONS SHALL NOT EXCEED 0.5".
14. PROVIDE (1) 2" CONDUIT SLEEVE WITH INSULATED BUSHING FOR PENETRATION INTO OFFICES, EXAM ROOMS, ETC., AS REQUIRED TO FACILITATE CABLE ROUTING WHETHER SHOWN ON DRAWINGS OR NOT.
15. ALL PENETRATIONS MUST BE FIRE-STOPPED IN ACCORDANCE OF THE NFPA, NEC AND TO THE SATISFACTION OF THE AHJ.
16. ALL TELECOMMUNICATION ROOMS AND PATHWAYS SHALL ADHERE TO TIA-569-D.
17. ALL TELECOMMUNICATION BONDING AND GROUNDING SHALL ADHERE TO TIA-607-D.
18. NOT ALL PARTS SHOWN. ENSURE A COMPLETE WORKING INSTALLATION INCLUDING MISCELLANEOUS INSTALLATION MATERIALS, CONNECTORS, CONSUMABLE, AND APPURTENANCES.
19. PROVIDE NETWORK/TELEPHONY CABLES TO THE FOLLOWING LOCATIONS FROM THE NEAREST COMMUNICATIONS ROOM UNLESS OTHERWISE NOTED:

    A. ELEVATOR CONTROL PANELS/ENCLOSURES
    B. BUILDING SYSTEM MANAGEMENT PANELS/ENCLOSURES
    C. ENERGY SYSTEM MANAGEMENT PANELS/ENCLOSURES
    D. FIRE ALARM CONTROL SYSTEM PANELS/ENCLOSURES
    E. ACCESS CONTROL SYSTEM PANELS/ENCLOSURES
    F. TWO-WAY EMERGENCY COMMUNICATIONS SYSTEM PANELS/ENCLOSURES

ABBREVIATIONS

@	AT	MAG	MAGNETIC
A/C	AIR CONDITIONING(ER)	MAN	MANUAL
A (AMP)	AMPERE	MAT	MATERIAL
AC	ABOVE COUNTER, ALTERNATING CURRENT	MAX	MAXIMUM
ADJ	ADJUSTABLE	MCA	MINIMUM CIRCUIT AMPACITY
ADJT	ADJACENT	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AHJ	AUTHORITY HAVING JURISDICTION	MEZZ	MEZZANINE
AIC	AMPERE INTERRUPTING CAPACITY	MG	MOTOR GENERATOR
ALT	ALTERNATE	MH	METAL HALIDE / MANHOLE
ANN	ANNUNCIATOR	MIN	MINIMUM
ARCH	ARCHITECT; ARCHITECTURAL	MISC	MISCELLANEOUS
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUG ONLY
AUTO	AUTOMATIC	MOCP	MAXIMUM OVERCURRENT PROTECTION
AUX	AUXILIARY	MS	MAGNETIC STARTER
AWG	AMERICAN WIRE GAUGE	MTD	MOUNTED
		MTG	MOUNTING
BKBD	BACKBOARD	MTR	MOTOR
BKR	BREAKER		
BLDG	BUILDING	N	NORTH; NEUTRAL
		N/A	NOT APPLICABLE
C	CONDUIT	NC	NORMALLY CLOSED
CAP	CAPACITY	NEC	NATIONAL ELECTRICAL CODE
CB	CIRCUIT BREAKER	NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
CKT	CIRCUIT		
CLG	CEILING	NESC	NATIONAL ELECTRICAL SAFETY CODE
CLR	CLEAR	NEUT	NEUTRAL
COL	COLUMN	NFPA	NATIONAL FIRE PROTECTION ASSOCIATIONS
COM	COMMUNICATION	NIC	NOT IN CONTRACT
CPS	CYCLES PER SECOND	NO	NORMALLY OPEN
CT	CURRENT TRANSFORMER	NTS	NOT TO SCALE
CTL	CONTROL		
CU	COPPER	OC	ON CENTER
		OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
DC	DIRECT CURRENT	OFOI	OWNER FURNISHED OWNER INSTALLED
DISC SW	DISCONNECT SWITCH	OL	OVERLOAD
DISC	DISCONNECT	OS	OPTIONAL STANDBY
DN	DOWN		
DWG	DRAWING	P	PRIMARY
		PA	PUBLIC ADDRESS
E	EXIST, EAST	PAR	PARALLEL
EDH	ELECTRIC DUCT HEATER	PB	PULL BOX
EF	EXHAUST FAN	PE	PHOTO ELECTRIC
EGC	EQUIPMENT GROUNDING CONDUCTOR	PF	POWER FACTOR
EL	ELEVATION	PH	PHASE
ELEC	ELECTRIC(AL)	PIV	POST INDICATOR VALVE
ELEV	ELEVATOR	PNL	PANEL
EM	EMERGENCY	POC	POINT OF CONNECTION
EMT	ELECTRICAL METALLIC TUBING	PWR	POWER
ENCL	ENCLOSURE		
ENTR	ENTRANCE	QTY	QUANTITY
EP	EXPLOSION PROOF		
EPO	EMERGENCY POWER OFF	R (R)	RELOCATE (D)
EQUIP/EQP	EQUIPMENT	RAD	RADIUS
EWC	ELECTRIC WATER COOLER	RECPT	RECEPTACLE
EWH	ELECTRIC WATER HEATER	REF	REFRIGERATOR
EXH	EXHAUST	RLA	RATED LOAD AMPS
EXT	EXTERIOR	RPM	REVOLUTIONS PER MINUTE
EXIST	EXISTING		
		S	SOUTH
F	FAHRENHEIT/FUSE	SC	SECURITY
FA	FIRE ALARM	SCCR	SHORT CIRCUIT CURRENT RATING
FAA	FIRE ALARM ANNUNCIATOR	SD	SMOKE DETECTOR
FACP	FIRE ALARM CONTROL PANEL	SECT	SECTION
FC	FOOTCANDLE	SF	SUPPLY FAN
FCU	FAN COIL UNIT	SHT	SHEET
FD	FIRE DAMPER	SPD	SURGE PROTECTIVE DEVICE
FDR	FEEDER	SPEC	SPECIFICATION
FIXT	FIXTURE	SPL	SPECIAL
FLA	FULL LOAD AMPS	SQ	SQUARE
FSD	FIRE/SMOKE DAMPER	STOR	STORAGE
		SW	SWITCH
GEN	GENERATOR	SWBD	SWITCHBOARD
GFI	GROUND FAULT CIRCUIT INTERRUPTER	SYM	SYMMETRICAL
GFR	GROUND FAULT RELAY	SYS	SYSTEM
H	HEIGHT	T	THERMOSTAT
HID	HIGH INTENSITY DISCHARGE	TB	TERMINAL BOX
HOA	HAND OFF AUTOMATIC	TC	TIME CLOCK
HOR	HORIZONTAL	TEL	TELEPHONE
HP	HORSEPOWER	TV	TELEVISION
HR	HOUR	TYP	TYPICAL
HT	HEIGHT		
HW	HOT WATER	UFC	UNIFORM FIRE CODE
HZ	HERTZ	UG	UNDERGROUND
		UH	UNIT HEATER
IBC	INTERNATIONAL BUILDING CODE	UL	UNDERWRITERS LABORATORIES
IC	INTERCOM	UON	UNLESS OTHERWISE NOTED
IES	ILLUMINATING	UV	UNIT VENTILATOR
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	V	VOLT
		VAV	VARIABLE AIR VOLUME
IG	ISOLATED GROUND	VEL	VELOCITY
IMC	INTERMEDIATE METAL CONDUIT	VM	VOLTMETER
IN	INCH	VOL	VOLUME
JB	JUNCTION BOX	W	WATT, WEST
		W/	WITH
KCMIL	THOUSAND CIRCULAR MILLS	W/O	WITHOUT
KVA	KILOVOLT AMPERES	WH	WATER HEATER
KVAR	KILOVOLT AMPERES REACTIVE	WHM	WATT HOUR METER
KW	KILOWATT	WP	WEATHERPROOF
KWH	KILOWATT HOUR		
		X	REACTANCE
LBS	POUNDS	XFMR	TRANSFORMER
LF	LINEAR FEET (FEET)	XMTR	TRANSMITTER
LRA	LOCKED ROTOR AMPS		
LS	LIFE SAFETY	Z	IMPEDANCE
LT	LIGHT		
LTG	LIGHTING	&	AND
LV	LOW VOLTAGE	I.E.:	THAT IS

SYMBOLS LEGEND - GENERAL

SYMBOL	DESCRIPTION
	EXISTING TO BE REMOVED
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING INFORMATION
	POINT OF CONNECTION (POC) BETWEEN NEW AND EXISTING
XX / XDN	EQUIPMENT IDENTIFIER (XX = ABBREVIATION Y = EQUIPMENT SCHEDULE NUMBER)
1	DRAWING CONSTRUCTION ("FLAG") NOTE
X-XX	EQUIPMENT IDENTIFIER
XXX	RACEWAY/CABLE/CONDUCTOR ROUTING IDENTIFIER-REFER TO RACEWAY/CABLE/CONDUCTOR SCHEDULE
	MATCHLINE
	REVISION CLOUD (ENCIRCLES DRAWING CHANGES MADE SINCE THE PREVIOUS RELEASE)
1	REVISION REFERENCE
X / XX.XX	DETAIL REFERENCE DETAIL IDENTIFICATION NUMBER SHEET WHERE DETAIL IS DRAWN
X / XX.XX	ELEVATION REFERENCE ELEVATION IDENTIFICATION NUMBER SHEET WHERE ELEVATION IS DRAWN
X / XX.XX	SECTION REFERENCE SECTION IDENTIFICATION NUMBER SHEET WHERE SECTION IS DRAWN
N	NORTH REFERENCE

SYMBOLS LEGEND - SECURITY

SYMBOL	DESCRIPTION
CR XX	CARD READER (KP = KEYPAD) (WP = WEATHERPROOF)
X	DOOR / WINDOW CONTACT
ES	ELECTRIC STRIKE
XX	CCTV CAMERA - CEILING MOUNTED (WP = WEATHERPROOF) (* = ANGLE OF CAMERA VIEW (IE. 180°, 270°, 360°, PTZ))
XX	CCTV CAMERA - WALL MOUNTED (WP = WEATHERPROOF) (* = ANGLE OF CAMERA VIEW (IE. 180°, 270°, 360°, PTZ))
	PANIC / DURESS BUTTON
K	KEYPAD - ALARM PANEL
BG	BREAK GLASS SENSOR
MD	MOTION DETECTOR CEILING MOUNTED
REX	REQUEST TO EXIT CRASH BAR
REX	REQUEST TO EXIT SENSOR ABOVE DOOR
ADA	ADA PUSH BUTTON AT 48" AFF
REX	REQUEST TO EXIT PUSH BUTTON

SYMBOLS LEGEND - COMMUNICATIONS

SYMBOL	DESCRIPTION
	WALL MOUNTED DATA DEVICE. MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. NUMBER INDICATES QUANTITY OF PORTS.
AB	MUD RING TO ACCOMMODATE PASS THROUGH FOR AUDIOVISUAL CABLING. MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. NUMBER INDICATES NUMBER OF GANG SPACES.
	CEILING MOUNTED DATA DEVICE. COORDINATE WITH ARCHITECTURAL CEILING PLANS FOR MOUNTING HEIGHTS UNLESS OTHERWISE NOTED. NUMBER INDICATES QUANTITY OF PORTS.
AP	WIRELESS ACCESS POINT LOCATION. PROVIDE CABLING IN THE QUANTITY INDICATED WITH 10'-0" SERVICE LOOP IN ACCESSIBLE CEILING SPACE.
VP	VIDEO PROJECTOR LOCATION. PROVIDE CABLING IN THE QUANTITY INDICATED WITH 10'-0" SERVICE LOOP IN ACCESSIBLE CEILING SPACE.
	DATA DEVICE MOUNTED IN FLOOR BOX. NUMBER INDICATES QUANTITY OF PORTS. FLOOR BOX PROVIDED BY ELECTRICAL CONTRACTOR. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
	DATA DEVICE MOUNTED IN POKE-THRU. NUMBER INDICATES QUANTITY OF PORTS. POKE-THRU PROVIDED BY ELECTRICAL CONTRACTOR. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
	DATA DEVICE MOUNTED POWER/COMM POLE. NUMBER INDICATES QUANTITY OF PORTS. POWER/COMM POLE PROVIDED BY ELECTRICAL CONTRACTOR. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
	3/4" FIRE RATED PLYWOOD BACKBOARD MOUNTED FROM 6" AFF TO 8'-6" AFF UNLESS OTHERWISE NOTED
	CABLE TRAY - LADDER RUNWAY STYLE FOR HORIZONTAL CABLING IN ACCESSIBLE CEILING SPACES
	CABLE TRAY - WIRE BASKET STYLE FOR HORIZONTAL CABLING IN ACCESSIBLE CEILING SPACES
	EMT CONDUIT PATHWAY OR SLEEVE FOR HORIZONTAL PATHWAY. PROVIDE PLASTIC BUSHINGS ON EACH END. SIZE AS NOTED ON PLAN.
	4" SELF-SEALING INTUMESCENT PATHWAY SLEEVES (EZ-PATH 44)
	EMT CONDUIT PATHWAY OR SLEEVE FOR VERTICAL PATHWAY. PROVIDE PLASTIC BUSHINGS ON EACH END. SIZE AS NOTED ON PLAN.

TELECOMM SHEET INDEX

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
25 AUGUST 2023

ISSUANCES
NO. DATE DESCRIPTION

REVISIONS
NO. DATE DESCRIPTION

AHJ STAMP

BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Al C Pent
Reg. No. 130003
EXPIRES 12-31-24
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Architect Project No: 2052
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GENERAL NOTES, ABBREVIATIONS AND SHEET INDEX

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SHEET NOTES

A. ROUTE 1" CONDUITS FOR ALL CAT 6 CABLE WALL JACK LOCATION DOWN THE INSIDE WALL AND STUB UP INTO DROP CEILING THEN TRANSITION TO J-HOOKS TO ROUTE TO IDF.

FLAG NOTES

1. ROUTE 1" CONDUIT OUT THROUGH VAULT WALL INTO CEILING OF RM 126 TO CONTAIN CAT 6 CABLE FOR WIRELESS ACCESS POINT.
2. INSTALL NEW 1" PVC CONDUIT WITH 1 CAT 6 INDOOR/OUTDOOR PLENUM CABLE. ROUTE CAT 6 CABLE UP INSIDE WALL THEN STUB UP INTO DROP CEILING AND TRANSITION TO J-HOOK PATHWAY AND CONDUITS UP TO MDF ON L2.
3. RUN 1" CONDUIT DOWN THE INSIDE OF THE WALL AND OUT TO ATM MACHINE ACCESS PORT ON THE BASE OF THE NORTH SIDE OF MACHINE. RUN CAT 6 CABLE THROUGH TO THE INTERNAL TERMINATION POINT OF MACHINE. SEE ATM SCHEMATIC FOR LOCATION.
4. ROUTE 1" CONDUIT FOR CAT 6 CABLE ACROSS CEILING OF VAULT THEN DOWN WALL TO SURFACE MOUNT BOX.
5. ROUTE ALL NETWORK CABLES VIA J HOOKS TO TWO TRADE SIZE 4 EMT CONDUITS IN DROP CEILING THAT ROUTE UP TO MDF ON L2. J HOOK TO BE SPACED EVERY 4' TO 5' AND TO BE HUNG INDEPENDENTLY FROM SUPPORT WIRE OR ALL THREAD FROM THE CEILING. DO NOT ATTACH J HOOKS TO DROP CEILING SUPPORT WIRES.

ADA RESTROOM 118
PRIVATE OFFICE 125
PRIVATE OFFICE 123
PRIVATE OFFICE 121
RESTROOM 119
CIRCULATION 117
JANITOR 116
BREAK ROOM 115
MEP 113
ATM 114
STORAGE 112
SHARED OFFICE 127
COPY / MAIL 126
VIDEO CONF. 124
VIDEO CONF. 122
VIDEO CONF. 120
MEDICAL MGMT 110
OFFICE 109
OFFICE 108
TOOL LIBRARY 111
MEETING ROOM 128
THE VAULT
LOBBY 102
CIRCULATION 105
OBSERVATION 107
PLAY THERAPY 106
STAIR 103
VESTIBULE 101
UP
AP

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

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SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

2052
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ISSUANCES
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AHJ STAMP

Bicsi
AI C Part
Reg. No. 126003
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RCDD
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TELECOMM PLAN - LEVEL 1

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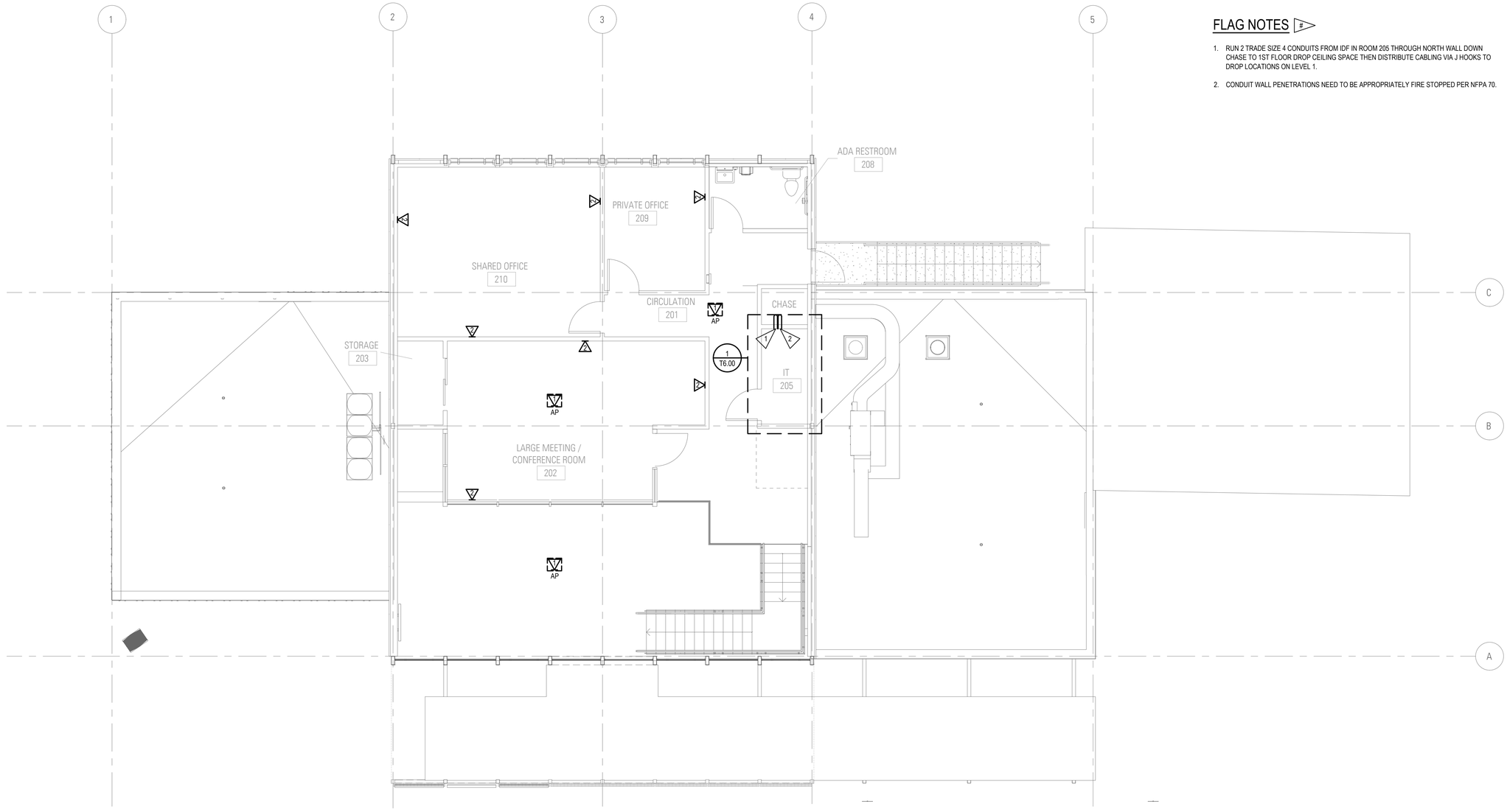

FLAG NOTES

1. RUN 2 TRADE SIZE 4 CONDUITS FROM IDF IN ROOM 205 THROUGH NORTH WALL DOWN CHASE TO 1ST FLOOR DROP CEILING SPACE THEN DISTRIBUTE CABLING VIA J HOOKS TO DROP LOCATIONS ON LEVEL 1.
2. CONDUIT WALL PENETRATIONS NEED TO BE APPROPRIATELY FIRE STOPPED PER NFPA 70.

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

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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Reg. No. 130003
EXPIRES 12-31-24
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TELECOMM PLAN - LEVEL 2

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SHEET NOTES

A. ROUTE ALL CABLES BACK TO IDF WALL ON LEVEL TWO TO CONNECT TO ACCESS CONTROL PANELS.

FLAG NOTES

1. CEILING MOUNT DOME 180° WEATHER PROOF IP CAMERA.

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

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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Reg. No. 126003
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SECURITY PLAN - LEVEL 1

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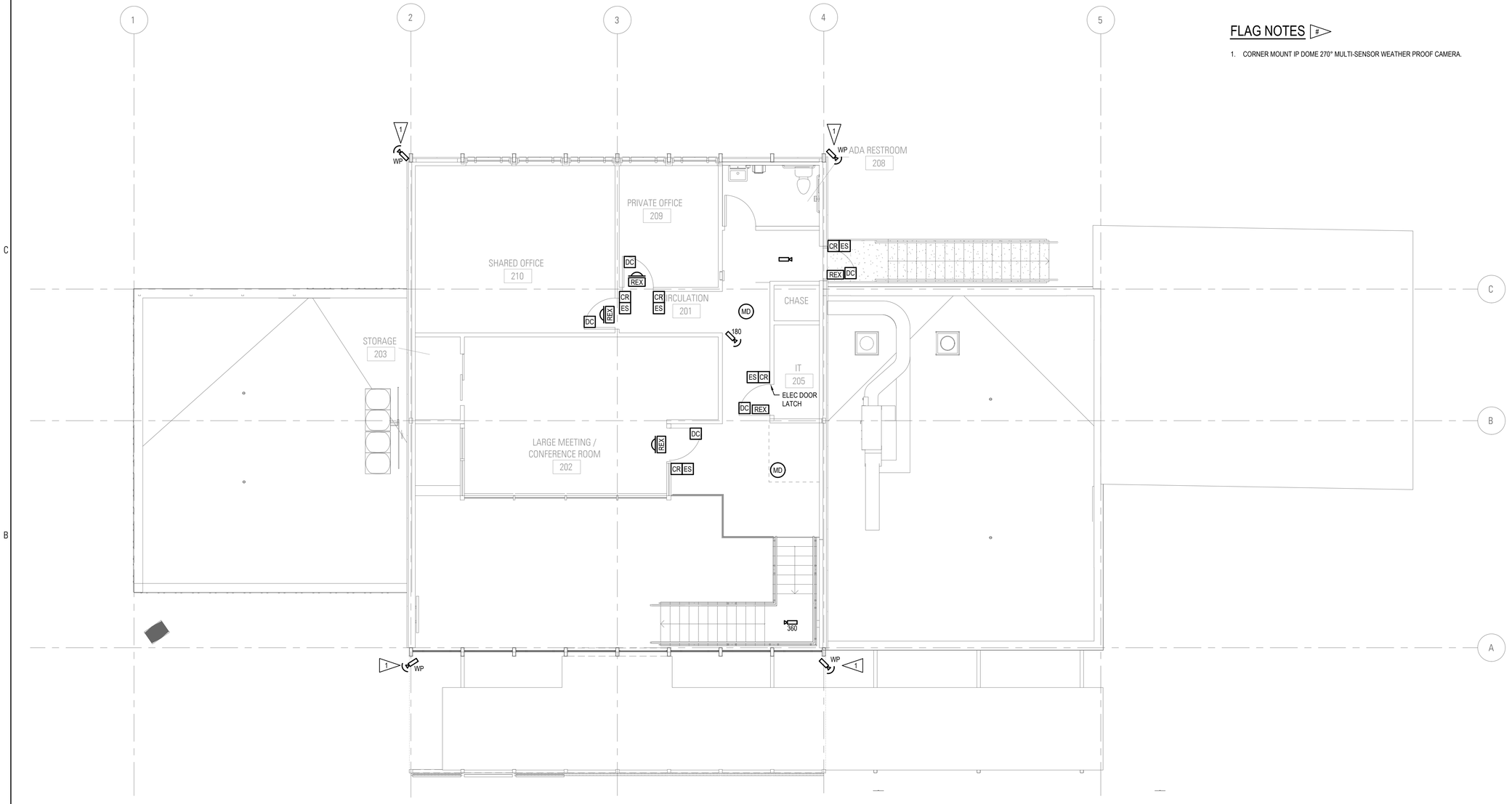

FLAG NOTES

1. CORNER MOUNT IP DOME 270° MULTI-SENSOR WEATHER PROOF CAMERA.

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

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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Reg. No. 126003
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SECURITY PLAN - LEVEL 2

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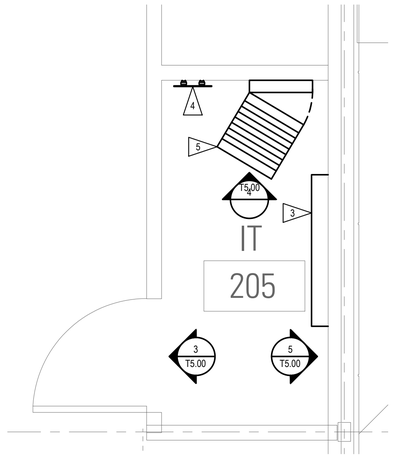
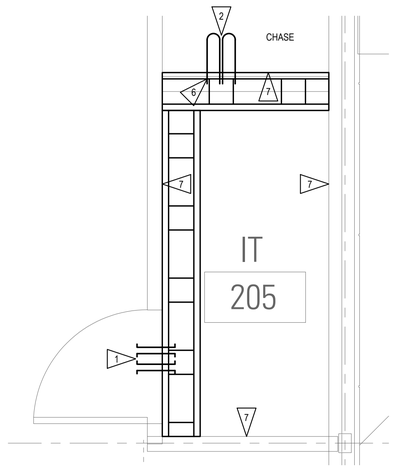


IT 205 EQUIPMENT PLAN

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

1



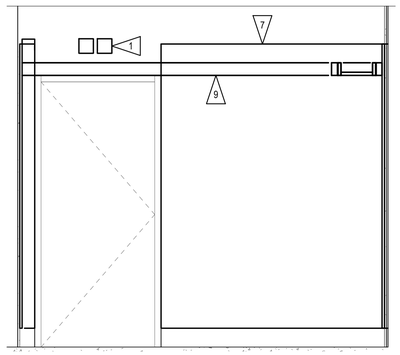
IT 205 PATHWAY PLAN

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

2

FLAG NOTES

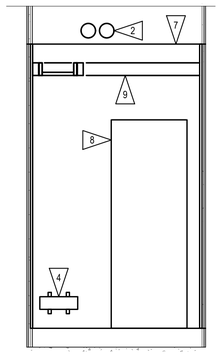
1. EZ PATH WALL PENETRATION 4". MOUNT 3" ABOVE LADDER TRAY.
2. 2 TRADE SIZE 4 CONDUIT SWEEPS PENETRATING IDF WALL INTO CHASE TO L1 DROP CEILING.
3. ACCESS CONTROL EQ ON WALL
4. TELECOMMUNICATIONS MAIN GROUNDING BUS BAR (TMGB)
5. MIDDLE ATLANTIC DWR-35-26 OR EQUIVALENT
6. INSTALL APPROPRIATE FIRE STOP PRODUCTS FOR CONDUIT PENETRATIONS TO COMPLY WITH NFPA 70 REQUIREMENTS.
7. WALLS TO BE COVERED FROM 6" AFF TO 8'-6" AFF WITH 3/4 FIRE TREATED AC GRADE PLYWOOD.
8. TOP OF CABINET SHOULD BE BELOW LADDER RACK AT 7'-0" AFF.
9. LADDER TRAY SHOULD BE 7'-6" AFF.



ELEVATION WEST WALL

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

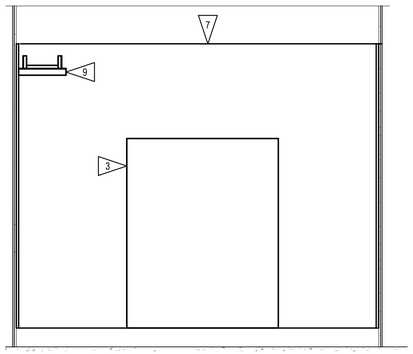
3



ELEVATION NORTH WALL

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

4



ELEVATION EAST WALL

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

5

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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AHJ STAMP

BICSI COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Al C Pant
Reg. No. 126003
EXPIRES 12/31/24
RCDD

Architect Project No: 2052
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ENLARGED PLANS

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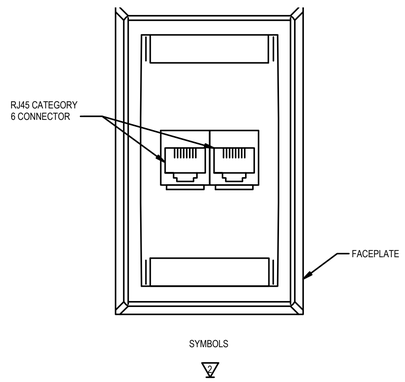

2 PORT OUTLET DETAIL

1

SCALE: NTS

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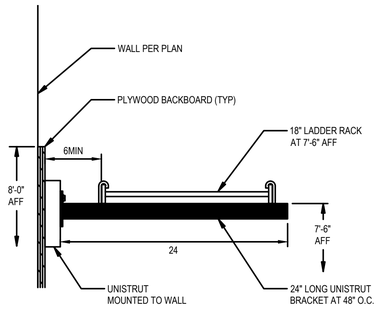

UNISTRUT LADDER BRACKET

2

SCALE: NTS

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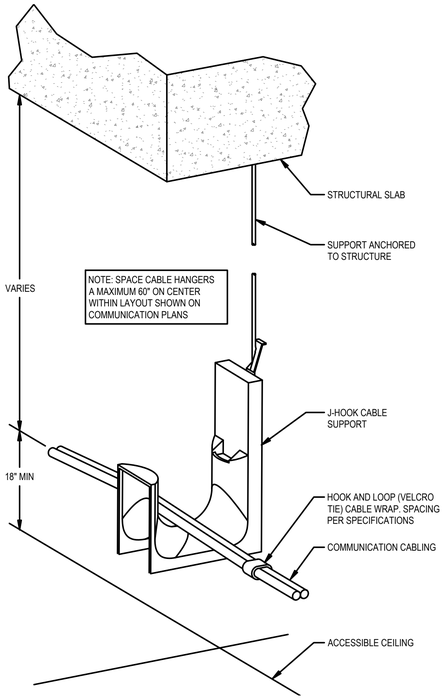

J-HOOK CABLE SUPPORT DETAIL

3

SCALE: NTS

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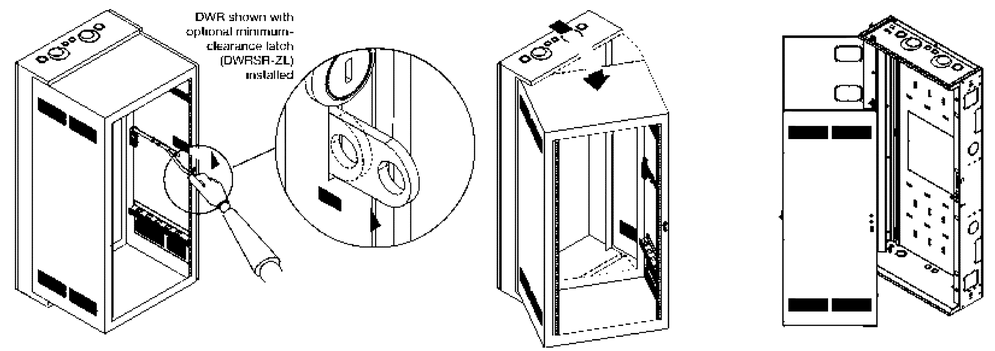

PLAN VIEW

WALL MOUNTED EQUIPMENT RACK

4

SCALE: NTS

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SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority

600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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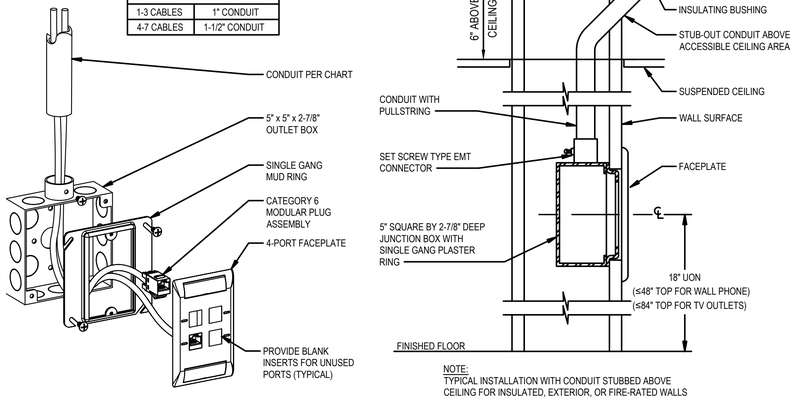
CONDUIT CHART	
1-3 CABLES	1" CONDUIT
4-7 CABLES	1-1/2" CONDUIT

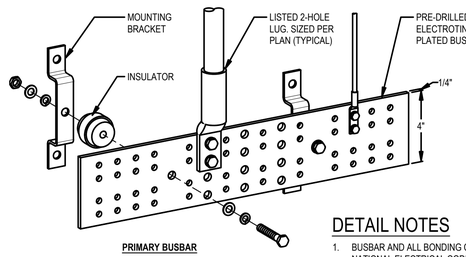


NOTE:
TYPICAL INSTALLATION WITH CONDUIT STUBBED ABOVE CEILING FOR INSULATED, EXTERIOR, OR FIRE-RATED WALLS UNLESS OTHERWISE SHOWN ON PLANS.

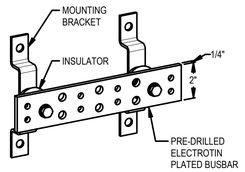
WALL OUTLET W/ BOX DETAIL

SCALE: NTS

1



PRIMARY BUSBAR



SECONDARY BUSBAR

DETAIL NOTES

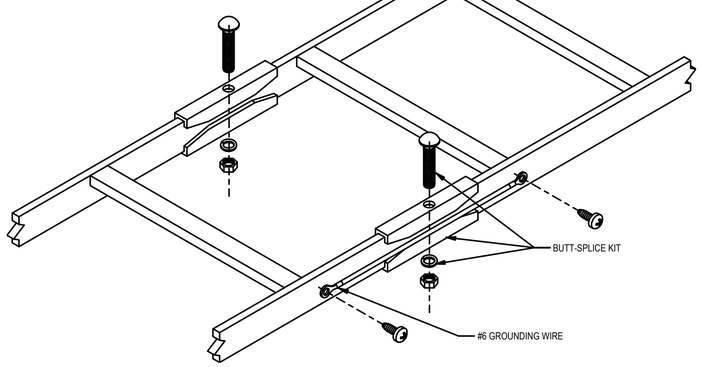
1. BUSBAR AND ALL BONDING COMPONENTS SHALL COMPLY WITH NATIONAL ELECTRICAL CODE, ANSI/TIA 607-C STANDARDS, LOCAL CODES, AND AHJ. WHERE CONFLICTS OCCUR, THE MORE RESTRICTIVE STANDARD WILL TAKE PRECEDENT
2. HOLE PATTERNS SHALL SUPPORT LISTED LUGS AND HARDWARE
3. BUSBAR SHALL BE ELECTROTIN PLATED COPPER WITH A MINIMUM 95% CONDUCTIVITY AND HAVE AN ANTI-OXIDANT APPLIED BEFORE ATTACHING ANY BONDING COMPONENTS
4. PRIMARY BUSBAR SHOULD BE A MINIMUM 4" HIGH AND SECONDARY BUSBARS SHALL BE A MINIMUM OF 2" HIGH. REFER TO SPECIFICATIONS FOR SPECIFIC LENGTHS

TYPICAL CONDUCTOR SIZE	
LINEAR LENGTH (FT)	SIZE (AWG)
< 13	6
14 - 20	4
21 - 26	3
27 - 33	2
34 - 41	1
42 - 52	1/0
53 - 66	2/0
67 - 84	3/0
14 - 20	4/0
21 - 26	250 kcmil
27 - 33	300 kcmil
34 - 41	350 kcmil
42 - 52	500 kcmil
53 - 66	600 kcmil
67 - 84	750 kcmil

TELECOMMUNICATIONS BONDING BUSBAR DETAIL

SCALE: NTS

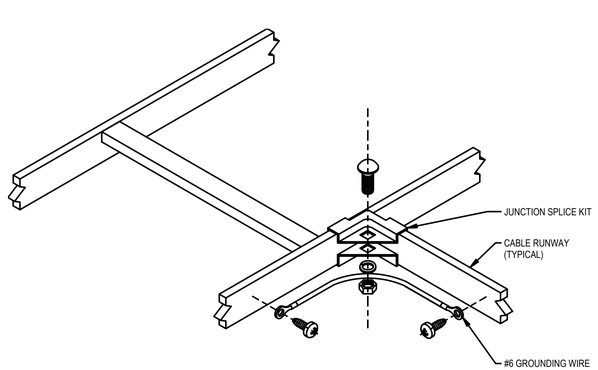
2



LADDER RACK W/ SPLICE KIT & GROUNDING DETAIL

SCALE: NTS

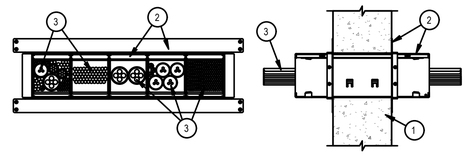
3



LADDER RACK W/ JUNCTION SPLICE KIT & GROUNDING

SCALE: NTS

4



1. WALL ASSEMBLY
2. FIRESTOP DEVICE - UP TO FIVE (5) EZ PATH SERIES 44 DEVICE MODULES GANGED TOGETHER AND SECURED.
3. CABLES

FIRESTOP WALL ASSEMBLY

SCALE: NTS

5

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
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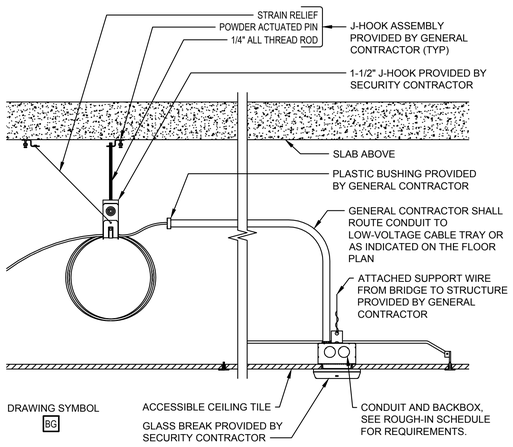
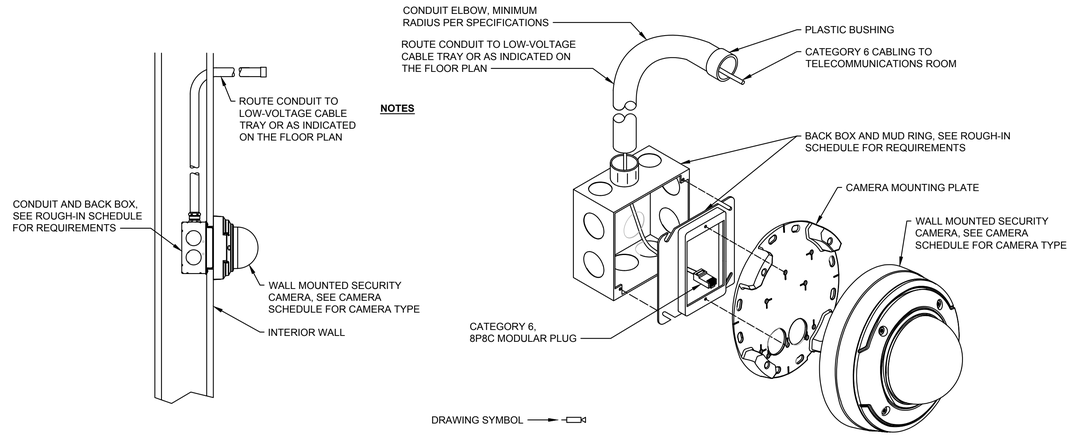


GLASS BREAK

SCALE: NTS

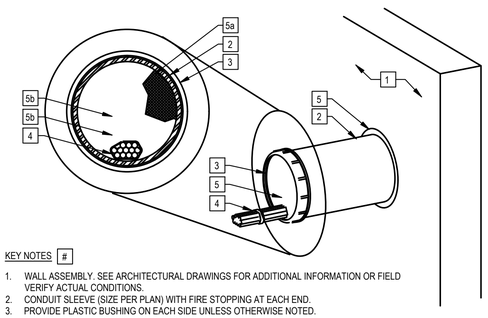
1



WALL MOUNTED SECURITY CAMERA

SCALE: NTS

2



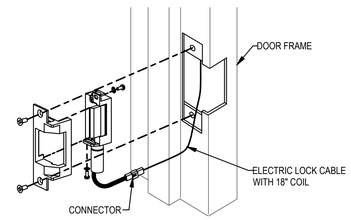
KEY NOTES #

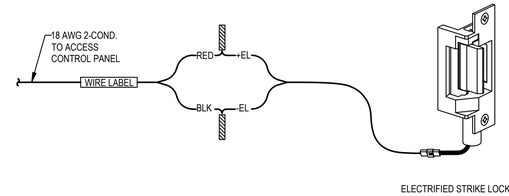
1. WALL ASSEMBLY. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION OR FIELD VERIFY ACTUAL CONDITIONS.
2. CONDUIT SLEEVE (SIZE PER PLAN) WITH FIRE STOPPING AT EACH END.
3. PROVIDE PLASTIC BUSHING ON EACH SIDE UNLESS OTHERWISE NOTED.
4. TELECOMMUNICATIONS CABLING PER PLAN
5. FIRESTOP SYSTEM TO BE USED INSIDE AND AROUND CONDUIT SLEEVE CONSISTING:
   a. PACKING MATERIAL: 3" MINIMUM THICKNESS OF 4 PCF MINIMUM WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM
   b. FILL VOID OR CAVITY MATERIAL: 1/2" THICK MINIMUM FIRE CAULK OR FIRE PUTTY FLUSH WITH EDGE OF SLEEVE AND AROUND SLEEVE AT BOTH ENDS.

HORIZONTAL CONDUIT/SLEEVE PENETRATION W/ FIRE STOPPING

SCALE: NTS

3





TYPICAL ELECTRIFIED STRIKE LOCK

SCALE: NTS

4

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

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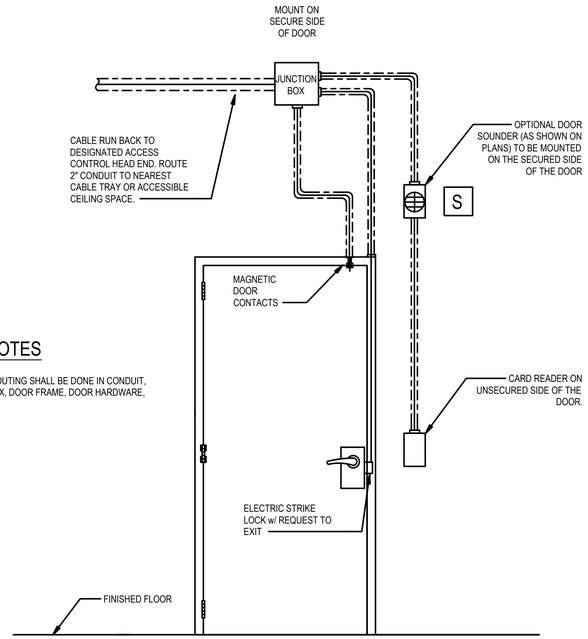
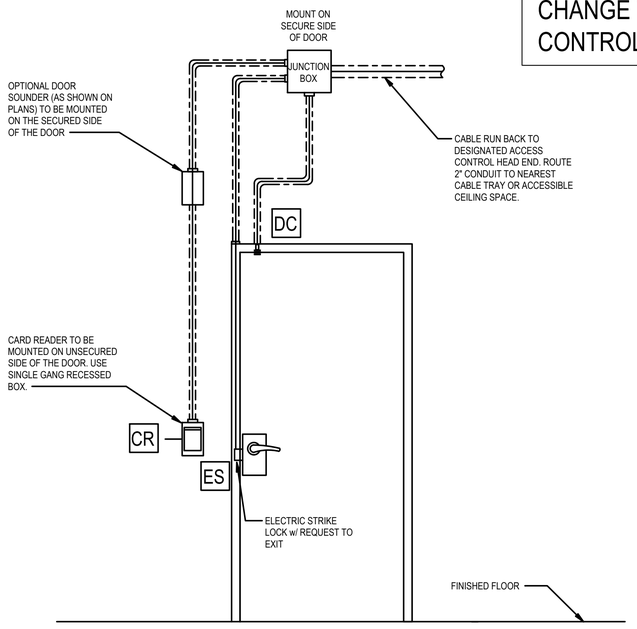


SECURED SIDE OF DOOR

DETAIL NOTES

1. ALL CABLE ROUTING SHALL BE DONE IN CONDUIT, JUNCTION BOX, DOOR FRAME, DOOR HARDWARE, OR DOOR.

THIS DRAWING MAY BE MODIFIED BASED ON POTENTIAL CHANGE TO TYPE OF ACCESS CONTROL SYSTEM USED.

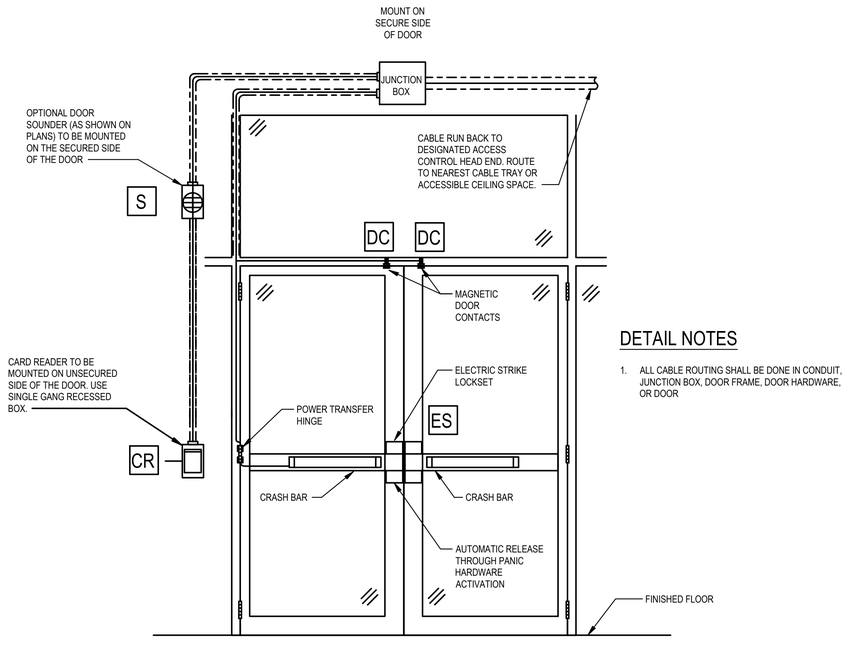


UNSECURED SIDE OF DOOR

SINGLE DOOR, CARD READER AND SOUNDER

SCALE: NTS

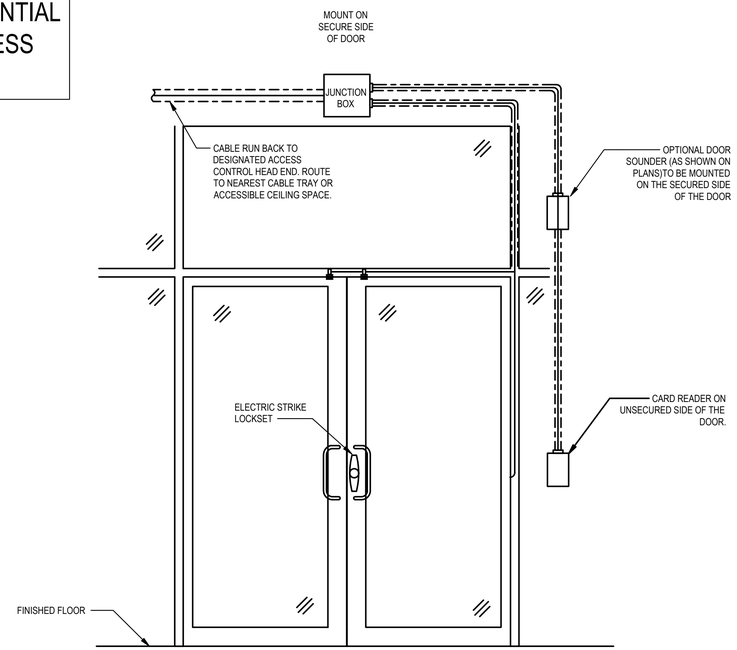
1



SECURED SIDE OF DOOR

DETAIL NOTES

1. ALL CABLE ROUTING SHALL BE DONE IN CONDUIT, JUNCTION BOX, DOOR FRAME, DOOR HARDWARE, OR DOOR



UNSECURED SIDE OF DOOR

DOUBLE DOOR, CARD READER AND SOUNDER

SCALE: NTS

1

SÄZÄN GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188
CONTACT: Sunnie Park
e. SunP@kcha.org
v. (206) 394.3757

SKYWAY RESOURCE CENTER

12610 76TH AVE SOUTH
BRYN-MAWR-SKYWAY,
WA 98178

BID SET

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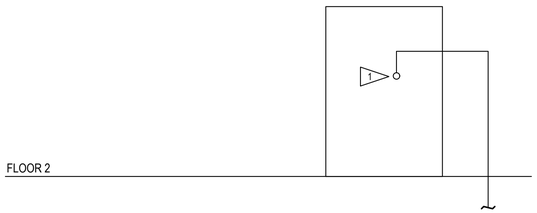
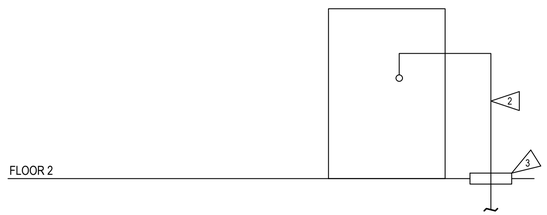


TELECOMMUNICATION COPPER CABLING RISER DIAGRAM

1

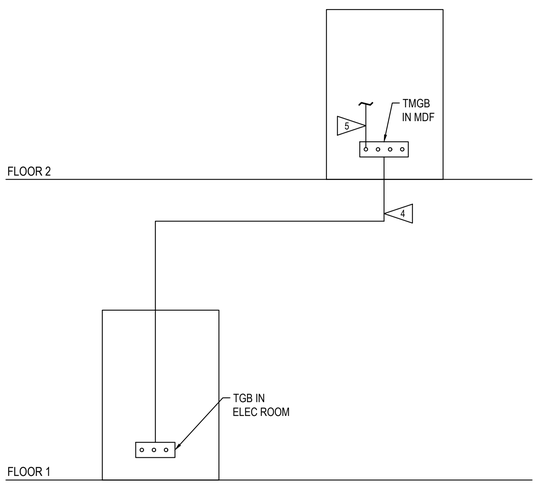
SCALE: NTS



TELECOMMUNICATION PATHWAY RISER DIAGRAM

2

SCALE: NTS



TELECOMMUNICATION GROUNDING RISER DIAGRAM

3

SCALE: NTS

FLAG NOTES

1. CAT 6 PLENUM CABLE IN MDF ROOM ON 2ND FLOOR DISTRIBUTE TO HORIZONTAL AND LOWER FLOOR DROP LOCATIONS.
2. 4" EMT THROUGH FLOOR CHASE TO CEILING SPACE OF FLOOR BELOW.
3. CHASE THROUGH TO CEILING OF FLOOR 1.
4. ROUTE BONDING CONDUCTOR CONNECTING TMGB IN ELECTRICAL ROOM TO TGB IN MDF ON SECOND FLOOR. FOLLOW TIA 607-D BONDING AND GROUNDING STANDARD.
5. INSTALL #6 STRANDED BONDING CONDUCTOR, GREEN WITH YELLOW TRACER JACKET FROM TGB HORIZONTALLY TO LADDER TRAY PATHWAY, RACK AND RACK EQUIPMENT, BONDING BUS BAR.

SÄZÄN
GROUP
600 Stewart St., Ste 1400
Seattle, Washington 98101
Tel 206.267.1700
Fax 206.267.1701
SAZAN # 916-22006

owner
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CONTACT: Sunnie Park
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