# **UTAH STATE UNIVERSITY** UTAH WATER RESEARCH LABORATORY







OWNER:

UTAH STATE UNIVERSITY 6605 OLD MAIN HILL, LOGAN, UT 84322 CONTACT: JOSEPH BECK 435.764.6742 EMAIL: JOE.BECK@USU.EDU

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christian@centerstreetarch.com

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MECHANICAL ENGINEER: BRENKMAN & COMPANY HENK BRENKMAN - 435-554-7771 EMAIL: henk.brenkman@brenkmanandcompany.com

STRUCTURAL ENGINEER: STRUCTURAL SOLUTIONS PO BOX 475 PROVIDENCE, UT 84332 JOSH MAUGHAN - 435-787-2789 ssi.joshm@gmail.com

LANDSCAPE ARCHITECT: PRIME LANDSCAPE ARCHITECTURE 1524 WEST 3045 SOUTH NIBLEY, UT 84321 DUSTIN HISLOP - 801-528-2856 dustin.hislop@gmail.com

## PROJECT LOCATED ON NORTH EAST CORNER OF MAIN FLOOR



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REVISIONO. DA	TITLE	COVER SHEET
	PROJECT	USU UTAH WATER RESEARCH LABORATORY - STUDENT LOUNG
DESCRIF	CLIENT	UTAH STATE UNIVERSITY
PTION	ADDRESS	1600 CANYON RD, LOGAN, UT 84321

DATE: 2/20/2024 2:42:13 PM

**A001** 

JOB NO: 23136 - UWRL

SCALE: 1" = 1'-O"

DRAWN: MLD

SHEET

A2 SITE LOCATION MAP
A001 1" = 1'-0" DESIGN TEAM NO SCALE

A5 SHEET INDEX

N A001 NO SCALE

STRUCTURAL STEEL

1. Grade: All structural steel shall conform to ASTM A992 (fy=50 ksi), latest edition. Tubes shall be ASTM A500 GR. B (fy=46 ksi), all other steel shall be A36. Anchor bolts shall be F1554 steel with ASTM A563 heavy hex nuts and hardened washers, unless noted otherwise.

2. Erection and fabrication: Reference the "American Institute of Steel Construction" specifications for erection and fabrication of steel buildings, latest edition.

3. Welding:

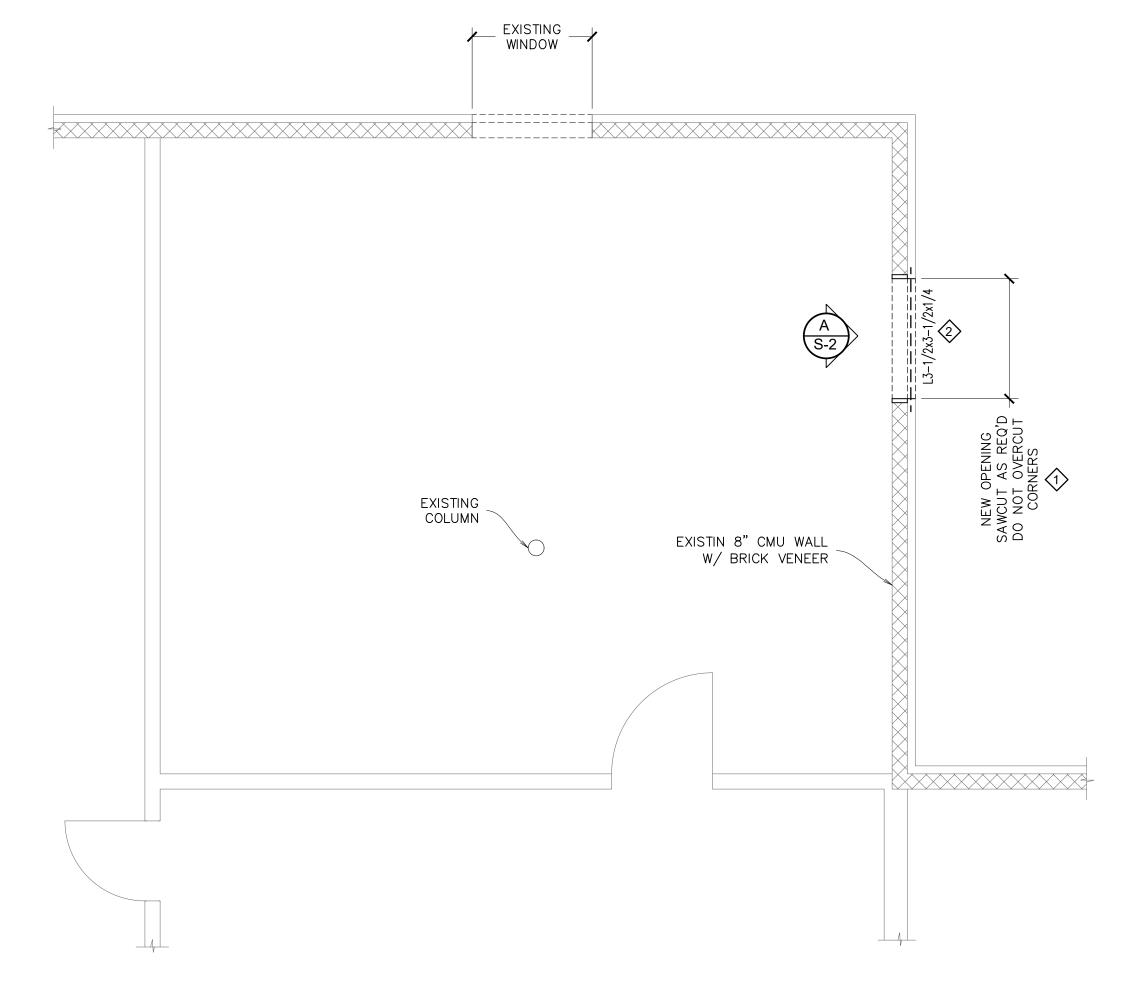
a. Welders: All shop and field welding shall be executed by AWS certified welders.

- b. Electrodes: E-70 XX. E-60 XX may be used for welding steel decks. Welds designated as "Demand Critical" shall be completed with filler metal capable of providing a minimum
- Charpy V-Notch toughness of 20ft-lb @ -20°F, and 40ft-lb @ 70°F per AiSC 341 Section
- c. Fillet welds: Sizes not shown shall be "American Welding Society" minimum based upon the thickness of the materials being welded.
- d. Butt welds: Full penetration unless noted otherwise.
- e. Quality Assurance: See Special Inspections
- 4. Bolted Connections: Use ASTM A325 bolts for steel to steel connections, EXCEPT WHERE NOTED OTHERWISE. Tighten bolts "snug tight" unless noted otherwise. Provide hardened washers beneath turned element.
- 5. Bearing plates: Base plates and bearing plates shall be provided with full bearing after the supported members have been plumbed and properly positioned. Separate setting plates under column base plates will not be permitted. All bearing grout shall consist of a non-shrink, expansive, metallic grout.
- 6. Submittals: Shop drawings shall be submitted for approval to the Architect, Contractor, and Engineer, prior to fabrication.

- All epoxy shall be HILTI brand. The following systems shall be used:
   a. Hollow Masonry & GROUTED CMU— HILT HY270 with screen tube inserts. b. Concrete — HÍLTI RE500—V3.
- 2. Install all epoxied anchors per manufacturer's instructions and recommendations.
- 3. All holes shall be sized properly and cleaned thoroughly prior to placement of epoxy adhesive.

1. Any project specifications are not superseded by the General Structural Notes but are intended to be complementary to them. Consult the specification for additional requirements in each section. Notes and details on the drawings shall take precedence over General Structural Notes and typical details.

- 2. All omissions or conflicts between the various elements of the working drawings and/or specifications shall be brought to the attention of the Architect and Structural Engineer before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the Architect without additional cost to the owner.
- 3. Notification of Engineer: The Engineer shall be notified twenty—four hours prior to:
- a. Beginning and completion of structural welding b. Prior to installation of epoxyed anchors
- 4. Shoring and Bracing Requirements:
- a. Roof & Floor Structures The General Contractor is responsible for the method and sequence of all structural erection. The Contractor shall provide temporary shoring and bracing as his method of erection requires to provide adequate vertical and lateral support. Shoring and bracing shall remain in place as the chosen method requires until all permanent members are in place and all final connections are completed, including all roof attachments. The building shall not be considered stable until all connections are complete.
- b. Walls above grade shall be braced until the structural system is complete. Walls shall not be considered to be self supporting.
- 5. Submittals: A copy of all shop drawings that have been submitted for review must be kept at the construction site for reference. These drawings must bear the appropriate review stamps. The shop drawing review shall not relieve the contractor of the responsibility of completing the project according to the contract documents. The general contractor shall review and mark all shop drawings prior to submitting them to the Architect for his review. Shop Drawings made from reproductions of (these) contract drawings will be rejected.
- 6. Project Coordination: It shall be the responsibility of the general contractor to coordinate with all trades any and all items that are to be integrated into the structural system. Openings or penetrations through, or attachments to the structural system that are not indicated on these drawings shall be the responsibility of the general contractor and shall be coordinated with the Architect/Engineers. The order of construction is the responsibility of the general contractor. It is the contractor's obligation to provide all items necessary for his chosen procedure.
- 7. Observation visits to the site by the Engineer's field representatives shall not be construed as inspection or approval of construction.
- 8. Contractor shall field verify all dimensions, and conditions. If the contract drawings do not represent actual conditions, contractor shall notify Architect/Engineer prior to fabrication or construction within that area.
- 9. The structural drawings, plans, schedules, notes and details shall not be reproduced, or copied, in whole or in part by the contractor or his subcontractors for preparation of shop drawings or other submittals.



## NEW WALL OPENING STRUCTURAL MODIFICATION PLAN

PLAN NOTES:

1. COORDINATE & VERIFY THIS DRAWING WITH EXISTING SITE CONDITIONS, ARCHITECTURAL, SITE, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS PRIOR TO

- 2. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN ON THIS DRAWING. CROSS COORDINATE ALL DIMENSIONS.
- 3. REFER TO GENERAL STRUCTURAL NOTES & THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

#### **KEYED NOTES:**

- SAWCUT OPENING IN EXISTING WALL AS REQ'D PER DETAIL A/S-2. DO NOT OVER-CUT CORNERS OF OPENING. VERIFY REQUIRED WINDOW ROUGH OPENING SIZE AND LOCATION PRIOR TO SAWCUTTING.
- CAREFULLY DEMO BRICK ABOVE NEW OPENING AS REQ'D TO INSTALL NEW ANGLE IRON LINTEL. RELAY BRICK UPON LINTEL INSTALLATION

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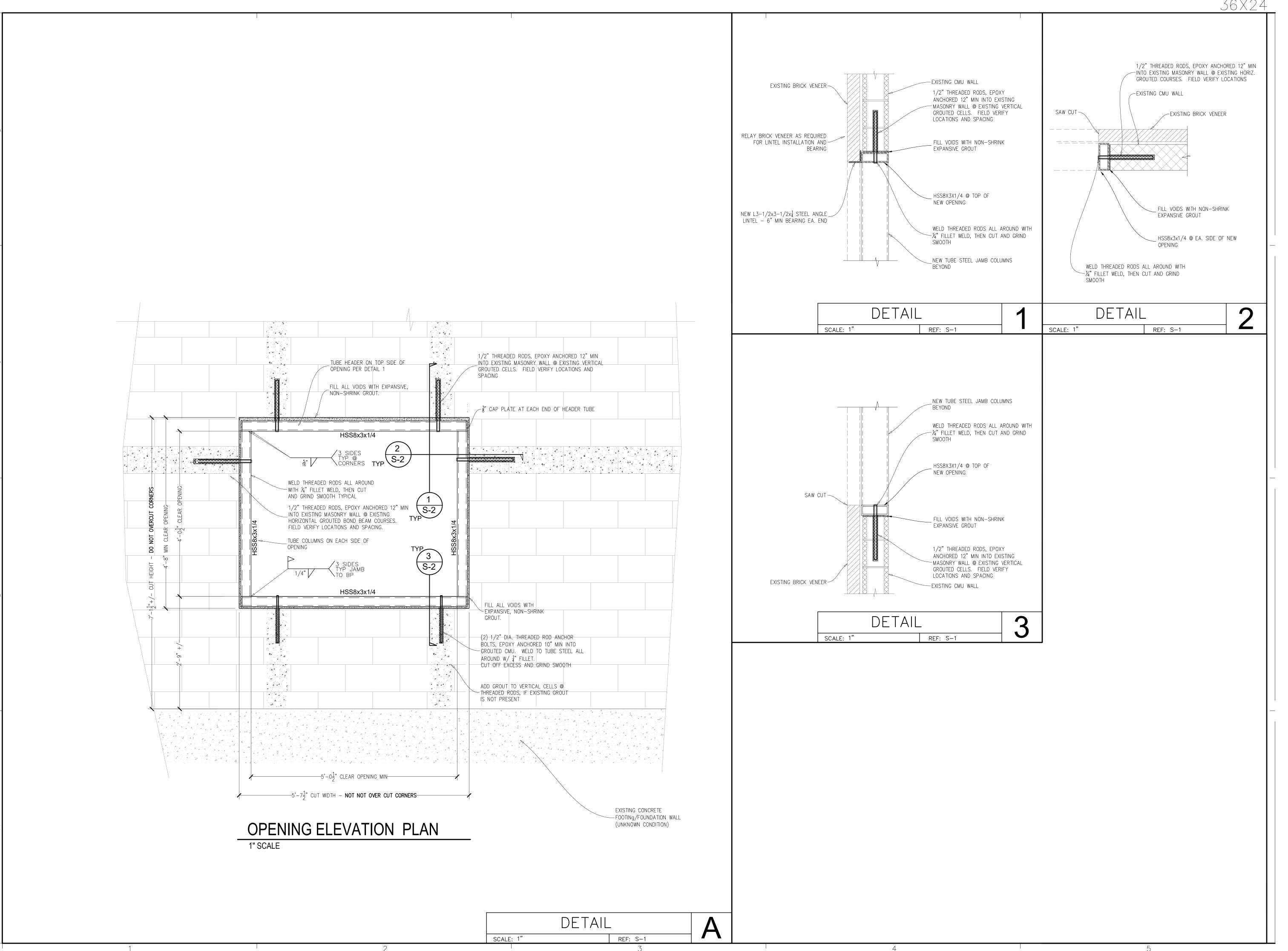
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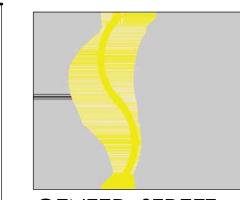
NEW WALL OPENING STRUCTURAL MODIFICATION PLAN	USU UTAH WATER RESEARCH LABORATORY - STUDENT LOUNGE	UTAH STATE UNIVERSITY	1600 CANYON RD, LOGAN, UT 84321
TITLE	PROJECT	CLIENT	ADDRESS
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DATE: 01/04/2024 JOB NO: 23136 SCALE: As indicated

DRAWN: JCM

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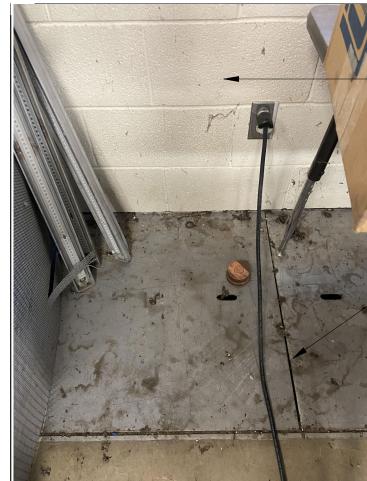


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rs	LABORATORY - STUDENT LOUNGE			
WINDOW OPENING STRUCTURAL DETAILS	USU UTAH WATER RESEARCH LABORAT	UTAH STATE UNIVERSITY	1600 CANYON RD, LOGAN, UT 84321	
TITLE	PROJECT	CLIENT	ADDRESS	
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NO. DATE DESCRIPTION DATE: 01/04/2024 JOB NO: 23136 SCALE: As indicated DRAWN: JCM

REMOVE EXISTING PORTION OF WALL TO ACCOMODATE NEW ALUMINUM STOREFRONT DOOR SYSTEM.



WALL TO BE FRAMED W/ TURNED METAL STUD. HOLD 1" OFF OF GROUND FOR ACCESS TO PANELS.

**EXISTING DRAIN** CHANNEL, METAL PANELS TO BE CLEANED AND PREPPED FOR PAINT.



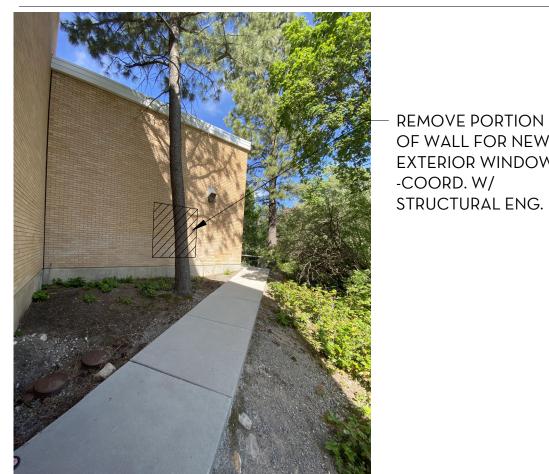
D3 DEMOLITION PHOTO DETAILS

EXISTING BEAM TO BE WRAPPED IN WOOD.

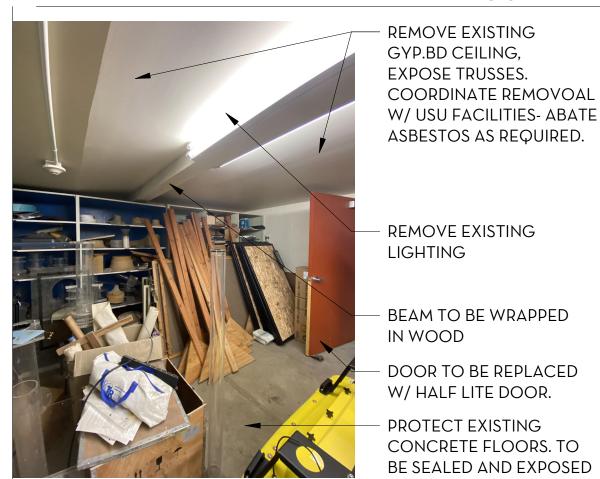
REMOVE EXISTING LIGHTING.

EXISTING COLUMN TO BE FRAMED OUT AND WRAPPED IN WOOD.

PROTECT EXISTING CONCRETE FLOORS. TO BE SEALED AND **EXPOSED IN FINAL** DESIGN



OF WALL FOR NEW EXTERIOR WINDOW. -COORD. W/ STRUCTURAL ENG.



D5 DEMOLITION PHOTO DETAILS

REMOVE EXISTING LIGHTING

BEAM TO BE WRAPPED

DOOR TO BE REPLACED W/ HALF LITE DOOR.

PROTECT EXISTING CONCRETE FLOORS. TO BE SEALED AND EXPOSED IN FINAL DESIGN

EXISTING BEAM TO BE

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**GENERAL DEMOLITON NOTES** 

D2 DEMOLITION PHOTO DETAILS

CONTRACTOR TO CONSTRUCT AND MAINTAIN APPROPRIATE BARRICADES TO PROTECT BUILDING OCCUPANTS FROM ANY AND ALL HAZARDS OCCURRING DURING DEMOLITION AND CONSTRUCTION.

CARE SHALL BE TAKEN DURING DEMOLITION TO LIMIT CONSTRUCTION REPAIRS. PATCH AND REPAIR AS REQUIRED ANY DAMAGE INCURRED DUE TO CONSTRUCTION OPERATIONS. OWNER SHALL REMOVE ALL FURNITURE AND EQUIPMENT.

ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION PRIOR TO COMMENCING CONSTRUCTION. REFERENCE ALL DISCIPLINES AND REVIEW ALL SHEETS IN THE CONSTRUCTION SET

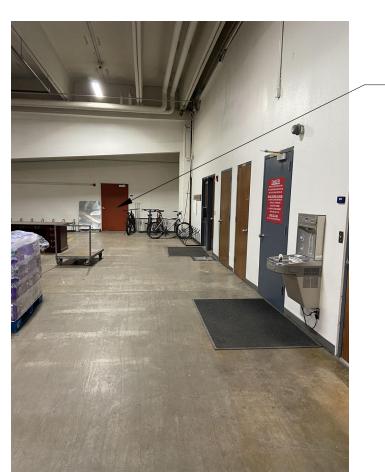
PRIOR TO STARTING DEMOLITION. CONTRACTOR SHOULD EXCERCISE CAUTION DURING ALL STAGES OF DEMOLITION. IF AT ANY TIME CONCERNS ARISE ABOUT SAFETY OR STRUCTURAL STABILITY, THE CONCTRACTOR SHOULD CEASE WORK AND CONTACT THE ARCHITECT/ ENGINEER IMMEDIATELY.

LOUNGE



REMOVE EXISTING GYP.BD CEILING, EXPOSE TRUSSES. COORDINATE REMOVAL W/ USU FACILITIES-ABATE ASBESTOS AS REQUIRED.

> REMOVE PORTION OF **EXTERIOR WALL FOR NEW EXTERIOR** WINDOW. COORDINATE W/ STRUCTURAL ENGINEER.



D4 DEMOLITION PHOTO DETAILS

A100 EXTERIOR NORTH EAST CORNER

**EXISTING DOOR TO** BE REPLACED W/ HALF LITE DOOR.



**EXISTING COLUMN** TO BE FRAMED OUT AND WRAPPED IN WOOD -

REMOVE PORTION OF EXISTING WALL FOR NEW DOOR SYSTEM

C2 GENERAL DEMOLITION NOTES
A100 1 1/2" = 1'-0"

C3 DEMOLITION PHOTO DETAILS

A100

C4 DEMOLITION PHOTO DETAILS

C5 DEMOLITION PHOTO DETAILS A100

A100

REMOVE EXISTING

A100

DEMOLITION REFLECTED CEILING PLAN **KEYED NOTES:** REMOVE EXISTING LIGHTING.

FIRE ALARM SYSTEM TO BE REMOVED, AND RELOCATED. COORD. W/ USU FACILITIES.

REMOVE SHADED PORTION OF GYP.BD. CEILING, EXPOSED JOISTS, MECHANICAL DUCTS, AND ELECTRICAL CONDUIT TO BE PAINTED. COORDINATE REMOVOAL W/ USU FACILITIES- ABATE ASBESTOS AS REQUIRED. SHOWN AS:



ASBESTOS AS REQUIRED.

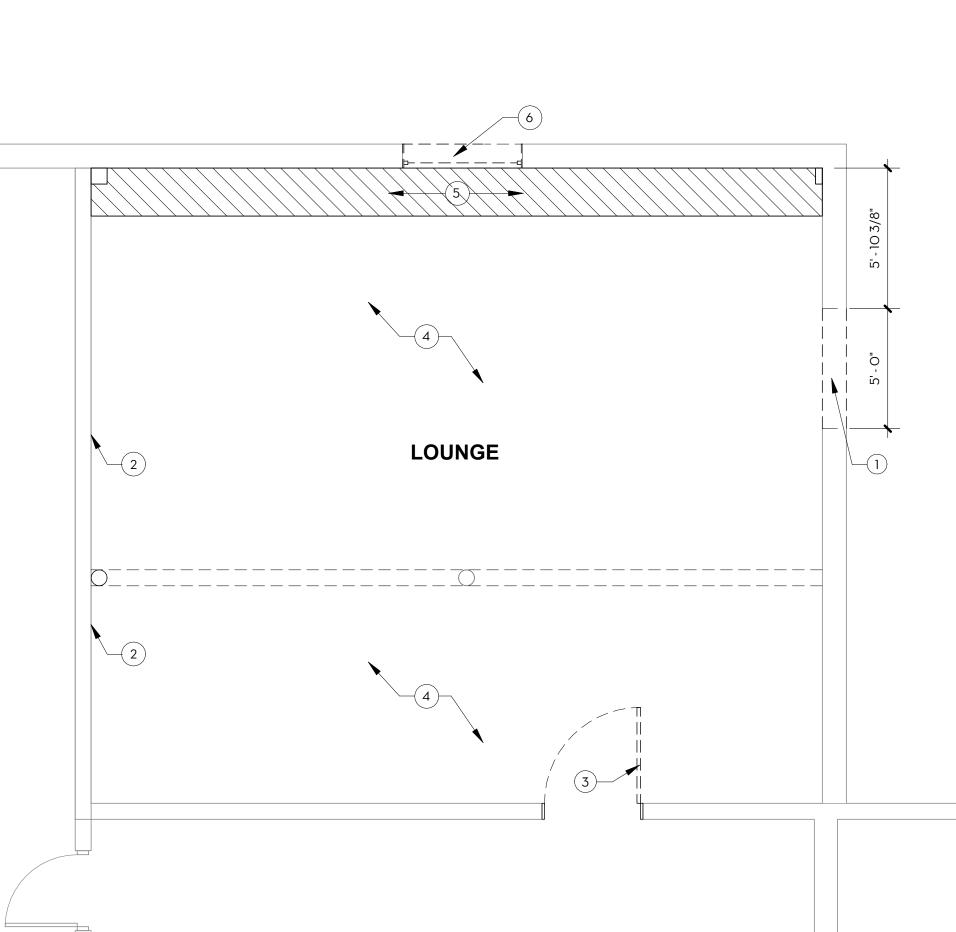
PATCH AND REPAIR EXISTING GYP.BD. WALL AS NECESSARY.

REMOVE EXISTING DOOR (FRAME TO REMAIN) TO BE REPLACED W/ NEW HALF LITE DOOR. SEE DOOR SCHEDULE.

4. PROTECT EXISTING CONCRETE FLOORING, TO BE CLEAN, SEALED & EXPOSED IN NEW

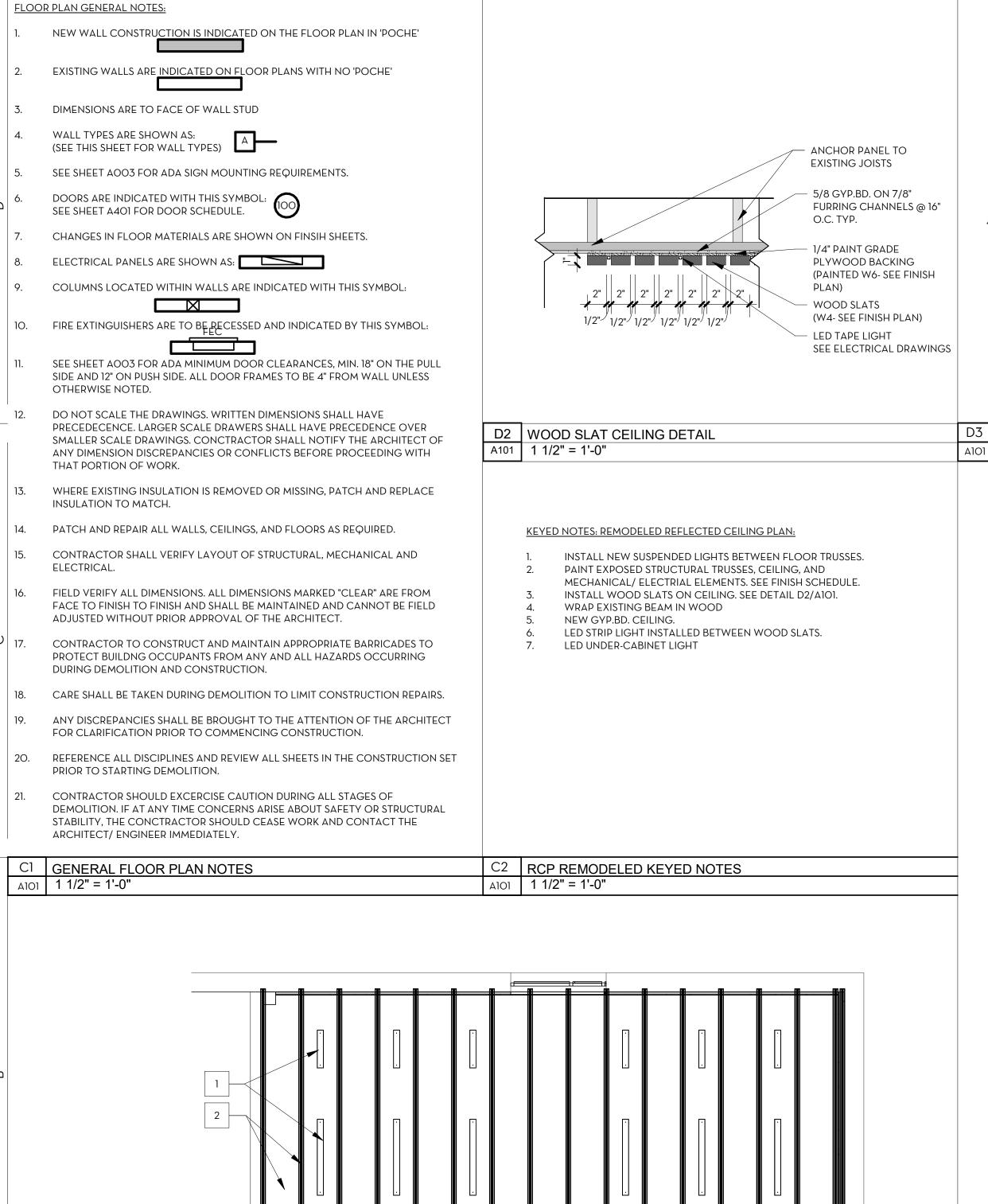
EXISTING DRAIN CHANNEL W/ METAL ACCESS PANELS. METAL ACCESS PANELS TO BE PREPPED FOR PAINT.

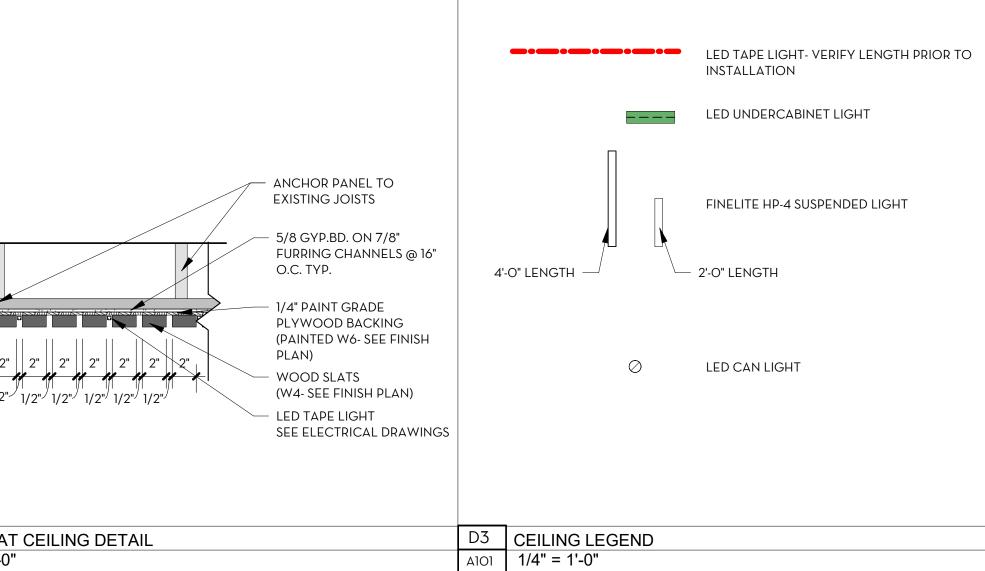
REMOVE EXISTING WINDOW. SAWCUT EXTERIOR WALL TO FIT NEW STOREFRONT DOOR SYSTEM.



A1 DEMO REFLECTED CEILING PLAN 1/4" = 1'-0"

A3 DEMO LOUNGE FLOOR PLAN
A100 1/4" = 1'-0"





WALL TYPES: -

TYPE A.1: 3-5/8" METAL STUD W/ 5/8" GYPSUM BOARD ON

TYPE A.2: 3-5/8" METAL STUD TURNED AND ANCHORED TO

EXISTING WALL W/ 5/8" GYPSUM BOARD ON ONE SIDE OF

TYPE E: 3-5/8" METAL STUD, WITH CEMENT BOARD AND

AND BELOW BACKSPLASH.

CERAMIC TILE ON BACKSPLASH AREAS, 5/8" GYP. BD. ABOVE

WALL. HOLD WALL 1" OFF OF FLOOR.

AND OTHER DISSIMILAR MATERIALS

TYPE A

ONE SIDE OF WALL

PROVIDE SEAL AROUND ELECTRICAL BOXES AND OTHER

PENETRATIONS. SOUND SEAL AT THE BOTTOM OF WALLS

5/8" TYPE "X" GYPSUM BOARD

5/8" TYPE "X" GYPSUM BOARD

BATT INSULATION FOR SOUND

ATTENUATION

ATTENUATION

METAL STUD, 16" O.C.

METAL STUD, 16" O.C.

BATT INSULATION FOR SOUND



1/2" 1/2" 1/2" 1/2" 1/2" 1/2"



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KEYED NOTES - REMODELED FLOOR PLAN: SURFACE MOUNTED TV, PROVIDE RECESSED OUTLET/ DATA BOX. COORD.

DRY ERASE BOARD NEW METAL FRAMED WALL- SEE FINISH SCHEDULE FOR FINISHES. NEW METAL FRAMED WALL WRAPPED W/ WOOD. SEE FINISH SCHEDULE. NEW METAL FRAMED WALL W/ WOOD SLATS. SEE DETAIL C4/A101 NEW METAL FRAMED WALL W/ TURNED STUD. HOLD NEW WALL 1" OFF OF FLOOR

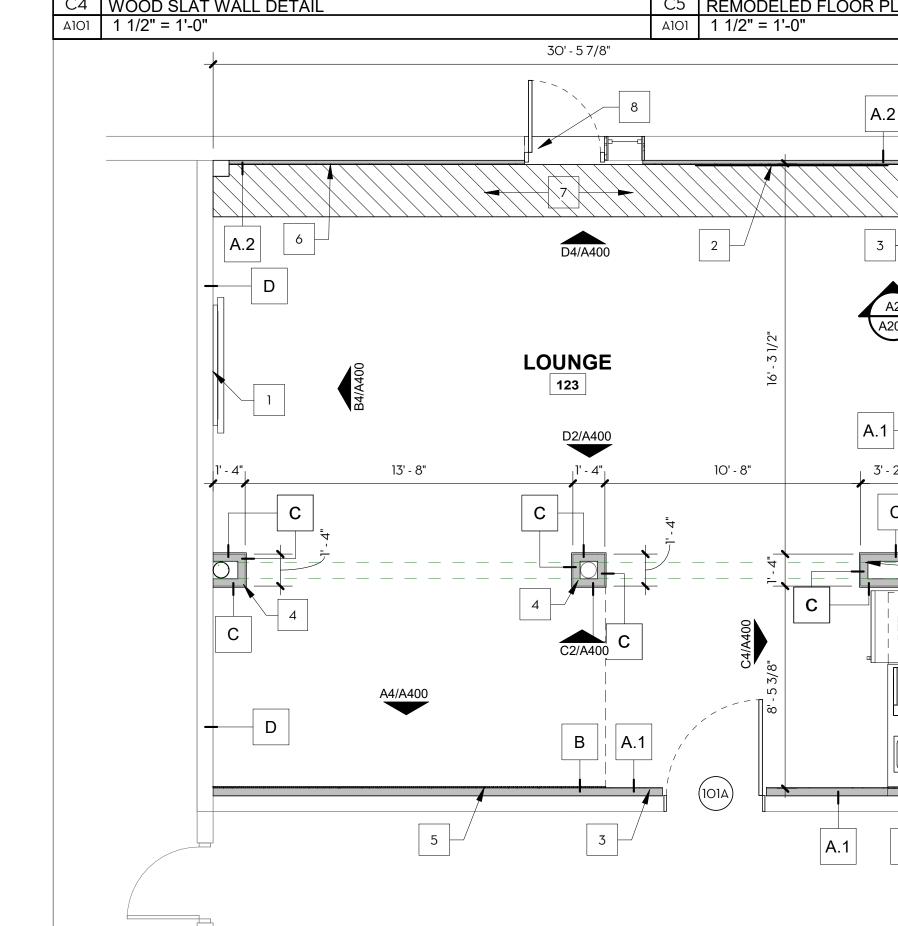
REQUIREMENTS W/ UNIVERSITY AV DEPT.

TO ALLOW ACCESS TO DRAIN CHANNEL METAL PLATES. SHADED AREA REPRESENTS DRAIN CHANNEL W/ ACCESS PLATES. METAL PLATES TO BE PAINTED. SEE FINISH PLAN.

NEW ALUMINUM STORE FRONT DOOR SYSTEM AT LOCATION OF EXISTING

WINDOW. SEE A4/A2OO.

C5 | REMODELED FLOOR PLAN KEYED NOTES A101 | 1 1/2" = 1'-0" 30' - 5 7/8" A.2 D4/A400 2 LOUNGE 13' - 8" 10' - 8" 3' - 2 1/4" BID ALTERNATE, ADDITION 3 A.1



EXISTING WALL

- 5/8" GYP.BD.

FINISH PLAN)

FINISH PLAN)

3-5/8" METAL STUD FRAMED

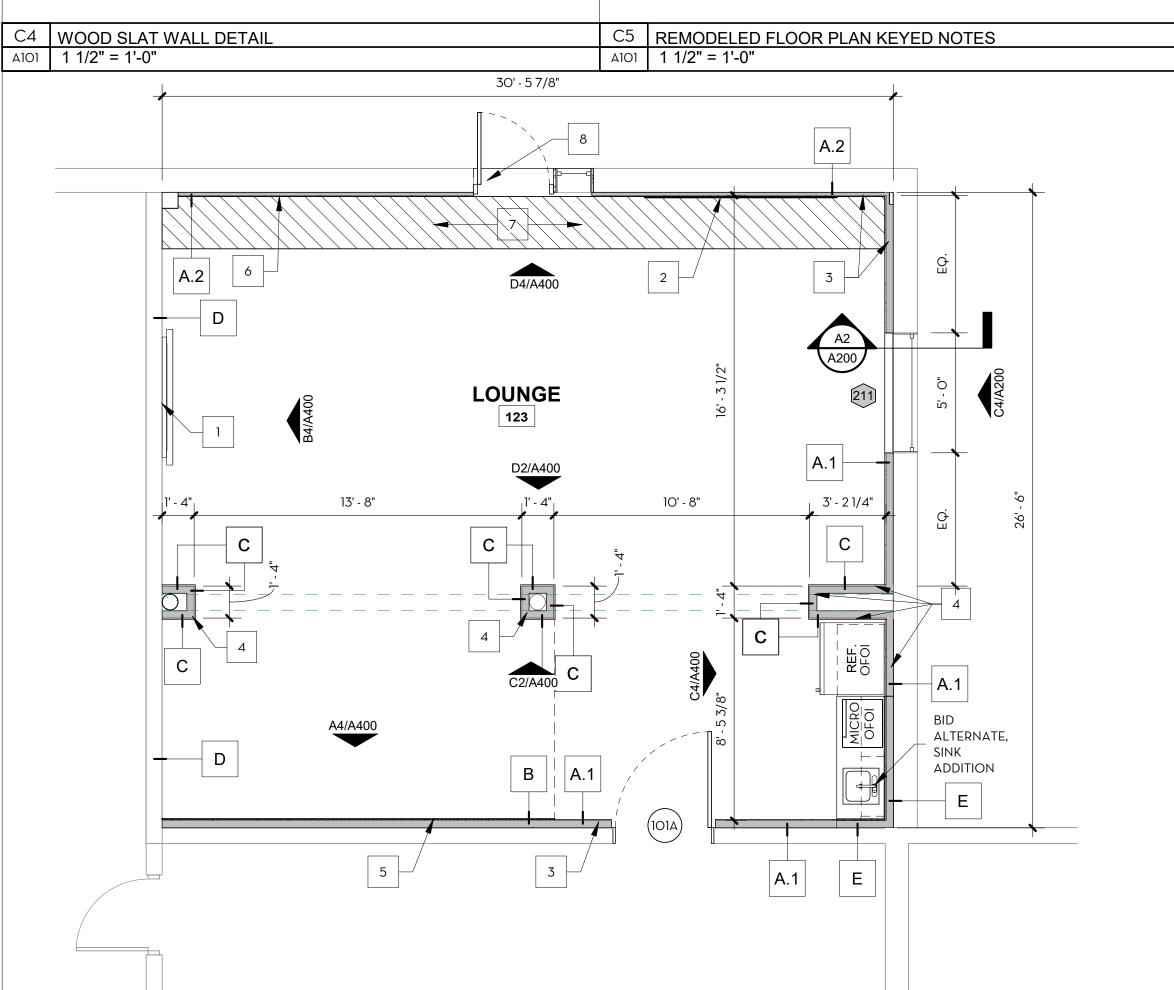
ANCHOR PANEL TO STUDS

1/4" PAINT GRADE PLYWOOD

BACKING (PAINTED- W6 SEE

WOOD SLAT WALL (W4-SEE

WOOD SLATS- SEE INTERIOR ELEVATION TYPE B 1/4" PAINT GRADE PLYWOOD BACKING 5/8" TYPE "X" GYPSUM BOARD BATT INSULATION FOR SOUND ATTENUATION METAL STUD, 16" O.C. TYPE B: 3-5/8" METAL STUD, 5/8" GYPSUM BOARD ON ONE SIDE OF WALL W/ WOOD SLATS TYPE C WALNUT PANELING 1/2" BACKERBOARD IF NECESSARY BATT INSULATION FOR SOUND ATTENUATION METAL STUD, 16" O.C. TYPE C: 3-5/8" METAL STUD, 1/2" BACKERBOARD IF NECESSARY & WALNUT PANELING ON ONE SIDE OF WALL TYPE D EXISTING GYP.BD. PATCH AND REPAIR AS NECCESSARY 3 EXISTING WALL TYPE D: EXISTING GYP.BD. WALL. PATCH AND REPAIR AS NECCESSARY CERAMIC TILE TYPE E CEMENT BOARD BATT INSULATION FOR SOUND ATTENUATION METAL STUD, 16" O.C.



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A1 REMODELED REFLECTED CEILING PLAN A101 1/4" = 1'-0"

A3 WALL TYPES A101 1 1/2" = 1'-0"

A4 PROPOSED LOUNGE FLOOR PLAN

A101 | 1/4" = 1'-0"

WA	LLS	FLC	OOR/BASE	CEI	LING
W1	PAINTED GYP BD	FI	EXPOSED RUBBER BASE	Cl	PAINT GYP.BD.
W2	WOOD PANELING	F2	EXISTING METAL PANELS- TO BE PAINTED	C2	WOOD SLAT, PAINT BACKER BOARD W6
W3	NOT USED			C3	PAINTED EXPOSED CEILING
W4	WOOD SLAT	_			
W5	TILE BACKSPLASH	_			
W6	PAINTED PLYWOOD				

	w	TILE BACKSP	LASH							
	W	<sup>6</sup> PAINTED PLY	WOOD							
		<u> 1</u>	MATERIA	L FINISH	LEGEN	<u>1D</u>				
GENERAL FINISH PLAN NOTES:	WALLS									
1. NO FINISH SUBSTITUTIONS MAY BE MADE WITHOUT PRIOR WRITTEN AUTHORIZATION BY OWNER.	CALL OUT	TYPE	MANUF.	SERIES	COLOR	SIZE	INSTALL	FINISH		
	W1	PAINTED GYP.BD.	SHERWIN WILLIAMS	-	COLLONADE GRAY	-	-	SEMI GLOSS		
2. ALL FINISHES SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.										
3. GENERAL CONTRACTOR TO PROVIDE TEMPORARY PROTECTION FOR ALL INSTALLED FINISHES AS WORK PROGRESSES.	W2	WOOD PANELING	RESTORATION THEORY	PLANKLOGIC	WALNUT	5" WIDE	-	-		
4. THE CONTRACTOR SHALL SUBMIT SAMPLES OF FINISH MATERIALS TO DESIGNER.	W3	NOT USED	-	-	-	-	-	-		
5. PAINT AND WALLCOVERING SUBCONTRACTOR SHALL EXAMINE WALLS TO ENSURE PROPER PREPARATION BEFORE APPLICATION. BEGINNING WORK IMPLIES ACCEPTANCE OF THEIR CONDITION.	W4	WALNUT WOOD SLAT WALL	-	-	WALNUT- STAIN TO MATCH W2 WOOD	SEE C4/D2 A1O1	SEE C4/D2 A1O1	-		
6. ALL EXISTING WALLS TO BE PAINTED, U.N.O. AS PER INDICATED ON PLAN.					PANELING					
7. ALL FLOORING INSTALLATION SHALL BE ACCOMPLISHED BY A FLOOR COVERING FIRM OR CERTIFIED INSTALLER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MFRS. INSTALLATION INSTRUCTIONS.	W5	TILE BACKSPLASH	DALTILE	COLOR WHEEL	ARCTIC WHITE, GROUT: MAPEI WARM	2"X8"	STACK BOND	MATTE		
8. ALL CERAMIC AND VINYL COMP. TILES TO BE INSTALLED WITH FULL TILE FROM TRANSITION AT DOOR AND FULL TILE FROM WALL PERPENDICULAR TO DOOR, U.N.O.					GRAY-93					

NO PAINTING OR INTERIOR FINISHING SHALL BE DONE UNDER CONDITIONS WHICH VILL JEOPARDIZED THE QUALITY OR APPEARANCE OF SUCH WORK. ALL WORKMANSHIP VHICH IS JUDGED LESS THAN FIRST QUALITY BY THE DESIGNER WILL BE REJECTED.	W6	
D. ALL SURFACES SHALL BE PREPARED TO RECEIVE THE SPECIFIED FINISH. ALL GYPSUM	FLOORS	
OARD WALLS SHALL BE TAPED, SPACKLED AND SANDED SMOOTH AND PREPARED TO		

RECEIVE THE SPECIFIED FINISH. PAINT GRADE WOODWORK SHALL BE HAND SANDED BETWEEN COATS AND DUSTED CLEAN. ALL HOLES, PITCH POCKETS OR SAPPY PORTIONS SHALL BE SCRAPED AND SHELLACKED, OR SEALED WITH KNOT SEALER. NAIL HOLES, CRACKS OR DEFECTS SHALL BE PUTTIED AFTER FIRST COAT, WITH PUTTY MATCHING COLOR OF STAIN OR PAINT FINISH. REMOVE OIL OR GREASE WITH MINERAL SPIRITS.

11. ALL CRACKS, HOLES, IMPERFECTIONS IN EXISTING WALLS SHALL BE FILLED WITH PATCHING PLASTER AND SMOOTHED OFF TO MATCH ADJOINING SURFACES. 12. INTERIOR GYPSUM BOARD SURFACES SHALL BE WIPED WITH A DAMP CLOTH JUST PRIOR TO APPLICATION OF THE FIRST COAT, IN ORDER TO LAY FLAT ANY NAP WHICH MAY HAVE FORMED IN SANDING PROCESS.

13. UPON COMPLETION, REMOVE ALL PAINT FROM WHERE IT HAS SPILLED, SPLASHED OR SPLATTERED ON EXPOSED SURFACES.

14. EXAMINE ALL FINISH SURFACES AFTER COMPLETION OF WORK AND PROCEED WITH "TOUCH-UP" AS REQUIRED.

15. PROVIDE DESIGNER WITH A MINIMUM OF (3) 8" X 10" BRUSH-OUTS OF EACH COLOR & FINISH FOR DESIGNER'S APPROVAL. DESIGNER RESERVES THE RIGHT TO ADJUST ANY COLOR/FINISH ONCE THE WALL TEST HAS BEEN MADE.

16. UNDERSIDE OF SOFFITS (WHERE OCCURS) TO RECEIVE A FINISH TO MATCH CEILING FINISH, UNO.

17. ALL GYP. BD. CEILINGS AND SOFFITS TO RECEIVE TWO (2) COATS FLAT PAINT, U.N.O. WHERE INDICATED ON PLANS.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALLOWING FOR DELIVERY LEAD TIMES FOR ALL FINISHES, FIXTURES, FABRICS AND OTHER CUSTOM FINISHES WITHIN THE CONSTRUCTION SCHEDULE. ALL DELIVERY TIMES MUST BE CONFIRMED, AND ANY EXCESSIVE LEAD TIME MUST BE BROUGHT TO THE DESIGNER'S ATTENTION IMMEDIATELY TO ALLOW FOR RESPECIFICATION IF NECESSARY.

19. PAINT IS DEFINED AS ONE PRIMER COAT AND 2 FINISH COATS.

20. STAINED AND PAINTED SURFACES SHALL BE FINISHED SUCH THAT JOINTS ARE NOT

B1 FINISH PLAN NOTES

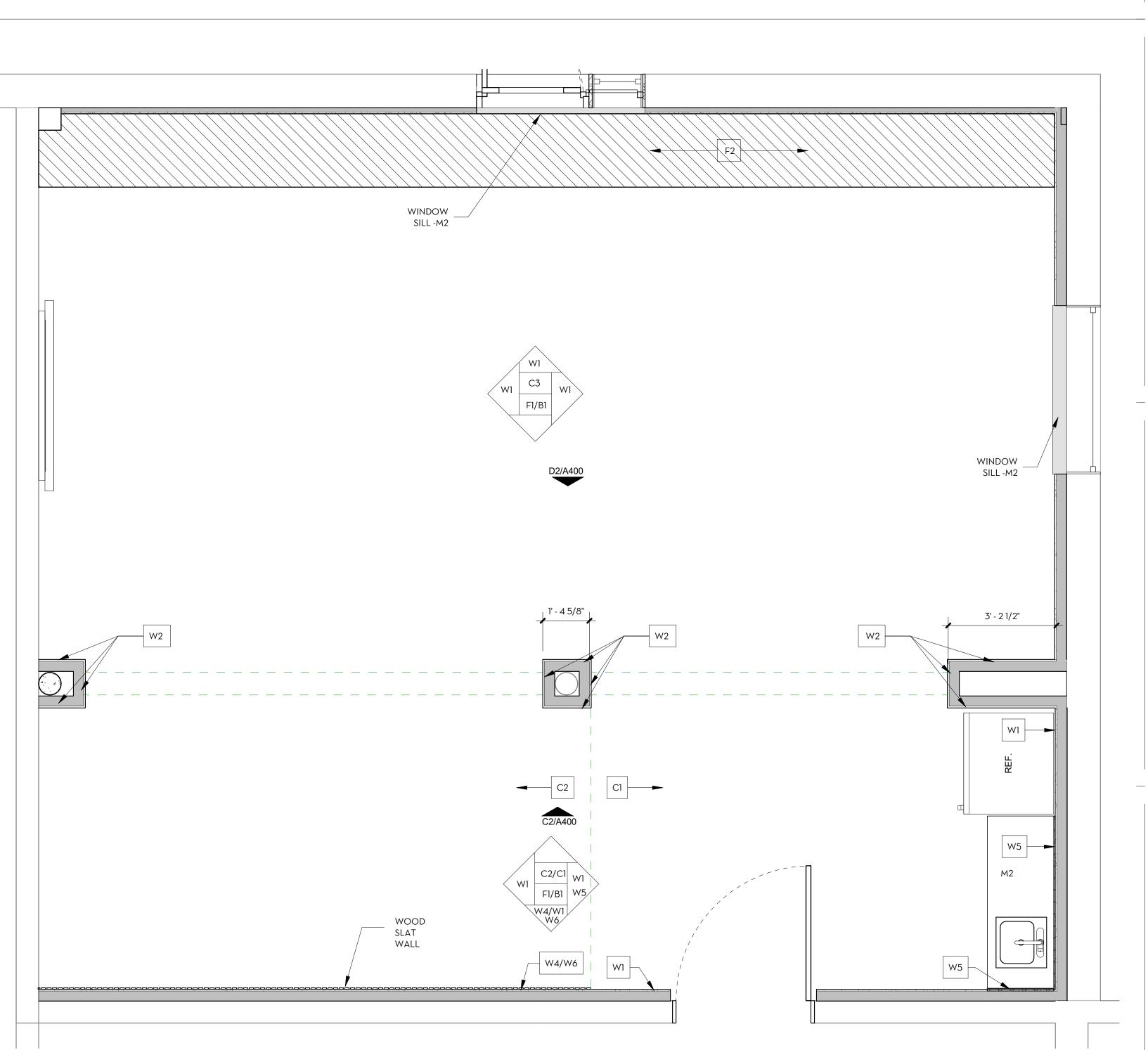
A120 1 1/2" = 1'-0"

24. ALL HM DOOR FRAMES TO BE PAINTED WI U.N.O.

VISIBLE WHEN VIEWED FROM ANY ANGLE AS DETERMINED BY THE DESIGNER.								
21. ALL WALLS TO RECEIVE WI UNO.		SOLID SURFACE						
22. ALL COVER PLATES, SWITCHES, OUTLETS, RECEPTACLES AND DEVICES TO BE WHITE UNO.	M2	COUNTERTOP AND WINDOW SILL	MSI	FROST- WHITE	-	3CM	-	-
23. INSTALL ALL FLOOR FINISHES AT SAME LEVEL, DESPITE DIFFERENT THICKNESS. PROVIDE FLOOR TRANSITION WHERE OCCURS.								
PROVIDE FLOOR TRANSITION WHERE OCCURS.								

A120

WALLS							
CALL OUT	TYPE	MANUF.	SERIES	COLOR	SIZE	INSTALL	FINISH
Wl	PAINTED GYP.BD.	SHERWIN WILLIAMS	-	COLLONADE GRAY	-	-	SEMI GLOSS
W2	WOOD PANELING	RESTORATION THEORY	PLANKLOGIC	WALNUT	5" WIDE	-	-
W3	NOT USED	-	-	-	-	-	-
W4	WALNUT WOOD SLAT WALL	-	-	WALNUT- STAIN TO MATCH W2 WOOD PANELING	SEE C4/D2 A1O1	SEE C4/D2 A1O1	-
W5	TILE BACKSPLASH	DALTILE	COLOR WHEEL	ARCTIC WHITE, GROUT: MAPEI WARM GRAY-93	2"X8"	STACK BOND	MATTE
W6	PAINTED PLYWOOD BACKING	SHERWIN WILLIAMS		GREENFIELD SW6439			FLAT
FLOORS						1	
FI CONCRETE EXISTING CONCRETE IN SPACE, REFINSHED IF NEEDED AND SEAL							SEAL
F2	EXISTING DRAIN CHANNEL	SHERWIN WILLIAMS	METAL PAINT	DOVETAIL 7018	-	-	SEMI GLOSS
BASE						I.	<u> </u>
В1	RUBBER BASE	ROPPE	PINNACLE	193-BLACK BROWN	4 1/2" COVED	-	-
CEILING	S						
C1	PAINTED GYPSUM BOARD	SHERWIN WILLIAMS	-	COLLONADE GRAY SW7641	-	-	FLAT
				SEE W4	-	-	-
C2	WOOD SLAT CEILING	-	-	022 ** 1			
C2 C3		SHERWIN WILLIAMS	-	COLLONADE GRAY SW7641	-	-	FLAT
C3	CEILING  PAINTED EXPOSED  CEILING  STRUCTURE		-	COLLONADE GRAY	-	-	FLAT
	CEILING  PAINTED EXPOSED  CEILING  STRUCTURE		- REFLEKT	COLLONADE GRAY	-	EDGE BAND 2834	FLAT





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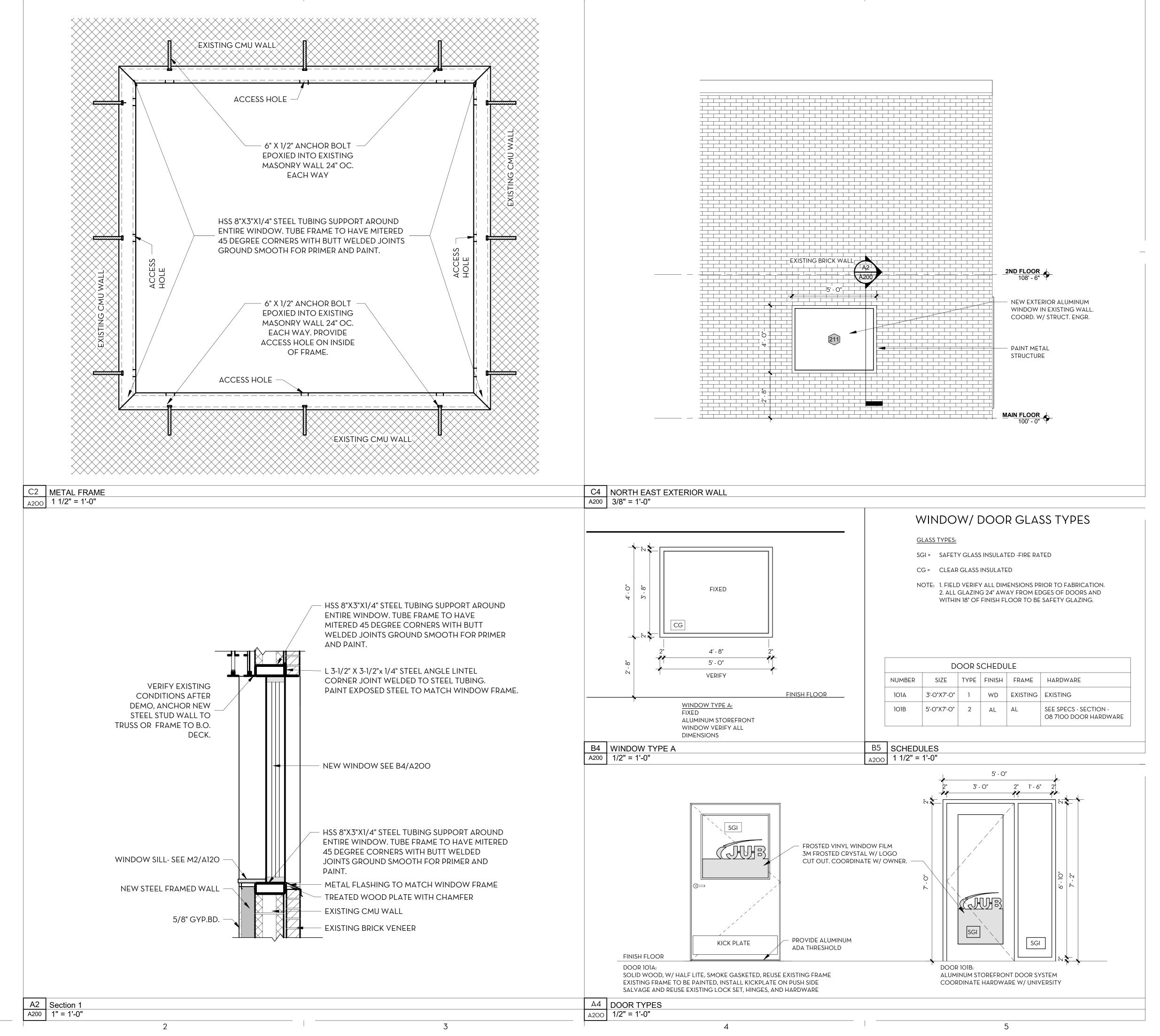
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B3 FINISH PLAN
A120 1/2" = 1'-0"

FINISH MATERIALS

1/4" = 1'-0"



CENTER STREET
ARCHITECTS

170 E, CENTER STREET
LOGAN, UTAH 84321
CENTERSTREETARCH.COM



MELLE DETTENMAIER 435.890.2009 CHRISTIAN WILSON 435.232.8662

| 433.232.000

LEVATION, DOOR & WINDOW SCHEDULE.

/ATER RESEARCH LABORATORY - STUDEN: UNIVERSITY

432

PROJECT USU UTAH W.

CLIENT UTAH STATE

ADDRESS 1600 CANYC

EXTERIOR

REVISIONS

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A200

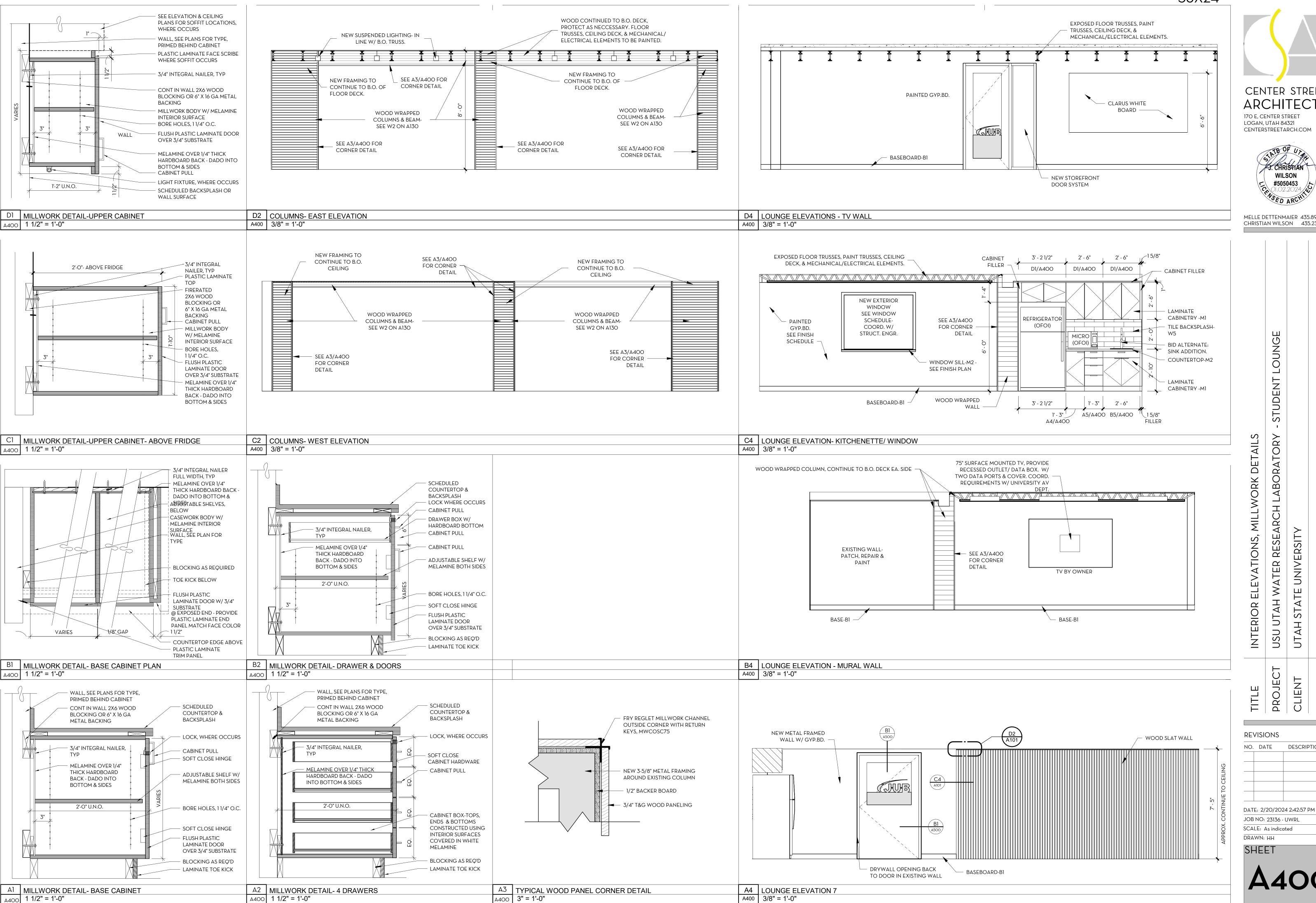
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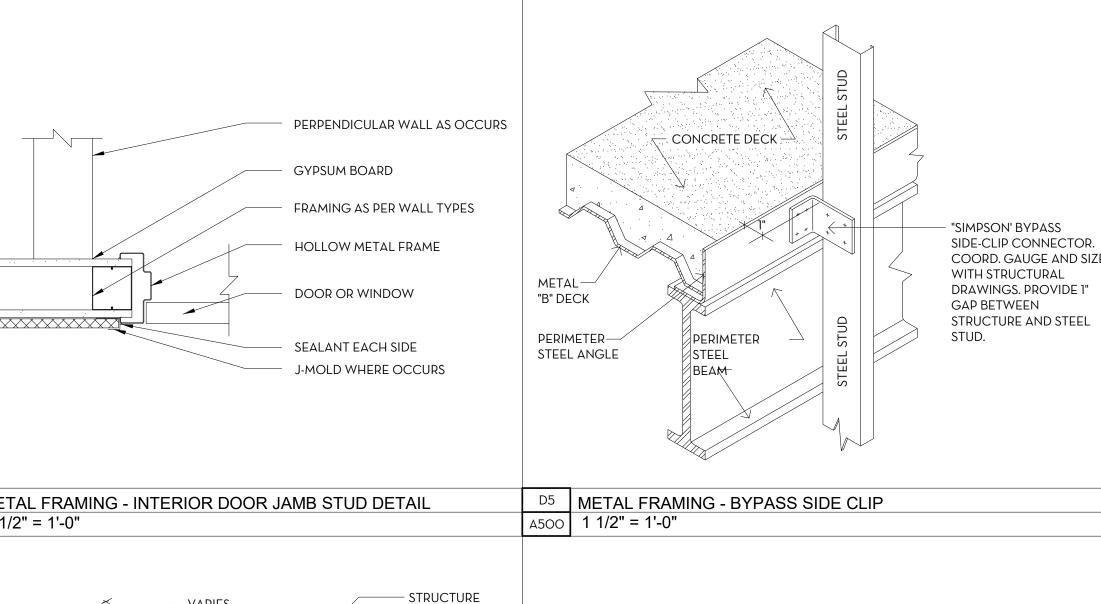
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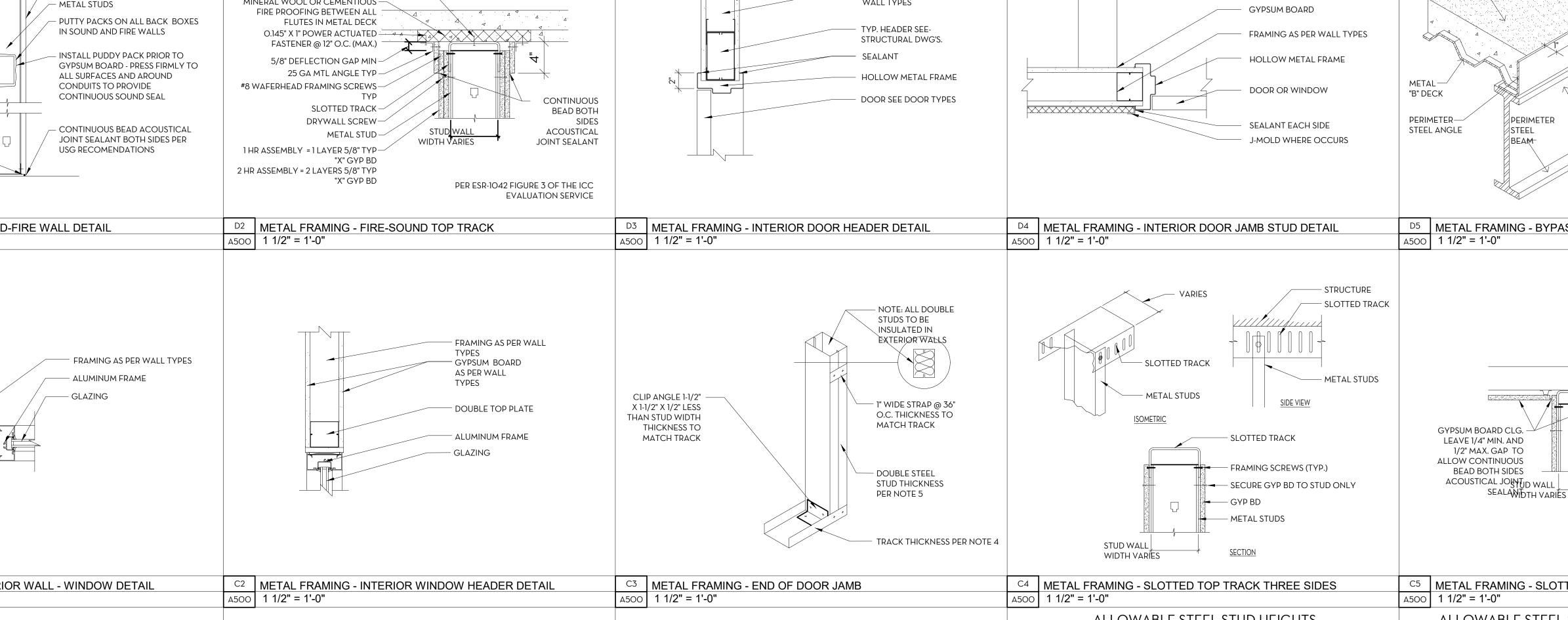
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ROJE







GYPSUM BOARD

WALL TYPES

WALL FRAMING AS PER

x	— STEEL STUD ATTACHED TO STRUCTURE ABOVE (AT STEEL DECK MINIMUM 16")
45° BRACE ALIGN W/STUD WHERE POSSIBLE AT 4'-O" O.C.	
TRACK THICKNESS PER SCHEDULE	* * *
	STEEL STUDS

	STEEL STUDS						
	B3 METAL FRAMING - DIAGONAL BRACE DETAIL						
	A500 1 1/2" = 1'-0"	-					
=	NOTES						
	1. STUD SPACING SHALL BE 16" O.C. UNLESS NOTED OTHERWISE.						
	2. ALL STUDS SHALL BE "C" TYPE STUDS WITH A 1 1/4" FLANGE MINIMUM.						
	3. DOUBLE STUDS AT SIDE OF OPENINGS ARE NOT ALLOWED TO BE CUT. MINIMUM GAGE OF STUDS AT SIDE OF OPENINGS TO BE 20 GA. AS LONG AS THE HEIGHT FALLS WITHIN THE LIMITS AS SET FORTH IN THE ALLOWABLE STEEL STUD HEIGHTS.						
	4. ALL TOP AND BOTTOM TRACKS WILL BE A MINIMUM OF ONE LEVEL OF THICKNESS HIGHER THAN THE STUDS SECURED TO IT. THE MINIMUM THICKNESS SHALL BE 33 MIL (20 GA) UNO.  18 MIL (25 GA) STUDS = 33 MIL (20 GA) TRACKS  33 MIL (20 GA) STUDS = 43 MIL (18 GA) TRACKS  43 MIL (18 GA) STUDS = 54 MIL (16 GA) TRACKS  EXAMPLE - IF YOU HAVE A 18 MIL (25 GA) STUD WALL WITH AN OPENING USING 33 MIL (20 GA) STUDS AROUND THE OPENING - A 33 MIL (20 GA) TRACK WILL BE REQUIRED.						
	5. ALL DOUBLE STUDS AT OPENINGS, HEADERS, AND SILLS WILL BE A MINIMUM OF ONE LEVEL OF THICKNESS HIGHER THAN THE STUDS ADJACENT TO IT. THE MINIMUM THICKNESS						

STUD MEMBER SEE NOTE 1	SPACING	GYP BD 1 SIDE SEE NOTE 2 TYP.	GYP BD 1 SIDE SEE NOTE 2 TYP.	CERAMIC TILE ON CEMENT BOARD 1 SIDE	CERAMIC TILE ON CEMENT BOARD 2 SIDES	TILE & CMNT BD 1 SIDE GYP BD 1 SIDE	2 LAYER GYP BD 2 SIDES
	24" O.C.	6'-O"	7'-11"	NP	NP	NP	NP
62S125-18	16" O.C.	6'-11"	8'-4	NP	NP	NP	NP
	12" O.C.	7'-7"	8'-10"	NP	NP	NP	NP
	24" O.C.	7'-6"	8'-9"	5'-9"	NP	NP	NP
62S125-33	16" O.C.	8'-7"	9'-8"	6'-7"	NP	NP	NP
	12" O.C.	9'-6"	10'-4"	7'-3"	NP	NP	NP
	24" O.C.	8'-4"	10'-7"	NP	NP	NP	8'-5"
25OS125-18	16" O.C.	9'-6"	11'-3"	NP	NP	NP	8'-11"
	12" O.C.	10'-6"	11'-11"	NP	NP	NP	9'-6"
	24" O.C.	10'-5"	11'-7"	7'-11"	7'-8"	8'-7"	8'-11"
25OS125-33	16" O.C.	-	12'-10"	9'-1"	8'-8"	9'-8"	10'-0"
	12" O.C.	13'-2"	13'-11"	10'-0"	9'-5"	10'-6"	10'-11"
	24" O.C.	11'-4"	13'-6"	8'-8"	8'-2"	9'-6"	9'-7"
250S125-43	16" O.C.	13'-0"	14'-9"	9'-11"	9'-3"	10'-7"	10'-10"
	12" O.C.	14'-4"	15'-9"	10'-11"	10'-1"	11'-5"	11'-9"
35OS125-18	24" O.C.	10'-10"	13'-5"	NP	NP	NP	9'-5'
OR	16" O.C.	12'-5"	14'-4"	NP	NP	NP	10'-9"
62S125-18	12" O.C.	13'-8"	15'-4"	NP	NP	NP	12'-O"
35OS125-33	24" O.C.	13'-6"	14'-9"	10'-4"	10'-1"	11'-2"	11'-7"
OR	16" O.C.	15'-6"	16'-5"	11'-10"	11'-4"	12'-6"	12'-11"
628125-33	12" O.C.	17'-1"	17'-10"	13'-0"	12'-4"	13'-7"	14'-1"
550S125-43	24" O.C.	14'-9"	16'-3"	11'-3"	10'-6"	11'-8'	12'-3"
OR 362S125-43	16" O.C. 12" O.C.	16'-11"	18'-O" 19'-7"	12'-11"	]]'-]]" 17: 1"	13'-3"	13'-10"
0023123-43	12 O.C. 24" O.C.	18'-7" 12'-O"	14'-2'	14'-2" NP	13'-1" NP	14'-6' NP	15'-2" 10'-5"
400S125-18	16" O.C.	13'-9"	14 -2 15'-4"	NP NP	NP	NP NP	10-5
1003123-10	12" O.C.	15'-1"	16'-5"	NP	NP	NP	13'-O"
	24" O.C.	15'-O"	16'-5'	11'-6"	11'-2"	12'-4"	12'-10"
100S125-33	16" O.C.	17'-3"	18'-4"	13'-2"	12'-6"	13'-9"	14'-5"
+003123-33	12" O.C.	18'-11"	19'-11"	14'-5"	13'-7"	15'-O"	15'-8"
	24" O.C.	16'-5"	17'-2"	12'-6"	11'-6"	12'-8'	13'-4"
100S125-43	16" O.C.	18'-9"	19'-5"	14'-4"	13'-2"	14'-6"	15'-2"
1000120 10	12" O.C.	20'-8'	21'-2"	15'-9"	14'-5"	15'-11"	16'-8"
	24" O.C.	NP	16'-9"	NP	NP	NP	11'-5"
OOS125-18	16" O.C.	NP	19'-9"	NP	NP	NP	14'-O"
	12" O.C.	NP	22'-1"	NP	NP	NP	16'-2"
	24" O.C.	20'-10"	21'-7"	15'-11"	15'-O"	16'-7"	17'-2"
OOS125-33	16" O.C.	23'-11"	24'-6"	18'-3"	17'-0"	18'-9"	19'-5"
	12" O.C.	26'-3"	26'-9"	20'-1"	18'-7"	20'-6"	21'-3"
	24" O.C.	22'-9"	25'-7"	17'-4"	17'-1"	19'-1"	19'-10"
OOS125-43	16" O.C.	26'-O"	28'-3"	19'-10"	19'-1"	21'-3"	22'-1"
	12" O.C.	28'-8"	30'-7"	21'-10"	20'-9"	23'-0"	23'-11"
	24" O.C.	28'-11"	30'-6"	22'-O"	21'-O"	23'-5"	24'-2"
300S125-43	16" O.C.	33'-1"	34'-4"	25'-3"	23'-9"	26'-3"	27'-2"
	12" O.C.	36'-5"	37'-6"	27'-9"	25'-11"	28'-8"	29'-8"

GYPSUM BOARD USED FOR THIS TABLE TO BE 5/8" ON 1 SIDE OR 2 SIDES OF THE

NOT ALL POSSIBLE OPTIONS OF STEEL STUDS ARE SHOWN IN THIS TABLE. ALL

OTHER VARIATIONS ARE TO REVIEWED AND APPROVED BY THE ARCHITECT OR

CHARACTERS 5-7 = FLANGE WIDTH (125 = 1 1/4")

FOR REFERENCE ONLY GUAGE NO =

STRUCTURAL ENGINEER.

NP = NOT PERMITTED

8 MILS = 25 GAUGE

33 MILS = 20 GAUGE

3 MILS = 18 GAUGE

STEEL STUDS.

CHARACTERS 8-9 = MATERIAL THICKNESS IN MILS

CHARACTERS 5-7 = FLANGE WIDTH (125 = 1 1/4") CHARACTERS 8-9 = MATERIAL THICKNESS IN MILS STEEL STUDS.

- 3. MINIMUM THICKNESS OF STUDS FOR SUPPORT OF CERAMIC TILE SHALL BE 33 MILS (20 GAUGE) - ACTUAL THICKNESS WILL BE DETERMINED BY THE HEIGHT OF THE STUD.
- 4. NOT ALL POSSIBLE OPTIONS OF STEEL STUDS ARE SHOWN IN THIS TABLE. ALL OTHER VARIATIONS ARE TO REVIEWED AND APPROVED BY THE ARCHITECT OR STRUCTURAL ENGINEER. 5. 25 GAUGE STUDS ARE NOT PERMITTED

2. ALL STUDS SHALL BE "C" TYPE STUDS WITH A 11/4" FLANGE MIN. 3. DOUBLE STUDS AT SIDE OF OPENINGS ARE NOT ALLOWED TO BE CUT. MIN. GAUGE OF STUDS AT SIDE OF OPENINGS TO BE 20 GA. AS LONG AS THE HEIGHT FALLS WITHIN THE LIMITS AS SET FORTH IN THE ALLOWABLE STEEL STUD HEIGHTS. 4. ALL TOP AND BOTTOM TRACKS WILL BE A MINIMUM OF ONE LEVEL OF THICKNESS HIGHER THAN THE STUDS SECURED TO IT. THE MIN. THICKNESS

18 MIL (25 GAUGE) STUDS = 33 MIL (20 GAUGE) TRACKS 33 MIL (20 GAUGE) STUDS = 43 MIL (18 GAUGE) TRACKS 43 MIL (18 GAUGE) STUDS = 54 MIL (16 GAUGE) TRACKS

LE ST	EEL STU	D CELIN	NG SPAN	S L/360			RA
	1 LAYER O	F GYP BD	2 LAYERS (	OF GYP BD			$\overline{A}$
•	LATERAL SI COMPRESSIO	JPPORT OF ON FLANGE	LATERAL SI COMPRESSI	UPPORT OF ON FLANGE	1		LABO
•	UNSUPPORTED	MID SPAN	UNSUPPORTED	MID SPAN	<u> </u>		٩
PACING '	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2			
4" O.C.	7'-5"	7'-5"	6'-6"	6'-6"			$\neg$
6" O.C.	8'-6"	8'-6"	7'-5"	7'-5"			$\overline{\Box}$
2" O.C.	9'-4"	9'-4"	8'-2"	8'-2"			$\gtrsim$
4" O.C.	10'-10"	10'-10"	9'-5"	9'-5"	<u> </u>		4
6" O.C.	12'-5"	12'-5"	10'-10"	10'-10"	<u> </u>		RESEARCH
2" O.C.	13'-5"	13'-8"		-   "	<u> </u>		Щ
4" O.C.	11'-9"	11'-9"	10'-3"	10'-3"	<u> </u>		( )
5" O.C. 2" O.C.	13'-6"	13'-6"	11'-9"	11'-9"	<u> </u>		$\simeq$
2" O.C.	14'-10"	14'-10"	13'-O"	13'-0"	<u> </u>		
4" O.C.	12'-2"	18'-2"	10'-11"	12'-7"	<u> </u>	$\sim$	WATER
5" O.C.	13'-7"	16'-6"	12'-2"	14'-5"	<u> </u>	DETAIL	Ш
2" O.C.	14'-8"	14'-5"	13'-2"	15'-10"	<u> </u>	∢	⊢
4" O.C.	13'-4"	15'-8"		13'-8"	<u> </u>	— <u> </u>	⋖
5" O.C.	14'-11"	17'-11	13'-4"	15'-8"	<u> </u>	Ш	>
2" O.C.	16'-2"	19'-9"	14'-5"	17'-3"	<u> </u>	$\cap$	>
4" O.C.	12'-6"	15'-6"	11'-3"	13'-7"	<u> </u>		$\overline{}$
5" O.C.	13'-11"	17'-10"	12'-6"	15'-6"	<u> </u>	$\Theta$	UTAH
2" O.C.	15'-1"	19'-7"	13'-6"	17'-1"	<u> </u>	Z	$\preceq$
4" O.C.	13'-8"	16'-11"	12'-2"	14'-9"	<u> </u>		
6" O.C.	15'-3"	19'-4"	13'-8"	16'-11"	<u> </u>	Σ	
2" O.C.	16'-7"	21'-4"	14'-9"	18'-7"		FRAMING	usu I
4" O.C.	14'-0"	20'-4"	12'-8"	18'-4"		$\sim$	S
6" O.C.	15'-7"	22'-7"	14'-0"	20'-4"		ii l	j
2" O.C.	16'-10"	24'-4"	15'-2"	21'-11"	7		_

	Z-T O.C.	12 2	10 2	10 11	14 /
362\$162-33	16" O.C.	13'-7"	16'-6"	12'-2"	14'-5"
	12" O.C.	14'-8"	14'-5"	13'-2"	15'-10"
	24" O.C.	13'-4"	15'-8"		13'-8"
362S162-43	16" O.C.	14'-11"	17'-11	13'-4"	15'-8"
	12" O.C.	16'-2"	19'-9"	14'-5"	17'-3"
	24" O.C.	12'-6"	15'-6"	11'-3"	13'-7"
400S162-33	16" O.C.	13'-11"	17'-10"	12'-6"	15'-6"
	12" O.C.	15'-1"	19'-7"	13'-6"	17'-1"
	24" O.C.	13'-8"	16'-11"	12'-2"	14'-9"
400S162-43	16" O.C.	15'-3"	19'-4"	13'-8"	16'-11"
	12" O.C.	16'-7"	21'-4"	14'-9"	18'-7"
	24" O.C.	14'-0"	20'-4"	12'-8"	18'-4"
600S162-33	16" O.C.	15'-7"	22'-7"	14'-O"	20'-4"
	12" O.C.	16'-10"	24'-4"	15'-2"	21'-11"
	24" O.C.	15'-2"	21'-10"	13'-8"	19'-8"
600S162-43	16" O.C.	16'-11"	24'-4"	15'-2"	21'-10"
	12" O.C.	18'-4"	26'-3"	16'-5"	23'-7"
CHARACTERS CHARACTER 4	I = STYLE (S	ER DEPTH (36	ST)		

1. STUD SPACING SHALL BE 16" O.C. UNLESS NOTED OTHERWISE.

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DI METAL FRAMING - SOUND-FIRE WALL DETAIL A500 1 1/2" = 1'-0" ACOUSTICAL JOHN WALL SEALAWIDTH VARIES C1 METAL FRAMING - INTERIOR WALL - WINDOW DETAIL C5 METAL FRAMING - SLOTTED TOP TRACK A500 1 1/2" = 1'-0" ALLOWABLE STEEL STUD CELING SPANS 1 /360 NOTE: ALL DOUBLE STUDS TO BE INSULATED IN — STEEL STUD ATTACHED TO METAL EXTERIOR WALLS STUD ANGLE - THICKNESS SHALL BE 1 1" WIDE STRAP @ MEMBER GAGE HIGHER THEN STUDS 36" O.C SEE NOTE 1 THICKNESS TO STEEL STUD ATTACHED TO STRUCTURE ABOVE MATCH TRACK 162S137-33 + + 25OS162-33 - STEEL STUD -25OS162-43 STEEL STUD ANGLE BRACE

ALTERNATE BRACE

POSSIBLE

ORIENTATION WHERE

— NOTE: ALL DOUBLE STUDS TO BE

INSULATED IN EXTERIOR WALLS

NOTE: ALL BOXED HEADERS TO BE

BE 33 MIL (20 GA) UNO.

18 MIL (25 GA) STUDS = 33 MIL (20 GA) TRACKS

33 MIL (20 GA) STUDS = 43 MIL (18 GA) TRACKS

43 MIL (18 GA) STUDS = 54 MIL (16 GA) TRACKS

INSULATED IN EXTERIOR WALLS

COMPOSITE CONC. FLOOR -SYSTEM OR METAL ROOF DECK O.145" X 1" POWER ACTUATED -

FASTENER @ 16" O.C. (MAX.)

MANUFACTURER FOR FASTENER

CAPACITY OR PER ENGINEER OF

MINERAL WOOL OR CEMENTIOUS -

DTL -A

A500 1 1/2" = 1'-0"

STEEL STUD

TRACK THICKNESS

WEB FOLDED AND

PER NOTE 4 W/

**EXTENDED FOR** 

ATTACHMENT TO

2 EA STEEL STUDS MIN

SIZE 3-5/8" STUD UP TO

THICKNESS PERNOTE 5

– DOUBLE STEEL STUD —

- 1" WIDE STRAP @ 36"

O.C. THICKNESS TO

MATCH TRACK

THICKNESS PER NOTE 5

8'-3" SPAN- 6" STUD UP

TO 12'-0" SPAN

FLANGES

STUDS

B2 METAL FRAMING - DIAGONAL BRACE DETAIL SIDE VIEW

WINDOW & DOOR HEADER TO

12'-O" SPAN

REFERENCE FASTENER

RECORD

STUD WALL

GYPSUM BOARD MIN.

GAP 1/ 4"- MAX. GAP 1/2"

WIDTH VARIES

THICKNESS PER NOTE 4 W/ WEB FOLDED AND FLANGES EXTENDED FOR

ATTACHMENT TO

NOTE: ALL DOUBLE STUDS

TO BE INSULATED IN EXTERIOR WALLS

TRACK THICKNESS PER

FOLDED AND FLANGES

NOTE 4 W/ WEB

EXTENDED FOR

ATTACHMENT TO

STEEL STUD

STEEL STUD

THICKNESS

PER NOTE 5

WINDOW & MISC OPNG TO 8'-3"

NOTE: ALL BOXED HEADERS TO BE

INSULATED IN EXTERIOR WALLS

DOOR HEADER TO 4'-3" SPAN

WINDOW & MISC HEADER TO 6'-3"

DOUBLE STEEL STUD THICKNESS

B1 METAL FRAMING - OPENING DETAILS

A1 METAL FRAMING - OPENING HEADERS

PER NOTE 5

WINDOW & MISC

OPNG TO 4'-3"

A500 1 1/2" = 1'-0"

WINDOW & MISC HEADER

A500 1 1/2" = 1'-0"

TO 4'-3" SPAN

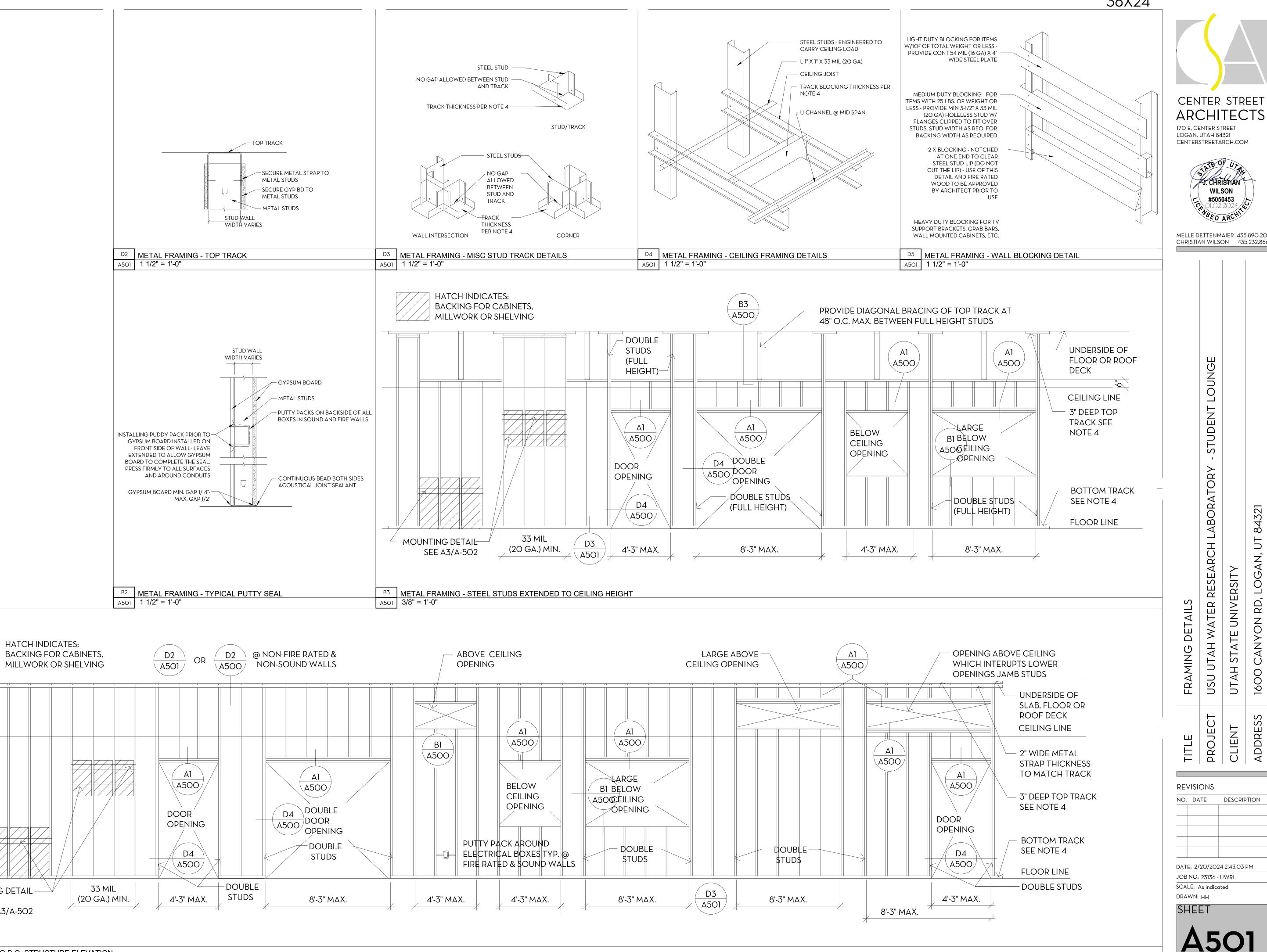
- GYPSUM BOARD

- SECURE GYP BOARD

TO STUD ONLY

FOR REFERENCE ONLY GUAGE NO = 33 MILS = 20 G 43 MILS = 18 GA 2. GYPSUM BOARD USED FOR THIS TABLE TO BE 5/8" ON 1 SIDE OF THE

SHALL BE 33 MIL (20 GAUGE) UNLESS NOTED OTHERWISE. 18 MIL (25 GAUGE) STUDS = 33 MIL (20 GAUGE) TRACKS 33 MIL (20 GAUGE) STUDS = 43 MIL (18 GAUGE) TRACKS 43 MIL (18 GAUGE) STUDS = 54 MIL (16 GAUGE) TRACKS 4. ALL DOUBLE STUDS AT OPENINGS, HEADERS, AND SILLS WILL BE A MIN. OF ONE LEVEL OF THICKNESS HIGHER THAN THE STUDS ADJACENT TO IT. THE MIN. THICKNESS SHALL BE 33 MIL (20 GAUGE) UNLESS NOTED OTHERWISE.



WILSON #5050453 MELLE DETTENMAIER 435.890.2009 CHRISTIAN WILSON 435.232.8662 STUDE ATORY

> LABO USU UTAH WATER RESEARCH UTAH STATE UNIVERSITY RD,

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A1 METAL FRAMING - STEEL STUDS TO B.O. STRUCTURE ELEVATION
A501 3/8" = 1'-0"

MOUNTING DETAIL -

SEE A3/A-502

ARCHITECTURAL ONLY

PROJECT LOCATION: UTAH STATE UNIVERSITY - UTAH WATER RESEARCH LABORATORY PROJECT DESCRIPTION: STUDENT LOUNGE REMODEL

CENTER STREET ARCHITECTS, LLC 170 EAST CENTER STREET LOGAN, UTAH 84321 melle@centerstreetarch.com 435.232.8662

INSTRUCTIONS TO BIDDERS:

CAREFULLY EXAMINE SPECIFICATIONS, AND DRAWINGS, AS WELL AS ALL OF THE CONDITIONS AFFECTING THE WORK. THE GENERAL CONTRACTOR AND ALL SUB CONTRACTORS SHALL FULLY UNDERSTAND ALL PROVISIONS CONTAINED IN THESE DOCUMENTS AND AGREE TO DO ALL THAT IS CALLED FOR BY THEM, INCLUDING FURNISHING ALL NECESSARY LABOR AND MATERIALS TO SUPPLY AND INSTALL WORK OF EACH DIVISION OF THE WORK, OR ITEM FOR WHICH A COST IS GIVEN TO PROVIDE A COMPLETE INSTALLATION.

I. GENERAL CONDITIONS

A. PERMITS: THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN AND APPLY FOR ALL, LICENSES, CERTIFICATES, INSPECTIONS REQUIRED BY LAW, BOTH PERMANENT AND TEMPORARY, AND MAINTAIN COPIES OF ALL PERMITS ON THE JOB SITE AT ALL TIMES. B. CHANGES FROM ORIGINAL PLANS:

THE OWNER RESERVES THE RIGHT TO MAKE ANY DESIRED CHANGE IN PLANS AND SPECIFICATIONS WHILE UNDER CONTRACT. HOWEVER, THE CHANGES MADE, MAY ADJUST THE PRICE (ADDED OR DEDUCTED) TO THE ORIGINAL CONTRACT PRICE. THE ADJUSTED PRICE SHALL BE AGREED UPON BETWEEN THE OWNER AND THE CONTRACTOR AND ENDORSED UPON ORIGINAL CONTRACT. WHEN BOTH PARTIES AGREE THERETO, IT SHALL IN NO WAY INVALIDATE OR MAKE VOID THE ORIGINAL

THE OWNER, WITHOUT INVALIDATING THE CONTRACT, MAY REQUEST EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK. THE CONTRACT SUM WILL THEN BE ADJUSTED ACCORDINGLY. ALL SUCH WORK SHALL BE EXECUTED UNDER THE CONDITIONS OF THE ORIGINAL CONTRACT. ANY CLAIM FOR EXTENSION OF TIME CAUSED THEREBY, SHALL BE ADJUSTED IN ONE OR MORE OF THE FOLLOWING WAYS: CHANGE ORDER, & COSTS FOR EXTENSIONS INCLUDED IN PROPOSAL

BY ESTIMATE AND ACCEPTANCE IN A LUMP SUM. B. BY COST AND PERCENTAGE, OR BY COST AND FIXED FEE. IF THE CONTRACTOR CLAIMS THAT ANY INSTRUCTIONS BY DRAWINGS OR OTHERWISE INVOLVE EXTRA COST UNDER THIS CONTRACT, THE CONTRACTOR SHALL GIVE THE OWNER WRITTEN NOTICE THEREOF WITHIN A REASONABLE TIME AFTER THE RECEIPT OF SUCH INSTRUCTIONS.

C. BROOM CLEAN, CONTRACTOR SHALL REMOVE STAINS, SPOTS, MARKS, AND DIRT FROM COMPLETED WORK. WASH CONCRETE FLOORS, CLEAN AND WAX ALL RESILIENT FLOORS, CLEAN ALL GLASS. CONTRACTOR SHALL COMPLY WITH ALL SPECIAL CLEANING INSTRUCTIONS IN THE SPECIFICATIONS AND/OR MANUFACTURERS INSTRUCTIONS. D. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE COMPLIMENTARY. SPECIFIC INFORMATION MAY BE FOUND IN EITHER OR BOTH E. WHEN A CONTRACTOR IS ALLOWED A SUBSTITUTION, HE/SHE WILL COVER THE ENTIRE

EXPENSE OF THE SUBSTITUTION, INCLUDING WORK AND EXPENSES OF OTHER CONTRACTORS CAUSED BY THE SUBSTITUTION.

#### **DIVISION GENERAL REQUIREMENT** SECTION - 01 00 00 - GENERAL REQUIREMENTS

UNDER THE CONTRACT.

A. LOCATE ALL EXISTING UTILITY SERVICE LINES AND PROTECT THROUGHOUT

CONSTRUCTION PERIOD. CONTRACTOR TO LAY OUT WORK AND BE RESPONSIBLE FOR ALL LINES, MEASUREMENTS OF THE BUILDING, UTILITIES, AND OTHER WORK EXECUTED

1.2 EXAMINATION: ANY DISCREPANCIES, ERRORS, OR OMISSIONS DISCOVERED IN THE CONTRACT DOCUMENTS BY THE CONTRACTOR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER BEFORE PROCEEDING WITH RELATED WORK, OTHERWISE THE CORRECTION OF SUCH ITEMS IS THE RESPONSIBILITY OF THE CONTRACTOR.

1.3. CODES AND STANDARDS

ALL WORK, MATERIALS, AND INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ALL CODIFIED ORDINANCES, THE APPLICABLE STATE CODE, AND THE CITY/COUNTY'S BUILDING CODE, LATEST EDITIONS. 1.4 TEMPORARY FACILITIES:

TEMPORARY OFFICE: AS REQUIRED BY REQUIRED BY CONTRACTOR. SAFETY AND FIRE PROTECTION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR; PROVIDE THE FOLLOWING: 1. SCHEDULE MEANS OF SAFETY AND FIRE PROTECTION FOR BUILDING, ALL MATERIALS, AND PERSONNEL PRIOR TO START OF WORK. METHODS AND EQUIPMENT SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL. 2. COMPLY WITH ALL APPLICABLE PROVISION OF MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION, ISSUED BY THE ASSOCIATION OF GENERAL

CONTRACTORS OF AMERICA, INC. 3. ALLOW NO WELDING TO BE PERFORMED BY ANY CONTRACTOR OR SUBCONTRACTOR UNLESS AN APPROVED FIRE EXTINGUISHER IS IMMEDIATELY ADJACENT TO THE WORK.

<u> SECTION - 01 18 00 PROJECT UTILITY SOURCES</u>

DOCUMENTS:

TEMPORARY UTILITIES: THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH AVAILABLE UTILITY(S) FOR TEMPORARY CONNECTIONS AND BEAR ALL COSTS FOR THESE UTILITIES. ON THE CAMPUS PROPER AND SOME PERIPHERAL AREAS THE UTILITIES ARE UNIVERSITY UTILITIES AND THE CONTRACTOR SHALL MAKE ARRANGEMENTS THROUGH FD&C FOR CONNECTIONS. THE CONTRACTOR SHALL PROVIDE AND INSTALL METERS FOR MEASURING USE OF UTILITIES PURCHASED FROM UTAH STATE UNIVERSITY. FD&C SHALL READ OR HAVE THE METERS READ AT THE BEGINNING OF THE PROJECT, MONTHLY, AND AT THE END OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY COSTS INCLUDING THOSE FROM THE UNIVERSITY.

SECTION - 01 31 00 PROJECT MANAGEMENT AND COORDINATION GENERAL: THE FOLLOWING REQUIREMENTS SHALL BE INCORPORATED IN THE CONTRACT

A. SCHEDULES: FOR USU DELEGATED AND CAPITAL IMPROVEMENT PROJECTS, THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE WITH EACH PAY REQUEST. PAY REQUESTS W/O SCHEDULES WILL NOT BE PROCESSED. THE CONTRACTOR SHALL DELIVER THIS SCHEDULE AND PAY REQUEST TO THE CONSULTANT FIRST. THE CONSULTANT SHALL REVIEW THE PAY REQUEST TO VERIFY ACCURACY AND AMOUNT COMPLETED. CONSULTANT WILL THEN TRANSMIT TO THE USU FD&C CONSTRUCTION COORDINATOR FOR APPROVAL AND PAYMENT.

PROGRESS MEETINGS: THE CONTRACTOR SHALL BE IN CHARGE OF THE CONSTRUCTION PROGRESS MEETINGS, SET THE AGENDA AND TAKE MINUTES OF THE MEETING. THE CONTRACTOR SHALL DISTRIBUTE COPIES OF THE AGENDA AND MINUTES TO FACILITIES DESIGN & CONSTRUCTION, AND THE CONSULTANT PRIOR TO EACH MEETING. THE AGENDA FOR WEEKLY SCHEDULED PROGRESS MEETINGS SHALL COVER THEFOLLOWING:

PROBLEMS AND POTENTIAL FIELD ORDERS OR CHANGE ORDERS,

PROPOSAL REQUESTS, AND RFIS.

UPDATE OF THE CONSTRUCTION SCHEDULE.

WORK COMPLETED DURING THE LAST WEEK. ITEMS TO BE COMPLETED DURING THE NEXT WEEK WITH ASSIGNMENTS SECTION - 01 35 00 SPECIAL PROCEDURES GENERAL: THE FOLLOWING REQUIREMENTS SHALL BE INCORPORATED IN THE

CONTRACT DOCUMENTS. UTILITIES MAPPING: THE CONTRACTOR SHALL NOTIFY FD&C FORTY-EIGHT (48) HOURS BEFORE BACK FILLING ANY SITE UTILITY EXCAVATIONS TO ALLOW FOR THE MAPPING OF NEW AND EXISTING UTILITIES BY THE UNIVERSITY. THIS APPLIES TO ALL SITE EXCAVATIONS IN WHICH UTILITY LINES ARE ENCOUNTERED. UTILITY MAPPING BY THE UNIVERSITY DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PREPARING AS-BUILT DRAWINGS OF UTILITY WORK PERFORMED UNDER

CONTRACT UTILITY AND SYSTEMS: CONSTRUCTION DOCUMENTS SHALL REQUIRE CONTRACTOR TO GIVE 7 DAYS ADVANCED NOTICE OF REQUIRED SHUT DOWNS IN WRITING.

SITE DUST CONTROL: PROVIDE EFFECTIVE DUST CONTROL MEASURES IN

ROADWAYS, PARKING LOTS, AND UTILITIES. SUCH EXTENDED AREAS WILL

ALL REMODELING AREAS. SITE DUST CONTROL IS REQUIRED PER EPA REGULATIONS. CONTRACT LIMITS: THE LIMITS OF RESPONSIBILITY FOR THE CONTRACTOR AND THE CONSULTANT SHALL INCLUDE ALL IMPACTED ADJACENT UNIVERSITY PROPERTY INCLUDING LANDSCAPE AREAS, SIDEWALKS

BE SHOWN ON THE DRAWINGS AND INDICATE THAT THE CONTRACTOR HAS RESPONSIBILITY TO MAINTAIN AND RESTORE AFFECTED AREAS. CONTRACTOR'S USE OF BUILDING EQUIPMENT: THE CONTRACTOR MAY HAVE LIMITED USE OF BUILDING EQUIPMENT SUCH AS ELECTRIC MOTORS, BLOWERS, HEAT EXCHANGERS, FILTERS, LIGHTING FIXTURES, RESTROOM FACILITIES, ETC., WITH THE PERMISSION OF FD&C. ELEVATORS MAY BE USED DURING CONSTRUCTION ONLY WITH PERMISSION.

<u>SECTION - 01 41 00 REGULATORY REQUIREMENTS</u> GENERAL: THE FOLLOWING REQUIREMENTS SHALL BE INCORPORATED IN THE

CONTRACT DOCUMENTS. 1. PERMITS:

BUILDING PERMITS ARE NOT REQUIRED ON THE UNIVERSITY CAMPUS OR FOR CONNECTION TO UNIVERSITY UTILITIES. SEE DESIGN CRITERIA FOR SPECIFIC REVIEW AND APPROVAL PROCESS. DIGGING PERMITS ARE REQUIRED FOR ANY EXCAVATION, INCLUDING UTILITY INSTALLATION, INTERRUPTION, SHUT-OFF OR OUTAGE, ETC. THEY ARE OBTAINED THROUGH FD&C AND REQUIRE A MINIMUM OF FORTY-EIGHT (48) HOURS NOTICE DURING USU

WORKING HOURS. CAMPUS RESTRICTIONS: THE FOLLOWING SHALL APPLY DURING CONSTRUCTION: ABIDE BY ALL POSTED CAMPUS REGULATIONS IN REGARD TO TRAFFIC,

PARKING, SMOKING, NOISE, ETC. ALL TRASH AND RECYCLING IS TO BE HAULED FROM CAMPUS TO A LEGAL DISPOSAL SITE. AT NO TIME SHALL ON-SITE BURNING BE ALLOWED. DO NOT USE UNIVERSITY DUMPSTERS FOR TRASH DISPOSAL.

CLASS SCHEDULES SHOULD BE OBSERVED TO AVOID UNDUE DISTURBANCES.

PARKING PERMITS ARE REQUIRED FOR ANY PARKING OUTSIDE THE CONTRACT LIMIT LINES.

CONSULTANTS AND CONTRACTORS PERFORMING WORK FOR USU ARE SUBJECT TO FEDERAL AND STATE LAWS REGARDING AFFIRMATIVE

ACTION, EQUAL EMPLOYMENT OPPORTUNITY, AND SEXUAL HARASSMENT. DURING CONSTRUCTION OF THE PROJECT THE CONTRACTOR SHALL LIMIT NOISE FROM THE SITE AS MUCH AS POSSIBLE. LOCAL SOUND ORDINANCES ARE IN EFFECT. COORDINATE WITH FACILITIES DESIGN AND CONSTRUCTION FOR APPROPRIATE TIMES TO USE LOUD EQUIPMENT SUCH AS JACKHAMMERS OR SHOT-NAILERS. RADIOS AND OTHER DEVICES WILL NOT BE PERMITTED ON- SITE.

TEMPORARY UTILITIES:

WHERE COMMERCIAL POWER IS NOT READILY AVAILABLE, UTAH STATE UNIVERSITY MAY AT THEIR OPTION PROVIDE ELECTRIC POWER TO A TEMPORARY SERVICE. THE CONTRACTOR SHALL PROVIDE HIS OWN SERVICES FROM THE SERVICE DROP DISCONNECT. METER READINGS AT THE TIME OF METER INSTALLATION SHALL BE OBSERVED BY THE CONTRACTOR'S REPRESENTATIVE. WHEN PERMANENT ELECTRIC POWER IS INSTALLED IN THE BUILDING AND THE BUILDING SYSTEM HAS BEEN INSPECTED AND APPROVED AS OPERATIONAL, THE TEMPORARY SERVICE MAY BE REMOVED AT THE CONTRACTOR'S REQUEST. POWER SYSTEM SHALL NOT BE ENERGIZED BEFORE THE MAIN SWITCHBOARD IS INSPECTED BY USU AND THE METERING SYSTEM IS CORRECTLY INSTALLED.

THE CONTRACTOR SHALL BE BILLED FOR ELECTRICAL POWER CONSUMED ON BOTH THE TEMPORARY AND PERMANENT POWER SYSTEMS UNTIL FINAL ACCEPTANCE OF THE COMPLETE CONTRACT.

CULINARY WATER: THE CONTRACTOR SHALL PROVIDE A SOURCE OF CULINARY WATER ON

THE SITE THE SITE OR BUILDING PERMANENT CULINARY WATER MAY BE USED ON THE PROJECT AFTER PERMANENT CONNECTION AND METER(S) ARE INSTALLED AND THE LINES ARE TESTED, INSPECTED AND FLUSHED. FIRE SERVICE CONNECTIONS AND LINES SHALL NOT BE USED FOR SITE WATER. THE CONTRACTOR WILL BE BILLED FOR ALL CULINARY WATER USED ON

SITE UNLESS OTHER ARRANGEMENTS ARE MADE AT THE BEGINNING OF THE WORK BY USU FD&C.

E. STEAM AND CONDENSATE: THE CONTRACTOR SHALL PROVIDE A SOURCE OF HEAT FOR THE SITE DURING CONSTRUCTION THAT WILL NOT ADD UNNECESSARY MOISTURE TO THE INTERIOR

THE SITE OR BUILDING PERMANENT STEAM AND CONDENSATE MAY BE USED ON THE PROJECT AFTER PERMANENT CONNECTION AND METER(S) IS INSTALLED AND THE LINES ARE TESTED, INSPECTED AND FLUSHED. THE CONTRACTOR WILL BE BILLED FOR ALL STEAM (CONDENSATE) USED ON SITE UNLESS OTHER ARRANGEMENTS ARE MADE AT THE BEGINNING OF

THE WORK BY FD&C. NATURAL GAS

THE CONTRACTOR MAY PROVIDE A SOURCE OF NATURAL GAS FOR THE THE SITE OR BUILDING PERMANENT NATURAL GAS MAY BE USED ON THE PROJECT AFTER PERMANENT CONNECTION AND METER(S) IS INSTALLED

AND THE LINES ARE TESTED, INSPECTED THE CONTRACTOR WILL BE BILLED FOR ALL NATURAL GAS USED ON SITE UNLESS OTHER ARRANGEMENTS ARE MADE AT THE BEGINNING OF THE WORK BY FD&C.

TELEPHONE AND DATA 1. WITHIN THE UNIVERSITY SERVICE AREA, HARD LINE AND/OR DATA SERVICE IS TO BE ORDERED THROUGH THE LOCAL TELEPHONE COMPANY

AND THEN ARRANGED FOR SERVICE TO THE CONSTRUCTION SITE HROUGH ON CAMPUS CABLES THROUGH THE USU IT DEPARTMENT. <u>SECTION - 01 52 00 CONSTRUCTION FACILITIES</u>

CONSTRUCTION OFFICE: CONSTRUCTION OFFICE FOR THE USE OF THE CONSULTANT AND USU SHALL BE PROVIDED BY CONTRACTOR. CONSTRUCTION OFFICE SHALL INCLUDE A TABLE WITH 12 CHAIRS, A PLAN RACK, A PLAN TABLE, AND A TWO-DRAWER FILE. THIS OFFICE SHALL BE MAINTAINED BY THE CONTRACTOR AND SHALL HAVE DATA, HEAT AND AIR CONDITIONING. IT SHALL BE

MAINTAINED IN CLEAN CONDITION. SANITARY FACILITIES: THE CONTRACTOR SHALL PROVIDE TEMPORARY

SANITATION FACILITIES FOR THE PROJECT.

LANDSCAPE TO AVOID CONSTRUCTION.

SECTION - 01 53 00 TEMPORARY CONSTRUCTION A. WHEN ROUTING PEDESTRIANS AROUND AN AREA OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY WALKING SURFACES ACROSS EXISTING LANDSCAPED AREAS. THESE SURFACES SHALL BE CONSTRUCTED OF A DURABLE MATERIAL WITH A SLIP-RESISTANT SURFACE. THE USE AND PLACEMENT OF TEMPORARY WALKING SURFACES SHALL BE APPROVED IN ADVANCE BY FD&C. THE CONTRACTOR SHALL RESTORE ALL LANDSCAPED AREAS DAMAGED BY THE PLACEMENT AND USE OF THE WALKWAYS. THE CONTRACTOR SHALL ALSO RESTORE LANDSCAPE DAMAGED BY PEDESTRIANS ROUTED OVER EXISTING

SECTION - 01 55 00 VEHICULAR ACCESS AND PARKING

INDICATE ON THE CONSTRUCTION DRAWINGS ACCESS ROUTES TO JOB SITE THROUGH THE CAMPUS FOR CONCRETE TRUCKS, DELIVERY TRUCKS AND OTHER VEHICLES CONCERNED WITH THE PROJECT. DETERMINE THESE ROUTES WITH FD&C. ANY DAMAGE TO THESE AREAS SHALL BE REPAIRED BY THE CONTRACTOR UPON COMPLETION OF THE PROJECT.

SECTION - 01 56 OO TEMPORARY BARRIERS AND ENCLOSURES OPEN EXCAVATIONS OUTSIDE OF CONSTRUCTION FENCES SHALL BE PROTECTED

BY 6 FOOT HIGH SCREENED CHAIN LINK FENCING IN GOOD REPAIR. INSTALL FENCING IN STRAIGHT, TRUE LINES. FENCING SHALL NOT EXTEND INTO PEDESTRIAN WALKWAY, AND SHALL NOT CREATE A SAFETY HAZARD. GATES SHALL BE LOCKED WITH THE CONTRACTOR'S LOCK AND APPROPRIATE UNIVERSITY LOCKS IN A MANNER TO ALLOW THE UNIVERSITY EMERGENCY VEHICLE ACCESS AT ANY TIME. UNIVERSITY LOCKS ARE OBTAINABLE FROM THE UNIVERSITY POLICE OR FIRE MARSHAL. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL DISMANTLE THE FENCE AND REMOVE IT FROM SITE.

WHEN PEDESTRIANS ARE ROUTED AROUND CONSTRUCTION AREAS ADDITIONAL BARRICADES WILL BE REQUIRED TO PREVENT DAMAGE TO ADJACENT LANDSCAPED AREAS. BARRICADES SHALL BE PLACED TO ROUTE PEDESTRIANS AROUND AFFECTED AREAS USING EXISTING PAVED SURFACES. THESE BARRICADES SHALL BE CONSTRUCTED AS DESCRIBED ABOVE.

<u> CTION - 01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS</u>

77 OO TRANSFERRING ITEMS THE CONTRACTOR SHALL TRANSFER ALL DELIVERABLES THROUGH THE CONSULTANT TO THE UNIVERSITY. ALL CONTRACTOR SUPPLIED ITEMS TRANSFERRED TO THE UNIVERSITY SHALL BE ACCOMPANIED BY A LETTER OF TRANSMITTAL SIGNED BY AN AUTHORIZED AGENT AND DELIVERED TO FD&C AS A RECORD COPY BY THE CONSULTANT. AS-BUILTS, OPERATIONS AND MAINTENANCE MANUALS, GUARANTEES, SALVAGED EQUIPMENT, EXTRA OR SERVICE PARTS OR OTHER SIMILAR TYPE ITEMS SHOULD BE HANDLED IN THIS WAY TO AVOID MISUNDERSTANDINGS OF WHAT HAS BEEN TRANSFERRED AND WHEN IT WAS TRANSFERRED. THE CONSULTANT SHALL VERIFY THAT THE CORRECT QUANTITIES OF ALL MAINTENANCE STOCK ITEMS ARE TRANSFERRED.

A. GENERAL: THE FOLLOWING REQUIREMENTS SHALL BE INCORPORATED IN THE CONTRACT

SUBSTANTIAL COMPLETION: A SUBSTANTIAL COMPLETION CERTIFICATE SHALL NOT BE ISSUED UNTIL THE UNIVERSITY MAY OCCUPY THE BUILDING. THE ATTORNEY GENERAL HAS CLARIFIED THIS AS FOLLOWS: THAT ALL FIRE MARSHAL ITEMS ARE CLEARED AND A "CERTIFICATE OF FIRE CLEARANCE" IS ISSUED.

> THAT THE CONSULTANT HAS RECEIVED BALANCE REPORTS FROM THE CONTRACTOR. THAT ALL CORRECTION ITEMS HAVE BEEN SUBSTANTIALLY

COMPLETED. PRE-SUBSTANTIAL COMPLETION INSPECTION: THE CONSULTANT WILL SCHEDULEA PRE-SUBSTANTIAL COMPLETION INSPECTION. THE INSPECTION SHALL INCLUDE ALLCONSULTANTS, FD&C, BUILDING CODE OFFICIAL OR REPRESENTATIVE, AND OTHERINVITED UNIVERSITY

ALL INSPECTION REPORTS BY UNIVERSITY REPRESENTATIVES SHALL BE SUBMITTED TO FD&C WHO WILL PROVIDE THE CONSULTANT WITH COPIES OF THE REPORTS. THE CONSULTANT SHALL CHECK FOR CONFORMANCE TO THE CONTRACT DOCUMENTS.

THE CONSULTANT SHALL ASSEMBLE ALL REPORTS FROM HIS CONSULTANTS AND THE UNIVERSITY REPRESENTATIVES AND

DISTRIBUTE COPIES TO THE CONTRACTOR AND FD&C. SUBSTANTIAL COMPLETION INSPECTION: THE SUBSTANTIAL COMPLETION INSPECTION WILL BE HELD AFTER COMPLETION OF THE ITEMS NOTED IN THE PRESUBSTANTIAL COMPLETION INSPECTION REPORT AND WHEN THE BUILDING IS READY FOR OCCUPANCY. THE SUBSTANTIAL COMPLETION INSPECTION WILL BE MADE WITH THE STATE FIRE MARSHAL, STATE AND UNIVERSITY OFFICIALS. THE CONSULTANT, AND THE CONTRACTOR.

FINAL METER READINGS: NOTIFY FACILITIES OPERATIONS TO MAKE FINAL METER READINGS FOR USU TEMPORARY AND PERMANENT UTILITIES. UTILITY BILLINGS: PROVIDE PROOF OF CLEARANCE FROM USU FACILITIES

OPERATIONS THAT ALL UTILITY BILLS HAVE BEEN PAID. INSURANCE TERMINATION: ADVISE USU OF PENDING INSURANCE

TERMINATION DATE. TRAINING SESSION: THE CONTRACTOR SHALL PROVIDE A TRAINING SESSION TO UNIVERSITY PERSONNEL ON ALL MECHANICAL, ELECTRICAL, COMMUNICATION, ETC SYSTEMS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT TO FD&C AN ATTENDANCE LOG. THIS ATTENDANCE LOG SHALL INCLUDE ALL UNIVERSITY PERSONNEL PRESENT AT THE ABOVE TRAINING SESSION AND THEIR SIGNATURES. THE CONTRACTOR SHALL PROVIDE A

VIDEO OF THE TRAINING SESSION TO FD&C. DELIVERABLES: PRIOR TO FINAL PAYMENT, PROVIDE ONE COMPLETE ELECTRONIC SET OF OPERATION AND MAINTENANCE MANUALS AND WARRANTIES AS OUTLINED IN SECTION 01 78 23. THE CONTRACTOR SHALL ALSO PROVIDE ACCURATE AS-BUILT DRAWINGS FOR THE PURPOSE OF GENERATING A RECORD DRAWING SET AS OUTLINED IN SECTION 01 78 39. CONSULTANTS SHALL REVIEW THE SUBMITTALS FOR COMPLETENESS AND, WHERE APPLICABLE. INCORPORATE CHANGES IN THE RECORD DRAWINGS. THE CONSULTANT SHALL DELIVER COMPLETED O&M MANUALS, ORIGINAL AS-BUILT DOCUMENTS, AND RECORD DRAWINGS TO FD&C AT ONE TIME. THE CONSULTANT SHALL NOT RECEIVE FINAL PAYMENT UNTIL THE O&M DOCUMENTS, AS-BUILT AND RECORD DRAWINGS ARE RECEIVED AND APPROVED BY FD&C.

SECTION - 01 78 23 OPERATION AND MAINTENANCE DATA ASSEMBLE A COMPLETE SET OF OPERATION AND MAINTENANCE MANUALS. O&MMANUALS SHALL BE COMPRISED OF THE FOLLOWING: GENERAL CONTRACTOR AND SUBCONTRACTOR CONTACT INFORMATION.

WARRANTY INFORMATION. MANUFACTURERS' INFORMATION SUBMITTED AS PART OF THE SHOP DRAWING REVIEW PROCESS. INCLUDE O&M DATA REQUIRED IN PROJECT SPECIFICATION SECTIONS.

INSTRUCTION FOR CARE AND MAINTENANCE SPECIFIC TO EACH PROVIDED SYSTEM OR COMPONENT. PRODUCT DATA WITH CATALOG NUMBER, SIZE, COLOR AND OTHER

INFORMATION NECESSARY TO IDENTIFY EACH SYSTEM OR COMPONENT TRANSMITTALS SHOWING FD&C'S ACCEPTANCE OF ALL EXTRA MATERIAL

SPECIFIED. ELECTRONIC FILES SHALL BE SUBMITTED IN PDF FORMAT.

SEPARATE IN TO 3 MAJOR GROUPS AS FOLLOWS: CONTRACTOR INFORMATION AND ARCHITECTURAL

MECHANICAI

ELECTRICAL EACH PDF MUST INCLUDE BOOKMARK LINKED TO EACH SECTION WITH SUB BOOKMARKS FOR EACH SUBCATEGORY, PRODUCT MANUAL, AND PIECE OF

PDFS MUST HAVE TEXT RECOGNITION / OPTICAL CHARACTER RECOGNITION (OCR) ENABLE SO PDFS ARE SEARCHABLE.

PDFS SHALL BE EDITABLE TO THE EXTENT THAT FILES AND PAGES CAN BE ADDED AND COMBINED, AND TEXT CAN BE COPIED.

ALL PASSWORDS MUST BE REMOVED FROM FILES.

SECTION - 01 78 39 PROJECT RECORD DOCUMENTS PHOTO RECORD OF PROJECT: THE CONTRACTOR SHALL PHOTOGRAPH ALL ABOVE CEILING DUCTWORK AND CONDUITS BEFORE THE INSTALLATION OF THE CEILING SYSTEM. PHOTOGRAPH INFORMATION SHALL INCLUDE THE ROOM NUMBER, IDENTIFICATION OF THE DUCT OR CONDUIT, AND ITS LOCATION IN THE ROOM. THE PHOTO DOCUMENTATION SHALL BE DELIVERED TO USU FD&C AFTER COMPLETION OF ALL DUCT AND CONDUIT WORK.

<u> SECTION - 01 78 39 PROJECT RECORD DOCUMENTS (CONT.)</u>

RECORD CALCULATIONS REQUIREMENTS: CONSULTANTS SHALL SUBMIT ONE (1) COMPLETE COPY OF ALL RECORD STRUCTURAL CALCULATIONS WHICH INCLUDE THE FOLLOWING:

ENGINEER'S STAMP W/SIGNATURE AND DATE (NO ELECTRONIC REPRODUCTION OF ENGINEER'S SIGNATURE ACCEPTED)

A VALID/CURRENT UTAH STAMP ENGINEERING FIRM'S PROJECT NO.

DESIGN CRITERIA SEISMIC

WIND SOILS

GOVERNING CODE DESIGN LOADS:

a. ROOF DEAD AND SNOW LOADS FLOOR DEAD AND LIVE LOADS ALL OTHER MISC. DEAD AND LIVE LOADS CALCS SHALL BE INDEXED AND PAGES NUMBERED.

ALL ENGINEERING ASSUMPTIONS TO BE CLEARLY NOTED. CALCS SHALL BE LEGIBLE. INCLUDE NAMES OF MANUFACTURER/SUPPLIERS OF ALL

PRODUCT TECHNICAL INFORMATION IN CALCS SUCH AS DECKING, HANGERS, JOISTS, ANCHORS, ETC. CALCS TO INCLUDE LABELED PICTURES, DIAGRAMS, PHOTOS, ETC. WHICH CLARIFY CALCULATIONS.

PROPRIETARY STRUCTURAL PRODUCTS AND COPIES OF THE

CALCS TO BE PROFESSIONALLY BOUND AND SHALL HAVE PLASTIC COVERS ON FRONT AND BACK. ONE COMPLETE COPY OF THE ENERGY MODEL IN ELECTRONIC FORMAT. ONE COMPLETE COPY OF LEED DOCUMENTATION IN ELECTRONIC

RECORD DRAWINGS: CONSULTANTS SHALL PROVIDE AN ACCURATE, COMPLETE RECORD SET OF THE PROJECT.

CADD INFORMATION SHALL BE PROVIDED IN THE FOLLOWING

a. ACAD DWG FILE (RECORD DRAWING, NOT CONSTRUCTION) NON STANDARD FONTS USED IN THE DRAWINGS (AUTOCAD(.SHX) AND TTF) COMPILED SHAPE FILES PLOT STYLE TABLES (.CTB) PLOTTER CONFIGURATION FILES

IMAGES (LOGOS, MAPS, ETC) XREF FILES (ATTACHED OR BOUND) REVIT (IF EXISTS)

NAVISWORKS FILE

2. PDF: EACH SHEET SHALL BE A SEPARATE PDF FILE WITH THE FILE NAME

BEING THE SHEET NAME (I.E.: A100.PDF) CONTRACTOR SUBMITTED AS-BUILT DOCUMENTS. ONCE COMPLETE SET OF PROJECT SHOP DRAWINGS.

DIVISION - 02 00 00 - EXISTING CONDITIONS SITE WORK (NOT APPLICABLE)

<u>DIVISION - 03 00 00 - CONCRETE</u> (NOT APPLICABLE)

<u> DIVISION - 04 00 00 - MASONRY</u> <u> ECTION - 04 20 00 UNIT MASONRY</u>

PRODUCTS: MASONRY UNITS SHALL TYPICALLY BE CLAY BRICK TWO AND ONE-QUARTER BY THREE AND FIVE-EIGHTHS BY SEVEN AND FIVE EIGHTHS INCHES (2-1/4"X3-5/8"X7-5/8") IN SIZE. ACTUAL COLOR AND SIZE SHALL BE APPROVED BY FACILITIES DESIGN & CONSTRUCTION (FD&C). JOINTS SHALL BE TOOLED. MAXIMUM VARIATION BETWEEN JOINTS SHALL BE 1/16". SPECIFICATIONS SHALL INDICATE COLD WEATHER INSTALLATION INSTRUCTIONS

SAMPLES: SAMPLE PANELS TO BE SUBMITTED TO FD&C FOR APPROVAL PRIOR TO ORDERING MASONRY UNITS. PENETRATIONS: ALL MASONRY OPENINGS SHALL BE ENGINEERED AND DETAILED

ON THE DRAWINGS. NO RANDOM CUTTING ALLOWED. MASONRY VENEER: IF LIGHT GAUGE STEEL STUD FRAMING IS USED AS THE SUPPORT SYSTEM FOR MASONRY VENEER, THE PARAMETER FOR 'OUT OF PLANE DEFLECTION' SHALL NOT BE MORE THAN L/720.

WEEPING REQUIREMENTS: USE WICK TUBES AND MORTAR MESH. BASE FLASHING: USE CONTINUOUS METAL BASE FLASHING AND DRIP EDGE AT TOPS OF ALL FOUNDATIONS AND AT LINTELS.

TIES REQUIREMENTS: 2 PIECE INTERLOCKING MASONRY TIES ARE PREFERRED

<u>DIVISION - O5 OO OO - METALS</u>

SECTION 05 50 00 - METAL FABRICATIONS PART 1- GENERAL 1.1 SUMMARY, THIS SECTION INCLUDES THE FOLLOWING:

SHELF ANGLES. STEEL FRAMING AND SUPPORTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT.

1.2 SUBMITTALS A. SHOP DRAWINGS: DETAIL FABRICATION AND ERECTION OF EACH METAL FABRICATION INDICATED. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND DETAILS OF METAL FABRICATIONS AND THEIR CONNECTIONS. SHOW ANCHORAGE AND ACCESSORY ITEMS. 1.3 QUALITY ASSURANCE

QUALIFICATIONS: FABRICATOR EXPERIENCED IN PRODUCING METAL FABRICATIONS SIMILAR TO THOSE INDICATED FOR THIS PROJECT. SERVICE PERFORMANCE, AS WELL AS SUFFICIENT PRODUCTION CAPACITY TO PRODUCE

WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO THE FOLLOWING: AWS D1.1, "STRUCTURAL WELDING CODE--STEEL." AWS D1.3, "STRUCTURAL WELDING CODE--SHEET STEEL." CERTIFY THAT EACH WELDER HAS SATISFACTORILY PASSED AWS

QUALIFICATION TESTS FOR WELDING PROCESSES INVOLVED AND, IF PERTINENT, HAS UNDERGONE RECERTIFICATION. 1.4 PROJECT CONDITIONS FIELD MEASUREMENTS: WHERE METAL FABRICATIONS ARE INDICATED TO FIT WALLS AND OTHER CONSTRUCTION, VERIFY DIMENSIONS BY FIELD MEASUREMENTS BEFOREFABRICATION AND INDICATE MEASUREMENTS ON SHOP DRAWINGS. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID **DELAYING THE WORK** 

2.1 METALS, GENERAL A. METAL SURFACES, GENERAL: FOR METAL FABRICATIONS EXPOSED TO VIEW IN THE COMPLETED WORK, PROVIDE MATERIALS WITH SMOOTH, FLAT SURFACES WITHOUT BLEMISHES. DO NOT USE MATERIALS WITH EXPOSED PITTING, SEAM

MARKS, ROLLER MARKS, ROLLED TRADE NAMES, OR ROUGHNESS 2.2 FERROUS METALS STEEL PLATES, SHAPES, AND BARS: ASTM A 36/A 36M

> AND, WHERE INDICATED, FLAT WASHERS. ANCHOR BOLTS: ASTM F 1554, GRADE 36.

PART 2 - PRODUCTS

ROLLED-STEEL FLOOR PLATE: ASTM A 786/A 786M, ROLLED FROM PLATE COMPLYING WITH ASTM A 36/A 36M OR ASTM A 283/A 283M, GRADE C OR D. STEEL TUBING: COLD-FORMED STEEL TUBING COMPLYING WITH ASTM A 500. 2.3 PAINT SHOP PRIMERS: PROVIDE PRIMERS THAT COMPLY WITH DIVISION 9 SECTION

"PAINTING." SHOP PRIMER FOR FERROUS METAL: ORGANIC ZINC-RICH PRIMER, COMPLYING WITH SSPC-PAINT 20 AND COMPATIBLE WITH TOPCOAT. GENERAL: PROVIDE TYPE 304 OR 316 STAINLESS-STEEL FASTENERS FOR

EXTERIOR USE AND ZINC-PLATED FASTENERS WITH COATING COMPLYING WITH ASTM B 633, CLASS FE/ZN 5, WHERE BUILT INTO EXTERIOR WALLS. SELECT FASTENERS FOR TYPE, GRADE, AND CLASS REQUIRED BOLTS AND NUTS: REGULAR HEXAGON-HEAD BOLTS, ASTM A 307, GRADE A (ASTM F 568M, PROPERTY CLASS 4.6); WITH HEX NUTS, ASTM A 563 (ASTM A 563M);

LAG BOLTS: ASME B18.2.1 (ASME B18.2.3.8M).

<u> SECTION 05 50 00 - METAL FABRICATIONS (CONT.)</u> 2.5 FABRICATION, GENERAL A. SHOP ASSEMBLY: PREASSEMBLE ITEMS IN SHOP TO GREATEST EXTENT POSSIBLE TO MINIMIZE FIELD SPLICING AND ASSEMBLY.

EASE EXPOSED EDGES TO A RADIUS OF APPROXIMATELY 1/32 INCH (1 MM), UNLESS OTHERWISE INDICATED.

WELD CORNERS AND SEAMS CONTINUOUSLY TO COMPLY WITH THE FOLLOWING:

DIVISION - O5 OO OO - METALS

FINISHES.

PROVIDE FOR ANCHORAGE OF TYPE INDICATED; COORDINATE WITH SUPPORTING STRUCTURE. FORM EXPOSED WORK TRUE TO LINE AND LEVEL WITH ACCURATE ANGLES AND

SURFACES AND STRAIGHT SHARP EDGES. REMOVE SHARP OR ROUGH AREAS ON EXPOSED TRAFFIC SURFACES. 2.6 MISCELLANEOUS FRAMING AND SUPPORTS

GENERAL: PROVIDE STEEL FRAMING AND SUPPORTS THAT ARE NOT A PART OF

SHAPES, AND PROFILES INDICATED AND AS NECESSARY TO RECEIVE ADJACENT

STRUCTURAL-STEEL FRAMEWORK AS NECESSARY TO COMPLETE THE WORK. GENERAL: PROVIDE STEEL FRAMING AND SUPPORTS INDICATED AND AS NECESSARY TO COMPLETE THE WORK. FABRICATE UNITS FROM STRUCTURAL-STEEL SHAPES, PLATES, AND BARS OF WELDED CONSTRUCTION, UNLESS OTHERWISE INDICATED. FABRICATE TO SIZES,

CONSTRUCTION RETAINED BY FRAMING AND SUPPORTS. CUT, DRILL, AND TAP UNITS TO RECEIVE HARDWARE, HANGERS, AND SIMILAR ITEMS. 2.8 FINISHES, GENERAL COMPLY WITH NAAMM'S "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS FOR APPLYING AND DESIGNATING

PART 3 - EXECUTION 3.1 INSTALLATION, GENERAL A. FASTENING TO IN-PLACE CONSTRUCTION: PROVIDE ANCHORAGE DEVICES AND FASTENERS WHERE NECESSARY FOR SECURING METAL FABRICATIONS TO IN-PLACE CONSTRUCTION. INCLUDE THREADED FASTENERS FOR CONCRETE AND

MASONRY INSERTS, TOGGLE BOLTS, THROUGH-BOLTS, LAG BOLTS, WOOD SCREWS, AND OTHER CONNECTORS. CUTTING, FITTING, AND PLACEMENT: PERFORM CUTTING, DRILLING, AND FITTING REQUIRED FOR INSTALLING METAL FABRICATIONS. SET METAL FABRICATIONS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION; WITH EDGES AND SURFACES LEVEL, PLUMB, TRUE, AND FREE OF RACK; AND MEASURED FROM

ESTABLISHED LINES AND LEVELS. FIT EXPOSED CONNECTIONS ACCURATELY TOGETHER TO FORM HAIRLINE JOINTS. WELD CONNECTIONS THAT ARE NOT TO BE LEFT AS EXPOSED JOINTS BUT CANNOT BE SHOP WELDED BECAUSE OF SHIPPING SIZE LIMITATIONS. DO NOT WELD, CUT, OR ABRADE SURFACES OF EXTERIOR UNITS THAT HAVE BEEN HOT-DIP GALVANIZED AFTER FABRICATION AND ARE FOR BOLTED OR SCREWED FIELD CONNECTIONS 3.2 ADJUSTING AND CLEANING

TOUCH-UP PAINTING: IMMEDIATELY AFTER ERECTION, CLEAN FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS OF SHOP PAINT, AND PAINT EXPOSED AREAS WITH THE SAME MATERIAL AS USED FOR SHOP PAINT

DIVISION - 06 00 00 - WOOD & PLASTICS

<u>SECTION - 06 01 00 MAINTENANCE OF WOOD, PLASTICS, AND COMPOSITES</u> TREATMENT: ANY WOOD COMING IN CONTACT WITH CONCRETE OR MASONRY SHALL BE TREATED WITH A WOOD PRESERVATIVE. WOOD CURBS AND NAILERS IN CONNECTION WITH ROOFING SHALL ALSO BE TREATED WITH A WOOD RESERVATIVE. FIRE RETARDANT TREATMENT IS NOT REQUIRED FOR CURBS, NAILERS, GROUNDS, AND MISCELLANEOUS BACKINGS. FULL SHEETS OF FIRE-RETARDANT PLYWOOD ARE REQUIRED AT ALL IT ROOMS FOR GEAR INSTALLATION. (SEE IT REQUIREMENTS)

ENVIRONMENTAL CONDITIONS: ALL WOOD SHALL BE PROTECTED FROM THE ELEMENTS DURING STORAGE ON SITE. WOOD SHALL BE KILN DRIED AND ARRIVE ON SITE WITH THE MOISTURE CONTENT NOT TO EXCEED 19%. PROPER VENTILATION TO CONTROL WARPING SHALL BE PROVIDED.

<u> SECTION - 06 10 50 - MISCELLANEOUS CARPENTRY</u> PART 1 - GENERAL

THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND GENERAL REQUIREMENTS AND ALL CODES AND STANDARDS REFERENCED, APPLY TO THE WORK SPECIFIED IN THIS SECTION. 1.2 SCOPE OF WORK

A. ROUGH FRAMING FIRE TREATED PLYWOOD BACKER PANELS FIRE TREATED BLOCKING INCLUDING TO ACCOMMODATE FOR RAILINGS. AND ADA BATHROOM GRABBARS. 1.3 SECTION REQUIREMENTS

WOOD TREATMENT DATA INCLUDING TREATMENT PLANT'S CERTIFICATION OF COMPLIANCE WITH INDICATED FOR COMPLIANCE OF ENGINEERED WOOD PRODUCTS. PART 2 - PRODUCTS: 2.3 PANEL PRODUCTS:

PLYWOOD BACKER PANELS FOR TELEPHONE, IT & ELECTRICAL EQUIPMENT.

PROVIDE FIRE RETARDANT TREATED PANELS.

SUBMITTALS: SUBMIT THE FOLLOWING:

<u>SECTION - 06 20 00 FINISH CARPENTRY</u> A. ENVIRONMENTAL CONDITIONS: FINISH CARPENTRY SHALL BE MAINTAINED AT A CONSTANT INTERIOR RELATIVE HUMIDITY LEVEL WITHIN THE RANGES SHOWN IN THE AWI STANDARDS, APPROXIMATING THE FINAL BUILDING HUMIDITY LEVEL. CONTRACTOR SHALL USE AN APPROPRIATE TEMPORARY HEATING SOURCE TO ACHIEVE THE HUMIDITY LEVELS RECOMMENDED BY AWI.

<u>SECTION - 06 40 00 ARCHITECTURAL WOODWORK</u> ARCHITECTURAL WOOD WORK: ALL ARCHITECTURAL WOOD WORK SHALL BE AT LEAST "CUSTOM GRADE" IN ACCORDANCE WITH AWI STANDARDS FOR

CASEWORK. FINISH WOODWORK SHOULD BE SENSITIVE TO THE USE OF THE INTENDED SPACE AND BE APPROPRIATE TO ANY RELEVANT ADJACENT INTERIOR FINISHES. COMPOSITES WITH THE INTENTION OF WEATHER EXPOSURE, STRENGTH, AND AESTHETIC APPEAL ARE ENCOURAGED AS BEING INTEGRAL TO THE PROJECT

D. SOLID WOOD BLOCKING / BACKING SHALL BE PROVIDED AT ALL DOORSTOPS AND WALL HUNG EQUIPMENT.

SECTION 06 40 20 - INTERIOR ARCHITECTURAL WOODWORK 1.1 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING:

INTERIOR WOOD TRIM. INTERIOR WOOD CABINETRY. 1.2 SUBMITTALS SHOP DRAWINGS: SHOW LOCATION OF EACH ITEM, DIMENSIONED PLANS AND

ELEVATIONS, LARGE-SCALE DETAILS, ATTACHMENT DEVICES. SAMPLES:

TRIM AND PANELING FOR EACH TYPE, COLOR, PATTERN, AND SURFACE WOODWORK QUALITY STANDARD: AWS - PREMIUM GRADE

1.3 QUALITY ASSURANCE INSTALLER QUALIFICATIONS: FABRICATOR OF WOODWORK. QUALITY STANDARD: UNLESS OTHERWISE INDICATED, COMPLY WITH AWS "ARCHITECTURAL WOODWORK STANDARDS"

2.1 MATERIALS WOOD PRODUCTS: HARDBOARD: AHA A135.4. MEDIUM-DENSITY OVERLAY: ANSI A208.2, GRADE MDO. HIGH-PRESSURE DECORATIVE LAMINATE: NEMA LD 3, GRADES AS INDICATED OR, IF NOT

2.2 MISCELLANEOUS MATERIALS ADHESIVES, GENERAL: DO NOT USE ADHESIVES THAT

INDICATED, AS REQUIRED BY WOODWORK QUALITY STANDARD.

CONTAIN UREA FORMALDEHYDE.

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- 2.4 FABRICATION GENERAL: COMPLETE FABRICATION TO MAXIMUM EXTENT POSSIBLE BEFORE SHIPMENT TO PROJECT SITE. WHERE NECESSARY FOR FITTING AT SITE, PROVIDE ALLOWANCE FOR SCRIBING, TRIMMING, AND FITTING.
  - INTERIOR WOODWORK GRADE: PREMIUM. SHOP CUT OPENINGS TO MAXIMUM EXTENT POSSIBLE. SAND EDGES OF CUTOUTS TO REMOVE SPLINTERS AND BURRS. SEAL EDGES OF WITH A COAT OF POLYURETHANE.

#### 2.5 SHOP FINISHING

- FINISH SATIN SHEEN, COORDINATE TO MATCH BUILDING DOORS. FINISH ARCHITECTURAL WOODWORK AT FABRICATION SHOP. DEFER ONLY FINAL TOUCHUP, CLEANING, AND POLISHING UNTIL AFTER INSTALLATION.
- 3.1 INSTALLATION BEFORE INSTALLATION, CONDITION WOODWORK TO AVERAGE PREVAILING HUMIDITY CONDITIONS IN INSTALLATION AREAS. EXAMINE SHOP-FABRICATED WORK FOR COMPLETION AND COMPLETE WORK AS REQUIRED.

GRADE: INSTALL WOODWORK TO COMPLY WITH REQUIREMENTS FOR THE SAME GRADE SPECIFIED FOR FABRICATION OF TYPE OF WOODWORK. INSTALL WOODWORK LEVEL, PLUMB, TRUE, AND STRAIGHT TO A TOLERANCE OF 1/8 INCH IN 96 INCHES. SHIM AS REQUIRED WITH CONCEALED SHIMS. SCRIBE AND CUT WOODWORK TO FIT ADJOINING WORK, REFINISH CUT SURFACES, AND REPAIR DAMAGED FINISH AT CUTS. ANCHOR WOODWORK TO ANCHORS OR BLOCKING BUILT IN OR DIRECTLY ATTACHED TO SUBSTRATES. SECURE WITH COUNTERSUNK, CONCEALED FASTENERS AND BLIND NAILING AS REQUIRED FOR COMPLETE INSTALLATION. USE FINE FINISHING NAILS OR FINISHING SCREWS FOR EXPOSED FASTENING, COUNTERSUNK AND FILLED FLUSH WITH WOODWORK AND MATCHING FINAL FINISH IF TRANSPARENT FINISH IS INDICATED.

#### <u>DIVISION - 07 00 00 - THERMAL MOISTURE PROTECTION</u>

- SECTION 07 05 00 STANDARDS FOR THERMAL & MOISTURE PROTECTION STANDARDS: THE DESIGN SHALL CONFORM TO THE CURRENT NATIONAL ROOFING CONTRACTOR'S ASSOCIATION ROOFING AND WATERPROOFING
- TESTING: FOR ALL NEW BUILDINGS AND SIGNIFICANT REMODELS, AN INDEPENDENT ENVELOPE CONSULTANT WILL BE USED TO ENSURE COMPLIANCE WITH STATE BUILDING REQUIREMENTS FOR ENERGY EFFICIENCY.
- DRAINAGE: POSITIVE DRAINAGE OF AT LEAST 2% (1/4"/FOOT) SHALL BE PROVIDED ON ALL ROOFS. USE INTERIOR DRAIN PIPES WHENEVER POSSIBLE AND PENETRATE THROUGH THE BUILDING ON INTERIOR WALLS. IF EXTERIOR DRAINAGE IS NECESSARY, STEPS TO ENSURE EFFECTIVE DRAINAGE MUST BE TAKEN SUCH AS; HEAT CABLE, ICE AND WATER SHIELD, GUTTERS, ICE AND SNOW GUARDS, ETC. A QUALITY CAST METAL ROOF DRAIN, ZURN OR EQUAL, SHALL BE SPECIFIED. SCUPPERS SHALL NOT BE APPROVED. ROOF DRAIN PIPES SHALL BE LOCATED TO ALLOW ANTICIPATED ROOF DEFLECTION. CAP ALL PARAPET WALLS WITH METAL COPINGS USING STANDING SEAM JOINTS. LIMIT CAULKING AS A WATER-PROOFING TO A MINIMUM.
- AIR TIGHT CONSTRUCTION: ALL DESIGNS REQUIRE DETAILS ENSURING TOTAL BUILDING ENVELOPE AIR-TIGHT CONSTRUCTION.
- ACCESS: ALL ROOF SURFACES SHALL BE ACCESSIBLE. MOUNT LOW HVAC, WALKING DECKS AND PATIOS, ETC., HIGH ENOUGH FOR ROOF MEMBRANE TO BE ACCESSIBLE (8" MINIMUM). PROVIDE A MINIMUM OF THIRTY BY FORTY-EIGHT INCH (30"X48") ROOF HATCH, ACCESS DOORS AND LADDERS TO ALL LEVELS OF THE ROOF. PROVIDE GRAB BARS ABOVE ROOF HATCHES WITH TELESCOPING SAFETY RAILS. PROVIDE ELEVATOR ACCESS TO ANY ROOF THAT CONTAINS A MECHANICAL ROOM OR PENTHOUSE.
- THERMAL AND MOISTURE BARRIER PRE-CONSTRUCTION CONFERENCE: HOLD A PRECONSTRUCTION CONFERENCE WITH ALL CONCERNED PARTIES IN ATTENDANCE.

#### SECTION - 07 51 00 INSULATION

- MATERIALS: INSULATION MAY BE FROM WHATEVER MATERIALS, DESIGNED FOR THE SPECIFIC APPLICATION, WHICH MEET PROJECT REQUIREMENTS TO ACHIEVE AN ENERGY EFFICIENT BUILDING ENVELOPE. ALL MATERIALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- CAVITY INSULATION: WHERE POSSIBLE FOR A CONCEALED LOCATION, (EX. BETWEEN FLOORS IN CURTAIN WALLS) CAVITIES SHALL BE FILLED WITH EXPANDING FOAM CAVITY INSULATION (ICYNENE OR EQUIVALENT).

#### SECTION 07 90 10 - JOINT SEALERS.

- PROVIDE SEALANTS FOR INTERIOR NON SAGING, NON-BLEEDING, NON-STAINING
- PROVIDE MINIMUM ONE YEAR WARRANTY ON ALL SEALANTS. COUNTERTOPS: ACRYLIC EMULSION LATEX ASTM C834 TO MATCH
- LAMINATE COLOR.
- DOOR FRAME WALLS (INTERIOR): ARYLIC EMULSION LATEX ASTM C834 TO MATCH FRAME COLOR.

#### <u>DIVISION 08 00 00</u> - DOORS AND FRAMES

- SECTION 08 11 00 STEEL DOOR FRAMES (INTERIOR) STEEL FRAMES: FABRICATE STEEL FRAMES TO BE RIGID, NEAT IN APPEARANCE,
- AND FREE FROM DEFECTS, WARP, OR BUCKLE.
- PROVIDE UNITS WITH MITERED OR COPED AND CONTINUOUSLY WELDED CORNERS, FORMED FROM 0.0635 INCH (1.6 MM) THICK, GALV. STEEL
- PREPARE FRAMES TO RECEIVE HARDWARE ACCORDING TO SDI 107.
- COMPLY WITH NAAMM'S "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS RELATIVE TO FINISHES I. SHOP APPLY PRIMER THAT COMPLIES WITH ANSI A224.1

#### SECTION 08 21 10 - FLUSH WOOD DOORS WITH HARDWOOD-VENEER FACES AND -ACTORY F<u>IT AND FINISHING</u>

- PREMIUM GRADE FACES OF PLAIN SLICED SEVEN PLIES. (WOOD SPECIES TO MATCH EXISTING)
- FINISH CATALYZED POLYURETHANE WITH OPEN GRAIN FINISH AND SATIN SHEEN. WARRANTY TO BE LIFE TIME OF DOOR.
- LIGHT OPENINGS TO BE TRIMMED WITH MOLDINGS OF MATERIAL MATCHING

### ECTION 08 40 00 - ENTRANCES, STORE FRONTS, AND CURTAIN WALLS

- ACCESS CONTROL: ALL EXTERIOR ENTRANCE DOORWAYS SHALL BE PROVIDED WITH ELECTRICAL CONDUIT FOR SECURITY ACCESS CONTROL INCLUDING SENSORS, LATCHES, LOCKSETS AND CONTROLS. SEE 08 7400 FOR CARD ACCESS
- CONTROL SPECIFICATIONS. EXTERIOR ENTRANCES: PRIMARY ENTRANCE DOORS SHALL BE SWING DOORS. THE DOORS SHALL HAVE THE FOLLOWING FEATURES:
  - A DOOR HOLD-OPEN DEVICE.
  - THE DOOR MUST BE ABLE TO BE UNLOCKED AND LOCKED OPENED WITH A CYLINDER KEY. ACCESSIBLE ENTRANCES: AT LEAST ONE MAIN ENTRY DOOR SET SHALL BE ADA
  - ACCESSIBLE. IN ADDITION TO THE FEATURES IN ITEM B ABOVE, THE ADA DOORS SHALL ADD THE FOLLOWING FEATURES: DOORS SHALL BE INSTALLED BY AMERICAN ASSOCIATION OF
    - AUTOMATIC DOOR MANUFACTURERS (AAADM) CERTIFIED INSTALLERS.
    - DOORS SHALL BE OPERATED BY RADIO CONTROLLED PUSH BUTTON ACTUATORS IN THE 433 MHZ FREQUENCY RANGE. ELECTRICAL POWER TO DOORS SHALL BE CONNECTED TO THE
    - EMERGENCY POWER SYSTEM. DOORS SHALL REMAIN OPERABLE DURING POWER OUTAGES. PROVIDE NABCO GYRO TECH, GT710, DOOR OPERATOR OR
    - APPROVED EQUIVALENT. IN ORDER TO BE CONSIDERED FOR ACCEPTANCE AS AN EQUIVALENT, DOOR OPERATORS MUST HAVE THE FOLLOWING MINIMUM FEATURES: HARDENED STEEL GEARS SHALL BE USED IN THE DRIVE
      - TRAIN. NO PLASTIC OR NYLON GEARS ACCEPTED. HYDRAULIC BACK CHECK, OPERABLE WHETHER DOOR IS OPENED MANUALLY OR AUTOMATICALLY
      - DOOR CLOSE SPEED AND BACK CHECK ADJUSTABLE WITHOUT REMOVING COVER.
- EXTERIOR DOUBLE DOORS: EXTERIOR DOUBLE DOORS SHALL HAVE CYLINDER KEY REMOVABLE CENTER MULLIONS, ONLY WHERE NEEDED. ALL OTHER DOUBLE DOORS SHALL HAVE PERMANENT MULLIONS.

SECTION 08 51 00 - METAL WINDOWS A.MAINTENANCE: ALL WINDOWS TO BE ACCESSIBLE FOR CLEANING AND GLAZING REPLACEMENT IN A SIMPLE MANNER.

SECTION - 08 70 00 HARDWARE, LOCKS & KEYS GENERAL REQUIREMENTS A.GENERAL: THE UNIVERSITY HAS A MASTER KEY SYSTEM ON CAMPUS. ALL LOCKS SHALL BE GRADE ONE. ANY LOCKSET, PASSAGE SET, OR EXIT DEVICE SHALL MEETADA SPECIFICATIONS. ANY LEVER IS TO HAVE A FULL RETURN AT THE END OF THE HANDLE.

THE STYLE SHALL MATCH SCHLAGE SPARTA OR RHOADS. B.LOCKS: ALL LOCKS SHALL BE PROVIDED WITH CONSTRUCTION CYLINDERS THAT ARE SCHLAGE EVEREST CYLINDERS, ZERO BITTED.

FOR ANY PROJECT, THERE SHALL BE SIX PERCENT (6%) EXTRA LOCKS LEFT ON THEJOB FOR MAINTENANCE. THESE LOCKS SHALL BE AS

FOLLOWS WITH ONEMINIMUM OF EACH TYPE: a. TWO PERCENT (2%) - CLASSROOM FUNCTION TYPE (KEY TO LOCK ANDUNLOCK).

FOUR PERCENT (4%) - ENTRY FUNCTION. REMODELS REQUIRE HARDWARE TO MATCH EXISTING FINISH. C.EXTRA LOCKS: EXTRA LOCKS AND KEYS SHALL BE DELIVERED TO THE FD&COFFICE UPON COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL VERIFYQUANTITIES BEFORE DELIVERY.

D.ADDITIONS: WHERE ADDITIONS ARE BUILT TO EXISTING BUILDINGS, THE LOCKS SHALL BE OF A MATCHING TYPE TO BE CONSISTENT WITH BUILDING MASTER KEY. E.EXIT DEVICES: EXIT DEVICES MUST HAVE DEAD LATCHING FEATURE. INSTALLWITH SEX-BOLTS OR THROUGH BOLTS AS REQUIRED. THESE DEVICES SHALL MEETADA SPECIFICATIONS. IN ADDITION PROVIDE OVERHEAD DOOR RESTRICTORSINCLUDED. FIRE EXIT DEVICES SHALL BE USED ON FIRE-RATED DOORS AS REQUIRED. F.KEYS: DOOR KEYS AND CYLINDERS SHALL BE PART OF THE CONTRACT.

- WHERE EXIT DEVICES ARE INSTALLED, THE CONTRACTOR SHALL SUPPLY AT LEASTONE (1) DOGGING OR LOCKDOWN KEY WITH EACH EXIT DEVICE THAT IS NOT FIRERATED.
- ALL OTHER KEYS FOR CABINETS, LOCKERS, PANELS, DOGGING, ELECTRICALOPERATOR, WATER VALVE AND SPECIAL PURPOSE KEYS SHALL BE IDENTIFIEDAND TAGGED. THESE SHALL BE DELIVERED TO THE CONSTRUCTION COORDINATOR AT THE TIME OF FINAL ACCEPTANCE.

#### SECTION - 08 7100 DOOR HARDWARE

KEY SYSTEMS (PROVIDED BY OWNER)

SPECIFIC REQUIRMENTS IN AN EFFORT TO REDUCE LONG-TERM MAINTENANCE COSTS AND TO PROMOTE MORE CONSISTENT PERFORMANCE OF OUR FACILITIES, UTAH STATE UNIVERSITY STANDARDIZED ON THE FOLLOWING DOOR HARDWARE PRODUCTS AND APPLICATIONS TO BE USED ON ANY NEW CONSTRUCTION OR FACILITY RENOVATION

IN ADDITION, ANY SPECIFICATION SECTIONS AND/OR HARDWARE SETS FOR SUCH PROJECTS SHALL BE WRITTEN AND/OR REVIEWED BY OUR LOCAL ALLEGION SPECIFICATION TEAM PRIOR TO FINALIZING TO ENSURE COMPLIANCE WITH OUR STANDARDS. OUR LOCAL ALLEGION SPECIFICATION TEAM MAY BE CONTACTED VIA GEORGE STROMQUIST AIA, LEED AP BD+C, CSI, CDT (801-389-7905) OR JASON GASSAWAY (385-315-5134)

CYLINDER TYPES: (NO SUBSTITUTION) ASSA KEY IN LEVER (KIL) TYPE WHERE INSTALLED IN LEVERS ASSA RIM AND MORTISE CYLINDERS

CYLINDER PROVISION & INSTALLATION OWNER WILL FURNISH AND INSTALL PERMANENT CYLINDERS. CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY CYLINDERS. OWNER WILL REMOVE TEMPORARY CYLINDERS AND INSTALL FINAL

KEYED CYLINDERS UPON SUBSTANTIAL COMPLETION NOTE: SPECIFICATION TO CALL OUT APPROPRIATE CYLINDER QUANTITIES, MODELS, SIZES, KEYWAYS, TAILPIECES, ETC. FOR OWNER'S REFERENCE WHEN PROCURING.

#### MECHANICAL LOCKSETS GRADE 1 CYLINDRICAL LOCKS: (NO SUBSTITUTIONS)

SCHLAGE ND SERIES WITH LEVER SARGENT 10 X LINE SERIES WITH LEVER

- STOREROOM FUNCTION AT UTILITY, MAINTENANCE, STORAGE AND ACCESS CONTROL DOORS
- ENTRANCE FUNCTION AT OFFICE DOORS CLASSROOM FUNCTION AT CLASSROOM DOORS
- PRIVACY FUNCTION AT RESTROOMS (WHERE INDICATORS ARE NEEDED USE MORTISE LOCKS) NOTE: CALL OUT FULL LOCK DETAILS (MODEL, TRIM, CYLINDER TYPE,

#### FUNCTION, ETC) **EXIT DEVICES**

- PANIC / FIRE EXIT HARDWARE: (NO SUBSTITUTIONS)
- VON DUPRIN 98 SERIES. SARGENT 80 SERIES
- REFER TO OWNER ON DOGGING REQUIREMENTS (HEX, CYLINDER,
- ONLY RIM TYPE ANY APPLICATIONS USING VERTICAL RODS, VERTICAL CABLES, OR MORTISE TYPE DEVICES REQUIRE SPECIFIC UNIVERSITY

### REFER TO OWNER ON TYPE OF MULLION TO BE USED ON PAIRS

- (REMOVABLE OR FIXED) PROVIDE EACH BANK OF DOORS WITH ONLY ONE KEYED REMOVABLE
- STABILIZERS AND MOUNTING KITS ARE DESIRED ON ANY MULLIONS. NOTE: CALL OUT FULL EXIT DEVICE DETAILS (MODEL, TRIM, FUNCTION, FIRE

#### RATING, ETC.)

#### DOOR CLOSERS MECHANICAL DOOR CLOSERS: (NO SUBSTITUTIONS)

- LCN 4040XP SERIES, **SARGENT 281 SERIES**
- THROUGH BOLT FASTENERS REQUIRED ON ALL WOOD DOORS. SELF REAMING AND TAPPING FASTENERS ARE ACCEPTABLE ON HM AND
- WHERE REQUIRED FOR CLOSER INSTALLATION, CALL OUT SPECIFIC MOUNTING BRACKETS NEEDED.

## NOTE: CALL OUT FULL CLOSER DETAILS (MODEL, ARM, BRACKETS, FASTENERS,

#### AUTOMATIC OPERATORS **AUTOMATIC OPERATOR: (NO SUBSTITUTIONS)**

- GYROTECH 710 SERIES
- LCN 4600 SERIES
- NOTE: CALL OUT FULL OPERATOR AND ACTUATOR DETAILS (MODEL, ACTUATOR KITS, SWITCHES, ETC.)
- DOOR RELEASE DEVICES **MAGNETIC HOLDERS:** 
  - LCN SEM7850, SIMILAR BY ABH AND RIXSON ARE ACCEPTABLE. WALL MOUNT, 35LB HOLD FORCE.

#### - TRI-VOLTAGE (24VDC, 12VDC, AND 120VAC) COMPATIBLE. DOOR PROTECTION KICK PLATES:

- .050" THICK STAINLESS STEEL, BEVELED 4 EDGES. - 10" IN HEIGHT.
- 2" LESS DOOR WIDTH (LDW) - OMIT AT ALUMINUM STOREFRONT DOORS

## - WROUGHT STAINLESS STEEL WITH RUBBER BUMPER.

- HEAVY DUTY, CONCEALED OVERHEAD STOPS WITH ADJUSTABLE BRACKET AT EXTERIOR STOREFRONT DOORS. - HEAVY DUTY, SURFACE MOUNTED STOPS WHERE WALL STOP IS NOT

INSTALLED SUCH THAT DOOR IS ABLE TO CLOSE AND LATCH WITHOUT

- CONCAVE WHERE REQUIRED BY LOCK FUNCTION, OTHERWISE CONVEX.

#### SUITABLE. AND DOOR HAS NO CLOSER.

THRESHOLDS & GASKETING NO PREFERENCES. - NOTE: SPECIFICATION TO NOTE THAT GASKET SHALL BE FLUSH BOLTS / ASTRAGALS FLUSH BOLTS:

- MANUAL FLUSH BOLTS PREFERRED ON INACTIVE DOORS **AUTO FLUSH BOLTS / CONSTANT LATCHING BOLTS** PROVIDE ONLY WHERE SPECIFICALLY REQUIRED BY EGRESS OR FIRE CODE. - PROVIDE DUST PROOF STRIKE ANYWHERE BOTTOM BOLT IS SPECIFIED. CLOSERS @ PAIRS WITH INACTIVE LEAF

- IT IS PREFERRED TO HAVE CLOSERS ON BOTH LEAVES OF PAIRS, EVEN WHEN ONE IS INACTIVE.

ASTRAGALS @ PAIRS WITH INACTIVE LEAF

SECTION - 08 70 00 HARDWARE, LOCKS & KEYS (CONT.)

- ALL LOCKSET PAIRS TO HAVE OVERLAPPING ASTRAGAL MOUNTED TO THE SIDE OF DOOR (ACTIVE LEAF PULL SIDE MOUNT @ RHRA OR LHRA DOORS AND

INACTIVE LEAF PUSH SIDE MOUNT @ RHA / LHA DOORS). - PROVIDE FLAT STEEL ASTRAGAL TO BE THROUGH-BOLTED. LOCK STRIKES TO BE FLAT SO THAT ASTRAGAL IS NOT NOTCHED AROUND STRIKE. - ACCEPTABLE PRODUCTS: ZERO 44ST, NGP 139SP, PEMKO 357SP **COORDINATORS** 

- PROVIDE ONLY WHERE REQUIRED BY FIRE AND/OR EGRESS CODE. - PROVIDE FLAT BAR TYPE WITH FILLER STRIPS WITH ANY NECESSARY MOUNTING **BRACKETS** 

THESE STANDARDS ARE TO BE PROVIDED "NO SUBSTITUTION", EXCEPT WHERE SPECIFIC WRITTEN APPROVAL IS GIVEN BY THE UNIVERSITY FACILITIES LOCK DEPARTMENT. REPLACEMENT OF ANY HARDWARE PROVIDED THAT DOES NOT ADHERE TO THESE STANDARDS MAY BE REQUIRED AT NO ADDITIONAL COST TO THE

#### 08 74 00 CARD ACCESS CONTROL SPECIFICATIONS

1.0 QUALIFICATIONS 1.01 PRE-QUALIFIED VENDORS FOR CARD ACCESS ON THE USU CAMPUS ARE: STONE SECURITY, AVTEC (DIVISION OF CVE) ADDITIONAL VENDORS

MAY BE QUALIFIED UPON APPROVAL. 1.02 ALL INTEGRATORS AND THEIR EMPLOYEES WORKING ON THE UTAH STATE UNIVERSITY (USU) CAMPUS SHALL MEET THE FOLLOWING QUALIFICATIONS AND

- MUST SUBMIT EVIDENCE ACCORDINGLY: A. ACHIEVED THE STATUS OF INTEGRATOR OR HIGHER CERTIFICATION FROM S2 SECURITY APPROVED TRAINING VENUES. PHOTOCOPIES OF CERTIFICATION SHOULD BE SUBMITTED WITH PACKAGE RESPONSE. CERTIFICATION MUST BE
- PROVIDE DETAILED CUSTOMER REFERENCES FOR PROJECTS PERFORMED WITHIN 2 YEARS OF PURCHASE ORDER DATE THAT REFLECT SIMILAR SCOPE

AND SIZE OF USU PROJECT. 2.0 GENERAL REQUIREMENTS AND NOTES 2.00 USU REQUIRES THAT ALL EXTERIOR DOORS (INCLUDING EACH OPERABLE LEAF) HAVE ACTIVE ELECTRONIC CARD ACCESS. THE ONLY EXCEPTION TO THIS IS EMERGENCY EXITS OR EXIT ONLY DOORS, WHICH WILL HAVE, AT A MINIMUM, A DOOR POSITION SWITCH FOR MONITORING. ONE LEAF IN A SET OF DOORS CONNECTED TO A READER IS ACCEPTABLE WHEN THE REMAINING DOORS HAVE ELECTRONIC LOCKS THAT ARE INTEGRATED WITH S2.

SOFTWARE, DATABASE AND LICENSING. THE UNIVERSITY HAS COMPLETED INSTALLATION OF DOOR ACCESS HARDWARE COMPONENTS AT EXISTING CAMPUS 2.02 IT IS THE INTENT OF USU TO MAINTAIN CONSISTENT AND STANDARDIZE ACCESS CONTROL INSTALLATIONS THROUGHOUT ALL USU CAMPUS' BY DICTATING DESIGN, DOOR HARDWARE, WIRING, AND ELECTRONIC DEVICES/CONTROLLERS USED IN

2.01 USU HAS PURCHASED AND INSTALLED THE S2 SECURITY MANAGEMENT

CONSTRUCTION. USU WILL HAVE FINAL APPROVAL OF THE FORE MENTIONED COMPONENTS IN CONSTRUCTION WHERE WORK HAS BEEN SUBCONTRACTED TO 3RD 2.03 IT IS THE RESPONSIBILITY OF THE ACCESS CONTROL INTEGRATOR OR COMPANY TO GENERATE AN EXCEPTIONS LIST PRIOR TO BIDDING OR INSTALLATION THAT ITEMIZES EXCEPTIONS TAKEN WITH DOOR HARDWARE SCHEDULES, COMPONENTS OR DESIGNS BEING USED WHICH MAY HAMPER THEIR ABILITY TO PROVIDE A SECURE AND COMPLIANT ACCESS CONTROL PRODUCT.

2.04 THE USU PHYSICAL SECURITY SHOP IN THE UNIVERSITY RISK MANAGEMENT DEPARTMENT AND OR THE LOCKSMITH SHOP RESERVES THE RIGHT TO APPROVE OR REJECT FINAL DESIGN AND/OR SCOPE OF WORK FOR ACCESS CONTROL ON NEW CONSTRUCTION AND EXISTING STRUCTURES. 2.05 WHEN ANY PROJECT OR WORK IS DECLARED FULLY COMPLETE, A FINAL WALKTHROUGH WILL TAKE PLACE WITH THE INTEGRATOR (AND GENERAL CONTRACTOR WHERE APPLICABLE). A USU REPRESENTATIVE, PROJECT MANAGER(S) AND CUSTOMER MUST PARTICIPATE IN A FINAL WALK THRU PRIOR TO ACCEPTANCE OF ANY ACCESS CONTROL WORK. ALL DOORS MUST BE FUNCTIONING PROPERLY IN THE FIELD AS WELL AS WITHIN THE ACCESS CONTROL SOFTWARE. 2.06 COORDINATION AND HARDWARE REVIEW MEETINGS WILL BE HELD WITH THE INTEGRATOR AND THE USU PHYSICAL SECURITY OR LOCKSMITH PERSONNEL PRIOR TO START-UP OF ANY ACCESS CONTROL PROJECT.

2.07 USU HAS A NAMING CONVENTION TO USE IN IDENTIFYING DOORS AND BUILDINGS. THE NAMING CONVENTION WILL BE ADHERED TO WHEN PROGRAMMING NEW DOORS AND BUILDINGS INTO S2.

A. BUILDINGS ALL HAVE A NUMBER DESIGNATION AND AN OFFICIAL NAME, FOR EXAMPLE, OLD MAIN IS THE OFFICIAL NAME AND THE NUMBER DESIGNATION IS

3.0 BASE SPECIFICATIONS 3.01 THE SYSTEM MUST FULLY AND COMPLETELY INTEGRATE WITH THE MOST CURRENT VERSION OF S2 DOOR ACCESS SYSTEM PURCHASED FROM STONE

3.02 ALLOW OR DENY THE UNLOCKING OF A LOCKED ENTRANCE BASED ON CRITERIA ESTABLISHED IN THE SOFTWARE FOR INDIVIDUAL CARDHOLDERS. 3.03 RECORD A LOG FILE OF ALL SYSTEM ACTIVITY, INCLUDING DOOR ACCESS GRANTED, ACCESS DENIED, PORTAL FORCED, PORTAL HELD, ALARMS, SYSTEM

MESSAGES, AND DATA MAINTENANCE. 3.04 ALLOW MONITORING OF THE OVERALL SYSTEM FOR FUNCTIONALITY AND ALARMS FROM MULTIPLE POINTS. SYSTEM WILL REQUIRE AND RECORD ALARM ACKNOWLEDGMENTS BY OPERATOR. 3.05 UTILIZE THE CAMPUS TCP/IP NETWORK FOR COMMUNICATIONS BETWEEN

CONTROLLERS AND THE CENTRAL DATABASE. 3.06 PROVIDE INTERFACES WITH OTHER SYSTEMS, INCLUDING INTRUSION ALARM, PANIC ALARM, FIRE ALARM, AND CCTV SYSTEMS. 3.07 PROVIDE SECURITY OF THE DOOR, EVEN IN THE EVENT COMMUNICATION IS LOST

TO THE MAIN DATABASE, ALLOWING THE DOOR TO CONTINUE TO RECOGNIZE WHICH CARDS TO GRANT ACCESS TO, AND CONTINUING TO RECORD ACCESS TRANSACTIONS. 3.08 ALLOW PROPER EGRESS IN EMERGENCY SITUATIONS SUCH THAT NO SPECIAL KNOWLEDGE OR CARD IS REQUIRED TO EXIT A SPACE. 3.09 MUST COMPLY WITH ADA STANDARDS. 3.10 ALLOW FOR CENTRAL ADMINISTRATION OF THE ACCESS CONTROL DATABASE

FOR PURPOSES OF POPULATING AND MAINTAINING THE OVERALL DATABASE, WHILE ALLOWING NUMEROUS SECURED USERS TO GRANT OR DENY ACCESS FOR INDIVIDUALS FROM MULTIPLE WORKSTATIONS AROUND THE CAMPUS. 3.11 ALLOW FOR UNATTENDED SCHEDULED UNLOCKING OF INDIVIDUAL DOORS FOR A SUSTAINED PERIOD OF PUBLIC ACCESS.

RESISTANT AND DESIGNED TO MAINTAIN THE AESTHETIC BEAUTY OF THE CAMPUS. THE FINISH OF THE ACCESS CONTROL HARDWARE SHOULD MATCH THE FINISH OF THE OTHER DOOR HARDWARE. 3.13 HARDWARE MUST BE DURABLE ENOUGH TO WITHSTAND HIGH TRAFFIC

LOCATIONS WITHOUT FREQUENT FAILURE.

3.12 ALL HARDWARE MOUNTED IN EXTERIOR LOCATIONS MUST BE WEATHER

3.14 HARDWARE MUST CONTINUE TO FULLY FUNCTION IN THE EVENT THAT COMMUNICATION TO THE CENTRAL DATABASE IS LOST 3.15 ALL ACCESS CONTROL SYSTEM EQUIPMENT (CONTROLLERS AND READERS) MUST BE FULLY WARRANTED AGAINST DEFECTS IN WORKMANSHIP FOR A MINIMUM OF ONE YEAR FROM DATE OF INSTALLATION, WITH AN OPTIONAL FOUR-YEAR EXTENDED WARRANTY QUOTE. ALL HARDWARE MUST BE FULLY SUPPORTED FOR A MINIMUM OF FIVE YEARS FROM DATE OF INSTALLATION (NON-OBSOLESCENT), OR REPLACED AT NO

COST TO USU WITH SUPPORTED HARDWARE. 3.16 REQUEST TO EXIT DEVICES WILL BE INCLUDED ON ALL EXTERNAL DOORS WITH ELECTRONIC LOCKING DEVICES, WHERE POSSIBLE THEY WILL BE INTEGRATED INTO THE DOOR HARDWARE. MOTION REQUEST TO EXIT DEVICES WILL ONLY BE USED WHERE NO OTHER DEVICE IS POSSIBLE.

SECTION - 08 70 00 HARDWARE, LOCKS & KEYS (CONT.)

4.O STANDARDIZED HARDWARE

4.00 THE FOLLOWING HARDWARE IS SPECIFIED HARDWARE FOR ACCESS CONTROL INTEGRATIONS. COMPATIBLE SUBSTITUTIONS ARE ALLOWED WITH APPROVAL. 4.01 CONTROLLERS MERCURY INTELLIGENT NETWORK CONTROLLERS S2 MERCURY EPI5O2 INTELLIGENT CONTROLLER, 16M, 2 READERS, 8 INPUTS, 4 OUTPUTS S2 MERCURY MR52 READER INTERFACE MODULE 2 READERS, 8 INPUTS, 6 OUTPUTS

4.02 READERS ICLASS SE RP40E (ELITE KEY REQUIRED), WALL SWITCH, CONTACTLESS, BLACK, WITH SIO ICLASS SE RK40E (ELITE KEY REQUIRED), WALL SWITCH, KEYPAD, CONTACTLESS, BLACK, WITH SIO ICLASS SE R15E (ELITE KEY REQUIRED), MULLION (LG), CONTACTLESS, BLACK, WITH SIO ICLASS SE RIOE (ELITE KEY REQUIRED), MULLION (RG), CONTACTLESS, BLACK, WITH SIO

4.03 EXIT DEVICES (MECHANICAL) VON DUPRIN 98/99 SERIES 4.04 ELECTRIC STRIKES VON DUPRIN SERIES 6000 24 VOLT

HES 1006 STRIKE HES 9600, OR 9400 RIM STRIKE OR HES 9500 RIM FOR FIRE-RATED APPLICATIONS ADAMS RITE STRIKE

SLP-UL-M-KIT – SARGENT ELR WITH REX BUILT IN (EXIT DEVICE) VLP-UL-M-KIT - VON DUPRIN ELR WITH REX (EXIT DEVICE) 4.05 ELECTRIC POWER TRANSFER

4.06 POWER SUPPLIES AND BATTERIES

KEEDEX K-DLA12

4.11 DEVICE SERVERS

VON DUPRIN EPT-10 EPT-5 POWER TRANSFER HINGE - ELECTRIFIED HINGE, MINIMUM 6 WIRES, MAX OF 12 WIRES. MUST BE FROM APPROVED, REPUTABLE, MANUFACTURE. ASSA ABLOY OR ALLEGIAN.

ARMORED CABLE DOOR LOOPS - USED ON PIVOT HINGE DOORS IN PLACE OF GVUX POWER TRANSFER. **ALARM LOCK AL271** 

ACCESS POWER SUPPLY/CHARGER FOR MERCURY BATTERIES 12V, 7AH LIFE SAFETY POWER WILL BE USED FOR ALL ELECTRONIC ACCESS CONTROL. POWER OUTPUT (D8) FOR AUXILIARY DOOR COMPONENTS (REX MOTION DETECTOR, SOUNDERS, ETC.) DEPENDING ON SPACE REQUIREMENTS PREFERENCE IS GIVEN TO FPO250- 2C83D8PE6M1-16 DOOR POWER DISTRIBUTION ENCLOSURE WITH AUX POWER OUTPUT FOR AUXILIARY DOOR COMPONENTS (REX MOTION DETECTOR, SOUNDERS, ETC.)

4.07 RELAYS ALTRONIX RELAY/ ALTRONIX 6062 - TIME DELAY RELAY (FOR ADA DOORS.) IDEC / IDEC RHUIB AND RHU2B RELAYS (IN BASE POWER DISTRIBUTION ENCLOSURES)

4.09 REQUEST TO EXIT (REX) REQUEST TO EXIT DETECTION SYSTEMS: BOSCH DS 1501 REQUEST TO EXIT MOTION DETECTOR OR SIMILAR (NOTE: MOTION DETECTOR REX WILL ONLY BE USED WHERE APPROVED BY USU) PUSH TO EXIT REX: PUSH TO EXIT WILL ONLY BE USED WHERE REQUIRED AS A PHYSICAL INTERRUPT TO MAG LOCK TYPE LOCKING DEVICES. 4.10 CABLING: COMPOSITE CABLING

4.12 PERSONALITY MODULE AND HOUSING RM4 READER MODULE 4.13 DOOR SWITCHES SENTROL (GE) / SENTROL 1078C - FLUSH MOUNTED DOOR POSITION SWITCH (COLOR

SENTROL AL2505 - SURFACE MOUNTED SWITCH WITH ARMORED CABLE 4.14 INPUT/OUTPUT MODULE S2 - MECURY BOARD / S2 MERCURY BOARD - MR51 / S2 MERCURY BOARD - MR50 4.15 HORNS/ALARMS: DETECT SYSTEMS DS-4200KI - DOOR PROP ALARM 4.16 EMERGENCY PUSH BUTTON COVERS W/HORN:

SDC 491 - BREAK GLASS STATION WITH HORN 5.0 NETWORK TOPOGRAPHY 5.01 USU USES A STAR CONFIGURATION WITH EACH ACCESS/ALARM POINT BEING A 'HOME RUN' BACK TO THE ACCESS CONTROL PANEL FROM THE PERSONALITY MODULE LOCATED ABOVE THE DOOR OR THE CARD READER. THE CABLING BETWEEN THE PERSONALITY MODULE (RM READER) AND THE ACCESS CONTROL PANEL WILL BE THE COMPOSITE CABLING OUTLINED IN THE SECTION 4.10. ALL COMMUNICATION AND POWER TO THE INDIVIDUAL DOORS WILL COME FROM THE ACCESS CONTROL PANEL LOCATION. EXCEPTIONS TO THIS WILL BE MADE WHEN SPECIFIC HARDWARE REQUIRES A LOCALIZED POWER SUPPLY OR POWER OVER

ETHERNET (POE) CONNECTED TO A NETWORK SERVER. WHEN POSSIBLE A TRUNK

BE WIRED, LABELED AND PROGRAMED FOR A/C FAIL NOTIFICATION.

BY THE FIRE ALARM CONTRACTOR.

CONDUIT/RACEWAY SHOULD BE ESTABLISHED IN COMMON HALLWAYS TO ACCOMMODATE MULTIPLE 'HOME RUN' COMPOSITE CABLES. 6.0 INSTALLATION REQUIREMENTS 6.01 POWER SUPPLY INSTALLATION SHALL ALSO INCLUDE WIRING A/C FAIL FAULT RELAY TO INPUT 8 ON 1502 OR FIRST ADDRESSED MR52 AND LABELED/PROGRAMED AS A/C FAIL NOTIFICATION. EACH POWER SUPPLY IN CONSECUTIVE PANELS SHALL ALSO

6.02 PANEL AND ANY NETWORK DEVICE SERVER WILL BE WIRED THROUGH A DEDICATED POWER SUPPLY WITH BATTERY BACKUP. BATTERIES MUST BE INSTALLED UPON FINAL COMPLETION OF INSTALLATION. 6.03 POWER TO ACCESS CONTROL PANELS IS TO BE HARDWIRED UTILIZING EMT OR RIGID CONDUIT IN ACCORDANCE WITH SECTION 6.10 OF THIS SPECIFICATION. 6.04 CARD READERS WILL BE MOUNTED WITHIN A TWO FOOT (24") RADIUS OF THE DOOR TO WHICH IT IS ASSIGNED, ANY DEVIATION MUST BE SPECIFICALLY REQUESTED IN WRITING WITH AN EXPLANATION OF THE NECESSITY TO PLACE THE CARD READER

FARTHER AWAY THAN TWO FEET (24"). 6.05 A CIRCUIT FROM FIRE ALARM PANEL MUST BE INSTALLED TO EACH LOCK POWER DISTRIBUTION PANEL. IN APPLICATIONS THAT INCLUDE MAG-LOCKS, CONTRACTOR WILL CONNECT TO A FIRE ALARM CIRCUIT PROVIDED AT THE CONTROLLER BACKBOARD

6.06 ACCESS CONTROL PANELS ARE TO BE INSTALLED IN NETWORK OR ELECTRICAL CLOSETS AS APPROVED BY THE USU ACCESS CONTROL SHOP OR PLANNING AND DESIGN. ALL PANELS AND BOARDS MUST BE INSTALLED IN NEMA 4 ENCLOSURE(S) (WITHIN THE ELECTRICAL CLOSET) THAT ARE OF SUFFICIENT SIZE AND ORIENTATION TO INCLUDE ALL CARD ACCESS SYSTEM COMPONENTS. ALL ENCLOSURES MUST BE LOCKABLE AND LOCATED IN A MANNER THAT THE ENCLOSURES WILL BE ACCESSIBLE BY MAINTENANCE PERSONNEL.

6.07 EACH PANEL WILL BE LABELED ACCORDANCE WITH USU STANDARDS. THE LABEL

FOR EACH PANEL WILL BE POSTED ON THE INTERIOR OF THE PANEL DOOR. 6.08 EACH PANEL WILL HAVE A LIST OF READERS (UNIVERSITY DOOR NUMBERS) CONNECTED TO IT LOCATED ON THE INSIDE COVER, OR CLEARLY LABELED ON THE WIRING FOR EACH DOOR. 6.09 INSTALLATION OF NETWORK CONNECTION DROP IS TO BE COORDINATED THROUGH USU IT OFFICE. DROP TERMINATION IS TO BE INSIDE OF ACCESS CONTROL PANEL TO PREVENT TAMPERING. THE MAC ADDRESS AND IP ADDRESS FOR EACH

ARE TO HAVE FUNCTIONING LOCKING HARDWARE WITH KEYS. KEYS WILL BE SUBMITTED TO THE USU PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP UPON COMPLETION OF INSTALL. 6.10 WIRING AND CONDUIT 6.10.1 ALL COMMUNICATION AND POWER TO THE INDIVIDUAL DOORS WILL COME FROM THE ACCESS CONTROL PANEL LOCATION. AN EXCEPTION TO THIS WILL

PANEL/DEVICE WILL BE POSTED ON THE INSIDE PANEL DOOR. ALL PANEL BOXES

BE MADE WHEN SPECIFIC HARDWARE REQUIRES A LOCALIZED POWER SUPPLY OR 6.10.2 A TRUNK CONDUIT/RACEWAY SHOULD BE ESTABLISHED IN COMMON HALLWAYS TO ACCOMMODATE MULTIPLE 'HOME RUN' COMPOSITE CABLES. 6.10.3 ALL WIRING RUNS WILL BE IN A STAR CONFIGURATION OR HOME RUN FROM RM BOARD TO THE PANEL BOX. DAISY-CHAIN READER COMMUNICATION LOOPS ARE NOT PERMITTED. EACH DOOR WILL HAVE AN RM READER BOARD FOR NPUTS/OUTPUTS AND FUTURE EXPANSION OF DOOR DEVICES.

PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP, ALL WIRING MUST BE INSTALLED IN ELECTRICAL METALLIC TUBING, CABLE TRAY OR RIGID CONDUIT. CONDUIT MUST BE INSTALLED SQUARE AND PLUMB TO BUILDING STRUCTURE IN A MANNER CONSISTENT WITH GOOD WORKMANSHIP. INSTALLATION OF CONDUIT MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND USU WRITTEN STANDARDS FOR 110-120 VAC CIRCUITS. NOTE: WHEN APPROVED BY THE USU PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP, ONLY PLENUM RATED LOW CABLE WIRING MAY BE RUN WITHOUT CONDUIT PROVIDED THE CABLE IS RUN SQUARE AND PLUMB WITH THE BUILDING STRUCTURE. PLENUM CABLE MUST BE SUPPORTED BY AN USU APPROVED MEANS ON 4 FT. CENTERS.

6.10.4 ALL DEVICES MUST BE HARDWIRED. UNLESS APPROVED BY THE USU

SECTION - 08 70 00 HARDWARE, LOCKS & KEYS (CONT.)

6.10.5 POWER TO THE ACCESS CONTROL PANEL POWER SUPPLIES WILL BE CONCEALED HARD WIRED, ON A DEDICATED CIRCUIT WITH A PROPER GROUND. THIS CIRCUIT WILL BE ON EMERGENCY POWER WHERE AVAILABLE. 6.10.6 ALL WIRE TERMINATIONS IN THE PANEL AND FIELD DEVICES MUST BE CLEARLY LABELED. ALL LABELS MUST BE MANUFACTURED FOR LOW VOLTAGE WIRING AND THE INFORMATION ON THE LABELS MUST INCLUDE BOTH SOURCE AND DESIGNATION TERMINAL INFORMATION.

A. ALL WIRES ARE TO INCLUDE THE FOLLOWING INFORMATION IA NUMBER TO CORRESPOND TO WHAT PANEL WIRE IS CONNECTED TO II A NUMBER ON THE WIRE TO CORRESPOND TO PANEL SCHEDULE III A LOCATION OF FINAL DESTINATION OF THE WIRE TERMINATION IN RELATION TO TRUE NORTH

IV DOOR NUMBER ASSIGNED TO THE DOOR AS DESIGNATED BY THE CARD READER ADDRESSED AND WHICH IN TURN WILL BE ASSIGNED IN THE SOFTWARE AND DESIGNATED ON THE DOOR BY THE ASSIGNED NUMBER (LABEL) B. ALL PANELS ARE TO INCLUDE A PANEL SCHEDULE WHICH WILL INCLUDE THE FOLLOWING INFORMATION

I. THE TERMINAL BLOCK NUMBER AT WHICH THE WIRE IS TERMINATED FOLLOWED BY THE ABOVE MENTIONED INFORMATION 6.10.7 WIRING WHICH CONTACTS METAL EDGES WILL BE BUFFERED WITH BUSHINGS OR RUBBER GROMMETS TO PREVENT DAMAGED WIRES AND SHORTS. EXAMPLES INCLUDE WIRING MEETING CONDUIT ENDS, PANEL AND JUNCTION BOX HOLES. 6.10.8 CONDUIT MUST BE STRAPPED WITHIN 24" OF JUNCTION BOXES. 6.10.9 ALL JUNCTION BOXES MUST BE COVERED AND LABELED WITH DESTINATION AND SOURCE. CONTENTS SHALL BE INCLUDED ON THE LABEL WHEN APPROPRIATE (EX.

JUNCTION BOX WITH RELAY FOR HANDICAP BUTTON).

MATERIAL WHENEVER POSSIBLE.

6.10.10 GANG BOXES MUST MATCH DEVICE BEING MOUNTED (EX. DOUBLE GANG READER MOUNTED ON A DOUBLE GANG BOX). 6.10.11 SETSCREW CONDUIT FITTING ARE ALLOWED WHERE WATER TIGHT FITTINGS ARE NOT NECESSARY. COMPRESSION FITTING MUST BE USED IN ALL AREAS OUTDOORS OR IN AN AREA THAT HAS THE POSSIBILITY OF WATER INTRUSION. COMPRESSION FITTINGS ARE RECOMMENDED IN CONDUIT RUNS THAT ARE GREATER THAN 80 FEET. 6.10.12 MAXIMUM USAGE FOR CONDUIT WILL BE 40% OF TOTAL SQUARE INCH INTERNAL CAPACITY. MINIMUM CONDUIT SIZE IS · INCH. 6.10.13 THE CARD ACCESS-CONDUIT SYSTEM AND CABLING INSTALLED MUST BE

HOUSING VOICE/DATA CABLES IN CAMPUS BUILDINGS. EXCEPTION TO THIS IS POE CABLING MAY BE RUN CONCURRENTLY. 6.10.14 CONNECTIONS TO DEVICES MUST BE SECURED, SO THAT NO CORDS MAY BE EASILY DISCONNECTED FROM THE DEVICES AND NO CORDS ARE LEFT EXPOSED TO UNAUTHORIZED TAMPERING.

DISTINCT AND SEPARATE FROM THE WIRE WAY/CONDUIT SYSTEM

6.10.15 WIRING WILL BE DONE IN STRICT ACCORDANCE WITH MANUFACTURER'S GUIDELINES EXCEPTIONS MUST BE APPROVED BY THE USU ELECTRICAL SHOP OR IT PHYSICAL INFRASTRUCTURE 6.10.16 LOW VOLTAGE SHIELDS WILL BE TERMINATED IN ACCORDANCE WITH

MANUFACTURER'S GUIDELINES. SHOULD "NOISE" IN THE BUILDING GROUND REFERENCE INTERFERE WITH OR PREVENT THE DEVICE FROM OPERATING PROPERLY, THE CONTRACTOR WILL INSTALL A DEDICATED GROUND FOR THE CARD ACCESS SYSTEM IN THAT PARTICULAR BUILDING. FLOATING SHIELDS WILL NOT BE ALLOWED. 6.10.17 ISOLATION RELAYS WILL BE USED FOR ALL OUTPUTS TO FIELD DEVICES. 6.10.18 FIELD WIRING MUST BE ONE PIECE FROM SOURCE TERMINAL TO DESTINATION TERMINAL. SPLICES IN FIELD WIRING WILL NOT BE ALLOWED. 6.10.19 THE CONSTRUCTION PROCEDURE FOR WIRING ROUTED THRU DOOR MULLION WILL BE SUBMITTED TO USU FOR APPROVAL. ALL WIRING IN AND AROUND DOOR MOLD WILL BE DONE IN A GOOD WORKMANSHIP TYPE MANNER TO MINIMIZE THE VISUAL IMPACT ON THE APPEARANCE OF THE DOOR. ALL HOLES DRILLED IN THE DOOR MULLION WILL BE CONCEALED USING PLASTIC MANUFACTURED HOLE CAPS. THE COLOR OF THE HOLE-CAPS WILL BE SUITABLE FOR THE APPLICATION. 6.10.20 ALL EXTERNALLY MOUNTED HARDWARE WILL BE INSTALLED IN A MANNER CONSISTENT WITH GOOD WORKMANSHIP AND MATCH THE EXISTING COLOR AND

6.11 DOOR SWITCHES 6.11.1 DOOR SWITCHES WILL BE SURFACE MOUNTED OR FLUSH MOUNTED ON THE OPPOSING SIDE OF THE DOOR FROM THE HINGES. THE SWITCH WILL BE MOUNTED ON THE TOP OF THE DOOR AND WILL BE NO FURTHER THAN THREE INCHES FROM THE INTERIOR PORTION OF THE DOORFRAME. 6.11.2 SURFACE MOUNT SWITCHES WILL HAVE ARMORED CABLE BETWEEN THE SWITCH AND THE CABLE ENTRANCE HOLE IN THE DOOR. AFFIX ARMORED CABLING FIRMLY

WITHIN THE CONDUIT OR ELECTRICAL BOX I.E. (CABLE CLAMP) AS TO PREVENT TAMPERING OF DPS WIRES. 6.11.3 SURFACE MOUNT SWITCHES WILL HAVE TAMPER RESISTANT SCREWS TO ATTACH SWITCH TO DOOR AND DOORFRAME. 6.11.4 A SCREW-LOCKING ADHESIVE SUCH AS 'LOCTITE' THREAD LOCKER WILL BE USED

TO SECURE ALL SCREWS. 'LOCTITE' THREAD LOCKER #222MS OR #242 ONLY 6.11.5 FLUSH MOUNT SWITCHES ARE TO BE MOUNTED IN THE TOP PORTION (HEADER) OF THE DOORFRAME AND IN THE ADJOINING PORTION OF THE DOOR. 6.11.6 THE HOLES FOR FLUSH MOUNTED DOOR SWITCHES MUST BE DRILLED THE EXACT SIZE FOR THE SWITCH BEING USED. A TIGHT FRICTION FIT MUST BE ACHIEVED. 6.11.7 NO HINGE MOUNTED DOOR CONTACTS ARE TO BE USED. 6.12 DOOR HARDWARE

6.12.1 DOOR HARDWARE WILL BE FAIL-SECURE WITH MECHANICAL MANUAL EGRESS FROM THE SECURED SIDE. HARDWARE SHALL ALSO MATCH USU STANDARD SERGEANT OR SCHLAGE FORMAT WITHIN ELECTRONIC LOCKING SYSTEMS. 6.12.2 ALL ELECTRONIC HARDWARE WILL BE 24V AND POWERED VIA INDEPENDENT 24V POWER SUPPLY FOR DOOR HARDWARE.

6.12.3 DOOR SWITCHING AND POWER WILL RESIDE IN THE ACCESS CONTROL PANEL LOCATION. 6.12.4 NOT USED

6.12.5 POWER SUPPLY WILL BE CONNECTED TO BUILDING EMERGENCY CIRCUITS WHEN POSSIBLE. 6.12.6 POWER SUPPLIES WILL HAVE A 7AMP HOUR BATTERY BACKUP OR HIGHER. 6.12.7 THE LOCATION OF POWER SUPPLIES WHEN LOCATED AWAY FROM ACCESS CONTROL PANEL WILL BE FULLY DOCUMENTED VIA AS-BUILT DRAWINGS. 6.12.8 NO MORE THAN 2 DOORS WITH EXIT DEVICES PER INDEPENDENT 24V POWER

6.12.9 THE REX SIGNALS EGRESS FROM THE SECURED SIDE. UNLOCKING WILL BE A MANUAL MECHANICAL FUNCTION FOLLOWING VALID REQUEST TO EXIT. THE REX WILL ELECTRONICALLY UNLOCK HARDWARE ONLY WHEN USED IN CONJUNCTION WITH A HANDICAP PUSHBUTTON/OPENER OR MAGNETIC LOCKING HARDWARE. WHERE POSSIBLE A REX WILL BE USED WITH ELECTRIFIED HANDLES AND CRASH BARS. 6.12.10 DOOR HARDWARE IS TO BE SET SO THAT 'DOGGING' FUNCTIONALITY IS NOT

CAPABLE OF ACCEPTING SCHLAGE, OR SARGENT (WHERE APPROPRIATE) LOCK FULL SIZE INTERCHANGEABLE CORE. 6.12.12 DOOR HARDWARE POWER SUPPLIES WILL HAVE A LOCKING JUNCTION BOX 7.01 DRAWINGS AND SPECIFICATIONS FOR THE ACCESS CONTROL SYSTEM SHALL

6.12.11 DOOR HARDWARE WILL HAVE BLANK CYLINDER OR KEY OVERRIDE AND

HAVE DEDICATED DETAIL DRAWINGS IN THE CONSTRUCTION PLANS. THE DETAIL DRAWINGS SHALL BE PROVIDED ELECTRONICALLY IN A VERSION OF AUTOCAD ACCEPTABLE TO THE UNIVERSITY ON CD AND SHALL INCLUDE; A FLOOR PLAN WITH A SEPARATE SECURITY LAYER (FOR EACH LEVEL)

INDICATING THE LOCATION AND DOOR LABEL FOR ALL FIELD DEVICES, A DETAILED WIRING PLAN SHOWING TERMINATION TO TERMINATION WIRING, A COMPLETE SET OF MANUALS FOR ALL MANUFACTURED ITEMS PROVIDED AS

PART OF THIS PROJECT, CONTROL PANEL ELEVATION, POWER WIRING AND CONDUIT ELEVATIONS,

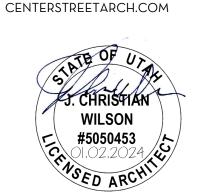
SIZE, HARDWARE SET/SCHEDULE, LOCATION, AND DRAWING NO. DOOR DETAIL AND ELEVATION FOR EACH SECURITY DOOR. DETAILED CONTROL WIRING DIAGRAMS FOR ALL READERS AND DEVICES USU WILL REVIEW THE PLANS FOR COMPLIANCE TO STANDARDS AND FUNCTIONAL REQUIREMENTS. WHEN APPROVED, USU WILL RETURN A SIGNED

COPY OF THE PLANS TO THE CONTRACTOR FOR CONSTRUCTION.

SECURITY DOOR MATRIX WHICH INCLUDES DOOR NUMBER, DOOR

CENTER STREET 170 E, CENTER STREET

LOGAN, UTAH 84321



MELLE DETTENMAIER 435.890.2009 CHRISTIAN WILSON 435.232.8662

REVISIONS

DESCRIPTION

NO. DATE

DATE: 2/20/2024 2:43:08 PM

JOB NO: 23136 - UWRL SCALE: DRAWN: JCW

SHEET

4.0 STANDARDIZED HARDWARE

4.00 THE FOLLOWING HARDWARE IS SPECIFIED HARDWARE FOR ACCESS CONTROL INTEGRATIONS. COMPATIBLE SUBSTITUTIONS ARE ALLOWED WITH APPROVAL. 4.01 CONTROLLERS MERCURY INTELLIGENT NETWORK CONTROLLERS \$2 MERCURY EP15O2 INTELLIGENT CONTROLLER, 16M, 2 READERS, 8 INPUTS, 4 OUTPUTS S2 MERCURY MR52 READER INTERFACE MODULE 2 READERS, 8 INPUTS, 6 OUTPUTS 4.02 READERS

ICLASS SE RP40E (ELITE KEY REQUIRED), WALL SWITCH, CONTACTLESS, BLACK, WITH SIO ICLASS SE RK40E (ELITE KEY REQUIRED), WALL SWITCH, KEYPAD, CONTACTLESS, BLACK, WITH SIO ICLASS SE R15E (ELITE KEY REQUIRED), MULLION (LG), CONTACTLESS, BLACK, WITH SIO ICLASS SE RIOE (ELITE KEY REQUIRED), MULLION (RG), CONTACTLESS, BLACK, WITH SIO

4.03 EXIT DEVICES (MECHANICAL) VON DUPRIN 98/99 SERIES

4.04 ELECTRIC STRIKES

VON DUPRIN SERIES 6000 24 VOLT

HES 1006 STRIKE HES 9600, OR 9400 RIM STRIKE OR HES 9500 RIM FOR FIRE-RATED APPLICATIONS

ADAMS RITE STRIKE SLP-UL-M-KIT - SARGENT ELR WITH REX BUILT IN (EXIT DEVICE)

VLP-UL-M-KIT - VON DUPRIN ELR WITH REX (EXIT DEVICE)

4.05 ELECTRIC POWER TRANSFER VON DUPRIN EPT-10 EPT-5

POWER TRANSFER HINGE - ELECTRIFIED HINGE, MINIMUM 6 WIRES, MAX OF 12 WIRES. MUST BE FROM APPROVED, REPUTABLE, MANUFACTURE. ASSA ABLOY OR

ARMORED CABLE DOOR LOOPS - USED ON PIVOT HINGE DOORS IN PLACE OF GVUX POWER TRANSFER.

ALARM LOCK AL271 KEEDEX K-DLA12

4.06 POWER SUPPLIES AND BATTERIES ACCESS POWER SUPPLY/CHARGER FOR MERCURY

BATTERIES 12V, 7AH LIFE SAFETY POWER WILL BE USED FOR ALL ELECTRONIC ACCESS CONTROL. POWER OUTPUT (D8) FOR AUXILIARY DOOR COMPONENTS (REX MOTION DETECTOR, SOUNDERS, ETC.) DEPENDING ON SPACE REQUIREMENTS PREFERENCE IS GIVEN TO FPO250- 2C83D8PE6M1-16 DOOR POWER DISTRIBUTION ENCLOSURE WITH AUX POWER OUTPUT FOR AUXILIARY DOOR COMPONENTS (REX MOTION DETECTOR, SOUNDERS, ETC.)

4.07 RELAYS ALTRONIX RELAY/ ALTRONIX 6062 - TIME DELAY RELAY (FOR ADA DOORS.) IDEC / IDEC RHUIB AND RHU2B RELAYS (IN BASE POWER DISTRIBUTION ENCLOSURES) 4.08 NOT USED

4.09 REQUEST TO EXIT (REX) REQUEST TO EXIT DETECTION SYSTEMS: BOSCH DS 1501 REQUEST TO EXIT MOTION DETECTOR OR SIMILAR (NOTE: MOTION DETECTOR REX WILL ONLY BE USED WHERE APPROVED BY USU)

PUSH TO EXIT REX: PUSH TO EXIT WILL ONLY BE USED WHERE REQUIRED AS A PHYSICAL INTERRUPT TO MAG LOCK TYPE LOCKING DEVICES.

4.10 CABLING: COMPOSITE CABLING 4.11 DEVICE SERVERS

4.12 PERSONALITY MODULE AND HOUSING RM4 READER MODULE

4.13 DOOR SWITCHES SENTROL (GE) / SENTROL 1078C - FLUSH MOUNTED DOOR POSITION SWITCH (COLOR

SENTROL AL2505 - SURFACE MOUNTED SWITCH WITH ARMORED CABLE 4.14 INPUT/OUTPUT MODULE S2 - MECURY BOARD / S2 MERCURY BOARD - MR51 / S2 MERCURY BOARD - MR50

4.15 HORNS/ALARMS: DETECT SYSTEMS DS-4200KI - DOOR PROP ALARM 4.16 EMERGENCY PUSH BUTTON COVERS W/HORN:

SDC 491 - BREAK GLASS STATION WITH HORN

5.0 NETWORK TOPOGRAPHY

5.01 USU USES A STAR CONFIGURATION WITH EACH ACCESS/ALARM POINT BEING A 'HOME RUN' BACK TO THE ACCESS CONTROL PANEL FROM THE PERSONALITY MODULE LOCATED ABOVE THE DOOR OR THE CARD READER. THE CABLING BETWEEN THE PERSONALITY MODULE (RM READER) AND THE ACCESS CONTROL PANEL WILL BE THE COMPOSITE CABLING OUTLINED IN THE SECTION 4.10. ALL COMMUNICATION AND POWER TO THE INDIVIDUAL DOORS WILL COME FROM THE ACCESS CONTROL PANEL LOCATION. EXCEPTIONS TO THIS WILL BE MADE WHEN SPECIFIC HARDWARE REQUIRES A LOCALIZED POWER SUPPLY OR POWER OVER ETHERNET (POE) CONNECTED TO A NETWORK SERVER. WHEN POSSIBLE A TRUNK CONDUIT/RACEWAY SHOULD BE ESTABLISHED IN COMMON HALLWAYS TO ACCOMMODATE MULTIPLE 'HOME RUN' COMPOSITE CABLES.

6.0 INSTALLATION REQUIREMENTS 6.01 POWER SUPPLY INSTALLATION SHALL ALSO INCLUDE WIRING A/C FAIL FAULT RELAY TO INPUT 8 ON 1502 OR FIRST ADDRESSED MR52 AND LABELED/PROGRAMED AS A/C FAIL NOTIFICATION. EACH POWER SUPPLY IN CONSECUTIVE PANELS SHALL ALSO BE WIRED. LABELED AND PROGRAMED FOR A/C FAIL NOTIFICATION. 6.02 PANEL AND ANY NETWORK DEVICE SERVER WILL BE WIRED THROUGH A

DEDICATED POWER SUPPLY WITH BATTERY BACKUP. BATTERIES MUST BE INSTALLED UPON FINAL COMPLETION OF INSTALLATION.

6.03 POWER TO ACCESS CONTROL PANELS IS TO BE HARDWIRED UTILIZING EMT OR RIGID CONDUIT IN ACCORDANCE WITH SECTION 6.10 OF THIS SPECIFICATION. 6.04 CARD READERS WILL BE MOUNTED WITHIN A TWO FOOT (24") RADIUS OF THE DOOR TO WHICH IT IS ASSIGNED. ANY DEVIATION MUST BE SPECIFICALLY REQUESTED IN WRITING WITH AN EXPLANATION OF THE NECESSITY TO PLACE THE CARD READER FARTHER AWAY THAN TWO FEET (24").

6.05 A CIRCUIT FROM FIRE ALARM PANEL MUST BE INSTALLED TO EACH LOCK POWER DISTRIBUTION PANEL. IN APPLICATIONS THAT INCLUDE MAG-LOCKS, CONTRACTOR WILL CONNECT TO A FIRE ALARM CIRCUIT PROVIDED AT THE CONTROLLER BACKBOARD BY THE FIRE ALARM CONTRACTOR.

6.06 ACCESS CONTROL PANELS ARE TO BE INSTALLED IN NETWORK OR ELECTRICAL CLOSETS AS APPROVED BY THE USU ACCESS CONTROL SHOP OR PLANNING AND DESIGN. ALL PANELS AND BOARDS MUST BE INSTALLED IN NEMA 4 ENCLOSURE(S) (WITHIN THE ELECTRICAL CLOSET) THAT ARE OF SUFFICIENT SIZE AND ORIENTATION TO INCLUDE ALL CARD ACCESS SYSTEM COMPONENTS. ALL ENCLOSURES MUST BE LOCKABLE AND LOCATED IN A MANNER THAT THE

ENCLOSURES WILL BE ACCESSIBLE BY MAINTENANCE PERSONNEL. 6.07 EACH PANEL WILL BE LABELED ACCORDANCE WITH USU STANDARDS. THE LABEL FOR EACH PANEL WILL BE POSTED ON THE INTERIOR OF THE PANEL DOOR. 6.08 EACH PANEL WILL HAVE A LIST OF READERS (UNIVERSITY DOOR NUMBERS) CONNECTED TO IT LOCATED ON THE INSIDE COVER, OR CLEARLY LABELED ON THE

WIRING FOR EACH DOOR. 6.09 INSTALLATION OF NETWORK CONNECTION DROP IS TO BE COORDINATED THROUGH USU IT OFFICE. DROP TERMINATION IS TO BE INSIDE OF ACCESS CONTROL PANEL TO PREVENT TAMPERING. THE MAC ADDRESS AND IP ADDRESS FOR EACH ARE TO HAVE FUNCTIONING LOCKING HARDWARE WITH KEYS. KEYS WILL BE

PANEL/DEVICE WILL BE POSTED ON THE INSIDE PANEL DOOR. ALL PANEL BOXES SUBMITTED TO THE USU PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP UPON COMPLETION OF INSTALL.

6.10 WIRING AND CONDUIT

6.10.1 ALL COMMUNICATION AND POWER TO THE INDIVIDUAL DOORS WILL COME FROM THE ACCESS CONTROL PANEL LOCATION. AN EXCEPTION TO THIS WILL BE MADE WHEN SPECIFIC HARDWARE REQUIRES A LOCALIZED POWER SUPPLY OR

6.10.2 A TRUNK CONDUIT/RACEWAY SHOULD BE ESTABLISHED IN COMMON HALLWAYS TO ACCOMMODATE MULTIPLE 'HOME RUN' COMPOSITE CABLES. 6.10.3 ALL WIRING RUNS WILL BE IN A STAR CONFIGURATION OR HOME RUN FROM RM BOARD TO THE PANEL BOX. DAISY-CHAIN READER COMMUNICATION LOOPS ARE NOT PERMITTED. EACH DOOR WILL HAVE AN RM READER BOARD FOR NPUTS/OUTPUTS AND FUTURE EXPANSION OF DOOR DEVICES.

6.10.4 ALL DEVICES MUST BE HARDWIRED. UNLESS APPROVED BY THE USU PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP, ALL WIRING MUST BE INSTALLED IN ELECTRICAL METALLIC TUBING, CABLE TRAY OR RIGID CONDUIT. CONDUIT MUST BE INSTALLED SQUARE AND PLUMB TO BUILDING STRUCTURE IN A MANNER CONSISTENT WITH GOOD WORKMANSHIP. INSTALLATION OF CONDUIT MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND USU WRITTEN STANDARDS FOR 110-120 VAC CIRCUITS. NOTE: WHEN APPROVED BY THE USU PHYSICAL SECURITY OFFICE OR LOCKSMITH SHOP, ONLY PLENUM RATED LOW CABLE WIRING MAY BE RUN WITHOUT CONDUIT PROVIDED THE CABLE IS RUN SQUARE AND PLUMB WITH THE BUILDING STRUCTURE. PLENUM CABLE MUST BE SUPPORTED BY AN USU APPROVED MEANS ON 4 FT. CENTERS.

SECTION - 08 70 00 HARDWARE, LOCKS & KEYS (CONT.)

6.10.5 POWER TO THE ACCESS CONTROL PANEL POWER SUPPLIES WILL BE CONCEALED HARD WIRED, ON A DEDICATED CIRCUIT WITH A PROPER GROUND. THIS CIRCUIT WILL BE ON EMERGENCY POWER WHERE AVAILABLE. 6.10.6 ALL WIRE TERMINATIONS IN THE PANEL AND FIELD DEVICES MUST BE CLEARLY LABELED. ALL LABELS MUST BE MANUFACTURED FOR LOW VOLTAGE WIRING AND THE INFORMATION ON THE LABELS MUST INCLUDE BOTH SOURCE AND DESIGNATION

TERMINAL INFORMATION. A. ALL WIRES ARE TO INCLUDE THE FOLLOWING INFORMATION IA NUMBER TO CORRESPOND TO WHAT PANEL WIRE IS CONNECTED TO II A NUMBER ON THE WIRE TO CORRESPOND TO PANEL SCHEDULE III A LOCATION OF FINAL DESTINATION OF THE WIRE TERMINATION IN RELATION TO TRUE NORTH

IV DOOR NUMBER ASSIGNED TO THE DOOR AS DESIGNATED BY THE CARD READER ADDRESSED AND WHICH IN TURN WILL BE ASSIGNED IN THE SOFTWARE AND DESIGNATED ON THE DOOR BY THE ASSIGNED NUMBER (LABEL) B. ALL PANELS ARE TO INCLUDE A PANEL SCHEDULE WHICH WILL

INCLUDE THE FOLLOWING INFORMATION I. THE TERMINAL BLOCK NUMBER AT WHICH THE WIRE IS TERMINATED FOLLOWED BY THE ABOVE MENTIONED INFORMATION

6.10.7 WIRING WHICH CONTACTS METAL EDGES WILL BE BUFFERED WITH BUSHINGS OR RUBBER GROMMETS TO PREVENT DAMAGED WIRES AND SHORTS. EXAMPLES INCLUDE WIRING MEETING CONDUIT ENDS, PANEL AND JUNCTION BOX HOLES. 6.10.8 CONDUIT MUST BE STRAPPED WITHIN 24" OF JUNCTION BOXES. 6.10.9 ALL JUNCTION BOXES MUST BE COVERED AND LABELED WITH DESTINATION AND SOURCE. CONTENTS SHALL BE INCLUDED ON THE LABEL WHEN APPROPRIATE (EX. JUNCTION BOX WITH RELAY FOR HANDICAP BUTTON).

6.10.10 GANG BOXES MUST MATCH DEVICE BEING MOUNTED (EX. DOUBLE GANG READER MOUNTED ON A DOUBLE GANG BOX). 6.10.11 SETSCREW CONDUIT FITTING ARE ALLOWED WHERE WATER TIGHT FITTINGS

ARE NOT NECESSARY. COMPRESSION FITTING MUST BE USED IN ALL AREAS OUTDOORS OR IN AN AREA THAT HAS THE POSSIBILITY OF WATER INTRUSION. COMPRESSION FITTINGS ARE RECOMMENDED IN CONDUIT RUNS THAT ARE GREATER THAN 80 FEET. 6.10.12 MAXIMUM USAGE FOR CONDUIT WILL BE 40% OF TOTAL SQUARE INCH INTERNAL CAPACITY. MINIMUM CONDUIT SIZE IS · INCH. 6.10.13 THE CARD ACCESS-CONDUIT SYSTEM AND CABLING INSTALLED MUST BE

DISTINCT AND SEPARATE FROM THE WIRE WAY/CONDUIT SYSTEM HOUSING VOICE/DATA CABLES IN CAMPUS BUILDINGS. EXCEPTION TO THIS IS POE CABLING MAY BE RUN CONCURRENTLY. 6.10.14 CONNECTIONS TO DEVICES MUST BE SECURED, SO THAT NO CORDS MAY BE

EASILY DISCONNECTED FROM THE DEVICES AND NO CORDS ARE LEFT EXPOSED TO UNAUTHORIZED TAMPERING. 6.10.15 WIRING WILL BE DONE IN STRICT ACCORDANCE WITH MANUFACTURER'S GUIDELINES EXCEPTIONS MUST BE APPROVED BY THE USU ELECTRICAL SHOP OR IT PHYSICAL INFRASTRUCTURE.

6.10.16 LOW VOLTAGE SHIELDS WILL BE TERMINATED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. SHOULD "NOISE" IN THE BUILDING GROUND REFERENCE INTERFERE WITH OR PREVENT THE DEVICE FROM OPERATING PROPERLY, THE CONTRACTOR WILL INSTALL A DEDICATED GROUND FOR THE CARD ACCESS SYSTEM IN THAT PARTICULAR BUILDING. FLOATING SHIELDS WILL NOT BE ALLOWED. 6.10.17 ISOLATION RELAYS WILL BE USED FOR ALL OUTPUTS TO FIELD DEVICES. 6.10.18 FIELD WIRING MUST BE ONE PIECE FROM SOURCE TERMINAL TO DESTINATION TERMINAL. SPLICES IN FIELD WIRING WILL NOT BE ALLOWED.

6.10.19 THE CONSTRUCTION PROCEDURE FOR WIRING ROUTED THRU DOOR MULLION WILL BE SUBMITTED TO USU FOR APPROVAL. ALL WIRING IN AND AROUND DOOR MOLD WILL BE DONE IN A GOOD WORKMANSHIP TYPE MANNER TO MINIMIZE THE VISUAL IMPACT ON THE APPEARANCE OF THE DOOR. ALL HOLES DRILLED IN THE DOOR MULLION WILL BE CONCEALED USING PLASTIC MANUFACTURED HOLE CAPS. THE COLOR OF THE HOLE-CAPS WILL BE SUITABLE FOR THE APPLICATION. 6.10.20 ALL EXTERNALLY MOUNTED HARDWARE WILL BE INSTALLED IN A MANNER CONSISTENT WITH GOOD WORKMANSHIP AND MATCH THE EXISTING COLOR AND MATERIAL WHENEVER POSSIBLE.

6.11.1 DOOR SWITCHES WILL BE SURFACE MOUNTED OR FLUSH MOUNTED ON THE OPPOSING SIDE OF THE DOOR FROM THE HINGES. THE SWITCH WILL BE MOUNTED ON THE TOP OF THE DOOR AND WILL BE NO FURTHER THAN THREE INCHES FROM THE INTERIOR PORTION OF THE DOORFRAME. 6.11.2 SURFACE MOUNT SWITCHES WILL HAVE ARMORED CABLE BETWEEN THE SWITCH

6.11 DOOR SWITCHES

AND THE CARLE ENTRANCE HOLE IN THE DOOD AFELY ADMODED CARLING FIDMLY WITHIN THE CONDUIT OR ELECTRICAL BOX I.E. (CABLE CLAMP) AS TO PREVENT TAMPERING OF DPS WIRES.

6.11.3 SURFACE MOUNT SWITCHES WILL HAVE TAMPER RESISTANT SCREWS TO ATTACH SWITCH TO DOOR AND DOORFRAME. 6.11.4 A SCREW-LOCKING ADHESIVE SUCH AS 'LOCTITE' THREAD LOCKER WILL BE USED

TO SECURE ALL SCREWS. 'LOCTITE' THREAD LOCKER #222MS OR #242 ONLY 6.11.5 FLUSH MOUNT SWITCHES ARE TO BE MOUNTED IN THE TOP PORTION (HEADER) OF THE DOORFRAME AND IN THE ADJOINING PORTION OF THE DOOR. 6.11.6 THE HOLES FOR FLUSH MOUNTED DOOR SWITCHES MUST BE DRILLED THE EXACT SIZE FOR THE SWITCH BEING USED. A TIGHT FRICTION FIT MUST BE ACHIEVED. 6.11.7 NO HINGE MOUNTED DOOR CONTACTS ARE TO BE USED. 6.12 DOOR HARDWARE

6.12.1 DOOR HARDWARE WILL BE FAIL-SECURE WITH MECHANICAL MANUAL EGRESS FROM THE SECURED SIDE. HARDWARE SHALL ALSO MATCH USU STANDARD SERGEANT OR SCHLAGE FORMAT WITHIN ELECTRONIC LOCKING SYSTEMS. 6.12.2 ALL ELECTRONIC HARDWARE WILL BE 24V AND POWERED VIA INDEPENDENT 24V POWER SUPPLY FOR DOOR HARDWARE.

6.12.3 DOOR SWITCHING AND POWER WILL RESIDE IN THE ACCESS CONTROL PANEL LOCATION. 6.12.4 NOT USED

6.12.5 POWER SUPPLY WILL BE CONNECTED TO BUILDING EMERGENCY CIRCUITS WHEN POSSIBLE. 6.12.6 POWER SUPPLIES WILL HAVE A 7AMP HOUR BATTERY BACKUP OR HIGHER. 6.12.7 THE LOCATION OF POWER SUPPLIES WHEN LOCATED AWAY FROM ACCESS CONTROL PANEL WILL BE FULLY DOCUMENTED VIA AS-BUILT DRAWINGS.

6.12.8 NO MORE THAN 2 DOORS WITH EXIT DEVICES PER INDEPENDENT 24V POWER 6.12.9 THE REX SIGNALS EGRESS FROM THE SECURED SIDE. UNLOCKING WILL BE A MANUAL MECHANICAL FUNCTION FOLLOWING VALID REQUEST TO EXIT. THE REX WILL ELECTRONICALLY UNLOCK HARDWARE ONLY WHEN USED IN CONJUNCTION WITH A HANDICAP PUSHBUTTON/OPENER OR MAGNETIC LOCKING HARDWARE. WHERE POSSIBLE A REX WILL BE USED WITH ELECTRIFIED HANDLES AND CRASH BARS. 6.12.10 DOOR HARDWARE IS TO BE SET SO THAT 'DOGGING' FUNCTIONALITY IS NOT

POSSIBLE. 6.12.11 DOOR HARDWARE WILL HAVE BLANK CYLINDER OR KEY OVERRIDE AND CAPABLE OF ACCEPTING SCHLAGE, OR SARGENT (WHERE APPROPRIATE) LOCK FULL SIZE INTERCHANGEABLE CORE.

6.12.12 DOOR HARDWARE POWER SUPPLIES WILL HAVE A LOCKING JUNCTION BOX 7.0 PLANS 7.01 DRAWINGS AND SPECIFICATIONS FOR THE ACCESS CONTROL SYSTEM SHALL HAVE DEDICATED DETAIL DRAWINGS IN THE CONSTRUCTION PLANS. THE DETAIL

DRAWINGS SHALL BE PROVIDED ELECTRONICALLY IN A VERSION OF AUTOCAD ACCEPTABLE TO THE UNIVERSITY ON CD AND SHALL INCLUDE: A FLOOR PLAN WITH A SEPARATE SECURITY LAYER (FOR EACH LEVEL)

INDICATING THE LOCATION AND DOOR LABEL FOR ALL FIELD DEVICES, A DETAILED WIRING PLAN SHOWING TERMINATION TO TERMINATION WIRING,

A COMPLETE SET OF MANUALS FOR ALL MANUFACTURED ITEMS PROVIDED AS PART OF THIS PROJECT.

CONTROL PANEL ELEVATION.

POWER WIRING AND CONDUIT ELEVATIONS, SECURITY DOOR MATRIX WHICH INCLUDES DOOR NUMBER, DOOR SIZE, HARDWARE SET/SCHEDULE, LOCATION, AND DRAWING NO.

DOOR DETAIL AND ELEVATION FOR EACH SECURITY DOOR. DETAILED CONTROL WIRING DIAGRAMS FOR ALL READERS AND DEVICES USU WILL REVIEW THE PLANS FOR COMPLIANCE TO STANDARDS AND FUNCTIONAL REQUIREMENTS. WHEN APPROVED, USU WILL RETURN A SIGNED

COPY OF THE PLANS TO THE CONTRACTOR FOR CONSTRUCTION.

SECTION 09 22 00 - NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL 1.1 SECTION INCLUDES

NON-STRUCTURAL METAL FRAMING, COLD-FORMED METAL FRAMING FOR WALLS, COLD-FORMED METAL FRAMING FOR CEILINGS AND ACCESSORIES.

A. A.ASTM INTERNATIONAL (ASTM): ASTM A 653 - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE

ASTM C 645 - STANDARD SPECIFICATION FOR NON-STRUCTURAL STEEL

FRAMING MEMBERS. ASTM C 754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL

B. AMERICAN IRON AND STEEL INSTITUTE (AISI) - STANDARD FOR COLD-FORMED

STEEL FRAMING GENERAL PROVISIONS. C. AMERICAN IRON AND STEEL INSTITUTE (AISI) - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.

PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

MANUFACTURER'S CERTIFICATION OF PRODUCT COMPLIANCE WITH CODES AND STANDARDS.

PREPARATION INSTRUCTIONS AND RECOMMENDATIONS. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.

4. INSTALLATION METHODS.

1.4 QUALITY ASSURANCE CONTRACTOR SHALL PROVIDE EFFECTIVE, FULL TIME QUALITY CONTROL OVER ALL FABRICATION AND ERECTION COMPLYING WITH THE PERTINENT CODES AND

REGULATIONS OF GOVERNMENT AGENCIES HAVING JURISDICTION. INSTALLER QUALIFICATIONS: INSTALLER EXPERIENCED IN PERFORMING WORK OF THIS SECTION WHO HAS SPECIALIZED IN INSTALLATION OF WORK SIMILAR TO THAT REQUIRED FOR THIS PROJECT.

FIRE-TEST-RESPONSE CHARACTERISTICS: FOR FIRE-RESISTANCE-RATED ASSEMBLIES THAT INCORPORATE NON-STRUCTURAL STEEL FRAMING, PROVIDE MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE TESTED IN ASSEMBLY INDICATED ACCORDING TO ASTM E 119 BY, AND DISPLAYING A CLASSIFICATION LABEL FROM. AN INDEPENDENT TESTING AGENCY ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.

1.5 DELIVERY, STORAGE, AND HANDLING

DELIVER AND STORE PRODUCTS IN MANUFACTURER'S UNOPENED PACKAGING BEARING THE BRAND NAME AND MANUFACTURER'S IDENTIFICATION UNTIL READY FOR INSTALLATION.

B. HANDLING: HANDLE MATERIALS TO AVOID DAMAGE.

1.6 .DESIGN REQUIREMENTS:

DESIGN STEEL IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE PUBLICATION "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", EXCEPT AS OTHERWISE SHOWN OR SPECIFIED. DESIGN LOADS: AS INDICATED ON THE ARCHITECTURAL DRAWINGS. 5 PSF MINIMUM DESIGN LATERAL LOAD IS REQUIRED FOR INTERIOR WALLS PER THE

FRAMING MEMBERS, GENERAL: COMPLY WITH ASTM C645 FOR CONDITIONS INDICATED.

STEEL SHEET COMPONENTS: COMPLY WITH ASTM C645 REQUIREMENTS FOR METAL UNLESS OTHERWISE INDICATED.

PROTECTIVE COATING: COMPLY WITH ASTM C645; ROLL-FORMED FROM HOT-DIPPED GALVANIZED STEEL, COMPLYING WITH ASTM A653/A653M G40 (Z120) OR HAVING A COATING THAT PROVIDES EQUIVALENT CORROSION RESISTANCE. A40 GALVANNEALED PRODUCTS ARE NOT ACCEPTABLE.

COATINGS SHALL DEMONSTRATE EQUIVALENT CORROSION RESISTANCE WITH AN EVALUATION REPORT ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

B. FRAMING INSTALLATION: ERECT FRAMING AND PANELS PLUMB, LEVEL AND SQUARE IN STRICT

ACCORDANCE WITH APPROVED DRAWINGS. ANCHOR RUNNER TRACK SECURELY TO THE SUPPORTING STRUCTURE. INSTALL CONCRETE ANCHORS ONLY AFTER FULL COMPRESSIVE STRENGTH HAS BEEN ACHIEVED. BUTT ALL TRACK JOINTS. SECURELY ANCHOR ABUTTING PIECES OF TRACK TO A COMMON STRUCTURAL ELEMENT, OR SPLICE THEM TOGETHER. ALIGN AND PLUMB STUDS, AND SECURELY ATTACH TO THE FLANGES OR WEBS OF BOTH UPPER AND LOWER TRACKS. ATTACH WALL STUD BRIDGING WHEN REQUIRED IN A MANNER TO PREVENT STUD ROTATION. SPACE BRIDGING ROWS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. CUT ALL FRAMING COMPONENTS SQUARE FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR AS REQUIRED FOR AN ANGULAR FIT AGAINST ABUTTING MEMBERS. PROTECT INSTALLED PRODUCTS

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

UNTIL COMPLETION OF PROJECT.

MATERIAL: US GYPSUM "SHEETROCK" IS STANDARD OF QUALITY.

INTERIOR WALLS/CEILINGS: 5/8" TYPE X TAPERED EDGE. CORNER BEADS: PERF. A-TRIM 0100, METAL TRIM: PERF. A-TRIM 0301, TAPE: PERF. A-TAPE AND JOINT COMPOUND AND DWA-14 ADHESIVES. (3) COAT SYSTEM LEVEL 5 FINISH.

INSTALLATION: IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS AND PERF. A-TAPE READY MIX JOINT SYSTEM.

TEXTURE: WALLS, SMOOTH FINISH. ACOUSTICAL SEALANT TO BE NON-SAG, PAINTABLE, NONSTAINING, LATEX COMPLYING WITH ASTM C 834 THAT EFFECTIVELY REDUCE AIRBORNE SOUND TRANSMISSION THROUGH PERIMETER JOINTS AND OPENINGS IN THE BUILDING CONSTRUCTION AS PER USG LISTED SOUND RATING ASSEMBLY REQUIREMENTS

AND ASTM E 90. DIVISION 09 00 00 - FINISHES

SECTION 09 91 23 - INTERIOR PAINTING

GENERAL REQUIREMENTS: PROVIDE ALL PAINTING TO COMPLETE THE WORK. INSPECT WORK OF OTHERS PRIOR TO APPLICATION AND NOTIFY THE CONTRACTOR OF ANY SURFACES NOT PROPERLY PREPARED FOR FINISHING OR ASSUME RESPONSIBILITY THEREOF.

THE INTENT OF THESE SPECIFICATIONS IS TO PROVIDE A SATISFACTORY FINISH TO ALL PARTS OF THE BUILDING UNLESS NOTED OTHERWISE. ALL SURFACES SHALL BE THOROUGHLY COVERED. IF THE NUMBER OF COATS SPECIFIED DOES NOT ACCOMPLISH THE INTENT, THE CONTRACTOR SHALL APPLY ADDITIONAL COATS OF MATERIAL TO GIVE SATISFACTORY COVERAGE.

THE WORKMANSHIP SHALL BE OF THE VERY BEST QUALITY. ALL MATERIALS SHALL BE APPLIED UNDER ADEQUATE ILLUMINATION, EVENLY SPACED AND SMOOTHLY FLOWED ON WITHOUT RUNS OR SAGS. FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR PRODUCT.

D. PAINT SCHEDULE: SEE FINISH SHEET A12O.

<u>DIVISION 10 00 00</u> - SPECIALTIES

DIVISION - 11 00 00 - EQUIPMENT (NOT APPLICABLE) (NOT APPLICABLE) DIVISION 12 00 00 - FURNISHINGS

(NOT APPLICABLE) DIVISION 13 00 00 - SPECIAL CONSTRUCTION (NOT APPLICABLE) <u>DIVISION 14 00 00 - CONVEYING EQUIPMENT</u>

DIVISION 22 00 00 - PLUMBING (NOT APPLICABLE)

DIVISION 23 OO OO - HEATING, VENTILATING AND AIR COND. (NOT APPLICABLE) DIVISION 25 OO OO - INTEGRATED AUTOMATION (NOT APPLICABLE)

(SEE ELECTRICAL)

DIVISION 26 OO OO - ELECTRICAL

**END OF SPECIFICATIONS** 





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DESCRIPTION NO. DATE DATE: 2/20/2024 2:43:11 PM JOB NO: 23136 - UWRL SCALE:

DRAWN: JCW









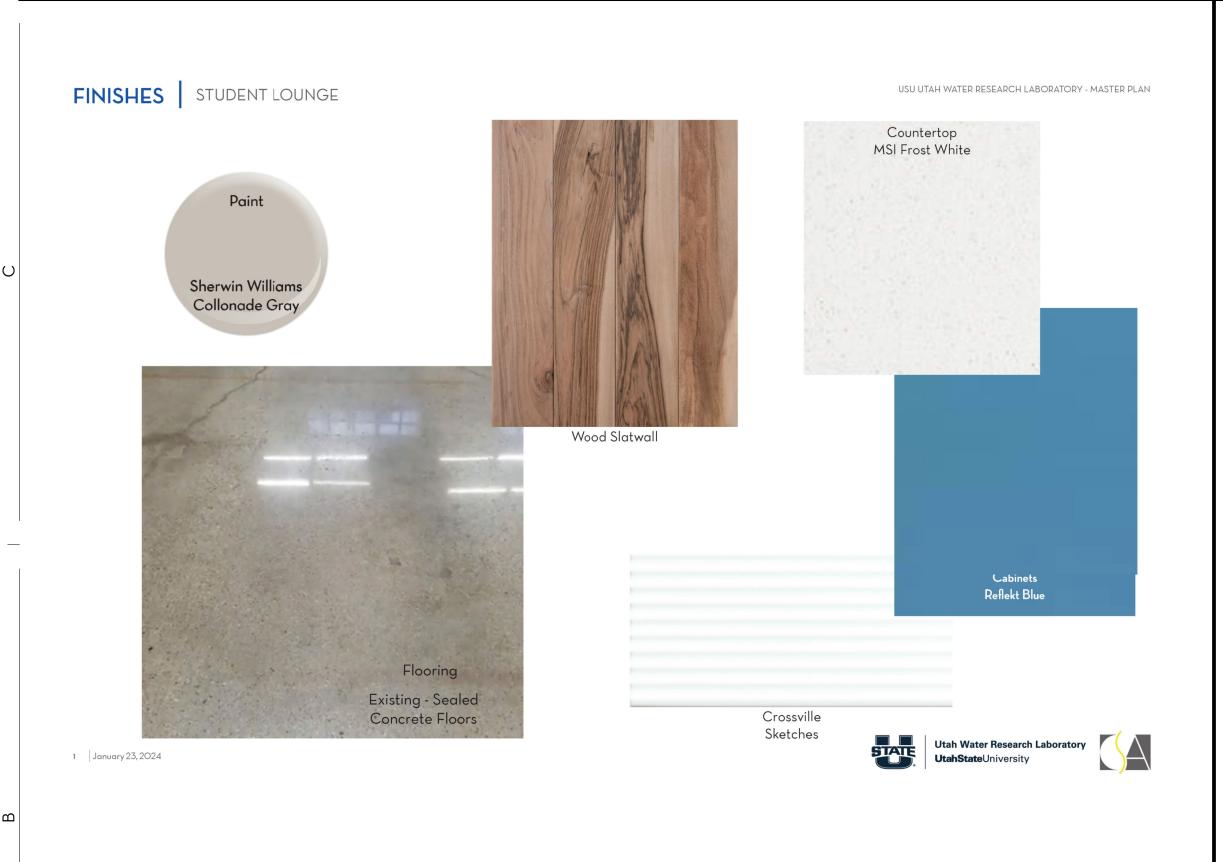
MELLE DETTENMAIER 435.890.2009 CHRISTIAN WILSON 435.232.8662

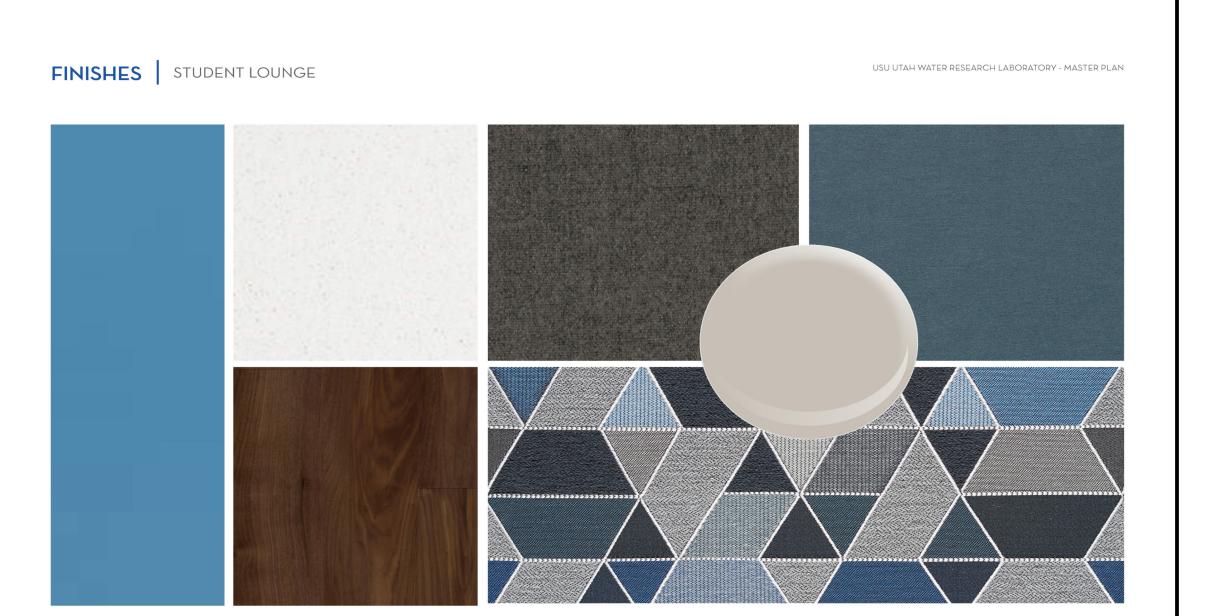
TITLE FURNITURE PLAN		CLIENT UTAH STATE UNIVERSITY	ADDRESS 1600 CANYON RD, LOGAN, UT 84321	
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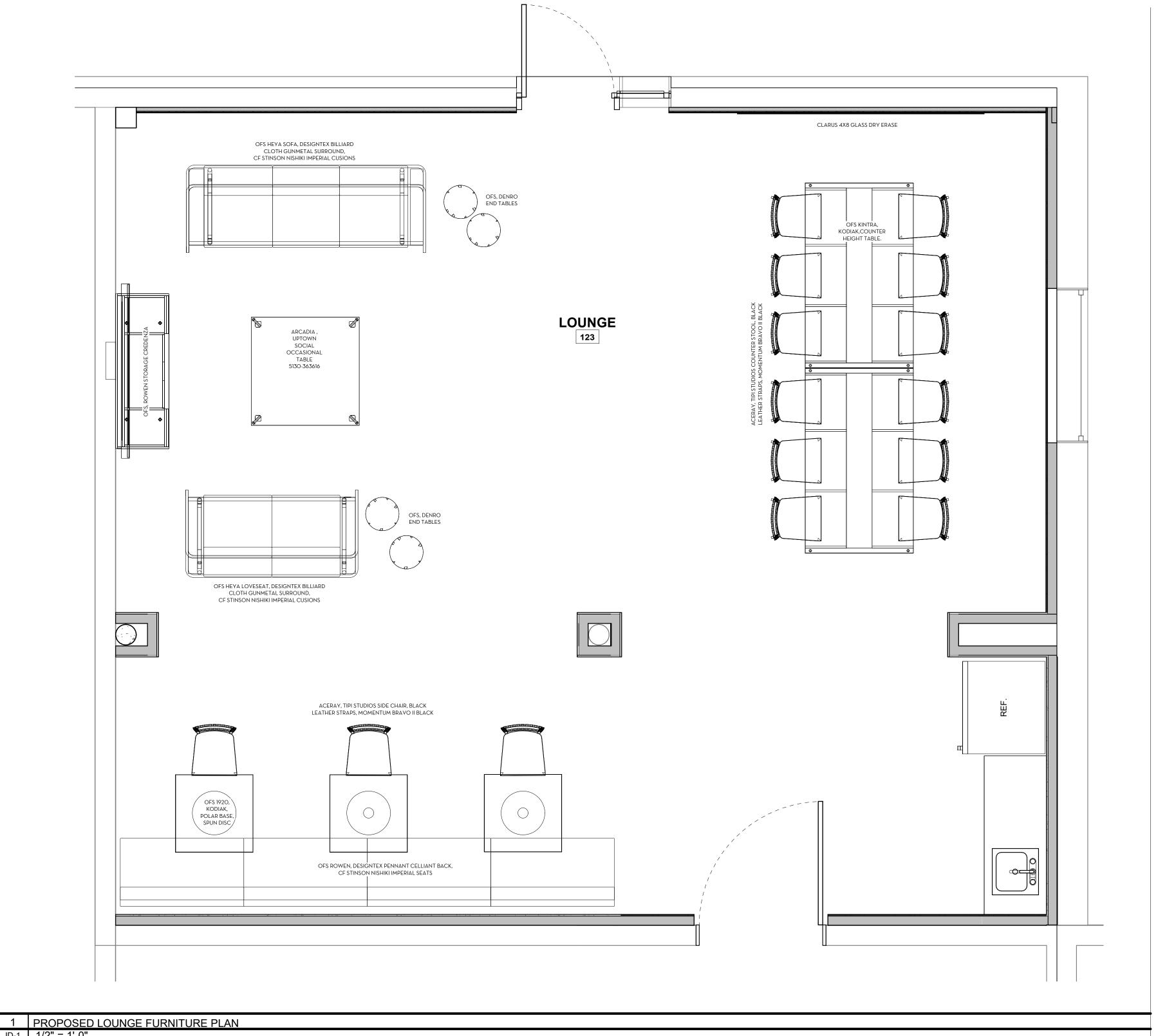
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**3** January 23, 2024

Utah Water Research Laboratory
UtahStateUniversity



**KEYNOTES** 

1 INSTALL HEAT PUMP LEVEL ON, AND

SECURE TO, CONCRETE PAD. RUN

REFRIGERANT LINES TO FAN COIL AND

CONNECT. SEE SCHEDULES FOR LINE

DESCRIPTION

- Contractor is responsible for all permits, licenses, fees, and charges as required by authority having jurisdiction for the performance of the work as outlined in these contract documents.
- documents.
   The contractor shall be responsible for installing a complete and functional system in accordance to the intent of the plans and written specifications.
- 3. All mechanial shall be in accordance with the local regulations and the International Mechanical Code of 2021, and amendments by the local jurisdiction.4. Contractor to coordinate work with other disciplines.
- 5. Drawing is diagrammatic and is not to be scaled. Refer to architectural plans or field measurements for dimensions.
- 6. Contractor shall verify all existing construction prior to submitting his bid. No extras will be paid due to
- unanticipated existing conditions.
  Contractor to verify all site conditions including progress of construction prior to fabrication of ductwork or any other fabricated mechanical item for possible routing collision. Inform engineer of any problems prior to fabrication.
- 8. Coordinate all roof and wall penetrations required with the general contractor. Provide all flashings, sleeves, curbs, reinforcing angles, supporting frames, etc. which is required unless called out to be furnished by others.
- 9. Contractor to provide submittal to Engineer for review prior to acquiring equipment as soon as possible after contract award. Equals will require review from engineer and owner to verify fitness as per Mechanical Alternate Note. All control devices shall be included with submittals. Equipment and fixture substitutions that are not listed on these contract documents shall not be allowed without the prior written approval of the owner.
- 10. Extra charges any discrepancies and omissions discovered shall be reported to the engineer immediately and prior to tender closing for rectification by addendum.11. The proper performance of the control system is the
- responsibility of the contractor.

  12. Shop drawings submit 1x copy in pdf format to the engineer for approval. Provide 2x printed copies of reviewed shop drawings to owner in 2x O&M manuals within 90 days of acceptance. The contractor shall ensure that equals for the major equipment fit in the allocated space and meet codes and specifications.
- 13. Upon completion contractor shall prepare a set of as-built drawings in AutoCAD/Revit format and provide pdf printouts for review by engineer.
- 14. Maintenance manuals contractor shall provide 2x copies complete with shop drawings. Three ringer binder style is acceptable. Provide on-site operating seminar to familiarize owner with all functions of new equipment. Submit maintenance manuals within 90 days of project acceptance.
- 15. As-built drawings mechanical contractor shall keep on site an extra set of drawings and specifications on which changes shall be noted daily. As-built drawings shall also be provided showing location of access doors, clean-outs, and any deviation from design drawings. Submit as-built drawings within 90 days of project acceptance.
- 16. Warranty mechanical contractor shall provide written warranty on his system for one full year from time of acceptance by the owner.
- 17. Structural misc. Steel support hangers for unit heaters, fans, heat pumps, etc. Shall be by the mechanical with clamps to structure, not welded. Structural reinforcing for equipment is by general contractor.
- 18. Electrical coordination motor disconnect switches and starters (including magnetic starters for interlocking) shall be by electrical contractor unless otherwise specified. Disconnects for packaged makeup air units shall be by electrical contractor. Electrical contractor shall wire in low voltage and line voltage thermostats, electric heaters and control transformers provided by mechanical contractor. Mechanical contractor shall complete low voltage controls wiring. Confirm voltages on site before ordering equipment.
- 19. Duct dimensions on plans are finished inside dimensions.
  20. Sleeving mechanical contractor shall be on site to sleeve mechanical openings through concrete, to flash and counter flash and to coordinate joist locations away from mechanical shafts.
- 21. Design documents these design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.

PLUMBING IN RETURN AIR PLENUMS

Treat all ceiling spaces as return air plenums.
 All materials used in return air plenums must have flame-spread index of 25 or less, and smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 (be plenum rated).

#### THERMOSTAT NOTES:

Provide 24/7 Programmable thermostat with minimum 4 daily setpoints and auto switchover between heating and cooling, minimum 2-stage heating and cooling capability and night setback mode. Install in thermostat in lockbox. Setback to 55 F heat and 85 F cool. Provide c/w 2 hour occupant override, 10 hour backup and 5 F deadband and setpoint overlap restriction.

#### AIR DUCT NOTES

- Dimensions:
   Duct dimensions shown on plans are final inside clear
- b. Duct sizes shall be verified for clearances at the job site prior to fabrication. Dimensions may be changed to accommodate construction clearances. Free area of duct shall be maintained.
- 2. Duct material shall be as follows unless otherwise indicated:
- a. Round supply/return air: ASTM A653 Z90 Standard specification for steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-dip Process
- b. Rectangular supply/return air: ASTM A653 Z90 Standard specification for steel sheet, Zinc-Coated
   (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed)
   by the Hot-dip Process
- c. Runouts to diffusers: spiral wound flexible galvanized spiral to SMACNA standards.
- d. Exhaust duct: ASTM A653 Z90 Standard specification for steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-dip Process.
   e. Transitions shall conform to SMACNA.
- f. Thickness, fabrication, reinforcement and joints to SMACNA.
- g. Flex connections provide flex connections 1/4" Duro Dyne Excelon PVC coated polyester at inlet and outlets of all forced air units.
- h. Flexible duct Thermaflex S-LP-10 insulated. M-KE insulated, maximum 10 ft connector length per air outlet unless oversized to not exceed 0.1" WC pressure drop per 100-ft. Coordinate with engineer. Contractor may be responsible for engineering evaluation costs.
- 3. Duct sealer/tape:
- All joints shall be made airtight by approved methods, including tapes, mastics, gasketing or other approved closure systems.
- b. Tape alone cannot be substituted for mechanical fasteners.
- c. Tapes and mastics used to seal ductwork must be listed and labeled in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181A-M" for mastic or "181A-H" for heat sensitive tape.
- d. Tapes and mastics used to seal flexible air ducts shall comply with UL 181B and shall be marked "181B-FX" for pressure sensitive tape, or "181B-M" for mastic.
- e. Mechanical fasteners used with flexible non-metallic air ducts shall comply with UL 181 and shall be marked "181B-C". Flexible connectors shall not be used.
- f. Seal per Duct Seal Class schedule.g. Do not use gray duct tape, foil backed tape, oil based
- caulking and glazing compounds to seal metal ducts.

  Seams:

  a. All metal longitudinal seams shall be SMACNA listed
- seam. Do not use button punch snap-back seams.
  b. Seal all seams and ducts to the relevant SMACNA class
- for ductwork being installed
  5. Refer to SMACNA Seismic Restraint Manual for
  Mechanical Systems, 3rd Edition for detailed support
  notes, support spacing and support type. Obtain SHL
- value from engineer.
  6. Insulation:
- a. Insulate all interior supply and return duct with minimum R-6 duct insulation. All components used (insulation, jackets, mastics, adhesives, and tapes) must havge flame-spread index of 25 or less, and smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or 723 (be plenum rated). Insulation shall be securily buttoned or lapped and sealed.
- b. Insulate all exterioir supply and return duct with minimum R-6 duct insulation in addition to the interior duct insulation. Insulation applied to exterior duct must have metal jacket. All components used (insulation, jackets, mastics, adhesives, and tapes) must havge flame-spread index of 25 or less, and smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or 723 (be plenum rated). Insulation shall be securily buttoned or lapped and sealed.
- 7. Clean ductwork prior to installation of diffusers.

### HIGH PRESSURE DUCT NOTE

 Provide all duct to SMACNA standard for high pressure duct, > 2" WC.

#### LOW PRESSURE DUCT NOTE

1. Provide all ducts to SMACNA standard for low pressure duct, < 2" WC.

#### SEISMIC CONTROL NOTES

- 1. Install tight to structure.
- 2. Seismic control measures not to jeopardize noise and vibration isolation systems. Provide 1/4" to 3/8" clearance during normal operation of equipment and systems between seismic restraint and equipment.
- seismic restraint and equipment.

  3. Incorporate seismic restraints into vibration isolation system to resist complete isolator unloading.

#### HEATING AND VENTILATION NOTES

- 1. Flues & Breeching
- a. All HVAC flues and vents shall be constructed in accordance with the International Fuel Gas code of 2021.
- b. Combustion air shall terminate with spill box and baffle to diffuse cold air and protect water lines.
- c. Provide minimum 1" clearance from combustibles for "B" vent and 6" for single wall vent connections.
- d. Use approved PVC venting (flue/combustion air) as per manufacturer instructions on condensing furnaces, boilers and water heaters.
- Balancing
  - a. Upon completion balance air flows to values indicated.

    Provide an air balance report to the engineer for review.
  - b. Report balancing measurements on the as-built drawings.
    c. Air and water balancing shall be at+/- 10% of specified
  - complete with design versus actual readings.
    Fans: Supply and exhaust fans, air systems amps, rpm, cfm, suction and discharge static pressure.
    Grilles supply, return and exhaust air volumes.
  - Grilles supply, return and exhaust air volumes.
    Sketch layout of duct systems showing details of halance
- 3. All caulking on building penetrations shall be a 1-
- component non-sag urethane sealant.

  4. Fire Safety:
- a. Combination fire and smoke dampers or fire dampers in ductwork through all floors and fire walls shall be furnished and installed as required to conform to the latest NFPA bulletin concerning this type of building and shall bear the UL label. Dampers, complete with mounting angles, shall be multi-blade, fusible link, spring acting with 11-gauge sleeve. Fusible link shall be rated at 165°F.
- b. Fire dampers shall be type "B", UL labeled, with damper blades fully clear of the air stream, seal with Dow Corning RTV silicone foam. Provide access door at all fire dampers.
- c. Provide sheet metal fire stops tight around ducts passing through fire separations and ceilings. Run to kitchen WC or dryer exhaust ducts inside party or corridor rated walls.
- d. The HVAC systems shall be constructed in accordance with NFPA 101:7-2 and NFPA 90A "standard for the installation of air conditioning and ventilation systems
- installation of air conditioning and ventilation systems.
   e. Smoke detector shall be installed on all systems greater than 2,000 CFM.
- 5. Contractor is responsible for providing balancing dampers, even if not indicated, on all supply systems and where required on exhaust/return systems.
- a. Dryer exhaust ducts shall not be equipped with
- balancing dampers.
  b. Provide access panels/consealed/semi-consealed flush mounted adjustment point to all balancing dampers where there is not a lift out ceiling type installed.
- c. Provide access panels to all fire dampers where there is not a lift out ceiling type installed.
   6. Contractor is responsible to provide and install condensate
- 6. Contractor is responsible to provide and install condensate system even if not shown on drawings. Mount condensate and refrigerant lines as high as possible.
- 7. No screws shall be used in construction of dryer vent
- 8. Wiring:
  - All controls supplied by mechanical. Control wiring by HVAC contractor. Final connections by HVAC contractor.
  - b. All line voltage by electrical.
  - c. DC and low voltage by mechanical.
  - d. All equipment disconnects by mechanical unless otherwise indicated. Cooridnate with electrical.

#### IECC CLOSE OUT REQUIREMENTS

- Contractor to provide to the owner and design engineer a preliminary equipment testing report prior to final mechanical inspection.
- Contractor to provide to the owner the following items within 90 days of receiving certificate of occupancy.
   A. As-Build drawings showing installed equipment.
- B. Operating and maintenance manuals including routine maintenance requirements, name and address of servicing agency, narrative of controls, and recommended operating setpoints.
- C. System balancing report.
- D. Equipment testing report.

#### MECHANICAL ALTERNATE NOTE

- 1. Alternate mechanical equipment is acceptable.
- a. Alternates must be equal or better in performance,
- durability, and warranty.b. It is the contractors responsibility to ensure that form, fit and function between alternates and specified equipment is maintained and coordinated with other disciplines.

#### SHEET LIST - MECHANICAL

Sheet
Number Sheet Name Current Issue Current Revision Description

M100 MECHANICAL OVERVIEW
M101 MECHANICAL - CONSTRUCTION

MECHANICAL SMACNA SEISMIC HAZARD LEVEL

COMPONENT	SHL VALUE
Air Side HVAC	С
Ducts	С

MECHANICAL LEGEND

RA = RETURN AIR DUCT

SA = SUPPLY AIR DUCT

OA = OUTSIDE AIR DUCT

FLUE = MECHANICAL FLUE

= THERMOSTAT

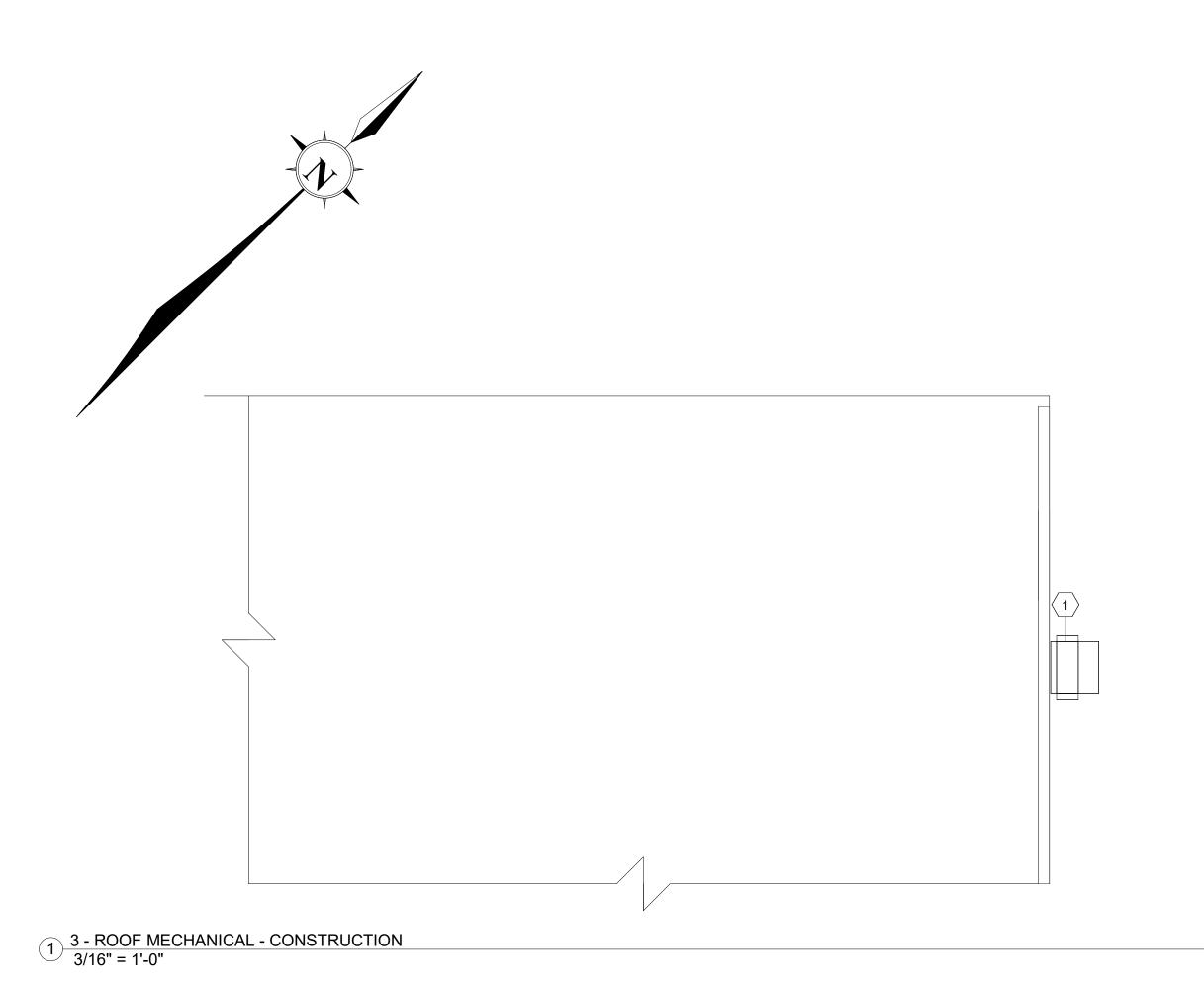
= REMOTE TEMPERATURE SENSOR

CA = COMBUSTION AIR

REA = RELIEF AIR DUCT

#### DUCT SEAL CLASS

		pply	Exhaust	Return
	< 2" WG	> 2" WG	Exilausi	Retuin
Outdoors	A	Α	Α	A
Unconditioned Spaces	В	Α	В	В
Exposed Ductwork in Conditioned Spaces	С	В	В	В
Concealed Ductwork in Conditioned Spaces	Α	Α	В	В





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TITLE MECHANICAL OVERVIEW
PROJECT USU UTAH WATER RESEARCH LABORATORY - STUDENT LOUNGE
CLIENT UTAH STATE UNIVERSITY
ADDRESS 1600 CANYON RD, LOGAN, UT 84321

No. 8332852 2202

HENDRIK FREDERIK

BRENKMAN

.02/20/2024.

SHEET

M10

**REVISION** 

JOB NO:

SCALE:

DESCRIPTIO



### **KEYNOTES**

- 1 INSTALL HEAT PUMP LEVEL ON, AND SECURE TO, CONCRETE PAD. RUN REFRIGERANT LINES TO FAN COIL AND CONNECT.
- 2 SEISMICALLY MOUNT CASSETTE. SEE DETAILS. RUN CASSETTE SUCTION AND REFRIGERANT LINES TO HEATPUMP AND CONNECT. (EX. CONNECT FC-1 TO HP-1). RUN CONDENSATE LINE TO NEAREST P-TRAP AND CONNECT. PROVIDE SERVICE ACCESS PANEL. COORDINATE WITH
- 3 INSTALL OUTSIDE/RELIEF AIR DUCT ACCORDING TO DETAILS. TERMINATE OUTDOOR AIR WITH RAINCAP AND INSECT SCREEN. TERMINATE RELIEF AIR WITH RAINCAP, INSECT SCREEN, AND BACKDRAFT DAMPER.
- 4 INSTALL HRV BETWEEN ROOF TRUSSES. PAIN DUCTING AND



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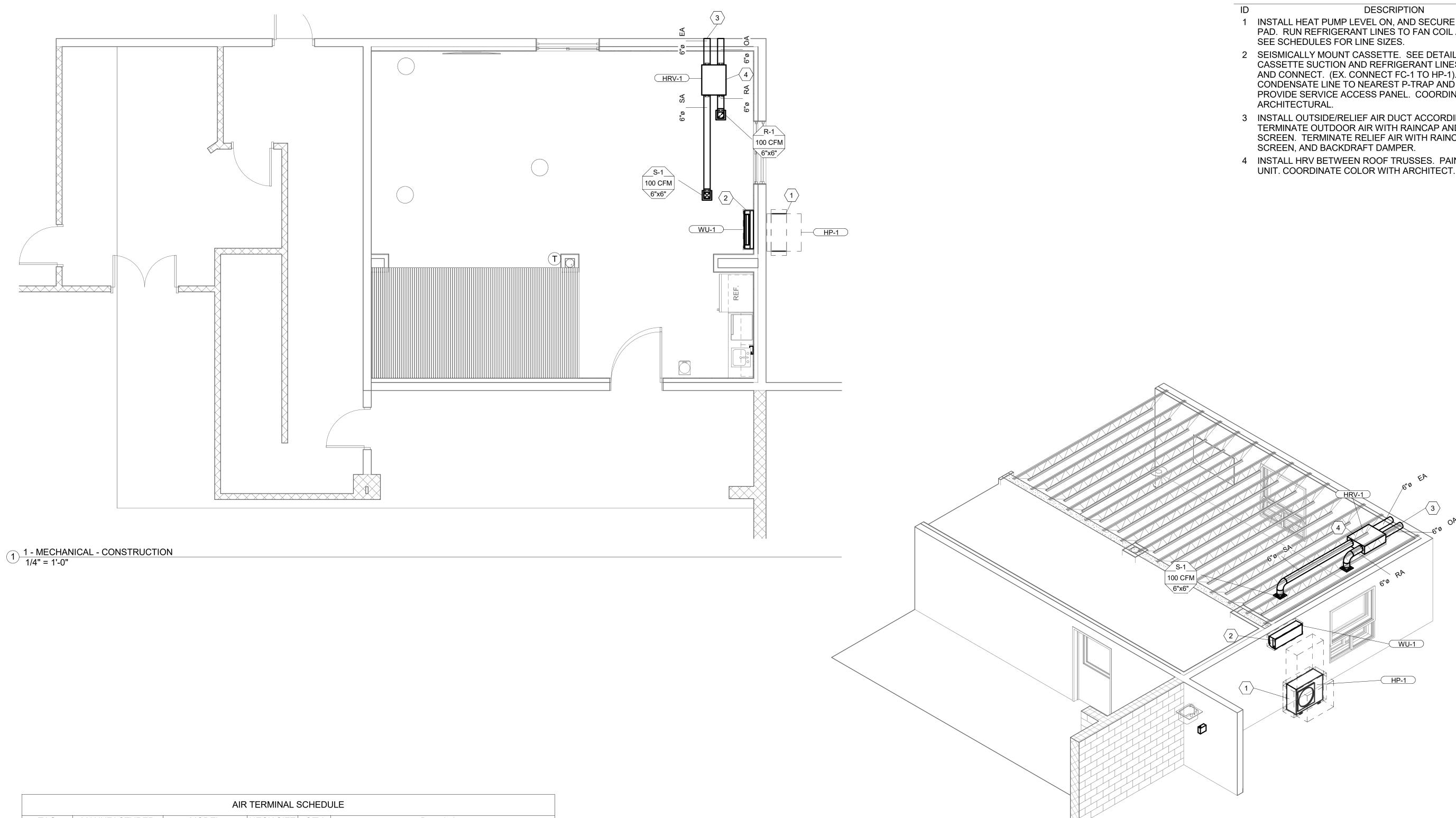
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	AIR TERMINAL SCHEDULE										
TAG	MANUFACTURER	MODEL	NECK SIZE	QTY	Description						
R-1	Price Industries	ECG	6"x6"	1	For duct mount.						
S-1	Price Industries	ECG	6"x6"	1	For duct mount.						

	SPOT VENTILATOR SCHEDULE										
							External Static				
Mark	Manufacturer	Model	Exhaust Air	Outside Air	Return Air	Supply Air	Pressure	Voltage	Phase	Power	
HRV-1	Broan	HRVH100	100 CFM	100 CFM	100 CFM	100 CFM	0.5 in-wg	120 V	1	68 W	

	HEATPUMP SCHEDULE													
	IDENTI	Υ					Suction	Liquid			ELECTRICAL			
Mark	Manufacturer	Model	Cooling Capacity	Heat Capacity	SEER	HSPF	Line	Connection	Voltage	Phase	Frequency	MCA	MOP	Weight
									101 lb					

	CASSETTE/FAN COIL SCHEDULE													
MECHANICAL ELECTRICAL														
Mark	Manufacturer	Model	Cooling Capacity	Heat Capacity	CFM	SEER	Suction Line	Liquid Connection - Ref.	Voltage	Phase	Frequency	MCA	Power	Weight
WU-1	Daikin	FTX18AXVJU	18,000 Btu/h	21,600 Btu/h	605 CFM	18.5	1/2"	1/4"	208 V	1	60	16 A	128 W	31.00 lb

No. 8332852 2202 HENDRA FREDERIK BRENKMAN .02/20/2024

#### GENERAL PLUMBING NOTES

#### GENERAL

- a. Contractor is responsible for all permits, licenses, fees and charges as required by authority having jurisdiction for the performance of the work as outlined in these contract documents.
- b. The contractor shall be responsible for installing a complete and functional system in accordance to the intent of the plans.
- c. All Plumbing shall be in accordance with local regulations and the International Plumbing Code of 2021.
- d. Contractor to coordinate work with other disciplines.e. Drawing is diagrammatic and is not to be scaled. Refer to architectural plans or field measurements for
- dimensions.f. Contractor shall verify all existing construction prior to submitting his bid. No extras will be paid due to
- unanticipated existing conditions.
  g. Extra charges any discrepancies and omissions discovered shall be reported to the engineer immediately and prior to tender closing for rectification by addendum.
- h. Shop drawings submit 1 copy in pdf format to the engineer for approval. Provide 2 printed copies of reviewed shop drawings to owner in 2 O&M manuals. The contractor shall ensure that equals for the major equipment fit in the allocated space and meet codes and specifications.
- i. Maintenance manuals contractor shall provide 2 copies complete with shop drawings. Three ringer binder style is acceptable. Provide on-site operating seminar to familiarize owner with all functions of new equipment
- j. Warranty mechanical contractor shall provide written warranty on his system for one full year from time of acceptance by the owner.
- k. Excavation plumbing contractor shall excavate for his work and back fill to 2" above pipes with sand.
- I. Structural Misc. Steel support hangers for unit heaters, fans, heat pumps, etc. Shall be by the mechanical with clamps to structure, not welded. Structural reinforcing for equipment is by general contractor.
- m. As-built drawings mechanical contractor shall keep on site an extra set of drawings and specifications on which changes shall be noted daily. As-built drawings shall also be provided showing location of access doors,
- clean-outs, and any deviation from design drawings.

  n. Potable water copper piping shall use lead-free solder testing inside water lines shall hold 100 psi air for 1 hour.
- o. Natural gas plumber shall provide low pressure gas lines to appliances complete with yellow paint coating on pipe where exposed to outdoors. Confirm meter size with local gas utility company. Utility upgrade costs to be borne by owner.
- p. Plumbing contractor shall be on site to sleeve Plumbing openings through concrete, to flash and counter flash and to coordinate joist locations away from mechanical
- q. Design documents these design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.
- The written book specification takes precedence over these notes.

#### GENERAL PLUMBING FIXTURE NOTES

- All plumbing fixtures shall be furnished c/w necessary traps, stops, tail pieces, trim, shut-off valves, circuit setters on hot water return etc.
- Plumbing contractor to supply and coordinate all plumbing fixture voltage and power requirements with electrical contractor.
- All water heaters and hot water storage tanks shall have a drain valve installed at the bottom of the tank as required by code. All water heaters shall be seismically anchored as per code.
- 4. Provide sanitary venting piping for all fixtures.

#### IECC CLOSE OUT REQUIREMENTS

- Contractor to provide to the owner and design engineer a preliminary equipment testing report prior to final mechanical inspection.
- mechanical inspection.Contractor to provide to the owner the following items within 90 days of receiving certificate of occupancy.
- A. As-Build drawings showing installed equipment.
- B. Operating and maintenance manuals including routine maintenance requirements, name and address of servicing agency, narrative of controls, and recommended operating setpoints.
- C. System balancing report.
- D. Equipment testing report.

#### GENERAL SANITARY NOTES

- Provide chrome escutcheon cover plates at all pipe penetrations of finished wall surfaces.
   Vents through roof shall be min. 3" diameter at penetration
- unless otherwise indicated. Provide all required flashing to make vent penetration waterproof.3. Space floor cleanouts no more than 100ft. Provide floor cleanouts in horizontal drains where the direction change by
- cleanouts in horizontal drains where the direction change by more than 45 degrees. Cleanout size shall be the same than the piping served.
- Provide a trap guard for all floor drains.
- 5. Mount wall cleanouts at all wall mounted plumbing fixture drains.

#### GENERAL PLUMBING PROTECTION NOTES

- 1. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
- 2. Locate backflow preventers in same room as connected equipment or system.
- 3. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe-to-floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are unacceptable for this application.
- 4. Do not install bypass piping around backflow preventers.
  5. Provide water pressure regulator when required by authority having jurisdiction and in compliance with the International

#### GENERAL PIPING NOTES

- 1. Piping material shall be as follows (Unless otherwise indicated in specification):
- a. Underground water service: PEX-AL-HDPE with oxygen
- b. Above ground hot and cold water piping: Copper type L in exposed areas or Standard PEX in concealed areas.
- c. Drain waste and vent piping: ABS DR22.d. Gas piping: to ASTM A106 schedule 40.

Plumbing Code of 2021.

- e. Poolroom/Pool Equipment Room: Stainless Steel 316 (to NSF 61 and one of the following ASTM A312 or ASTM A778), CPVC Schedule 40 (to NSF 61 and one of the following ASTM D2846, ASTM F441, ASTM F442, CSA B137.6) or Polypropylene plastic (PP to NSF 14 and one of the following ASTM F2389 or CSA B137.11) pipe rated for pool rooms (AquathermBlue for non-potable service) SDR 7.4 or heavier. AquathermBlue pipe shall be marked as "NOT POTABLE".
- 2. Domestic hot, hot water recirculation and hydronic lines shall have minimum 1" thermal insulation with minimum R-value of R-4 (unless otherwise indicated) c/w vapor barrier. Joints to be taped throughout facility. Hangers to have guides to allow for complete pipe insulation. Pipe insulation in plenums to be plenum rated. See note: PLUMBING IN RETURN AIR PLENUMS.
- 3. Contractor is responsible for routing water piping around zones that would be prone to freezing. The contractor will be responsible for any repairs and corrections to water lines not appropriately routed around freeze prone zones.
- Valves on water lines shall be bronze ball valves. Do not use gate or globe valves. Valve size shall be the same than the inlet pipe size.
- Install water hammer arrestors as indicated by code and where shown on plans. Concealed location arrestors are to be rated.
- 6. All hot and cold domestic water lines to fixtures shall be
- 7. Unless a hot water recirculation system has been called for in the contract documents, domestic hot water lines shall be equipped with a heat-trace heating system in compliance with Table C404.5.1 of the current state approved International Energy Conservation Code.
- Plumbing piping shall not be installed above electrical panels. Provide required clearances per "N.E.C."
- coordinate work with electrical contractor.

  9. Caulk all pipe penetrations through fire rated walls. All caulking on building penetrations shall be a 1-component non-sag urethane sealant.
- 10. Provide intumescent pipe donuts at all penetrations of combustible piping form main floor ceiling space and main floor fire separations.
- 11. After completion of construction all water supply systems must be purged of all deleterious matter and disinfected. as per IPC 602.3.4 and IPC 610.

#### PLUMBING ALTERNATE NOTE

1. Alternate plumbing equipment is acceptable. Alternates must be equal or better in performance, durability, and warranty.

#### PLUMBING IN RETURN AIR PLENUMS

- 1. Treat all ceiling spaces as return air plenums.
- All materials used in return air plenums must have flamespread index of 25 or less, and smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 (be plenum rated).

#### GAS APPLIANCES AND REGULATIONS NOTES

- 1. All gas piping shall comply with the international Fuel Gas Code of 2021.
- 2. Provide step-down regulators at all appliances and size as
- per International Fuel Gas Code of 2021.3. Vent natural gas regulators to outdoors. Terminate min. 3 ft from building openings and 10ft from mechanical intakes.

#### SEISMIC CONTROL NOTES

- 1. Install tight to structure.
- Seismic control measures not to jeopardize noise and vibration isolation systems. Provide 1/4" to 3/8" clearance during normal operation of equipment and systems between seismic restraint and equipment.
- 3. Incorporate seismic restraints into vibration isolation system to resist complete isolator unloading.

#### SHEET LIST - PLUMBING

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

Sheet
Number Sheet Name Current Issue Current Revision Description
P100 PLUMBING OVERVIEW

P100 PLUMBING OVERVIE
P101 PLUMBING CONSTRUCTION

ALL PLUMBING IS TO BE BID ALTERNATE 1

PLUMBING SMACNA SEISMIC HAZARD LEVEL

= GAS METER

= BALL VALVE

= PLUG VALVE

= SANITARY

= VENT

= STORM

= AIR LINE

GR-SAN = GREASE SANITARY LINE

DHW

SAN

AIR

PLUMBING LEGEND

DHWR

= WALL CLEANOUT

= PRESSURE REGULATOR

= DOMESTIC COLD WATER

= DOMESTIC HOT WATER RECIRCULATION

= NON-POTTABLE SHOP COLD WATER

= DOMESTIC HOT WATER

COMPONENT SHL VALUE
Plumbing C



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PLUMBING OVERVIEW	USU UTAH WATER RESEARCH LABORATORY - STUDENT LOUNGE	UTAH STATE UNIVERSITY	1600 CANYON RD, LOGAN, UT 84321	
TITLE	PROJECT	CLIENT	ADDRESS	
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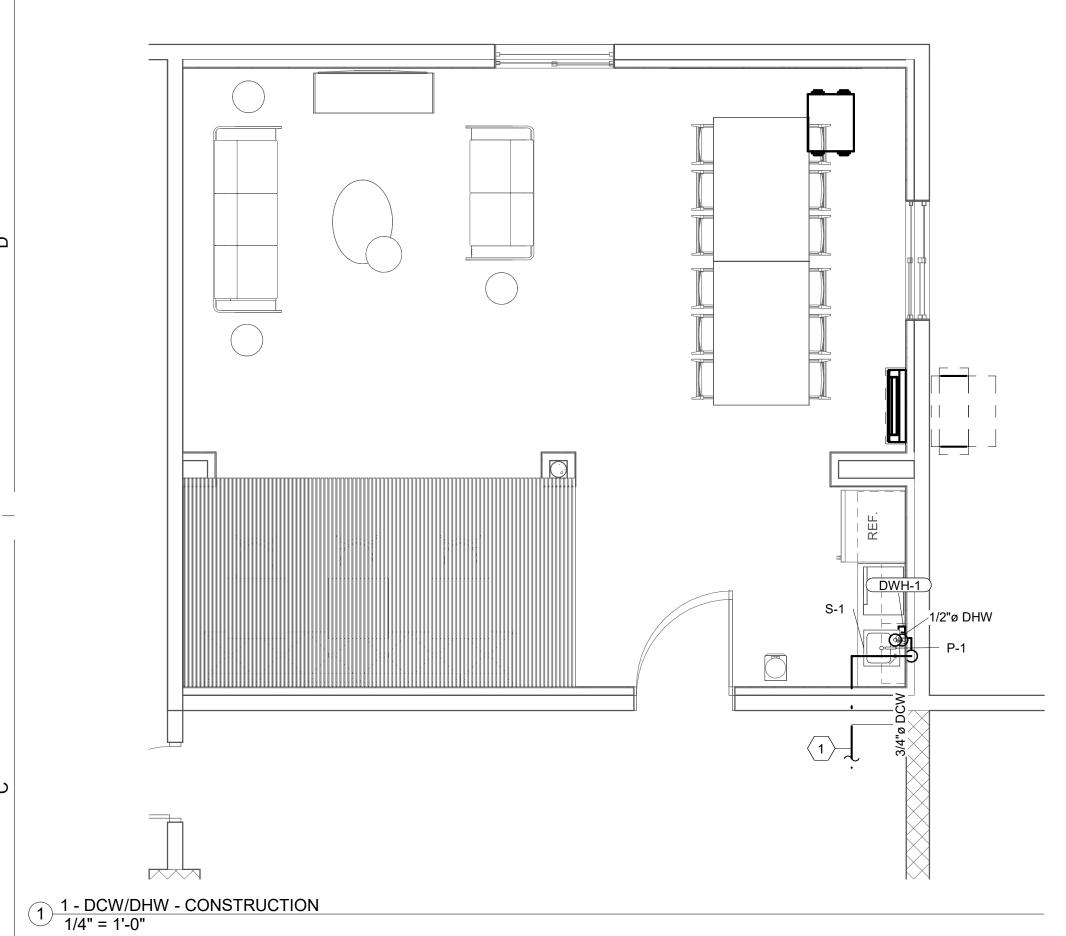
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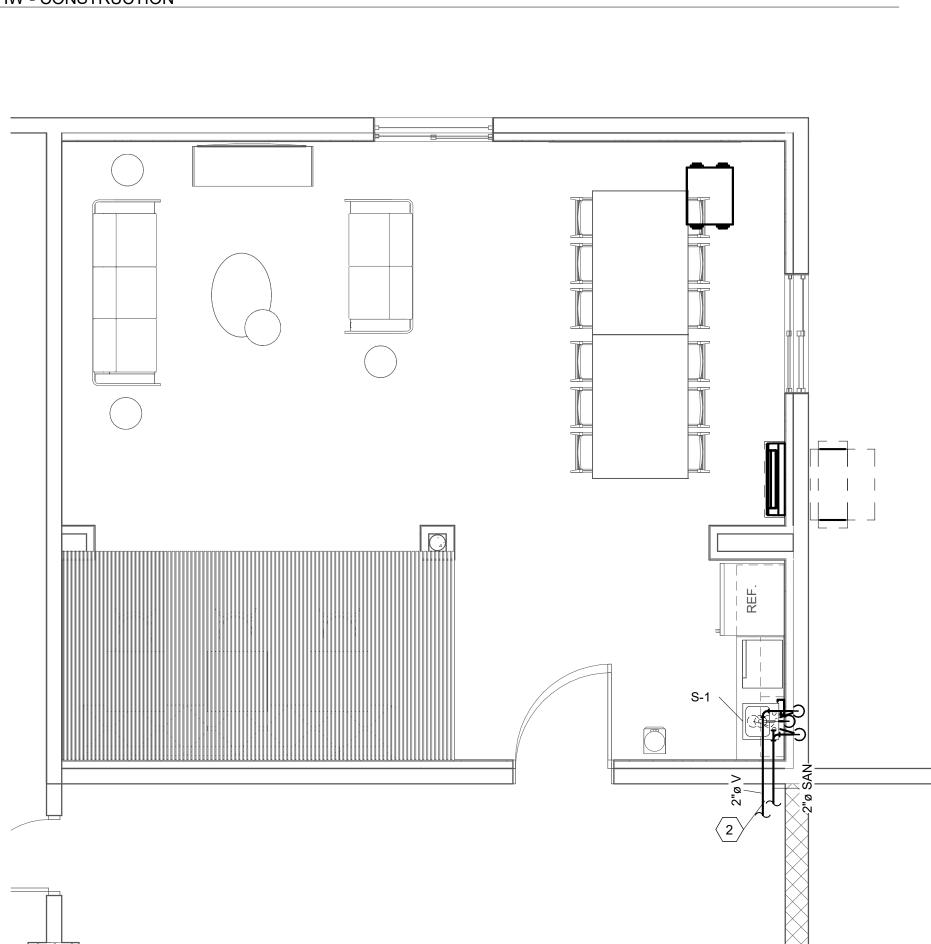
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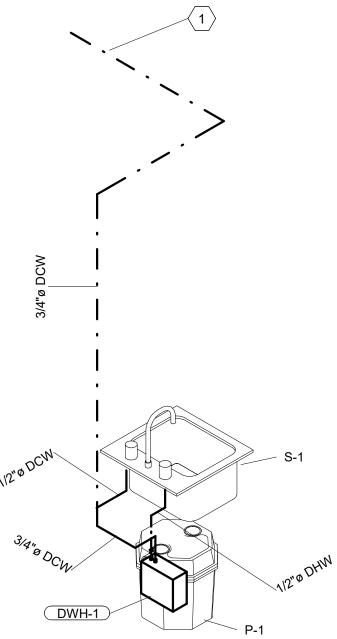
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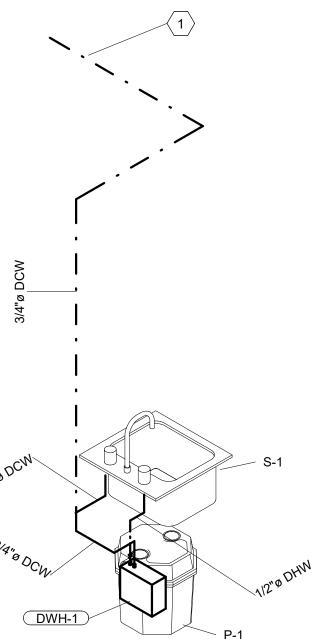


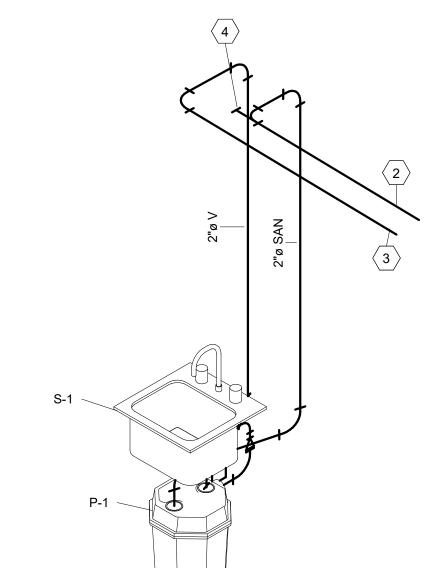


2 1 - SAN/VENT - CONSTRUCTION 1/4" = 1'-0"



3 DCW/DHW ISOMETRIC





4 SAN/VENT ISOMETRIC



	PUMP SCHEDULE										
Mark	Manufacturer	Model	Discharge Flow (GPM)	Head	PUMP - DISCHARG E SIZE	Phase	Voltage	Pump HP	Notes		
P-1	Liberty	404 Series	15	15' - 0"	1 1/2"	1	115 V	246 W			

	TANKLESS ELECTRIC WATER HEATER SCHEDULE												
	IDENTITY		ELECT	ΓRICAL		ELECT	RICAL						
			DCW	DHW									
Mark	Manufacturer	Model	Connection	Connection	Voltage	Frequency	Phase	Power	Notes				
DWH-1	Stiebel Eltron - USA	Mini - E4-2	3/8"	3/8"	208 V	60 Hz	1	2,600 W	Tankless point of use water heater. See manufacturer installation details on how to install.				

	PLUMBING FIXTURE SCHEDULE											
Mark	Manufacturer	Model St	tyle ADA	ant Material	Color Trim	Accessories	Count	Sanitary Connection	DCW Connection	DHW Connection		
S-1	FRANKE	ALBS4606P-1/2 Counter mounted.	Yes	Stainless Steel		rovide c/w mixing valve, prtrap, wall isolation valves and sanitary covering for DA installations.	1	1 1/2"	1/2"	1/2"		

ALL PLUMBING IS TO BE BID ALTERNATE 1

KEYNOTES

DESCRIPTION 1 CONNECT DCW INTO DCW IN JANITORIAL CLOSET. CLOSET LOCATED 30 TO 40 FT AWAY IN FLOW LAB.

2 RUN SANITARY LINE FROM PUMP TO JANITORAL CLOSET AND CONNECT TO EXISTING SEWER LINE.

3 RUN VENT LINE FROM PUMP TO EXISTING VENT LINE IN JANITORIAL CLOSET AND CONNECT.

4 INSTALL CLEANOUT IN SANITARY LINE AT ALL 90 DEG. BENDS. PROVIDE C/W ACCESS PANEL.

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USU UTAH WATER RESEAF UTAH STATE UNIVERSITY

PROJECT CLIENT REVISION DESCRIPTIO

JOB NO: DRAWN:

SHEET

#### GENERAL PROJECT NOTES ALL ELECTRICAL INSTALLATIONS TO CONFORM TO THE LATEST NEC AND LOCAL CODES. THE ELECTRICAL CONTRACTOR SHALL HAVE A COORDINATION MEETING WITH THE MECHANICAL CONTRACTOR, CONSTRUCTION SUPERINTENDENT AND ANY OTHER TRADES AS REQUIRED WITHIN SEVEN DAYS OF THE START OF THE JOB TO REVIEW CODE CLEARANCE REQUIREMENTS FOR PANELS, SWITCHES, AND OTHER ELECTRICAL GEAR SPECIFICALLY FOR THIS JOB. RECORD THE MEETING IN THE SUPERINTENDENT'S LOG. REPORT UNRESOLVED CONFLICTS TO THE ARCHITECT IMMEDIATELY. ELECTRICAL CONTRACTOR'S PROJECT MANAGER AND ON-SITE PROJECT FOREMAN SHALL REVIEW VENDOR SUBMITTALS FOR ACCURACY PRIOR TO SUBMITTING TO ENGINEER. INACCURACIES SHALL BE CORRECTED PRIOR TO ENGINEER SUBMITTAL. THE CLARITY OF RECORD DRAWING CHANGES MADE BY THE CONTRACTOR SHALL BE EQUAL TO THE ORIGINAL DRAWINGS AS JUDGED BY THE ARCHITECT OR THE RECORD SET WILL BE RETURNED TO THE CONTRACTOR FOR CLARIFICATION. WHEN THE GENERAL CONTRACT CALLS FOR "RECORD" OR "AS-BUILT" DRAWINGS TO BE FURNISHED BY THE CONTRACTOR AT JOB COMPLETION. THE ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO FURNISH A COMPLETE SET OF "BLUE-PRINT READY" AUTOCAD ELECTRICAL DRAWINGS FOR ALL CONTRACTOR GENERATED CHANGES FROM THE DRAWINGS OF A CLARITY EQUAL TO THE ORIGINA DRAWINGS AS JUDGED BY THE ENGINEER. CONTACT ARCHITECT FOR DISKS OR REPRODUCIBLE ORIGINAL MEDIA. PROVIDE DRAWINGS ON CD IN AUTOCAD FORMAT. DO NOT SCALE ELECTRICAL FLOOR PLANS. SEE ARCHITECTURAL DRAWINGS FOR ACCURATE DIMENSIONS AND FLOOR PLANS. ELECTRICAL DEVICES CANNOT BE SHOWN TO SCALE AND SOMETIMES OVERLAP BUILDING ELEMENTS. REFER TO ARCHITECTURAL ELEVATIONS FOR ACCURATE MOUNTING LOCATIONS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL PANEL CLEARANCES PER NEC 110.26 AND NOTIFY ALL OTHER TRADES ON THE JOB OF THESE CODE REQUIREMENTS. PANEL INDEXES SHALL INCLUDE ALL PERTINENT INFORMATION ON THE PANEL SCHEDULES INCLUDING INFORMATION ON LIGHTS AND OUTLETS. DO NOT SIMPLY COPY THE CIRCUIT DESCRIPTION COLUMN. INDEXES TO BE TYPEWRITTEN. INCLUDE CHANGES MADE AS PART OF THIS PROJECT. COORDINATE MOUNTING HEIGHT AND LOCATION OF ALL OUTLETS, SWITCHES, AUXILIARY EQUIPMENT, AND OTHER DEVICES WITH THE ARCHITECTURAL DRAWINGS. PRIOR TO INSTALLATION, REVIEW WITH THE GENERAL CONTRACTOR THE LOCATION OF MILLWORK AS A FINAL CHECK TO PREVENT COVERING OF ELECTRICAL ITEMS. MOUNTING HEIGHT OF GENERAL PURPOSE OUTLETS AND SWITCHES SHALL BE 16" TO BOTTOM AND 48" TO TOP RESPECTIVELY UNLESS OTHERWISE NOTED. ALL ELECTRICAL EQUIPMENT SHALL BE LOCATED SO AS NOT TO INTERFERE WITH WOOD TRIM AND MOLDINGS. THE ELECTRICAL CONTRACTOR SHALL REVIEW FINISH SCHEDULES AND ARCHITECTURAL DETAILS BEFORE ROUGH-IN OF OUTLET OR SWITCH BOXES TO PREVENT BOXES AND PLATES FROM BEING PLACED BEHIND OR IN TRIMS AND MOLDINGS. REFER SPECIAL CONDITIONS TO ARCHITECT PRIOR TO ROUGH-IN. B. DO NOT INSTALL DISPOSAL SWITCHES OR GFCI PROTECTION BEHIND SINKS. DO NOT INSTALL FEEDERS OR CIRCUITING EXPOSED ON ROOFTOPS OR RUNNING HORIZONTALLY WITHIN 36" OF ROOFTOPS. CIRCUIT WIRE SIZES MUST, AT MINIMUM, MATCH NEC REQUIRED CONDUUCTOR SIZES FOR CORRESPONDING OVERCURRENT PROCTECTIVE DEVICES. VERIFY WITH PANEL SCHEDULES BEFORE HOME RUNS MUST BE RUN EXACTLY AS SHOWN ON PLANS UNLESS OTHERWISE NOTED. DO NOT COMBINE HOME RUNS INTO ONE CONDUIT THAT ARE NOT SHOWN COMBINED ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL RUN BRANCH CIRCUIT CONDUITS IN OPEN SPACES IN A NEAT AND WORKMANLIKE MANNER SO AS TO CONSERVE OPEN SPACES AS MUCH AS POSSIBLE. HVAC DUCTWORK AND PLUMBING SHALL HAVE LOCATION PRIORITY OVER BRANCH CIRCUIT CONDUIT RUNS. CIRCUIT WIRING SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. ANY DEVIATIONS SHALL BE INITIATED BY A CHANGE ORDER FROM THE ARCHITECT. OTHERWISE THE RECORD SET SHALL MATCH THE CONSTRUCTION SET. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR, PULLED INTO THE CONDUIT WITH THE PHASE CONDUCTOR, IN ALL SERVICE, FEEDER, AND BRANCH CIRCUITS. PROVIDE A NEUTRAL CONDUCTOR FOR EACH BREAKER TRIP HANDLE. NEUTRALS SHALL NOT BE SHARED BETWEEN BRANCH CIRCUITS. ALL CIRCUITS TO BE MINIMUM #12 CU IN MINIMUM 3/4" CONDUIT UNLESS OTHERWISE NOTED. 2. MC CABLE IS NOT AN APPROVED ALTERNATE TO CONDUCTORS IN CONDUIT B. DO NOT INSTALL MORE THAN THREE PHASE CONDUCTORS IN ANY HOME-RUN CONDUITS UNLESS SPECIFICALLY INDICATED ON DRAWINGS. 4. IDENTIFY ALL OUTLET COVER PLATES WITH THE PANEL AND CIRCUIT NUMBER. . A GFI OUTLET SHALL BE INSTALLED AT EACH LOCATION DESIGNATED BY "GFI" ON THE DRAWINGS. DOWNSTREAM PROTECTION BY A GFI OUTLET UPSTREAM IS NOT ALLOWED. 6. OUTLETS, SWITCHES, AND COVER PLATES TO BE COLOR CODED (BROWN, WHITE, IVORY, OR GRAY) TO THE WALL THEY ARE MOUNTED ON AS DIRECTED BY THE ARCHITECT. ALL CONVENIENCE OUTLETS MUST BE MOUNTED FLUSH WITH THE COVER PLATE AND SECURED FIRMLY

. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO MAKE SURE OUTLET BOXES ARE SET FLUSH WITH

29. GFI OUTLETS SHALL BE INSTALLED AND/OR CIRCUITED SO THAT THE TRIPPING OF A GFI OUTLET IN A

REMOVE ALL OLD AND/OR UNUSED EXISTING CONDUIT AND ELECTRICAL APPARATUS FROM EXTERIOR

WHERE EXISTING ELECTRICAL EQUIPMENT IS TO REMAIN BUT THE SURFACE THAT IT IS MOUNTED ON IS

TO BE REWORKED UNDER OTHER CONTRACTS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE

REMOVE ALL UNUSED CONDUITS AND CIRCUITS IN THE DEMOLTIONED AREA AS THEY ARE IDENTIFIED AS

REMOVE ALL EXISITING ELECTRICAL DEVICES, EQUIPMENT, AND APPARATUS AS THEY ARE IDENTIFIED AS

EQUIPMENT THAT IS INTENDED TO REMAIN IN SERVICE BUT SAID CONDUITS ARE CURRENTLY RUNNING

SEPARATE GREEN, INSULATED GROUND WIRE SHALL BE PULLED IN THE CONDUIT AND BONDED AT EACH

RE-ROUTE EXISTING CIRCUIT CONDUITS AS REQUIRED AT ALL AREAS WHERE EXISTING WALLS ARE TO

BE DEMOLITIONED OR HAVE DOORWAYS CUT IN THEM. PLAN ON AN AVERAGE OF ONE, 3/4" CONDUIT

FIELD VERIFY CONDITIONS FOR NEW WIRING. SURFACE RACEWAYS MUST RECEIVE PRIOR APPROVAL

CONSTRUCTION. APPROVED RACEWAYS MUST BE PAINTED TO MATCH THE SURFACE ON WHICH THEY

FROM THE ARCHITECT AND OWNER AND WILL BE EVALUATED ON A CASE BY CASE BASIS DURING

WHERE EXISTING CONDUIT RUNS ARE RE-USED BY SPECIAL PERMISSION FROM THE ARCHITECT, A

TO REMOVE AND INSTALL OR MODIFY THE EXISTING EQUIPMENT AS REQUIRED TO MEET THE DESIGN

INTENT. SEE ARCHITECTURAL DRAWINGS FOR ROOF, CEILINGS, WALLS, SOFFITS, FLOORS, ETC.

RELOCATE EXISTING CONDUITS AND CIRCUITS AS REQUIRED THAT ARE PRESENTLY SERVING

STUDENT ACCESSED AREA WILL NOT SHUT OF ANY DOWN-STREAM OUTLETS.

FINISH WALL SURFACES WHERE WALL PANELING OR ACOUSTICAL WALLS ARE INSTALLED OR WHERE

TO THE OUTLET BOX.

OUTLETS ARE INSTALLED ON CARPETED RISERS.

OR INTERIOR EXPOSED SURFACES.

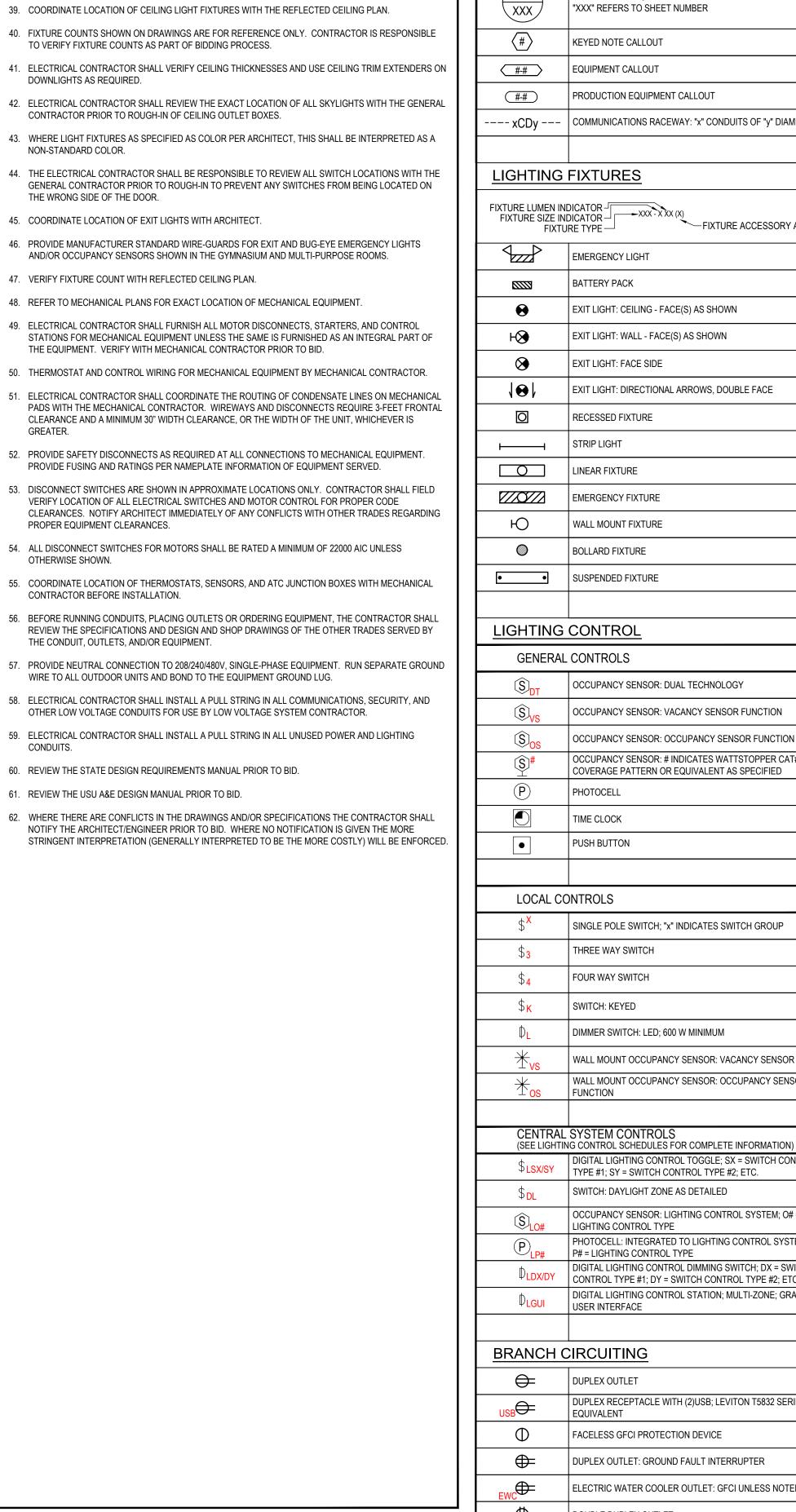
UNUSED OR ABANDONED.

UNUSED OR ABANDONED.

ARE MOUNTED.

THROUGH AREAS TO BE DEMOLITIONED.

RELOCATION FOR EACH PENETRATION OR WALL REMOVAL.



SINGLE POLE SWITCH; "x" INDICATES SWITCH GROUP

WALL MOUNT OCCUPANCY SENSOR: VACANCY SENSOR FUNCTION

WALL MOUNT OCCUPANCY SENSOR: OCCUPANCY SENSOR

DIGITAL LIGHTING CONTROL TOGGLE; SX = SWITCH CONTROL

OCCUPANCY SENSOR: LIGHTING CONTROL SYSTEM; O# =

PHOTOCELL: INTEGRATED TO LIGHTING CONTROL SYSTEM;

DIGITAL LIGHTING CONTROL DIMMING SWITCH; DX = SWITCH

DIGITAL LIGHTING CONTROL STATION; MULTI-ZONE; GRAPHICAL

DUPLEX RECEPTACLE WITH (2)USB; LEVITON T5832 SERIES OR

CONTROL TYPE #1; DY = SWITCH CONTROL TYPE #2; ETC.

FIRE ALARM

ONE-LINE

X

=

**XXX** 

FIRE ALARM CONTROL PANEL

FIRE ALARM FLOW SWITCH

FIRE ALARM TAMPER SWITCH

SMOKE DETECTOR

CANDEL A RATING

CANDELA RATING

**BRANCH PANEL** 

TRANSFORMER

FIRE ALARM PULL STATION

UNLESS OTHERWISE NOTED)

SURGE PROTECTIVE DEVICE

THREE WAY SWITCH

FOUR WAY SWITCH

SWITCH: KEYED

FUNCTION

DIMMER SWITCH: LED; 600 W MINIMUM

SWITCH: DAYLIGHT ZONE AS DETAILED

LIGHTING CONTROL TYPE

USER INTERFACE

DUPLEX OUTLET

P# = LIGHTING CONTROL TYPE

FACELESS GFCI PROTECTION DEVICE

SPECIAL OUTLET: SEE PANEL SCHEDULE

C = QUANTITY OF DATA PORTS

P = QUANTITY OF DUPLEX RECEPTACLES

AUXILIARY SYSTEMS CONNECTIONS

DOUBLE DUPLEX OUTLET

AND "C" REPRESENT:

DUPLEX OUTLET: GROUND FAULT INTERRUPTER

ELECTRIC WATER COOLER OUTLET: GFCI UNLESS NOTED

DOUBLE DUPLEX OUTLET: GROUND FAULT INTERRUPTER

FLUSH IN USE BOX FLOOR. NUMERIC VALUES GIVEN FOR "P"

S = DESIGNATION REPRESENTS PROVISIONS FOR OWNER

SEE FLOOR BOX SCHEDULE FOR FURTHER DESCRIPTION

38. ALL PATCH, REPAIR, REPAINT AND COVER UP REQUIRED AS A RESULT OF ELECTRICAL REMODEL IS TO BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, BUT ACTUAL WORK IS TO BE PERFORMED

BY QUALIFIED PERSONNEL.

DOWNLIGHTS AS REQUIRED.

NON-STANDARD COLOR.

THE WRONG SIDE OF THE DOOR.

PROPER EQUIPMENT CLEARANCES.

CONTRACTOR BEFORE INSTALLATION.

THE CONDUIT, OUTLETS, AND/OR EQUIPMENT.

OTHERWISE SHOWN.

TO VERIFY FIXTURE COUNTS AS PART OF BIDDING PROCESS.

CONTRACTOR PRIOR TO ROUGH-IN OF CEILING OUTLET BOXES.

45. COORDINATE LOCATION OF EXIT LIGHTS WITH ARCHITECT.

47. VERIFY FIXTURE COUNT WITH REFLECTED CEILING PLAN.

48. REFER TO MECHANICAL PLANS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT.

THE EQUIPMENT. VERIFY WITH MECHANICAL CONTRACTOR PRIOR TO BID.

PROVIDE FUSING AND RATINGS PER NAMEPLATE INFORMATION OF EQUIPMENT SERVED.

WIRE TO ALL OUTDOOR UNITS AND BOND TO THE EQUIPMENT GROUND LUG.

60. REVIEW THE STATE DESIGN REQUIREMENTS MANUAL PRIOR TO BID.

61. REVIEW THE USU A&E DESIGN MANUAL PRIOR TO BID.

OTHER LOW VOLTAGE CONDUITS FOR USE BY LOW VOLTAGE SYSTEM CONTRACTOR.

ELECTI	RICAL LEGEND			Ţ			
ANNOTA	<u>FIONS</u>	WPCS P▼	FLUSH IN USE BOX WALL. NUMERIC VALUES GIVEN FOR "P"				SHE
$\begin{pmatrix} X \\ XXX \end{pmatrix}$	DETAIL CALL-OUT; TOP "X" REFERS TO DETAIL NUMBER & BOTTOM "XXX" REFERS TO SHEET NUMBER	W1   W12	P = QUANTITY OF DUPLEX RECEPTACLES C = QUANTITY OF DATA PORTS S = DESIGNATION REPRESENTS PROVISIONS FOR OWNER			# E001	ABBREVIATIONS
#	KEYED NOTE CALLOUT	₩ <u>22\$</u>	AUXILIARY SYSTEMS CONNECTIONS SEE FLOOR BOX SCHEDULE FOR FURTHER DESCRIPTION			- II	ELECTRICAL SPE
<b>#-#</b>	EQUIPMENT CALLOUT	PPCS		-		- I⊢	ELECTRICAL PLA
#-#	PRODUCTION EQUIPMENT CALLOUT	P	FLUSH IN USE BOX POKE-THRU. NUMERIC VALUES GIVEN FOR "P"   AND "C" REPRESENT:   P = QUANTITY OF DUPLEX RECEPTACLES			- II	ELECTRICAL PLA
xCDy	COMMUNICATIONS RACEWAY: "x" CONDUITS OF "y" DIAMETER	♥ ♥▼ P2 P22 P22S (0)	C = QUANTITY OF DATA PORTS S = DESIGNATION REPRESENTS PROVISIONS FOR OWNER AUXILIARY SYSTEMS CONNECTIONS SEE FLOOR BOX SCHEDULE FOR FURTHER DESCRIPTION				1
LIGHTING	FIXTURES	<u> </u>	JUNCTION BOX				
	NDICATOR XXX - XXX (X) NDICATOR TURE TYPE FIXTURE ACCESSORY APPEND		MODULAR FURNITURE CONNECTION: POWER (4SD BOX; 2-GANG MUD-RING: COVER PLATE WITH 1" K.O. AND FLEXIBLE WHIP TO FURNITURE)				
1	EMERGENCY LIGHT		DISCONNECT; NO OVER-CURRENT PROTECTION	-			
	BATTERY PACK	h	DISCONNECT WITH OVER-CURRENT PROTECTION (CIRCUIT BREAKER STYLE OR AS SPECIFIED)				
•	EXIT LIGHT: CEILING - FACE(S) AS SHOWN	\$ <sub>m</sub>	MOTOR PROTECTIVE THERMAL SWITCH	1			
⊦⊗	EXIT LIGHT: WALL - FACE(S) AS SHOWN	+	QUANTITY OF CONDUCTORS: SHORT LINES = PHASE /SWITCH, LONG LINES = NEUTRAL	1			
<b>⊗</b>	EXIT LIGHT: FACE SIDE		HOME-RUN	SECURI1	ΓΥ		
<b>√⊕</b> √	EXIT LIGHT: DIRECTIONAL ARROWS, DOUBLE FACE		CIRCUITING: LINE VOLTAGE	SEC	SECURITY SYSTEM HEAD END EQUIPMENT		
0	RECESSED FIXTURE		CIRCUITING: CONTROL		CCTV CAMERA : WALL MOUNT		
<del></del>	STRIP LIGHT		CIRCUITING: LINE VOLTAGE + DIMMING CONTROL		CCTV CAMERA : DOME TYPE CEILING MOUNT		
0	LINEAR FIXTURE		CIRCUITING: EM-LIFE SAFETY SOURCE	ES	ELECTRIC STRIKE (4SD J-BOX ABOVE CEILING; 1/2" CONDUIT STU INTO DOOR FRAME)	В	
7//0///	EMERGENCY FIXTURE	-		CR	CARD READER (4SD J-BOX WALL; 4SD J-BOX ABOVE CEILING; 1/2" CONDUIT BETWEEN BOXES)		
Ю	WALL MOUNT FIXTURE	POWER A	ND DISTRIBUTION	MS	MOTION SENSOR : INFRARED		
<b>©</b>	BOLLARD FIXTURE		DISTRIBUTION PANEL				
• •	SUSPENDED FIXTURE		PANELBOARD	GENERAL WAL	L-MOUNTED BOX HEIGHT DETAIL		
LICHTING	CONTROL						
	CONTROL CONTROLS	<u>COMMUNI</u>	CATIONS	]	+XX = TOP OF BOX  XX = MIDDLE OF BOX  BAR STRAPS		
	AL CONTROLS	xCDy	COMMUNICATIONS RACEWAY: "x" CONDUITS OF "y" DIAMETER	]	XX = MIDDLE OF BOX  -XX = BOTTOM OF BOX		
S <sub>DT</sub>	OCCUPANCY SENSOR: DUAL TECHNOLOGY	LR#	COMMUNICATIONS LADDER RACK. SEE SPECIFICATIONS AND / OR SCHEDULES				
S <sub>VS</sub>	OCCUPANCY SENSOR: VACANCY SENSOR FUNCTION	CT#	COMMUNICATIONS RACEWAY CABLE TRAY. SEE SPECIFICATIONS AND / OR SCHEDULES				
S <sub>OS</sub>	OCCUPANCY SENSOR: OCCUPANCY SENSOR FUNCTION  OCCUPANCY SENSOR: # INDICATES WATTSTOPPER CAT# FOR		PHONE BACKBOARD				
<u>\$</u> #	COVERAGE PATTERN OR EQUIVALENT AS SPECIFIED		COMMUNICATIONS ENCLOSURE	]	ELECTRICAL ABE	BREV	'IATIONS
P	PHOTOCELL  TIME CLOCK	- 4	COMMUNICATIONS OUTLET, 1-PORT DEVICE, COMMUNICATIONS BOX (SEE COMMUNICATIONS RACEWAY SCHEDULE); 1.25" CONDUIT; 4-PORT KEYSTONE FACEPLATE; (1)CAT 6A CABLE/JACK;		A AMPERE AF AMP FUSE		LTG LIGHTING
•	PUSH BUTTON	-	CABLE BY OWNER  COMMUNICATIONS OUTLET, 2-PORT DEVICE, COMMUNICATIONS	-	AFF ABOVE FINISHED FLOOR		MAX MAXIMUM MCB MAIN CIRCUIT
		-	BOX (SEE COMMUNICATIONS RACEWAY SCHEDULE); 1.25"  CONDUIT: 4-PORT KEYSTONE FACEPI ATE: (2)CAT 6A		AFG ABOVE FINISHED GRADE		MECH MECHANICAL



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**SHEET INDEX** 

E001 ABBREVIATIONS G.P.N. LEGEND & SHEET INDEX

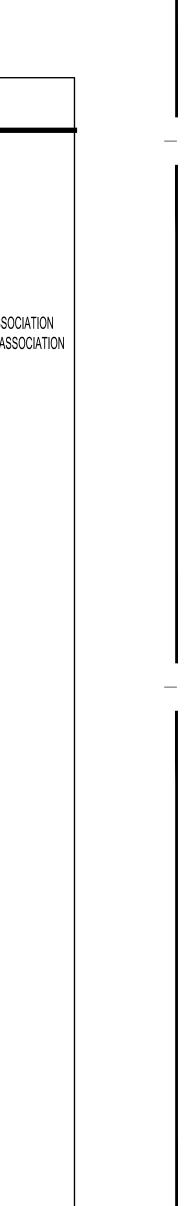
||E002 | ELECTRICAL SPECIFICATIONS

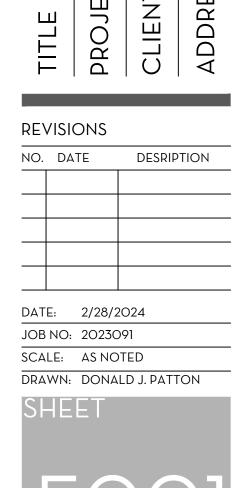
E100 | ELECTRICAL PLANS

| E101 | ELECTRICAL PLANS

E602 | ELECTRICAL SCHEDULE

Sheet Title





LIENT DRE

MAX MAXIMUM MCB MAIN CIRCUIT BREAKER **ED GRADE** MECH MECHANICAL CONDUIT: 4-PORT KEYSTONE FACEPLATE; (2)CAT 6A ARC-FAULT CIRCUIT-INTERRUPTER MFR MANUFACTURER CABLES/JACKS; CABLE BY OWNER AMPERE INTERRUPTING CAPACITY MINIMUM COMMUNICATIONS OUTLET, 3-PORT DEVICE, COMMUNICATIONS ALUMINUM MLO MAIN LUGS ONLY BOX (SEE COMMUNICATIONS RACEWAY SCHEDULE); 1.25" ARCH ARCHITECT(URAL) MOUNTED CONDUIT; 4-PORT KEYSTONE FACEPLATE; (3)CAT 6A CABLES/JACKS; CABLE BY OWNER AMP SWITCH NATIONAL ELECTRICAL CODE COMMUNICATIONS OUTLET, 6-PORT DEVICE, COMMUNICATIONS AWG AMERICAN WIRE GAUGE NECA | NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION BOX (SEE COMMUNICATIONS RACEWAY SCHEDULE): 1.25" BLDG NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION CONDUIT; 4-PORT KEYSTONE FACEPLATE; (X)CAT 6A CABLES/JACKS; CABLE BY OWNER BKBD NEUT | NEUTRAL **BACKBOARD** COMMUNICATIONS OUTLET, WIRELESS ACCESS POINT,2-PORT CONDUIT NATIONAL FIRE CODE DEVICE, COMMUNICATIONS BOX (SEE COMMUNICATIONS CAB **CABINET** NORMALLY CLOSED RACEWAY SCHEDULE); 1.25" CONDUIT; 4-PORT KEYSTONE FACEPLATE; (2)CAT 6A CABLES/JACKS CATALOG/CATEGORY NOT IN CONTRACT CIRCUIT BREAKER NIGHT LITE CKT NORMALLY OPEN CLG NOT TO SCALE CEILING **CONDUIT ONLY** OCP OVERCURRENT PROTECTION COMM POLE COMMUNICATION CONN PHASE CONNECTION PANEL COPPER DEMO PWR POWER DEMOLITION/DEMOLISH DISC QUANTITY DISCONNECT RECEP | RECEPTACLE DOWN FIRE ALARM STROBE; "X" = MINIMUM CANDELA RATING REQ'D REQUIRED DWG DRAWING RGSC | RIGID GALVANIZED STEEL CONDUIT EACH CEILING MOUNTED FIRE ALARM STROBE; "X" = MINIMUM CANDELA ELEC **ELECTRICAL** ROOM ELEV SCHED SCHEDULE FIRE ALARM HORN AND STROBE; "X" = MINIMUM CANDELA RATING **ELEVATOR** SECT EMER, EM SECTION **EMERGENCY** CEILING MOUNTED FIRE ALARM HORN AND STROBE; "X" = MINIMUM SINGLE POLE ELECTRICAL METALLIC TUBING CEILING MOUNTED FIRE ALARM VOICE EVAC SPEAKER AND EOLR SOLID NEUTRA END OF LINE RESISTOR STROBE; "X" = MINIMUM CANDELA RATING EQUIP SPEC | SPECIFICATION **EQUIPMENT** FIRE ALARM VOICE EVAC SPEAKER AND STROBE; "X" = MINIMUM ex, exist SWITCH **EXISTING** FB0 SWBD | SWITCHBOARD FURNISHED BY OTHERS FCU SWGR SWITCH GEAR FAN COIL UNIT FINISHED FLOOR SYSTEM FIXT TEMP TEMPORARY FIXTURE FLEX TELE | TELEPHONE FLEXIBLE METALLIC CONDUIT (STEEL) XFMR | TRANSFORMER FLUOR **FLUORESCENT** BREAKER: "x" = BREAKER AMPERAGE "y" = QUANTITY OF POLES T-STAT | THERMOSTAT FEET OR FOOT TWP GROUND FAULT INTERRUPTER TWISTED PAIR GND TWSP | TWISTED SHEILDED PAIR BRANCH PANEL WITH MAIN BREAKER HP TYPICAL HORSEPOWER HEATING, VENTILATING & AIR CONDITIONING | UBC UNIFORM BUILDING CODE BRANCH PANEL WITH SUB FEED BREAKER ISOLATED GROUND UNDERWRITERS LABORATORY FEEDER SIZE (REFER TO CONDUIT AND CONDUCTOR SCHEDULE IMC INTERMEDIATE METAL CONDUIT UNIFORM MECHANICAL CODE INCH(ES) UNLESS NOTED OTHERWISE ISC SHORT CIRCUIT AMPERES, KA VOLT OR VOLTAGE JB, J-BOX **VOLT AMPERE** JUNCTION BOX KCMIL WATT THOUSAND CIRCULAR MILS KVA WITH KILOVOLT AMPERE KW WIRE GUARD KILOWATT MOTOR: hp = MOTOR HORSEPOWER UL LISTED WEATHERPROOF, NEMA 3R or 4

Hanger Rods: Threaded steel.

1.4 APPLICATION

1.5 SUPPORT INSTALLATION

masonry units.

1.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

systems except if requirements in this Section are stricter.

To Wood: Fasten with lag screws or through bolts.

To New Concrete: Bolt to concrete inserts.

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and

B. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items

and their supports to building structural elements by the following methods unless otherwise indicated by code:

3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

To Existing Concrete: Expansion anchor fasteners. 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to ghtweight-aggregate concrete or for slabs less than 4 inches thick. 6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69. To Light Steel: Sheet metal screws. 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS 1.1 METAL CONDUITS, TUBING, AND FITTINGS A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. B. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70. Fittings for FM a. Material: Steel or die cast. Type: Setscrew or compression 1.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. 1.3 METAL WIREWAYS AND AUXILIARY GUTTERS A. Description: Sheet metal, complying with UL 870 and NEMA 250, unless otherwise indicated, and sized B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system. 1.4 BOXES, ENCLOSURES, AND CABINETS A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations. . Sheet Metal Outlet, Device, Pull, and Junction Boxes: Comply with NEMA OS 1 and UL 514A. Cast-Metal Outlet, Device, Pull, and Junction Boxes: Comply with NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover. D. Metal Floor Boxes: Material: sheet metal Type: Fully adjustable . Shape: Rectangular. 4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. E. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, with continuous-hinge cover with flush latch unless otherwise indicated

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA

2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound

Underground Conduit: RNC, Type EPC-40-PVC or Type EPC-80-PVC where required by utility.

3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Électric Solenoid.

4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid,

6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in

this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types

Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between

the seal and the following changes of environments. Seal the interior of all raceways where required by NFPA

D. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give

Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

G. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting

3. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building

equipment base. Install insulated grounding bushings on terminations at equipment.

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting

4. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1

a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3

b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building

foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or

priority to ADA requirements. Install boxes with height measured to top of box unless otherwise indicated.

H. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

inches of concrete for a minimum of 12 inches on each side of the coupling.

together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.

. Raceways Embedded in Slabs: Change from RNC to wrapped, GRC before rising above floor.

Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

A. General Requirements for Handholes and Boxes:

70, for intended location and application.

. Cover Legend: Molded lettering, "ELECTRIC."

Exposed, Not Subject to Physical Damage: EMT.

Exposed and Subject to Physical Damage: GRC.

and commercial kitchens and damp or wet locations.

of raceways allowed in specific occupancies and number of floors.

ocate boxes so that cover or plate will not span different building finishes.

1. Excavate trench bottom to provide firm and uniform support for conduit.

conduits to minimize bends and deflections required for proper entrances.

to No. 4 sieve and compacted to same density as adjacent undisturbed earth

2. Assigned Seismic Use Group or Building Category as Defined in the IBC: III.

3. Design Spectral Response Acceleration at Short Periods (0.2 Second): 173%.

least four times the maximum seismic forces to which they will be subjected.

A. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall

B. Restraint Cables: ASTM A 603 galvanized-steel cables with end connections made of steel assemblies with

thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two

C. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications

and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested

D. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based

A. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so

strength will be adequate to carry present and future static and seismic loads within specified loading limits.

A. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media

B. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams,

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not

damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if

reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed

2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.

4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive.

Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in

be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.

6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment

3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall

resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with

zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at

Design Spectral Response Acceleration at 1.0-Second Period: 76%.

be as defined in reports by an agency acceptable to authorities having jurisdiction.

according to ASTM E 488. Minimum length of eight times diameter.

strength required for anchor and as tested according to ASTM E 488.

where equipment or equipment-mounting channels are attached to wall.

tendons, electrical and telecommunications conduit, and gas lines.

such a manner as to avoid introduction of air pockets in the adhesive.

5. Set anchors to manufacturer's recommended torque, using a torque wrench.

at upper truss chords of bar joists, or at concrete members.

A. Adjust isolators after isolated equipment is at operating weight.

or Motor-Driven Equipment): LFMC.

Damp or Wet Locations: GRC.

. Minimum Raceway Size: 3/4-inch trade size.

on brackets specifically designed for the purpose.

entrances through floor.

inch above finished grade.

A. Seismic-Restraint Loading:

Site Class as Defined in the IBC: D.

a. Component Importance Factor:

Conduit and Cables: 5.0.

b. Component Response Modification Factor:

Component Amplification Factor: 2.5.

2) Life Safety (EM): 1.5

1) General: 1.0.

1) Fixtures: 1.0

2) Equipment: 2.5

clamping bolts for cable engagement.

C. Drilled-in Anchors:

1.5 ADJUSTING

A. Direct-Buried Conduit

Set metal floor boxes level and flush with finished floor surface.

agency, and marked for intended location and application.

4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

Concealed in Ceilings and Interior Walls and Partitions: EMT.

D. Adjust restraints to permit free movement of equipment within normal mode of operation SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS 1.1 INSTALLATION

**ELECTRICAL SPECIFICATIONS** installation is complete, adjust limit stops so they are out of contact during normal operation. C. Adjust active height of spring isolators.

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Apply identification devices to surfaces that require finish after completing finish work. C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device. D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate. E. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trenchexceeds 16 inches (400 mm) overall. 1.2 IDENTIFICATION SCHEDULE A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes. manholes, and handholes, use color-coding conductor tape to identify the phase. 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors. a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having iurisdiction permit. b. Colors for 208/120-V Circuits: 1) Phase A: Black. 2) Phase B: Red. 3) Phase C: Blue. 4) Neutral: White with colored stripe to match associated phase Ground: Green

B. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source. c. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify

by system and circuit designation. 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and D. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication,

and control wiring and optical fiber cable. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces. F. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning 1. Comply with 29 CFR 1910.145.

l. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access. 3. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification. Labeling Instructions: a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise

indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high. b. Outdoor Equipment: Engraved, laminated acrylic or melamine label. c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical

fasteners that do not change the NEMA or NRTL rating of the enclosure. SECTION 260923 - LIGHTING CONTROL DEVICES 1.1 SUBMITTALS

A. Product Data: For each type of product.

B. Operation and maintenance data 1.2 OUTDOOR PHOTOELECTRIC SWITCHES A. Description: Solid state, with SPST dry contacts rated for 1800 VA, to operate connected load, complying with 1. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that 2. Time Delay: Thirty-second minimum, to prevent false operation.

Lightning Arrester: Air-gap type. 4. Mounting: Twist lock complying with NEMA C136.10, with base. 1.3 INDOOR OCCUPANCY SENSORS A. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack. 1. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off

when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 2. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack. 3. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.

Bypass Switch: Override the "on" function in case of sensor failure. 6. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is B. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement. 1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in.. 2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted

on a 96-inch- high ceiling. 3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling. C. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in

the field by operating controls on unit. Sensitivity Adjustment: Separate for each sensing technology. 2. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in., and detect a person of average size and weight moving

not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling. 1.4 SWITCHBOX-MOUNTED OCCUPANCY SENSORS A. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single

Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F. 2. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not

exceed coverage limits specified in manufacturer's written instructions. B. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit . Identify components and power and control wiring according to Section 260553 "Identification for Electrical

1.6 FIELD QUALITY CONTROL A. Perform the following tests and inspections: 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation. 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

SECTION 262726 - WIRING DEVICES 1.1 ADMINISTRATIVE REQUIREMENTS A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations. 1.2 GENERAL WIRING-DEVICE REQUIREMENTS A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. 1.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596. B. Isolated-Ground, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Description: Straight blade; equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be ntegral to receptacle construction and not dependent on removable parts. 1.4 GFCI RECEPTACLES A. General Description: Straight blade, feed-through typ Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.

3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection. B. Duplex GFCI Convenience Receptacles, 125 V, 20 A: 1.5 LOW VOLTAGE SWITCHES A. Push-Button Switches: Modular, analog interface, for operating one or more relays and to work in conjunction with automatic controls . Match color and style specified in Section 262726 "Wiring Devices." Integral green LED pilot light to indicate when circuit is on.

 Internal white LED locator light to illuminate when circuit is off. B. Legend: Engraved or permanently silk-screened on wall plate. Use designations indicating load controlled. . 24-volt; Powered from associated power pack serving controlled switching group 1.6 LOW VOLTAGE WALL-BOX DIMMERS A. Push-Button Switches: Modular, analog interface, for operating one or more relays and to work in conjunction

. Match color and style specified in Section 262726 "Wiring Devices."

2. Integral green LED pilot light to indicate when circuit is on.

. Install with a maximum of two 90-degree bends or equivalent for each length of pathway unless Drawings

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM 1.1 SUBMITTALS A. Product Data: For each type of product, including furnished options and accessories.

3. Shop Drawings: For fire-alarm system. General Submittal Requirements: Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect. D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data

signed and sealed by the qualified professional engineer responsible for their preparation. Drawings showing the location of each notification appliance and smoke and heat detector, ratings of each and installation details as needed to comply with listing conditions of the device. Design Calculations: Calculate requirements for selecting the spacing and sensitivity of detection, complying with NFPA 72. Calculate spacing and intensities for strobe signals and sound-pressure levels

for audible appliances 3. Indicate audible appliances required to produce square wave signal per NFPA 72.

Field quality-control reports. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation and maintenance manuals. 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following

and deliver copies to authorities having jurisdiction a. Comply with the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72. Provide "Record of Completion Documents" according to NFPA 72 article "Permanent Records" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter. Record copy of site-specific software.

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided

B. Noncoded, UL-certified FM Global-placarded addressable system, with multiplexed signal transmission and

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified

4. Install no more than 75% of loop capacity's addressable devices on each signaling line circuit

C. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for

Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory.

D. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer

Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of

adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be

Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to

3. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module

that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.

Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.

Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually

monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually

Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be

b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's

2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly,

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a

Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white

Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes o

D. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on

E. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

a. Inspection shall be based on completed record Drawings and system documentation that is required

b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection,

System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing

Test audible appliances for the public operating mode according to manufacturer's written instructions.

Test audible appliances for the private operating mode according to manufacturer's written instructions.

Test visible appliances for the public operating mode according to manufacturer's written instructions.

Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices

6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in

the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing

Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.

by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the

Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only

flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at

of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not

polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch-high

indicated, equipped for mounting as indicated, and with screw terminals for system connections.

equipped for mounting as indicated, and with screw terminals for system connections.

independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or

selectable at fire-alarm control unit for 15 or 20 deg F per minute.

4. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal

used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups.

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

d. Provide "Maintenance, Inspection and Testing Records" according to NFPA 72 article of the same name and include the following: e. Frequency of testing of installed components. 1. Wiring Devices Connected to Normal Power System: As selected by owner unless otherwise indicated or

f.Frequency of inspection of installed components.

Requirements and recommendations related to results of maintenance. . Manufacturer's user training manuals. i. Manufacturer's required maintenance related to system warranty requirements. A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated. j. Abbreviated operating instructions for mounting at fire-alarm control unit. I. Copy of NFPA 25.

1.2 SYSTEM DESCRIPTION

1.3 MANUFACTURERS

1.5 SYSTEM SMOKE DETECTORS

1.4 FIRE-ALARM CONTROL UNIT

B. Notification-Appliance Circuit:

horn/strobe evacuation

m. Field redlines showing:

n. Routing of new conduits

z. Panel programming information

have been tested as, and will operate as, a system

Automatic sensitivity control of certain smoke detectors.

All components provided shall be listed for use with the selected system.

. NOTIFIER; a Honeywell company supplied by Mountain Alarm

testing agency, and marked for intended location and application.

A. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

Operation shall match existing device audible pattern.

switch. Include battery upgrades to incorporate new devices.

Comply with UL 268; operating at 24-V dc, nominal.

adjustable for sensitivity by fire-alarm control unit.

d. Sensitivity levels based on time of day.

the following for each detector:

Present sensitivity selected

e. Sensor range (normal, dirty, etc.).

c. Present average value.

c. Multiple levels of detection sensitivity for each sensor.

location within the system and its sensitivity setting.

Mounting: Wall mounted unless otherwise indicated.

4. Mounting Faceplate: Factory finished, [red] [white].

C. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

limited to, Article 760, "Fire Alarm Systems."

the same height unless otherwise indicated.

A. Pathways shall be installed in EMT.

B. Exposed EMT shall be painted red enamel.

service ground to fire-alarm control unit.

'Fundamentals" chapter

the installed components.

and Maintenance" chapter in NFPA 72.

A. Field tests shall be witnessed by authorities having jurisdiction

1. Visual Inspection: Conduct visual inspection prior to testing.

Strobe Leads: Factory connected to screw terminals.

Flashing shall be in a temporal pattern, synchronized with other units.

the ceiling. Install all devices at the same height unless otherwise indicated.

F. Device Location-Indicating Lights: Locate in public space near the device they monitor.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

A. General Requirements for System Smoke Detectors:

fire-alarm control unit.

B. Photoelectric Smoke Detectors:

a. Primary status.

b. Device type.

grille. Comply with UL 464

letters on the lens.

1.7 EQUIPMENT INSTALLATION

1.8 PATHWAYS

1.9 IDENTIFICATION

2.0 GROUNDING

2.1 FIELD QUALITY CONTROL

and appliances.

D. Prepare test and inspection reports.

1.6 NOTIFICATION APPLIANCES

Pathway Class Designations: NFPA 72, Class D

Pathway Survivability: Level 1

Signaling Line Circuits: Style 7

view, as defined in NFPA 72.

aa. Device point report

of solid wire or cutting strands from stranded wire. o. Location of all devices, relays, control modules, j-boxes, etc. 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without p. Device connection order pigtails.
4. Existing Conductors: g. Device addresses r.Battery calculations s. Visual device candela rating a. Cut back and pigtail, or replace all damaged conductors. Straighten conductors that remain and remove corrosion and foreign matter. t. Audible device sound pressure rating and setting

Pigtailing existing conductors is permitted, provided the outlet box is large enough. u. I/O matrix v. FCPS location and number C. Device Installation w. The following information in digital (.pdf and AutoCad .dwg) and one hardcopy: 1. Replace devices that have been in temporary use during construction and that were installed before x. Field redline information indicated above building finishing operations were complete. y. Equipment and device cutsheets

. Connect devices to branch circuits using pigtails that are not less than 12 inches in length. 3. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.

D. Dimmers: 1. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

3. Internal white LED locator light to illuminate when circuit is off.

A. Single and combination types shall match corresponding wiring devices.

Material for Unfinished Spaces: Galvanized steel.

labeled for use in wet and damp locations.

aluminum or thermoplastic with lockable cover.

required by NFPA 70 or device listing.

B. Wall Plate Color: For plastic covers, match device color.

. Isolated Ground Devices: Orange.

1.7 WALL PLATES

1.8 FINISHES

A. Device Color:

1.9 INSTALLATION

B. Conductors:

24-volt; Powered from associated power pack serving controlled switching group

Control: Continuously adjustable; with single- or multi-location connections.

Plate-Securing Screws: Metal with head color to match plate finish.

. Legend: Engraved or permanently silk-screened on wall plate. Use designations indicating load controlled.

E. LED Lamp Dimmer Switches: Modular, compatible with dimmer drivers; trim potentiometer to adjust low-end

Material for Finished Spaces: 0.035-inch-thick, satin-finished, Type 302 stainless steel.

dimming, dimmer-driver combination capable of consistent dimming with low end not greater than 1 percent of

4. Material for Damp Locations: Thermoplastic or Cast aluminum with spring-loaded lift cover, and listed and

Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast

Do not strip insulation from conductors until right before they are spliced or terminated on devices.

2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking

SECTION 265100 - INTERIOR LIGHTING 1.1 ACTION SUBMITTALS A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features,

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70. 1.3 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures. . Metal Parts: Free of burrs and sharp corners and edges

Diffusers and Globes: Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation. a. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated. b. UV stabilized.

1.4 LED LUMINAIRES A. Solid State Drivers and LED: Comply with DOE LM 79 Total Harmonic Distortion Rating: Less than 10 percent Transient Voltage protection Power factor: 0.90 or higher

. Temperatures: Minus 40 deg F (minus 40 deg C) and higher Heat sink to remove heat from circuits L70 compliant to 70,000 hours minimum Color Rendering Index: 80 CRI minimum 8. Dimmable

a. Dimming Range: 100 to 1 percent of rated lamp lumens b. Input watts: Can be reduced to 20 percent of normal

1.5 EMERGENCY POWER UNIT A. Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within lighting fixture body and compatible with ballast or driver. Comply with UL 924.

Emergency Connection: Operate one lamp(s) continuously at an output of 1100 lumens each. Connect unswitched circuit to battery-inverter unit and switched circuit to fixture ballast or driver. Nightlight Connection: Operate one lamp continuously. Test Push Button and Indicator Light: Battery: Sealed, maintenance-free, nickel-cadmium type.

6. Charger: . Integral Self-Test: A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs: Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
 1.7 LIGHTING FIXTURE SUPPORT COMPONENTS

A. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage. B. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage. 1 8 INSTALLATION A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.

B. Comply with NFPA 70 for minimum fixture supports. 1.9 FIELD QUALITY CONTROL A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal

power to battery and retransfer to normal. SECTION 270528 - PATHWAYS FOR COMMUNICATIONS SYSTEMS

1.1 ACTION SUBMITTALS . Product Data: For each type of product. Shop Drawings: For each type of cable tray. Delegated-Design Submittal: For seismic restraints.

1.5 WIRE-BASKET CABLE TRAYS

1.2 METAL CONDUITS AND FITTINGS A. See section 260533 "Raceways and boxes for Electrical Systems". 1.3 BOXES, ENCLOSURES, AND CABINETS A. See section 260533 "Raceways and boxes for Electrical Systems" unless otherwise indicated below.

B. Device Box Dimensions: 4 inches square by 2-1/2 inches deep. 1.4 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND CABLING A. See section 260533 "Raceways and boxes for Electrical Systems".

A. Description: 1. Configuration: Wires are formed into a standard 2-by-4-inch wire mesh pattern with intersecting wires welded together. Mesh sections must have at least one bottom longitudinal wire along entire length of Materials: High-strength-steel longitudinal wires with no bends.

3. Safety Provisions: Wire ends along wire-basket sides (flanges) rounded during manufacturing to maintain integrity of cables and installer safety.

a. Straight sections shall be furnished in standard 118-inch lengths. Wire-Basket Depth: 4-inch usable loading depth by 12 inches wide. 5. Connector Assemblies: Bolt welded to plate shaped to fit around adjoining tray wires and mating plate.

Mechanically joins adjacent tray wires to splice sections together or to create horizontal fittings. 6. Connector Assembly Capacity: Splices located within support span shall not diminish rated loading capacity of cable tray. 7. Hardware and Fasteners: ASTM F 593 and ASTM F 594 stainless steel, Type 316.

1.6 PATHWAY APPLICATION A. See section 260533 "Raceways and boxes for Electrical Systems" unless otherwise indicated below. B. Indoors: Apply pathway products as specified below unless otherwise indicated: C. Minimum Pathway Size: 1 inch. 1.7 INSTALLATION

A. See section 260533 "Raceways and boxes for Electrical Systems" unless otherwise indicated below. B. Install no more than the equivalent of two 90-degree bends in any pathway run. Support within 12 inches of changes in direction. Utilize long radius ells for all optical-fiber cables. C. Stub-ups to Above Recessed Ceilings: . Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure. D. Coat field-cut threads on PVC-coated pathway with a corrosion-preventing conductive compound prior to

Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install insulated bushings on conduits terminated with locknuts. F. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

G. Spare Pathways: Install pull wires in empty pathways. Cap underground pathways designated as spare above grade alongside pathways in use H. Pathways for Communications Cable: Install pathways as follows: 1-Inch Trade Size and Larger: Install pathways in maximum lengths of 75 feet.

show stricter requirements 1.8 INSTALLATION OF UNDERGROUND CONDUIT A. See section 260533 "Raceways and boxes for Electrical Systems" unless otherwise indicated below. 1.9 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES A. See section 260533 "Raceways and boxes for Electrical Systems" unless otherwise indicated below.

CENTÉR STREE 170 E. CENTER STREET LOGAN, UTAH 84321 CENTERSTREETARCH.COM No. 294174 SHANE D SWENSON

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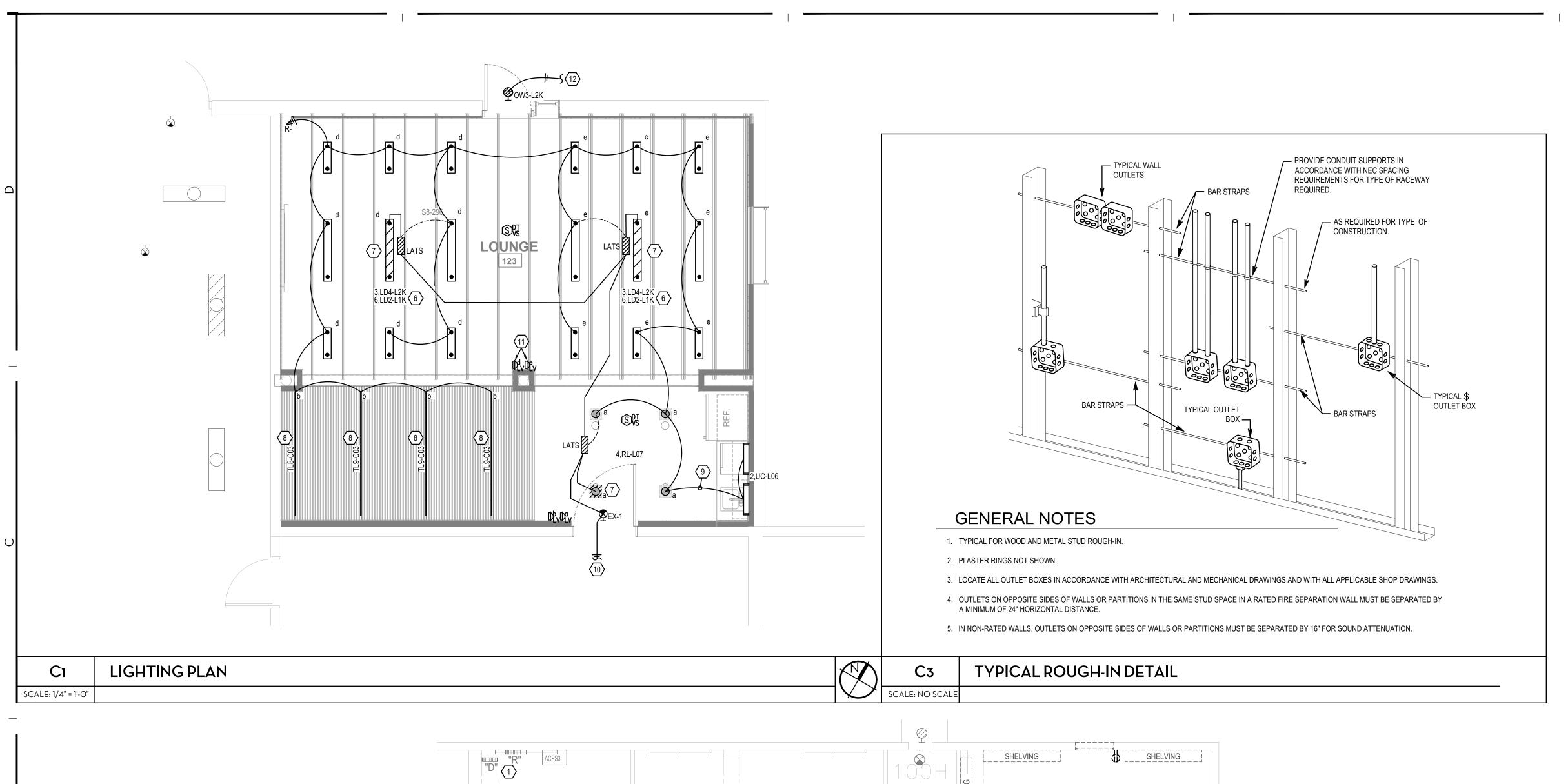


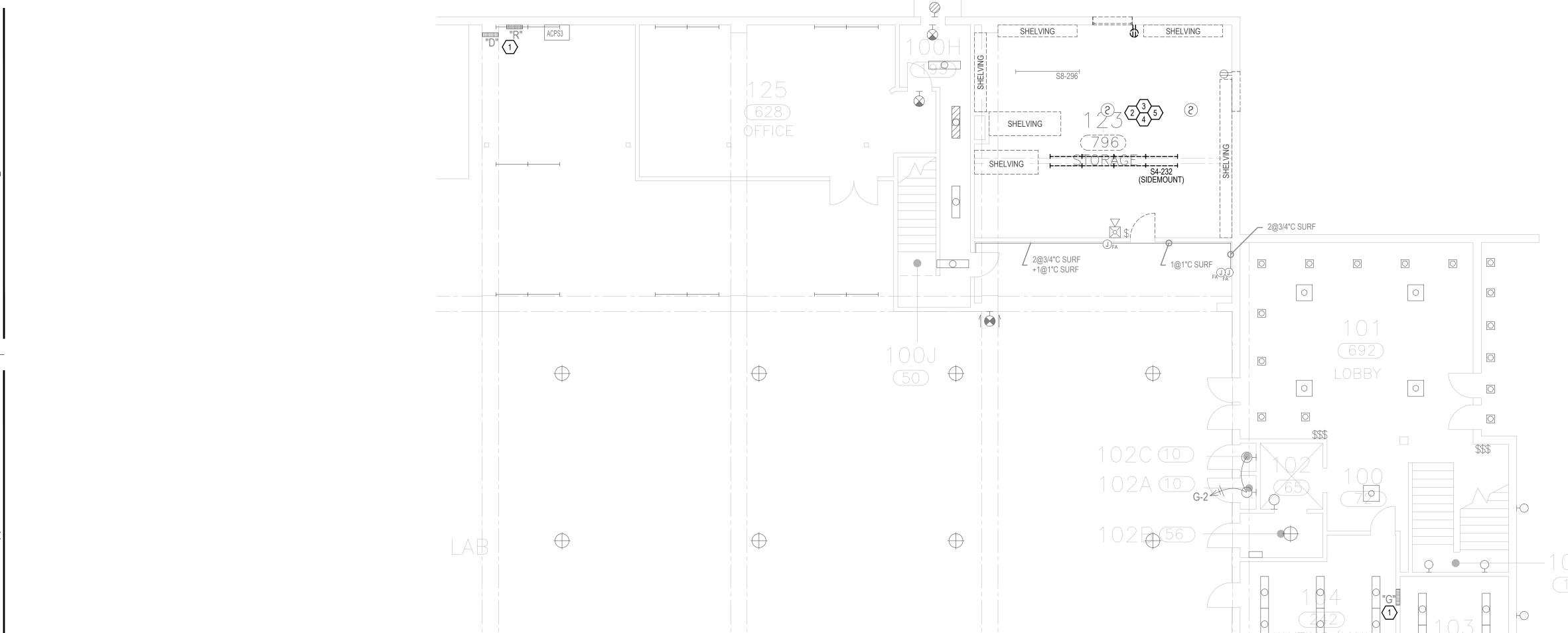
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REVISIONS NO. DATE DESRIPTION DATE: 2/28/2024 JOB NO: 2023091 SCALE: AS NOTED DRAWN: DONALD J. PATTON





**ELECTRICAL DEMOLITION PLAN** 

#### SHEET KEYED NOTES

- I. EXISTING PANELS TO REMAIN.
- . REMOVE EXISTING FIXTURES AND/OR LIGHTING CONTROL AS INDICATED.
- B. REMOVE EXISTING OUTLETS AS INDICATED.
- . REMOVE EXISTING COMMUNICATIONS DEVICES AS INDICATED.
- . REMOVE EXISTING FIRE ALARM DEVICES AS INDICATED.
- SUSPEND FOR TOPS OF FIXTURES TO BE LEVEL WITH BOTTOM OF STRUCTURAL
- CONNECT FIXTURE TO EM CIRCUIT INDICATED. \*PROVIDE ADDITIONAL 1-LAMP BALLAST/DRIVER IN MULTI-LAMP FIXTURES. CONNECT 1-LAMP BALLAST/DRIVER TO OPERATE WITH SWITCHES IN NORMAL MODE. PROVIDE AUTOMATIC SWITCHING DEVICE (LATS) FOR FIXTURE AS REQUIRED. FIXTURES ON A COMMON SWITCH SHALL BE CONNECTED TO A SINGLE SWITCHING DEVICE WITH APPROPRIATE RATINGS. LATS SHOWN FOR INTENT ONLY. LOCATE DEVICES IN ACCESSIBLE LOCATION ON OR NEAR FIRST CONTROLLED FIXTURE. PROVIDE ACCESS DOORS WHERE REQUIRED.
- GLUE MOUNT FIXTURES BETWEEN WOOD CEILING SLAT. FIXTURE LENGTHS INDICATED ARE ESTIMATES - VERIFY FIELD CONDITIONS FOR FIXTURES TO EXTEND ENTIRE LENGTH OF WOOD CEILING. MOUNT POWER SUPPLIES CONCEALED IN BEAMS OF ADJACENT UPPER CEILING SPACE.
- 9. CONNECT TO UNSWITCHED SOURCE CONDUCTOR.
- 10. CONNECT TO NEAREST LIFE SAFETY EM CIRCUIT WITH AVAILABLE CAPACITY.
- 1. COORDINATE INSTALLATION OF DEVICES WITH CONTRACTOR TO FINISH FLUSH WITH WOOD SLATS.
- 12. CONNECT TO EXISTING EXTERIOR EM CIRCUIT AND CONTROL. FIELD VERIFY CONNECTION POINT.

#### **GENERAL SHEET NOTES**

- DEMOLITION PLAN IS ENGINEER'S ATTEMPT TO ASSIST BIDDERS IN ESTIMATING REMOVAL COSTS OF EXISTING EQUIPMENT. PLAN IS NOT INTENDED TO BE ALL-INCLUSIVE, AND IT IS THE BIDDERS RESPONSIBILITY TO VERIFY ALL EXISTING EQUIPMENT AND DEVICES TO BE REMOVED PRIOR TO BIDDING.
- EXISTING ITEMS TO BE REMOVED ARE INDICATED AS BOLD/DASHED. ITEMS TO REMAIN ARE SHOWN AS LIGHT/SOLID.
- MAINTAIN CIRCUIT CONTINUITY FOR DEVICES DOWNSTREAM OF ITEMS TO BE
- WHERE DEVICES ARE SHOWN TO BE REMOVED, COMPLETELY REMOVE ALL RACEWAYS, BOXES AND CONDUCTORS TO PANEL OR TO FIRST J-BOX TO REMAIN ACTIVE IN CIRCUIT PATH.
- ARCHITECTURAL CEILINGS SHOWN FOR CONTRACTOR CONVENIENCE IN BIDDING INSTALLATION REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- CONTRACTOR TO FURNISH OCCUPANCY SENSORS WITH COVERAGE PATTERNS APPROPRIATE FOR THEIR INSTALLED LOCATIONS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO BID.
- CONNECT OCCUPANCY SENSORS TO ENABLE ALL SWITCHES IN CONTROLLED SPACE.
- B. CONNECT OCCUPANCY SENSORS, BATTERY BALLASTS, EXIT SIGNS, ETC. TO UNSWITCHED SOURCE CONDUCTOR.
- . NEW DEVICES SHOWN ON EXISTING WALLS SHALL FINISH FLUSH WITH WALL UNLESS OTHERWISE NOTED. CUT, PATCH AND REPAIR SURFACES AS REQUIRED.
- SHALL BE LITHONIA N-LIGHT, WATTSTOPPER DLM OR OTHER SIMILAR SYSTEM THAT ALLOWS SWITCHES AND SENSORS TO COMMUNICATE TO MEET MANUAL ON, AUTO

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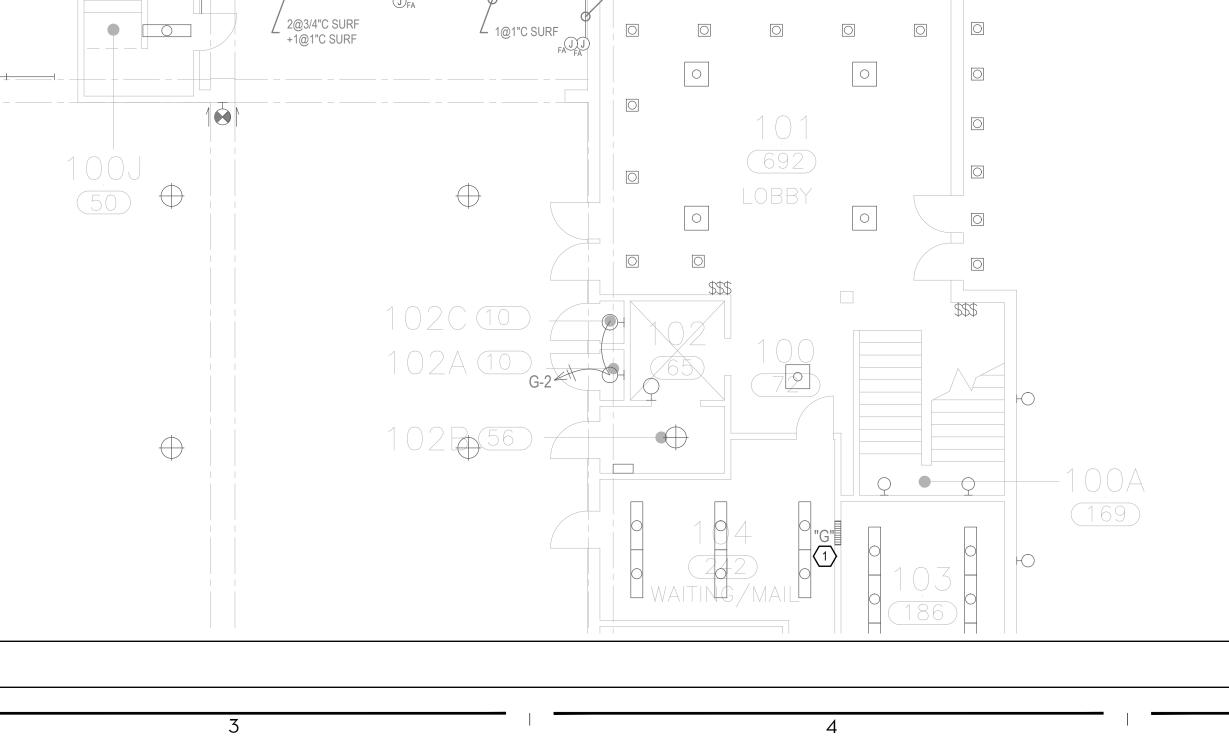
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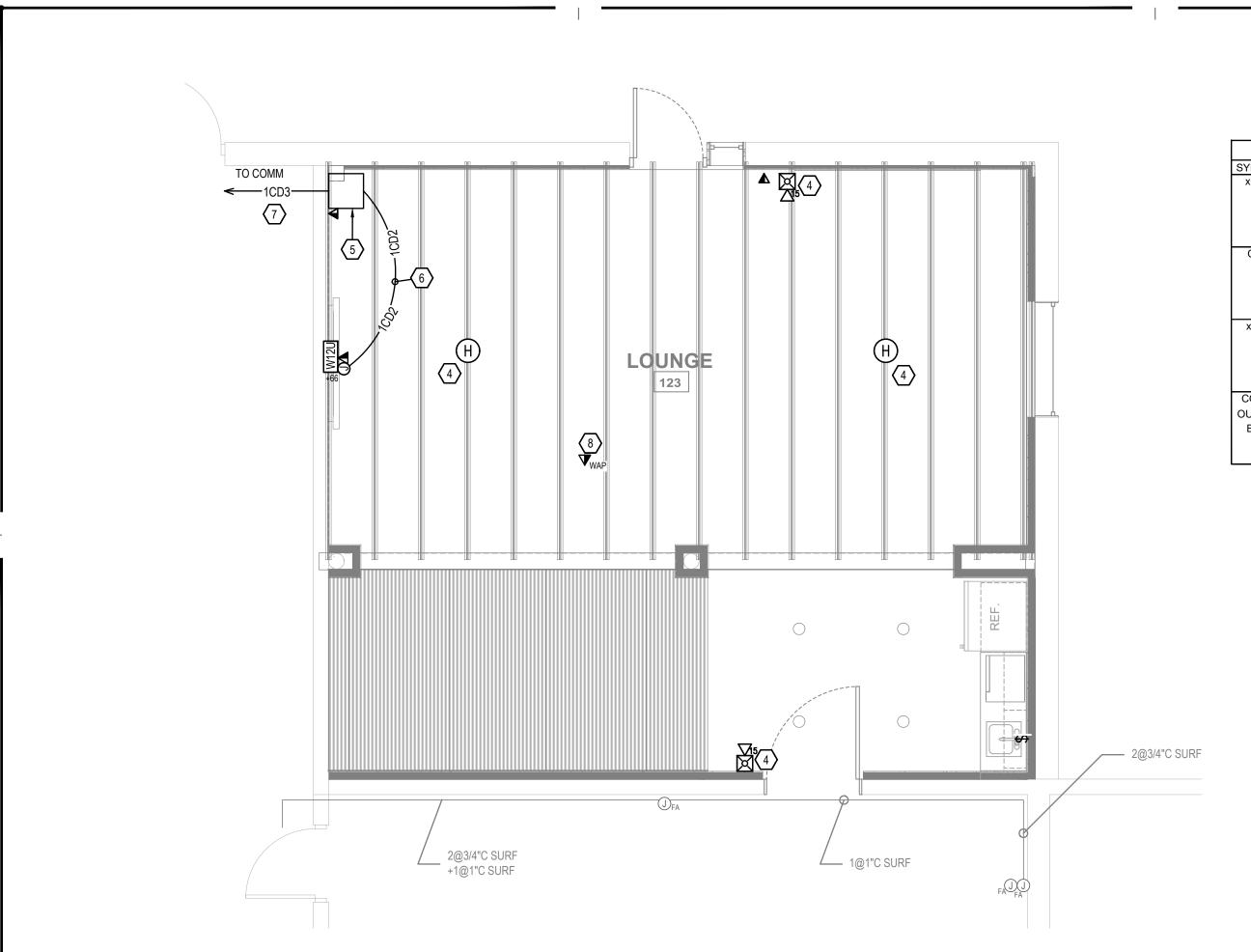
OR USU UTAH WATER RESEARCH LABORA ELECTRICAL PLANS UTAH STATE UNIVERSITY

ADDRESS CLIENT **REVISIONS** NO. DATE DESRIPTION

DATE: 2/28/2024 JOB NO: 2023091

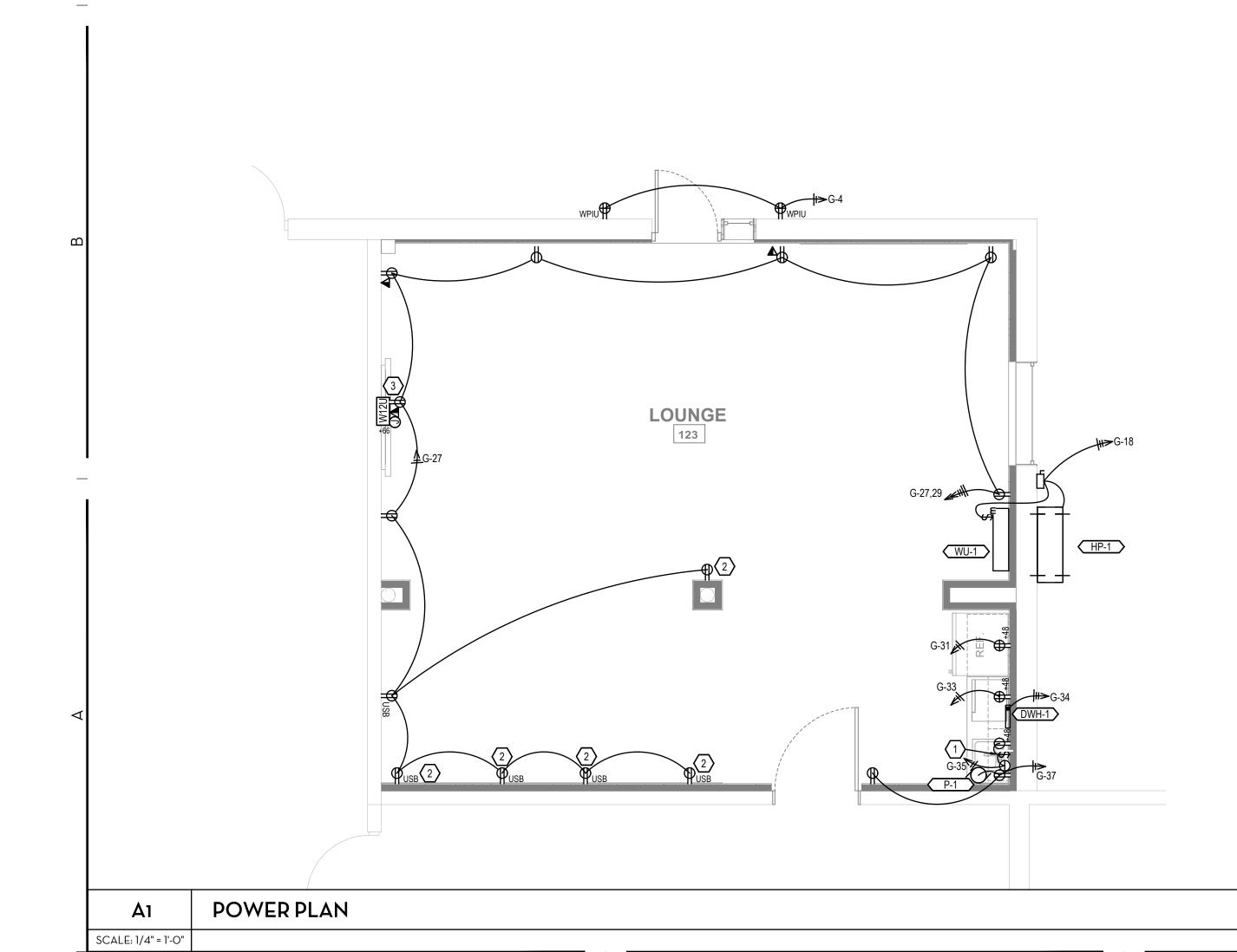
SCALE: AS NOTED DRAWN: DONALD J. PATTON





SYMBOL	DESCRIPTION	MANUFACTURER	MODEL	ACCESSORIES
xCDy	CONDUIT; QUANTITY "X", DIAMETER "Y"	AS SPECIFIED	•	INSULATED THROAT
	AS INDICATED ON SYMBOL SCHEDULE			CONNECTORS ON ALL ENDS; PULL STRING
CMJ	CABLE HOOKS; 4"; RETAINING CLIP QUANTITY AS REQUIRED FOR CURRENT CABLING PLUS 50% SPARE CAPACITY	COOPER B-LINE	BCH64 SERIES (OR EQUIVALENT)	RETAINER (BCHR64) OTHER ACCESSORIES AS REQUIRED
хВТу	X"W X Y"D STEEL, WIRE MESH TRAY MAXIMUM 6' SUPPORT SPACING (MIN 83 LBS/FT LOAD CAPACITY)	COOPER	FT(X)X(Y)-EG SERIES (OR EQUIVALENT)	ACCESSORIES AS REQUIRED
	5" SQUARE X 2 7/8" DEEP 3/4" MUD RING (1 OR 2-GANG AS NOTED)	STEEL CITY STEEL CITY	82181T-1 SERIES 82C-*G-3/4 (OR EQUIVALENT)	

ELECTRONIC SYSTEMS PLAN



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

#### SHEET KEYED NOTES

- PROVIDE SWITCHED RECEPTACLE UNDER KITCHEN BASIN FOR DISPOSAL. DISPOSAL BY OTHERS. COORDINATE DISPOSAL CORD WITH PLUMBING CONTRACTOR AND PROVIDE AND/OR INSTALL CORD AS REQUIRED. ROUTE CIRCUIT THROUGH FACELESS GFCI (LEVITON 7590 OR EQUIVALENT) MOUNTED ABOVE COUNTER LEVEL WITH COUNTER-TOP OUTLETS. LABEL GFCI FOR APPLIANCE SERVED.
- WITH COUNTER-TOP OUTLETS. LABEL GFCI FOR APPLIANCE SERVED.

  COORDINATE INSTALLATION OF DEVICES WITH CONTRACTOR TO FINISH FLUSH WITH WOOD SLATS.
- PROVIDE RECESS CONNECTIONS TO FLAT PANEL TV. VERIFY OUTLET LOCATION WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN. FIELD PAINT BOX/COVER/CONDUIT TO MATCH ADJACENT BUILDING SURFACE.
- PROVIDE NEW FIRE ALARM DEVICES. INTEGRATE INTO EXISTING SYSTEM.
- 5. PROVIDE 18"X18" CEILING PULL-BOX PAINTED TO MATCH CEILING. ROUTE ALL COMMUNICATIONS CONDUITS IN SPACE TO PULL BOX.
- 6. PROVIDE EMPTY PATHWAY TO LOCATION INDICATED FOR OWNER A/V CABLING.
- 7. EXTEND CONDUIT TO COMMUNICATION ROOM LOCATED ON 2ND LEVEL ABOVE PANEL "R".
- 8. PROVIDE CONNECTIONS FOR CEILING WIRELESS ACCESS POINT. VERIFY LOCATION WITH USU I.T. PRIOR TO ROUGH-IN.

#### GENERAL SHEET NOTES

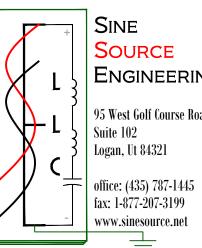
- 1. COORDINATE ALL SWITCH, OUTLET, LIGHT AND OTHER DEVICE LOCATIONS WITH ARCHITECTURAL ELEMENTS (CABINETS, WINDOWS ETC.) PRIOR TO ROUGH IN. REVIEW ARCHITECTURAL INTERIOR ELEVATIONS PRIOR TO ROUGH-IN OF EACH AREA FOR ADDITIONAL INFORMATION.
- SEE COMMUNICATION RACEWAY SCHEDULE AND SYMBOL SCHEDULE FOR DATA OUTLET ROUGH-IN REQUIREMENTS.
- B. ALL CONDUIT SHALL BE RAN OVERHEAD UNLESS OTHERWISE NOTED.
- 4. EXISTING LIGHTING, ELECTRICAL AND ELECTRONIC DEVICES SHOWN LIGHT. NEW DEVICES SHOWN DARK.
- 5. NEW DEVICES SHOWN ON EXISTING WALLS SHALL FINISH FLUSH WITH WALL UNLESS OTHERWISE NOTED. CUT, PATCH AND REPAIR SURFACES AS REQUIRED.



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TITLE

PROJECT

USU UTAH WATER RESEARCH LABORATORY - STUDE

CLIENT

UTAH STATE UNIVERSITY

ADDRESS

1600 CANYON RD, LOGAN, UT 84321

DATE: 2/28/2024

JOB NO: 2023091

SCALE: AS NOTED

DRAWN: DONALD J. PATTON

SHEET

REVISIONS

TYPE	MANUFACTURER/CATALOG NO.	DESCRIPTION	MOUNTING	WATTS	
DP- 108	MOOOI RANDOM LIGHT II SMALL WHITE	DECORATIVE GLOBE PENDANT; 20" DIAMETER; MEDIUM BASE LAMPHOLDER	SUSPENDED	10 W	80
	EQUIVALENT ONLY WITH PRIOR ARCHITECTURAL APPROVAL		HEIGHT PER		
			ARCHITECT		
			7.000.01201		
EX- 1	LITHONIA LE-S-1-G-120/277	UNIVERSITY STANDARD EXIT SIGN; LED; SINGLE-FACE; BRUSHED	SURFACE OR	3 W	
	COOPER CX6-1-G	ALUMINUM FACE; BLACK HOUSING (SIDE)	WALL		
	DUAL LITE SE-S-G-BN				
	EXITRONIX G400S-LB-BL				
	NO EQUIVALENTS				
L ATS	DUAL LITE ATSD SERIES	LIGHTING TRANSFER SWITCH TO TRANSFER FROM SWITCHED	CEILING/FIXTURE	N/A	
	OR EQUIVALENT	POWER TO GENERATOR POWER ON NORMAL POWER FAILURE;			
		RATINGS PER LOAD CONTROLLED; DIMMER COMPATIBLE			
100 144	MARK CORP. LIP OF T MOLO COOR MAY FOOL ME COT MINA FILL MYOUT CORP. TO MOUNT YOUR PROVING	SUSPENDED LINEAR MILL TIMOLT, ELECTRONIC SURVEY ELECTRONIC	OARLE QUARENTES	7014	
LD2- L1K	MARK S2PD-LLP-2FT-MSL2-80CRI-40K-500LMF-SCT-MIN1-FLL-MVOLT-SCBA-ZT-MOUNT-XXA-RDCY-*-*	SUSPENDED LINEAR; MULTI-VOLT, ELECTRONIC, DIMMABLE (1%) DRIVER	CABLE SUSPENDED	7.8 W	10
	OR EQUIVALENT	SUSPENSION LENGTH AS INDICATED ON ARCHITECTURAL DRAWINGS; COLOR			NC
		AS SELECTED BY ARCHITECT; FLUSH MOUNT CANOPY; MOUNTING ACCESSORIES			
		AS REQUIRED AT INSTALLED LOCATION;			
LD4- L2K	MARK S2PD-LLP-4FT-MSL4-80CRI-40K-500LMF-SCT-MIN1-FLL-MVOLT-SCBA(-E10WLCP)-ZT-MOUNT-XXA-RDCY-*-*	SUSPENDED LINEAR; MULTI-VOLT, ELECTRONIC, DIMMABLE (1%) DRIVER	CABLE SUSPENDED	15.6 W	20
	OR EQUIVALENT	SUSPENSION LENGTH AS INDICATED ON ARCHITECTURAL DRAWINGS; COLOR			NC
		AS SELECTED BY ARCHITECT; FLUSH MOUNT CANOPY; MOUNTING ACCESSORIES			
		AS REQUIRED AT INSTALLED LOCATION;			
014/0 1 01/		EXTERIOR WALL FIXTURE, MULTI VOLT, ELECTRONIC, DIMMARILE DRIVER, WERCE CHARE.		40 10/	
OW3- L2K	LITHONIA WDGE2-LED-P2-40K-70CRI-T3M-MVOLT-SRM(-E20WC)-DMB-DMG-NLTAIR2PIR*-SCBA OR EQUIVALENT	EXTERIOR WALL FIXTURE; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER; WEDGE SHAPE; FULL CUTOFF; INTEGRAL PHOTOCELL AND NIGHT SETBACK WITH MOTION OVERRIDE	WALL	19 W	NO
	ON EQUIVALENT	TOLE COTOTT, INTEGRAL THO TOCKLE AND MIGHT SETBACK WITH MICHON CVERNIBE			I
RL- L07	LITHONIA LDN6-35-07-LO6-AR-LD-MVOLT-GZ1(-ELSD)	RECESSED CAN; LED LAMPING; CLEAR, OPEN, SEMI-SPECULAR CONE;	RECESS	8.9 W	10
RL- L07(B)	OR EQUIVALENT	6" NOMINAL OPENING; SELF-FLANGED CONE; DIMMABLE; EM BATTERY			NC
		WHERE NOTED ON DRAWINGS; TRIM EXTENDER WHERE REQUIRED			
		LED TARE HOUT EVERA THIN OUVER SITE OUTTARIES LENGTH AS THE OUT AS	200-00-0	0.5	
TL*- C03	KELVIX UNI-TL-I-300-40K-24V/CH0400-*-BK-MOUNT-EC	LED TAPE LIGHTEXTRA THIN; 24V DC; FIELD CUTTABLE; LENGTH AS INDICATED ON DRAWINGS	SURFACE	2.8 W/LF	300
	ULV* POWER SUPPLY(IES) OR EQUIVALENT	LOW PROFILE CHANNEL (0.3" MAX DEPTH; 0.3" MAX WIDTH); BLACK ALUMINUM CHANNEL WITH BLACK COVER: DIMMABLE POWER SUPPLIES PER			NC
		FACTORY DIRECTION; ADDITIONAL ACCESSORIES AS REQUIRED FOR COMPLETE			
		INSTALLATION; APPROXIMATE LENGTH AS INDICATED BY * ON LIGHTING PLANFIELD VERIFY			
UC- L06	KELVIX UC22-3040-010V-120277-WH	LED UNDER-CABINET LIGHT; LOW PROFILE; MULTI-VOLT, ELECTRONIC, DIMMABLE DRIVER	SURFACE	15 W	6
	OR EQUIVALENT	DRIVER; INTEGRAL SWITCH	UNDER CABINET		NC
		LENS			

				Ν	/IECHAN	IICAL E	QUIPM	ENT SC	HEDULE
SYM	DESCRIPTION	LOAD	VOLTS	PHASE	FIRE ALARM SHUTDOWN		* STARTER BY	SAFETY DISCONNECT BY	REMARKS
DWH- 1	DOMESTIC WATER HEATER: TANKLESS	2600 W	208	1	NO	MECH	MECH	ELEC	PROVID BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION AS ALLOWED BY NEC
HP- 1	HEAT PUMP	16.4 MCA	208	1	NO	ELEC	EQUIP	ELEC	INTERLOCK WITH FC-1 AS REQUIRED
P- 1	РИМР	246 W	120	1	NO	MECH	MECH	ELEC	PROVIDE CORD AND PLUG TO MATCH EQUIPMENT NAMEPLATE
WU- 1	FAN COIL	0.5 MCA	208	1	NO	ELEC	ELEC	ELEC	INTERLOCK WITH HP-1 AS REQUIRED

* ELECTRICAL CONTRACTOR VERIFY SINGLE SPEED OR TWO SPEED STARTERS WITH MECHANICAL DRAWINGS.
FLOOR TABLE AND WALL BOX SCHEDULE

	FLO	OR, TABLE, AND	WALL B	OX SCHEDULE		
SYMBOL	DESCRIPTION	MANUFACTURER		MODEL	COLOR	DEVICES
W12U	USU STANDARD, MULTI-SERVICE, X-LARGE	CHIEF	PAC 526		PER	-ONE DUPLEX
	CAPACITY WALL BOX; STEEL; RECESS MOUNT				USU	-1 @ 1.25" COMM CONDUIT WITH
	IN WALL;				STANDARD	COMM/TV PORTS PER OWNER
						-A/V CONNECTORS PER OWNER
						-A/V CONDUIT AS NOTED ON PLAN

ANEL	TYPE WESTINGHOUSE NQC 3 Ø 4 WIRE 120/208 VOLTS  REC 104 X FLUSH  NEW REMARKS  ALL CIRCUITS CONSIDERD TO BE EXISTING UNLESS OTHERWISE INDICATED IN THESE DRAWINGS  1 NEMA RATING  -*=VERIFY WITH EQUIPMENT NAMEPLATE AND/OR SUBMITTAL PRIOR TO GEAR RELEASE  225 AMP MAIN																										
		BOL ISOI	A RATING FON BREAKERS ATED GROUND BUS GE PROTECT (SPD)								ATE AND/OF	R SUBMITT	AL PRIOR	TO GEAF	RELEASE										Х	AMP N LUGS BREA	
No.	BRI	_	CIRCUIT DESC	RIPTION	L	0 1			CND		CIRC. LOAD			1	CIRC. LOAD		WIRE		_	L	0	м	CIRCUIT DES	SCRIPTION	BRI		No.
4	Α	P	EV 00		+ -		PH	N	G 400	C		Α	В	С		PH	N	G 400	C						A	P	_
3	20 20	1 1	EX: ?? LTG: EXTERIOR ENT		+		12S 12S	_	12S 12S			0	3 <b>6</b> 0	-	360	12S 12S		12S 12S	3/4S 3/4S		2	_	:X: ?? B <b>PAGE</b> : LOUNGE E	YTEDIOD	20	1	4
5	20	1	LTG: EXTERIOR ENT		+		12S	_		3/4S			300	0	360	12S		12S				_	TG: 104	AIERIUR	20	1	6
7	20	1	LTG: 103		+ +		12S	_		3/4S		0		<b>├</b>		12S	12S	12S	3/4S				TG: 106		20	1	8
9	20	1	LTG: 105		1 1		12S	_		3/4S			0			12S		12S	3/48			_	TG: 108		20	1	10
11	20	1	LTG: 110				12S			3/4S				0		12S	12S	12S	3/4S			_	TG: 110	_	20	1	12
13	20	1	PLUGS: 110,106,108				12S			3/4S		0				12S	12S	12S	3/4S			_	LUGS: 103		20	1	14
15	20	1	PLUGS: 107,110,HALL	=			12S	12S	12S	3/4S			0			12S	12S	12S	3/4S				PLUGS: 105,107		20	1	16
17	20	1	SPARE											2920	2920	10	10	10	3/4			_	PLIT A/C: LOUNG	E	+30H*	2	18
19	20	1	LTG: 101		-		128			3/4S		2920			2920	10	400	400	0/40			2 -	N. I.I.O.O. I. D.V. 404 . O.	DDINIK	-	-	20
21	20	1	PLUGS: LOBBY			_	12S			3/4S			0			12S	12S	12S	3/4S			_	PLUGS: LBY 101, S	PRINK	20	1	22
23 25	20 20	1	PLUGS: 102B SIGN		+		12S 12S			3/4S 3/4S		0		0		12S 12S	12S 12S	12S 12S	3/4S 3/4S			_	ORINK FTN COPIER: 104		20	1	24 26
27	20	1	PLUGS: LOUNGE E		1	5	12S			3/4S	900	0	900			12S		12S	3/4S			_	SEWAGE EJECTOR		15	3	28
29	20	1	PLUGS: LOUNGE W		1	6	128			3/4S	1080		300	1080		12S	120	120	5/40			<u> </u>	LWAGE EUEOTOI	<u> </u>		-	30
31	20	1	LOUNGE REFER			1	12S			3/4S	1200	1200		1000		12S						<u> </u>			-	-	32
33	+20	1	LOUNGE MICROWAV	Έ		1	12S			3/4S	1500		2800		1300	12S	12S	12S	3/4S	İ		1 6	PUNE WATER H	IEATER	+2200L*	2	34
35	+20	1	LOUNGE DISPOSAL			1	12S	12S	12S	3/4S	1200			2200	1300	12S						1 8	SPACE		20	1	36
37	+20	1	LOUNGE PUMP, WTR	CLR		1 1	12S	12S	12S	3/4S	846	846										S	SPACE		20	1	38
39	70	SFE	SPARE										0			2	2	8	1.5			E	X: ??		100	SFB	40
41	-	-	-		+					$\vdash$				0		2					$\dashv$	- -			-	-	42
43	-	-	<u> -</u>								TOTALO	0				2						-			-	-	44
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	FE	EDE	R EXISTIN	IG	_					AMF	PS/PHASE	<u>37</u>	<u>20</u>	<u>30</u>								ļ	PARALLEL RUNS _	SEE ONE-L	INE		
		A=A CODI I=AE	RC-FAULT; G=GROUNI	•	-			•			•	'AINTED H	ANDLE														



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ELECTRICAL SCHEDULE
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UTAH STATE UNIVERSITY
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TITLE PROJECT CLIENT CLIENT ADDRESS

DATE: 2/28/2024

JOB NO: 2023091

SCALE: AS NOTED

DRAWN: DONALD J. PATTON

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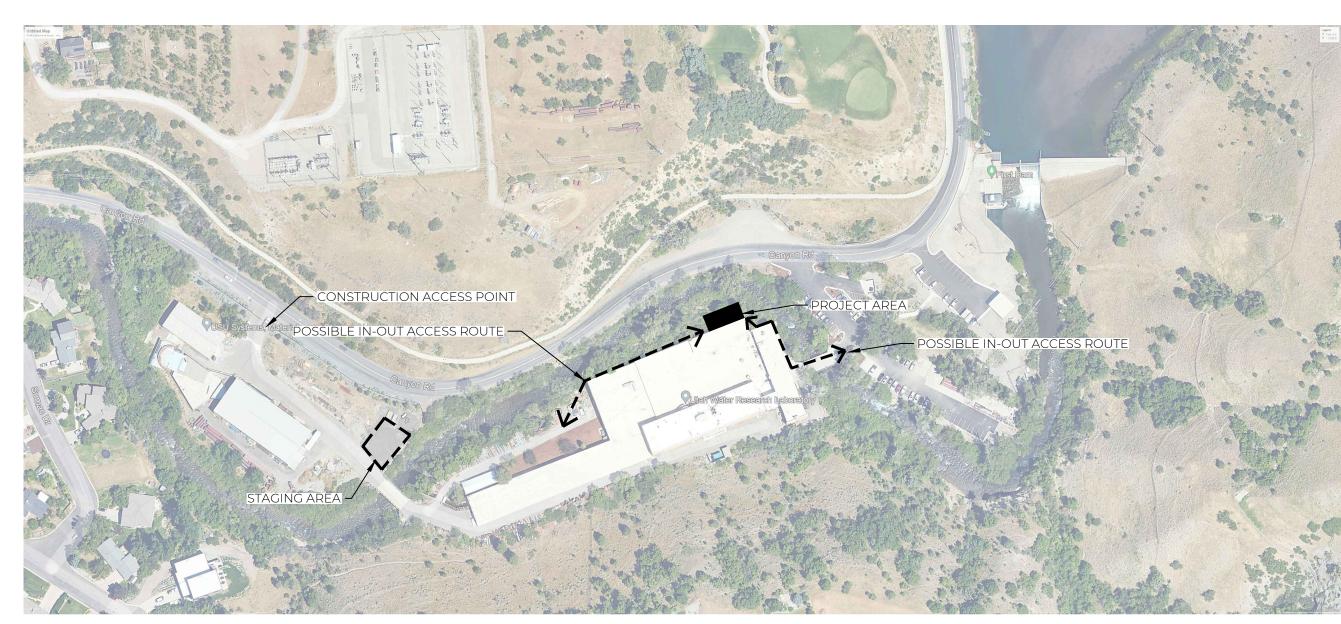
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INFORMATION SHEET NUMBER:

### GENERAL NOTES & SCOPE OF SERVICES

- 1. PROJECT MEASUREMENTS ARE GENERAL GUIDELINES AND BASED OFF GENERAL ON SITE MEASUREMENTS. NO SURVEY WAS DEVELOPED FOR PROJECT. FIELD VERIFY ALL WORK PRIOR TO INSTALLATION.
- 2. REVIEW ALL PLANS PRIOR TO BIDDING AND REPORT ANY DISCREPANCIES TO OWNER. FOLLOW ALL PLANS, DETAILS AND MANUFACTURERS SPECIFICATIONS.
- 3. LANDSCAPE FREESTANDING WALL IS NOT INTENDED TO RETAIN SOIL. ONE WALL COURSE IS DESIGNED TO BE BELOW GRADE AS WELL AS A CONCRETE FOOTING TO PREVENT WALL FROM SETTLING IN RANDOM LOCATIONS.
- 4. LAYOUT SHADE SAIL POST STRUCTURES WITH OWNER PRIOR TO DIGGING FOR FOOTINGS.
- 5. STOCK PILE EXISTING TOPSOIL AND USE AT COMPLETION OF PATIO TO GRADE SMOOTH TRANSITION ZONE FROM EXISTING TO NEW.
- 6. GRAPHICS PROVIDED IN DOCUMENT SET ARE INTENDED TO AID CONTRACTOR IN DEMOLITION AND CONSTRUCTION OF PATIO SPACE.
- 7. PRESERVE AND PROTECT MATURE TREES AND ROOTS INSIDE DRIP LINES. STAKE AND LAYOUT PATIO AREA PRIOR TO STARTING DEMOLITION AND CONSTRUCTION PHASES.

#### SITE MAP



ACCESS TO PROJECT LOCATION IS LIMITED AND IT IS ANTICIPATED THAT EVERYTHING WILL BE DONE BY HAND. REVIEW TWO ROUTE OPTIONS DURING BIDDING PROCESS.

#### VICINITY MAP



SHEET NAME:

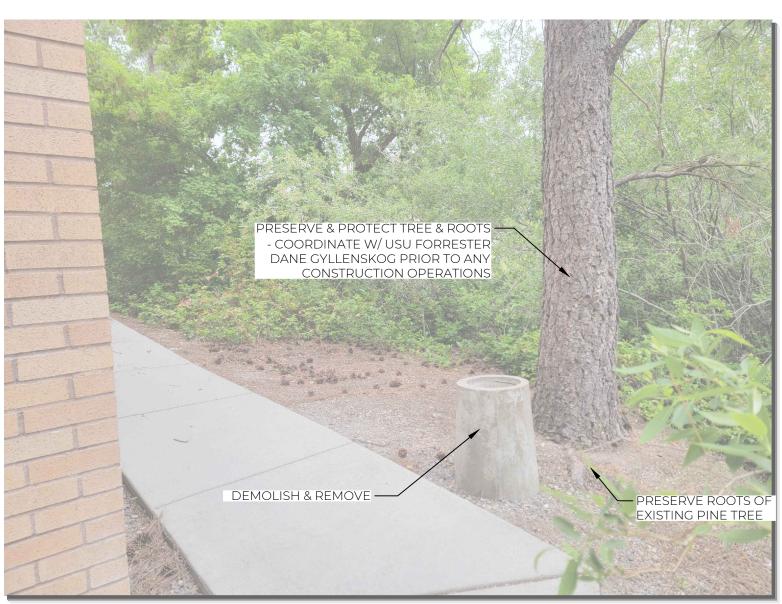
DEMOLITION
IMAGES

SHEET NUMBER:

D100



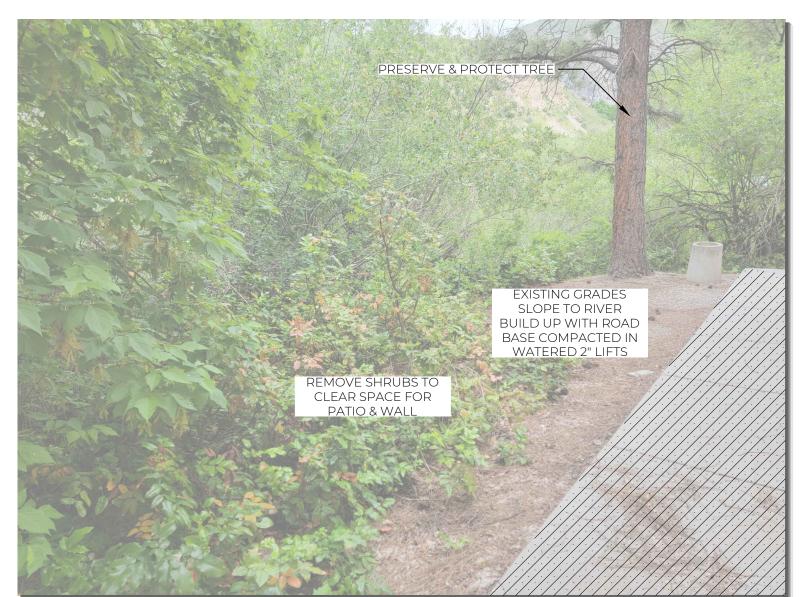
EXISTING WALK



START SPOT VIEW



EXISTING VEGETATION



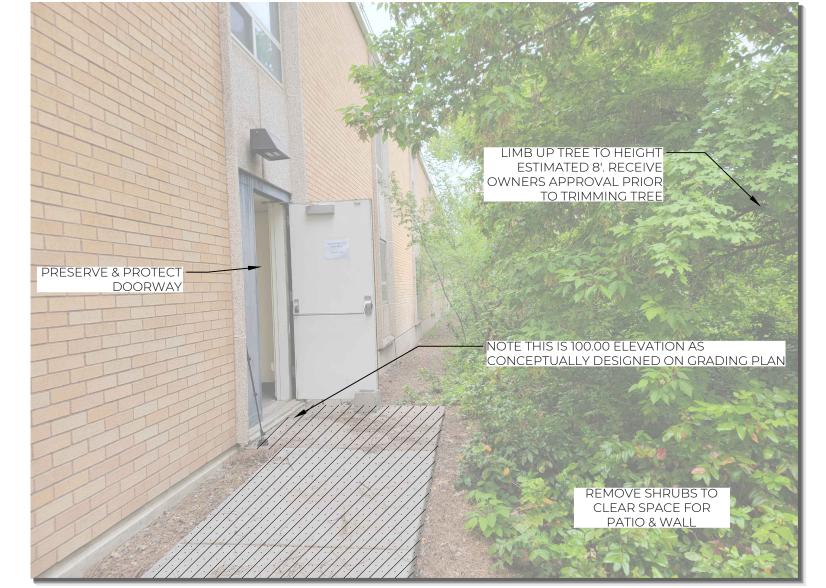
EXISTING VEGETATION TO REMOVE



LOOKING EAST FROM EXISTING DOOR



EXISTING WINDOW TO BECOME DOOR ENTRY



EXISTING DOORWAY

ESTIMATED 160 SQ FT OF CONCRETE WALK TO BE REMOVED ESTIMATED 400 SQ FT OF LANDSCAPE BED TO GRUB AND CLEAN UP

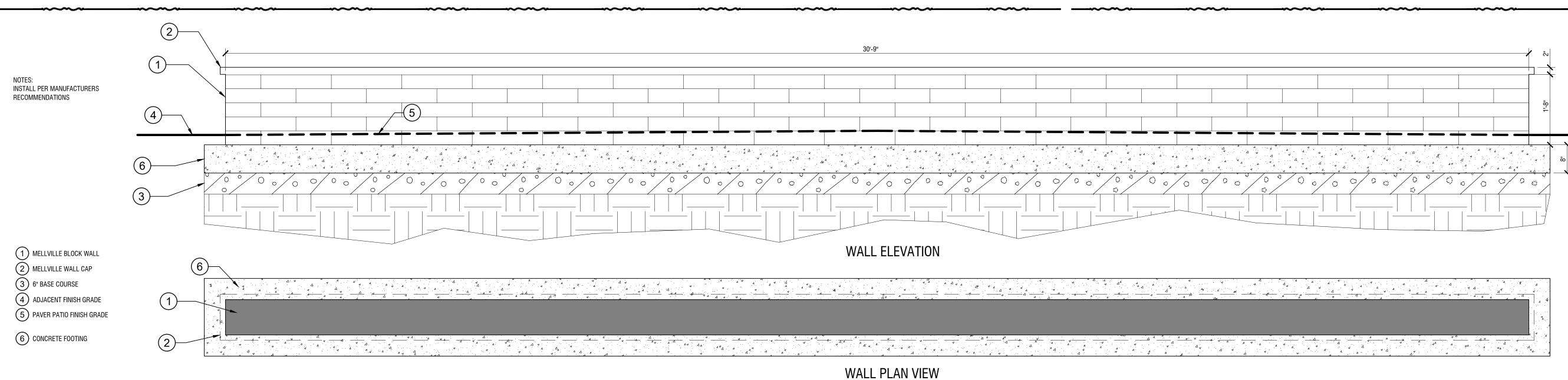
### SITE DEMOLITION NOTES:

- REMOVE OBSTRUCTIONS, TREES SHRUBS, GRASS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION.
- 2. CUT MINOR ROOTS AND BRANCHES OF TREES INDICATED TO REMAIN IN A CLEAN AND CAREFUL MANNER WHERE SUCH ROOTS AND BRANCHES OBSTRUCT INSTALLATION OF NEW CONSTRUCTION.
- 3. GRIND STUMPS AND REMOVE ROOTS, OBSTRUCTIONS, AND DEBRIS EXTENDING TO A DEPTH OF 18 INCHES BELOW EXPOSED SUBGRADE.
- 4. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SATISFACTORY SOIL MATERIALS IN HORIZONTAL LAYERS NOT EXCEEDING 8" INCH LOOSE DEPTH, AND COMPACT EACH LAYER TO A DENSITY EQUAL TO ADJACENT GROUND.
- 5. STRIP SUITABLE TOPSOIL TO WHATEVER DEPTHS ARE ENCOUNTERED IN A MANNER TO PREVENT
- INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.
  6. STOCKPILE SURPLUS TOPSOIL MATERIALS AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH
- SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO PREVENT WINDBLOWN DUST. COORDINATE LOCATION WITH OWNER'S REPRESENTATIVE OR AT LOCATION SHOWN ON PLANS.
- 7. REMOVE EXISTING ABOVE- AND BELOW-GRADE STRUCTURES AS INDICATED AND AS NECESSARY TO FACILITATE NEW CONSTRUCTIONS
- 8. AT ALL LOCATIONS WHERE, EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAW CUT TO A CLEAN SMOOTH EDGE.
- 9. PROTECT EXISTING BUILDINGS, WALKS, DRIVES, CURBS, EXISTING VEGETATION ETC. THAT ARE TO REMAIN. REPAIR ANY DAMAGES THAT MAY OCCUR TO EXISTING ITEMS TO BE PROTECTED.
- 10. ALL ITEMS TO BE REMOVED FROM THE PROJECT AND EXCESS MATERIALS SHALL BE LEGALLY DISPOSED OF OFFSITE BY THE CONTRACTOR
- 11. CONTINUOUSLY CLEAN-UP AND REMOVE WASTE MATERIALS FROM SITE. DO NOT ALLOW MATERIALS TO ACCUMULATE ON SITE.
- 12. DO NOT BURN OR BURY MATERIALS ON SITE. LEAVE SITE IN CLEAN CONDITION.



PROJECT: 20002 CHECKED BY: HISLOP ISSUED: 02-28-2024

\_\_\_\_ LAYOUT PLAN SHEET NUMBER:



FREESTANDING WALL ELEVATION

PAVER EDGE DETAIL

EDGE DESIGN 1) TAPER ADJACENT FINISH GRADE TO SLOPE AWAY FROM PAVER PATIO 2) CONCRETE PAVERS (3) 6" THICK COMPACTED AGGREGATE BASE 4) 1" BEDDING LAYER, CONFORMS TO ASTM C33 WITH < 1% PASSING 0.80mm 5 1 5/8 INCH HIGH TECHNISEAL PAVER 6 1/2" DIA. X 12" LONG GALV. STEEL ANCHORING PIN EVERY 16 TO 20 INCHES 7 EXISTING TOPSOIL, SPREAD TO TAPER NEW GRADE TO EXISTING INSTALL TECHNISEAL RIGID PAVER EDGING PER MANUFACTURERS 2. SNAP EACH 8 FOOT SECTION TO THE ADJACENT PIECE, CREATING A SEAMLESS EDGE SYSTEM. 3. USE EXISTING TOPSOIL TO TAPER/TRANSITION GRADES ALONG EDGES FROM NEW TO EXISTING. PROVIDE MINIMUM 2% SLOPE AWAY FROM PATIO

### SITE LAYOUT NOTES

- 1. CONTRACTOR TO VERIFY ALL CONDITIONS PERTAINING TO THIS PLAN AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
- 2. THE CONTRACTOR SHALL LOCATE AND VERIFY ALL UTILITIES LINES PRIOR TO CONSTRUCTION AND SHALL

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- REPORT ANY CONFLICTS TO THE OWNER. 3. CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED BY OPERATIONS (WHICH OCCUR ON OR OFF SITE) TO
- THE OWNER'S REPRESENTATIVE SATISFACTION. 4. DO NOT MAKE UNAPPROVED SUBSTITUTIONS.
- 5. LAYOUT WALL, PAVER & SAIL LOCATIONS AND SECURE OWNERS REPRESENTATIVE ACCEPTANCE BEFORE START OF CONSTRUCTION WORK. MAKE MINOR ADJUSTMENTS AS MAY BE DIRECTED.
- 6. REPAIR ALL SITE WHERE NEW CONSTRUCTION MEETS EXISTING.
- 7. IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL CITY CODE & UNIVERSITY CONSTRUCTION STANDARDS. OBTAIN ALL REQUIRED CONSTRUCTION PERMITS PRIOR TO STARING CONSTRUCTION.

#### REFERENCE SCHEDULE

SYMBOL DESCRIPTION

BELGARD MELVILLE FREESTANDING WALL 1/C100 AMBER BEIGE BLOCK TOSCANA CAP

BELGARD MELVILLE PLANK PAVER COLOR: ASPEN 3 PIECE LARGE SIZE

12X20 FOOT RECTANGULAR SHADE SAIL MAANTA: SAILL WATERPROOF COLOR: BEIGE PURISHADE

 NEW DOOR AT EXISTING WINDOW LOCATION, — EXISTING BUILDING — EXISTING DOOR ACCESS FIELD VERIFY LOCATION FIELD VERIFY LOCATION TIE EDGE OF PATIO INTO EXISTING CONCRETE WALK — EXISTING LANDSCAPE EXISTING PINE TREE, -PRESERVE & PROTECT ROOT STRUCTURE SITE LAYOUT PLAN

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### SITE BID ALTERNATE

- 1. PROVIDE AND INSTALL THREE LANDSCAPE FORMS GRETCHEN TABLES ON OUTDOOR PATIO SPACE
- 1.1. OUTDOOR IPE WOOD 1.2. POWDERCOAT BLACK METAL
- 1.3. NO HOLE



FREESTANDING WALL SECTION

1 MELVILLE BLOCK WALL

(2) MELLVILLE WALL CAP

(3) MELVILLE PLANK PAVER

(5) 6" BASE LEVELING COURSE

6 EXISTING SOIL

(7) EXISTING SHRUBS

10) #4 BAR @ 24" 0.C.

(11) (2) #4 BAR @ 12" 0.C.

(12) 6" COMPACTED GRAVEL BASE

(8) EXISTING MATURE TREE

9 CONCRETE WALL FOOTING

(4) 1" SAND BEDDING PAVER COURSE

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1.4. FREESTANDING

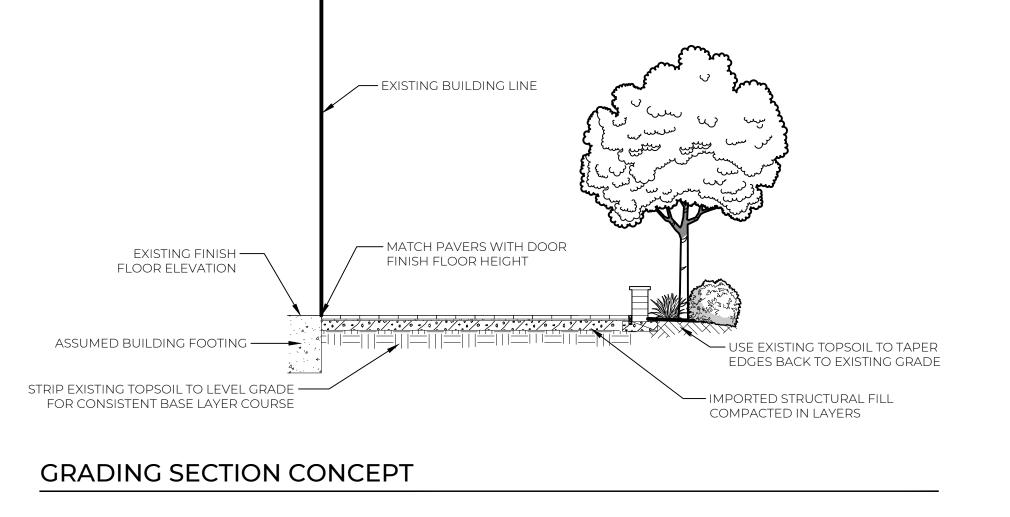
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PROJECT: 20002 CHECKED BY: HISLOP ISSUED: 02-28-2024

\_\_\_\_\_\_ SHEET NAME: GENERAL GRADING PLAN

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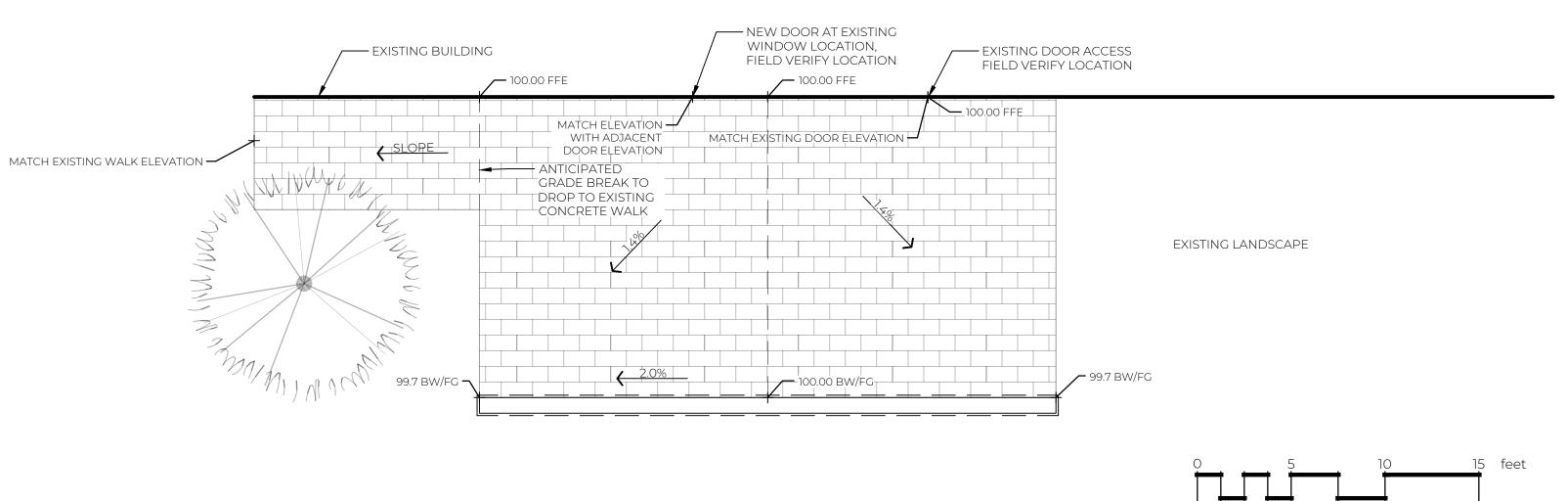
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## **GRADING NOTES**

SCALE: 1" = 5'

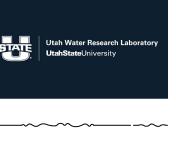
- 1. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES. NO KNOWN EXISTING UTILITIES IN PROJECT AREA.
- 2. CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED BY OPERATIONS (WHICH
- OCCUR ON OR OFF SITE) TO THE OWNER'S SATISFACTION. 3. CONTRACTOR SHALL PATCH OR REPLACE EXISTING ASPHALT, CONCRETE,
- LANDSCAPING, ETC. AS REQUIRED WHERE NEW CONSTRUCTION MEETS EXISTING. 4. PROVIDE SMOOTH GRADE TRANSITION IN ALL LANDSCAPE AREAS AND BETWEEN
- NEW EARTH WORK AREA AND EXISTING. 5. NO KNOWN IRRIGATION OR OTHER UTILITIES IN THE PROJECT AREA. EXISTING
- IRRIGATION SYSTEM IS NOT FUNCTIONAL. IF ANY IRRIGATION LINES ARE ENCOUNTERED, COORDINATE IMMEDIATELY WITH OWNER'S REPRESENTATIVE.
- 6. THE ELEVATION OF THE SUB-GRADE SHALL BE SET SO THE FINAL GRADE CAN BE MET BY THE FINISH GRADE PAVERS. IN-FIELD MEASURING REQUIRED.
- 7. WALKS SHALL NOT EXCEED 5% SLOPE IN THE DIRECTION OF TRAVEL. THE CROSS SLOPE ON WALKS & PATIOS SHALL NOT EXCEED 2%.
- 8. AVOID SHARP PEAKS, SMOOTH TRANSITIONS TO APPEAR NATURAL. TOPSOIL
- SHALL BE DEPTH REQUIRED PER DETAILS. 9. ENSURE PROPER COMPACTION OF ALL STRUCTURAL FILL AREAS.



SITE GRADING PLAN CONCEPT



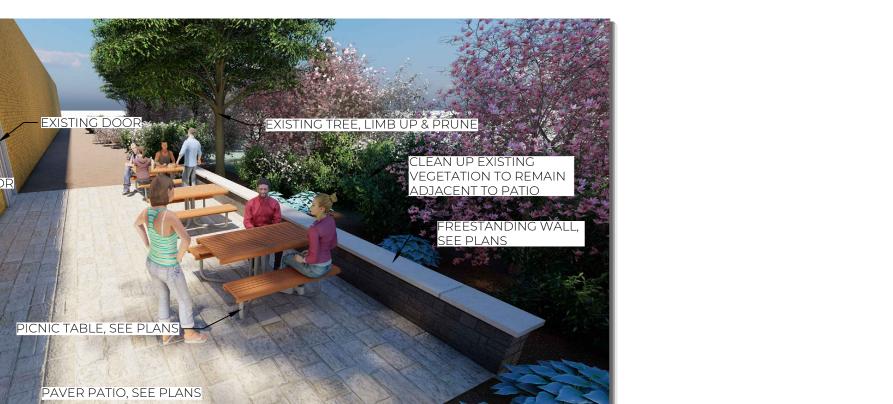
















PLAN VIEW CONCEPT



LOOKING EAST CONCEPT



LOOKING EAST CONCEPT



SHADE SAIL CONCEPT 1

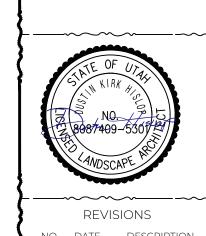


SHADE SAIL CONCEPT 2

- NOTES:
   GRAPHICS ARE FOR CONCEPTUAL PURPOSES AND END OVERALL LOOK.
   PROVIDE ON SITE FIELD MEASUREMENTS AND LAYOUT WITH OWNER TO RECEIVE APPROVAL PRIOR TO CONSTRUCTION.
   GRADES ARE UNKNOWN AND REQUIRE ON SITE MEASUREMENTS. PROVIDE 2% CROSS SLOPE AWAY FROM BUILDING.

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SHADE SAIL	POLE				

SHADE SAIL CONCEPT 3



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PROJECT: CHECKED BY: ISSUED: 02-28-2024 \_\_\_\_\_\_\_ SHEET NAME:

CONCEPT GRAPHICS SHEET NUMBER: