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2018 IBC

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WOODHOUSE BLAIR DETAIL & ACCESSORY BA

TITLE SHEET

WOODHOUSE BLAIR - DETAIL & ACCESSORY BAY

2171 S HWY 30 SUITE 101 BLAIR, NEBRASKA

# CONSULTANTS:

ARCHITECTURAL: GRID ARCHITECTURE, LLC 2645 N 165 ST OMAHA, NE 68116 TEL: (402) 960-6625 FAX: (866) 443-7821

STRUCTURAL: PERFORMANCE ENGINEERING 11811 FORT ST, SUITE 104 OMAHA, NE 68164 TEL: (402) 343-9630

MECHANICAL ELECTRICAL & PLUMBING: MORRISSEY ENGINEERING 4940 N 118TH ST OMAHA, NE 68164 TEL: (402) 491-4144

## DDAWING INDEV.

SHEET NO.	SHEET TITLE
A0.0	TITLE SHEET
	ARCHITECTURAL
A1.1	PROPOSED FLOOR PLAN
A1.2	SCHEDULES
A1.3	INTERIOR ELEVATIONS & DETAILS
A2.1	EXTERIOR ELEVATIONS
A3.1	SECTIONS & DETAILS
	STRUCTURAL
S1.1	FOUNDATION PLAN
S3.0	GENERAL STRUCTURAL NOTES & DETAILS
S3.1	MECHANICAL  MECHANICAL
	MEGNANIOAE
M1.1	FLOOR PLAN - MECHANICAL
M1.2	ENLARGED MECHANICAL PLAN
M2.1	MECHANICAL DETAILS
M2.2	MECHANICAL DETAILS
M2.3	MECHANICAL SCHEDULES
M2.4	MECHANICAL SCHEDULES
M3.1	MECHANICAL SPECIFICATIONS
	ÉLECTRICAL
E1.1	FLOOR PLAN - LIGHTING
E2.1	FLOOR PLAN - POWER
E3.1	ELECTRICAL SPECIFICATIONS

ROOM

ROUGH OPENING

RAIN WATER LEADER

## ABBREVIATIONS:

AB	ANCHOR BOLT	D	DOWN	G	GROUT	MISC	MISCELLANEOUS	S	SOUTH
IC.	ACOUSTICAL CEILING	DET	DETAIL	GA	GAUGE	MO	MASONRY OPENING	SC	SOLID CORE
W	ACOUSTICAL	DIA	DIAMETER	GALV	GALVANIZED	M/R	MOISTURE RESISTANT	SCHED	SCHEDULE
	WALLCOVERING	DIFF	DIFFUSER	GB	GRAB BAR	MTD	MOUNTED	SD	SOAP DISPENSER
COUS	ACOUSTICAL-	DIM	DIMENSION	GEN	GENERATOR	MTG	MEETING, MOUNTING	SECT	SECTION
DJ	ADJACENT, ADJUSTABLE	DISP	DISPENSER	GL	GLASS	MUL	MULLION	SF	SQUARE FEET
L. ALUM	ALUMINUM	DO	DOOR OPENING	GND, GRND	GROUND			SH	SHELF
LT	ALTERNATE	DR	DOOR	GWB	GYPSUM WALLBOARD	N	NORTH	SHT	SHEET
P	ACCESS PANEL	DWG(S)	DRAWING, DRAWINGS	GYP	GYPSUM	NEO	NEOPRENE	SIM	SIMILAR
PPROX	APPROXIMATE	DWR	DRAWER	911	OTF SOM	NIC	NOT IN CONTRACT	SL	SLIDING
RCH	ARCHITECTURAL	Dave	DIVANEN	HB	HOSE BIB	NO	NUMBER	SPEC	SPECIFICATION
W	AWNING FABRIC		EAST	HC	HANDICAPPED		NOMINAL	SQ	SQUARE
100	ANNING PADRIC	E		HD	HEAD	NOM	NOT TO COME	20	SQUARE CONTRACT
er:	DISE	EA	EACH .			NTS	NOT TO SCALE	SST	STAINLESS STEEL
1	BASE	EIFS	EXTERIOR INSULATION	HOWE	HARDWOOD	9625	0.02002000	ST	STAIN
30	BOARD		FINISH SYSTEM	HDWR	HARDWARE	OA.	OVERALL	STD	STANDARD
G	BUMPER GUARD	EJ	EXPANSION JOINT	HM	HOLLOW METAL	OBS	OBSCURE	STL	STEEL
LDG	BUILDING	EL, ELEV	ELEVATION	HORIZ	HORIZONTAL	OC	ON CENTER	STOR	STORAGE
JLK	BLOCK	ELEC	ELECTRIC, ELECTRICAL	HR	HOUR	OD	OUTSIDE DIAMETER	STRUCT	STRUCTURAL
BM .	BEAM	ELEV	ELEVATOR	HT	HEIGHT	OFF	OFFICE	SUSP	SUSPENSION
BOT	BOTTOM	EMER	EMERGENCY	HVAC	HEATING, VENTILATING, AIR	OPING	OPENING	SYM	SYMMETRICAL
2500		ENCL	ENGLOSURE		CONDITIONING	OPP	OPPOSITE	-	STATE OF STA
CAB	CABINET	EQUIP	EQUIPMENT		G 20100000000011	1000	11. EACT. G. 2027	T	TILE
CB	CONCRETE BLOCK	EWC	ELECTRIC WATER COOLER	ID	INSIDE DIAMETER	P	PAINT	TEL	TELEPHONE
CC	CENTER TO CENTER	EXH	EXHAUST	IN	INCH	PEMBM	PRE-ENGINEERED METAL	TEMP	TEMPERED
DEM:	CEMENT	EXIST	EXISTING	INSUL	INSULATION	FEMDIN	BUILDING MANUFACTURER	THK	THICK
CCD.	CERAMIC	EXP	EXPANSION, EXPOSED	INT	INTERIOR	PV.	PLATE	TOS	TOP OF STEEL
ER F	CONCRETE FINISH	EXT	EXTERIOR	100.1	INTERVEN	PL		TOW	TOP OF WALL
70	CONUCE IE FINISH	EXI	EXIDROR	JAM	JANITOR	P. LAN. PL-		TT	TOP OF WALL
CG	CORNER GUARD	2.1	DOC 11 ADM			PLAS	PLASTER		TOILET TISSUE DISPENSER
L)	CONTROL JOINT	FA	FIRE ALARM	JST	JOIST	PLYWD	PLYW000	TYP	TYPICAL
CKT	CIRCUIT	FB	FLAT BAR	JT	JONT	PNL	PANEL PANELBOARD	4000	To be steen story and a
CL.	CLOSET	FC	FOOT-CANDLES	177 ann 17	Color Color C	PP	PREFINISHED PANELS	UNF	UNFINISHED
CLKG	CAULKING	FD	FLOOR DRAIN	KIT	KITCHEN	PR	PAIR	UON	UNLESS OTHERWISE NOTED
LG, CEIL	CEILING	FDN	FOUNDATION	KP	KICK PLATE	PROJ	PROJECT		
LR	CLEAR	FE	FIRE EXTINGUISHER			PROP	PROPERTY	VCT	VINYL COMPOSITION TILE
CMU	CONCRETE	FEC	FIRE EXTINGUISHER CABINET	LAM	LAMINATE, LAMINATED	P.T.	PRESSURE TREATED	VERT	VERTICAL
	MASONRY UNIT	FIN	FINISH	LAV	LAVATORY	PT	POINT	VEST	VESTIBULE
COL	COLUMN	FIX. FIXT	FIXTURE	LT	LIGHT	PTD	PAPER TOWEL DISPENSER	VWC	VINYL WALLCOVERING
CONC	CONCRETE	FL, FLR	FLOOR		77.00	PTN	PARTITION	6.00	Source (Source) policy -
COND	CONDITION	FLASH	FLASHING	M	MOLDING:	PWR	POWER	W	WEST
CONSTR	CONSTRUCTION	FLUOR	FLUORESCENT	MACH	MACHINE	. rans	1 01101	W/	WITH
CONT	CONTINUOUS	FOC	FACE OF CONCRETE	MATL	MATERIAL	QT	QUARRY TILE	WC	WATER CLOSET
CORR	CORRIDOR	FOF	FACE OF FINISH	MAX	MUMDIAM	OTY	QUANTITY		WOOD CLUSE!
OPT, C	CARPET		FACE OF STUDS	MECH	MECHANICAL	QH	QUARTITY	WD	0.0
of I, C		FOS	FACE OF SIDUS		MEMBRANE	1547	puero.	WDO	WINDOW
T	CERAMIC TILE	FOW	FACE OF WALL	MEMB		R	RISER	WF	WOOD FLOOR
TR	CENTER	FR	FIRE RATED/RETARDANT	MET, MTL	METAL	RAD,R	RADIUS	WM4	WALK-OFF MAT
		FRP	FIBERGLASS REINFORCED	MFR	MANUFACTURER	RD	ROOF DRAIN	W/O	WITHOUT
			POLYESTER PANEL	MH	MANHOLE	REFL	REFLECTED	WP	WATERPROOF
		FRTW	FIRE RETARDANT TRTD, WD.	MIN	MINIMUM	REINF	REINFORCED	WR	WATER RESISTANT
		FT	FOOT, FEET	MIR	MIRROR	REQ, REQD	REQUIRED	WT	WEIGHT
		FURR	FURRING			RESIL	RESILIENT	200	
		-0.000	Ilbanetika light			RF	RESILIENT FLOORING		

# CODE INFORMATION:

REFERENCE CODES: CITY OF BLAIR INTERNATIONAL BUILDING CODE (IBC) - 2018 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - 2018 EDITION INTERNATIONAL EXISTING BUILDING CODE ( IEBC) - 2018 EDITION INTERNATIONAL FIRE CODE (IFC) - 2018 EDITION INTERNATIONAL MECHANICAL FUEL & GAS CODE (IFGC) - 2018 EDITION INTERNATIONAL PLUMBING CODE (IPC) - 2018 EDITION INTERNATIONAL PROPERTY MAINTENANCE CODE - 2018 EDITION NATIONAL ELECTRICAL CODE (NEC) - 2017 EDITION LIFE SAFETY CODE - 2012 EDITION

# CHAPTER 3 - USE & OCCUPANCY CLASSIFICATION: 311.2 - S-1 OCCUPANCY - CAR DETAILING

CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS: TABLE 504.3: ALLOWABLE HEIGHT 55'-0" (MAX.) HEIGHT (S OCCUPANCY, TYPE IIB CONSTRUCTION) (18'- 0 5/8" - MAX PROVIDED)

S-1 - 2 STORIES ( NS) PROVIDED: 1 STORY TABLE 506.2: ALLOWABLE BUILDING AREA:

TABLE 504.4: ALLOWABLE STORIES ABOVE GRADE:

PROVIDED: 8,000 S.F. LOW SIDE OF EAVE = 17'-0" TOP OF RIDGE = 18'-0 5/8" (1/4:12 SLOPE)

S-1 - 17,500 S.F. (NS, TYPE IIB)

NO SEPARATION REQUIRED AS OFFICE, RESTROOMS AND BREAK ROOM ARE ACCESSORY SPACES TO THE MAIN USE. IT IS ALSO UNDER 10% OF TOTAL AT 556 S.F. OF 8,000 S.F.

CHAPTER 6 - TYPES OF CONSTRUCTION: 602.2 - TYPE IIB CONSTRUCTION CLASSIFICATION 603.1 - LISTS COMBUSTIBLE MATERIALS ALLOWED IN TYPE II CONSTRUCTION.

CHAPTER 9 - FIRE PROTECTION SYSTEMS: FIRE SPRINKLER NOT REQUIRED OR PROVIDED PER IBC 903.2.9 FIRE AREA DOES NOT EXCEED 12,000 S.F., ON EXIT LEVEL O DISCHARGE, NOT USED FOR COMMERCIAL VEHICLE STORAGE OR

FIRE ALARM NOT REQUIRED & NOT PROVIDED CHAPTER 10 - MEANS OF EGRESS:

SECTION 1004.5 - OCCUPANT LOAD: TOTAL AREA: 100' X 80' = 8.000 S.F.

OFFICE, BREAK RM RESTROOMS: 556 S.F.: 556 / 100 = 6 PEOPLE CAR WASH, DETAILING & UNDERCARRIAGE AREA: 7,434 S.F. / 100 = 75 PEOPLE

TOTAL OCCUPANTS: 81 PEOPLE

SECTION 1003 - EXITS REQUIRED: 2 EXITS REQUIRED AND 4 PROVIDED

# TABLE 1005.3.2 EGREES WOTH PER OCCUPANT: OTHER EGRESS COMPONENTS, WITHOUT

SPRINKLER SYSTEM: 0.2 INCHES WIDTH PER OCCUPANT REQUIRED: 81 \* .2 = 16.2\* PROVIDED: 36" EACH DOOR \* 4 DOORS = 144"

IBC 1006.2.1 - COMMON PATH OF EGRESS TRAVEL DISTANCE: S = 75 FEET

1009.1 - ACCESSIBLE MEANS OF EGRESS 1 ACCESSIBLE MEANS OF EGRESS REQUIRED, 1 PROVIDED.

1017.2 EXIT ACCESS TRAVEL DISTANCE: S = 200'-0" MAXIMUM W/O SPRINKLER SYSTEM

OFFICE, BREAK RM: 242 / 150 = 2 PEOPLE: DETAILING / UNDERCARRIAGE AREA: 7,444 / 100 = 75 PEOPLE TOTAL OCCUPANTS FOR PLUMBING: 77 PEOPLE

77/2 = 39 PER GENDER

PER INTERNATIONAL PLUMBING CODE 2018 - TABLE 403.1.1 AND 403.2: FACTORY & INDUSTRIAL: WC = 1 PER 100, LAV = 1 PER 100:

RESTROOMS REQUIRED:

WOMEN: 1 WC, 1 LAV RESTROOMS PROVIDED:

MEN: 2 WC, 1 UR, 1 LAV WOMEN: 2 WC, 1 LAV

> 1 HI/LO DRINKING FOUNTAIN PROVIDED ( 1 PER 400) I SERVICE SINK REQUIRED & PROVIDED

SEE SCHEDULES FOR FIRE EXT. TYPE

PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED. (AINTAINED AND INSPECTED PER IFC 906, PROVIDE AS EQUIRED BY FIRE MARSHALL.

# GENERAL NOTES:

- 1. THE USE OF THESE DOCUMENTS IS RESTRICTED TO THE ORIGINAL PROJECT FOR WHICH THEY WERE PREPARED. REUSE OR REPRODUCTION OF THE DOCUMENTS, (WHOLE OR IN PART), FOR ANY OTHER PURPOSE IS PROHIBITED. TITLE TO THESE DOCUMENTS REMAINS WITH THE ARCHITECT. VISUAL CONTACT WITH THESE DOCUMENTS IS PRIMA FACIE EVIDENCE OF THE ACCEPTANCE OF THESE RESTRICTIONS.
- 2. THE GENERAL CONTRACTOR IS TO VERIFY ALL DIMENSIONS AND FIELD CONDITIONS WITH THE DRAWINGS PRIOR TO CONSTRUCTION & BIDDING. IN PARTICULAR: OVERALL WALL DIMENSIONS, CELLING HEIGHTS, ELECTRICAL REQUIREMENTS, CLEARANCES FOR DUCTWORK, HVAC EQUIPMENT, SPRINKLER LINES AND MAINS, ROOF DOWNSPOUTS, ELECTRICAL EQUIPMENT OR OTHER OBSTRUCTIONS WHICH COULD CAUSE CONFLICTS WITH CONSTRUCTION. GENERAL CONTRACTOR IS TO REPORT IMMEDIATELY TO THE ARCHITECT AND OWNER ANY VARIANCES, ERROR, INCONSISTENCY, OR OMISSION HE MAY DISCOVER. VARIATION FROM THE DRAWINGS WITHOUT APPROVAL OF THE ARCHITECT AND/OR FAILURE TO REPORT ERRORS, OMISSIONS, OR INCONSISTENCIES TO THE ARCHITECT AND TENANT SHALL PLACE FULL RESPONSIBILITY, FOR ANY PROBLEMS, CHANGES, ETC. DIRECTLY UPON THE CONTRACTOR, INCLUDING BUT NOT LIMITED TO ALL COSTS.
- 3. THE GENERAL CONTRACTOR IS TO GUARANTEE ALL WORK INCLUDING WORK DONE BY SUBCONTRACTORS FOR A PERIOD OF ONE (1) YEAR COMMENCING WITH THE DATE OF TOTAL COMPLETION OF THE WORK.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH ALL GOVERNING CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION.
- 5. ALL MATERIAL SPECIFIED IS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. GENERAL CONTRACTOR IS TO CONSTRUCT PROJECT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. ANY DEVIATION FROM THE INTENT OF THE CONSTRUCTION DOCUMENTS, WITHOUT OWNER'S APPROVAL, ARE AT THE CONTRACTOR'S OWN RISK AND MAY RESULT IN THE WORK BEING DONE OVER AT CONTRACTOR'S EXPENSE, (MATERIALS AND LABOR).
- 6. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- 7. GRID ARCHITECTURE, LLC, SHALL NOT BE RESPONSIBLE OR HAVE CONTROL OVER THE CONSTRUCTION SEQUENCING, PROCEDURES, OR THE SAFETY PRECAUTIONS AND PROGRAMS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING WORK ON THE PROJECT.
- 8. GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY AND MISCELLANEOUS ITEMS FOR ALL BUILDING SYSTEMS TO BE 100% COMPLETE AND FULLY OPERATIONAL AS PER TENANT'S REQUIREMENTS, LOCAL CODE, AND DESIGN INTENT.
- SHOP DRAWINGS, SPECIFICATIONS, DOCUMENTS, ETC. SHALL BE SUBMITTED TO THE ARCHITECT/ TENANT FOR 9. APPROVAL PRIOR TO THE FABRICATION OF ANY ITEM. FAILURE TO ADHERE TO THIS PROCEDURE SHALL PLACE FULL RESPONSIBILITY FOR ANY ERRORS DIRECTLY UPON THE CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT/TENANT FOURTEEN DAYS AFTER SIGNING CONTRACT.
- 10. ALL SUBCONTRACTORS SHALL SUPPLY, ERECT, ASSEMBLE, RELOCATE, DISASSEMBLE AND REMOVE ANY TEMPORRARY BRACING, EQUIPMENT, OR STRUCTURE AS NEEDED TO CONSTRUCT WORK REQUIRED BY THE CONSTRUCTION DOCUMENTS AND AS REQUIRED FOR A SAFE AND TIMELY COMPLETION OF THE WORK AT NO ADDITIONAL COST TO THE TENANT.
- 11. ALL SUBCONTRACTORS SHALL TAKE PRECAUTIONS TO AVOID DAMAGE AT ANY EQUIPMENT, MATERIALS, FINISHES, STRUCTURES, ETC. ANY SUCH DAMAGE SHALL BE IMMEDIATELY REPAIRED TO OWNER'S SATISFACTION AT THE SUBCONTRACTOR'S SOLE COST AND EXPENSE AT NO ADDITIONAL COST TO THE TENANT.

CODE INFORMATION:

REFERENCE CODES: STATE FIRE MARSHALL: NFPA 101 - 2012 EDITION

OCCUPANCY: SPECIAL USE INDUSTRIAL - LSC - 40.1.2.1.2 FIRE ALARM NOT REQUIRED - LSC 40.3.4. AS OCCUPANT LOAD DOES NOT EXCEED 100 PEOPLE (81 PEOPLE)

SPRINKLER SYSTEM NOT REQUIRED FOR REPAIR GARAGE:
NFPA 30A, 7.4.6 - AS DOES NOT EXCEED 12,000 S.F. AND ON EXIT LEVEL OF

DISCHARGE ( SINGLE STORY - 8,000 S.F. PROVIDED) NO HIGH PILED STORAGE

NO HIGH HAZARD OPERATIONS THAT INCLUDE SPRAY PAINTING USING FLAMMABLE LIQUIDS OR WELDING.

SECTION C402.5.7:

EXEMPT FROM VESTIBULE REQUIREMENT AS THESE DOORS ARE NOT INTENDED TO BE USED BY THE PUBLIC

- SOLELY FOR EMPLOYEES ONLY.

COMMERCIAL MOTOR VEHICLES ARE NOT STORED OR REPAIRED IN THIS BUILDING:

COMMERCIAL VEHICLE: A VEHICLE THAT HAS A GROSS VEHICLE WEIGHT OF 10,000 LBS OR MORE AND IS DESIGNED TO TRANSPORT 16 OR MORE PASSENGERS INCLUDING THE DRIVER.

## LIST OF MATERIALS USED IN FACILITY:

THE FOLLOWING MATERIAL LIST WAS PROVIDED TO THE STATE FIRE MARSHALL AND THEY CONCURRED THAT THE MATERIAL DID NOT FALL UNDER THE HIGH HAZARD CATEGORY. THEY ALSO CONCURRED THAT THESE DID NOT NEED A ONE HOUR SEPARATION FOR STORAGE AS THEY PRESENTED THE SAME HAZARD AS THE REST

VALUGUARD UNDECOATING - PROTECTIVE COATING RUST INHIBITOR COATING BRITE ALUME CLEANER HEAVY DUTY DEGREASER MIRACLE MIST - MULTI-PURPOSE POLISH FABRIC PROTECTOR

LINE IT - CAR WASH LIQUID SOAP CERAMIC WASH & COAT CAR BRITE - GLASS CLEANER SPOT PRO CARPET CLEANER

APPROVAL AS A RESULT OF AN INSPECTION SHALL NOT BE CONSTRUED TO BE AN APPROVAL OF A VIOLATION OF THE PROVISIONS OF THE CODE OR OF OTHER ORDINANCES OF THIS JURISDICTION.

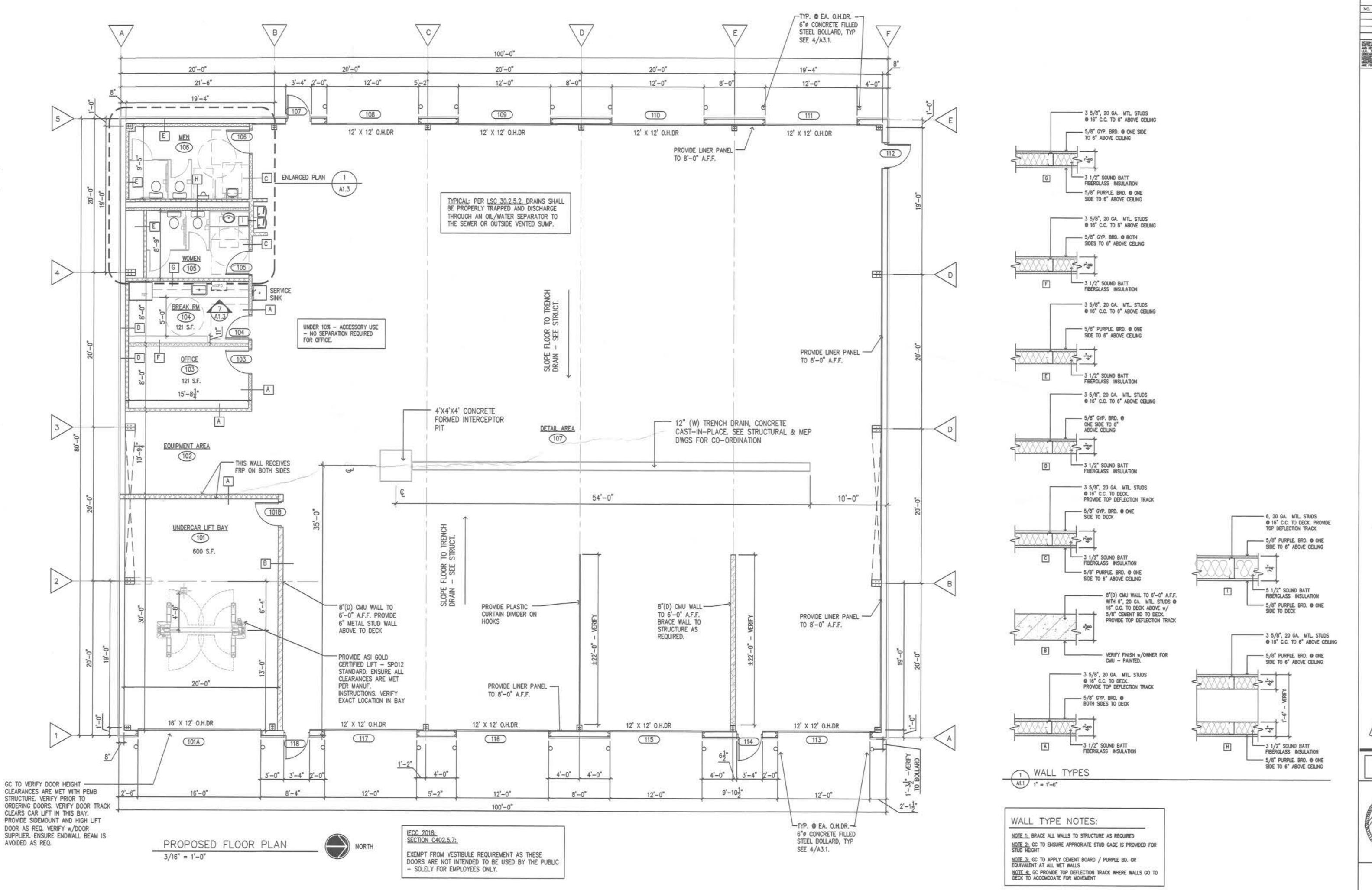
Contractor Name Kich Buyte/

Ideal Construction

Contact Number 401-639-5381

DREATE + BUILD + INHABIT

, GAZALA ICHAN-LARSEN, AM THE COORDINATING PROFESSIONAL FOR THE



NO. DATE DESCRIPTION

BAY

ACCESSORY ంర **AIR DETAIL** 

B

**NOODHOUSE** 

CREATE + BUILD + INHABIT

ARCHIT



PROPOSED FLOOR PLAN

## DOOR SCHEDULE

	DOORS	LEAF				FRAME		HARDWARE			
DOOR MARK	LOCATION	SIZE (WodtxT)	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	SET NO.	LOCK TYPE	RATING	NOTES
101A	UNDERLIFT BAY	16'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	j e	-	1	an .		INSULATED DOOR W/OPERATOR
101B	UNDERLIFT BAY	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	В	H.M.	PAINT	2	PASSAGE		
103	OFFICE	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	В	H.M.	PAINT	3	OFFICE		
104	BREAK RM	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	В	H.M.	PAINT	4	PASSAGE		
105	WOMEN	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	В	H.M.	PAINT	5	PUSH / PULL		
106	MEN	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	В	H.M.	PAINT	5	PUSH / PULL		
107	DETAIL AREA	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	C	H.M.	PAINT	6	ENTRANCE		INSULATED
108	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	Α.	-	7.	t			INSULATED DOOR W/OPERATOR
109	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	41	2	1	4		INSULATED DOOR W/OPERATOR
110	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	-	-	1	-		INSULATED DOOR W/OPERATOR
111	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	5.	=	1	-		INSULATED DOOR W/OPERATOR
112	DETAIL AREA	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	C	H.M.	PAINT	6	ENTRANCE		INSULATED
113	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	=	-5	1	15/		INSULATED DOOR W/OPERATOR
114	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	2:	-	1	- 4	1	INSULATED DOOR w/OPERATOR
115	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	-	-	1	i <del>.</del>		INSULATED DOOR W/OPERATOR
116	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	2	7.2	1	2		INSULATED DOOR W/OPERATOR
117	DETAIL AREA	12'-0" x 12'-0" O.H.DR	STL	PRE-FINISHED	A	-	-	1	-		INSULATED DOOR W/OPERATOR
118	DETAIL AREA	3'-0" x 7'-0" x 1 3/4"	H.M.	PAINT	c	H.M.	PAINT	6	ENTRANCE		INSULATED

# HARDWARE SETS: VERIFY ALL FINISHES W/OWNER

## HARDWARE SET #1:

1 EA. OVERHEAD DOOR 2 EA. TRACK HEAVY DUTY PERIMETER WEATHERSTRIPPING OPERATOR — SEE MEP DWGS

#### HARDWARE SET #2:

3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D

1 EA. PASSAGE LATCHSET, LEVER LOCK, "FALCON" DAME 626 1 EA. CLOSER, LCN, 4041, AL 1 EA. WALL STOP - 'ROCKWOOD', 409, US26D

3 EA. SILENCER - 'IVES', SR64, GRY

## HARDWARE SET 43:

1 EA. WALL STOP - 'ROCKWOOD', 409, US260 3 EA. SILENCER - 'IVES', SR64, GRY

3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D 1 EA. OFFICE LOCKSET, LEVER LOCK, "FALCON" DANE 626

## HARDWARE SET #4:

HARDWARE SET 45;

3 EA. HINGES, STANLEY, FB8191, 4.5 X 4.5, NRP, 260

1 EA. PASSAGE LATCHSET, LEVER LOCK, "FALCON" DANE 626

1 EA. WALL STOP - "ROCKWOOD", 409, US26D 3 EA. SILENCER - 'IVES', SR64, GRY

3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D

1 EA. PUSH PLATE, ROCKWOOD #70C 4" X 16" 1 EA. PULL PLATE, ROCKWOOD #125 X 708, 3 1/2" X 15" 1 EA. CLOSER, LCN, 4041, AL

1 EA. WALL STOP - 'ROCKWOOD', 409, US260

SIGNAGE FOR RESTROOMS ONLY: ADA RESTROOM SIGNAGE — "ROCKWOOD", (WOMEN) OR (MEN)

BLACK - VERIFY COLOR W/OWNER. PROVIDE W/RAISED LETTERS, BRAILLE SYMBOL OR ACCESSIBILITY & PICTOGRAMS. MOUNT SIGNAGE TO WALL ADJACENT TO LATCH SIDE OF DOOR @ 60" A.F.F. TO CENTERLINE OF SIGNAGE PER

A.D.A. REQUIREMENTS

# HARDWARE SET #6:

3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D 1 EA. ENTRANCE LOCKSET, FALCON, DANE, 626

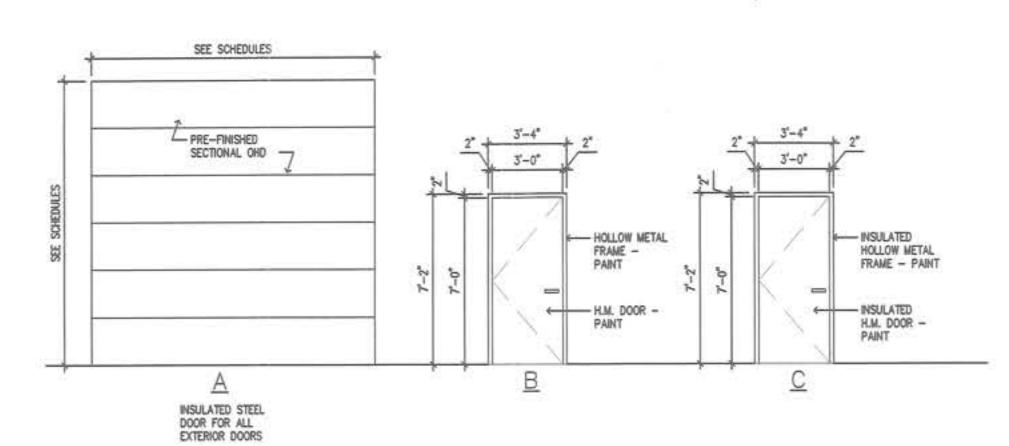
1 EA. CLOSER, LCN, 4041, AL

1 EA. 1/2" THRESHOLD, PEMKO, 271A 1 EA. SWEEP, PEMKO, 315CN

1 EA. HEAD & JAMB WEATHERSTRIPPING, PEMKO, 290AS. 1 EA. DRIP CAP, PEMKO, 346C

1 EA. KICK PLATE - "ROCKWOOD", K1050 12" X 34", US26D.

GC TO VERIFY ALL REQUIREMENTS W/OWNER FOR DOOR HARDWARE



DOOR TYPES -A1.2 1/4" = 1' - 0"

SEE PLAN FOR DOOR SWING

ROOM FINISH SCHEDULE

(VERIFY ALL FINISHES W/OWNER)

ROOM NAME	FLOOR	BASE	WALL FINISHES					CEILING	NOTES
	FINISH	FINISH	NORTH	SOUTH	EAST	WEST	FINISH	HEIGHT	
UNDERLIFT BAY	CONCRETE w/ EPOXY FINSH.	VINYL / EXP. MTL WALL	CMU TO 6'-0" A.F.F. / GYP. BD - PAINT, LATEX ABVE	EXPOSED MTL WALL	EXPOSED MTL WALL	GYP. BD - W/FRP FINISH	EXPOSED STRUCT.	VARIES	
EQUIPMENT AREA	CONCRETE W/ EPOXY FINSH.	VINYL / EXP. MTL WALL	GYP. BD - PAINT, LATEX	GYP. BD - PAINT, LATEX	GYP. BD - W/FRP FINISH	GYP. BD - PAINT, LATEX	EXPOSED STRUCT.	VARIES	
OFFICE	CONCRETE W/ EPOXY FINSH.	VINYL	GYP. BD - PAINT, LATEX	GYP. BO - PAINT, LATEX	GYP. BD - PAINT, LATEX	GYP. BD - PAINT, LATEX	ACT	9'-0"	
BREAK RM	CONCRETE W/ EPOXY FINSH.	VINYL	GYP. BD - PAINT, LATEX	GYP. BO - PAINT, LATEX	GYP. BD - PAINT, LATEX	GYP. BD - PAINT, LATEX	ACT	9'-0"	
WOMEN	CONCRETE W/ EPOXY FINSH.	VINYL	GYP. BD - PAINT, EPOXY	GYP. BD - PAINT, EPOXY	GYP. BD - PAINT, EPOXY	GYP. BD - PAINT, EPOXY	ACT	9'-0"	NOTE 1
MEN	CONCRETE w/ EPOXY FINSH.	VINYL	GYP. BD - PAINT, EPOXY	GYP. BD - PAINT, EPOXY	GYP. 80 - PAINT, EPOXY	GYP. BD - PAINT, EPOXY	ACT	9'-0"	NOTE 1
DETAIL AREA	CONCRETE w/ EPOXY FINSH,	VINYL / EXP. MTL WALL	EXPOSED MTL WALL	GYP. BD — PAINT, LATEX / EXPOSED MTL WALL	EXPOSED MTL WALL	EXPOSED MTL WALL	EXPOSED STRUCT.	VARIES	NOTE 1, 2
	UNDERLIFT BAY EQUIPMENT AREA OFFICE BREAK RM WOMEN	FINISH  UNDERLIFT BAY  EQUIPMENT AREA  OFFICE  BREAK RM  WOMEN  WOMEN  DETAIL AREA  CONCRETE W/ EPOXY FINSH.  CONCRETE W/ EPOXY FINSH.	FINISH  FINISH  CONCRETE W/ EPOXY FINSH.  EQUIPMENT AREA  CONCRETE W/ EPOXY FINSH.  WOMEN  CONCRETE W/ EPOXY FINSH.  EXP. WITH WALL	FINISH  FINISH	FINISH  CONCRETE W/ EPOXY FINSH.  EXP. MTL WALL  GYP. BD — PAINT, LATEX ABVE  FYP. BD — PAINT, LATEX  GYP. BD — PAINT, EPOXY  FYPOXY FINSH.  MEN  CONCRETE W/ EPOXY FINSH.  MINYL  GYP. BD — PAINT, EPOXY  FYPOXY FINSH.  CONCRETE W/ EPOXY FINSH.  MEN  CONCRETE W/ EPOXY FINSH.  MINYL  GYP. BD — PAINT, EPOXY  GYP. BD — PAINT, LATEX  GYP. BD — PAINT, LATEX  GYP. BD — PAINT, LATEX	FINISH FINISH NORTH SOUTH EAST  UNDERLIFT BAY CONCRETE W/ EPOXY FINSH. EXP. MTL WALL GYP. BD - PAINT, LATEX ABVE EXPOSED MTL WALL EXPOSED MTL WALL  EQUIPMENT AREA CONCRETE W/ EPOXY FINSH. EXP. MTL WALL  OFFICE CONCRETE W/ EPOXY FINSH. VINYL GYP. BD - PAINT, LATEX GYP. BD - PAINT, EPOXY GYP. BD - P	FINISH FINISH NORTH SOUTH EAST WEST  UNDERLIFT BAY  CONCRETE W/ EPOXY FINSH.  EXP. MTL WALL  CYP. BD - PAINT, LATEX ABVE  EXPOSED MTL WALL  EXP. BD - W/FRP FINISH  EQUIPMENT AREA  CONCRETE W/ EPOXY FINSH.  CYP. BD - PAINT, LATEX  EXP. MTL WALL  EXP. BD - PAINT, LATEX  EXP. BD - PAINT, EXPOXY  EXP. BD - PAINT, EXT.  EXPOSED MTL WALL  EXP. EXP. EXP. EXP. EXP. EXP. EXP. EXP.	FINISH FINISH NORTH SOUTH EAST WEST  UNDERLIFT BAY  CONCRETE W/ EPOXY FINSH.  EXP. MTL WALL  CYP. 8D - PAINT, LATEX ABVE EQUIPMENT AREA  CONCRETE W/ EPOXY FINSH.  CONCRETE W/ EPOXY FINSH.  CONCRETE W/ EPOXY FINSH.  OFFICE  CONCRETE W/ EPOXY FINSH.  OFFICE  CONCRETE W/ EPOXY FINSH.  OFFICE  CONCRETE W/ EPOXY FINSH.  CYP. 8D - PAINT, LATEX  CYP. 8D - PAINT, EPOXY  CONCRETE W/ EPOXY FINSH.  WINYL  CYP. 8D - PAINT, EPOXY  CONCRETE W/ EPOXY FINSH.  WINYL  CYP. 8D - PAINT, EPOXY  CYP. 8D	ROOM NAME FINISH

NOTE 1: PROVIDE CEMENT BOARD BACKING / PURPLE BOARD OR EQUAL FOR ALL WET WALLS

NOTE 2: SEE FLOOR PLAN FOR CMU WALL LOCATIONS

NOTE 3: PROVIDE FRP FINISH BEHIND EWC TO 4'-0" A.F.F. - VERIFY OPTIONS W/OWNER

FINITCHES FINAL COLORS AND SELECTIONS SHALL BE PICKED BY OWNER

ACT	ACT SHALL BE ARMSTRONG, STYLE: VERIFY, SIZE: 24" X 24", COLOR: WHITE, TEGULAR SAND FINISH, GRID: 15/16", COLOR: WHITE, VERIFY W/OWNER FOR FINAL SELECTION
WNYL BASE	BASE SHALL BE COVED 4" HIGH, COLOR: GREY WG 48
LAMINATE — FOR VERTICAL CABINET SURFACES — BREAK ROOM	STEVENSWOOD - WHITE MELAMINE FOR INTERIOR CABINETS
LAMINATE - FOR VERTICAL CABINET SURFACES - RECEPTION BACK COUNTER	STEVENSWOOD - WHITE MELAMINE FOR INTERIOR CABINETS
LAMINATE - FOR COUNTERTOPS	WILSOHART VERIFY STYLE, TYPE & COLOR #/OWNER
MAIN PAINT	SHALL BE BY SHERWIN WILLIAMS. COLOR: VERIFY EGGSHELL FINISH
EPOXY FLOORING	VERIFY MAKE/ MANUF W/OWNER
PAINTED FRAMES	VERIFY MAKE/ MANUF SEMI-GLOSS FINISH
FRP	FRP - FIBERGLASS REINFORCED PANELS SHALL BE BY MARLITE OR APPROVED EQUAL. WHITE PEBBLE.
FIRE EXTINGUISHER CABINETS & EXTINGUISHER (FEC)	FIRE EXTINGUISHER CABINET SHALL BE BY JL INDUSTRIES — "COSMOPOLITAN", FULL GLAZING, CLEAR TEMPERED GLASS — WITH STEEL, POWDER COAT FINISH — PAINT —VERIFY COLOR.  FE: JL INDUSTRIES CLEAR WITH COSMIC 10E EXTINGUISHER — 10 LB CAPACITY DRY CHEMICAL . GC TO PROVIDE FEC AS REQUIRED BY STATE FIRE MARSHALL. MAXIMUM DISTANCE TO A FIRE EXTINGUISHER SHALL NOT EXCEED 75 FEET.

REVISIONS/DATES NO. DATE DESCRIPTION

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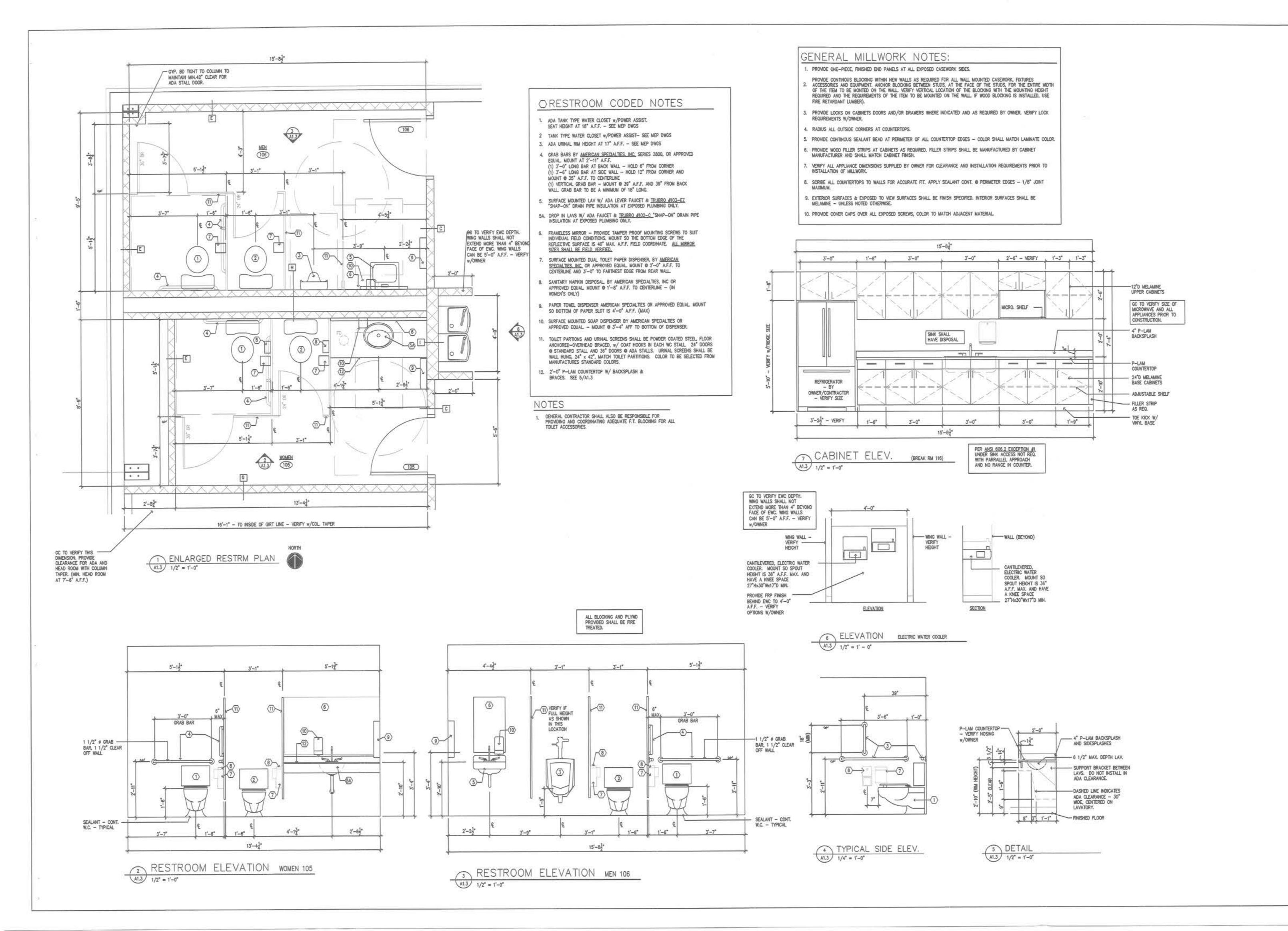
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**MOODHOUSE** 

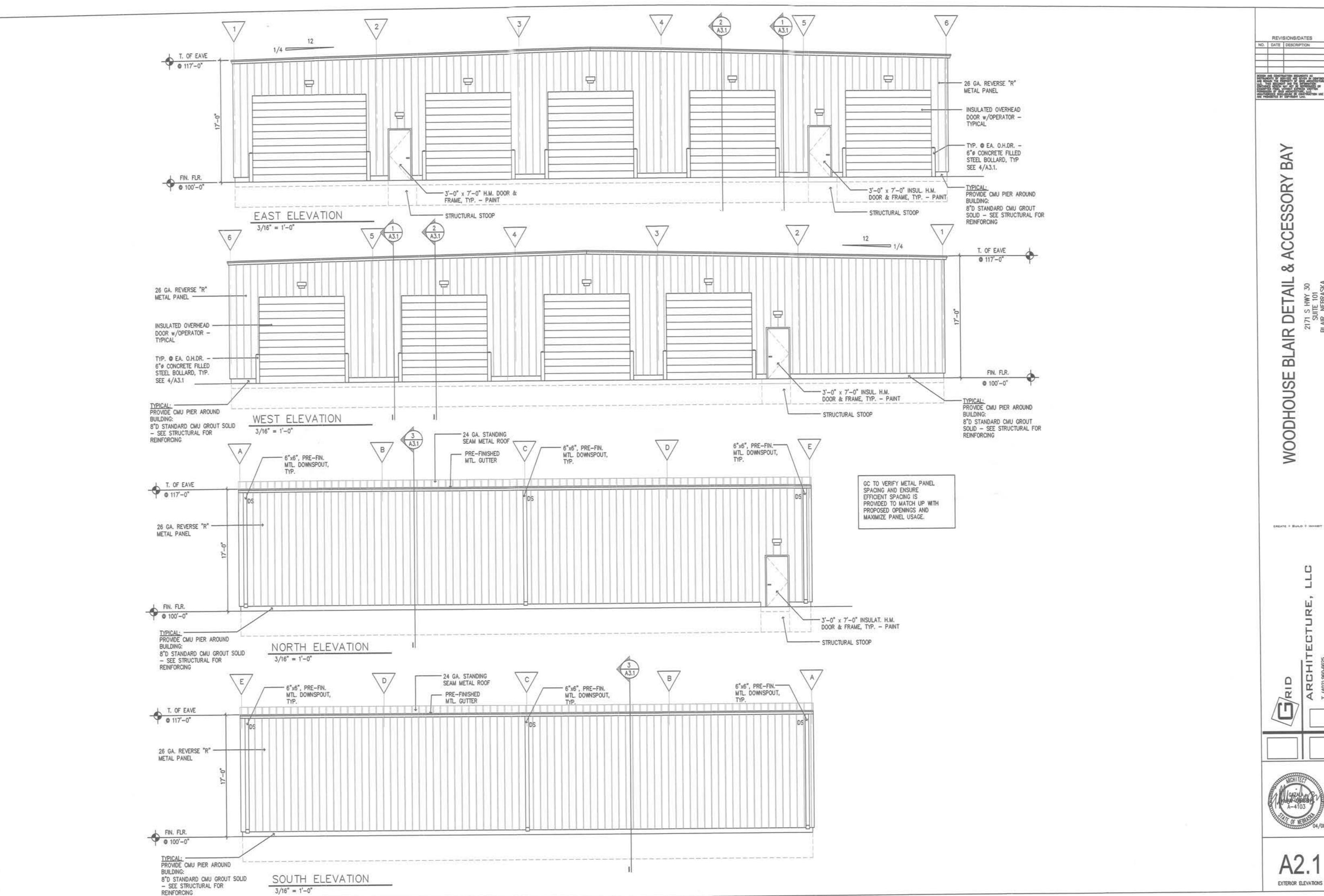
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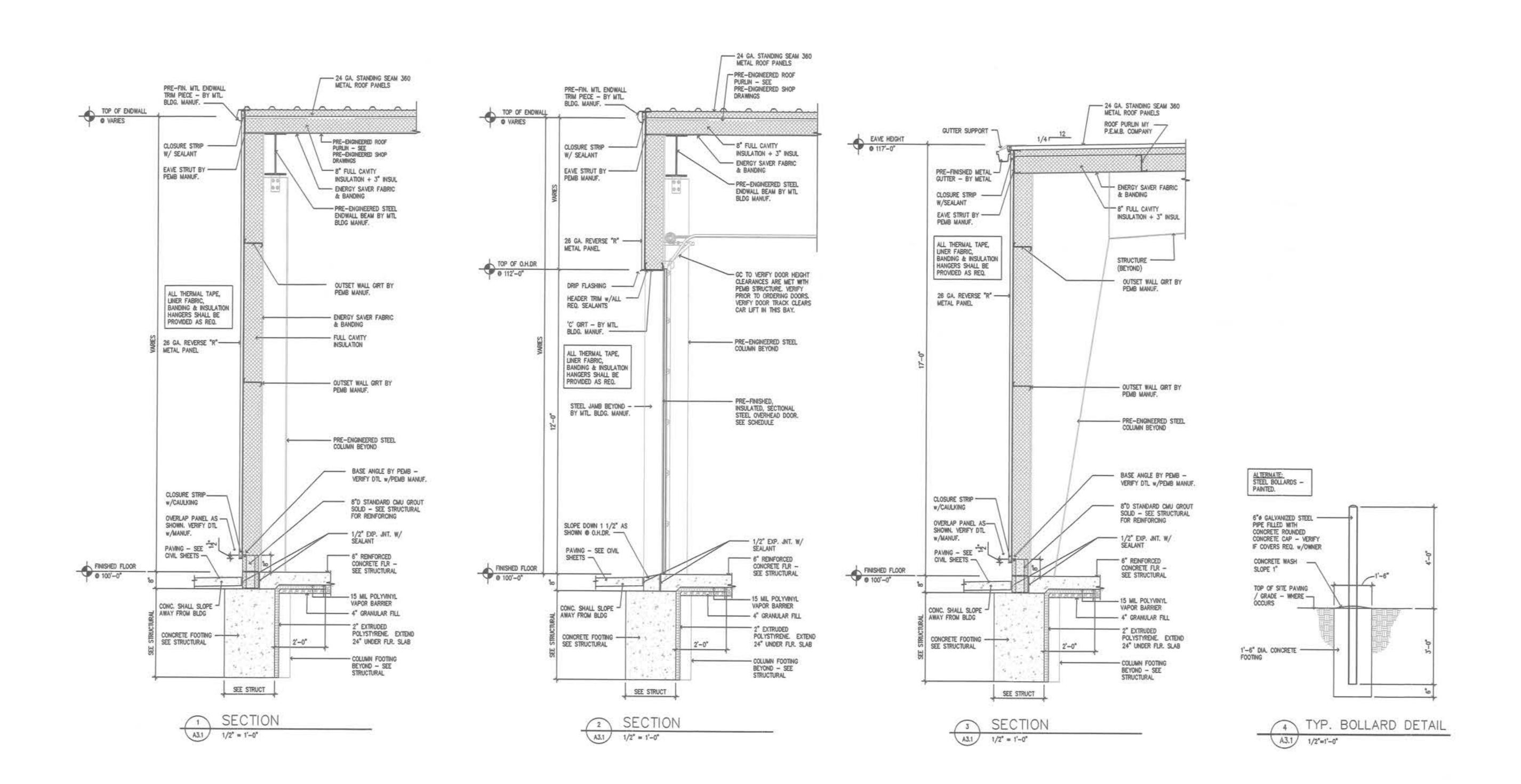
INTERIOR ELEVATIONS
A: DETAILS



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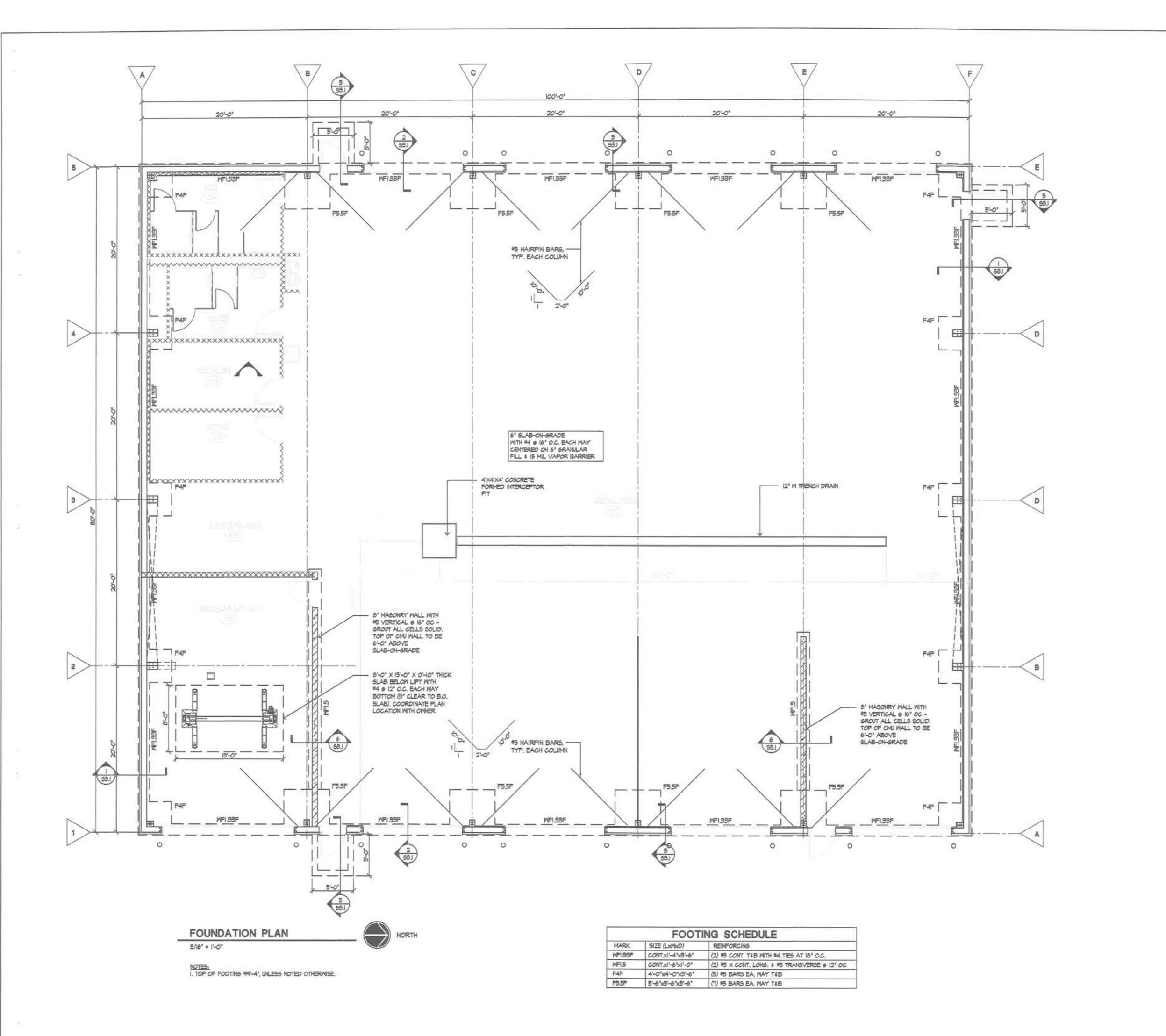


EXTERIOR ELEVATIONS



A3.1

WALL SECTIONS & DETAILS



Engineering

11811 Fort Street, Suite 104 - Omaha, NE 681

(402) 343-3960 Fax: (402) 343-3961

NE-CA2455

399 Perry St., Suite 2044 - Castle Rock, CO 80
(303) 721-3322

WOODHOUSE BLAIR DETAIL & ACCESSORY I

REVISIONS/DATES

GREATE + BUILD + IMMARIT

ARCHITECTURE,

ARC ARC



S1.1

ASTM A325 PLAIN BOLTS AND ANCHORS ASTM FI554 GR, 36

OR GR. 36 (MELDABLE, SI)

REINFORCING STEEL

ASTM A615 PY = 60,000 PSI

WELDED MIRE FABRIC ASTM AI85

ALLOWABLE SOIL BEARING CAPACITY 1,500 PSF (ASSUMED)

DESIGN LOADS

GRAVITY LOADS:

FLOORS LL = 100 PSF

ROOFS LL = 21 PSF (CE =1.0, CT =1.0, AND (=1.0)\*\*

\*\*INCREASE LIVE LOAD FOR SHOW DRIFTING AS REQUIRED IN CONFORMANCE WITH THE AMERICAN SOCIETY OF CIVIL ENGINEERS ANSI/ASCE 7-16.

MIND LOADING CRITERIA (2021 IBC) BASE WIND SPEED (3 SECOND GUST) V' = 115 MPH BUILDING CATEGORY II IMPORTANCE FACTOR 'IM' = 1.0

EXPOSURE CATEGORY C SEISMIC LOADING CRITERIA (2021 IBC) SPECTRAL RESPONSE COEFFICIENT SDS = 0.080 6 SPECTRAL RESPONSE COEFFICIENT SDI = 0.012 6 IMPORTANCE FACTOR "E" = 1.0 OCCUPANCY CATEGORY II SITE CLASS D SEISMIC DESIGN CATEGORY B

SEISMIC FORCE RESISTING SYSTEMS - ORDINARY STEEL CONCENTRICALLY BRACED FRAMES AND ORDINARY STEEL MOMENT FRAMES.

### B. FOUNDATION WORK:

- BUILDING FOOTINGS ARE DESIGNED FOR ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF. CONTRACTOR SHALL VERIFY EXISTING SOIL CONDITIONS WITH GEOTECHNICAL ENGINEER FOLLOWING EXCAVATION FOR FOOTINGS AND PRIOR TO PLACEMENT OF FOOTINGS.
- 2. SUBSOILS SUPPORTING OR IN DIRECT CONTACT WITH FOOTINGS, SLABS ON GRADE, OR OTHER FOUNDATION ELEMENTS SHALL BE PROTECTED AGAINST PREEZING CONDITIONS THAT COULD CAUSE MOVEMENT OR OTHER DETRIMENTAL EFFECT TO THE STRUCTURE AS A WHOLE OR TO ANY OF ITS COMPONENT PARTS.
- S. WHEN MORKING NEAR EXISTING AND/OR NEW CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION SO AS NOT TO UNDERMINE, DISTURB, DAMAGE OR, IN ANY WAY, CAUSE UNDESIRABLE MOVEMENT, CRACKING, AND/OR SETTLEMENT OF THE ADJACENT
- ALL SLABS ON GRADE SHALL BEAR ON UNDISTURBED VIRGIN SOIL OR PROPERLY COMPACTED BACKFILLIGRANULAR FILL. ANY UNACCEPTABLE UNDISTURBED VIRGIN SOIL OR BACKFILL/GRANULAR FILL, AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENSINEER, SHALL BE REMOVED AND REPLACED AS REQUIRED BY THE SECTECHNICAL ENGINEER,
- 5. CONTRACTOR SHALL COORDINATE FOOTING ELEVATIONS WITH FINAL GRADING PLAN TO PROVIDE A MINIMUM OF 42" OF GRADE ABOVE THE BOTTOM OF ALL FOOTINGS FOR FROST PROTECTION.

## C. CONCRETE:

- I. FOR REINFORCEMENT DEVELOPMENT LENGTH AND SPLICE LENGTH SEE TYPICAL REINFORCEMENT TABLE ON THIS SHEET.
- 2. PROVIDE CORNER BARS IN WALLS AND FOOTINGS THE SAME SIZE AND NUMBER AS THE CONTINUOUS REINFORCING.
- 3. REINFORCING IN FOOTINGS SHALL BE ACCURATELY PLACED BEFORE PLACING CONCRETE. DO NOT FLOAT REINFORCING INTO FOOTINGS
- 4. CONCRETE SHALL BE REGULAR MEIGHT (144 PCF) WITH TYPE I CEMENT, POTABLE WATER. AND AGGREGATES CONFORMING TO REQUIREMENTS OF NEBRASKA DEPARTMENT OF ROADS FOR 47-B CONCRETE, UNLESS NOTED OTHERWISE, CONCRETE SHALL CONFORM TO ACI 301-10.
- 5. MECHANICALLY VIBRATE CONCRETE, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDERFLOOR DUCTS AND OTHER ITEMS EMBEDDED IN THE SLAB.
- 6. DO NOT PLACE PIPES, DUCTS, OR CHASES IN STRUCTURAL CONCRETE WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER, SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS.
- 7. CONSTRUCT FORMWORK SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHAPE, ALIGNMENT, ELEVATION, AND POSITION INDICATED, WITHIN TOLERANCE LIMITS OF ACI IIT.
- 8. CONTROL JOINTS IN SLAB-ON-GRADE SHALL BE PLACED AT COLUMN-LINE INTERSECTIONS AND AS NECESSARY TO NOT EXCEED A SPACING OF 96 TIMES THE SLAB THICKNESS. THE MAXIMUM ASPECT RATIO SHALL BE 15 TO 1.0 UNLESS NOTED OTHERWISE.
- 9. ALL CONSTRUCTION JOINTS IN CONCRETE WALLS SHALL HAVE A 24 X 44 CONTINUOUS KEYWAY. ALL CONSTRUCTION JOINTS, EXCEPT THOSE DETAILED, SHALL HAVE ARCHITECT/ENGINEER APPROVAL. SEE SPECIFICATIONS FOR OTHER CONSTRUCTION JOINT REGUIREMENTS.
- 10. ALL REINFORCING STEEL SHALL BE DEFORMED NEW BILLETS BARS (A615, GRADE 60), BENT COLD, AND DETAILED, FABRICATED, AND HELD IN PLACE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315 LATEST EDITION) EXCEPT AS OTHERWISE DETAILED OR SPECIFIED.
- II. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT, UNLESS NOTED OTHERWISE: CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3°
  - CONCRETE EXPOSED TO EARTH OR MEATHER: 2" CONCRETE NOT EXPOSED TO MEATHER OR IN CONTACT WITH GROUND: SLABS AND WALLS I'
- 12. ALL REINFORCING IN SLABS AND WALLS SHALL BE CONTINUOUS UNLESS DETAILED OTHERWISE AND LAP SPLICED ONLY IN REGIONS OF LOW STRESS, ALL BARS SHALL HAVE A STANDARD HOOK WHERE A HOOK IS SHOWN, UNLESS DETAILED OTHERWISE.

#### D. STEEL

- STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS AND OSHA REGULATION 29 CFR PART 1926.
- 2. COMPLY WITH AMERICAN WELDING SOCIETY STANDARDS, ALL WELDERS SHALL HAVE VALID CERTIFICATES AND HAVE CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR
  - 3. WELDING ELECTRODES SHALL BE ETO FOR ALL STEEL, UNLESS NOTED OTHERWISE.
  - 4. ANCHOR RODS FOR COLUMN BASE PLATES SHALL BE SECURED IN PLACE WITH A TEMPLATE AND SECURELY TIED TO REINFORCING BARS BEFORE PLACING OF CONCRETE.
  - 5. ANCHOR ROD HOLES IN BASE PLATES MAY BE OVERSIZED PER TABLE 14-2 OF THE SRD ED. OF THE LIFTO MANUAL. IF OVERSIZED HOLES ARE USED, WASHER PLATES SHALL BE PROVIDED AS SPECIFIED AND FIELD MELDED TO THE BASE PLATES.

#### E. LIGHT GAUGE METAL:

- LIGHT GAUGE METAL FRAMING SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITION OF 0THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERSA AND OTHE COLD FORMED STEEL FRAMING DESIGN GUIDEA OF THE AMERICAN IRON AND STEEL INSTITUTE.
- 2. PROVIDE TRACKS, BLOCKING, LINTELS, CLIP ANGLES, STRAP BRACING, SHOES, REINFORCEMENTS, FASTENERS, AND ACCESSORIES TO PROVIDE A COMPLETE METAL
- 5. ISOLATE PARTITIONS FROM STRUCTURAL ELEMENTS WITH SLIP OR CUSHION-TYPE JOINTS BETWEEN STEEL FRAMING AND STRUCTURE AS RECOMMENDED BY STEEL FRAMING MANUFACTURER TO PREVENT TRANSFER OF STRUCTURAL LOADS OR MOVEMENTS TO
- 4. INSTALL HORIZONTAL BRIDGING IN WALL SYSTEM AS REQUIRED BY METAL STUD SUPPLIER MINIMUM BRIDGING SPACING SHALL BE 4'04 O.C. (VERTICAL DISTANCE) UNTIL PERMANENT INTERIOR WALL SHEATHING IS INSTALLED.
- 5. FASTEN PLYMOOD WITH 1/4 INCH TEK SCREWS AT 6 INCH AT ALL SUPPORTS AND EDGES.
- 6. BEARING STUDS MUST BE FABRICATED WITH FULL STUD END SEATED AGAINST TRACK WEB. DO NOT USE STUD THAT HAS BEEN OUT.
- 1. PROVIDE DOUBLE METAL STUD AROUND ALL OPENINGS IN STUD WALL SYSTEM AT JAMBS. HEADS, AND SILLS. WELD AT ALL INTERSECTIONS.

#### F. INSPECTIONS:

- I. IN ACCORDANCE WITH 2021 IBC SECTION 1705, AS NOTED BELOW, TESTING AND INSPECTION SHALL BE BY AN INDEPENDENT TESTING/INSPECTION FIRM UNDER THE SUPERVISION OF A LICENSED ENGINEER EMPLOYED BY THAT FIRM, THIS ENGINEER SHALL BE DEEMED THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS PERFORMED BY HIS FIRM OR HIS CONSULTANTS. INSPECTORS SHALL BE ICBO CERTIFIED AND APPROVED BY THE BUILDING OFFICIAL
- 2. THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL BE RESPONSIBLE FOR DEFINING THE ACTIVITIES OF THE INSPECTORS, FOR CERTIFYING THE QUALIFICATIONS OF THE INSPECTORS WITH THE BUILDING OFFICIAL AND TO ATTEND THE PRE-CONSTRUCTION MEETING TO DEFINE THEIR SCOPE OF SERVICES AND THE TESTING OR TEST PROCEDURES THAT ARE REQUIRED AS OUTLINED IN THE INTERNATIONAL BUILDING
- 3. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION THE INSPECTIONS CONDUCTED BY THE LOCAL DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REGUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY SECTION 104.4 OF THE INTERNATIONAL BUILDING
- 4. SPECIAL INSPECTIONS REQUIRED INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING.

b. ANCHOR RODS INSTALLED IN CONCRETE PER TABLE 1705.3.

- a. CONCRETE PER SECTION 17053 AND TABLE 17053 AND ALL APPLICABLE EXCEPTIONS.
- C. REINFORCING PER TABLE 1705.2.2 AND EXCEPTION FOR CONCRETE REQUIRING SPECIAL

## d. WELDING: PER SECTION 1705.3.

8. EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHOR INSTALLATION TO VERIFY INSTALLATION IN ACCORDANCE WITH ICBO REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL

## 6. OTHER

- UNLESS NOTED OTHERWISE, EXPANSION ANCHORS SHALL BE HILTI KHIK BOLT 3 EXPANSION ANCHORS OR APPROVED EGUAL. ADHESIVE (EPOXY) ANCHORS SHALL CONSIST OF HILTI STANDARD HAS-E RODS WITH THE HIT-HY 200 ADHESIVE SYSTEM OR APPROVED EQUAL. INSTALL ANCHOR PER MANUFACTURER'S REQUIREMENTS.
- 2. VERIPY ALL DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK, NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
- 5. VERIFY IN FIELD ALL EXISTING CONDITIONS SHOWN ON DRAWINGS.
- 4. ESTABLISH AND VERIPY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL, AND PLUMBING WITH APPROPRIATE TRADES. PROVIDE ALL TEMPORARY BRACING, SHORING, SUYING, OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
- 5. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE STAMP (AND SIGNATURE) OF AN ENGINEER REGISTERED IN NEBRASKA.

## TYPICAL REINFORCING NOTES:

- I, REINFORGING BAR DEVELOPMENT AND LAP SPLICE LENGTH SHALL BE AS SHOWN IN THIS TABLE UNLESS OTHERWISE NOTED ON THE DRAMINGS.
- 2. THE LENGTHS SHOWN IN THE TABLE ARE BASED ON THE FOLLOWING CONCRETE COVERAGE AND REINFORCING C-C SPACING:
- BEAMS OR COLUMNS: COVER (EQUAL OR MORE) LOBO (BAR DIAMETER) CENTER TO CENTER (C-C) SPACING (EQUAL OR MORE) 2.06d.
- ALL OTHERS: COVER (EQUAL OR MORE) LODG CENTER TO CENTER SPACING (EQUAL OR MORE) 3.0bd.
- 3, TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
- 4. DEVELOPMENT AND SPLICE LENGTH SHOWN SHALL NOT APPLY IF ANY OF THE FOLLOWING CONDITIONS OCCUR.
- A) 1'c < 4000 PSI B) N > 60,000 PSI
- C) THE COVER OR C-C BAR SPACING IS NOT AS LISTED ABOVE D) THE REINFORCING STEEL IS EPOXY COATED E) LIGHT WEIGHT CONCRETE IS USED.

### 5. CENTER ON CENTER SPACING (S) IS DEFINED AS BELOW.

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0	фо	$\dot{\varphi}$ - Main Reinf.
ф	фо	O - LAPPED REINF.

	f'c	= 4,000		01 11010
BAR	DEVELOPY	ENT LENSTH	SPLICE	LENSTH
SIZE	OTHER	TOP	OTHER	TOP
113	1-9"	15-75	1-7*	2'-0"
84	1-4.	2'- "	2'-1"	2'-8"
15	2'-0"	2'-7"	2'-7'	3'-4"
#6	2'-5"	3'-1"	3'-1"	4'-0"
#7	3'-6"	4'-6"	4'-6"	5'-10"
*8	4'-0"	5'-2"	5-2"	6'-8"
84	4'-6"	5'-10"	5'-10"	7'-7"

6'-7°

7'-5"

6'-7"

7-3"

PROVIDE HOLES IN BASE PLATE

DIAMETER OF ANCHOR BOLTS

FI554 CAST-IN ANCHOR BOLTS

ANCHOR BOLT SCHEDULE

3/4" 2" 7"

DIA. A

1" 3"

ANCHOR BOLT SCHEDULE

WITH DIAMETER 1/4" GREATER THAN

8'-6"

9'-5"

5'-1"

5'-7"

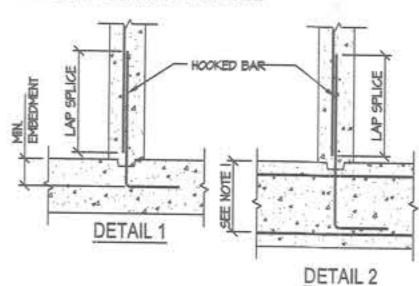
T.O. FOOTING

53.0/ 11/21-1-01

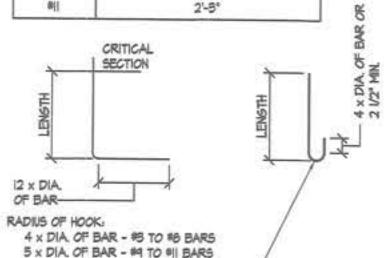
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# DEVELOPMENT LENGTH NOTES:

- I. WHERE DRAWINGS ARE DETAILED SIMILAR TO DETAIL 2, EXTEND THE EMBEDMENT LENGTH SUCH THAT THE HOOKED BAR CONTACTS THE LAYER OF MAIN REINFORCING SHOWN.
- 2. EMBEDMENT LENGTHS IN CHART ARE TYPICAL EXCEPT AS NOTED IN DETAIL 2, OR AS INDICATED ON DRAWINGS.



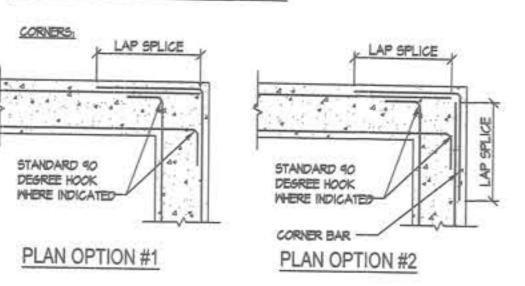
to allow T	Party and a second second second second
BAR SIZE	LENGTH OR MIN. EMBEDMENT
略	7*
84	10*
屿	1'-0"
86	1'-9"
87	1-5'
#8	1'-7*
#q	1'-10"
#10	2'-0"
8(1	2'-5"

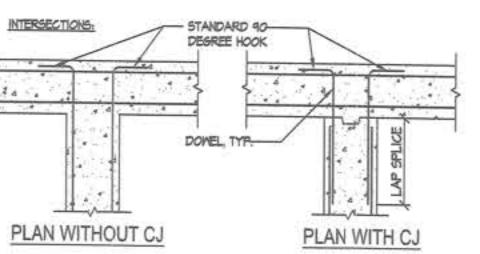


93.0 11/2"=1"-0"

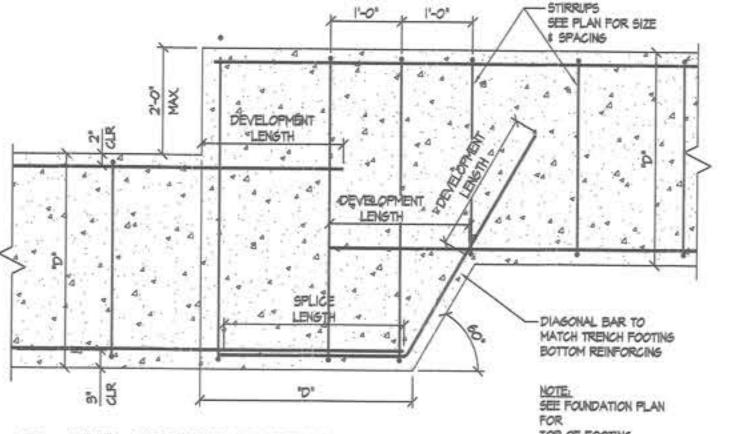
6 x DIA, OF BAR - #14 # #18 BARS

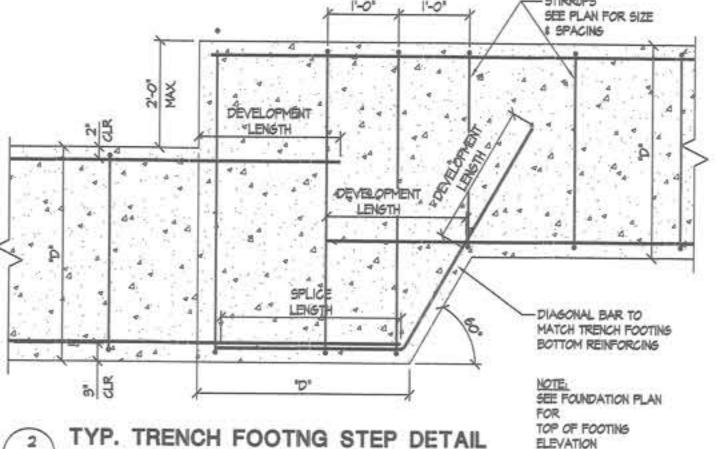
# HORIZONTAL WALL AND FOOTING REINFORCING DETAILS:





- I. UNLESS OTHERWISE INDICATED, THE CONTRACTOR HAS THE OPTION OF REINFORCING CORNERS IN ACCORDANCE WITH OPTION #1 OR OPTION #2.
- 2. UNLESS OTHERWISE INDICATED, THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING INTERSECTIONS WITH OR WITHOUT CONSTRUCTION JOINTS, REINFORCE PER APPLICABLE
- 3. VERTICAL REINFORCING NOT SHOWN FOR CLARITY.
- FOR LOCATIONS WITH ONLY ONE RUN OF HORIZONTAL REINFORCING, PROVIDE LAP SPLICES AS SHOWN FOR OUTSIDE LAYER OF REINFORCING SHOWN ABOVE.
- FOR LOCATIONS WITH COLUMN SPREAD FOOTINGS, NO HOOKED BARS OR DOWELS ARE REQUIRED AS LONG AS HORIZONTAL WALL AND FOOTING REINFORCING HAS ADEQUATE DEVELOPMENT OR SPLICE LENGTH INTO SPREAD FOOTING.





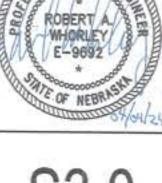
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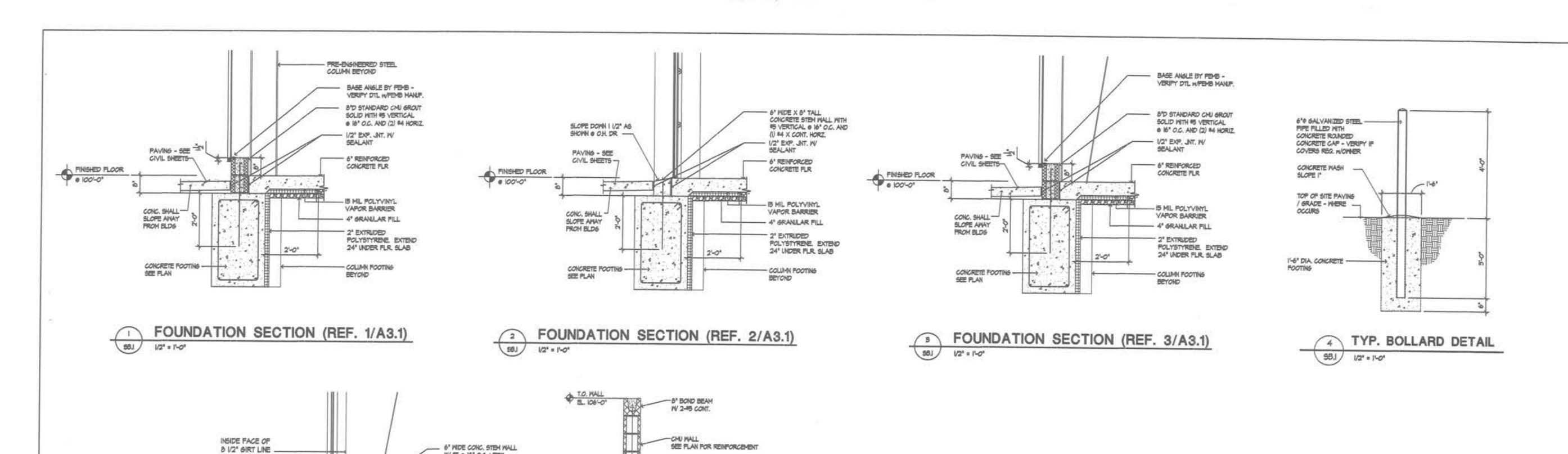
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P



GENERAL STRUCTURAL NOTES AND DETAILS



AND SPACING OF WALL

REINFORCEMENT

-SEE PLAN FOR FOOTING

SIZE AND

6 INTERIOR FOOTING SECTION

88.1 1/2" = 1/40"

REINFORCEMENT

W 45 e 16" O.C. VERT. \$ (2) \$5 HORIZ

SEE PLAN

SEALANT

- 4' REINFORCED

CONCRETE FLR

- 4' SRANULAR FILL

COLUMN POOTING BEYOND

SEE PLAN FOR FOOTING SIZE AND REINFORCING

5" CONCRETE SLAB W #5 e 12" O.C. E.M. \_\_\_

SLOPE

-3" YOLD FORM

@ 12" O.C.

STOOP SECTION

100-8"

FINISHED FLOOR

84 BENT BAR e 12" O.C.

#4 e 12" O.C

NOTE: SEE FOUNDATION PLAN FOR POURED CONCRETE FLOOR EXTENT WITH SHELL BUILDING.

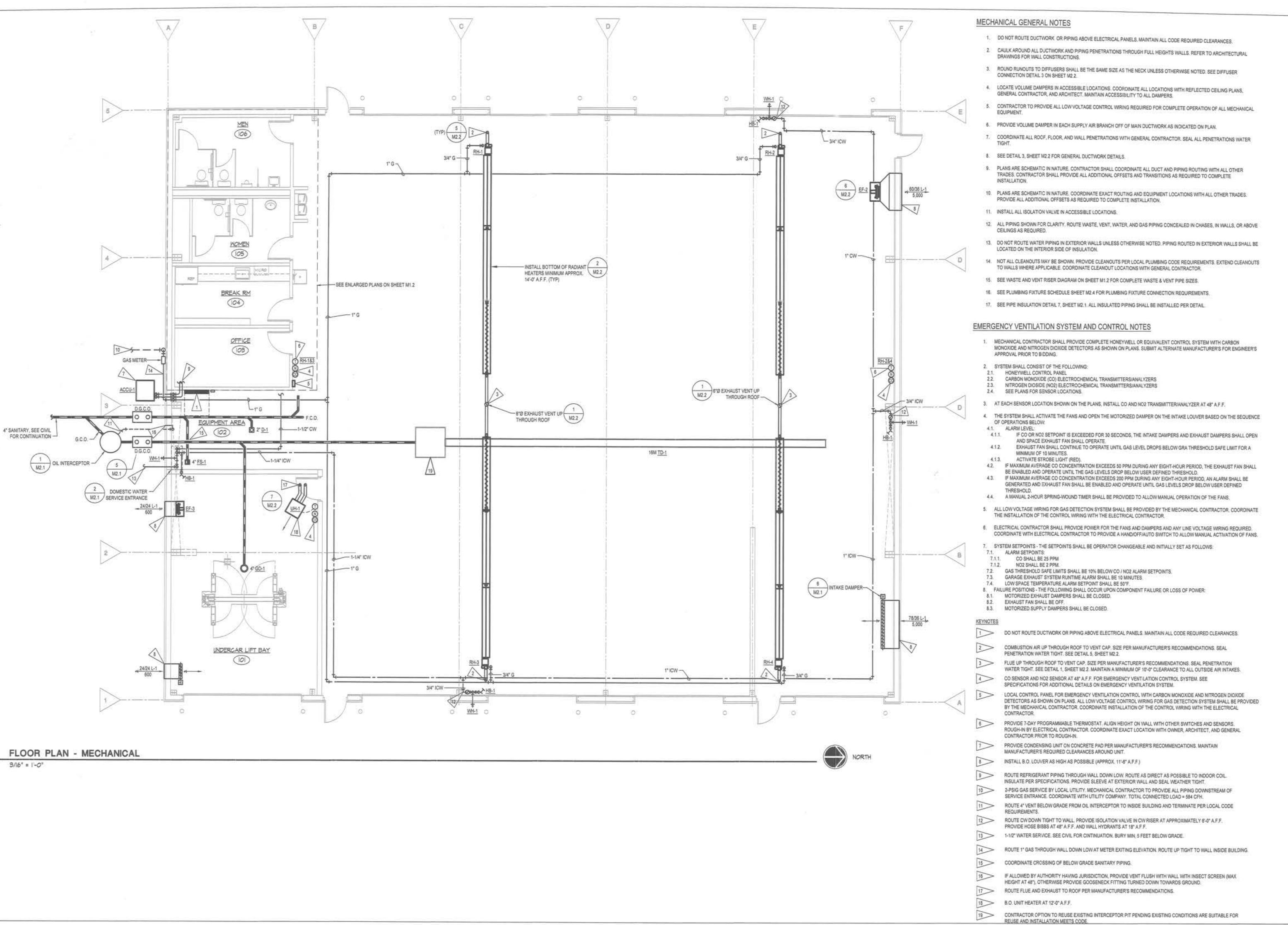


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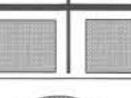




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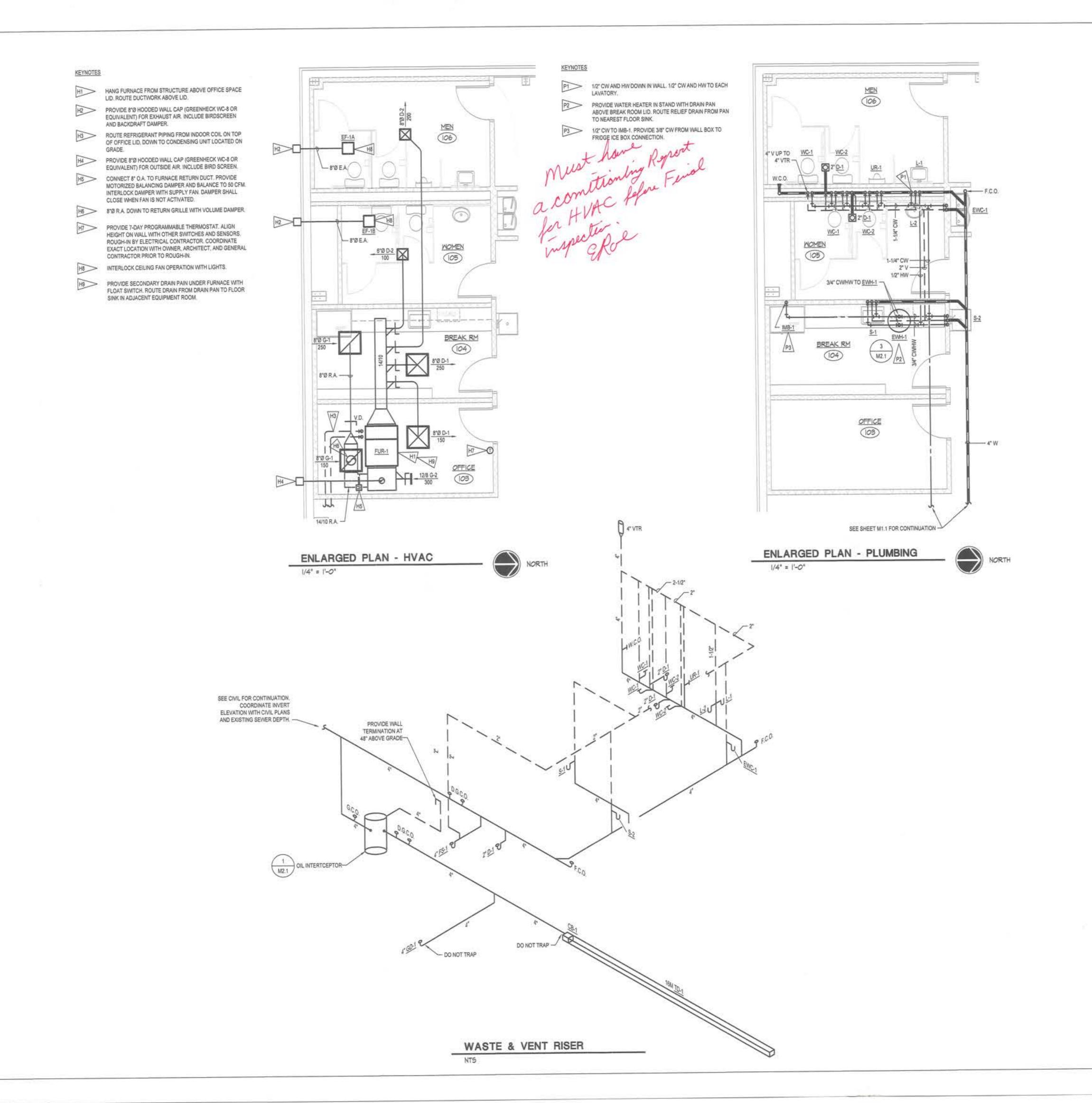
S

CREATE + BULD + INHABIT





FLOOR PLAN - MECHANICAL



8 ACCESSORY

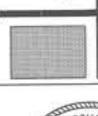
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**AIR DETAIL** 

S

WOODHOU

EREATE + BUILD + INHABIT





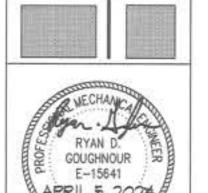
ENLARGED MECHANICAL PLANS



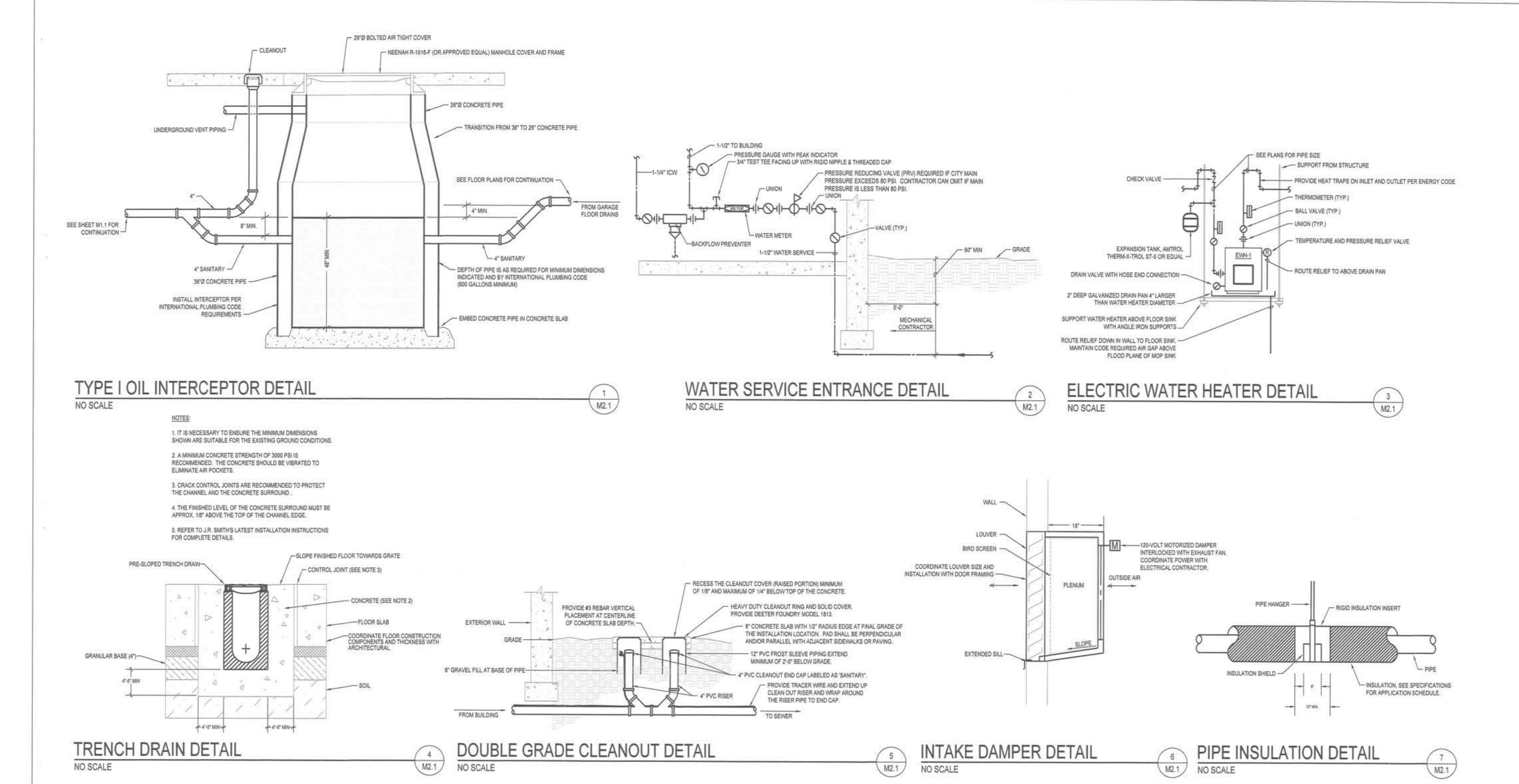
REVISIONS/DATES

GREATE + BUILD + INHABIT

RCHITECTURE, LL

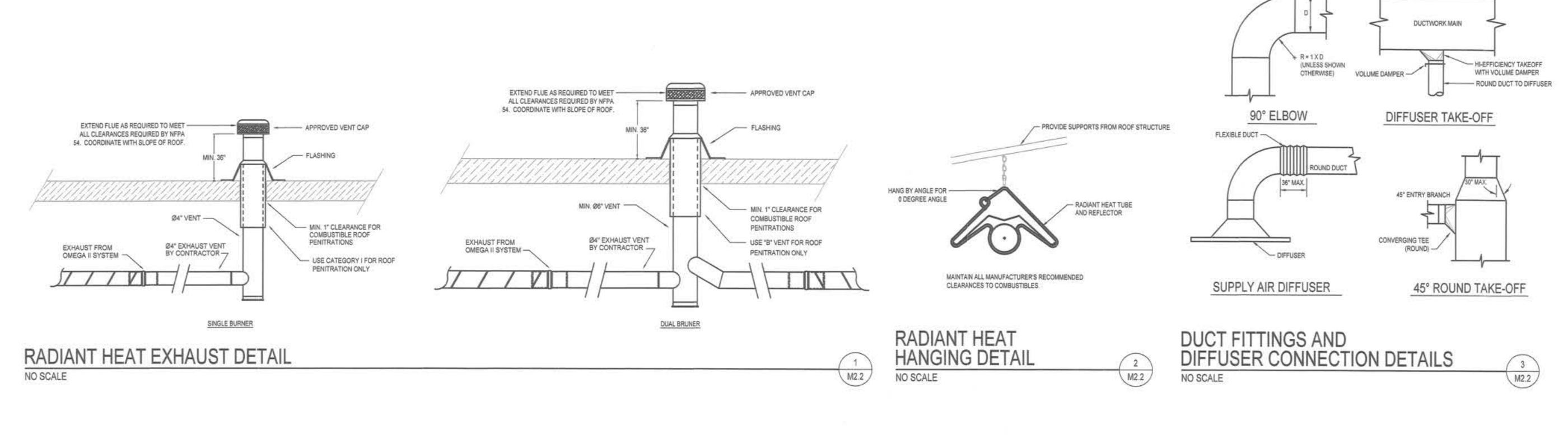


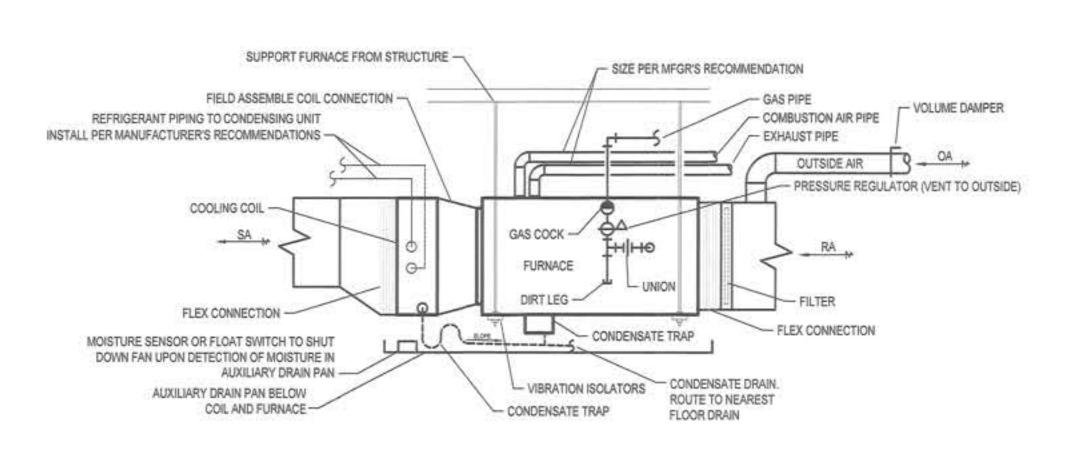


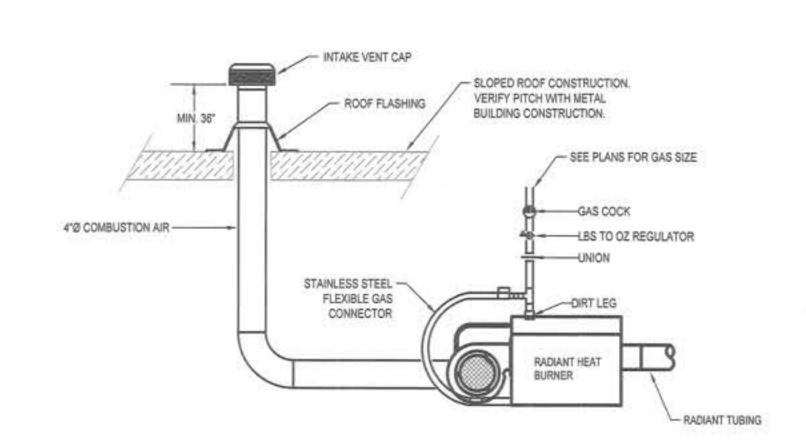


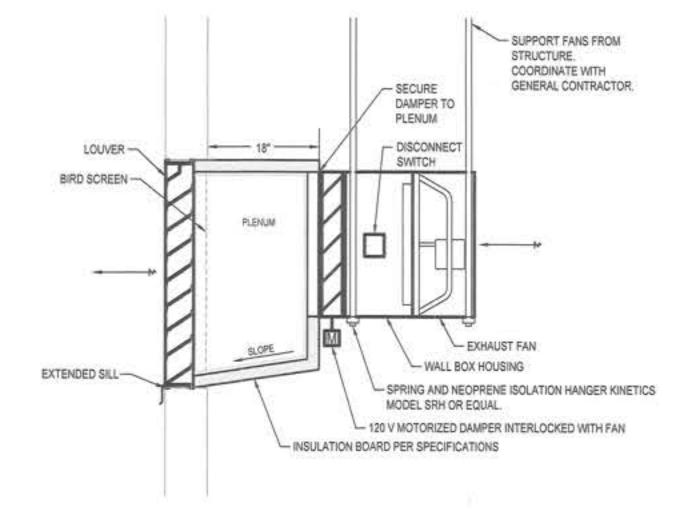












M2.2

WALL VENTILATION FAN DETAIL

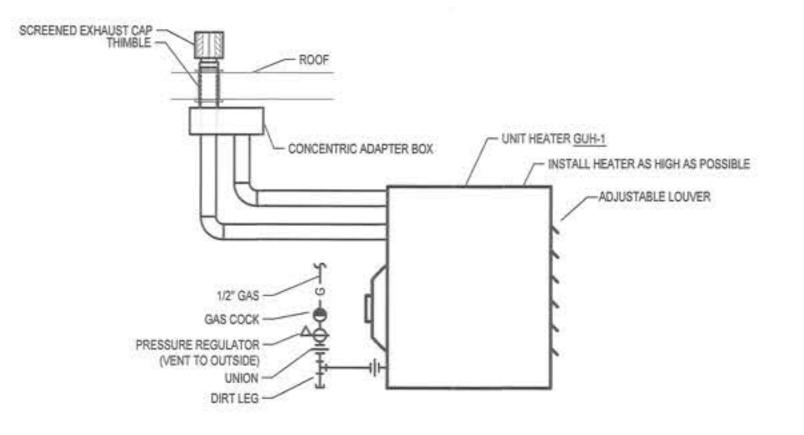
NO SCALE



RADIANT HEAT BURNER DETAIL NO SCALE

M2.2

5 M2.2



GAS UNIT HEATER DETAIL NO SCALE

M2.2

			Section 1
YMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TYP	ICAL PIPING	
I, J	PIPE TEE / PIPE ELBOW		UNON
+0 -+O	ELBOWDN/ELBOWUP	-4-	STRAINER WITH BLOWDOWN
-0-	ISOLATION VALVE (BALL OR BUTTERFLY)		CHECK VALVE (ARROW INDICATES FLOW)
-0-	BALANONG YALVE	-(A)(B)-	AUTOMATIC CONTROL VALVE TWO-WAY / THREE WAY
-0-4-	GATE VALVE	-6-	PRESSURE REGULATING VALVE (PRV)
-b<-	GLOBE VALVE	9	PRESSURE GAUGE
一年 ###	PRESSURE/TEMPERATURE TEST PORT		THERMOMETER
	P	LUMBING	* N. 100 P. 200
	DOMESTIC COLD WATER CWI	-0	GAS COCK
	DOMESTIC HOT WATER (HV) (NUMBER INDICATES TEMPERATURE)	ID 2.51	FLOOR DRAIN - SIZE TYPE
	DOMESTIC HOT WATER CIRCULATION (HWC) (NUMBER INDICATES TEMPERATURE)	+, 19	HOSE 988
	SANTARY WASTE (BELOW GRADE)	-0+ 9H	WALL HYDRANT (NON-PREEZE)
	SANITARY WASTE (ABOVE GRACE)	VTR	VENT THROUGH ROOF
in in in a	VENT PIPING	LE.	CE. INVEST ELEVATION
A	COMPRESSED AIR PIPING	FL.	FLOWUNE
- G	NATURAL GAS PIPING	WC	WATER CLOSET (SEE SPECIFICATIONS FOR TYPE)
SAN-	SITE SAWTARY PIPING	UR	URBIAL (SEE SPECIFICATIONS FOR TYPE)
ST	SITE STORM PIPING	LAV	LAVATORY (SEE SPECIFICATIONS FOR TYPE)
	SITE WATER PIPING	8	SINK (SEE SPECIFICATIONS FOR TYPE)
0	CAST IRON	EVIC	ELECTRIC WATER COOLER (SEE SPECIFICATIONS FOR TYPE)
PVC .	POLYVWY, CHLORDE	MS	MOP SINK (SEE SPECIFICATIONS FOR TYPE)
Di	DUCTLE IRON		The state of the s
		IC HVAC PIPIN	G
-00	COIL CONDENSATE DRAIN (SLOPE TO DRAIN)	III THE THE PARTY OF THE PARTY	
		ERATION PIPIN	g
_		-6-	SOLENDID VALVE
-H-	REPROGRANT DOUGLINE	_&_	THERMOSTATIC EXPANSION VALVE (TXV)
-RS	REFRIGERANT SUCTION LINE	-	SOHT GLASS
-R0-	REFRIGERANT HOT GAS DISCHARGE LINE	HVAC	Lauri Guas
188	SIDEWALL SUPPLY RECISTER OR GRULE SECURITIES THE	- 0	SENSOR
	weither the control of the control o	0	THERMOSTAT
MI	SCHWALL RETURN OF EXHAUST REGISTER OR GRILLS THE RESIDENCE OF THE DESIGNATION OF THE PERSON OF THE P		HUMBISTAT
	Sent Control of the C		MOTORIZED CONTROL DAMPER WITH ACTUATOR
X dor	SUPPLY MR REGISTER MIX NOT THE THE		BACKDRAFT DAMFER
	DANGE CONTAINS OF MORE PARTY.		VOLUME DAMPER
XX	SUPPLY AIR, OUTSIDE AIR OR MIXED AIR DUCT END OR RISER UP / RISER DN	- 50	FIRE DAMPER WITH SLEEVE AND ACCESS DOOR
- Alv. A	Contraction of the Contraction o	- Marian	SWCKE DAMPER WITH SLEEVE AND ACCESS DOOR
11	RETURN AIR, DOHAUST AIR OR RELIEF AIR DUCT END OR RISER UP / RISER DN	B 4730	PREISMOKE DAMPER WITH SLEEVE AND ACCESS DOOR
- IV		S.A.	SUPPLY AIR.
128 +	RECTANGULAR DUCTWORK (WIDTH DEPTH (IN) (FIRST NUMBER IS SIDE SHOWN)	RA.	RETURN AIR
-		EA.	EXHAUST AIR
1219	ROUND DUCTWORK (DAVIETER)(IN) (SPIRAL DUCT IN EXPOSED AREAS)	RUA	RELEFAR
		O.A.	OUTSIDE AIR
		MA	MIXITO AIR

IS BIDE SHOWN)	RA.	RETURN AR			
	ĒA	EXHAUST AIR			
(EAS)	R.F.A.	RELIEF AIR OUTSIDE AIR			
370.00	MA	MOSE AR			
	_				
CACHO	OF T	ADIE			
GAS USA	AGE I	ABLE			
EQUIPM	ENT DESCR	MBH INPUT CAPACITY			
RH-1,2,3,4			4 @ 120		
	UH-1		60		
	FUR-1	44			
			<del>                                     </del>		
			+		
TOTAL	SPACE LOA	D (1) (2)	584 CFH		
(1) COORDINA	ATE GAS SE	RVICE WITH BI AC	CK HILLS ENERGY.		
(1) 00010110	THE OTHER PRO		orthica emercors		
(2) GAS METE	R AND GAS	SERVICE PIPING	BY BLAIR UTILITY COMPANY.		

PIPING DOWNSTREAM OF METER SHALL BE BY MECHANICAL CONTRACTOR: BUILDING SERVICE PRESSURE SHALL BE 2 PSI.

	PLAN TAG	EWH-1				
	MANUFACTURER	A.O. SMITH				
GENERAL	MODEL NUMBER	DEL-20				
	SERVES	DOMESTIC HW				
	RECOVERY (GPH@ 80°F RISE)	15				
	TYPE	(1)				
TANK	STORAGE CAPACITY (GAL.)	19				
	DIMENSIONS (HxDIA)(IN.)	22-1/4" x 21-3/4"Ø				
	REMARKS	(2)				
	VOLTAGE / PHASE	120/1				
	CAPACITY (KW)	2.5				
ELECTRIC	NUMBER OF STAGES	1				
	KW PER STAGE	2.5				
	REMARKS	(3) (4)				
	(1) INTEGRAL GLASS LINED STORAGE TANK.					
REMARKS	(2) PROVIDE WITH PRESSURE / TEMPERATURE RELIEF VALVE.					
	(3) SINGLE ELECTRIC ELEMENT.					
	(4) 120°F DISCHARGE WATER TEMPERATURE.					

	PLAN TAG		D-1	D-2	G-1	R-1	L-1
MANUFACTURER			KRUEGER	KRUEGER KRUEGER KRUEGER		KRUEGER	RUSKIN
MODEL NUMBER		PLQ	PLQ	6690	\$80	ELF375DX	
FUNCTION			SUPPLY	SUPPLY	RETURN	EXHAUST	EXHAUSTMAKEU
DESCRIPTION		FLAT PLATE	FLAT PLATE	PERFORATED	3/4" BLADE	(5)	
DEFLECTION			360"	360*			37.5°
MAX. STATIC PRESSURE (IN W.G.)		0.10"	0.10"	0.08"	0:08"	0.10*	
CONSTRUCTION MATERIAL		STEEL	STEEL	STEEL	ALUMINUM	ALUMINUM	
FINISH		WHITE	WHITE	WHITE	WHITE	(3)	
NECK SIZE (IN)		SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS		
FACE SIZE (IN)		24" x 24"	12" x 12"	24" x 24"	DUCT + 1 3/4"	SEE PLANS	
ACCESSORIE	S		9			O.B.D.	(4)
REMARKS			(1) (2)	(1) (2)	(1) (2)	(1) (2)	
REMARKS	(1) (2) (3) (4) (5)	NOISE CRITEI IN OCCUPIED SEE PLANS FI STANDARD C	RIA (NC) SHALL BE SPACES. OR SIZE. COLOR T OLORS. H BIRD SCREEN A	LESS THAN 25 OF O BE SELECTED B	ISHING MATERIAL  OFFUSERS, REGION  ARCHITECT FRO  L SEE DETAILS 6 O	M MANUFACTUR ON SHEET M2.1 &	ER'S M2.2

	PLAN	TAG	EF-1A,B	EF-2	EF-3						
	MANUFACTURER		GREENHECK	GREENHECK	GREENHECK						
	MODEL NUMBER		SP-A390	AER-24-03-0320-VG	AER-20-02-0605-VG						
GENERAL	SERV	ES	RESTROOMS	SERVICE BAYS	LIFT BAY						
	TYPE		(1)	(4)	(4)						
	MAXII	MUM WEIGHT (LBS)	25	100	75						
	ROOF	WALL OPENING SIZE	14"x12"	SEE PLANS	SEE PLANS						
	ACCE	SSORIES	(2)	(5)	(5)						
	AIRFL	OW (CFM)	150 (A) 225 (B)	5,000	500						
	EXTE	RNAL SP (IN. W.C.)	0.5*	0.25" / 0.38" (8)	0.25"						
	CLAS	S									
F	WHE	EL TYPE	BI	PROP	PROP						
FAN	MININ	AUM WHEEL DIA.		24"	20						
	MAXI	MUM dBA / SONES	2.5	21	7.5						
	DESK	GN FAN RPM	1,350	1,750	1,000						
	MAXI	MUM FAN BHP	.03	0.65 (6)	0.08 (6)						
	RPM		1,004 (A) 1,056 (B)	1,426	784						
	HP			1	1/4						
	VOLT	S	115	115	115						
MOTOR	PHAS	Ε	1	1	1						
	TYPE	ž	DIRECT	EC	EC						
	CONT	ROL DEVICE	(3)	(7)	(7)						
	REMA	RKS		_ ·	E						
	(1)	CEILING MOUNTED EXHAUST	T FAN.								
REMARKS	(2)	PROVIDE WITH SPEED CONTROLLER, BACKDRAFT DAMPER, AND DESIGNER CEILING GRILLE.									
	(3)	CONTROLLED WITH LIGHTS, COORDINATE WIRING WITH ELECTRICAL CONTRACTOR.									
	(4)	WALL MOUNTED DIRECT DRIVE EXHAUST FAN WITH EC MOTOR.									
	(5)	PROVIDE WITH 120 V MOTORIZED DAMPER, DISCONNECT SWITCH, SPEED CONTROLLER, WALL HOUSING, AND MOTOR GUARD, SEE DETAIL 6 ON SHEET M2.2.									
	(6)	BRAKE HORSEPOWER SHALL NOT EXCEED 85% OF NOMINAL MOTOR HORSEPOWER.									
	(7)	CONTROLLED BY CO / NO2 GAS DETECTION SYSTEM, OCCUPANTS SHALL HAVE THE ABILITY TO MANUALLY OPERATE THE FAN FOR VENTILATION PURPOSES THROUGH HAND OFF AUTO CONTROLLER FROM MANUFACTURER.									
	(8)	FIRST NUMBER INDICATES EXTERNAL STATIC PRESSURE FOR FAN. SECOND NUMBER INCLUDES STATIC PRESSURE LOSS FROM BACKDRAFT DAMPER AND WALL HOUSING.									

	PLAN TAG	RH-1,2,3,4	
	MANUFACTURER	REZNOR	
GENERAL	MODEL NUMBER	VCT-125	
	SERVES	DETAIL BAY	
GENERAL	CONFIGURATION	STRAIGHT	
	TUBING CONSTRUCTION	STAINLESS STEEL	
	VENTING TYPE	POSITIVE	
	REMARKS	(1) (2) (3) (4) (5) (7)	
	FUEL	NAT. GAS	
	INPUT (MBH)	125	
GAS	OUTPUT (MBH)	102.5	
FIRED	EFFICIENCY	82	
	VENT CONNECTION (IN)	4	
	REMARKS		
	VOLTS	120	
ELECTRIC	PHASE	1	
ELEUTRIC	CONTROL DEVICE	(6)	
	MOTOR HP	1/25	
REMARKS	END CAPS.  (2) RADIANT TUBING TO BE  (3) BURNER: 120 VOLT POW  (4) PROVIDE WITH STAINLE  (5) PROVIDE WITH 3 YEAR V	CONSTRUCTED ENTIRELY OF STAINL FOR GAS BURNER WITH ELECTRONIC SS STEEL GAS FLEX CONNECTION AN WARRANTY ON COMPONENTS, 10 YEAR THERMOSTAT, ONE THERMOSTAST	ESS STEEL. SPARK. ID GAS COCK. R WARRANTY ON TUBING.

	PLAN TAG	ACCU-1					
	MANUFACTURER	LENNOX (1)					
	MODEL NUMBER	ML14XC1-024-230		==			
	SERVES	FUR-1					
GENERAL	CONFIGURATION	(2)					
	MAXIMUM SIZE (LxW)(IN)	28" x 28" x 29"					
	MAXIMUM WEIGHT (LBS.)	175					
	REMARKS	(4) (5)					
	VOLTS	208					
	PHASE	1					
	MAXIMUM UNIT KW						
ELECTRICAL	MAXIMUM FUSE SIZE (AMPS)	14.6					
1	MINIMUM CIRCUIT AMPACITY (MCA)	25					
	REMARKS	(3)					
	AMBIENT AIR TEMPERATURE (F)	105°F					
COOLING	MINIMUM NET SEER (ARI)	14					
COOLING	NOMINAL CAPACITY (TONS)	2					
1	TOTAL COOLING (MBH)	48					
	SENSIBLE COOLING (MBH)	8#					
	TYPE	R410A					
REFRIGERANT	MIN. NUMBER OF CIRCUITS	1					
	REMARKS						
COMPRES-	TYPE	SCROLL					
SORS	QUANITY/SIZE	1					
	HP	1/6					
	REMARKS						
	TYPE	PROP					
CONDENSER FANS	QUANITY/SIZE	1					
1 1010	HP	- 1					
	REMARKS						
REMARKS	SUBJECT TO COMPLIANCE WITH THE REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURERS: LENNOX, TRANE, CARRIER, AND YORK.      SINGLE STAGE DX CONDENSING UNIT.						
	(10)		TRICAL PLANS.				
	(3) DISCONNECT BY ELECTRICAL CONTRACTOR. SEE ELECTRICAL PLANS.						

		(4) PROVIDE LOW AMBIE (5) PROVIDE WITH 5 YEA			OOLING DOWN TO:	90°F AMBIENT.
	DUCTWORK INS	SULATION SCHEE	DULE (1	) (2)		
SERVICE	DUCTWORK APPLICATION	INSULATION TYPE	INSULATION THICKNESS (IN)	MINIMUM R-VALUE	VAPOR RETARDER REQUIRED	REMARKS
SUPPLY AIR	ALL	MINERAL FIBER BLANKET	2-3/16	6	YES	55
RETURN AIR	ALL	MINERAL FIBER BLANKET	2-3/16*	- 6	YES	7.
	ALL	MINERAL FIBER BLANKET	2-3/16	6	YES	**
OUTSIDE AIR		MINERAL FIBER BLANKET	2-3/16	6	YES	Ē
OUTSIDE AIR EXHAUST AIR	ALL	MINERAL FIBER SCANNET	90,000,000			

	PLAN TAG	FUR-1	$\neg$
	MANUFACTURER	LENNOX (6)	+-
	MODEL NUMBER	ML196DF045XE368	$\neg$
LUSVED TO	SERVES	SEE PLANS	$\neg$
GENERAL	CONFIGURATION	(7)	$\neg$
	MAXIMUM SIZE (LxWxH)(IN.)	29" x 21" x 33"	$\neg$
	MAXIMUM WEIGHT (LBS.)	175	$\neg$
	REMARKS	(8)	$\neg$
	TOTAL AIRFLOW (CFM)	700	
AIRFLOW	MINIMUM OUTSIDE AIRFLOW (CFM)	SEE PLANS	
	EXTERNAL SP (IN. WC)	0.5"	
	RPM	1,725	
	HP	1	
i, vocana	VOLTS	120	
MOTOR	PHASE	1	
	TYPE	(9)	$\top$
	CONTROL DEVICE	(1)	
	REMARKS	Y 1	
	FUEL	NAT. GAS	
	INPUT	44.0	
GAS FIRED	OUTPUT	42.0	
rinco	EFFICIENCY	96%	
	VENT CONNECTION (IN)	2'	
	REMARKS	(2) (10)	
	TOTAL CAPACITY (MBH)	24	
COOLING	SENSIBLE CAPACITY (MBH)	-	
(3)	REFRIGERANT	R410A	
	REMARKS		_
	FILTERS	(4)	4
CESSORIES	HUMIDIFER		
	THERMOSTAT	(5)	-
	REMARKS	TROLS WITH BLOWER AND LIMIT CON	
REMARKS	PVC EXHAUST AND INTAKE PIP CONCENTRIC ROOF VENT.     CASED DX COOLING COIL TO M     1" PLEATED DISPOSABLE.     PROGRAMMABLE THERMOSTA' ON/OFF/AUTO.     SUBJECT TO COMPLIANCE WITTHE FOLLOWING MANUFACTUR.     HORIZONTAL GAS FURNACE W.	ING PER MANUFACTURER'S RECOMME ATCH FURNACE AND CONDENSING UN I WITH 7-DAY SETBACK, HEAT/COOL/AI THE REQUIREMENTS, PROVIDE CARRIER, AND THE DX COOLING COIL. IS FIELD INSTALLED ACCESSORIES: DOWN TO 30°F) SE HEATER	IT JTO, FAN DUCT BY

	PLAN TAG	UH-1	
	MANUFACTURER	REZNOR	
	MODEL NUMBER	UDXC-60	
erozeno.	SERVES	LIFT BAY	
GENERAL	CONFIGURATION		
	MAXIMUM SIZE (LxW)(IN)	27"x33"	
	MAXIMUM WEIGHT (LBS.)	75	
	MINIMUM OUTSIDE AIRFLOW (CFM)		
	REMARKS	(2)	
FAN	AIRFLOW (CFM)	770	
	EXTERNAL STATIC PRESSURE (IN. W.C.)		
	MAXIMUM FAN BHP	.03	
	RPM	1,050	
	НР	.06	
	VOLTS	115	
MOTOR	PHASE	1	
	TYPE	*);	
	CONTROL DEVICE	(2)	
	REMARKS	To it	
	FUEL	NATURAL GAS	
	INPUT	60	
GAS	OUTPUT	49.8	
FIRED	EFFICIENCY	83%	
	VENT CONNECTION	4	
	REMARKS	(3)	

RYAN D.
GOUGHNOUR
E-15641

APRIL 5, 2024

REVISIONS/DATES

LAIR DETAIL

B

GREATE + BUILD + INHABIT

MECHANICAL SCHEDULES

YMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
		PICAL PIPING	
. 5	PAPE TEE / PAPE ELBOW		UMON
-+0	EUROWDN/EURONUP	-4-	STRAINER WITH BLOWDOWN
0-	ISOLATION VALVE (BALL OR BLITTERFLY)		CHECK VALVE (ARROW INDICATES FLOW)
0-	BALANONG YALVE	-(A)(B)-	AUTOMATIC CONTROL VALVE TWO-WAY / THREE WAY
*	GATE VALVE	-6-	PRESSURE REGULATING VALVE (PRV)
*	GLOBE VALVE	9	PRESSURE GAUGE
丁 积	PRESSURE/TEMPERATURE TEST PORT	1	THERMOMETER
	contraction of the second seco	LUMBING	CALLED TOOLS
_	DOMESTIC COLD WATER (CVI)	0	GAS COCK
-	DOMESTIC HOT WATER (HVO (NUMBER INDICATES TEMPERATURE)	(D) (L) (1)	FLOOR DRAIN - SIZE TYPE
	DOMESTIC HOT WATER CIRCULATION (HMC) (NUMBER INDICATES TEMPERATURE)	十. 坦	HOSE BB8
_	SANITARY WASTE (BELOW GRADE)	++ 世	WALL HYDRANT (NON-PREEZE)
_	SANITARY WASTE JABOVE GRACE)	VTR	VENT THROUGH ROOF
	VENT PPING	UL.	CE. INVERT ELEVATION
4	COMPRESSED AIR PIPING	FL	FLOWLINE
G	NATURAL GAS PIPING	IVC	WATER CLOSET (SEE SPECIFICATIONS FOR TYPE)
AN-	SITE SANTARY PIPING	UR	URINAL (SEE SPECIFICATIONS FOR TYPE)
5T	SITE STORM PIPING	LAV	LAVATORY (SEE SPECIFICATIONS FOR TYPE)
W	SITE WATER PIPING	8	SINK (SEE SPECIFICATIONS FOR TYPE)
Ci .	CAST-RON	EWC	ELECTRIC WATER COOLER (SEE SPECIFICATIONS FOR TYPE
VC.	POLYYMYL CHLORDE DUCTLE RON	MS	MOP BINK (SEE SPECIFICATIONS FOR TYPE)
70	The state of the s	NIC HVAC PIPIN	-
00-	COLL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG	ERATION PIPIN	9
ı —	COIL CONDENSATE DRAW (SLOPE TO DRAW)	ERATION PIPIN	
L —	COLL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG REFRIGERANT LIQUID LINE	ERATION PIPIN	G I SOLENDID VALVE
	COLL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE	ERATION PIPIN	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV)
n_— 85— 80—	COL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE	ERATION PIPIN	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV)
u — us — us —	COLL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE	ERATION PIPIN	G SOLENDD VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS
u — 6 —	REFRIG REFRIGERANT LIQUID LIME REFRIGERANT SUCTION LIME REFRIGERANT HOT GAS DISCHARGE LIME  SOUNALL SUPPLY REGISTER OR GRULE HOW ARE UP THE ARREST OF THE AR	ERATION PIPIN	G SOLENCID VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS SENSOR
L— S— O—	COL CONDENSATE DRAIN (SLOPE TO DRAIN)  REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE	ERATION PIPIN	G SOLENDID VALVE THERWOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS SENSOR THERMOSTAT
L — S — O —	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SOUNALL SUPPLY REGISTER OR GRULE REDUCED BY THE ARTIST OF THE AR	ERATION PIPIN	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS SENSOR THERMOSTAT MUNDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER.
n_— 85— 80—	REFRIG REFRIGERANT LIQUID LIME REFRIGERANT SUCTION LIME REFRIGERANT HOT GAS DISCHARGE LIME  SOUNALL SUPPLY REGISTER OR GRULE HOW ARE UP THE ARREST OF THE AR	ERATION PIPIN	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS SENSOR THERMOSTAT HUMDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR
L — S — O —	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SOUNALL SUPPLY REGISTER OR GRILLE SECURITY THE ARTIST AND THE AR	HVAC	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS  SENSOR THERMOSTAT HAMDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER VOLUME CAMPER FIRE DAMPER WITH SLEEVE AND ACCESS DOOR
L — S — O —	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SOUNALL SUPPLY REGISTER OR GRULE REDUCED BY THE ARTIST OF THE AR	HVAC	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV) BIGHT GLASS  SENSOR THERMOSTAT MANDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER VOLUME CHAMPER FIRE DAMPER WITH SLEEVE AND ACCESS DOOR SMOKE DAMPER WITH SLEEVE AND ACCESS DOOR
N	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SOUNALL SUPPLY REGISTER OR GRILLE SECURITY THE ARTIST AND THE AR	HVAC	G SOLENDID VALVE THERROSTATIC EXPANSION VALVE (TXV) SIGHT GLASS  SENSOR THERMOSTAT MUNICIPATE MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER FIRE DAMPER FIRE DAMPER WITH SLEEVE AND ACCESS DOOR FIRESMOKE DAMPER WITH SLEEVE AND ACCESS DOOR FIRESMOKE DAMPER WITH SLEEVE AND ACCESS DOOR
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10-10-10-10-10-10-10-10-10-10-10-10-10-1	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SIDEWALL SUPPLY REGISTER OR GRILLE RECOGNIZED SIDEWALL RETURN OR EXHAUST REGISTER OR GRILLE RECOGNIZED SUPPLY AIR REGISTER RESIDENCE THE RESIDENCE OR RESERVE FRISER DN  RETURN AIR DUTSIDE AIR OR RELIEF AIR DUCT END OR RISER UP / RISER DN  RETURN AIR EXHAUST AIR OR RELIEF AIR DUCT END OR RISER UP / RISER DN	ERATION PIPIN  - & - & - & - & - & - & - & - & - & -	G SOLENDID VALVE THERMOSTATIC EXPANSION VALVE (TXV) SIGHT GLASS  SENSOR THERMOSTAT MANDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER VOLUME DAMPER FIRE DAMPER WITH SLEEVE AND ACCESS DOOR SINCKE DAMPER WITH SLEEVE AND ACCESS DOOR FIRESMOKE DAMPER WITH SLEEVE AND ACCESS DOOR SUPPLY AIR RETURN AIR ETHALIST AIR
N	REFRIG REFRIGERANT LIQUID LINE REFRIGERANT SUCTION LINE REFRIGERANT HOT GAS DISCHARGE LINE  SIDEWALL SUPPLY REGISTER OR GRULE REDUCTION SIDEWALL RETURN OR EXHAUST REGISTER OR GRULE REDUCTION SUPPLY AIR REGISTER REGISTER OR GRULE REDUCTION OR RISER UP / RISER DN RETURN AIR, DOHAUST AIR OR RELIEF AIR DUCT END OR RISER UP / RISER DN RECTANDULAR DUCTWORK (WIDTH DEPTHAM), (FIRST NUMBER IS SIDE SHOWN)	ERATION PIPIN	G SOLENDID VALVE THERADSTATIC EXPANSION VALVE (TXV) BIGHT GLASS  SENSOR THERADSTAT MANDISTAT MOTORIZED CONTROL DAMPER WITH ACTUATOR BACKDRAFT DAMPER VOLUME CHAMPER FIRE DAMPER WITH SLEEVE AND ACCESS DOOR SINCKE DAMPER WITH SLEEVE AND ACCESS DOOR SUPPLY AIR RETURN AIR EXHAUST AIR

	PLAN	TAG	EF-1A,B	EF-2	EF-3					
	MAN	JFACTURER	GREENHECK	GREENHECK	GREENHECK					
GENERAL	MODEL NUMBER		SP-A390	AER-24-03-0320-VG	AER-20-02-0605-VG					
	SERVES		RESTROOMS	SERVICE BAYS	LIFT BAY					
	TYPE		(1)	(4)	(4)					
	MAXI	MUM WEIGHT (LBS)	25	100	75					
	ROO	F/WALL OPENING SIZE	14"x12"	SEE PLANS	SEE PLANS					
	ACCE	SSORIES	(2)	(5)	(5)					
	AIRF	LOW (CFM)	150 (A) 225 (B)	5,000	500					
	EXTE	RNAL SP (IN. W.C.)	0.5*	0.25" / 0.38" (8)	0.25"					
	CLAS	S								
	WHE	EL TYPE	BI	PROP	PROP					
FAN	MINI	NUM WHEEL DIA.	1 2	24"	20					
	MAX	MUM dBA / SONES	2.5	21	7.5					
	DES	GN FAN RPM	1,350	1,750	1,000					
	MAX	MUM FAN BHP	.03	0.65 (6)	0.08 (6)					
	RPM		1,004 (A) 1,058 (B)	1,426	784					
	HP			1	1/4					
	VOLT	S	115	115	115					
MOTOR	PHAS	E	i	1	1.					
	TYPE		DIRECT	EC	EC					
	CON	TROL DEVICE	(3)	(7)	(7)					
	REMA	ARKS		· ·						
	(1)	CEILING MOUNTED EXHAUS	T FAN.							
REMARKS	(2)	PROVIDE WITH SPEED CON	TROLLER, BACKDRAFT DA	MPER, AND DESIGNE	ER CEILING GRILLE.					
(ALMININO)	122	PROVIDE WITH SPEED CONTROLLER, BACKDRAFT DAMPER, AND DESIGNER CEILING GRILLE.								
	(3)	CONTROLLED WITH LIGHTS, COORDINATE WIRING WITH ELECTRICAL CONTRACTOR.								
	(4)	WALL MOUNTED DIRECT DRIVE EXHAUST FAN WITH EC MOTOR.								
	(5)	PROVIDE WITH 120 V MOTORIZED DAMPER, DISCONNECT SWITCH, SPEED CONTROLLER, WALL HOUSING, AND MOTOR GUARD. SEE DETAIL 6 ON SHEET M2.2.								
	(6)	BRAKE HORSEPOWER SHALL NOT EXCEED 85% OF NOMINAL MOTOR HORSEPOWER.								
	(7)	CONTROLLED BY CO / NO2 GAS DETECTION SYSTEM. OCCUPANTS SHALL HAVE THE ABILITY TO MANUALLY OPERATE THE FAN FOR VENTILATION PURPOSES THROUGH HAND OFF AUTO CONTROLLER FROM MANUFACTURER.								
		FIRST NUMBER INDICATES EXTERNAL STATIC PRESSURE FOR FAN. SECOND NUMBER INCLUDES STATIC PRESSURE LOSS FROM BACKDRAFT DAMPER AND WALL HOUSING.								

			INSULATION	VAPOR	
SERVICE	PIPING SIZES	INSULATION TYPE	THICKNESS (IN)	RETARDER REQUIRED	REMARKS
CONDENSATE DRAIN (COPPER)	ALL	MINERAL FIBER	1/2"	YES	
REFRIGERANT SUCTION (RS)	ALL	FLEXIBLE ELASTOMERIC	1/2"	YES	(1)
REFRIGERANT LIQUID (RL)	ALL	FLEXIBLE ELASTOMERIC	1/2"	YES	(1)
DOMESTIC COLD WATER (CW)	ALL	MINERAL FIBER	1/2"	YES	3
DOMESTIC HOT WATER (WITHOUT RECIRC.)	ALL	MINERAL FIBER	1/2"	NO	-
PLUMBING VENTS, 2 FEET BELOW ROOF	ALL	MINERAL FIBER	1/2"	YES	-

REM	ARKS
4	PROVID

- PROVIDE UV RESISTANT INSULATION ON ALL EXTERIOR PIPING.
   AT MINIMUM, INSULATION SHALL MEET 2018 IECC.
   SEE PIPE INSULATION DETAIL 7, SHEET M2.2.
   SEE SPECIFICATION SECTIONS 220720 AND 230720 FOR ADDITIONAL INFORMATION.

(1) SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS INCLUDING STOPS, FITTINGS AND ALL OTHER SPECIALTIES.

(2) PICTURES OF FIXTURES DO NOT INDICATE ACTUAL FIXTURE SPECIFIED. PICTURES ARE GRAPHICAL IN NATURE. SEE DESCRIPTION FOR ACTUAL FIXTURE AND MODEL.

REVISIONS/DATES

NO. DATE DESCRIPTION





MECHANICAL SCHEDULES

### Project Information

Energy Code: Project Title: Location: Climate Zone:

Project Type:

Blair, NE 68008

2018 IECC Woodhouse Blair Detail and Accessory Bay

Blair, Nebraska **New Construction** 

Owner/Agent: Construction Site: 2171 S Highway 30

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed

Reduced Lighting Power, 1.0 credit

## Mechanical Systems List

Quantity System Type & Description

1 HVAC System 1 (Single Zone): Heating: 1 each - Central Furnace, Gas. Capacity = 45 kBtu/h Proposed Efficiency \* 92.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE

Cooling: 1 each - Split System, Capacity = 24 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Capacity

Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 1 - Compliance (Motor nameplate HP method): Passes

FAN 1 Supply, Constant Volume, 700 CFM, 1.0 motor nameplate hp, 1.0 fan efficiency grade

1 HVAC System 2 (Single Zone):

Heating: 1 each - Radiant Heater (RH-1,2,3,4), Gas, Capacity = 125 kBtu/h No minimum efficiency requirement applies Fan System: None

1 HVAC System 3 (Single Zone): Heating: 1 each - Unit Heater (UH-1), Gas. Capacity = 60 kBtu/h

Proposed Efficiency = 83.00% Ec. Required Efficiency: 80.00 % Ec Fan System: None

Electric Storage Water Heater, Capacity: 19 gallons Proposed Efficiency: 1.72 SL, %/h (if > 12 kW), Required Efficiency: 1.72 SL, %/h (if > 12 kW)

## Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans. specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Digitally signed by Grayson Arnold Date: 2024.04.05 15:16:26-05'00'

Designer/Contractor:

Omaha, NE 68164

402,491,4144

Morrissey Engineering, Inc.

4940 North 118th Street

Project Title: Woodhouse Blair Detail and Accessory Bay

Data filename: K:\2024\24093 Woodhouse Blair Detail and Accessory Building\Calculations\24093\_COMcheck.c Page 1 of 12

# MECHANICAL SPECIFICATIONS

#### SECTION 220100 - GENERAL REQUIREMENTS FOR PLUMBING

- A. RELATED DOCUMENTS
- Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this
- 2. Division 22 and 23 Conditions apply to this Section.
- B. SUMMARY
- 1. This Section includes general mechanical requirements and shall apply to all phases of the work specified indicated on the drawings or required to provide for complete installation of plumbing systems.
- 2. Refer to Section 230100 for General Requirements for Mechanical
- 3. Refer to Section 230500 for Basic Mechanical Materials and Methods

### SECTION 220720 - PIPE INSULATION FOR PLUMBING

- A. MINERAL-FIBER INSULATION: Glass fibers bonded with a thermosetting resin. Preformed Pipe Insulation: Comply with ASTM C 547, Type 1, with factory-applied, all-purpose, vapor-retarder jacket. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Apply insulation to pipes buy securing each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.
- B. VAPOR RETARDER: On piping systems operating below ambient space temperature, seal joints and seams with vapor-retarder mastic. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic Mastics.
- C. SEE PIPING INSULATION SCHEDULE ON SHEET M2.4.

#### SECTION 221116 - WATER DISTRIBUTION PIPING

- A. DOMESTIC WATER PIPING: Above ground; hard copper tube, ASTM B 88, Type L; copper, 95-5 solder-joint. fittings; and soldered joints. Underground; Soft copper tube, ASTM B 88, Type K; wrought-copper, solder-joint. pressure fittings; and soldered joints.
- B. VALVES: Provide gate, ball or butterfly isolation valves close to main on each branch and riser serving plumbing fixtures or equipment, and where indicated. Provide globe, ball or butterfly valve for throttling where indicated. Provide supply stops at each plumbing fixture.
- C. TESTING: Test water distribution piping according to authority having jurisdiction. Clean and disinfect water distribution piping. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.

#### SECTION 221318 - DRAINAGE AND VENT PIPING

- A. ABOVEGROUND, SANITARY WASTE AND VENT AND STORM PIPING: CISPI 301, ASTM A888, Hubless, cast-iron soil pipe; hubless, cast-iron, soil-pipe fittings and hubless, cast-iron, Neoprene sleeve coupling with stainless steel clamps OR PVC Plastic Pipe (ASTM D 2665, solid wall, Schedule 40), PVC Socket Fittings (ASTM D 2665, made to ASTM D 3311 drain, waste, and vent pipe patterns), and solvent camented joints. Do not install PVC piping in return air plenum.
- B. UNDERGROUND, SANITARY WASTE, AND VENT AND STORM PIPING: ASTM A74. Hub-and-spigot, ist-iron soil pipe, Service class; hub-and-spigot, cast-iron, soil-pipe fittings, lead & oakum o OR PVC Plastic Pipe (ASTM D 2665, solid wall, Schedule 40), PVC Socket Fittings (ASTM D 2665, made to ASTM D 3311 drain, waste, and vent pipe patterns), and solvent welded joints.
- C. PIPING INSTALLATION: Make changes in direction for drainage and vent piping using appropriate branches, bends, and long-sweep bends. Do not make change in direction of flow greater than 90 degrees. Lay buried building drain piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions.
- D. SLOPE: Install drainage and vent piping at the following minimum slopes, unless otherwise indicated:
- 1. Sanitary Piping: 2 percent downward in direction of flow for piping 3-inch NPS and smaller, 1 percent downward in direction of flow for piping 4-inch NPS and larger.
- 2. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
- E. TESTING: Test drainage and vent piping according to procedures of authorities having jurisdiction.

## SECTION 221319 - PLUMBING SPECIALTIES

- A. WATER PRESSURE REGULATORS: water regulators, rated for initial working pressure of 150 psig minimum, of size, flow rate, and inlet for 80 psig outlet pressure. Install on building service piping.
- B. WALL CLEANOUTS (WCO): Cast iron or PVC body adaptable to pipe with cast bronze, brass or PVC cleanout plug; stainless steel cover, vandal proof screws. Install as shown and as required by code.
- C. CLEANOUT PLUGS (CO): PVC, Cast iron or brass, threads complying with ANSI B2.1, countersunk head. Engrave heads to identify system.
- D. FLOOR CLEANOUTS (FCO): Cast iron body and frame with cleanout plug and adjustable round nickel bronze top. Provide to match floor system:
  - Exposed finish type, standard mill finish.
- Exposed flush type, standard non-slip scored or abrasive finish. Exposed flush type, standard mill finish and carpet marker.
- Heavy duty for traffic applications.
- E. VENT FLASHING (VTR): 24" square minimum. Non-plasticized, chlorinated, polyethylene, concealed, waterproof membrane, 0.40" thick, solvent weldable or Lead sheet, 2-1/2" lb/sf, concealed.

## 224000 PLUMBING FIXTURES

- A. Installation: Install handles for accessible water closets and urinals with handle mounted on wide side of compartment. Install individual stop valve in each water supply to fixture. Install water-supply stop valves in accessible locations. Install traps on fixture outlets. Omit traps on fixtures having integral traps and on indirect wastes. Vent all fotures as required by local code. Seal joints between fotures and walls, floors, and counters using sanitary-type, 1-part, mildew-resistant, silicone sealant. Match sealant color to fixture color. Install hot and cold water supply, waste and vent piping of sizes indicated, but not smaller than required by authorities having
- B. See Plumbing Fixture Schedule on sheet M2.4 for plumbing fixture specifications.

### SECTION 230100 - GENERAL REQUIREMENTS FOR MECHANICAL

- A. WARRANTIES All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Any item that becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner. Warranty shall include repair of faulty workmanship.
- DEFINITIONS ABBREVIATIONS The following shall apply throughout the contract documents:

Furnish	Supply and deliver to site ready for installation
Indicated	Noted, scheduled or specified
Provide	Furnish, install and connect complete and ready for final use

Americans with Disabilities Act American National Standards Institute American Society of Mechanical Engineers

American Society of Heating, Refrigeration and Air Conditioning Engineers ASHRAE NEC National Electric Code (NFPA 70)

NEMA. National Electrical Manufacturers Association National Fire Protection Association NEPA

SMACNA Sheet Metal and Air Conditioning Contractors National Association Underwriters Laboratories Inc.

- C. CODES AND STANDARDS All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to the currently adopted edition of the National Electric Code (NEC), Local Building Code, Local Plumbing Code, Local Mechanical Code, Local Fire Code, and all other applicable state and local codes or standards. Where there is a conflict between the code and the contract documents, the code shall have precedence only then it is more stringent than the contract documents.
- D. PERMITS Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.
- E. SUBMITTALS Shop drawings shall be submitted to Architect/Engineer for all items of mechanical equipment. including the following:

Diffusers, Registers, Grilles Sheet Metal Accessories HVAC equipment Plumbing Fixtures

Plumbing Specialties

- 1. Shop drawings include fabrication and installation drawings, diagrams, schedules and other data specifically prepared for the project. Include dimensions and notations showing compliance with specified standards. Unless otherwise noted, submit a minimum of six (6) copies of shop drawings for review. Electronic copies (in pdf format) by e-mail are acceptable in lieu of hard copies.
- Architect/Engineer will review or take appropriate action for submittals. Review is only to determine general. conformance with design shown in contract documents. Review of submittals shall not relieve contractor of responsibility for deviation from requirements of the contract documents or from errors or omissions within submittals.
- F. MATERIALS All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.
- G. DEMONSTRATION AND TRAINING Instruct Owner's personnel to adjust, operate, and maintain mechanical systems. Schedule training with Owner with at least seven days' advance notice.
- H. STARTING AND ADJUSTING Start and test all equipment and operating components to confirm proper operation. Test and adjust all systems to achieve designed capacity and performance. All equipment and systems discrepancies shall be corrected prior to final acceptance.

## SECTION 230500 - BASIC MECHANICAL MATERIALS AND METHODS

- A. PIPING INSTALLATION: Install piping at required slope. Install components with pressure rating equal to or greater than system operating pressure. Install piping in concealed locations, except in equipment rooms and service areas. Install piping free of sags and bends. Install piping at right angles or parallel to building walls. Install piping light to slabs, beams, joists, columns, walls, and other building elements. Locate groups of pipes parallel to each other, spaced to permit valve servicing. Install fittings for changes in direction and branch. connections. Install pipe escutcheons for exposed pipe penetrations walls and ceilings. Install sleeves for pipes passing through concrete and masonry walls, and concrete floor and roof slabs. Provide dielectric fitting where two different types of pipe materials are joined. Comply with MSS-89 for pipe hanger selection and application.
- B. EQUIPMENT INSTALLATION: Install equipment per manufacturer's recommendations Install equipment as high as possible. Install equipment level and plumb, parallel and perpendicular to building. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Install equipment giving right of way to piping installed at required slope.
- C. LABELING AND IDENTIFYING
- Piping: Provide pipe markers on each system where pipe is exposed to view and above removable ceilings. Include pipe description of system and arrows showing normal direction of flow.
- Equipment: Install engraved plastic-laminate sign or equipment marker on or near each major item of mechanical
- D. CUTTING AND PATCHING: Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of trades involved. Repair cut surfaces to match adjacent surfaces.

## SECTION 230593 - TESTING, ADJUSTING, AND BALANCING

- A. Examine air-handling equipment to ensure clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation. Check dampers for proper
- B. Perform testing and balancing procedures on each system according to the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and this Section.
- C. Adjust fans to deliver total design airflow within the maximum allowable rpm listed by the fan manufacturer. Provide new fan sheaves as required. Measure fan airflow, static pressure, rpm and amp draw.
- D. Adjust volume dampers to achieve design airflow within 10% of specified values. Adjust diffusers, registers and grilles. Adjust minimum and maximum outside airflow.
- E. Prepare report listing date, project information, equipment data and measured airflow results. Report shall include drawing indicating locations of air outlets and final measured airflow of each outlet. Submit four copies of report to engineer for review.

## SECTION 230700 - DUCT INSULATION

- A. MINERAL-FIBER BLANKET THERMAL INSULATION: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, with all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and viryl film. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions with the least number of joints practical. Seal joints and seams with vapor-retarder mastic on cold air ducts. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic.
- B. See DUCT INSULATION SCHEDULE on sheet M2.4 for thicknesses.

#### SECTION 230720 - PIPE INSULATION FOR HVAC

- A. MINERAL-FIBER INSULATION: Glass fibers bonded with a thermosetting resin. Preformed Pipe Insulation: Comply with ASTM C 547. Type 1, with factory-applied, all-purpose, vapor-retarder jacket. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Apply insulation to pipes buy securing each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.
- B. FLEXIBLE ELASTOMERIC THERMAL INSULATION: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials. Adhesive as recommended by insulation material manufacturer. Ultraviolet-Protective coating as recommended by insulation manufacturer. Flame-soread rating of 25 or less, and smoke-developed rating of 50 or less. Follow manufacturer's written instructions for applying insulation. Seal longitudinal seams and end joints with manufacturer's recommended
- C. VAPOR RETARDER: On piping systems operating below ambient space temperature, seal joints and seams with vapor-retarder mastic. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic.
- C. SEE PIPING INSULATION SCHEDULE ON SHEET M2.4

#### SECTION 231123 - NATURAL GAS PIPING

- A. STEEL PIPE: Pipe: ASTM A 53; Type E or S; Grade B; Schedule 40; black. Malleable-Iron. Threaded Fittings ASME B16.3, Class 150, standard pattern, with threaded ends according to ASME B1.20.1. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends according to ASME. B1.20.1. Joint Compound and Tape: Suitable for natural gas.
- B. Install and test gas piping according to NFPA 54 "National Fuel Gas Code" and Authority having jurisdiction.

A. CONDENSATE DRAIN LINES: ASTM B 88, Type L drawn-temper copper tubing with soldered joints. Slope piping to allow drainage.

### SECTION 232300 - REFRIGERANT PIPING

- A. REFRIGERANT PIPING
- Aboveground, ASTM B 280, Type ACR copper tubing with brazed joints (using AWS A5.8 filler material).
- B. REFRIGERANT VALVES
- Service Valves:
- a) Body: Forged brass with brass cap including key end to remove core. b) Core: Removable ball-type check valve with stainless-steel spring.
- c) Seat: Polytetrafluoroethylene. d) End Connections: Copper spring. e) Working Pressure Rating: 500 psig.
- 2. Solenoid Valves: Comply with ARI 760 and UL 429; listed and labeled by an NRTL. a) Body and Bonnet: Plated steel.
- b) Solenoid Tube, Plunger, Closing Spring, and Seat Orifice: Stainless steel.
- c) Seat: Polytetrafluoroethylene. d) End Connections: Threaded.
- e) Electrical: Molded, watertight coil in NEMA 250 enclosure of type required by location with 1/2-inch conduit adapter, and 24-V ac coil.
- f) Working Pressure Rating: 400 psig. g) Maximum Operating Temperature: 240 deg F.

## C. INSTALLATION:

h) Manual operator.

- Refrigerant piping to be installed per ASHRAE 15.
- 2. Sizing, pipe arrangement, and refrigerant specialties shall be determined by the equipment manufacturer based on the final layout / routing worked out in the field. Installation shall follow the recommended
- requirements of the equipment manufacturer. Piping shall be free of sags and bends and routed in as direct as possible path between components.
- 4. Pipe shall be insulated per insulation schedule. Use of thermal shields must be used at support points (attaching support/clamps directly to the piping will be unacceptable).

### B. TESTING: Purge refrigerant piping systems with dry nitrogen. Prepare and pressure test piping according to ASHRAE 15. Charge system refrigerant.

## SECTION 233113 - METAL DUCTS AND ACCESSORIES

Conditioning and Ventilating Systems," unless otherwise indicated.

- A. GENERAL: Drawings indicate general arrangement of ducts, fittings, and accessories. Minor modifications to route, size and shape of duct may be made to meet structural and other interference. Changes which could affect system performance shall be reviewed by Architect/Engineer prior to fabrication or installation of duct. Coordinate layout with suspended ceiling, fire- and smoke-control dampers, lighting layouts, and similar finished work.
- B. DUCT FABRICATION: Sizes shown on plans are inside clear dimensions. Ductwork utilizing duct liner shall be increased in size to accommodate the duct liner thickness.

C. MATERIAL: Construct all rectangular and round ducts from galvanized sheet steel: Lock-forming quality;

- ASTM A 653/A 653M, G90 coating designation; mill-phosphatized finish for surfaces of ducts exposed to view. D. QUALITY ASSURANCE: Fabricate and install duct per SMACNA's "HVAC Duct Construction Standards-Metal and Flexible" and applicable codes. Comply with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals. Comply with NFPA 90A, "Installation of Air
- E. PRESSURE CLASS: Unless otherwise noted construct all ducts to 2.0" WG positive or 2.0" WG negative pressure class.
- F. DUCT SEALING: UL classified, non-combustible, flame spread 25 or less, smoke developed rating of 540 or less, resistant to water, pressure rupture rating of 16" WG minimum, suitable for use alone or with tape, application an operational temperature ranges appropriate for usage. Seal all duct per SMACNA class 'C' duct seal
- G. VOLUME DAMPERS: Fabricate single blade dampers for duct sizes 9 ½: high x 30" width maximum. Fabricate multi-blade dampers of opposed blade pattern using minimum. 16 gauge steel with maximum blade sizes 6" x 48" for larger ducts. Provide end bearings with end seals for pressure class required except in round duct 12" in diameter and smaller. Provide locking indicating quadrant regulators on all volume dampers. Mark ends of damper shanks for open/closed indication. Insulated ducts to have elevated dial indicators. Motorized dampers to have 115 volt operators. Provide manual volume dampers at branch take-offs and as shown. Provide motorized dampers as indicated
- H. FLEXIBLE CONNECTORS: Flame-retarded or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1. Neoprene double-coated woven glass fibber fabric in accordance with NFPA 90A, suitable for temperatures and pressures of application, approximately 5" wide, crimped into metal edge strip. Provide flexible connections to motor driven equipment.
- 1. FLEXIBLE DUCTS: Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2-inch-thick, glass-fiber insulation around a continuous inner liner, steel-wire helix encapsulated in polyethylene inner liner. Comply with UL 181, Class 1. Final connections to air outlets and terminal units may be made with flexible duct. Install flexible ducts with metal collars or sleeves with draw bands. Length of flexible duct shall not exceed 36" path shall not exceed 45°.

NO. DATE DESCRIPTION

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DETAIL

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MOOOM

CREATE + BUILD + INHABIT

REVISIONS/DATES

MECHANICAL SPECIFICATIONS

#### LIGHTING CONTROL DEVICE SCHEDULE DESCRIPTION MANUFACTURER CATALOG NUMBER SYMBOL TWO SCENE LIGHTING CONTROL NETWORK ENTRY STATION WITH ON / OFF nPODM 2S DX SENSORSWITCH PUSH BUTTONS AND RAISE / LOWER DIMMING CONTROLS FOUR SCENE LIGHTING CONTROL NETWORK ENTRY STATION WITH ON / OFF nPODM 4S DX SENSORSWITCH PUSH BUTTONS AND RAISE / LOWER DIMMING CONTROLS LIGHTING CONTROL NETWORK POWER PACK - WITH DIMMING SENSORSWITCH

PRODUCTS LISTED INDICATE BASIS OF DESIGN PRODUCTS. REFER TO SPECIFICATIONS FOR ACCEPTABLE EQUIVALENT MANUFCATURERS.

COORDINATE DIMMING TYPE REQUIRED WITH ASSOCIATED LIGHT FIXTURE TYPE CONTROLLED.

## GENERAL NOTES

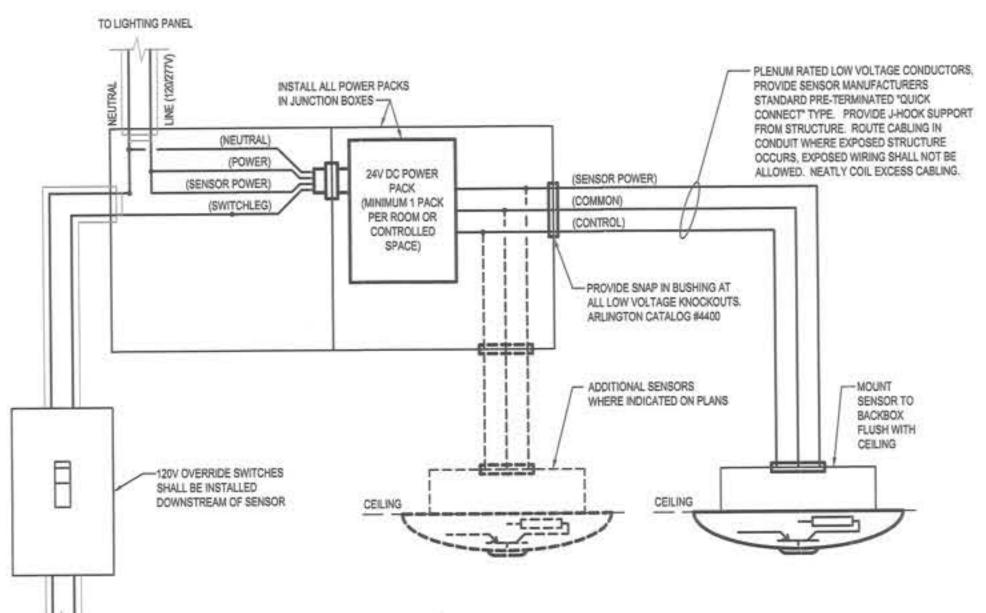
- MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 1/2." MINIMUM DATA/COMMUNICATIONS CONDUIT SIZE SHALL BE 1." SEE DRAWINGS FOR AREAS WHERE LARGER CONDUITS ARE REQUIRED.
- AT CONTRACTOR'S OPTION, THE USE OF MULTI-WIRE BRANCH CIRCUITS IS ALLOWED. PROVIDE MEANS TO SIMULTANEOUSLY DISCONNECT ALL CIRCUIT BREAKERS SHARING A COMMON NEUTRAL.
- PROVIDE A GREEN INSULATED GROUND WIRE IN ALL LIGHTING AND POWER BRANCH CIRCUITS.
- COORDINATE ROUTING OF EXPOSED CONDUIT WITH OWNER AND GENERAL CONTRACTOR PRIOR TO ROUGH IN. MOUNT EXPOSED CONDUIT TIGHT AND PARALLEL
- TAKE CARE TO ENSURE THAT ALL ELECTRICAL AND MECHANICAL DEVICES LOCATED WITHIN SAME VICINITY OF EACH OTHER ARE ALIGNED BOTH VERTICALLY AND HORIZONTALLY. SEE DETAIL FOR ADDITIONAL INFORMATION.

## FLAG NOTES

- PROVIDE LINE VOLTAGE WALL BOX OCCUPANCY SENSOR SEE LIGHTING CONTROL
- DEVICE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. 2 PROVIDE NEW CEILING MOUNTED OCCUPANCY SENSOR - SEE SPECIFICATIONS. ROUTE CIRCUIT THROUGH NEW POWER PACK WITH AUXILIARY RELAYS, CONTROLLED BY NEW OCCUPANCY SENSOR(S). PROVIDE AUXILIARY POWER PACKS AS REQUIRED. SEE DETAIL FOR ADDITIONAL INFORMATION.
- 3 CONNECT SWITCH DOWNSTREAM OF OCCUPANCY SENSORS. SWITCH SHALL SERVE AS MANUAL SHUTOFF ONLY.
- 4 PROVIDE NEW FOUR CHANNEL, SEVEN DAY DIGITAL TIME CLOCK TORK #DTS SERIES OR EQUAL. COORDINATE TIME CLOCK LOCATION WITH OWNER PRIOR TO ROUGH IN. PROVIDE 120V CONNECTION TO TIME CLOCK.
- 5 SURFACE MOUNT EMERGENCY LIGHT TO BOTTOM OF STRUCTURE. MOUNT FIXTURE PARALLEL WITH GENERAL LIGHT FIXTURES IN SAME ROOM. CONNECT EMERGENCY LIGHTS TO DEDICATED CIRCUIT IN PANEL W. PROVIDE LOCKABLE CIRCUIT BREAKER.
- 6 CONNECT EXIT LIGHTS TO DEDICATED CIRCUIT IN PANEL 'A'. PROVIDE LOCKABLE
- 7 LIGHTING CONTROL NETWORK POWER PACK SEE LIGHTING CONTROL DEVICE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. LOCATE AT STRUCTURE IN APPROVED JUNCTION BOX. PROVIDE ALL REQUIRED LOW VOLTAGE AND LINE VOLTAGE CONNECTIONS.
- 8 PROVIDE LIGHTING CONTROL NETWORK ENTRY STATION SEE LIGHTING CONTROL DEVICE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

		LIGHTI	NG	FIXTUR	RE S	CHE	E	1	IL	E			
	, , , , , , , , , , , , , , , , , , , ,		LAMP DATA				N	lou	NTIN	IG			
FIXT#	MANUFACTURER	CATALOG NO. (NOTE 2)	QTY.	SIZE	TYPE (NOTE 3)	VOLTAGE	SURF.	FLUSH	CLG.	WALL	HEIGHT	DESCRIPTION	REMARKS
1	LITHONIA, NOTE 1	IBE L48 30000LM SD080 MD MVOLT 50K 80CRI	N/A	30,000 LM / 5000K	LED	120/277	X		х		15 FT	2X4 HIGH BAY	
2	LITHONIA, NOTE 1	EPANL 2X4 4800LM 80CRI 35K MIN10 EZT MVOLT	N/A	4,800 LM / 3500K	LED	120/277		х	X			2X4 FLAT PANEL	
3	LITHONIA, NOTE 1	LHQM LED W R HO SD	N/A	N/A	LED	120/277	Х			х		SINGLE FACE EXIT LT	W/EMERG. BATTERY
4	LITHONIA, NOTE 1	ELMSL UVOLT LTP SDRT	N/A	N/A	LED	120/277	х		X			BATTERY LIGHT	W/ EMERG, BATTERY
5	LITHONIA, NOTE 1	ARC2 LED P5 40K MVOLT	N/A	6,500 LM / 4000K	LED	120/277	×			х		WALL PACK	
5E	LITHONIA, NOTE 1	ARC2 LED P5 40K MVOLT E8WC	N/A	6,500 LM / 4000K	LED	120/277	X			X		WALL PACK	

- 1. FIXTURE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY COLUMBIA, DAY-BRITE, COOPER, AND H.E. WILLIAMS.
- CONTRACTOR SHALL VERIFY LIGHT FIXTURE CATALOG NUMBER & INSTALLATION REQUIREMENTS PRIOR TO ORDERING.
- 3. LAMP TYPE DESCRIPTION: F=FLUORESCENT, CF=COMPACT FLUORESCENT, I=INCANDESCENT, MH= METAL HALIDE, HPS=HIGH PRESSURE SODIUM, MV=MERCURY VAPOR, LED=LIGHT EMITTING DIODE
- 4. PROVIDE WITH POLYCARBONATE LAMP JACKETS.
- 5 FIXTURE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY PRESCOLITE ARCHITEKTUR, OMEGA REVELATION, COOPER PORTFOLIO, AND WILLIAMS WITH "YOKE" OPTION. ALL DOWN LIGHTS SHALL INCLUDE FACTORY ADJUSTABLE BAR HANGERS.



TO LIGHT FIXTURE(S) OR CONTROLLED LOAD

TYPICAL CEILING OCCUPANCY SENSOR CONNECTION DETAIL

NOT TO SCALE

REVISIONS/DATES

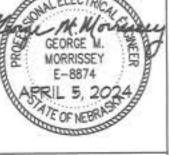
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GREATE + BUILD + INHABIT



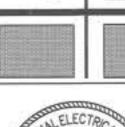




FLOOR PLAN - LIGHTING

E

DREATE + BUILD + INHABIY





FLOOR PLAN - POWER

### SECTION 260100 - GENERAL ELECTRICAL REQUIREMENTS

A. WARRANTIES - All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Any item that becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner. Warranty shall include repair of faulty workmanship.

B. DEFINITIONS ABBREVIATIONS - The following shall apply throughout the contract documents:

Furnish Supply and deliver to site ready for installation

Indicated Noted, scheduled or specified

Provide Furnish, install and connect complete and ready for final use

National Electric Code (NFPA 70)

National Electrical Manufacturers Association

National Fire Protection Association

Underwriters Laboratories Inc.

C. CODES AND STANDARDS - All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to the currently adopted edition of the National Electric Code (NEC), Local Building Code, and all other applicable state and local codes or standards. Where there is a conflict between the code and the contract documents, the code shall have precedence only then it is more stringent than the contract documents.

 PERMITS - Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

E. MATERIALS - All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.

F. DEMONSTRATION AND TRAINING - Instruct Owner's personnel to adjust, operate, and maintain electrical systems. Schedule training with Owner with at least seven days' advance notice.

G. STARTING AND ADJUSTING - Start and test all equipment and operating components to confirm proper operation. Test and adjust all systems to achieve designed capacity and performance. All equipment and

H. TEMPORARY POWER AND LIGHTING - Provide temporary electric power from local utility with matering and payment of use charges.

1. Provide receptacle outlets adequate for connection of power tools and construction equipment.

2. Provide temporary lighting with local switching that provides adequate illumination for construction operations. and traffic conditions.

#### SECTION 260500 - BASIC ELECTRICAL MATERIALS AND METHODS

systems discrepancies shall be corrected prior to final acceptance.

A. QUALITY ASSURANCE - Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended

B. COORDINATION - Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the work.

 Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.

C. CONDUCTORS - All conductors shall be installed in raceways. Conductors for pilot and control circuits shall be #14. All other conductors shall be #12 or larger.

Conductors, No. 10 AWG and Smaller: Solid or stranded copper.

2. Conductors, Larger Than No. 10 AWG: Stranded copper.

3. Insulation: Thermoplastic, rated at 75 deg C minimum.

4. Wire Connectors and Splices: Units of size, ampacity rating, meterial, type, and class suitable for service

D. RACEWAYS - Minimum raceway size shall be ½". Raceway types and applications shall be as follows:

1. Electrical metallic tubing (EMT): ANSI C80.3, zinc-coated steel, with set-screw or compression fittings. EMT shall

be used for all other applications not listed below.

2. Liquid tight flexible metal conduit (LFMC): Zinc-coated steel with sunlight-resistant and mineral-cil-resistant plastic jacket. LFMC shall be used for connections to vibrating equipment or in wet or damp locations

3. Rigid non-metallic conduit (RNC): NEMA TC 2, Schedule 40 PVC, with NEMA TC3 fittings. RNC shall be used for all underground applications.

4. Raceway Fittings: Specifically designed for the raceway type with which used.

E. JUNCTION AND DEVICE BOXES - Minimum box size shall be 4" square with extension or plaster ring as required. Box types and applications shall be as follows

 Sheet metal boxes: NEMA OS 1 galvanized steel. Sheet metal boxes shall be used for all surface mounted applications and flush mounting in gypsum or plaster walls.

2. Cast metal boxes: NEMA FB 1, Type FD, cast box with gasketed cover. Cast metal boxes shall be used for

exterior surface mounted applications.

shall be as prescribed by ANSI A13.1 and NFPA 70.

 Provide underground warning tape for all buried conductors tape shall be permanent, bright-colored. continuous-printed, vinyl tape not less than 6 inches wide by 4 mils thick with embedded continuous metallic strip and shall be compounded for permanent direct-burial service.

2. Provide engraved-plastic labels for all disconnect switches, switchboards, panelboards, transformers, and control

F. ELECTRICAL IDENTIFICATION - All conductors shall be color coded throughout the installation. Color coding

devices. Labels shall be melamine plastic laminate engraving stock with 3/8" engraved lettering and shall be punched or drilled for mechanical fasteners.

G. FIRESTOPPING - Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly.

H. CUTTING AND PATCHING - Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

### SECTION 262416 - PANELBOARDS

A. GENERAL - Panelboard cabinets shall be NEMA PB 1, type 1 zinc coated steel with manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat. Each panelboard shall be furnished with a directory card indicating the load served by each branch circuit.

Panelboard bus material shall be tin plated aluminum.

2. Provide each panelboard with an equipment ground bus adequate for feeder and branch-circuit equipment ground conductors. Bus shall be bonded to box.

3. Where future devices (spaces) are scheduled provide mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

4. Each canelboard shall be fully rated to interrupt symmetrical short-circuit current available at terminals. See schedules for required interrupting current (A.I.C.).

Panelboards shall be mounted with top of trim at 74" above finished floor, unless otherwise indicated.

6. Panelboards shall be mounted plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

7. Panelboards shall be manufactured by Cutter-Hammer, General Electric, Siemens, or Square D.

B. LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

Doors: Front mounted with concealed hinges; secured with flush latch with tumbler lock; keyed alike.

C. OVERCURRENT PROTECTIVE DEVICES - Thermal-magnetic circuit breakers with inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger. Circuit breaker lugs shall be mechanical style, suitable for number, size, trip ratings, and material of conductors.

Each overcurrent protective device shall have an application listing appropriate for the application.

#### SECTION 262726 - WIRING DEVICES

A. GENERAL - Devices shall be installed plumb and secure. Unless otherwise indicated, flush mount wiring devices with long dimension vertical, and grounding terminal of receptacles on bottom.

1. Unless otherwise indicated wiring devices shall be mounted at the following heights, measured from finished floor to centerline of device.

Wall switches and wall box dimmers ≈ 44"

#### Receptacles = 16"

Group adjacent devices under single multi-gang wall plates.

3. Wiring devices shall be manufactured by Pass and Seymour, Leviton, Hubbell, or General Electric.

B. RECEPTACLES - Duplex receptacles shall be specification grade 20 ampere, 120 volt.

1. Ground fault interrupting (GFI) receptacles shall be feed-through type arranged to protect connected downstream receptacles on same circuit.

2. Receptacles serving owner furnished equipment shall have configuration to match that of equipment plug.

C. SWITCHES - Snap switches shall be specification grade, quiet type, single pole, two pole, or three-way to suit

D. DEVICE COLOR - Color shall be white unless otherwise indicated or required by code.

E. WALL PLATES - Plates shall be smooth finish plastic in single and combination types to metch corresponding wiring devices. Match color of associated device(s).

 Weatherproof plates: Self closing transparent cover, lockable weatherproof enclosure, the integrity of which is not affected when the attachment plug cap is inserted. Equal to Cooper Wiring Devices Weatherbox.

## SECTION 262816 - ENCLOSED CONTROLLERS, SWITCHES AND CIRCUIT BREAKERS

A. MAGNETIC ENCLOSED COMBINATION CONTROLLERS - Magnetic enclosed controllers shall be NEMA ICS 2, class A, full voltage, non-reversing, across the line three phase motor starter and integral motor circuit protector with field adjustable, short circuit trip coordinated with motor locked rotor amperes.

1. Controller overload relays shall have dip switch selectable for motor running overload protection with NEMA ICS 2, class 10 tripping characteristic, and selected to protect motor against voltage and current unbalance and single

2. Controllers shall be provided with the following options: Hand-off-auto switch, Red LED indicator light showing controller on, two sets each of normally-open and normally-closed auxiliary contacts, and integral 120 volt control

transformer. 3. Magnetic enclosed combination controllers shall be manufactured by Cutler-Hammer, General Electric, Siemens, or

B. ENCLOSED SWITCHES - Enclosed switches shall be heavy-duty grade with lockable handle. Switches shall be

non-fusible unless otherwise indicated and shall have clips to accommodate fuse sizes indicated on the drawings. 1. Exterior mounted switches shall be NEMA 3R rated and shall be bolted closed.

2. Cartridge fuses shall be class dual-element time delay, Class "RK-1" Bussman low peak. Equivalent fuses as manufactured by Gould Shawmut, littlefuse, or GE are acceptable.

Enclosed switches shall be manufactured by Cutler-Hammer, General Electric, Siemens, or Square D.

## SECTION 264313 - SURGE PROTECTIVE DEVICES (SPD'S)

A. GENERAL - Provide SPD at service entrance equipment (primary protection) and where indicated on plans and schedules (secondary protection).

1. UL 1449 3rd Edition type 1 (installed downstream of service breaker) or type 2 listed for SPD, UL 1283 listed for

2. 20kA nominal discharge (In) tested.

10 modes of protection (L-N, L-G, N-G).

4. Short circuit current rating (SCCR) matching or exceeding the connected equipment short circuit current rating.

Peak surge current rating of 200kA per phase for service entrance equipment SPD, 100kA for all other SPD's.

Voltage protection rating (VPR) not to exceed 700V for 208Y/120V systems, 1200V for 480Y/277V systems.

Voltage rating shall match connected equipment.

8. LED indicators of MOV status, form C contacts for remote monitoring, and stx-digit event counter set to totalize

9. SPD's shall be manufactured by panelboard manufacturer.

## SECTION 265100 - LIGHTING

A. LUMINAIRE AND FIXTURE COMPONENTS - All metal parts and components shall be free from burns, sharp comers, and edges. All fixtures shall be shipped pre-wired and ready for mounting.

1. Doors, frames, and other internal access mechanisms shall be smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools.

 B. EMERGENCY LIGHTING UNITS - Unit shall be a self-contained units with sealed, maintenance-free, lead-acid type with minimum 5-year nominal life and fully automatic, solid-state type charger with sealed transfer relay.

1. Relay shall automatically turn lamp(s) on when supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps, and battery is automatically recharged and floated on charger.

C. LED LIGHT SOURCE REQUIREMENTS:

Rated life (L70): Minimum 50,000 hours as defined by IES LM80 and TM21.

Color Rendering Index (CRI): 80 CRI minimum.

3. Each luminaire type type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among

D. LED DRIVER REQUIREMENTS:

1. 0-10V Dimming.

Total Harmonic Distortion Rating: Less than 20 percent.

Ambient Temperature Rating: -40° to +55° C

Power Factor (100% output): >0.95

E. WARRANTY - Include labor allowance required for replacement on-site at no extra cost to Owner within 1-year construction warranty. Transfer remainder of the manufacturer's warranty, including ballast manufacturer's labor stipend to owner after 1-year construction warranty.

1. Ballast and Drivers: 5-year replacement warranty.

LED system Warranty: 5-year replacement warranty.

F. FINISHES - Luminaire finishes shall be manufacturer's standard, unless otherwise indicated. Painted finishes shall be applied over corrosion-resistant treatment or primer, free of defects. Metallic finishes shall be corrosion resistant.

G. INSTALLATION - Luminaires shall be set level, plumb, and square with ceiling and walls, and secured according to manufacturer's written instructions and approved submittal materials.

1. Luminaires in or on grid-type suspended ceilings shall be supported with support clips and a minimum of four ceiling support system rods or wires for each fixture, located not more than 6 inches from fixture corners.

2. Luminaires of Sizes Less Than Ceiling Grid shall be arranged as indicated on reflected ceiling plans or center in acoustical panel, and supported independently with at least two 3/4-inch metal channels spanning and secured to

#### SECTION 265200 - LIGHTING CONTROL

E. MANUFACTURERS

A. OCCUPANCY SENSORS - Sensor adapts or "learns" patterns of use specific to controlled space to reduce false

1. Ceiling Sensors: Dual technology with infrared and microphonic or ultrasonic 32 kHz or 40 kHz sensors integrated into one housing. 360 degree field of view with a minimum coverage of 20 foot radius at 9' mounting height, with sensor centered in coverage area. Sensor shall mount tight to ceiling surface and shall have a white finish. Provide associated power packs for sensor power and load switching relays. Sensorswitch CM PDT 10 or equivalent by Hubbell or Wattstopper.

2. Wall Box Sensors: Passive dual technology with 180 degree adjustable field of view capable of sensing small motion to 20' when mounted at 4'. Pushbutton on sensor face provides manual on/manual off load control, load may be manually turned on or off at any time. Mount in wall box with decorator style faceplate, sensor shall have gray finish. with 302 stainless steel plate. Integral switch in sensor housing shall be rated for 800 120V, 1200W balkest load at 277V, and 1/4 hp motor load at 120V. Sensorswitch WSD PDT or equivalent by Hubbell

3. Adjust occupancy sensors tailored to actual use conditions of controlled space. Make adjustments before and after

Owner has occupied space. B. LIGHTING CONTROL - See plans, schedules, and details for requirements of network type lighting control.

Lighting control system shall be manufactured by SensorSwitch nLight, Wattstopper, Encellum.

 C. WARRANTY - Manufacturer and Installer agree to repair or replace devices that fall in materials or workmanship. within two years from date of substantial completion.

#### LIGHTING PANEL SCHEDULE (SECOND TUB) LIGHTING PANEL SCHEDULE LIGHTING PANEL: A LIGHTING PANEL VOLTAGE: RATING: PHASE MOUNTING: SURFACE SURFACE WIRE MCB W/ GND. A.I.C. RATING: NOTE 1 MCB W/ GND. DESCRIPTION 30/2 VEHICLE LIF ADIANT HEATERS LTG - DETAIL AREA 20/1 45 48 25/2 ACCU-1 LTG - DETAIL AREA GAS / FAN CONTROL PANEL 20/1 5 6 20/1 REC - RESTROOMS 20/1 47 48 - -LTG - DETAIL AREA 49 50 20/1 GAS UNIT HEATER 20/1 7 8 20/1 (G) REC - WATER COOLER SPACE ONLY LTG - DETAIL AREA 51 52 20/1 EF-2 20/1 8 10 20/1 REC - BREAK ROOM COUNTER SPACE ONLY LTG - DETAIL AREA 20/1 11 12 20/1 REC - BREAK ROOM COUNTER SPACE ONLY LTG - LIFT BAY 55 56 20/1 SPARE 20/1 13 14 20/1 REC - BREAK ROOM COUNTER SPACE ONLY LTG - BACK OF HOUSE 20/1 15 16 20/1 REC - BREAK ROOM COUNTER SPACE ONLY LTG - BUILDING EXTERIOR 59 60 20/1 SPARE SPACE ONLY 20/1 (L) 17 18 20/1 (G) REC - MICROWAVE TIME CLOCK TC-A' 20/1 (L) 19 20 20/1 REC - BREAK ROOM SPACE ONLY LTG - EMERGENCY / EXIT 20/1 21 22 20/1 (G) REC - REFRIGERATOR SPACE ONLY OVERHEAD DOOR 65 66 20/1 SPARE 20/1 23 24 20/1 REC - OFFICE SPACE ONLY OVERHEAD DOOR 67 68 20/1 SPARE SPACE ONLY OVERHEAD DOOR 20/1 25 26 20/1 REC - DETAIL AREA 69 70 20/1 SPARE SPACE ONLY OVERHEAD DOOR 20/1 27 28 20/1 REC - DETAIL AREA 71 72 20/1 SPARE SPACE ONLY 20/1 29 30 20/1 REC - DETAIL AREA OVERHEAD DOOR

SPACE ONLY

SPACE ONLY

SPACE ONLY

SPACE ONLY

SPACE ONLY

SPACE ONLY

NOTES:

## NOTES:

OVERHEAD DOOR

OVERHEAD DOOR

OVERHEAD DOOR

OVERHEAD DOOR

REC - EXTERIOR

REC - EXTERIOR

RATING:

MOUNTING:

1. VERIFY AIC RATING OF PANEL WITH OPPD PRIOR TO PURCHASE.

20/1 31 32 20/1 REC - DETAIL AREA

20/1 41 42 20/1 SPARE

20/1 33 34 20/1 REC - DETAIL AREA

20/1 35 36 20/1 REC - UNDERCAR LIFT BAY

20/1 39 40 20/1 (L) REC - COMMUNICATIONS BOARD

20/1 37 38 20/1 REC - UNDERCAR LIFT BAY

2. (G) INDICATES TO PROVIDE A 'GFCI' TYPE CIRCUIT BREAKER. (L) INDICATES TO PROVIDE A LOCKABLE CIRCUIT BREAKER.

GENERAL BINET, ENCLOSURE, OR CONTROL PANEL, TYPE INDICATED ON PLANS HOMERUM TO PANEL (QUANTITY OF ARROWS INDICATES QUANTITY OF CIRCUIT

 THERMOSTAT
 WALL MOUNTED JUNCTION BOX
 JUNCTION BOX
 JUNCTION BOX
 TYPY
 WHERE (TYP) IS USED ON PLANS INDICATES A TYPICAL NOTE OR CONDITION SUBSCRIPT "WP" APPLIED TO ANY SYMBOL NOICATES WEATHERPROOF NEMA TYPE 3R OR EQUIVALENT

**ELECTRICAL SYMBOLS** 

ACCESS OCCUPANCY ALARM CONTROL SENSOR DIMMER ENTRY PULL CARD DIOXIDE SENSOR THERMOSTAT SENSOR STATION STATION CONTROL CONTROL SWITCH READER FLOOR

NOTE 1

ALIGN DEVICES VERTICALLY AND HORIZONTALLY WHEREVER POSSIBLE. NOT ALL DEVICES OR CONFIGURATIONS ARE ARE DEPICTED ON THIS DETAIL. FOR ANY CONFIGURATIONS WITH FOUR OR MORE DEVICES, COORDINATE ARRANGEMENT WITH THE ENGINEER PRIOR TO ROUGH-IN. SEE FLOOR PLANS FOR INDIVIDUAL DOOR REQUIREMENTS.

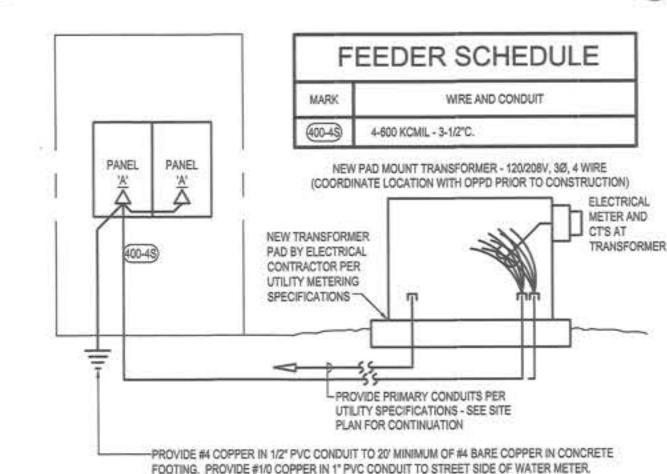
WHERE MULTIPLE SWITCHES OR WALL BOX DIMMERS ARE GANGED TOGETHER, ALIGN FIRST GANG WITH DEVICES ABOVE AND ADD DEVICES TO THE RIGHT AS REQUIRED.

3. DIMENSIONS ARE TO BE MEASURED FROM OUTSIDE EDGE OF DOOR FRAME OR TRIM. WHERE SIDE LIGHT WINDOWS ARE PROVIDED, DIMENSIONS SHOULD BE MEASURED FROM OUTSIDE EDGE OF SIDE LIGHT WINDOW FRAME OR TRIM.

4. ALL DEVICES SHALL BE LOCATED TO MAINTAIN ALL A.D.A. MOUNTING HEIGHT REQUIREMENTS AND SUCH THAT CENTER OF ADJACENT DEVICES ARE AT SAME ELEVATION (TYPICALLY 44" A.F.F. TO CENTER OF DEVICE). NOTIFY ENGINEER OF ANY CONFLICTS WITH THE PROPOSED INSTALLATION.

## DEVICE ALIGNMENT DETAIL

NOT TO SCALE



PROVIDE BONDING JUMPER ACROSS WATER METER. PROVIDE #1/0 COPPER IN 1" PVC CONDUIT

TO BUILDING STEEL. SEE MAIN SERVICE GROUNDING DETAIL FOR ADDITIONAL INFORMATION.

POWER RISER DIAGRAM

NOT TO SCALE

PHASE

WIRE:

73 74 20/1 SPARE

VERIFY AIC RATING OF PANEL WITH OPPD PRIOR TO PURCHASE.

2. (G) INDICATES TO PROVIDE A 'GFCI' TYPE CIRCUIT BREAKER.

(L) INDICATES TO PROVIDE A LOCKABLE CIRCUIT BREAKER.

75 78 SPACE ONLY

SPACE ONLY

SPACE ONLY

SPACE ONLY

Princip Term. Supplement Blad Despit and Supplements Bay

SPACE ONLY

A.I.C. RATING: NOTE 1

**ENERGY CODE COMPLIANCE** 2018 IECC YES ComCHECK YES NOTE 1 COMMISSIONING

 REQUIRED DOCUMENTS (REFER TO CODE) SHALL BE PROVIDED TO THE BUILDING OWNER OR OWNER REPRESENTATIVE WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.





REVISIONS/DATES NO. DATE DESCRIPTION

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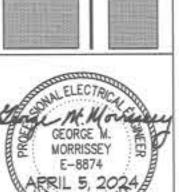
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CREATE + BUILD + INHABIT

E3.1

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ELECTRICAL SPECIFICATIONS

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