# MIDWEST DISTRIBUTION TI

# **1220 NW MAIN STREET** LEE'S SUMMIT, MO 64086

# 08.29.23 **PERMIT SET**





ARCHITECTURE 5719 LAWTON LOOP E. DR. #212 INDIANAPOLIS, IN 46216 O: 317.288.0681 CONTACT : SHAWN CURRAN

# DRAWINGS

COVER

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Distribut ± 230139 oje IN THE EVENT OF QUESTIONS REGARDING THE CONTRACT DOCUMENTS, SPECIFICATIONS, EXISTING CONDITIONS OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ARCHITECT PRIOR TO BID SUBMITTAL AND PROCEEDING WITH ANY WORK IN QUESTION.

THESE CONTRACT DOCUMENTS ARE INTENDED TO DESCRIBE ONLY THE SCOPE AND APPEARANCE OF THE REAL PROPERTY IMPROVEMENTS, INCLUDING THE PERFORMANCE AND LEVEL OF QUALITY EXPECTED OF OF ITS COMPONENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ALL WORK COMPLETED AND MATERIALS INSTALLED BE IN FULL COMPLIANCE AT A MINIMUM, WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES HAVING JURISDICTIONAL AUTHORITY OVER THE PROJECT.

THESE CONTRACT DOCUMENTS DO NOT ATTEMPT TO INSTRUCT THE CONTRACTOR IN THE DETAILS OF HIS TRADE. THEY ARE PERFORMANCE SPECIFICATIONS IN THAT THEY DO REQUIRE THAT ALL MANUFACTURED ITEMS, MATERIALS AND EQUIPMENT BE INSTALLED IN STRICT CONFORMANCE TO THE MANUFACTURER'S RECOMMENDED SPECIFICATIONS, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT. ANY MISCELLANEOUS ITEMS OR MATERIALS NOT SPECIFICALLY NOTED, BUT REQUIRED FOR PROPER INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

ALL WORK SHALL BE WARRANTED SATISFACTORY, IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (I) YEAR, OR FOR THE PERIOD OF WARRANTY CUSTOMARY, OR STIPULATED FOR THE TRADE, CRAFT, OR PRODUCT, WHICHEVER IS LONGER. ONLY COMPETENT MECHANICS CAPABLE OF PRODUCING GOOD WORKMANSHIP CUSTOMARY TO THE TRADE SHOULD BE USED. COMMENCING WORK BY A CONTRACTOR OR SUBCONTRACTOR CONSTITUTES ACCEPTANCE OF THE CONDITIONS AND SURFACES CONCERNED. IF ANY SUCH CONDITIONS ARE UNACCEPTABLE, THE GENERAL CONTRACTOR SHALL BE NOTIFIED IMMEDIATELY, AND NO WORK SHALL BE PERFORMED UNTIL THE CONDITIONS ARE CORRECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH THE PROJECT SCOPE OF WORK, BUILDING STANDARDS, SCHEDULE AND DEADLINES. THE CONTRACTOR SHALL FURTHER BE RESPONSIBLE FOR ADVISING THE OWNER OF ALL LONG LEAD ITEMS AFFECTING THE PROJECT SCHEDULE AND SHALL, UPON REQUEST FROM THE OWNER, SUBMIT ORDER CONFIRMATIONS AND DELIVERY DATES FOR SUCH LONG LEAD ITEMS TO THE OWNER.

ALL CONTRACTOR OR SUPPLIER REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS SHALL BE SUBMITTED, IN WRITING, ACCOMPANIED BY THE ALTERNATIVE PRODUCT INFORMATION, TO THE ARCHITECT, NO LATER THAT TEN (10) BUSINESS DAYS, PRIOR TO BID OPENING DATE. SUBSTITUTIONS SHALL ONLY BE CONSIDERED IF THEY DO NOT SACRIFICE QUALITY, FUNCTIONALITY, APPEARANCE OR WARRANTY. UNDER NO CIRCUMSTANCES WILL THE OWNER BE REQUIRED TO PROVE THAT A PRODUCT PROPOSED FOR SUBSTITUTION IS OR IS NOT OF EQUAL QUALITY TO THE PRODUCT SPECIFIED. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SCALE THE DRAWINGS TO DETERMINE DIMENSIONS. REFER TO PLANS, SECTIONS AND DETAILS FOR ALL DIMENSIONAL INFORMATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL SELECTED MATERIALS WHICH SHALL BE COMPLETE IN ALL RESPECTS PRIOR TO THE FINAL ACCEPTANCE, UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL PRESERVE ALL PRINTED INSTRUCTIONS AND WARRANTY INFORMATION THAT IS PROVIDED WITH EQUIPMENT OR MATERIALS USED, AND DELIVER SAID PRINTED MATTER TO THE OWNER AT THE TIME OF SUBSTANTIAL COMPLETION. THE CONTRACTOR SHALL INSTRUCT THE OWNER IN THE PROPER USE OF THE EQUIPMENT FURNISHED BY THEIR TRADE.

GENERAL CONTRACTOR SHALL PROVIDE A THOROUGH CONSTRUCTION CLEANING AT PROJECT CLOSE OUT, PRIOR TO PUNCH LIST WALK THROUGH.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL FABRICATED ITEMS, AND PHYSICAL SAMPLES OF ALL FINISH MATERIALS SPECIFIED TO THE ARCHITECT FOR REVIEW.

REVIEWED SHOP DRAWINGS AND SUBMITTALS BY OTHERS SHALL NOT BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. THE ARCHITECT ASSUMES NO RESPONSIBILITY FOR DRAWINGS, SCHEDULES, AND/OR SPECIFICATIONS FOR WORK ON THE PROJECT PREPARED BY OTHERS.

**SCOPE NOTES** 

THE ARCHITECT WILL REVIEW ALL SHOP DRAWINGS, SUBMITTALS AND SAMPLES FOR CONFORMITY WITH THE CONTRACT DOCUMENTS AND RETURN THEM TO THE CONTRACTOR WITHIN SEVEN (7) WORKING DAYS EXCEPT AS MAY OTHERWISE BE PROVIDED FOR BY THE OWNER.

THE CONTRACTOR SHALL NOT REPRODUCE AND MARK UP ANY PART OF THE CONTRACT DOCUMENTS FOR SUBMITTAL AS A SHOP DRAWING. ANY SUCH SUBMITTAL WILL BE REJECTED.

ANY SUBMITTAL REQUIRED TO BE REVIEWED MORE THAN THE INITIAL REVIEW AND ONE (1) ADDITIONAL REVIEW, WILL BE CONSIDERED TO BE IN EXCESS OF THE SCOPE OF THE PROJECT. THE TIME REQUIRED FOR THIRD AND SUBSEQUENT REVIEWS OF A SUBMITTAL WILL BE PAID FOR BY THE CONTRACTOR TO THE ARCHITECT AT THE ARCHITECT'S STANDARD BILLING RATES, PLUS REIMBURSABLE EXPENSES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ANY EXISTING CONDITIONS AND ALL CRITICAL DIMENSIONS ASSOCIATED WITH THE PROPOSED WORK. THE CONTRACTOR SHALL CONFIRM THAT ALL WORK OUTLINED WITHIN THE CONTRACT DOCUMENTS CAN BE ACCOMPLISHED AS SHOWN, PRIOR TO BID OPENING. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY CONDITIONS ENCOUNTERED WHICH MAY AFFECT BUILDING CODE COMPLIANCE, LIFE SAFETY, ISSUANCE OF CERTIFICATE OF OCCUPANCY, OR COMPLETION OF THE PROJECT AS DIRECTED IN THE CONTRACT DOCUMENTS.

NO ADDITIONAL FUNDS WILL BE APPROVED FOR WORK OMITTED FROM THE CONTRACTOR'S BID DUE TO LACK OF VERIFICATION BY THE CONTRACTOR, EXCEPT AS OTHERWISE APPROVED BY THE OWNER FOR WORK ASSOCIATED WITH HIDDEN CONDITIONS WHICH ARE NOT ACCESSIBLE PRIOR TO CONSTRUCTION.



# **ABBREVIATIONS**

REFER TO PROJECT MANUAL (WHEN APPLICABLE) FOR ADDITIONAL REQUIREMENTS AND DIRECTIONS. ALL INTERIOR FINISHES SHALL COMPLY WITH CHAPTER EIGHT (8) OF THE 2018 INTERNATIONAL BUILDING CODE.

LIGHT GAGE METAL STUDS; STUDS, THEIR COMPONENTS AND THEIR CONNECTIONS SHALL BE ENGINEERED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE ENGINEER SHALL AFFIX THEIR SEAL AND SIGNATURE TO SHOP DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW.

STEEL REQUIRED TO TRANSMIT GRAVITY AND/OR LATERAL LOADS TO THE STRUCTURE NOT DETAILED ON THE STRUCTURAL DRAWINGS IS THE RESPONSIBILITY OF THE METAL STUD SUPPLIER TO DESIGN, DETAIL, PROVIDE AND INSTALL.

METAL STUDS SHALL BE DESIGNED TO SUPPORT THE LOADS SHOWN IN THE DESIGN DATA IN ADDITION TO THE WEIGHT OF THE MATERIALS ATTACHED TO THE METAL STUDS. METAL STUDS SHALL BE DESIGNED USING THE LOAD COMBINATIONS IN SECTION 1605.3.1 OF THE INTERNATIONAL BUILDING CODE, 2012 EDITION. NO INCREASE IN ALLOWABLE STRESS IS ALLOWED.

DEFLECTION DUE TO LATERAL LOAD SHALL BE LIMITED TO L OF THE STUD SPAN. FOR CANTILEVERS, THE DEFLECTION DUE TO LATERAL LOAD AT THE END OF THE CANTILEVER SHALL BE LIMITED TO  $\frac{1}{100}$  OF THE CANTILEVER DIMENSION.

METAL STUD MANUFACTURER SHALL DETERMINE FINAL LAYOUT AND GAUGE OF STUDS TO MEET THE ARCHITECTURAL AND STRUCTURAL REQUIREMENTS.

WHERE ROUGH CARPENTRY IS IN CONTACT WITH THE GROUND, EXPOSED TO WEATHER OR IN AREAS OF HIGH RELATIVE HUMIDITY PROVIDE FASTENERS AND ANCHORAGES WITH A HOT DIP ZINC COATING OF G90 COMPLYING WITH ASTM A 153 OR PROVIDE FASTENERS AND ANCHORAGES OF TYPE 304 STAINLESS STEEL.

ALL WOOD SHEATHING TO BE FIRE TREATED UNLESS NOTED OTHERWISE.

ACT	ACOUSTICAL CEILING TILE	FLR	FLOOR
ADDL	ADDITIONAL	FR	FIRE RETARDANT
AFF	ABOVE FINISHED FLOOR	FT	FEET
ALUM	ALUMINUM	GA	GAUGE
ANOD	ANODIZED	GB	GRAB BAR
APP	APPROXIMATE	GC	GENERAL CONTRACTOR
ARCH	ARCHITECT	GYP BD	GYPSUM BOARD
AWT	ACOUSTICAL WALL TREATMENT	HDWR	HARDWARE
BLDG	BUILDING	HGT	HEIGHT
BLKG	BLOCKING	HM	HOLLOW METAL
B.O.	BOTTOM OF	HORIZ	HORIZONTAL
вот	воттом	HP	HIGH POINT
BRG	BEARING	HVAC	HEATING, VENTILATING, AIR CONDITIONING
САВ	CABINET	HW	HOT WATER
CI	CONTROL JOINT	INSUL	INSULATION
, CL	CENTER LINE	JAN	ANITOR
CLR	CLEAR	ĮST	OIST
CMU	CONCRETE MASONRY UNIT	, IT	JOINT
CONST	CONSTRUCTION	, KD	KNOCKDOWN
COL	COLUMN	KIT	KITCHEN
CONC	CONCRETE	LAM	LAMINATE
CONT	CONTINUOUS	LAV	
CPT	CARPET	LLH	
СТ			
CW	COLD WATER	MAS	MASONRY
DET. DTL		MAT	MATERIAI
DF		MAX	MAXIMUM
DIA	DIAMETER	MB	MARKER BOARD
	DIMENSION	MECH	MECHANICAL
DWG(S)	DRAWING(S)	MEZZ	MEZZANINE
EA	EACH	MFR	MANUFACTURER
EC	EXPOSED CEILING	MIN	MINIMUM
FIFS	EXTERIOR INSULATION FINISH SYSTEM	MO	MASONRY OPENING
El	EXPANSION IOINT	MTI	METAI
, Fl	FI EVATION	NIC	
FNG	ENGINEER	NR	NOT RATED
FO	FOUAL	00	ON CENTER
Fouip	FOUIPMENT	OD	
FXIST	FXISTING	OFD	
FXP	EXPANSION	OH	
FXT		OPNG	OPENING
FD		OPP	OPPOSITE
FF			
FFC	FIRE EXTINGUISHER CARINET	ΡΙΔΟΙΔΜ	
FIN	FINISH		PLYWOOD

NOT TO SCALE

PS	PROJECTION SCREEN
QT	QUARRY TILE
R	RISER
RA	RETURN AIR
RB	RESILIENT BASE
RD	ROOF DRAIN
REF	REFERENCE
REFR	REFRIGERATOR
REQD	REQUIRED
RO	ROUGH OPENING
SA	SUPPLY AIR
SCHED	SCHEDULE
SCMD	SOLID CORE METAL DOOR
SCWD	SOLID CORE WOOD DOOR
SEC	section
SF	square foot
SIM	SIMILAR
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
ТВ	TACK BOARD
TEL	TELEPHONE
TLT	TOILET
T.O.	TOP OF
TRTD	TREATED
ΤV	TELEVISION
ТҮР	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VT	VINYL TILE
W/	WITH
W/O	WITHOUT
WB	wood base
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WP	WORKING POINT

(NOT ALL MAY APPLY)									
(#)	KEYED NOTE								
#	WINDOW OR GLAZED OPENING TAG IF WINDOW - W# IF STOREFRONT - SF# IF CURTAINWALL - CW#								
#	ACCESSORY TAG								
#	EQUIPMENT TAG								
XXX	FINISH TAG								
#### ROOM NAME	ROOM TAG								
X	ELEVATION TAG - INTERIOR OR EXTERIOR								
X	SECTION CUT AT AREAS SHOWN SMALL SCALE								
	ENLARGED PLAN								
• • <u>* * * * * * * * * * * * * * * * * *</u>	ELEVATION TARGET. FINISHED FLOOR = 0'-0" UNO								
	REVISION								
Ň	PLAN OR TRUE NORTH								
$\bigotimes$	BATT INSULATION - WIDTH OF FRAMING UNO								
FE	FIRE EXTINGUISHER IN SEMI-RECESSED CABINET PROVIDED / INSTALLED BY GC								
FE	SURFACE MOUNTED FIRE EXTINGUISHER PROVIDED / INSTALLED BY GC								
100	DOOR WITH DOOR NUMBER								
00	WINDOW OR GLAZED OPENING								
	STUD FRAMED WALL - REFER TO INDEX SHEET FOR INFORMATION								
	CMU WALL - REFER TO SECTIONS AND DETAILS								
	BRICK WALL - REFER TO SECTIONS AND DETAILS								
	CONCRETE WALL - REFER TO SECTIONS AND DETAILS								
	EIFS OVER SUBSTRATE - REFER TO SECTIONS FOR WIDTH AND PROFILE								
	EXISTING DOOR - REFER TO DOOR SCHEDULE								
	EXISTING FRAMED WALL								
	EXISTING WINDOW WITH SILL AND / OR STOOL								
==7	DEMO'D DOOR								
===	DEMO'D WALL								
W# 12'	WALL TYPE WALL HEIGHT IF DESIGNATED ON PLANS. IF NOT, SEE WALL TYPES THIS SHEET								

**SYMBOLS** 



SHAWN N CURRAN NUMBER A-820

CERTIFICATION

THIS DRAWING AND THE IDEAS, DESIGNS AND CONCEPTS CONTAINED HEREIN ARE THE EXCLUSIVE INTELLECTUAL PROPERTY OF CURRAN ARCHITECTURE, AND ARE NOT TO BE USED OR REPRODUCED. WHOLE OR IN PART, WITHOUT THE WRITTEN

# PROJECT INFORMATION

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1220 NW MAIN STREET LEE'S SUMMIT, MO 64086

ISSUE DATES

08.29.23

PERMIT SET

230139 **SCOPE NOTES &** WALL TYPES





VERTICAL CLEARANCES

|/2" = |'-0"

|/4" = |'-0"

**REACH RANGES** 

**GRAB BAR DIMENSIONS** 

3" = 1'-0"

SINK CLEAR SPACE

3/4" = 1'-0"

# **TYPICAL ADA INFO**

WATER CLOSET: WATER CLOSETS SHALL BE 17" TO 19" AFF WHEN MEASURED TO THE TOP OF THE TOILET SEAT AND THE CENTER FOR THE FIXTURE SHALL BE 18" FROM ONE WALL WITH A CLEAR FLOOR SPACE OF 60" WIDE AND 59" DEEP FOR FLOOR MOUNT AND 56" DEEP FOR WALL MOUNT. FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET.

SINK: SINK SHALL BE MOUNTED WITH THE RIM OR COUNTER NO HIGHER THAN 34" AFF PROVIDE A CLEARANCE OF AT LEAST 29" TO THE BOTTOM OF THE APRON WITH AN 8"X27" KNEE SPACE AND 6"X9" TOE SPACE. EXPOSED HOT WATER AND DRAIN PIPES UNDER SINKS SHALL BE INSULATED. FAUCETS SHALL BE LEVER-OPERATED, PUSH-TYPE AND MOTION SENSOR.

URINALS: URINALS SHALL BE STALL-TYPE OR WALL HUNG WITH THE RIM AT A MAXIMUM OF 17" AFF AND A 30" X 48" CLEAR FLOOR SPACE.

<u>GRAB BARS</u>: GRAB BARS SHALL BE 33" TO 36" AFF THE GRAB BAR BEHIND THE WATER CLOSET SHALL BE 36" LONG AND NO MORE THAN 6" OF OF THE SIDE WALL. THE SIDE WALL GRAB BAR SHALL BE 42" LONG AND 12" OFF THE BACK WALL.

MIRROR: MIRRORS SHALL BE MOUNTED SO THE BOTTOM OF THE REFLECTING SURFACE IS NO MORE THAN 40" AFF.

PAPER TOWEL/DRYER: PAPER TOWEL/ DRYERS SHALL BE MOUNTED NO HIGHER THAN 48" AFF.

SOAP DISPENSER: SOAP DISPENSERS SHALL BE MOUNTED NO HIGHER THAN 48" AFF.

TOILET PAPER: TOILET PAPER DISPENSERS SHALL BE INSTALLED WITHIN 36" MAX OF THE BACK WALL.



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1220 NW MAIN STREET LEE'S SUMMIT, MO 64086



230139 TYPICAL ACCESSIBILITY DETAILS







4K. Gypsum Board\* — (As an alternate to Item 4 and 4A, not for use with Items 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as des CGC INC — Type ULX

 $http://database.ul.com/...ANSI/UL+263\&objid=1074330743\&cfgid=1073741824\&version=versionless\&parent_id=1073984818\&sequence=1[8/8/2013 8:57:01 AM] \\ http://database.ul.com/...ANSI/UL+263\&objid=1074330743\&cfgid=1073741824\&version=versionless\&parent_id=1073984818\&sequence=1[8/8/2013 8:57:01 AM] \\ http://database.ul.com/...ANSI/UL+263\&objid=1074330743\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=1073984818\&version=versionless\&parent_id=107384818\&version=versionless\&parent_id=107384818\&version=versionless\&parent_id=107384818\&version=versionless\&parent_id=107384818\&version=versionevers$ 

be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on

interior walls need not be staggered or backed by steel framing.

**TEMPLE-INLAND** — GreenGlass Type X.

F	3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263	BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263	BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263
	1G. Framing Members*— Floor and Ceiling Runners — Not shown - In lieu of Items 1 through 1F — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide, attached to floor and ceiling with fasteners spaced 24 in. OC max.	floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height. 2D. Framing Members*— Steel Studs — As an alternate to Items 2 through 2C- For use with Item 1D and 4G only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.	insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft. <b>NU-WOOL CO INC</b> — Cellulose Insulation
	STUDCO BUILDING SYSTEMS — CROCSTUD Track	CLARKDIETRICH BUILDING SYSTEMS - CD ProSTUD	3C. <b>Fiber, Sprayed*</b> — As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructio
or use with Item min 0.020 in.	1H. Floor and Ceiling Runners — (Not shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC		supplied with the product. The minimum dry density shall be 4.30 lbs/ft <sup>3</sup> . INTERNATIONAL CELLULOSE CORP — Celbar-RL
	MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100.		3D. <b>Batts and Blankets* —</b> For use with Item 8. Nom 3 in. thick, minimum 3.4 pcf mineral wool batts, friction fit between the studs and floor and ceiling runners.
	1I. Framing Members* - Floor and Ceiling Runners — Not shown - In lieu of Item 1 — For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.	SOUTHEASTERN STUD & COMPONENTS INC - ProSTUD	See <b>Batts and Blankets</b> (BZJZ) category for names of manufacturers. 4. <b>Gypsum Board*</b> — 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in.
	TELLING INDUSTRIES L L C — Viper20™ Track	STEEL STRUCTURAL SYSTEMS L L C — Tri-S ProSTUD	oriented vertically and staggered on opposite sides of the assembly. When attached to item 6 (resilient channels) or 6A or 6C (furring channels), gypsum board is screw attached to furring channels with 1 in. Ion Type S steel screws spaced 12 in. OC.
	2. <b>Steel Studs</b> — Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.	2E. Framing Members*— Steel Studs — As an alternate to Items 2 through 2D- For use with Item 1E and	ACADIA DRYWALL SUPPLIES LTD — Type X
ated from min ong legs,	<ul> <li>2A. Framing Members* – Steel Studs – As an alternate to Item 2 - Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.</li> <li>ALLSTEEL &amp; GYPSUM PRODUCTS INC – Type SUPREME Framing System</li> </ul>	4I only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height. TELLING INDUSTRIES L L C — TRUE-STUD™	AMERICAN GYPSUM CO — Types AG-C, AGX-1, M-Glass
h 1C — For n. wide	CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System	2F. Framing Members*— Steel Studs — As an alternate to Items 2 through 2E- For use with Item 1F,	<b>BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO</b> — Type DBX-1.
24 in. OC	OUAIL RUN BUILDING MATERIALS INC - Type SUPREME Framing System	channel shaped studs, min 3-5/8 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.	CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRX.
	SCAFCO STEEL STUD MANUFACTURING CO - Type SUPREME Framing System	26 Examing Mombars* - Steel Stude - Not shown - In liqu of Item 2 through 25 - For use with Item 10	CERTAINTEED GYPSUM INC — Types 1, EGRG, GlasRoc, Type X, Type C, SilentFX, 5/8" Easi-Lite Type
	STEEL CONSTRUCTION SYSTEMS INC - Type SUPPEME Framing System	Proprietary channel shaped studs, minimum 3-5/8 in. wide, Studs to be cut 1/2 in. less than the assembly height.	CERTAINTEED GYPSUM CANADA INC — Type C, Type X, Type Abuse-Resistant, 5/8" Easi-Lite Type X
		STUDCO BUILDING SYSTEMS - CROCSTUD	GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS.
	2B. Framing Members* - Steel Studs - Not shown - In liqu of Item 2 - For use with Item 1B, proprietary	2H. <b>Framing Members* - Steel Studs</b> — Not shown - In lieu of Item 2 — For use with Item 1I, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.	LAFARGE NORTH AMERICA INC — Types LGFC2, LGFC2A, LGFC6, LGFC6A, LGFC-C, LGFC-C/A, LGFC-V LGLLX.
	channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.	TELLING INDUSTRIES L L C — Viper20™	NATIONAL GYPSUM CO — Types FSK, FSK-C, FSK-G, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FS
	CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™	<ol> <li>Batts and Blankets* – (Optional) – Mineral wool or glass fiber batts partially or completely filling stud cavity.</li> <li>See Batts and Blankets (BZ1Z) category for pames of Classified companies.</li> </ol>	PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-C, PG-9, PG-11, PGS-WRS.
D — For vide in. OC	CRACO MFG INC — SmarterStud20 <sup>™</sup> , SmartStud20 <sup>™</sup>	3A. <b>Fiber, Sprayed*</b> — As an alternate to Batts and Blankets (Item 3) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with water to completely fill the enclosed cavity in accordance with the second visit the second visit the second visit to the second visit the second visit to the se	PANEL REY S A — Types GREX, PRX, RHX, MDX, ETX.
	MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper201**	Application Method: The fiber is applied with the product with a nominal dry density of 2.7 ib/it <sup>2</sup> . Alternate accordance with the application instructions supplied with the product.	SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1
.E — For 25 MSG	PHILLIPS MFG CO L L C — Viper20 <sup>114</sup>	<b>U S GREENFIBER L L C</b> — INS735 & INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only.	TEMPLE-INLAND — Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X,
	20 Steel Stude – (As an alternate to Item 2 For use with Item 4F) Channel shaped fabricated from min 20		Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.
	2C. <b>Steel Studs</b> – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into	3B. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose	Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.
e=1[8/8/2013 8:57:01 AM] F	2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into	3B. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose [] http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8 BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> </ul>
=1[8/8/2013 8:57:01 AM] F F Inels nd framing	2C. Steel Studs — (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM 3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263 UNITED STATES GYPSUM CO — Type ULX	3B. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose         Image: http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR	Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board. (1) http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8 BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263 fitted into clips. STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R
=1[8/8/2013 8:57:01 AM] H F nels id iraming i. OC in the	2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into         attp://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM         aXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         UNITED STATES GYPSUM CO – Type ULX         USG MEXICO S A DE C V – Type ULX	<ul> <li>3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum year and plant and baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum year and plant and baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum year and plant and baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum gypsum year and joint compound may be omitted when gypsum baseboards.</li> </ul>	M]       http://databasc.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         fitted into clips.       STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 · panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified grosum board, the required UL Classified grosum board layer[3] is/are to
=1[8/8/2013 8:57:01 AM] F F hels d raming . OC in the 5/8 in.	2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into         http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM         aXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         UNITED STATES GYPSUM CO – Type ULX         USG MEXICO S A DE C V – Type ULX         4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 third ravirb eveled for the fuder with backed to the top CP1 and the properties of the stude stude for the top of the top of crude with backed to the top CP1 and staggered min 1 third ravirb and staggered min	3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose         Inttp://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR         5. Joint Tape and Compound — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.         6. Resilient Channel — (Optional-Not Shown) — 25 MSG galv steel resilient channels spaced vertically max	Yipe X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.         Inttp://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8//BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         Intted into clips.         STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.
=1[8/8/2013 8:57:01 AM] F F 1els d raming . OC in the i/8 in. 1. long,	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>attp://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type 5-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached</li> </ul>	<ul> <li>3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel – (Optional-Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 4J.</li> <li>6A. Steel Framing Members (Not Shown)* – As an alternate to Item 6, furring channels and resilient</li> </ul>	M]       http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         fitted into clips.       STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 i panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to 1 installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.         SERIOUS ENERGY INC — Type QuietRock QR-510.
=1[8/8/2013 8:57:01 AM] F F hels d raming . OC in the 5/8 in. h. long,	<ul> <li>2C. Steel Studs — (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO — Type ULX</li> <li>USG MEXICO S A DE C V — Type ULX</li> <li>4L. Gypsum Board* — (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of stud. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the strip and ne at the bottom of the strip. Lead batten strips and discs to have a purity of 99.9% moreine to the Godral coreinfection 0.04 = 0.016 (Torda "C")</li> </ul>	<ul> <li>3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel – (Optional-Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 4J.</li> <li>6. Steel Framing Members (Not Shown)* – As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>a. Furring Channels – Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deen. sacerd 24 in OC permendicular to studs. Channels secured to studs as</li> </ul> </li> </ul>	M]       http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         fitted into clips.       STUDCO BUILDING SYSTEMS – RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* – (Optional, Not shown) – Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.         SERIOUS ENERGY INC – Type QuietRock QR-510.       8. Mineral and Fiber Board* – (Optional, Not shown) – For optional use as an additional layer on one of wall, Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and ceiling runners with 1-5/8 is in long Type S steel screeps. spaced 12 in .0C and 24 in .0C all 24 in
els aming OC in the /8 in. long, le or both aum 10 10 10 10 10 10 10 10 10 10	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>attp://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type 5-12 steel screws gypsum panel steel sacked skick wallboard and optical at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type 5-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RPP - Lead Lined Drywall</li> </ul>	<ul> <li>3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gyopsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel - (Optional-Not Shown) - 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 41.</li> <li>6. Steel Framing Members (Not Shown)* - As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>a. Furring Channels - Formed of No. 25 MSG galv steel .2-9/16 in. or 2-23/32 in, wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described below:</li></ul></li></ul>	Yipe X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.         Yii http://database.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8         BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         fitted into clips.         STUDCO BUILDING SYSTEMS - RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* - (Optional, Not shown) - Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the stee framing and the UL Classified gypsum board, the required Hastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.         SERIOUS ENERGY INC - Type QuietRock QR-510.         8. Mineral and Fiber Board* - (Optional, Not shown) - For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to stinterreased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.         SERIOUS ENERGY INC - Type QuietRock QR-510.         8. Mineral and Fiber Board* - (Optional, Not shown) - For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and celling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC and intermediate framing. The r
=1[8/8/2013 8:57:01 AM] F F hels d raming . OC in the 5/8 in. n. long, ne or both sum ind b. long	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=107430743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 8XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips min 2 in. wide, max 8 H tong with max thickness of 0.14 in. placed on the face of studs and atacheed to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression filted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification Q-L-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RPP - Lead Lined Drywall</li> <li>4M. Gypsum Board* – (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and fiber aboard (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber aboard (Item 8) with vertical joints located anywhere</li></ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel - (Optional-Not Shown) - 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type 5-12 pan head steel screws. May not be used with Item 4F or 4.1.</li> <li>6. Steel Framing Members (Not Shown)* - As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>a. Furring Channels - Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described below:</li></ul></li></ul>	Ype X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.         Y]       http://databasc.ul.com/ANSI/UL+263&objid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         fitted into clips.         STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the CR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.         SERIOUS ENERGY INC — Type QuietRock QR-510.         8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 th wide with long dimension parallel and centered over studs. Attached to ret mediate framing. The required UL Classified gypsum board 1/2 in. Oc and 24 in. O
=1[8/8/2013 8:57:01 AM] F F hels d raming . OC in the 5/8 in. n. long, ne or both sum n. long nly, 5/8 in. rs spaced	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 32XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO - Type ULX</li> <li>USG MEXICO S A DE C V - Type ULX</li> <li>4L. Gypsum Board* - (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum vallboard and optional at remaining stud locations. Lead batten strips. min 2.1 m. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC - Type RPP - Lead Lined Drywall</li> <li>4M. Gypsum Board* - (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber</li></ul>	<ul> <li>3B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL-263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum weneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel – (Optional-Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, fiange portion attached to each intersecting stud with 1/2 in. long type 5-12 pan head steel screws. May not be used with Item 4F or 4).</li> <li>6. Steel Framing Members (Not Shown)* – As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>a. Furring Channels – Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in between adjoining channels are overlapped 6 in. and ited together with double strand of No. 18 SWG galv steel wereaped 6 in. and tied together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, wit one screw on each flange of the channel.</li> <li>b. Framing Members* – Used to attach furring channels. (Stem 2). Clips spaced 48 in. OC., and secured to studs sue friction fitted into clips. RSIC-1 (10 for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-9/16 in.</li> </ul></li></ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>fitted into clips.</li> <li>STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC — Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and ceiling runners with 1-5/8 in.long Type S steel screws, spaced 12 in. OC and 24 in. OC at for 04 in. OC at 50 in. Type 75 in. Doc mod 24 in. OC at 64 in. OC at 60 in the required UL Classified gypsum board layer (Item 4M) is to be installed over the Mineral and Fiber Sords. Batts and Blankets, Item 3D, and Adhesive, Item 11, are required.</li> <li>9. Lead Batten Strips — (Not Shown, For Use With Item 4E) - Lead batten strips, min 1-1/2 in. wide, r ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip oene athen strips cellara</li></ul>
EI[8/8/2013 8:57:01 AM] F EI Hels d araming OC in the 5/8 in. h. long, he or both sum nd . long hly, 5/8 in. s spaced taggered	2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into         http://database.ul.com/ANSI/UL-263&objid=1073741824&version=versionless&parent_id=1073984818&sequence=1[8/8/2013 8:57:01 AM         3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263         UNITED STATES GYPSUM CO – Type ULX         USG MEXICO S A DE C V – Type ULX         4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. Iong Type 5-12 steel screws gypsum panels steel screws spaced B in. OC at permeter and 12 in. OC in the field. Lead battern strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead battern strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead battern by the strip. Lead battern 21, in. diam by max 0.065 in. thick. Compression fitted or adhered over the strip. Lead battern 3/8 in. diam by max 0.065 in. thick.         RADIATION PROFECTION PRODUCTS INC – Type RPP - Lead Lined Drywall         4M. Gypsum Board* – (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints covered to internal and fiber board (Item 8) with vertical joints covered to mineral and fiber board (Item 8) with vertical joints covered to mineral an	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=107343&amp;cfgid=1073741&amp;24&amp;version=versionless&amp;parent_id=107398481&amp;&amp;sequence=1[8/8/2013 8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nomial 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel – (Optional-Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 4J.</li> <li>6. Steel Framing Members (Not Shown)* – As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:</li> <li>9. Y/8 in. deep, spaced 24 in. OC prependicular to studs. Channels secured to etuds as described below:</li> <li>9. Finding Members* (Not Shown)* – As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:</li> <li>9. Finding Members* (Not Shown)* – As an alternate to a source together with too solet. Spring No. 6 adjoining channels may be voerlapped 6 in. and tied together with too solet. Spring No. 6 adjoining channels are overlapped 6 in. and secured together with too solet. Spring No. 6 infaming screws, may 2. Spring channels. ResiC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.</li> <li>PAC INTERNATIONAL INC – Types RSIC-1, RSIC-1 (2.75).</li> </ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/ BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>fitted into clips.</li> <li>STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC — Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and celling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC aid intermediate framing. The required UL Classified gypsum board layer (item 4M) is to be installed over th Mineral and Fiber Boards. Batts and Blankets, Item 3D, and Adhesive, Item 11, are required.</li> <li>9. Lead Batten Strips — (Not Shown, For Use With Item 4E) - Lead batten strips, min 1-1/2 in. wide, r ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from th exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip. Lead batten strips count of the strip. Lead batten strips count of the strip</li></ul>
<pre>=1[8/8/2013 8:57:01 AM] P F hels d raming . OC in the 5/8 in. h. long, he or both sum nd b. long hly, 5/8 in. s spaced taggered</pre>	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AM 3XUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1stud cavity on opposite idea of studs. Wallboard accured to studs with 1-1/4 in. Iong Type 5-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical noting of the screw, and two 1 in. Iong Type 5-12 pan head steel screws, one at the top of the strip, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive act. Lead batten strips and locations. Lead batten strips min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive act. Lead batten strips and one at the top of the strip. Lead discs, nominal 3/8 in. dinm by max 0.005 in. thick. Compression fitted or adhered over the screw head. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-1-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RPP - Lead Lined Drywall</li> <li>4M. Gypsum Board* – (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and fiber boards wit</li></ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in, wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel — (Optional-Not Shown)* — As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>9. Furring Channels — Formed of No. 25 MSG galv steel. "29/16 in on 23/32 in. wide yes for adjoining channels are overlapped 6 in. and tied together with towal edge setting a digining channels are overlapped 6 in. and tied together with towal for 0.18 SWG galv steel are eare each end of overlap. As an alternate, ends of adjoining channels are overlapped 6 in. and tied together with towal for 0.0, and secured to studs. Channels are overlapped 6 in. and tied together with towal steel states of adjoining channels may be overlapped 6 in. and secured together with towal for 0.0, and secure to studs. Channels are orted how 15/96 in. wafer or hex head Type S steel screws through the center grommet. Furring channels. RSIC-1 (2.75) (dip for use with 2-23/32 in. wide furring channels.</li> <li>P. Framing Members* — Used to attach furring channels. RSIC-1 (2.75).</li> <li>69. Framing Members* — Optional -Not Shown - Used as an alternate methad to attach resilient channels (Item 2), Resilient channels.</li></ul></li></ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>MI] http://databasc.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/ BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li><b>STUDCO BUILDING SYSTEMS</b> — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li><b>7. Wall and Partition Facings and Accessories*</b> — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacture's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li><b>SERIOUS ENERGY INC</b> — Type QuietRock QR-510.</li> <li><b>8. Mineral and Fiber Board*</b> — (Optional, Not shown) — For optional use as an additional layer on one of wall, Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and celling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC alo intermediate framing. The required UL Classified gypsum board layer((s) of Classified With a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from th exterior face of the study with two 1 in. long Type S teel screws, one at the top of the strip one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specific QQ-1-201f, Grade "C", Lead batten strips to have a purity of 99.9% meeting the Federal specific QQ-1-201f, Grade "C", Lead batten strips placed on the face of studs and attached from th exterior face of the stud with two 1 in. long Type S</li></ul>
=1[8/8/2013 8:57:01 AM] F F rels d raming . OC in the 5/8 in. n. long, ne or both sum nd h. long nly, 5/8 in. rs spaced taggered	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or gaiv steel, 3-1/2 in. min depth, spaced a max of 16 in. O.C. Studs friction-fit into http://database.ul.com/ANSI/UL-263&amp;objid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 &amp;:57:01 AM 32UV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2(2). Nom 5/8 in. Ithick lead backed gypsum panels with beveled, square or tapered adge, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type 5-12 steel screws gypsum panels steel screws spaced 8 in. OC at perimeters and 12 in. OC is further required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max B t long with the beds teel studes in high and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.065 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the federal specification QQ-1-201f. Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RPP - Lead Lined Drywall</li> <li>4M. Gypsum Board* – (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC. along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (tem 8). Secured to outermost studs and floor and ceiling runners with 2 in. long Type S screws spaced 8 in. OC. Calong edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and</li></ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://databasc.ul.com/ANSI/UL-263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=107398481&amp;&amp;sequence=1[8/8/2013 &amp; 57:01 AM BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>S. Joint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel – (Optional-Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, fiange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with them 4F or 4J.</li> <li>6. Steel Framing Members (Not Shown) = -25 MSG galv steel resilient channels and resilient sound isolation clip as described below:         <ul> <li>a. Firming Channels – Formed of No. 25 MSG galv steel add of overlap. As an elternate to studs. Channels and resilient sound isolation clip as described below:             <ul> <li>b. Framing Members (- of first galv steel wire near eash edd of overlap. As an elternate ends of adjoining channels may be overlapped 6 in. and secured to studs. Schannels are friction fitted into clips. R53C-1 (2, 75) clip for use with 2-29/16 in. wide furring channels. R5IC-1 (2, 75).</li> <li>68. Framing Members* – Optional - Not Shown - Used as an alternate method to attach resilient channels fittem 6). Clips standed at each intersection of the resilient channels are friction fitted into clips. R51C-1 (2, 75).</li> <li>69. Framing Members*</li></ul></li></ul></li></ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL-263&amp;objid=10743&amp;cfgid=1073741&amp;24&amp;version=versionless&amp;parent_id=107398481&amp;&amp;sequence=1[&amp;/ BXUV.U465 - Fire Resistance Ratings - ANSI/UL_263</li> <li>fitted into clips.</li> <li>STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 4 panels, for optional use as an additional layer on no or both sides of the assembly. Panels attached in framing and the UL Classified gypsum board, the required UL Classified pipsum board layer(5) lig/are to installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC — Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to st and floor and celling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC and 24 in. OC and 24 in. OC and 24 in. OC and 24 in. OC and 24 in. Ans thickness of 0.140 in. Instrips placed on the interior</li></ul>
=1[8/8/2013 8:57:01 AM] F F nels id raming . OC in the 5/8 in. in. long, one or both ssum and n. long why, 5/8 in. vs spaced staggered	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into MSUUL/database.al.com/ANSI/UL-263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8/8/2013 &amp;:57:01 AM XXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4L. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick. Kead backed gypsum panels with beveled, square or fagered edges, applied vertically. Vertical joints of leader and stagered min to prove the data data data data data data do potional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type 5-12 pan head steel screws, one at the bot of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over heads. Lead batten strips on a discs to have a purity of 99.9% meeting the Federal specification Qu-1-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RP - Lead Lined Drywall</li> <li>4M. Sypsum Board* – (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertical joints of 199.9% meeting the Federal specification Qu-201f, Grade "C".</li> <li>CERTAINTEED GYPSUM INC – Type RPC, Type C</li> <li>CERTAINTEED GYPSUM INC – Type RPC, Type C</li> <li>CERTAINTEED GYPSUM CANADA INC – Type C</li> <li>CECTINC – Types C, IP-X2, IPC-AR</li> </ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=107398481&amp;&amp;sequence=1{8/8/2013 8:37:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>S. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 In. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. httick kypsum veneer plaster may be applied to the entire surface of Classified veneer busplied with square edges.</li> <li>Resilient Channel - (Optional-Not Shown) - 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 In. long type 5-12 pan head steel screws. May not be used with Item A f or 4).</li> <li>S. Steel Framing Members (Not Shown) - As an alternate to Item 6, furring channels and resilient sound isolation clip as described below:         <ul> <li>Priming Channels – formed of No. 25 MSG galv steel .2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described below:             <ul> <li>S. Framing Members* – Jused to attach furring channels in dovertap. As an alternate, ends of adjoining channels may be coverlapped 6 in. and secure to optime with to usel with a 2/9/16 in. wide you have head Type 5 steel screw through the center grommet. Furring channels. ASIC-1 (2.75) clip for use with 2-23/32 in. wide during channels.</li> <li>Praming Members* – Used to attach furring channels. SIC-1 (2.75) clip for use with 2-23/32 in. wide during channels.</li> <li>Praming Members* – Optional - Not Shown - Used as an alternate method to attach resilient channels the minoria of the entite into clips. and s</li></ul></li></ul></li></ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=107398481&amp;&amp;sequence=1[8/JBXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>Fitted into clips.</li> <li>STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>7. Wall and Partition Facings and Accessories* — (Optional, Not shown) — Nominal 1/2 in. thick, 41 panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the U.Classified gypsum board, the required U.Classified gypsum board layer(s) is/are to 1 installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC — Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centred over studs. Attached to st and floor and celling runners with 15-58 in. long Type 5 steel steeres, spaced 12 in. OC and 24 in. OC and 24 in. OC and 24 in. OC and 24 in the order down studied.</li> <li>9. Lead Batten Strips — (Not Shown, For Use With Item 4E) - Lead batten strips, min 1-1/2 in. wide, n ft long with a max thickness of 0.125 in. Strips placed on the interior face of the study with two 10 in. long Type 5-12 pan head steel screws, one at the top of the strip one at the bottom of the strip. Lead batten strips convert the study and hour of the strip one at the bottom of the strip baned on the interior face of the study with two min. Jn. Jn. Dype S-12 pan head steel screws, one at the top of the strip one a thit h</li></ul>
<pre>=1[8/8/2013 8:57:01 AM]</pre>	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into MSUUL463- Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>Al. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sive for opposite sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studk. Wallboard secure doptional at remaining stud locations. Lead batten strips min 2 in. Joint Content of the contraction adhesive and two 1 in. long Type S-12 path lead batten strips required behind vertical joints of lead backed gypsum panels with the construction adhesive and two 1 in. long Type S-12 path lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-1-201f, Grade "C".</li> <li>RADIATION PROTECTION PRODUCTS INC – Type RPP - Lead Lined Drywall</li> <li>AM. Gypsum Board* – (For use with Item 8) 5/8 in. thick, 4 ft wide, applied vertically over Mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC at long deges of each vertical joint of lead and tange to an disc. Secured to mineral and fiber board (Item 8) with vertical joints of lead anythere over stud cavities. Secured to mineral and fiber board (Item 8) with vertical joints covered with joint and 12 in. OC. Compound Soft and 12 in. OC or the part tape and joint compound. Screw heads covered with joint compound.</li> <li>AMERICAN GYPSUM CO – Type AG-C</li> <li>CERTAINTEE</li></ul>	38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose         Intp://database.ul.com/ANSUUL-263&ebijd=10743943&cfgid=1073741824&vension=vensionless&parent_id=1073984818&sequence=1[8%2013.8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263         USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR         5. Joint Tape and Compound Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape; 1n, wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in, thick groups and joint compound may be omitted when gypsum bords are supplied with square edges.         6. Reallier Channel - Optional-Not Shown) - 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type 5-12 pan head steel screws. May not be used with Item A for 41.         6. Steel Framing Members (Not Shown) - 25 MSG galv steel resilient channels and resilient sound isolation citig a described to each intersecting stud with 1/2 in. long type 5-12 pan head steel screws. May not be used with Item b. Ends of adjoining channels are verlaped of in. and tecrnet ogether with double strand of No. 18 SWG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 74 in. OC prependicular to studs. Channels secured to studs as described to galv integrit channels are ord-galve and and the major of the bowing. Start AN SUCL AS Start AN 2-23/32 in. wide by 7/8 in. deep, spaced 74 in. OC prependicular to studs. Start ANS 50 Class 50	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://databasc.ul.com/ANSI/UL+263&amp;objid=1074330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=107394818&amp;sequence=1[8/8 BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>FUECO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>7. Wall and Partition Facings and Accessories* — (Optional, Net shown) — Nominal 1/2 in. thick, 44 parels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in advantage of the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to 1 installed as indicated as to fasterer type and spacing, except that the required fasterne length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC — Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. htick, 4 ft wide with long dimension parallel and centered over studs. Attached to sti and floor and ceiling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC 36 in intermediate familing. The required UL Classified gypsum board (1) is to be installed over th Mineral and Fiber Boards — (Optional, Not shown) — For optional use as an additional layer on one of wall. Nom 1/2 in. htick, 4 ft wide UL Classified gypsum board (1) is to be installed over th Mineral and Fiber Boards — (Optional, Not shown) — For optional use as an additional layer (1) is 0.0000000000000000000000000000000000</li></ul>
=1[8/8/2013 8:57:01 AM] F F nels id rraming OC in the 5/8 in. in. long, but or both ssum and n. long inly, 5/8 in. vs spaced staggered	<ul> <li>2C. Steel Studs – (As an alternate to Item 2, For use with Item 4E) Channel shaped, fabricated from min 20 MSG corresion-protected or gaiv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into mtp://database.ul.com/_ANSI/UL-263&amp;ebjid=10733943&amp;cfgid=10733943&amp;cfgid=1073394813&amp;sequence=1[8:8/2013:8:57:01 AM XXV/U465 - Fite Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO - Type ULX</li> <li>USG MEXICO S A DE C V - Type ULX</li> <li>4L. Gypsum Board* - (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct altachment only to steel studs Item 2(2). Non 5/5 in. thick lead backed gypsum panels with beveled, square or tapered deges, applied vertically. Vertical joints centred over studs and stagered min 1 stud cavity on opposite sides of studs. Wellboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel seles forem spaced 8 in. OC a the field. Lead batten strips required by the onstruction and believe and two in 1. In. OG Type Falle. Lead batten strips required by the strip and one at the bottom of the strip. Lead discs, nominal 3/6 in. diam by max 0.085 to 1. thick. Compression field or adhreed over the screw to 1. In. Og Type S-12 panelead the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 to 1. thick. Compression field or adhreed and when over the screw stud cavites. Scored to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC C. Strews fore at the lead of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. thick, 4 th wide, applied vertically over Mineral and Fiber board (serve heads: Cuered to any mere ower studs and fiber board caviths covered with joint coursed the morpound.</li> <li>AMERICAN GYPSUM CO - Type AG-C</li> <li>CERTAINTEED GYPSUM INC - Type FRPC, Type C</li> <li>CERTAINTEED GYPSUM INC - Type S, DAPC</li> <li>LAFARGE NORTH AMERICA INC - Types LGFC-C, L</li></ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com/ANSUUL-263&amp;e0bjd=107330743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[8%2013 8:57:01 AN BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>USG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>5. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in, wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in, thick gypsum veneer plaster may be applied to the entire surface of Classified evenes. Joints reinforced. Raper tape and Joint compound may be omitted when gypsum boards are supplied with square edges.</li> <li>6. Resilient Channel - (Optional-Not Shown) - 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type 5-12 pan head steel screws. May not be used with Imm aff or 4J.</li> <li>6. A Steel Framing Members (Not Shown) - As an alternate to Item 6, furring channels and resilient vein discrete below:</li> <li>a. Furring Channels - Formet of No. 25 MSG galv steel -2-9/16 in. or 2-23/32 in. wide bds. Steel screw in the 3 or 4J.</li> <li>b. Graming Members* (- USE MOS Grave and a to stard and or overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured to gether with two self-taping No. 6 frame for more Tyring channels and role together with the center growner. Furring channels. RSIC-1 (2.75) Lip for use with 2-23/16 in. wafer on the keed Type 5 Steel screw through the center growner. Furring channels. RSIC-1 (2.75) Lip for use with 2-23/26 in. wide furring channels. RSIC-1 (2.75).</li> <li>68. Framing Members* - Optional - Not Shown - Used as an alternate method to attach resilient channels future thannels in the signer throin fitted into clips, and the not glops are</li></ul>	<ul> <li>Type X, TG-C, GreenClass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL-263&amp;</li> <li>http://database.ul.com/ANSI/UL-263&amp;</li> <li>Fitted into clips.</li> <li>STUDCO BUILDING SYSTEMS – RESILMOUNT Sound Isolation Clips - Type A237R</li> <li><b>4. Wall and Partition Facings and Accessories*</b> – (Optional, Not shown) – Nominal 1/2 in. thick, 4 f</li> <li>panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordnec with manufacturer's recommendations. When the QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required layer(s) is/are to Installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of IC Classified Gypsum Board.</li> <li>SERIOUS ENERGY INC – Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* – (Optional, Not shown) – For optional use as an additional layer on one of wall. Nom 1/2 in, thick, 4 ft wide with long dimension parallel and centered over studs. Attached to study and fiber Board* – (Optional, Not shown), – For optional use as an additional layer on one of wall. Nom 1/2 in, thick, 4 ft wide with long dimension parallel and centered over studs. Attached to study and fiber Board* – (Optional, Not shown), – For optional use as an additional layer on one of wall. Nom 1/2 in, thick, 4 ft wide with long dimension parallel and centered over studs. Attached to study and fiber Board* – (Not Shown, For Use With 1em 42) - Lead batten strips — (Not Shown, For Use With 1em 42) - Lead batten strips and in 1.0 C and 24 in OC alo minimal differib Board* – (Not Shown, For Use With 1em 42) - Lead batten strips and tached from the exterior foace of the strips required behind vertical joints.</li> <li>9. Lead Batten Strips – (Not Shown, For Use With 1em 42) - Lead ba</li></ul>
=1[8/8/2013 8:57:01 AM] F nels nd framing n. OC in the 5/8 in. in. long only, 5/8 in. ws spaced staggered Nominal	2.c. Steel Studs – (As an alternate to Item 2, For use with Item 49) Channel shaped, fabricated from min 20 MSC corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs fridon-fit into mp://databasc.ul.com/ANSI/UL-263&obijd=1073430743&cfgid=1073741824&version=versionless&parent_id=107394818&sequence=18#2013 8:57:01 AM IXXV/.U465 - Fire Resistance Ratings - ANSI/UL 263 UNITED STATES GYPSUM CO – Type ULX JSG MEXICO S A DE C V – Type ULX 4. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 20, Nom 5/8 in. thick lead backed gypsum panels with beviets, square or tapered degas, applied vertically. Vertical joints centered over studs and staggered min pyrsum panel steel scrows spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required beind vertical joints of lead backed gypsum vertically. Vertical alt remaining stud locations. Lead batten strips, min 2 in, wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of stud and attended to the stud with construction address and two 1.1 in.ong Type 5-12 part head steel screws, one at the top of the strip and one at the bottom of the strip. Lead dacs, nominal 3/8 in. dam by max 0.05s in. thick. Bottom the Federal specification QQ-L-201f, Grade *C*. RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall 4M, Gypsum Board* — (For use with Item 8) - 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber bintermediate field of the Mineral and Fiber Board (Item 8). Secure 1 to unternost studs and fiber and celling runners with 2.1 in. long Type Screws spaced 8 in. CC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. AMERICAN GYPSUM CO – Type AG-C LAFAREN CONTH AMERICA INC – Type FRPC, Type C LAFAREN RONTH AMERICA IN	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>http://database.ul.com_ANSUCL-263&amp;obijd=10730743&amp;cfgid=1073741824&amp;version=versionless&amp;parent_id=1073984818&amp;sequence=1[88/2013 8:37:01 AM BXUV.U465 - Fire Resistance Ratings - ANSUVL 23</li> <li>USC MEXICO S A DE C V – Types C, IP-X2, IPC-AR</li> <li>Soint Tape and Compound – Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape; 21n. Wide, embedded in first layer of compound over all joints. As an alternate, basebaard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with source edges.</li> <li>Resilient Channel – (Dottonal Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. 0.C, flanga portion attabled in first layer of normound may be omitted when gypsum boards are supplied with source edges.</li> <li>Resilient Channel – (Dottonal Not Shown) – 25 MSG galv steel resilient channels spaced vertically max 24 in. 0.C, flanga portion attabled in C C perpenditure to studs. Standow 1996 5-12 pan head steel serves. May not be used with turn of er 40.</li> <li>Standow 1997 81 in dece, spaced 24 in . 0.C C perpenditure to studs. Annels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and secured to studs as described in the stand of No. 18 MSG galv steel - 29/16 in. or 22-23/21 in. wide with own on each flange of the channel.</li> <li>B. Franing Members – Outed to studs with 1-59 in. water or hex head Type 5 Stard Am Stard and No. 18 MSG galv steel - 29/16 in. or 21-23/21 in. wide with own screw on each flange of the stand with in all secured to studs as described in the stard of no. 19 Stard Am Stard Am</li></ul>	<ul> <li>Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>http://database.ul.com/ANSI/UL-263&amp;objid=107330743&amp;cfgid=1073741824&amp;version-versionless&amp;parent_id=1073984818&amp;sequence=1[87]</li> <li>BXUV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>Bittel into clips.</li> <li><b>CHCCO BUILDING SYSTEMS</b> – RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>Avail and Partition Facings and Accessories / Optional, Not shown) – formal 12/a: http://database.ul.com/sound isolation clips - Type A237R</li> <li>Avail and Partition Facings and Accessories / Optional, Not shown) – formal 12/a: http://database.ul.com/.sound isolation Clips - Type A237R</li> <li>Avail and Partition Facings and Accessories / Optional, Not shown) – formal is installed between the steel forming and the UL Classified avpsum board, the required lassesmbiy. Panels attached in Caccodance with manufacturer's recommendations. When the QR-510 panel is installed between the steel increased by a minimum of 12/a. In. Vet availated or intermedia as a substitute for the required layer(s) of ICassified Cypsum Board.</li> <li><b>BERIOUS ENERGY INC</b> – Type QuietRock QR-510.</li> <li><b>Brincel and Fiber Board</b> - (Optional, Not shown) – for optional uses as an additional layer on one intermediate framing. The required U. Classified aversum board layer (time 44) is to be installed over the Mineral and Fiber Board - (Not Shown, For Use With Here 45) - Long and 24 in. OC 20 and 2</li></ul>
<pre>&gt;=1[8/8/2013 8:57:01 AM] F mels nd framing h. OC in the 5/8 in. in. long, one or both psum and in. long only, 5/8 in. ws spaced staggered</pre>	<ul> <li>2c. Steel Studs – (As an alternate to Item 2, For use with Item 49 Channel shaped, fabricated from min 20 MSC corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into MSC corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into MSC UL-263&amp;obijd-10733043&amp;cfgid-1073741824&amp;version-versionless&amp;parent_id=107394818&amp;sequence=1[8:8/2013.8:57:01 AM XXVV.U465 - Fire Resistance Ratings - ANSI/UL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>4L. Gypsum Board * - (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both sist of wind, caume or tapered edges, applied vertically. Vertical joints centered over studs and graged difference on opposite sides of studs. With D24 wind 3 winds 30 and 30 an</li></ul>	<ul> <li>38. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>Intgr/database.ul.com/_ANSI/UI-263&amp;objid=10733043&amp;cfgid=1073741824&amp;version-versionless&amp;parent_id=1073984818&amp;sequence=1(8x82013 8x7501 Ab ZWU U/65 - Fire Resistance Ratings - ANSI/UI_263</li> <li>USC MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>Soft Farps and Comparind - Vinyl, dry or premised joint compound, applied in two coats to joints and sprayed by the comparison of the compar</li></ul>	Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gyosum Board.           Imp://dmbassc.ul.com/_ANSUUL-203&cb/gid=1074330743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[80]           RXUV.U465 - Fire Resistance Ratings - ANSUUL 203           Imp://dmbassc.ul.com/_ANSUUL-203&cb/gid=1074310743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[80]           RXUV.U465 - Fire Resistance Ratings - ANSUUL 203           Imp://dmabasc.ul.com/_ANSUUL-203&cb/gid=1074310743&cfgid=1073741824&version=versionless&parent_id=1073984818&sequence=1[80]           Composition
<pre>&gt;=1[8/8/2013 8:57:01 AM] F F inels ind framing in. OC in the 5/8 in. in. long, preserved staggered Nominal Nominal Ny, 5/8 in. ws spaced staggered pre or both psum and n, long</pre>	<ul> <li>2C. Steel Studs – (As ar alternate to Item 2, For use with Item 4B) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max 016 in. OC. Studs Riction-Ric Into MSUUL 263 Applied 10737418246/gid=10737418246/emion-versionless&amp;parent, id=1073944818&amp;sequence=1[84/2013 8:57:01 AM XXUV.1465 - Fire Resistance Rating - ANSUUL 263</li> <li>UNITED STATES GYPSUM CO – Type ULX</li> <li>USG MEXICO S A DE C V – Type ULX</li> <li>4. Gypsum Board* – (Not Shown) - (As an alternate to Item 4 when used as the base layer on one or both side of wall, for grooted at the stude is due to alto the stude at the base layer on one or both stude at the oposite sides of vall, for grooted and value. Avglo Sin thick lead backed oppsum panels with beveld, square or tagered edges, applied vertically. Vertical joints centered over stude and Staggered min stud cavity on oposite sides of vall, for grooted and the stude. Staff on the strip and one of both the strip lead on the strip lead is lead base is strip with a max the lead is lead base and lead the strip with a max the strip lead lead lead base stri</li></ul>	<ul> <li>B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 1) and Item 3A - Spray applied cellulose</li> <li>Imp://database.uk.com/_ANSUUT-26360bjid=1074330743&amp;Edgid=1073741824&amp;version-versionless&amp;parent_id=1073944818&amp;acquence=1[48:2013 857.01 AK DCVU645 - Fire Resistance Ratings - ANSUUT 263</li> <li>JUSG MEXICO S A DE C V - Types C, IP-X2, IPC-AR</li> <li>S. Joint Tape and Compound - Vinyl, dry or premixed joint compound, applied in two coats to joints and sormal a37, in thick gyraum enseer plasar may be applied to the entire surface of Classified versions and the anti-provide over all joints. As an alternate, normal a37, in thick gyraum enseer plasar may be applied to the entire surface of Classified versions and the anti-provide over all joints. As an alternate, normal a37, in thick gyraum enseer plasar may be applied to the entire surface of Classified versions and the anti-provide over all joints. As an alternate, normal a37, in thick gyraum enseer plasar and plant compound may be ontined when gypsen thouses are supplied with square cedges.</li> <li>A. Graing Bornbers (Net Shown) - DS SKG galv steel resilient channels and resilient of an other supplied with square cedges.</li> <li>B. Farring Ghamebars (Net Shown) - DS SKG galv steel -29/16 in. or 2-23/32 in, wide with ouble stared of a0.01 Ming of the may be overlapped 6 in. and secured to grather with two self-apping has 6. Farring theoremets - Ground of the overlapped 6 in. and secured to path the system of a disting channels may be overlapped 6 in. and secured to path set the system of th</li></ul>	Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.         Imp://database.ul.com/ANSI/UL-263&objid=1074330743&cfgid=1073741824&vorsiom-versionless-&parent_id=1073984818&sequence=1[8/ BXUV.1465 - Fire Resistance Ratings - ANSI/UL 263         Inted into clips.       STUDCO BUILDING SYSTEMS - RESILMOUNT Sound Isolation Clips - Type A237R         7. Wall and Partition Facings and Accessories* - (Optional, Not shown) - Nominal 1/2 in. thick, 41 panels, for optional use as an additional layer on one or both isles of the assembly. Panels atched in accordance with manufacturer's recommendations. When the QR-3510 panel is installed barcheen in accordance with manufacturer's recommendations. When the QR-3510 panel is installed barcheen in accordance with manufacturer's recommendations. When the QR-3510 panel is installed barck atched to a accordance with manufacturer's recommendations. When the QR-3510 panel is installed barck, attende to a and folloan layer on one or both isles of the assembly. Panels inc. Attende to as and folloan layer on one or both isles of the assembly. Panels inc. Attende to as and folloan layer on one or both isles of the assembly. Panels inc. Attende to as and folloan layer on one or both isles of the assembly. Panels is the set of the required layer (s) of Classified Gypsum board layer (learn 4M) is to be installed over the Mineral and Fiber Board* — (Optional, Not shown) – for optional use as an additional layer on one or both isles of the assembly. Panels is installed barce for the manufacture with 1-50 km into mission parallel indicatored are attalked in the order of the stud with two the options of the stud with two the anatype options of the stud with two the options of the stud with two the asset of studs and attacked to the stud with two th
E=1[8/8/2013 8:57:01 AM] F F anels nd framing n. OC in the 5/8 in. in. long, one or both psum and in. long only, 5/8 in. ws spaced staggered Nominal hly, 5/8 in. ws spaced staggered one or both psum and in. long d Batten	2C. Steel Studs – (As are alternate to Tem 2, For use with Item 4B; Channel shaped, fabricated from min 20         htp://databascal.com/_ANSI/UL-263&objid=10733743&cfgid=1073741824&creniom-versionless&parent_id=10739481&caquence=1[8x2013 8:57:01 AM         XXV/U465 - Fire Resistance Ratings - ANSI/UL 263         UNITED STATES GYPSUM CO – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         USE MEXICO S A DE C Y – Type ULX         Station of the store of tablement on an 0, to all of the tracing that the material to a model of the store of the s	<ul> <li>B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose</li> <li>Imprivatabase al.com/_ANSUUL-263&amp;edgid=1073741824&amp;version-versionless&amp;parent_id=107394418&amp;sequence=1[88/2013 B476 1478 1278 128 128 128 128 128 128 128 128 128 12</li></ul>	Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board.         II)       http://database.ul.com/ANSI/UL.463&b/bjid=1074330743&c/gjid=1073741824&version=versionless&parent_id=1073994818&sequence=1[&/i BXUV.1465 - Fire Resistance Ratings - ANSI/UL 283         III       Green Gauge and Common
ce=1[8/8/2013 8:57:01 AM] F F Panels and o framing in. OC in the i. 5/8 in. 1 in. long, only, 5/8 in. ews spaced i staggered one or both ypsum s and in. long only, 5/8 in. ews spaced i staggered one or both ypsum s and in. long ad Batten ZE) - Nom.	22. Steel Studs – (As an alternate to tem 2, For use with tem 40 Channel shaped, fabricated from his 20 Mitp:/databascul.com/ANSI/UL-2633&objd=10743/013&cfgd=10737418&dxreniom-versionles&gament_id=107394818&cequence=1(BR20)38.57.01 AM XXV/U465 - Fire Resistance Ratings – ANSI/UL-263 UNITED STATES GYPSUM CO — Type ULX USG MEXICO S A DE CV — Type ULX USG MEXICO S A DE CV — Type ULX AL, Gypsum Board* — (Not Show) - (As an alternate to Item 4, when used as the base layer on one or both sales of wall. For direct attachment only to steel studs form 20, Nom 56 (h, thick land backed pryoun) panels with breveled, square or Tapered dgas, applied vertically. Vertical joints contend over studs and staggered min 1 stud carvit on opposite side of studs. Wallboard secure to studs with 1-1/4 in. Iong Type 5-12 Bedde Terms 1 stud carvit, on opposite side of studs. Wallboard secure to studs with 1-1/4 in. Iong Type 5-12 Bedde Terms 1 stud carvit on opposite side of studs. Wallboard secure to stude with 1-1/4 in. Iong Type 5-12 Bedde Terms 1 stud carvit on opposite side of studs. Wallboard secure to stude with 1-1/4 in. Iong Type 5-12 Bedde Terms 1 studs carvit on opposite side of stude. And the type of the stude with a stude at the base applied vertically on the stud with a 1-1/4 in. Iong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. Weith apper tape and the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And the stude with a 1-1/4 in. Tong Type 5-12 Bedde Terms 1 stude carvit on opposite side of stude. And there the point 1 stude carvit on opposite side of stude. And there	<ul> <li>B. Fiber, Sprayed* – As an alternate to Batts and Blankets (Item 3) and Item 1A - Spray applied cellulose</li> <li>Imp:/database.uk.com/_ANSIUL-1265&amp;bdbjd=107303743&amp;bdgbd=107374182&amp;bdxension-versionless&amp;parent_id=107398841&amp;bdxeparent=1(8x01318:50.00000000000000000000000000000000000</li></ul>	<ul> <li>Type X, To-C, GreenGlass Type X. Type X ComfortGuard Sound Deadening Gypsum Board.</li> <li>Intp://database.ul.com/ANSI/U.1203</li> <li>Inted into dips.</li> <li>STUDC JUGS DUILDING SYSTEMS - RESILMOUNT Sound Isolation Clips - Type A237R</li> <li>A. Wall and Partition Facings and Accessories* - (Optional, Not shown) Nominal 1/2 in. thick, 4 ft panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR 510 panel is installed between the state of the increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) is Jane to be installed between the state or of wall. Kon 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of L Classified Gypsum Board.</li> <li>BeRIOUS ENERGY INC - Type QuietRock QR-510.</li> <li>8. Mineral and Fiber Board* - (Optional, Not shown) For optional use as an additional layer on one of wall. Kon 1/2 in. Not: evaluated or intended as a substitute for the required layer(s) of L Classified Gypsum Board.</li> <li>9. Lead Batten Strips - (Not Shown, For Use With Ttem 45) - Lead batten strips. In 0.C and 24 in 0.C and a flowing mini 1/2 in. Not: evaluated or intended as a substitute for the required layer on one of wall. Kon 1/2 in. Not: evaluated by passin board during the Facear and the later over the Note of the strips required UL Classified gypsum board during the flowing the flowing the flowing the strips in 1/2 in. Not: evaluated the system hand in the strips in 1/2 in. Not: evaluated or the the Note of the strips or on the of the strips or (Not Shown, For Use With Ttem 45) - Lead batten strips. The Note of the strips or one of the strips or one of the of the strips or one of the strip and the strip and the strip and the strip and the strips required behaver the strips or 1/2 in. Note, with the strips of the strip and the strip and the strip and one at the bottom the strip</li></ul>



ISSUE DATES PERMIT SET 08.29.23

> 230139 RATED WALL **INFORMATION**





# **KEYED NOTES**

- I. EXIT, EXIT SIGN, AND EMERGENCY LIGHTING ABOVE DOOR INTERIOR WITH BATTERY BACKUP. EXTERIOR EGRESS LIGHTING ABOVE DOOR TIED TO BATTERY BACK UP.
- PROPOSED FIRE EXTINGUISHER LOCATION. VERIFY WITH FIRE MARSHAL. FINAL QUANTITY AND LOCATIONS TO BE DETERMINED WITH FINAL RACKING PLAN AND FIRE DEPARTMENT REVIEW.
- 3. EXISTING PUMP ROOM.
- 4. I HOUR RATED DEMISING WALL, CENTERED ON COLUMN LINE.

# **CODE ANALYSIS**

<b>DE</b> DDE ATIONAL BUILDING CODE	
ODE ATIONAL PLUMBING CODE	
CODE JAL ELECTRICAL CODE	
ATIONAL FIRE CODE	
L CODE ATIONAL MECHANICAL CODE	
DDE AS CODE	
ed accessibility code 17.1 Ibility guidelines	
<b>TERALL BUILDING)</b> ION (302.1):	S-1
NANT SPACE)	
ION (302.1): LISES (508.2.1):	S-I
ATED USES (508.3.2):	В N/A
JSES (508.3.3):	N/A
INKLER SYSTEM YSTEM REQUIRED (903):	YES
	TES
L <b>DING HEIGHT</b> IGHT (503):	2 STORY
L <b>DING AREA</b> EA (503):	17,500 SF
NCREASE	
PR SPRINKLERED BUILDING (506.3):	300%
AREA (507):	UNLIMITED
NCREASE (506.2): 225) x W / 30	N/A
WABLE AREA WITH INCREASES: (At x lf) + (At x ls) N	UNLIMITED
G HEIGHT AND AREA	
	131,615 SF
HGHT (FEET / # FLOORS): EA:	42' / 1 FLR 45,438 SF
ANT LOAD (1004.1.2)	01
/100	36
CCUPANTS	120
ANT LOAD (1004.1.2)	120
QUIREMENTS (601 AND 602)	
IUN TTPE: FRAME:	II-B
ARING WALLS:	NR
ARING WALLS:	NR
ON-BEARING WALLS:	NR
DN-BEARING WALLS	NR
STRUCTION: TRUCTION:	
	INK NI/A

FIRE RESISTANCE RATED CONSTRUCTION (704, 601, 602)	
RATED EXTERIOR WALLS:	N/A
FIRE SEPARATION DISTANCE	60+
UNPROTECTED OPENING AREA:	N/A
NTERIOR WALL AND CEILING FINISH REQUIREMENTS (803	3)
SEE FINISH SCHEDULE FOR MATERIALS	,
ALL MATERIALS ARE CLASS A RATED	
STANDPIPE SYSTEM (905):	YES
PORTABLE FIRE EXTINGUISHERS (906.1):	SEE PLAN
FIRE ALARM AND DETECTION SYSTEMS (907):	YES
SMOKE CONTROL SYSTEMS (909):	N/A
SMOKE AND HEAT VENTS (910):	N/A
EGRESS	
MINIMUM WIDTH FACTOR (1005.1):	0.15"
REQUIRED MINIMUM WIDTH FROM SPACE (1005.1):	14.4"
MINIMUM NUMBER OF EXITS (1015):	I
ACTUAL NUMBER OF EXITS:	4
ACTUAL WIDTH OF EXITS:	180"
ALLOWABLE TRAVEL DISTANCE (1016.2):	400'
	N/R
MAXIMUM DEAD END CORRIDOR (1018.2).	<del>44</del> 50'
PLUMBING FIXTURE COUNTS REQUIRED FIXTURES S-I (50 / 50 SPLIT MEN/WOMEN) MEN-42 OCCUPANTS	
TOILETS	1
	I
WOMEN-42 OCCUPANTS	1
	1
SERVICE SINKS	
DRINKING FOUNTAINS	I
REQUIRED FIXTURES B (50 / 50 SPLIT MEN/WOMEN)	
MEN-18 OCCOPANTS	1
LAVATORIES	ļ
WOMEN-18 OCCUPANTS	
TOILETS	I
LAVATORIES	ļ
SERVICE SINKS	
DRINKING FOUNTAINS	I
PROVIDED FIXTURES MEN	
TOILETS	2
URINAL	I
LAVATORIES	3
WOMEN	
	3
LAVATUKIES SERVICE SINKS	ڑ ا
DRINKING FOUNTAINS	· · ·
	·



ARCHITECTURE 5719 LAWTON LOOP E. DR. #212 INDIANAPOLIS, IN 46216 O :: 317.288.0681 F :: 317.288.0753



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# PROJECT INFORMATION

MIDWEST DISTRIBUTION TI

1220 NW MAIN STREET LEE'S SUMMIT, MO 64086





230139 LIFE SAFETY PLAN



	TOILET ACCESSORY SCHEDULE											
MARK	SYMBOL	MFR #	DESCRIPTION									
тті		BOBRICK B-2888	MULTI-ROLL TOILET TISSUE DISPENSER									
GBI		BOBRICK B-5806 X 36 B-5806 X 42	36" AND 42" GRAB BARS									
GB2	СI	BOBRICK B-5806 X 18	18" VERTICAL GRAB BAR									
MI		BOBRICK B-165	MIRROR 2'-0" X 4'-0"									
TDI		BOBRICK B-3944	TOWEL DISPENSER / WASTE RECEPTACLE									
SDI	Ь	BOBRICK B-2112	soap dispenser									
NDI		BOBRICK B-353 B-270	B-353: SANITARY NAPKIN DISPOSAL UNIT AT GWB LOCATIONS. B-270: SURFACE, MOUNT SANITARY NAPKIN DISPOSAL UNIT AT PARTITIONS									
TPI	[	GENERAL PARTITION	TOILET PARTITION AND/OR URINAL SCREEN STAINLESS STEEL URINAL SCREEN BOTTOM 12" FROM FLOOR AND TOP 60" MAX FROM FLOOR									





<u>2</u> 1/2" = 1'-0"

# **GENERAL NOTES**

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND JOB CONDITIONS. ANY DEVIATION FROM WHAT IS NOTED IN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.
- B. ALL DIMENSIONS SHOWN ARE FACE OF BRICK, MASONRY OR METAL STUD FRAMING, UNLESS OTHERWISE NOTED.
- C. PROVIDE DEEP LEG DEFLECTION TRACK AT ALL METAL STUD CONNECTIONS WITH STRUCTURE ABOVE, TYPICAL.
- D. PROVIDE FIRE RATED WOOD BLOCKING IN METAL STUD WALLS FOR ANY WALL SUPPORTED ITEMS.
- E. PROVIDE APPROVED FIRE RATED STOPPING MATERIALS IN ANY OPENINGS IN FIRE RATED ASSEMBLIES.
- F. REFER TO DOOR AND WINDOW SCHEDULES FOR ALL MATERIALS, FINISHES, AND HARDWARE INFORMATION. G. REFER TO EXTERIOR ELEVATIONS FOR ALL BRICK, MASONRY, AND
- OTHER EXPANSION JOINT LOCATIONS. H. ALL MATERIALS LOCATED IN CEILING PLENUM SHALL BE RATED FOR SUCH INSTALLATION OR PROTECTED TO PROVIDE COMPLIANCE. THIS INCLUDES BUT IS NOT LIMITED TO INSULATION (FHC 25/50) POWER AND LOW VOLTAGE WIRING, TELECOMMUNICATIONS CABLING, PLUMBING SUPPLY AND DRAIN LINES AND SUPPORTING BRACKETS AND/OR BLOCKING FOR
- CEILING HUNG ITEMS. I. PRIOR TO ORDERING ANY PRODUCTS, CONTRACTOR SHALL SUBMIT SAMPLES TO THE ARCHITECT OF ALL FINISH MATERIALS TO BE USED ON THE PROJECT. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR ANY MATERIALS ORDERED INCORRECTLY WHEN THAT MATERIAL WAS NOT REVIEWED BY THE ARCHITECT.
- PROVIDE CONCRETE FILLED STEEL PIPE BOLLARDS AT ALL REQUIRED UTILITY EQUIPMENT LOCATIONS SUCH AS GAS METERS. ELECTRICAL TRANSFORMER PANELS, ETC., COORDINATE WITH UTILITY COMPANY AND CONTRACTORS, WHEN APPLICABLE, FOR NECESSARY LOCATIONS. REFER TO CIVIL DRAWINGS FOR BOLLARD SPECIFICATIONS AND ADDITIONAL INFORMATION.
- ALL DOORS, UNLESS OTHERWISE NOTED, TO HAVE HINGE SIDE Κ. SET 4" FROM CORNER SHOWN TO OUTSIDE OF FRAME.
- L. UNLESS SPECIFIED ELSEWHERE, ALL INTERIOR SLABS AND SLAB INFILLS TO BE FF-50/FL-35 OVERALL AND FF-35/FL-25 LOCAL.
- M. ALL EXIT DOORS TO HAVE TACTILE EXIT SIGNAGE PER 703.4 OF THE ANSI 117.1 2009

# **KEYED NOTES**

- ADA COMPLIANT WALL MOUNTED LAVATORY. PROVIDE SCALD Ι. GUARDS ON SUPPLY/WASTE LINE. REFER TO PLUMBING DWGS. SEE TYPICAL ACCESSIBILITY DETAILS FOR ACCESSIBLE MOUNTING INFORMATION.
- 2. ADA COMPLIANT FLOOR MOUNT TOILET W/ FLUSH VALVE CONTROLS. REFER TO PLUMBING DWGS. SEE TYPICAL ACCESSIBILITY DETAILS FOR ACCESSIBLE MOUNTING INFORMATION.
- 3. STANDARD HEIGHT FLOOR MOUNT TOILET W/ FLUSH VALVE CONTROLS. CENTER IN WIDTH OF STALL.
- ADA COMPLIANT WALL MOUNTED URINAL W/ FLUSH VALVE 4. CONTROL. CENTER IN WIDTH OF STALL. REFER TO PLUMBING DRAWINGS. SEE TYPICAL ACCESSIBILITY DETAILS FOR ACCESSIBLE MOUNTING INFORMATION.
- FIBERGLASS MOP SINK W/ WALL MOUNT FAUCET. PROVIDE FRP ON WALLS BEHIND SINK TO 48" AFF. EXTEND MIN. 2' PAST SINK EDGE.
- 6. FLOOR DRAIN
- 7. ADA COMPLIANT HI-LOW WATER COOLER.
- 8. FURR OUT WALL WITH 3 5/8" METAL STUDS W/ R-I I BATT INSULATION. COVER W/ VAPOR BARRIER AND 5/8" GYP BD. EXTEND TO MIN. 4" ABOVE CEILING LINE.
- ALIGN W/ EDGE OF MULLION. 9.
- 10. PROVIDE 2"X2"X6' POST IN WALL BOLTED TO SLAB TO SUPPORT WALL.



ARCHITECTURE 5719 LAWTON LOOP E. DR. #212 INDIANAPOLIS, IN 46216 O :: 317.288.0681 F :: 317.288.0753



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ISSUE DATES

08.29.23

PERMIT SET



230139 FLOOR PLAN







OFFICE REFLECTED CEILING PLAN



230139

REFLECTED CEILING PLAN



**ISSUE DATES** PERMIT SET 08.29.23

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CERTIFICATION



# **CEILING LEGEND**

(NOT ALL MAY APPLY)

ACOUSTICAL TILE CEILING / GRID. REFER TO FINISH SCHEDULE FOR TYPE AND HEIGHT. 

GYPSUM BOARD BULKHEAD OR CEILING. HEIGHT AS NOTED ON SCHEDULE OR KEYNOTES.



ARCHITECTURE

5719 LAWTON LOOP E. DR. #212

INDIANAPOLIS, IN 46216 O :: 317 . 288 . 0681 F :: 317 . 288 . 0753

	MATERIALS SCHEDULE					DOOR SCHEDULE																	
MARK	MATERIAL	MA	NUFACTURER		COLOR	PATTERN	I / TEXTURE	NUMBE	R	REMARKS	MARK	DOOR	SIZE	MATERIAL	GLAZING	FINISH	RATING	FRAME	MATERIAL	FINISH	RATING	HARDWARE	REMARKS
SC-I	SEALED CONCRETE		ASHFORD	CLEAR		CUR-N-SEAL					101	F	3-0X7-0	SCWD	D	UNFIN		F2	WELDED	PAINT		05	
B-I	WALL BASE	JOHN	SONITE/TARKETT	BLACK				40			102	F	3-0×7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		07	
LVT-I	LUXURY VINYL TILE		INTERFACE	ONYX		DRAWN LINE	ES	A00907			103	F	3-0×7-0	SCWD		UNFIN		FI	WELDED	PAINT		05	
CPT-I	CARPET		INTERFACE	STEEL		DETOURS		104718			104A	F	3-0×7-0	SCWD		UNFIN		FI	WELDED	PAINT		03	
T-1	WALL TILE										104B	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		03	
T-2	FLOOR TILE										105	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
P-1	PAINT	BEN	NJAMIN MOORE	SUPER W	HITE	EGGSHELL		OC-152			106	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
P-2	PAINT	SHE	RWIN WILLIAMS	INVIGOR	ATE	EGGSHELL		SW 6886			107	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
P-3	PAINT	BEN	NJAMIN MOORE	METROPO	DLIS	EGGSHELL		CC-546			108	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
PL-I	PLASTIC LAMINATE		WILSONART	BOARDV	Valk oak	FINE VELVET		7983-38			109	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		06	
PL-2	PLASTIC LAMINATE		WILSONART	GREY PA	MPAS	MATTE FINSIH	4	4168-60			110	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		06	
SS-I	SOLID SURFACE		CORIAN	RAINCLC	DUD						111	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		02	
ACT-I	ACOUSTIC CEILING TIL	E	ARMSTRONG	WHITE				2758			12	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		02	
		1			RO	OM FI	NISH	SCHED	ULE		113	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		05	
ROOM #	ROOM NAME	FLOORING	BASE N	ORTH WALL	EAST WALL	south wall	WEST WALL	CABINETS / COUNTERTOPS	CEILING MA HEIGHT	REMARKS	114	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		05	
101	CONFERENCE	CPT-I	B-I	P-I	P-I	P-I	P-I		ACT-1 / 10-2		16	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
102	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-1 / 10-2		117	F	3-0X7-0	SCWD		UNFIN		FI	WELDED	PAINT		03	
103	STORAGE	SC-I	B-I	P-I	P-I	P-I	P-I	-	ACT-1 / 10-2		118	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
104	BREAK ROOM	LVT-I	B-I	P-I	P-I	P-I	P-2	PL-I / SS-I	ACT-1 / 10-2		119	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
105	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-17 10-2		120	F	3-0X7-0	SCWD	D	UNFIN		F3	WELDED	PAINT		05	
106	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-17 10-2														
107	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-17 10-2														
108	OFFICE	CPT-I	B-I	P-1	P-1	P-3	P-I	-	I0-2														
109	MEN	T-2		I-I / P-I	I-I / P-I	- /  P-	P-I	-	ACT-T/ 10-2	SANITARY COVE @ FLOORLINE.													
110	WOMEN	T-2		T-I / P-I	T-I / P-I	T-I / P-I	T-I / P-I	-	ACT-1 / 10-2	T-I TO 60" AFF. PROVIDE SCHLUTER STRIP @ TOP OF TILE AND SCHLUTER SANITARY COVE @ FLOORLINE.													
111	TLT	T-2		T-I / P-I	T-I / P-I	T-I / P-I	T-I / P-I	-	ACT-1 / 10-2	T-I TO 60" AFF. PROVIDE SCHLUTER STRIP @ TOP OF TILE AND SCHLUTER SANITARY COVE @ FLOORLINE.													
112	TLT	T-2		T-I / P-I	T-I / P-I	T-I / P-I	T-I / P-I	-	ACT-1 / 10-2	T-I TO 60" AFF. PROVIDE SCHLUTER STRIP @ TOP OF TILE AND SCHLUTER SANITARY COVE @ FLOORLINE.													
113	JANITOR	SC-I	B-I	P-I	P-I	P-I	P-I		ACT-1 / 10-2														
114	IT	SC-I	B-I	P-I	P-I	P-I	P-I		ACT-1 / 10-2														
115	COPY	CPT-I	B-I	P-1	P-I	P-I	P-I	PL-1 / PL-2	ACT-1 / 10-2														
116	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-1 / 10-2														
117	HALL	CPT-I	В-І	P-I	P-I	P-I	P-I	-	ACT-1 / 10-2														
118	OFFICE	CPT-I	В-І	P-I	P-I	P-3	P-I	-	ACT-1 / 10-2														
119	OFFICE	CPT-I	В-І	P-I	P-I	P-3	P-I	-	ACT-1 / 10-2														
120	OFFICE	CPT-I	B-I	P-I	P-I	P-3	P-I	-	ACT-1 / 10-2														





# HARDWARE SET #01

- 3 HINGES
- I CLASSROOM LOCKSET
- 3 MUTES
- I CLOSER

# I DOOR STOP

### HARDWARE SET #02

- 3 HINGES
- I PRIVACY LOCKSET
- I CLOSER
- 3 MUTES
- I DOOR STOP

# **DOOR HARDWARE**

HARDWARE SET #03

- 3 HINGES I PASSAGE SET
- 3 MUTES
- I CLOSER
- I DOOR STOP

### HARDWARE SET #04

- 3 HINGES I STOREROOM LOCK SET
- I ELECTRIC STRIKE
- 3 MUTES
- I CLOSER
- I DOOR STOP

# HARDWARE SET #05

- 3 HINGES
- I PASSAGE SET 3 MUTES
- I DOOR STOP

- HARDWARE SET #06 3 HINGES
- I PUSH PULL
- I CLOSER
- I KICKPLATE
- I DOOR STOP

# GENERAL DOOR AND GLAZING NOTES

A. ALL PRE-FINISHED WOOD DOORS SHALL BE SOLID CORE WITH WOOD VENEER, MARSHFIELD OR EQUIVALENT. PROVIDE FINISH SAMPLE AND DOOR CONSTRUCTION DIAGRAM FOR APPROVAL AND HARDWARE BLOCKING COORDINATION. VENEER TO BE WHITE BIRCH OR MAPLE, FREE OF DARK GRAINS UNLESS OTHERWISE NOTED.

- B. WOOD DOORS SHALL ONLY BE INSTALLED IN CONDITIONED
- SPACE. C. ALL HARDWARE TO BE MINIMUM 6 PIN BEST COMPATIBLE SYSTEM. COORDINATE KEYING WITH OWNER.
- D. TEMPERED AND ANNEALED GLASS TO BE CLEANED PER MANUFACTURER REQUIREMENTS. NYLON CLOTH METHODS PREFERRED. DO NOT USE RAZOR BLADES ON GLASS.
- E. GLASS AROUND DOORS AND IN DOORS SHALL BE TEMPERED UNLESS OTHERWISE NOTED IN ELEVATIONS.
- F. ANY RATED DOORS TO HAVE LABEL INSTALLED IN JAMB. G. ALL EXITS DOORS TO HAVE TACTILE EXIT SIGNAGE PER 703.4 OF
- THE ANSI 117.1 2009. H. INSTALL OWNER PROVIDED ADA COMPLIANT RESTROOM SIGNAGE, VERIFY WITH ARCHITECT.

# **GLAZING TYPES**

- A. SECTION OF GLAZING REQUIRED TO BE I" INSULATED GREY TINTED GLASS.
- B. SECTION OF GLAZING REQUIRED TO BE I" INSULATED TEMPERED GLASS.
- C. SECTION OF GLAZING REQUIRED TO BE I/4" GLASS.
- D. SECTION OF GLAZING REQUIRED TO BE I/4" TEMPERED GLASS. E. SECTION OF GLAZING REQUIRED TO BE I" INSULATED TEMPERED
- GREY TINTED SPANDREL GLASS.

EXTERIOR GLAZING MUST MEET THE FOLLOWING SPECIFICATIONS FOR ENERGY CODE COMPLIANCE:

LOW "E" COATING "U" VALUE - MINIMUM OF 0.28

"SHGC" VALUE - MAXIMUM OF 0.47

# **GENERAL FINISH NOTES**

- A. PROCEEDING WITH THE INSTALLATION OF FINISHES WILL BE CONSTRUED THAT THE INSTALLER AND/OR FINISHER HAS INSPECTED AND ACCEPTED THE SUBSTRATE FOR RECEIVING THE WORK. NO CHANGE ORDER WILL BE ISSUED TO RECTIFY CONCEALED, UNKNOWN CONDITIONS OR UNSATISFACTORY SUBSTRATE ONCE THE FINISH WORK HAS PROCEEDED.
- B. USE MANUFACTURER'S RECOMMENDED INSTALLATION METHODS AND MATERIALS FOR ALL FINISHES.
- C. CONTRACTOR TO NOTIFY ARCHITECT IMMEDIATELY IF A SPECIFIED FINISH ITEM BECOMES UNAVAILABLE.
- D. CONTRACTOR TO SUBMIT SHOP DRAWINGS, FLOORING TRANSITION/GRAPHIC LOCATIONS AND SUBMITTALS OF ALL INTERIOR ITEMS AND FINISH MATERIALS TO ARCHITECT REVIEW PRIOR TO PLACING ANY MATERIAL ORDERS. CONTRACTOR MUST ACCOUNT FOR SUBMITTAL REVIEW, ORDERING AND DELIVERY WHEN SCHEDULING PRODUCT INSTALLATION.
- E. USE SUBFLOOR REDUCER STRIPS (UNDER FLOORING) TO LEVEL MATERIALS OF UNEQUAL HEIGHTS.
- F. PROVIDE IOHNSONITE SLIM-LINE TRANSITION STRIPS WHERE FLOORING MATERIALS OF UNEQUAL THICKNESS MEET. TRANSITION STRIPS AT DOORS TO BE LOCATED UNDER THE CENTERLINE OF THE DOOR IN CLOSED POSITION. COLOR OF TRANSITION STRIPS TO BE SELECTED BY ARCHITECT.
- G. ALL WALL TILE TO BE INSTALLED TO FLOOR WITH NO BASE UNLESS NOTED OTHERWISE.
- H. ANY GRILLES, FIRE EXTINGUISHER CABINETS, ETC., TO BE PAINTED TO MATCH WALL COLOR ON WHICH THEY OCCUR.
- PROVIDE OWNER WITH A MINIMUM OF ONE FULL BOX OR 2% OF 1 EACH FINISH PRODUCT/MATERIAL SPECIFIED ON THE PROJECT.
- ALL WOODWORK/MILLWORK SHALL CONFORM TO THE QUALITY STANDARDS OF ARCHITECTURAL WOODWORK INSTITUTE (AWI) PREMIUM GRADE. FABRICATOR SHALL BE FAMILIAR WITH AWI standards.
- K. FABRICATE WOODWORK/MILLWORK ITEMS TO ACTUAL FIELD DIMENSIONS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, SAMPLES, AND/OR MATERIAL LITERATURE FOR ALL ITEMS. SHOP DRAWINGS SHALL SHOW SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH THE QUALITY STANDARDS AND DESIGN INTENT.
- L. PROVIDE ALL NECESSARY FURRING AND GROUNDS FOR WOODWORK AND FINISH ITEMS. COORDINATE LOCATION OF BLOCKING WITHIN WALLS FOR ITEMS TO BE SECURED TO SURFACE. ALL FASTENERS SHALL BE CONCEALED.
- M. FINISH ALL SIDES AND BACK OF MILLWORK/CASEWORK.
- N. ALL COUNTERTOPS TO BE I  $\frac{1}{2}$ " THICK WITH A SQUARE EDGE, UNLESS OTHERWISE NOTED. PROVIDE COUNTER SUPPORTS AS REQUIRED.
- O. PROVIDE GROMMETS IN COUNTERTOPS ABOVE RECEPTACLES. COLOR TO MATCH COUNTER SURFACE. COORDINATE WITH OWNER AND ARCHITECT ON FINAL LOCATION AND SIZE OF GROMMETS BEFORE INSTALLATION.
- P. REFER TO FINISH SCHEDULE, INTERIOR ELEVATIONS AND SPECIFICATIONS FOR ALL MATERIAL INFORMATION AND locations.



# CURRAN ARCHITECTURE 5719 LAWTON LOOP E. DR. #212 INDIANAPOLIS, IN 46216 O :: 317.288.0681 F :: 317.288.0753



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# PROJECT INFORMATION

MIDWEST DISTRIBUTION TI

1220 NW MAIN STREET LEE'S SUMMIT, MO 64086

ISSUE DATES

08.29.23

PERMIT SET

### HARDWARE SET #07

- 3 HINGES
- I CLASSROOM LOCKSET
- 3 MUTES
- I DOOR STOP

# HARDWARE SET #08

- 6 HINGES
- 2 PUSH PULLS
- 2 MUTES
- 2 CLOSERS
- 2 FLOOR STOPS

230139 DOOR AND FINISH SCHEDULE





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ELEVATION



ELEVATION



ELEVATION







- CASEWORK GENERAL NOTES
- A. UNLESS SPECIFICALLY OTHERWISE NOTED, PROVIDE SELF EDGE ALONG EXPOSED FACES OF ALL COUNTER TOPS.
- B. PROVIDE WOOD F.R. BLOCKING IN WALL WHERE REQUIRED FOR WALL AND/OR BASE CABINET INSTALLATION. COORDINATE WITH CABINET MANUFACTURER PRIOR TO BLOCKING BEING INSTALLED. AT EXTERIOR WALL PROVIDE TREATED WOOD BLOCKING.
- C. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADA COMPLIANT CABINETS, HANDLES, CLEAR SPACES BELOW CABINETS WHERE REQUIRED ETC WHETHER SHOWN ON THESE DETAILS OR NOT. COORDINATE WITH ARCHITECT IF ANY DISCREPANCIES ARISE.
- D. IF SEPARATE SPECIFICATIONS ARE INCLUDED WITH THIS PROJECT THOSE DOCUMENTS WILL SUPERCEDE WHAT IS SHOWN AND/OR DETAILED ON THIS DRAWING. OTHERWISE THIS DRAWING AND DETAILS REPRESENT THE MINIMUM REQUIRED STANDARDS OF CONSTRUCTION FOR ALL BASE CABINETS, COUNTER TOPS, UPPER CABINETS, ETC.
- E. REFER TO FLOOR PLAN FOR ALL LENGTHS OF CABINET RUNS AS WELL AS LOCATIONS. REFER TO THE REFLECTED CEILING PLAN (IF INCLUDED) FOR ALL BULKHEAD LOCATIONS AND HEIGHTS.
- F. CASEWORK INSTALLER IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL DIVISION 22 AND DIVISION 26 ITEMS (INCLUDING CUT OUTS) IN CASEWORK OR COUNTERTOPS. LOCATIONS AND CUT OUT COORDINATION ALSO REQUIRED FOR RECEPTACLES (DIVISION 26) IN MICROWAVE WALL CABINETS, DISHWASHER LOCATIONS, GARBAGE DISPOSAL LOCATIONS ,ETC.
- G. PROVIDE FINISHED ENDS ON CABINETS WHERE END OF CABINET IS EXPOSED BEYOND WALL LINE, UNDER COUNTER, AT KNEE SPACE AND AT ALL SIMILAR EXPOSED AREAS.
  H. UNLESS NOTED OTHERWISE PROVIDE EQUAL WIDTH FILLER/SCRIBE BETWEEN WALL AND CASEWORK AT ALL
- LOCATIONS WHERE NONE IS SHOWN. MAXIMUM WIDTH IS TO BE 2".
- I. CONTRACTOR SHALL FIELD VERIFY AND CHECK ALL CONDITIONS, LOCATIONS AND DIMENSIONS PRIOR TO STARTING ANY WORK. REPORT ANY DISCREPANCIES TO ARCHITECT.
- J. ANY AND ALL PARTS OF ANY CABINETS OR COUNTERS THAT ARE VISIBLE MUST BE FINISHED WITH MATERIAL TO MATCH ADJACENT FINISHES. NOTIFY AND COORDINATE WITH ARCHITECT IF AREAS OF UNSPECIFIED FINISHES EXIST.
- K. UNLESS NOTED OTHERWISE REFER TO ROOM FINISH SCHEDULE FOR ALL CABINET FINISHES AND MATERIALS AS WELL AS ALL OTHER ASSOCIATED, MISCELLANEOUS FINISH REQUIREMENTS. UNLESS NOTED OTHERWISE ALL INTERIOR COMPONENTS TO BE WHITE MELAMINE.
- L. EASE ALL EXPOSED OUTSIDE EDGES AT ALL COMPONENTS FOR ITEMS SHOWN ON THIS SHEET.
- M. REFER TO ROOM FINISH SCHEDULE FOR ALL WALL BASE REQUIREMENTS.



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# PROJECT INFORMATION

MIDWEST DISTRIBUTION TI

I220 NW MAIN STREET LEE'S SUMMIT, MO 64086

ISSUE DATESPERMIT SET08.29.23

230139 CASEWORK ELEVATIONS



1.	BUILDING CODE	2018 INTERNATIONAL BUILDING CODE (IBC
	OCCUPANCY CATEGORY	
2.	LIVE LOADS	
	A. ROOF – NON-REDUCIBLE	20 PSI
	B. SLAB-ON-GRADE	350 PSI
3.	ROOF SNOW LOAD	
	A. GROUND SNOW LOAD, Pg	20 PSI
	B. FLAT ROOF SNOW LOAD, Pf	20 PSI
	C. SNOW EXPOSURE FACTOR, Ce	1.(
	D SNOW LOAD IMPORTANCE FACTOR, I	1.0
	L. THERMAL FACTOR, Ct (BUILDING)	
4	F. SNUW DRIFT	PER REFERENCED CODI
4.	WIND DESIGN DATA	100 MP
	A. ULTIMATE WIND SPEED (3 SECOND GUST), V	109 MF1
	C WIND EXPOSIBE CATEGORY	1.00
		+/- 0.1
	E DESIGN WIND DESSURE ON COMPONENTS AND CLADDING (1.0W)	+/- 0.16
	DESIGN WIND PRESSURE ON COMPONENTS AND CLADDING (1.0W)     WALLS (500 SOLIADE EEEE EEEECTIVE WIND ADEA)	
	FND ZONES	23.7 PSI
	INTERIOR ZONES	23.7 PSI
	2) ROOF (10 SOLIARE FEET FEFECTIVE WIND AREA FOR DECK ATTA	CHMENT)
	CORNER ZONES	89.1 PSI
	END ZONES	65.4 PS
	INTERIOR ZONE 1	49.6 PSI
	INTERIOR ZONE 2	28.5 PSI
	F. WIDTH OF END ZONES, a	18.9 F
5.	EARTHQUAKE DESIGN DATA	
	A. SEISMIC IMPORTANCE FACTOR, I	1.0
	B. MAPPED SPECTRAL RESPONSE ACCELERATION, Ss	9.9 %
	C. MAPPED SPECTRAL RESPONSE ACCELERATION, S1	6.8 %
	D. SITE CLASS	(
	E. SPECTRAL RESPONSE COEFFICIENT, Sds	0.08
	F. SPECTRAL RESPONSE COEFFICIENT, Sd1	0.06
	G. SEISMIC DESIGN CATEGORY	ł
	H. SIRUCIURAL SISIEM	
	1) BASIC SEISMIC FORCE-RESISTING SYSTEM TYPE	A. BEARING WALL SYSTEM
	2) VERTICAL ELEMENT TYPE	2) ORDINARY PRECAST SHEAR WALLS
	3) DESIGN BASE SHEAR, LRFD	0.029 V
	4) SEISMIC RESPONSE COEFFICIENT, Cs	0.029
	5) CONTROLLING RESPONSE MODIFICATION FACTOR, R	:
	J. ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
6.	DEAD LOAD	
	A. EPDM MEMBRANE	0.3 PSI
	B. RIGID INSULATION	0.7 PSI
	C. ROOF DECK	2.0 PSI
	D. LIGHTS, PLUMBING, & HVAC	3.0 PSI
	E. SPRINKLERS	2.0 PSI
	F. STEEL JOISTS	2.0 PSI
	G. STEEL GIRDERS	2.0 PSI
	H. TOTAL DEAD LOAD ON JOISTS	10.0 PSI
		10.0 DCI

- 1. STRUCTURAL ELEMENTS ARE NON-SELF SUPPORTING AND REQUIRE INTERACTION WITH OTHER ELEMENTS FOR STABILITY AND RESISTANCE TO LATERAL FORCES. FRAMING AND WALLS SHALL BE TEMPORARILY BRACED BY THE CONTRACTOR UNTIL PERMANENT BRACING, ROOF DECKS, AND WALLS HAVE BEEN INSTALLED AND CONNECTIONS BETWEEN THESE ELEMENTS HAVE BEEN MADE.
- 2. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION, UNLESS NOTED OTHERWISE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS. METHODS. TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO.
- 3. THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. PENETRATIONS SHALL BE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR OPENING LOCATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- 4. USE ONLY DIMENSIONS INDICATED ON THE DRAWINGS. DO NOT SCALE DRAWINGS OR USE ANY DIMENSIONS TAKEN FROM ELECTRONIC DRAWING FILES. CONTRACTOR SHALL COORDINATE IN-PLACE DIMENSIONS BASED ON TOLERANCES OF THE RESPECTIVE TRADES.
- 5. ASSUME EQUAL SPACING IF NOT INDICATED ON DRAWINGS.
- THE GENERAL NOTES ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENTS AND SHALL BE USED IN CONJUCTION WITH THE STRUCTURAL DRAWINGS. WHERE REQUIREMENTS INDICATED ON THE STRUCTURAL DRAWINGS DIFFER FROM THE GENERAL NOTES, NOTIFY THE ARCHITECT AND THE STRUCTURAL ENGINEER.
- 7. THE STRUCTURAL DRAWINGS ARE NOT INTENDED TO BE AN INDEPENDENT SET OF THE CONSTRUCTION DOCUMENTS. SEE ARCHITECTURAL, MEP, CIVIL AND OTHER DRAWINGS FOR INFORMATION RELATED TO THE STRUCTURAL WORK. CONTRACTOR SHALL VERIFY COORDINATION OF THE DESIRED DETAILS PRIOR TO CONSTRUCTION AND NOTIFY THE ARCHITECT AND THE STRUCTURAL ENGINEER IF ADDITIONAL COORDINATION IS REQUIRED.
- ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS AND SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST SEISMIC FORCES AS DETERMINED IN CHAPTER 13 OF ASCE 7.

### STRUCTURAL STEEL

1. STRU	CTURAL ST	EEL SHALL	MEET	THE FOLLOWING	MINIMUM	YIELD	STRESS	(Fy),	UNLESS	NOTED	OTHERWISE:
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		•						(.)))	0112201		0
		YIE	LD						ASTM	SPECIFIC	ATION
۱.	W, WT SHAPES:	50	KS	1					A992		
3.	BARS, PLATES, CHANNELS, ANGLES:	36	KS	1					A36		
<b>).</b>	SQUARE, RECTANGULAR HSS:	50	KS	1					A500,	GRADE	C
).	ANCHOR RODS:	36	KS	I OF	8 55	KS	I		F1554		
	ALL-THREAD RODS:	36	KS	1					A36		
	HEADED STUD ANCHORS	65	kc				TRECC		A108		1010

A108, GRADES 1010-1020 HEADED STUD ANCHORS: 65 KSI TENSILE STRESS 2. ALL STRUCTURAL STEEL SHALL ADHERE TO THE DETAILING, FABRICATION AND ERECTION REQUIREMENTS OF THE LATEST

EDITIONS OF THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND THE AISC CODE OF PRACTICE. BOLTS FOR STEEL BEAM AND COLUMN CONNECTIONS SHALL BE 3/4-INCH DIAMETER ASTM A325-N HIGH-STRENGTH BOLTS UNLESS NOTED OTHERWISE. ALL BOLTED CONNECTIONS ARE BEARING TYPE AND SHALL BE SNUG TIGHTENED UNLESS NOTED OTHERWISE. FOR PRETENSIONED OR SLIP-CRITICAL JOINTS, THE METHOD OF INSTALLATION SHALL BE TURN-OF-NUT WITH MATCH MARKING, TWIST-OFF-TYPE TENSION CONTROL BOLT ASSEMBLIES (ASTM F1852), OR DIRECT TENSION INDICATORS (ASTM F959).

4. WELDING SHALL MEET ANSI / AWS D1.1, STRUCTURAL WELDING CODE LATEST REVISION. ELECTRODES SHALL BE E70XX, LOW HYDROGEN. ALL STRUCTURAL STEEL WELDS SHALL BE PERFORMED BY A AWS CERTIFIED WELDER. WELDS NOT SPECIFICALLY SIZED ON THE STRUCTURAL DRAWINGS SHALL BE THE MINIMUM SIZE PER THE LATEST AWS

6. PROVIDE DOUBLE NUTS AND DOUBLE WASHERS FOR STEEL COLUMN ANCHOR BOLTS TO ALLOW FOR ADJUSTMENT IN BASE PLATE ELEVATION. PROVIDE 1 1/2 INCH NON-SHRINK GROUT UNDER BASE PLATE AFTER ERECTION. USE 2 1/2 INCHES NON-SHRINK GROUT WHEN COLUMN ANCHOR BOLTS ARE 1 1/4 INCH DIAMETER OR LARGER. NON-SHRINK GROUT SHALL BE NON-METALLIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS. 7. SHEAR CONNECTORS SHALL BE A CARBON STEEL HEADED STUD TYPE ASTM A108 GRADES 1010 THRU 1020, AWS D1.1, TYPE B WITH ARC SHIELDS.

8. ALL CONNECTIONS ON THE STRUCTURAL DRAWINGS, UNLESS NOTED OTHERWISE, SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, EMPLOYED OR RETAINED BY THE STEEL FABRICATOR. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.

9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCLUDING THE COSTS FOR ALL MISCELLANEOUS STEEL IN THEIR BID REGARDLESS OF WHETHER THOSE ITEMS ARE INDICATED ON THE STRUCTURAL DRAWINGS. THESE COSTS SHALL INCLUDE BUT ARE NOT LIMITED TO MISCELLANEOUS STEEL ITEMS SHOWN ON ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS SUCH AS SHELF ANGLES, GLAZING SUPPORTS AND LINTELS. 10. LEDGER ANGLES AND LINTELS IN EXTERIOR WALL SYSTEMS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123.

11. ALL STRUCTURAL STEEL SHALL HAVE A COAT OF LIGHT GRAY PAINT TO PROVIDE PROTECTION AND GOOD APPEARANCE.

### STEEL JOISTS

1. STEEL JOISTS SHALL BE AS INDICATED ON THE PLANS AND SHALL BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (SJI) AND MEET THE FOLLOWING:

- A. JOISTS SHALL BE DESIGNED FOR THE UNIFORM LOAD CAPACITY (AS SPECIFIED IN THE SJI STANDARD LOAD TABLES) IN ADDITION TO THE CONCENTRATED LOADS SHOWN ON PLANS AND DETAILS.
- B. JOISTS THAT SUPPORT CONCENTRATED LOADS SHALL HAVE THEIR CHORDS DESIGNED TO WITHSTAND ALL BENDING STRESSES, OR THE LOADS SHALL OCCUR WITHIN 3 INCHES OF JOIST PANEL POINTS, OR THE JOIST SHALL BE REINFORCED PER THE "JOIST REINFORCING DETAIL" SHOWN HEREIN. CONCENTRATED LOADS SHALL BE CENTERED ON JOISTS AND NOT ATTACHED TO THE EDGE OF CHORD ANGLES.
- C. JOISTS SHALL RESIST THE NET UPLIFT PRESSURE AS INDICATED ON THE DETAILS 7 & 8/S4.1. THIS PRESSURE SHALL ACT ALONE. AN ALLOWABLE STRESS INCREASE IS NOT PERMITTED. D FOR ALL MEMBERS THAT REQUIRE SPECIFIC ORIENTATION, PROVIDE TAG AT ONE END AND DEFINE LOCATION OF
- TAGGED END ON ERECTION DRAWINGS. E. JOIST MANUFACTURER SHALL DETERMINE THE SEAT DEPTH AND WIDTH OF BEARING AND COORDINATE THE SAME WITH THE STEEL FABRICATOR. THE FOLLOWING SEAT DEPTHS ARE ASSUMED ON THE DRAWINGS: 2 1/2 INCHES
- FOR K-SERIES JOISTS, 5 INCHES FOR LH SERIES JOISTS). F. JOISTS SHALL BE FABRICATED TO PROVIDE OPENINGS FOR DUCTS AS SHOWN IN THE REQUIRED OPENING IN JOIST
- DETAIL. 2. K-SERIES AMD LH-SERIES JOISTS SHALL BE WELDED TO SUPPORTING STEEL WITH MINIMUM 1/8 INCH FILLET WELDS 2 INCHES LONG EACH SIDE OR WITH TWO 1/2 INCH DIAMETER ASTM A307 BOLTS OR THE EQUIVALENT, UNLESS
- NOTED OTHERWISE. WHEN NEAR OR AT A COLUMN, BOLT JOIST TO SUPPORTING STEEL IN CONFORMANCE WITH OSHA. JOIST BRIDGING AND ERECTION STABILITY SHALL BE PROVIDED IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HAZARD ADMINISTRATION (OSHA) AND THE SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (SJI). 4. JOIST RTU LOADS ARE PROVIDED ON THE ROOF FRAMING PLAN, REFERENCE PLANS AND DETAILS FOR LOAD
- LOCATIONS, VALUES AND SUPPORT FRAMING. 5. JOIST MANUFACTURER SHALL DESIGN THE COMPRESSION CHORD OF ALL JOISTS SUPPORTING ROOF TOP UNITS, SKY
  - LIGHTS, AND OTHER STRUCTURES FOR AN UNBRACED LENGTH APPLICABLE TO THE CONDITIONS AT THE PROJECT WHERE THE UNBRACED LENGTH IS GREATER THAN THE SJI MAXIMUM. (REFERENCE ARCHITECTURAL AND MECHANICAL DRAWINGS)
- DESIGN JOISTS FOR INTERNAL ROOF DRAINLINE AND FIRE SPRINKLER LINE LOCATIONS, IF REQUIRED. ADD 50 PLF FOR 8 INCH DIAMETER AND SMALLER, ADD 75 PLF FOR 10 INCH DIAMETER, ADD 102 PLF FOR 12 INCH DIAMETER, ADD 122 PLF FOR 14 INCH DIAMETER, ADD 200 PLF FOR 18 INCH DIAMETER. REFERENCE MECHANICAL DRAWINGS FOR EXACT LOCATION. CONTRACTOR SHALL OBTAIN FIRE LINE LOCATIONS AND SIZES PRIOR TO SUBMITTAL OF JOIST SHOP DRAWINGS.
- 7. JOIST DESIGNS SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, EMPLOYED OR RETAINED BY THE JOIST MANUFACTURER.
- 8. SHOP DRAWING SHALL BE REVIEWED BY THE ARCHITECT AND STUCTURAL ENGINEER OF RECORD PRIOR TO JOIST FABRICATION.
- 9. PROVIDE JOISTS CAPABLE OF WITH STANDING DESIGN LOADS INDICATED WITH LIVE LOAD DEFLECTIONS NO GREATER THAN L/240 OF THE SPAN.

10. JOISTS SHALL BE CAMBERED ACCORDING TO SJI'S "SPECIFICATIONS". JOIST AND JOIST GIRDERS SHALL BE SHOP PRIMED WITH MANUFACTURER'S STANDARD SHOP PRIMER.

# <u>STEEL DECK</u>

C.L. CLR.

CMU

COL.

CONC. CONST.

CONT.

D.B.A.

DIA.

- A. ROOF DECK SHALL BE GALVANIZED TYPE "B". DEPTH SHALL BE AS SHOWN ON DRAWINGS. ROOF DECK SHALL BE BOTTOM PRIMED WHITE
- B. ROOF DECK IS REQUIRED TO ACT AS A DIAPHRAGM. CONNECTIONS SHALL BE IN ACCORDANCE WITH STEEL DECK INSTITUTE SPECIFICATIONS. REFER TO THE ROOF DIAPHRAGM CONNECTION DIAGRAM FOR ATTACHMENT.
- C. DECKING SHALL BE CONTINUOUS OVER A MINIMUM OF (3) SPANS UNLESS NOTED OTHERWISE.
- D. NO HANGING LOADS SHALL BE ATTACHED TO ROOF DECK.

# ABBREVIATIONS

ANCHOR BOLTS
AMERICAN CONCRETE INSTITUTE
ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
ABOVE FINISHED FLOOR
ARCHITECTURAL
BALANCE
BLOCK LINTEL
BUILDING
BOTTOM OF
BOTTOM OF DECK
BEARING
CONTRACTION JOINT
CENTER LINE
CLEAR
CONCRETE MASONRY UNIT
COLUMN
CONCRETE
CONSTRUCTION
CONTINUOUS
DEFORMED BAR ANCHOR
DIAMETER

EXPANSION JOINT ELEVATION EDGE OF DECK EDGE OF SLAB EQUAL EACH WAY EXISTING FOUNDATION FINISHED FLOOR ELEV. FAR SIDE FOOTING GAGE GALVANIZED GRADE BEAM HORIZONTAL HEADED STUD ANCHOR INTERNATIONAL BUILDING CODE INFORMATION JOIST BEARING ELEVATION JOINT UNIT OF 1,000 POUNDS (KIP)

DRAWING

EACH FACE

DWG. E.F.

E.J.

ELEV.

E.O.D.

EQ.

E.W.

EXIST.

FDN.

F.F.E.

FTG.

GA.

G.B.

GALV.

HORIZ.

H.S.A.

IBC

INFO.

J.B.E.

JT.

K

F.S.

E.O.S.

DEFERRED STRUCTURAL SUBMITTALS

- ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
- A. STRUCTURAL STEEL CONNECTIONS OF FRAMING AND BRACING ELEMENTS
- SUBMITTAL OF JOIST SHOP DRAWINGS.)
- C. STEEL, SELF-SUPPORTING STAIRS AND HANDRAIL FRAMING
- D. TEMPORARY BRACING AND SUPPORT E. ROOF ACCESS LADDERS AND SAFETY CAGES
- F. SEISMIC ANCHORAGE AND BRACING OF MEP COMPONENTS
- DOCUMENTS FOR DEFERRED STRUCTURAL SUBMITTAL ITEMS SHALL BE DESIGNED. SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL AS REQUESTED WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND BEEN FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

### SHOP DRAWINGS

- SHOP DRAWINGS AND SUBMITTALS SHALL BE REVIEWED AND APPROVED BY THE CONTRACTOR PRIOR TO SUBMITTAL 1. FOR THE ENGINEER'S REVIEW. THE STRUCTURAL ENGINEER'S REVIEW IS TO CHECK THE GENERAL CONFORMANCE OF THE SHOP DRAWINGS WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ALTERATIONS FROM THE CONTRACT DOCUMENTS WHICH MAY INCLUDE QUANTITIES, DIMENSIONAL ERRORS OR OTHER ERRORS AND OMISIONS IN THE SHOP DRAWINGS.
- SHOP DRAWINGS SHALL NOT BE REPRODUCTIONS OF THE CONTRACT DOCUMENTS. 3. THE FOLLOWING STRUCTURAL COMPONENTS SHALL BE SUBMITTED AS A SHOP DRAWING FOR REVIEW:
  - A. STRUCTURAL STEEL
  - B. STEEL JOISTS
  - C. STEEL ROOF DECK AND THEIR ATTACHMENTS.
  - D ALL DEFERRED SUBMITTAL ITEMS

### SPECIAL INSPECTIONS

- THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS PER SECTION 1704 OF THE IBC. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE. TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED AT A POINT IN TIME
- THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE SPECIAL INSPECTOR REGARDING INDIVIDUAL INSPECTION FOR ITEMS LISTED ON THE STATEMENT OF SPECIAL INSPECTIONS AND AS NOTED ON THE BUILDING DEPARTMENT APPROVED
- HAS TIME TO BECOME FAMILIAR WITH THE PROJECT. FABRICATORS OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF 4.
- SECTION 1704.2 OF THE IBC.
- 5. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION PER SECTION 1700 OF THE REFERENCED BUILDING CODE.
  - A. BOLTS & ANCHORS EMBEDDED IN CONCRETE
- B. PLACEMENT OF REINFORCING STEEL IN CONCRETE
  - C. CONCRETE MIX DESIGN
  - D. CONCRETE FORMWORK
  - E. STRUCTURAL STEEL FABRICATIONS
  - F. STRUCTURAL STEEL BOLTING AND WELDING
  - G. ON SITE STRUCTURAL FRAMING
  - H. INSPECTION OF ROOF DECK ATTACHMENTS
  - I. SHEAR WALL ATTACHMENTS AND ANCHORS
  - J. POST INSTALLED ANCHORS
  - K. ON SITE SOILS, EXCAVATIONS, FILLING AND COMPACTION
  - L. ERECTION OF PRECAST CONCRETE MEMBERS

KSI	KIPS PER SQUARE INCH
LBS.	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
N.T.S.	NOT TO SCALE
N.S.	NEAR SIDE
0.C.	ON CENTER
0.D.	OUTSIDE DIAMETER
0.H.	OPPOSITE HAND
P.A.F.	POWER ACTUATED FASTENER
PCF	POUNDS PER CUBIC FOOT
PLF	POUNDS PER LINEAR FOOT
P.M.E.J.	PREMOLDED EXPANSION JOIN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH

PSI

THE FOLLOWING STRUCTURAL COMPONENTS SHALL BE DESIGNED AND SUBMITTED BY OTHERS FOR APPROVAL IN

B. STEEL JOISTS AND JOIST GIRDERS (CONTRACTOR SHALL OBTAIN FIRE LINE LOCATIONS AND SIZES PRIOR TO

AGREED UPON BY THE PERMIT APPLICANT AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK.

PLANS. ADEQUATE NOTICE AND ACCESS TO APPROVED PLANS SHALL BE PROVIDED SO THAT THE SPECIAL INSPECTOR

QTY.	QUANTITY
RE:	REFER
REINF.	REINFORCING
REQD.	REQUIRED
R.O.	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED.	SCHEDULE
S.D.S.	SELF-DRILLING SCREWS
SIM.	SIMILAR
SPECS.	SPECIFICATIONS
STD.	STANDARD
STL.	STEEL
T&B	TOP AND BOTTOM
T.O.	TOP OF
T.O.P.	TOP OF PIER
T.O.W.	TOP OF WALL
TRANS.	TRANSVERSE
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W.P.	WORK POINT
WT.	WEIGHT
W.W.R.	WELDED WIRE REINFORCEMENT



KC-CAD-SERVER\Jobs\2022\2220003 - Project Birkdale - L5, MO\Struct\Building 2 TI\S2.0.dwg, 9/8/2023 12:27:32 PM



1 OVERALL FRAMING PLAN



- INSTALLATION



1 ENLARGED PARTIAL FRAMING PLAN SCALE: 1"=20'-0"









NOTE: PROVIDE JOIST REINFORCING IN ACCORDANCE WITH THIS DETAIL FOR





IENT SCHEDULE											
		WEB REINF.		SDAN	GRID	GRID	NOTES				
WEB KEINF.	"D"	"E"	"F"	SFAN	"χ"	"Y"					
DIA. ROD OR L1x1x1/4	22'	6'	22'	50'	1	2	2,4				
IA. ROD OR L1x1x3/16	20'	10'	20'	50'	1	2	1,2,4				
<u>NOTES</u> : 1. DIMENSION "B" IS	THE MINIM	UM REQUIRE	D LENGTH (	OF TOP AND BOTTOM	CHORD RI	EINFORCEME	ENT.				

FIELD VERIFY PANEL POINT LOCATIONS AND EXTEND TOP AND BOTTOM CHORD REINF. TO OUTER EDGE OF STEEL PLATE AT PANEL POINT. 2. RE: PLAN FOR NEW EQUIPMENT, RE: 1/S4.0 FOR ADDITIONAL REINFORCEMENT. DO NOT SET

EQUIPMENT UNTIL ALL REINF. IS IN PLACE AND INSPECTED. 3. RE: ARCH FOR EXACT LOCATION OF SOFFITS AND MECH EQUIPMENT THAT WILL CAUSE CONCENTRATED LOADS IN EXCESS OF 100 LBS. RE: 2/S4.0 FOR ADDITIONAL REINFORCEMENT AT CONCENTRATED LOADS. 4. REINFORCEMENT SHALL BE WELDED AT 12" O.C. ALONG LENGTH, RE: SECTION F

INSTALL 2"x2"x3/16" PLATES AT PANEL POINTS WHERE CHORD REINF. IS REQUIRED BUT WEB REINE, IS NOT REQUIRED. INSTALL 2"x2"x3/16" PLATE BETWEEN PANEL POINTS WHERE TOP CHORD REINF. IS REQUIRED.

- EXISTING JOIST TOP CHORD CHORD REINF., RE: SCHEDULE

/ TYP. EA. 3/16 3/4 END

> 3/4 / CHORD REINF. TO 3/4 CHORD AND PLATE





EMENT SCHEDULE												
WEB REINE		WEB REINF.		SPAN	GRID	GRID	NOTES					
	"D"	"E"	"F"	51711	"X"	" <b>丫</b> "						
" DIA. ROD OR L1x1x1/4	24'	12'	24'	60'	4	5	2,4					







**Office Layout** 0¼" = 1 Foot

> SCOPE OF WORK: Add new for office space to an existing All sprinkler material to comply with UL listings, all AHJ requirements, and NFPA standards.
>  Continuous central monitoring of sprinkler systems per NFPA 72 to be by others. warehouse

Hazard rating: Light

\*PIPE IS 1" BLACK SCHEDULE 40 UNO

9. Adequate heat to be maintained to prevent pipe freezing. 10. This building is Unobstructed Noncombustible construction.

4. All valves to be monitored by tamper switches.

All electrical wiring to be by others.
 Any underground pipe work to be by others.

7. All painting of sprinkler pipe to be by others.

11. Wet type system. 12. No work done in hydraulically remote area.

13. 1-1/4" grooved pipe shall be schedule 10 , 1-1/2" - 4" to be schedule 7 14. 1" to be black schedule 40 steel.

1. Design is based on 2016 NFPA 13 for installation & NFPA 25 for maintenance.

8. All patching and/or painting of penetrated drywall and masonry walls to be by others.

General Fire Protection Notes & Legend

9/6/2023

Design Professional of Record

JAMES GRISE NUMBER DE-2008030039.

Revisions



2	3	4	5

1	2				3			4		5		6						
RTU S	chedule																	
								Cooling			Heating				Electrical			
					Min OA	Fan	TOTAL			INPUT	OUTPUT							Notes
Mark	Manufacturer	Model	Ton	Airflow	CFM	Stages	MBH	Stages	EER	MBH	MBH	Stages	Volt	Ph	Hz	FLA	MOCP	
RTU-1	Carrier	48FCEA06A2A5	5	1995	71	1	<mark>60</mark>	1	11	110	88	2	208	3	60	36	45	1,3,4
RTU-2	Carrier	48FCEA06A2A5	5	1995	551	1	60	1	11	110	88	2	208	3	60	36	45	1,3,4
RTU-3	Carrier	48FCEM14A3A6	12.5	5000	504	2	150	1	10.2	250	205	2	460	3	60	34	45	All
RTU-4	Carrier	48FCEM14A3A6	12.5	5000	504	2	150	1	10.2	250	205	2	460	3	60	34	45	All
RTU-5	Carrier	48FCEM14A3A6	12.5	5000	504	2	150	1	10.2	250	205	2	460	3	60	34	45	All
RTU-6	Carrier	48FCEM14A3A6	12.5	5000	504	2	150	1	10.2	250	205	2	460	3	60	34	45	All
RTU-7	Carrier	48FCEM14A3A6	12.5	5000	504	2	150	1	10.2	250	205	2	460	3	60	34	45	All
Notes:	1. Provide with	n 14" roof curb																
	2. RA smoke de	etector to be installed	on unit or ir	RA duct fo	or local shu	tdown of u	unit.											
	3. Provide with	n programmable therm	ostat enclos	ed by lock	box.													
	4. Provide with	n economizer with dife	rential enth	alpy contr	ol.													
	5. Provid diffu	ser DB-1 at 25' above fi	nish floor.															



7	8	9	

# **Exhaust Fan Schedule**

					Electrical				Notos
Mark	Manufacturer	Model	Mounting	CFM	Volt	Ph.	HZ	MCA	Notes
F-1	Dayton	4YC86G	Roof	480	120	1	60	1.3	
F-2	Dayton	7AE89	Roof	1000	120	1	60	4.2	Spark Resistant

# Ventilation Schedule

		Exhaust	Min OA
Mark	Square Feet	CFM	CFM
RTU-1	1257 x.06 = 75	480	555
RTU-2	1400 x .06 = 84	0	84
RTU-3	8400 x .06 = 504	0	504
RTU-4	8400 x .06 = 504	0	504
RTU-5	8400 x .06 = 504	0	504
RTU-6	8400 x .06 = 504	0	504
RTU-7	8400 x .06 = 504	0	504

Diffuse	r Schedule	

Mark	Manufacturer	Model	Face Size	Neck Size	Mounting	Finish
SD-1	Titus	TMS	24x24	As noted	Lay-in	White
SD-2	Titus	TMS	12x12	As noted	Lay-in	White
SD-3	Titus	TMS	12x12	As noted	Drywall	White
RG-1	Titus	PAR	24x24	As noted	Lay-in	White
RG-2	Titus	PAR	24x12	As noted	Lay-in	White
EG-1	Titus	PAR	12x12	As noted	Drywall	White
EG-2	Titus	PAR	24x24	As noted	Lay-in	White
DB-1	AES	ADB 1-12-4		10x20	Duct	Mill

10

	11	12	1
	G	eneral Notes	
1.	All duct to be wrapped w/ 1.5" foil faced f	fiberglass insulation.	
2.	All diffusers to have fiberglass insulation	blanket installed on top.	
3.	Branch take-offs to be air-tite take-offs w	/ damper to be balanced to CFM shown	
4.	All new sheet metal ductwork to be fabric	cated and installed in accordance with SMA	CNA standards.
5.	All duct joints to be sealed with water sol	luble joint compound.	
6.	Flexible duct may be used where shown	with a maximum length of 5'-0".	



920 NW Technology Dr. Lee's Summit, MO 64086 Ph: 816-246-4646

# Distributio **()** Midwe



PROJECT NUMBE	R: 23-2755	
ISSUE DATE:	8/28/202	23
REVISIONS		DATE

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PLUMBING SPECIFICATIONS

e work included under this contract consists of providing all labor, materials, tools, transportation, services, , necessary to complete the installation and to provide complete working systems of the Plumbing Systems, uding hot and cold water, waste and vent, storm drainage, fixtures, equipment and other items described in se specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

nd piping systems as indicated on contract documents or to point of connection as follows:

oints of connection within the existing building. ESTIC WATER SERVICE AND SYSTEMS.

tractor shall verify water service availability, including size and available pressure to service the building. The pressure provided to fixtures within the building shall not exceed that allowed by local code or shall not exceed 80 PSIG. Provide pressure regulator(s) as required to limit the maximum pressure.

NG, FITTINGS AND VALVES: *i*ide hot and cold water supply to each and every fixture, piece of equipment and to systems where eup water is required.

vide service valves for each item of equipment, at branch piping, fixture groups, individual fixtures and where as indicated or required. Provide balance valves, strainers, check valves and other valves as cated or required by the application.

vide a union or flanged connection between each item of equipment and its service valve. Copper to bus pipe connections shall have isolation coupling, flange or union.

estic water, interior, above ground -

Pipe, copper tube -

a. 2-1/2" and Smaller - Type "L" hard temper copper, wrought or cast copper fittings, Lead free 95/5 or Eagle Hard Silvabrite or "CB" solder joints, or roll grooved mechanical joints or pressure seal joint fittings with EPDM O-ring seals.

rovide valves where indicated on the drawings, where required by code, or required for service.

a. 1/4 turn Service 1) 1/2" thru 2" - Nibco 585-66-LF bronze lead free, 600 PSIG, full port, stainless steel ball and stem.

2) Provide isolation valves where indicated on drawing, including at branches, terminations, each piece of equipment and elsewhere as required by code.

Securely anchor and support piping, valves and fittings, with adequate provisions for expansion and contraction. Grade lines, free of traps, to low point at cut-off and drain valve.

Hot and cold supply lines to have manufactured pre-charged piston type water hammer arresters sized and nstalled in accordance with PDI-WH 201. Install at each solenoid actuated quick closing valve location ncluding but not limited to dishwashers, clothes washers, ice makers, electronic faucets and similar items. Sioux Chief, JR Smith or equal. Provide access panel where required.

ral Gas --

Pipe above ground: a. 2" and smaller - Schedule 40 black steel piping with threaded fittings.

/alves & Connectors:

a. Shutoff Service -

- 1) 1/2" thru 1" Nibco GB-1A, brass body, chrome plated brass ball, PTFE seats, screwed ends, 5 PSIG per CGA, lever handle.
- 2) 1/2" thru 2" Nordstrom 142, iron lubricated tapered plug valve, 200 PSIG, threaded ends.
- Regulator, 3/4" thru 1-1/2" Fisher type S, spring loaded diaphragm, 1.5" WC to 2.5 PSIG discharged pressure, threaded, vented to atmosphere.
- c. Flex Connectors, Metraflex GASCT 300 series stainless steel braided hose with carbon steel threaded ends.

Natural gas piping in return air plenum, where permitted shall be either installed in vented fabricated enclosure; sleeved and vented; or welded or one piece.

Paint exterior natural gas piping with corrosion inhibiting paint, color to be selected. tary sewer, vent, interior --

Pipe - Standard weight cast iron hubless with no-hub shielded mechanical joints; solid wall schedule 40 PVC, ABS with solvent cement joints; vents may be galvanized malleable iron.

Plastic piping shall not be allowed in return air plenums.

loor or equipment drains shall be provided at all locations where equipment is indirect wasted. Floor rains shall be provided outside all ADA showers for roll-in applications or where there is no threshold.

All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise, except hat piping sizes up thru 2-1/2" shall be sloped at 1/4" per foot. Piping sizes up thru 4" to be sloped at 1/4"

ber foot where possible and where required by local codes. Vents shall be sloped upward in direction of flow.

tary sewer, vent, below grade --

Pipe - Standard weight cast iron hubless with no-hub heavy duty mechanical joint fittings; solid wall

schedule 40 PVC, ABS with solvent cement joints. All gravity drainage shall be graded per code but not less than 1/8" per foot unless noted otherwise, except that piping sizes up thru 2-1/2" shall be sloped at 1/4" per foot. Piping sizes up thru 4" to be sloped at 1/4"

per foot where possible and where required by local codes. Vents below grade shall be 2" minimum size and shall be sloped up in direction of flow.

ANOUTS, TEST TEES, TRAPS AND TRAP SEALS:

ide cleanout at the base of each stack or riser, at ends of runs greater than 100', each 135 degree egate change of direction in horizontal piping, where indicated on the drawings or as required by code. s, extra heavy cast brass, screwed. Scoriated tops in unfinished areas, carpet markets in carpet floors, op in tile floors, stainless steel cover in finished walls. Cleanouts shall be the same size as pipe up to 4" neter, 4" cleanouts for larger pipe unless otherwise noted.

aps shall be deep seal type with liquid seal not less than specified by code.

ere trap primers are not specified provide all floor and hub drains with trap seal with EPDM or silicone hragm, conforming to requirements of ASSE 1072 or 1017.2. Provent Proset Series SG22 or TG22, Sioux of series 835, Rectorseal SS series or acceptable equal.

EVES AND SEALS, FLASHINGS, ROOF PIPE SUPPORTS AND UV PROTECTION:

h all pipes and vents extending through roof. Flashing details shall be in accordance with roof ufacturer's requirements.

tinuous roof piping penetrations shall be made weather tight, conform to roof manufacturer warranty.

pipe supports shall be prefabricated with UV resistant rubber base, unistrut channel and pipe clamp, th and height for consistent pipe elevation to suit application. Mi-Fab C6 series or acceptable equal. tic piping without UV inhibiters which is exposed to UV radiation from sunlight shall be protected by

ing with a UV resistant paint.

DSS- CONNECTIONS AND INTERCONNECTIONS:

olumbing device or piping shall be installed which will provide cross-connection or interconnection between stributing supply or waste so as to make possible the backflow or back-siphonage of polluted water into the ible water supply system. Where the possibility of back-siphonage exists, water supply to the fixture shall introduced through a suitable backflow preventer device suitable for the hazard protected. Installed kflow preventers must be approved through the University of Southern California Foundation for ss-Connection Control and Hydraulic Research.

They may be an air gap, anti-syphon valve, atmospheric vacuum breaker, pressure vacuum breaker, double check, reduced pressure backflow preventer or as otherwise required by the authority having jurisdiction.

MBING EQUIPMENT:

er heaters, pumps, expansion tanks and other equipment shall be as scheduled or by acceptable equal by of the following:

ter Heaters and Accessories: ter Heaters: A.O. Smith, State, Rheem, Bradford White

pansion Tanks: Watts, Amtrol, Armstrong, Elbi, Taco, Wessels.

er Heater Installation

Pipe water heater drains and/or pan drains to indirect waste per code and as noted or detailed. Water heater P&T relief valves shall be piped independently, indirectly wasted 6" above receptor per code and as noted or detailed.

nstall vacuum relief valve on each bottom fed storage water heater, installed above the top of the water eater on cold water inlet piping.

Mount water heaters on concrete floor pads, suspended from structure on steel rods, on steel floor stands or wall bracket steel frames as indicated on drawings.

Suspended heaters up to 50 gallons may be mounted utilizing prefabricated steel support platform, foldRite SWHP series or acceptable equal.

Where water heaters are mounted overhead, on wood floor or other location requiring containment, mount vater heaters in drain pan with 1" minimum drain, HoldRite QP series, acceptable equal or field fabricated equivalent.

6. Water piping connections to water heaters shall be metallic, no plastic piping is permitted within 18" of a water heater connection. Stainless steel flexible connectors with union ends may be used, HoldRite or acceptable equal. Provide 18" minimum flexible corrugated copper or braided stainless steel connector hoses with compression ends for water heaters with 3/4" water connections.

11

- C. Provide equipment accessories including but not limited to operating controls, limit switches, oil sensors, high level controls, timers, aquastats, energy management system interface, etc. as indicated on drawings and as required for a complete operating system.
- 8.0 INSULATION:
- A. Pipe insulation shall conform to the International Energy Conservation Code.
- B. Insulate all cold water, hot water piping, Owens Corning or acceptable equal.
- Cold water piping insulation: 1" fiber glass sectional pipe covering with universal vapor barrier jacket.
   Hot Water piping insulation: 1" (pipe sizes up thru 1-1/4") 1-1/2" (pipe sizes 1-1/2" and above) fiber glass sectional pipe covering with universal all service jacket.
- C. At Contractor's option, Armacell AP Armaflex unicellular insulation or acceptable equal with 25/50 flame and smoke rating with equal thermal performance may be substituted for fiberglass products.
- D. Seal all joints on cold water insulation to maintain vapor barrier.
- E. Insulation shall run continuously thru hangers and supports without interruption.
- F. Refer to plumbing fixture schedule for protective insulation of fixture drains and water piping for compliance with ADA requirements for People with Disabilities.
  1. Pipe coverings may be omitted where protection from injury (such as shrouds or casework) is provided by
- other trades.2. Provide comparable protection for accessory items such as disposers where items are exposed to contact beneath ADA designated fixtures.
- 9.0 PIPE SUPPORTS AND ROUTING:

A. Hangers and Supports

- Piping shall be supported in accordance with industry standards including support methods, sizes and spacing. All supports and installation shall conform to MSS SP58 and 69 and Fed Spec WW-H-171E and A-A-1192A.
- Pipe Slopes: Install hangers and supports to provide indicated or required pipe slopes to provide for drainage and venting
   Each piping system shall be independently supported with no piping bearing on another and installed such
- that no weight of piping is borne by the equipment.4. Space hangers and supports within maximum piping span length indicated in MSS SP-58. Install building attachments at required locations for proper piping support.
- Hangers shall be designed to allow for expansion and contraction of pipe lines and shall be of adequate size to permit covering when required. Provide protective saddles and blocking where supporting insulated piping to prevent crushing insulation.

B. Routing

 Piping shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust pipe routing and drop locations with necessary pipe offsets or changes in elevation to accommodate beams and other obstructions.

10.0 EQUIPMENT AND PIPE LABELS:

- A. Equipment labels shall be provided for all plumbing equipment and shall be self-adhesive engraved plastic, blue with white lettering, sized, minimum 1-1/2" high, and located for viewing from ground or floor level. Label shall indicate drawing designation or unique equipment number.
- B. Pipe labels for domestic water, waste, vent and gas piping shall be preprinted, color-coded, with 1-1/2" lettering indicating service, and showing flow direction, locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and locations as follows:
   1. Near each valve and control device.
- 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
- Near major equipment items and other points of origination and termination.
   Spaced at maximum intervals of 50 feet along each run. Reduced intervals to 25 feet in areas of congested piping and equipment.
- 5. On piping above removable acoustical ceilings, omit intermediately spaced labels.

11.0 MISCELLANEOUS

- A. Indirect wastes shall discharge full size thru an air gap to a floor, equipment drain, sanitary floor sink or hub drain. The floor or equipment drain grate shall be fitted with a funnel, the sanitary floor sink shall have a partial grate or the grate shall be omitted. Drains shall be located so they are accessible and not a tripping hazard.
- B. Provide escutcheons at all penetrations of exposed walls and ceilings. Escutcheons shall be chrome plated brass in occupied areas, prime paint finish for unoccupied areas unless otherwise noted. Escutcheons for exterior or moist areas shall be brass.

12.0 PROTECTION OF WORK

A. Protection

- 1. Protect and cover piping and fixture waste and water openings to prevent entry of dirt and debris.
- 2. Cover and protect fixtures and plumbing equipment to prevent damage.
- 13.0 TEST, ADJUSTMENTS AND CLEANING:
- A. Soil, waste and vent piping testing:
- Initial Piping Water Test: Fill with water to the top of the highest point of the system extending through roof. Systems may be tested in whole or part. The system shall remain leak free under test for a minimum period of Fifteen (15) minutes.
- a. Gravity Drain Test: Either 10' water column or at a pressure not less than 10% above that the piping will be subjected to during nominal operation
- b. Pressure Piping Test: Either 25 PSIG or at a pressure not less than 10% above that the piping will be subjected to during nominal operation.
- c. Where applicable, isolate new portions of the system(s) piping with test tee and Oatey Clean Seal inflatable plug prior to testing.
- Final Piping Test: The completed system(s) shall be visually inspected to determine compliance with all codes and standards. Where required by the building official, the completed system shall be smoke tested with all traps water filled and system pressured to 1" WC for a minimum period of fifteen (15) minutes.

B. Water and gas line testing:

14.0 FIXTURE BRANCH PIPING:

15.0 PLUMBING FIXTURES:

not less than required by code.

as required for a complete working system.

- 1. Water piping shall be purged and tested with compressed air or water at 50 PSIG above the operating pressure but not to exceed the pressure rating of piping system materials for a period of 2 hours with no measurable pressure drop.
- 2. Natural gas lines shall be inspected and blown out with dry compressed air or nitrogen to purge of debris and tested at 1-1/2 times the operating pressure or a minimum of 25 PSIG pressure with no measurable pressure drop. All test procedures including duration of test shall be in accordance with NFPA 54 and the International Fuel Gas Code.

3. Where applicable, isolate new portions of pressure piping from existing piping with valves prior to testing.

C. After successful testing, sterilize water system with an approved solution in accordance with local health

A. Fixture branch and connection sizes shall be as shown in the plumbing fixture schedule on the drawings and

A. Refer to plumbing fixture schedule for plumbing fixtures and accessories. Include all fittings and accessories

C. At contractor option, flexible stainless steel braided hose, 125 PSIG rated, with non-toxic liner and

END OF SECTION

compression fittings may be used in lieu of chrome plated brass riser tube. Where ADA complinace is required,

B. Where required for ADA compliance, provide lavatory and sink offset drain and tailpiece assembly.

provide flexible insulation wrap on braided water supplies in lieu of specified molded vinyl wrap.

D. Contractor to submit all test data and other documentation for record.

B. Minimum waste or vent size below slab on grade shall be 2".





CATED

					MINI		INECTION	SIZE
MARK NO.	FIXTURE TYPE	MANUFACTURER	MODEL NO.	DESCRIPTION	CW		WASTE	
WC-1	WATER CLOSET (ADA)	AMERICAN-STANDARD	3043.001 "MADERA"	FLOOR MOUNTED FLUSH VALVE, WHITE VITREOUS CHINA, HIGH EFFICIENCY, DIRECT FED SIPHON JET ACTION, FULLY GLAZED 2" TRAP WAY, ELONGATED BOWL, WITH 1-1/2" TOP SPUD, 16-1/2" RIM HEIGHT. SLOAN "G2 OPTIMA PLUS" 8111-1.6-OR (1.6 GPF) BATTERY OPERATED ELECTRONIC DIAPHRAGM FLUSH VALVE WITH MANUAL RELEASE, VACUUM BREAKER AND ANGLE STOP. ACCESSORIES: BEMIS 1055SSC WHITE OPEN FRONT SEAT LESS COVER WITH SELF SUSTAINING CHECK HINGES, BOLTS AND CAPS. NOTE: MOUNT FLUSH VALVE TO WIDE SIDE OF FIXTURE.	1"	-	4"	2"
WC-2	WATER CLOSET	AMERICAN-STANDARD	2234.001 "MADERA"	FLOOR MOUNTED FLUSH VALVE, WHITE VITREOUS CHINA, HIGH EFFICIENCY, DIRECT FED SIPHON JET ACTION, FULLY GLAZED 2" TRAP WAY, ELONGATED BOWL, WITH 1-1/2" TOP SPUD. 15" RIM HEIGHT. SLOAN "G2 OPTIMA PLUS" 8111-1.6-OR (1.6 GPF) BATTERY OPERATED ELECTRONIC DIAPHRAGM FLUSH VALVE WITH MANUAL RELEASE, VACUUM BREAKER AND ANGLE STOP. ACCESSORIES: BEMIS 1055SSC WHITE OPEN FRONT SEAT LESS COVER WITH SELF SUSTAINING CHECK HINGES, BOLTS AND CAPS.	1"	-	4"	2"
U-1	URINAL (ADA)	AMERICAN-STANDARD	6590.001 ''WA SHBROOK"	WHITE VITREOUS CHINA, WALL-HUNG, HIGH EFFICIENCY WASHOUT FLUSH ACTION, INTEGRAL FLUSHING RIM, 3/4" TOP SPUD, 2" OUTLET. SLOAN "OPTIMA PLUS" G2 8186-1.0 (1.0 GPF) BATTERY OPERATED ELECTRONIC FLUSH VALVE WITH MANUAL RELEASE, VACUUM BREAKER AND ANGLE STOP. ACCESSORIES: J. R. SMITH URINAL SUPPORT. NOTE: MOUNT FIXTURE RIM 17" ABOVE FINISHED FLOOR.	3/4"	-	2"	1-1/2
L-1	LAVATORY (ADA)	AMERICAN-STANDARD	"LUCERNE" 0355.012 (4" CENTERS)	WALL HUNG, VITREOUS CHINA, 20" X 18", FRONT OVERFLOW, INTEGRAL BACK. AMERICAN STANDARD 7075.004 "COLONY PRO" DECK-MOUNTED FAUCET WITH CERAMIC OPERATING CARTRIDGE, 4" CENTERS, INTEGRAL SPOUT, AND LEVER HANDLES. LESS DRAIN, POP-UP HOLE AND ROD. ACCESSORIES: PROVIDE LEAD FREE BRONZE THERMOSTATIC MIXING VALVE WITH 0.25 GPM MINIMUM FLOW RATE, INTEGRAL CHECK VALVES, DISCHARGE SET AT 105 F, MOUNTED DOWNSTREAM OF FIXTURE STOPS. PROVIDE GRID DRAIN, 17 GA. SEMI-CAST BRASS P-TRAP WITH CLEANOUT, CHROME-PLATED RISERS WITH LOOSE KEY ANGLE STOPS AND J.R. SMITH CONCEALED ARM LAVATORY SUPPORT. PROVIDE WITH FULLY MOLDED FLEXIBLE VINYL INSULATION KIT COVER TRAP, SUPPLIES AND STOPS, TRUEBRO E-Z LAV GUARD. NOTE: MOUNT FIXTURE RIM 31" ABOVE FLOOR.	1/2"	1/2"	1-1/2"	1-1/2
S-1	SINK (ADA)	DAYTON	DCFU2416	SINGLE COMPARTMENT UNDERMOUNT SINK, 18 GA, TY PE 304 STAINLESS STEEL, 6-1/2" DEEP BOWL. AMERICAN STANDARD 7074.300 "COLONY PRO" SINGLE HOLE, DECK MOUNTED FAUCET WITH CERAMIC OPERATING CARTRIDGE, SINGLE LEVER HANDLE, AND PULL DOWN SPRAY. ACCESSORIES: STRAINER WITH 1-1/2" TAILPIECE, 1-1/2" 17 GA. SEMI-CAST BRASS P-TRAP WITH CLEANOUT, CHROME- PLATED RISERS WITH ANGLE STOPS. GARBAGE DISPOSAL: MOEN GXP33C PRO SERIES 1/3 HP WITH POWER CORD.	1/2"	1/2"	2"	1-1/2
JS-1	JANITOR SINK	ZURN	Z1996-24	SIZE 24" X 24" X 10", COMPOSITE SERVICE SINK WITH COMPOSITE DRAIN, STAINLESS STEEL STRAINER, 3" DRAIN CONNECTION. ZURN Z843M1 WITH QUARTER TURN CERAMIC OPERATING CARTRIDGES, VACUUM BREAKER SPOUT WITH PAIL HOOK AND WALL BRACE, 3/4" MALE HOSE THREAD OUTLET, 369 LEVER HANDLES, FLANGED ADJUSTABLE SUPPLY ARM AND INTEGRAL SUPPLY STOPS AND CHECK VALVES. ACCESSORIES: EXTRUDED VINYL BUMPER GUARDS ON EXPOSED SIDES, RUBBER HOSE WITH STAINLESS STEEL WALL BRACKET.	1/2"	1/2"	3"	2"
DF-1	DRINKING FOUNTAIN (ADA)	ELKAY	EZSTL8WSLK	BI-LEVEL CABINET WITH BOTTLE FILLER, ADA BARRIER-FREE BI-LEVEL COOLER, 8.0 G.P.H. (50° F WATER WITH 90° F AIR TEMPERATURE), PUSH BAR ACTIVATION, STAINLESS STEEL COOLER TOP, HEAVY GAUGE VINYL CLAD STEEL CABINET WITH GREY FINISH, CANE APRON ON UPPER BOWL, ELECTRONIC ACTUATED INTEGRAL BOTTLE FILLER STATION ON LOWER FOUNTAIN. 120V/1PH/60HZ. ACCESSORIES: 17 GA. SEMI-CAST BRASS P-TRAP WITH CLEANOUT, CHROME-PLATED SUPPLY AND STOP, J.R. SMITH FLOOR MOUNTED TY PE SUPPORT WITH "PRO-SET" UPRIGHTS. NOTES: MOUNT WITH SPOUT 35" ABOVE FINISH FLOOR.	1/2"	-	1-1/2"	1-1/2
IM-1	ICE MAKER WALL BOX	OATEY	39134	RECESSED ICE MAKER WALL BOX WITH QUARTER TURN VALVE AND 1/2" INLET, ABS COVER.	1/2"	-	-	L -
FD-1	FLOOR DRAIN	SIOUX CHIEF	832 SERIES	GENERAL PURPOSE, PVC BODY WITH ADJUSTABLE STRAINER HEAD, ROUND NICKEL BRONZE STRAINER, AND SEEPAGE OPENINGS. OUTLET SIZE PER PLANS.	-	-	2"	1-1/2

WATER HEATER SCHEDULE (ELECTRIC)													
	TANK ELECTRICAL												
MARK	MANUFACTURER	MODEL	TANK	CAPACITY	RECOVERY	INPUT	THERMAL EXPANSION				NOTES		
NO.		NO.	LINING	(GAL)	(GPH @ 90 F)	(KW)	TANK MODEL NO.	VOLT	ø	HZ			
DWH-1	RHEEM	PROE38 S2 RU95	GLASS	38	21	4.5	PLT-5	240	1	Ø         HZ           1         60	1,2		
NOTES:	1. PROVIDE WITH T	EMPERATURE AND PR	RESSURE RELIEF V	ALVEAND DRAIN.					LECTRICAL Ø HZ 1 60				
	2. PROVIDE WITH C	ONTROL THERMAL EX	KPANSION TANK, Y	WATTS MODEL SC	HEDULED WITH WATTS	SCV SERVICE CH	IECK VALVE.						
	3. COORDINATE												

![](_page_20_Figure_9.jpeg)

![](_page_21_Figure_0.jpeg)

12

![](_page_21_Figure_4.jpeg)

# FLOOR PLAN NOTES

- 1. CONNECT TO MECHANICAL UNIT WITH GAS COCK, DIRT LEG, AND UNION. PROVIDE PRESSURE REGULATOR WITHIN 10'-0" OF UNIT CONNECTION. INLET: 2PSI, OUTLET: 7"WC.
- 2. ROUTE GAS PIPING UP TIGHT TO INTERIOR AND SUSPENDED ACROSS CEILING SPACE AS INDICATED.
- 3. CONNECT TO EXISTING GAS PIPING AS CLOSE TO GAS METER AS POSSIBLE.
- 4. ROUTE GAS PIPING UP THROUGH ROOF, RE: DETAIL.

![](_page_21_Picture_10.jpeg)

![](_page_22_Figure_0.jpeg)

![](_page_22_Figure_5.jpeg)

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816.221.1411 Fax: 816.221.1

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![](_page_23_Picture_2.jpeg)

220018 LIGHTING PLAN 
 PERMIT SET
 08.29.23

 CITY COMMENTS 09.18.23

![](_page_23_Picture_5.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086 LEE'S SUMMIT LOGISTICS BUILDING B LOT 2 THIS DRAWING AND THE IDEAS, DESIGNS AND CONCEPTS CONTAINED HEREIN ARE THE EXCLUSIVE INTELLECTUAL PROPERTY OF CURRAN ARCHITECTURE, AND ARE NOT TO BE USED OR REPRODUCED, WHOLE OR IN PART, WITHOUT THE WRITTEN CONSENT OF CURRAN ARCHITECTURE. © COPYRIGHT 2021, CURRAN ARCHITECTURE PROJECT INFORMATION

![](_page_23_Picture_9.jpeg)

CERTIFICATION

![](_page_23_Picture_10.jpeg)

![](_page_23_Picture_11.jpeg)

![](_page_23_Picture_12.jpeg)

HERITAGE ELECTRIC, L.L.C. 841 N. MARTWAY Olathe, Kansas phone (913) 747 0528 fax (913) 747 0539

![](_page_23_Picture_14.jpeg)

![](_page_23_Picture_15.jpeg)

![](_page_24_Figure_0.jpeg)

![](_page_24_Picture_1.jpeg)

220018 WAREHOUSE LIGHTING PLAN

![](_page_24_Picture_3.jpeg)

![](_page_24_Picture_4.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086 LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

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![](_page_24_Picture_8.jpeg)

CERTIFICATION

![](_page_24_Picture_9.jpeg)

![](_page_24_Picture_10.jpeg)

![](_page_25_Figure_0.jpeg)

![](_page_25_Picture_1.jpeg)

220018 OFFICE POWER PLAN

![](_page_25_Picture_3.jpeg)

ISSUE DATES PERMIT SET 08.29.23 CITY COMMENTS 09.18.23

![](_page_25_Picture_5.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086 LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

![](_page_25_Picture_9.jpeg)

CERTIFICATION

![](_page_25_Picture_10.jpeg)

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![](_page_25_Picture_12.jpeg)

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![](_page_26_Figure_0.jpeg)

![](_page_26_Picture_1.jpeg)

220018 HVAC POWER PLAN

![](_page_26_Picture_3.jpeg)

PERMIT SET 08.29.23 CITY COMMENTS 09.18.23

![](_page_26_Picture_5.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086

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LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

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CERTIFICATION

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![](_page_26_Picture_17.jpeg)

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ERH	EX	X1	ĒM	DE	IJ	B	ω	Ω	⊳	ТҮРЕ	EXISTING MAIN DISCONNECT N.T.S	
COMPASS	COMPASS	Compass	COMPASS	HE WILLIAMS	HE WILLIAMS	GE Lighting	GE Lighting	HE WILLIAMS	HE WILLIMAS	MANUFACTURER	EVERGY APPROVED CT CABINET 1.25" RIGID CON	
CUWZ-PC	CCR	CCR	CUSZQ	GH-2-L300-840-FA-DIM-UN V	GH-2-L300-840-FA-DIM-UN V	ABC1X30479Q	ABC1X304790Q	6DR-TLL60-840-DIM-UNV DW-DF-CS-N-F1	BP-24-LS/8CS-DIM-UNV	CATALOG NO.	A#750 AL XHHW	
LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LAMPS		
WALL	WALL	WALL	WALL	CEILING	CEILING	CEILING	CEILING	CEILING	CEILING	MOUNTING	2 SETS 4#750 AL XHHW	
VNU	UNV	UNV	VNU	277	277	277	277		UNV	VOLTS	& 3/0 AL IN 4"C	
EXISITNG	EXISTING	DR EQUAL	OR EQUAL	SAME AS TYPE D DNLY WITH EM BALLAST	PROVIDE WITH INTEGRAL MOTION SENSOR	EXISTING FIXTURE RELOCATE	EXISTING FIXTURE RELOCATE	DR EQUAL	OR EQUAL	REMARKS	HANEL WHEL 3#3 8	

![](_page_27_Figure_1.jpeg)

![](_page_27_Figure_2.jpeg)

BRANCH OVERCURRENT PROTECTION DEVICE RATING (AMPS) 15 20 25	CIRCUIT REQUIRED CONDUCTOR SIZE	- COPPER GROUIPMENT GROUNDING CONDUCTOR SIZE 12 AWG 12 AWG	CONDUCT CHART * SINGE PHASE 2 WIRE + GND CONDUIT SIZE 3/4" 3/4"	SINGLE PHASE 3 WIRE + GND, CONDUIT SIZE 3/4"	THREE PHASE 3 WIRE + GND CONDUIT SIZE 3/4' 3/4'	SIZING THREE PHASE 4 WIRE + GND CONDUIT SIZE 3/4" 3/4"
20 25	12 AWG 10 AWG	12 AWG 10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4″	3/4"	3/4″	3/4"
35	8 AWG	10 AWG	3/4″	3/4″	3/4″	3/4″
40	8 AWG	10 AWG	3/4″	3/4"	3/4″	3/4″
45	8 AWG	10 AWG	3/4″	3/4"	3/4″	1″
50	8 AWG	10 AWG	3/4″	3/4″	3/4″	1″
60	6 AWG	10 AWG	1″	1″	1″	1-1/4″
70	4 AWG	8 AWG	1″	1″	1″	1-1/4″
08	4 AWG	8 AWG	1″	1-1/4″	1-1/4″	1-1/4″
06	3 AWG	8 AWG	1″	1-1/4″	1-1/4″	1-1/4″
100	3 AWG	8 AMC	1-1/4″	1-1/2″	1-1/2″	1-1/2″
NOTES:	-				_	
<ol> <li>1. UNLESS OTHERW</li> <li>2. UNLESS OTHERW</li> <li>3. ALL SIZING BASE</li> </ol>	VISE NOTED ON THE VISE NOTED ON THE D ON 3 CURRENT C/	DRAWINGS DRAWINGS, ALL BR ARRYING CONDUCT	ANCH CIRCUITS AND	D FEEDERS TO BE PF OR CABLE CONDUCT	ROVIDED WITH A NEI FORS SHALL BE DER	UTRAL WIRE. ATED IN

UNLESS OTHERWISE NOTED ON THE DRAWINGS UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND FEEDERS TO BE PROVIDED WITH A NEUTRAL WIRE. ALL SIZING BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE

TI in existing warehouse as per NEC 2017.

Scope: Provide electrical f All Electrical work : All work shall be do All branch wiring sh Devices shall be 200 I for new TI in existing warehand K shall be as per NEC 2017. done by qualified electricians. shall be copper. 20a commercial grade and colo grade shall 0 P 5 A architect.

SPECIFICATIONS

 1. CONDUIT ABOVE GRADE SHALL BE EMT UNLESS OTHERWISE NOTED

 2. CONDUIT BELOW GRADE SHALL BE RIGID PVC UNLESS OTHERWISE NOTED

 3. CONNECTIONS SHALL BE MADE USING SET SCREW CONNECTORS

 4. MC CABLE IS ACCETABLE FOR FINAL CONNECTIONS TO LIGHT FIXTURES PROVIDE MITH

 5. BRANCH WIRING SHALL BE #12 THHN COPPER UNLESS OTHERWISE NOTED

 6. WIRING SHALL BE AS PER CURRENT NEC 2017

 7. WIRING SHALL BE AS PER CURRENT NEC 2017

 8. INSTALLATION SHALL ADHERE TO ADA STANDARDS

 9. ALUMINUM XHHW-#2 CABLE MAY BE USED FOR FEEDERS LARGER THEN #2 OTHERW

 10. REFER TO KCP&L STANDARDS MANUAL FOR 480 SERVICES

 11. ALL LIGHTING/EQUIPMENT IN WAREHOUSE SHALL BE MOUNTED TO PROVIDE A MIN OF

 WITH 10, WHIP 0 N ALL HIGHBAYS

LARGER THEN #2 OTHERWISE

COF

PER

36' CLEAR HEIGHT

A MIN OF

![](_page_27_Picture_38.jpeg)

**RISER DIAGRAM** 220018

![](_page_27_Picture_40.jpeg)

![](_page_27_Picture_41.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086

LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

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![](_page_27_Picture_45.jpeg)

CERTIFICATION

![](_page_27_Picture_46.jpeg)

![](_page_27_Picture_47.jpeg)

PANEL OH

PANEL OL

3#3 &1#6 IN 1"C

75 KVA TRANSFORMER

4#3/0 &1#4 IN 2"C

#6 G

![](_page_27_Picture_48.jpeg)

![](_page_27_Picture_49.jpeg)

![](_page_27_Picture_52.jpeg)

![](_page_27_Picture_57.jpeg)

HERITAGE ELECTRIC, L.L.C. 841 N. MARTWAY Olathe, Kansas phone (913) 747 0528 fax (913) 747 ೧೯೭೧

ALL CONDUIT, BOXES, ETC. SHALL BE CONCEALED OR MOUNTED FLUSH WITH CEILING OR WALL CONSTRUCTION, CONDUITS SHALL BE MOUNTED AS HIGH AS POSSIBLE. NO SURFACE MOUNTED CONDUIT, BOXES, ETC. WILL BE PERMITTED WITHOUT PERMISSION OF THE ENGINEER PRIOR TO INSTALLATION. ALL CONDUIT PENETRATIONS SHALL BE FIRE-CAULKED AS REQUIRED.

COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.

ALL WIRING FOR LIGHTING, RECEPTACLE AND POWER CIRCUITS WHERE NOT SHOWN ON DRAWINGS SHALL BE WITH #12 CONDUCTORS, NUMBER AS REQUIRED IN CONDUIT SIZED PER N.E.C. PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR ALL BRANCH CIRCUITS AND FEEDERS. HOMERUNS TO PANEL SHALL BE IN INDIVIDUAL CONDUITS, UNLESS NOTED OTHERWISE, WITH CIRCUITS AS SHOWN.

THE USE OF TYPE 'MC' AND TYPE 'AC' CABLE IS PERMITTED IN ALL AREAS PER NEC AND LOCAL CODE REQUIREMENTS.

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MINIMUM SIZE OF CONDUIT SHALL BE 1/2" UNLESS NOTED OTHERWISE

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Contract drawings the contract drawings are shown in Part Diagrammatic, intended to convey the scope of work. Indicating the General Arrangement of Equipment, conduit and outlets. Verify spaces for the installation of the materials based on actual dimensions of Equipment furnished. If a question exists as to the exact intended location of outlets or Equipment, obtain instructions from the Architect/Engineer before proceeding with work.

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WORK INCLUDED. FURNISH ALL LABOR, MATERIAL, SERVICES AND SKILLED SUPERVISION NECESSARY FOR THE CONSTRUCTION, ERECTION, INSTALLATION CONNECTIONS, TESTING AND ADJUSTMENTS OF ALL CIRCUITS AND ELECTRICAL EQUIPMENT SPECIFIED HEREIN, OR NOTED ON THE DRAWINGS, AND ITS DELIVERY TO THE OWNER COMPLETE IN ALL RESPECTS READY FOR USE.

ELECTRICAL

**GENERAL NOTES** 

ALL JUNCTION BOXES, PULL BOXES, AND PANELBOARDS SHALL BE RIGIDLY ATTACHED TO STRUCTURE. THE USE OF ALUMINUM CONDUCTORS WITH AMPACITY EQUIVALENT TO COPPER IS PERMITTED IN ALL AREAS PER NEC REQUIREMENTS.

NOTES: 1 NEMA 1 ENCLOSURE				1-1 IGHTING	8208	1.25	DEM 10260	LOAD BALANU	ב PEK Phase	8355
2 PROVIDE BOLT ON BREAKERS 3				2-RECEPTACLES 3-KITCHEN 4-HVAC	139750 0 88800	1 0.65 NEC	74875 0 88800	PHASE B PHASE C LOWEST PHAS	E PLUS 10%	790 741
				5-NON-CONT LARGEST MOTOR TOTAL VA	0 0 236758	1 0.25	0 173935	74148 REBALANCE LC	ADS + 10%	81562
				TOTAL AMPS	284.8		209.2			
PANEL: LA 10	MB	120/	208 V, 3PH, 4W.+G	RND.				EXISTING		
CCT SERVES 1 DOCK RECEPS 3 DOCK RECEPS	VA 800 600	CP WII 20/1 2-# 20/1 2-#	RE 112, 1#12G 112, 1#12G	PHASE WIRE A 2:#12,1#12G B		20/1 V 20/1	'A 200	SERVES SFCI RECEP SPARE		CCT 2 4
5 SPARE 7 SPARE 9 SPARE		20/1 20/1				20/1 20/1		SPARE		1 8 6
11 SPARE 13 SPACE		20/1		> ∩ t		20/1		SPARE		12 13
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21 SPACE 23 SPACE				> ∩ ∞				SPACE		22
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31 SPACE 33 SPACE 35 SPACE		I I I						SPACE		3 3 4 22
37 SPACE 39 SPACE				) <b>B</b> >				3PACE		3 40 88
41 SPACE				C				SPACE		42
NOTES: 1 NEMA 1 ENCLOSURE 2 PROVIDE BOLT ON BREAKERS				LOAD SUMMARY 1-LIGHTING 2-RECEPT ACLES	CONN 0 1600	NEC	JEM 0	OAD BALANCE PHASE A PHASE B	PER PHASE	
ω				3-KIT CHEN 4-HVAC		0.65	00	OWEST PHASE	PLUS 10%	
				5-NON-CONT LARGEST MOTOR TOTAL VA	0 1600	0.25	1600	0 REBALANCE LO	ADS	
				TOTAL AMPS	4.4		4.4			
>	COMC	heck	Software	/ersion 4.1.	-					
	Inter	ior	Lighting	Complia	F.C					
Project Info Energy Code: Project Title:	rmation		90.1 (2007) Stand Midwest Distrubut	ard	ance	Cer	tific	cate		
Project Type:			New Construction		ance	Cer	tific	cate		
Construction Si 1220 NW Ma Lee's Summi	e: ine St t, MO 64086		Owner/Agent:		ance	Cer	tific	cate		
Allowed Inte	rior Lighting	l Power	A		Designe Jerem: Herita 841 N Olathe 913-7-	r/Contract ge Electu Martwa 47-0528	age-elec	tric.com		
		Area C	A ategory		Designe Jerem: Herita 841 N Olathe 913-7- jhanse	r/Contract ge Electu Martwa 47-0528	age-elec	tric.com		
1-Warehouse:M 2-Common Spa	edium/Bulky Mai ce Types:Office ce Types:Confer	erial Stora Enclosed	ing/Multinumose	П	Designe Jerem: Herita 841 N Olathe 913-7- jhanse	r/Contrac y Hanser ge Electru Martwa 47-0528	tin age-elec age-elec ts / ft2	Allowe	D d Watts C)	
4-Common Spa 5-Common Spa	ce Types:Conier ce Types:Restro ce Types:Corrido	oms n/Transitic	ung/wumpurpuse		B B Ioor Area (ft2) 41150	r/Contrac ge Electri Martwa 47-0528	soowed	Allowe	D VC) VC) VC)	
7-Common Spa 8-Common Spa	ce Types:Dining ce Types:Electric	Area - Gei al/Mechar	neral nical	Π	B B Ioor Area (ft2) 41150 1510 275 445 650 74	r/Contract ge Electri AT7-0528	age-elec <b>c</b> <b>c</b> <b>c</b> <b>c</b> <b>c</b> <b>c</b> <b>c</b> <b>c</b>	Allowe (B	D X C Watts 225 225	
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1-Warehouse	Medium/Bulky	Material :	er A 'Lamp / Wattage Pei	F	B B Ioor Area (ft2) 41150 1510 275 445 650 74 268 108	S/ Total Alio	of F	Allowe (B B Tric.com (B C C C C C C C C C C C C C C C C C C	D X C 204 204 204 C X D	
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5-Common Sp	ace Types Col	ridor/Tra	er A Lamp / Wattage Pei <u>Storage</u> <u>osed</u> Meeting/Multipurpose	Lamp / Ballast	Designe Jerem: Herita 841 N Olathe 913-7- jhanse 1510 275 650 74 268 108 1510 275 650 74 268 108	r/Contract ge Electric Martwa 47-0528 47-0528 AII Vat	Image: http://www.image-eleging/pictures	Cate       Cate       Allowe       Allowe       10       11       12       13       14       15       16       17       18       19       10       10       10       11       12       13       14       15       16       17       18       18       19       10       10       10       10       10       10       10       10       10       10       11       12       13       14       15       16       17       18        18	C E (C × C) 11856 (C × D) 1248 366 1248 366 1248	
6-Common Sp	ace Types/Ina		er A Lamp / Wattage Pei <u>Storage</u> <u>osed</u> <u>Meeting/Multipurpose</u>	E Lamp / Ballast	B B B B B C C C C C C C C C C C C C C C	r/Contract ge Electric Martan S/ Fix #	<b>C</b> <b>C</b> <b>C</b> <b>C</b> <b>C</b> <b>C</b> <b>C</b> <b>C</b>	Allower $arcsing arcsing arcs$	Image: Top     Top       Image: Top <td></td>	
7-Common Sp	OFFFR: Other:	ctive Stor	er A Lamp / Wattage Pei Storage osed Meeting/Multipurpose Meeting/Multipurpose	Lamp / Ballast	B B B Coor Area (ft2) 41150 1510 275 445 650 74 268 108 Fixtur 1 1	r/Contract ge Election All Wattwa e Fix: #	C C Wed Wat 16 16 16 16 16 16 16 16 16 16	Allower $a$ $a$ $b$	C □ 0 11856 11856 1241 1242 1241 1243 1243 1248 12	
	or-ren: other: ace Types:Din	ing Area	er A Lamp / Wattage Pei <u>Storage</u> <u>osed</u> <u>deeting/Multipurpose</u> <u>msition</u> <u>age</u> - General	Lamp / Ballast	B B B Ce Jerem: Herita B Coor Area (ff2) 44150 1510 275 445 650 74 268 108 B Lamp Fixtur	r/Contract ge Electric Marser e Fix #	C     C     C       or:     50       .30       .50       .	Cate       Image: State       Allower       Allower       Image: State       <	D Ad Watts X C) X C) 11856 11856 1241 1248 325 325 325 325 325 325 325 326 1243 336 364 364	
Project Title:	OFFER: Other: ace Types:Din Midwest Dist	ing Area rubutors	er A Lamp / Wattage Pei Storage <u>osed</u> <u>meeting/Multipurpose</u> <u>nsition</u> - General	Lamp / Ballast	B B Ioor Area (ft2) 41150 1510 275 650 74 268 108 Fixtur 1 1	r/Contract ge Electric Ar-052860 47-052860 Ar-0528 Fix: #	C         C	Cate       Itric.com       Allowe       Allowe       Vatt.       10       11       12       12       13       14       15       16       17       18       18       19       10       10       10       11       12       13       14       15       16       17       18       18       18       18       18       18       18       19       10       10       10       10       11       12       14       14       18       18       18       18       18       18       18       18       18       19       10       10       10       10       10       10       10       10       10       10       10       10	D d Watts X C) 204 11856 11856 1248 864 864 96	
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![](_page_28_Figure_1.jpeg)

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WH

0

277/

4W.+GRND.

VA

40/3

+#8,1-#10 G

3#8,1#10 G

40/3

40/3

3-#8,1-#10 G

2#12-1#12G 2#12-1#12G 2#12-1#12G 2#12-1#12G 4#1 AL, 1#4 G

20/1 20/1 100/3

20/1

2-#12-1-#12G

3-#3, 1#6G

00/3

SPACE SPACE SPACE SPACE SPACE SPACE TRANSFORMER TRANSFORMER

2800 1400

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|   |                      |  |  | З   | 2 PROVIDE BOLT ON BREAKE   | 1 NEMA 1 ENCLOSURE  |   |  
   
   
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  | RTU-4   | OFFICE LIGHTS   | OFFICE LIGHTS  | SERVES  | L: OH   |
|   |                      |  |  |   | RS   |   |   |  
   
   
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  |   |   |   |   |  |   | 9700   | 00/6   
  | 9700  | 1392  | 1440   | VA  | MLO   |
|   |                      |  |  |   |  |   |   |  
   
   
  |  |  |  |   
   
   
  |  |   |   |  |   | | | |
  |   |   |   | 20/1  | 20/1   | 20/1  |  |  
  | 40/3  | 20/1  | 20/1   | OCP   | 277   |
|   |                      |  |  |   |  |   |   |  
   
   
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  |  |   |   |  |   | | | |
  |   |   |   |   |  |   |  |  
  | 3-#8, 1#10 G  | 2#12-1#12G  | 2#12,1#12G   | WIRE  | / 480 V, 3P   |
|   | I ARGES              | 5-NON-C                                    | 4-HVAC   | 3-KITCH   | 2-RECEF  | 1-LIGHT   | LOAD S  |  
   
   
  |  |  |  |   
   
   
  |  |   |   |  |   | | | |
  |   |   |   |   |  |   |  |  
  |   |   |  | PHASE   | H, 4W.+GRND.  |
|   | ST MOTOR             | CONT                                       |  | IEN   | PTACLES  | ING   | UMMARY  |  
   
   
  |  |  | 3-#3, 1#6G   |   
   
   
  |  |   |   |  |   | | | |
  |   |   |   |   |  |   |  |  
  |   |   | 3-#8,1-#10 G   | WIRE  |   |
|   | _                    | 0  | 58200  | 0   | 51374  | 2832  | CONN  |  
   
   
  |  |  |  |   
   
   
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|   | 0 25                 | -  | -  | 0.65  | NEC  | 1.25  | NEC   |  
   
   
  |  | -  | 100/3  |   
   
   
  |  |   |   |  |   |  
  |   |   |   |   |  | 20/1  | 20/1   | 20/1   
  |   |   | 40/3   | OCP   |   |
| 0 |                      |  | 5820   |   | 3068   | 354   | DEM   |  
   
   
  | 16720  | 16520  | 18134  |   
   
   
  |  |   |   |  |   | | | |
  |   |   |   |   |  |   |  |  
  | 9700  | 9700  | 9700   | VA  | NEW P   |
|   | DEPASES ARE BALANCED | 3 36120 + 10%                              | D LOWEST PHASE PLUS 10%  | ) PHASE C   | 7 PHASE B  | ) PHASE A   | LOAD BALANCE PER PHASE  |  
   
   
  | TRANSFORMER  | TRANSFORMER  | TRANSFORMER  | SPACE   
   
   
  | SPACE  | SPACE   | SPACE   | SPACE  | SPACE   | SPACE  
  | SPACE   | SPACE   | SPACE   | SPACE   | SPACE  | SPARE   | SPARE  | SPARE  
  |   |   | RTU-3  | SERVES  | ANEL  |
|   |                      | 30   |  | 36  | 37   | 36  |   |  
   
   
  | 42   | 40   | 38   | 36  
   
   
  | 34   | 32  | 30  | 28   | 26  | 24   
  | 22  | 20  | 18  | 16  | 14   | 12  | 10   | 8  
  | 6   | 4   | 2  | CCT   |   |
|   |                      | LARGEST MOTOR 0 0.25 0 PHASES ARE BALANCED | SNON-CONT     0     1     0     36120     + 10%       LARGEST MOTOR     0     0.25     0     PHASES ARE BALANCED | 4HVAC         58200         1         58200         LOWEST PHASE PLUS 10%           5-NON-CONT         0         1         0         38120         + 10%           LARGEST MOTOR         0         0.25         0         PHASES ARE BALANCED | 3     3     3     0     0.65     0     0     Phase c       4HVAC     58200     1     58200     Lowest Phase plus 10%     1     0     36120     10%       5-NON-CONT     0     0.25     0     Phases are balanced     10%     1     10% | 2 PROVIDE BOLT ON BREAKERS       2 ARCCEPT ACLES       51374       NEC       30687       PHASE B         3       3 KIT CHEN       0       0.65       0       PHASE C       4HVAC       300       1       58200       LASS PLUS 10%       4HVAC       0       36120       + 10%       4HVAC       0       0       25       0       9HASES ARE BALANCED       10%       4HVAC       0       36120       + 10%       4HVAC       0       0.25       0       9HASES ARE BALANCED       4HVAC       0       0.25       0       PHASES ARE BALANCED       4HVAC       4HVAC | 1 NEMA 1 ENCLOSURE       1.25       3.540 PHASE A         2 PROVIDE BOLT ON BREAKERS       2.8ECEPT ACLES       51374       NEC       3.841         3       3.411 CHEN       0       0.65       0       0.482 E       4.10%         3       4.110K       58200       1       58200       1       58200       1       58200       1       58200       1       58200       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       10%       1       1       10%       1       10%       1       1       10%       1< | NOTES:         LOAD SUMMARY         CON         NEC         DEM         LOAD BALANCE PER PHASE           1 NEMA 1 ENCLOSURE         1 NEMA 1 ENCLOSURE         -1.1GHTING         2822         1.25         3540         PHASE A         - </td <td>NOTES:         LOAD SUMMARY         CONN         NEC         DEM         LOAD BALANCE PER PHASE           1         NEMA 1 ENCLOSURE         1.26         3.540         PHASE         1.26         3.540         PHASE         2.27         1.26         3.540         PHASE         1.26         3.540         PHASE         3.540         PHASE         1.26         &lt;</td> <td>41         SPACE         -         16720         TRANSFORMER         4           VOTES:         1         NEMA 1 ENCLOSURE         CON         NEC         DEM         LOAD BALANCE PER PHASE         1.25         3.540         PHASE A         2.2         2.2         3.540         PHASE B         3         3.540         PHASE B         3.550         3</td> <td>39       SPACE       -       16520       TRANSFORMER       4         41       SPACE       -       1620       TRANSFORMER       4         1       NEMA 1 ENCLOSURE       COAD SUMMARY       CON       NEC       DEM       LOAD BALANCE PER PHASE       4         2       PROVIDE BOLT ON BREAKERS       2       S1374       NEC       3380       PHASE B       4       4         3       3       S400 NOT       0.05       0.14       0.05       0.9       PHASE PLUS 10%       4         3       3       3       4</td> <td>37         SPACE         1003         1814         TRANSFORMER         3         3           39         SPACE         1003         1814         TRANSFORMER         3         3         1         TRANSFORMER         3         4         1         TRANSFORMER         3         4         1         TRANSFORMER         4         3         3         1         TRANSFORMER         4         4         4         1<!--</td--><td>35       SPACE       I       I       I       SPACE       I       I       SPACE       I</td><td>33       SPACE       SP</td><td>31       SPACE       SP</td><td>29         SPACE         I         I         SPACE         SPACE</td><td>27         SPACE         SP</td><td>25         SPACE         SP</td><td>23       SPACE       SP</td><td>21         SPACE         SP</td><td>19         SPACE         SP</td><td>11         SPACE         SP</td><td>NUE         SAVE         SAVE</td><td>13         SPACE         201         SPACE         SPAC</td><td>11         SPARE         201         SPARE         201         SPARE         301</td><td>Image: section of the sectio</td><td>1         0</td><td>1         1         1         2         1         2         2         1         2</td><td>Image: constraint of the constraint of the</td><td>Image: constraint of the constrate constrate constraint of the constraint of the constraint of th</td><td>I         I RENE         I RENE</td></td> | NOTES:         LOAD SUMMARY         CONN         NEC         DEM         LOAD BALANCE PER PHASE           1         NEMA 1 ENCLOSURE         1.26         3.540         PHASE         1.26         3.540         PHASE         2.27         1.26         3.540         PHASE         1.26         3.540         PHASE         3.540         PHASE         1.26         < | 41         SPACE         -         16720         TRANSFORMER         4           VOTES:         1         NEMA 1 ENCLOSURE         CON         NEC         DEM         LOAD BALANCE PER PHASE         1.25         3.540         PHASE A         2.2         2.2         3.540         PHASE B         3         3.540         PHASE B         3.550         3 | 39       SPACE       -       16520       TRANSFORMER       4         41       SPACE       -       1620       TRANSFORMER       4         1       NEMA 1 ENCLOSURE       COAD SUMMARY       CON       NEC       DEM       LOAD BALANCE PER PHASE       4         2       PROVIDE BOLT ON BREAKERS       2       S1374       NEC       3380       PHASE B       4       4         3       3       S400 NOT       0.05       0.14       0.05       0.9       PHASE PLUS 10%       4         3       3       3       4 | 37         SPACE         1003         1814         TRANSFORMER         3         3           39         SPACE         1003         1814         TRANSFORMER         3         3         1         TRANSFORMER         3         4         1         TRANSFORMER         3         4         1         TRANSFORMER         4         3         3         1         TRANSFORMER         4         4         4         1 </td <td>35       SPACE       I       I       I       SPACE       I       I       SPACE       I</td> <td>33       SPACE       SP</td> <td>31       SPACE       SP</td> <td>29         SPACE         I         I         SPACE         SPACE</td> <td>27         SPACE         SP</td> <td>25         SPACE         SP</td> <td>23       SPACE       SP</td> <td>21         SPACE         SP</td> <td>19         SPACE         SP</td> <td>11         SPACE         SP</td> <td>NUE         SAVE         SAVE</td> <td>13         SPACE         201         SPACE         SPAC</td> <td>11         SPARE         201         SPARE         201         SPARE         301</td> <td>Image: section of the sectio</td> <td>1         0</td> <td>1         1         1         2         1         2         2         1         2</td> <td>Image: constraint of the constraint of the</td> <td>Image: constraint of the constrate constrate constraint of the constraint of the constraint of th</td> <td>I         I RENE         I RENE</td> | 35       SPACE       I       I       I       SPACE       I       I       SPACE       I | 33       SPACE       SP | 31       SPACE       SP | 29         SPACE         I         I         SPACE         SPACE | 27         SPACE         SP | 25         SPACE         SP | 23       SPACE       SP | 21         SPACE         SP | 19         SPACE         SP | 11         SPACE         SP | NUE         SAVE         SAVE | 13         SPACE         201         SPACE         SPAC | 11         SPARE         201         SPARE         201         SPARE         301 | Image: section of the sectio | 1         0 | 1         1         1         2         1         2         2         1         2 | Image: constraint of the | Image: constraint of the constrate constrate constraint of the constraint of the constraint of th | I         I RENE         I RENE |

						PROVIDE BOLT ON BREAKERS	NEMA 1 ENCLOSURE		SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	SPARE	SPARE	SPARE			RTU-4	OFFICE LIGHTS	OFFICE LIGHTS	SERVES	OH
																															400A
																									9700	9700	9700	1392	1440	VA	MLO
																						20/1	20/1	20/1			40/3	20/1	20/1	OCP	277
																											3#8,1#10 G	2#12-1#12G	2-#12, 1#12G	WIRE	/ 480 V, 3PH, 4V
TOTAL AN	TOTAL V/	LARGEST	5-NON-CO	4-HVAC	3-KIT CHEN	2-RECEPT	1-LIGHT IN	LOAD SUN																						PHASE	N.+GRND.
MPS	А	MOTOR	TN		V	ACLES	G	MMARY			3-#3,1#6G																		3-#8,1-#10 G	WIRE	
135.2	112406	0	0	58200	0	51374	2832	CONN																							
		0.25	1	1	0.65	NEC	1.25	NEC			100/3													20/1	20/1	20/1			40/3	OCP	
111.	9242			5820		3068	354	DEM	16720	16520	18134																9700	9700	9700	VA	NEW P
2	7	PHASES ARE BALANCED	0 36120 + 10%	0 LOWEST PHASE PLUS 10%	0 PHASE C	7 PHASE B	0 PHASE A	LOAD BALANCE PER PHASE	TRANSFORMER	TRANSFORMER	TRANSFORMER	SPACE	SPARE	SPARE	SPARE			RTU-3	SERVES	ANEL											
						_																			_			_		ССТ	

ort date: 08/29/23 Page 2 of 6

200         NB         120         208         V, SPH, AW, "GRUN         V <th></th>										
200         M         120/         208         V, SPH, 4W, -GRW         NEW         NEW           Via         Via         Part, Hato         A         Part, Hato         Corr         Via         REERN         Corr	>	7200		7200		TOTAL VA				
200         M         120/         208         V, SPH, 4WGRU         File         No         OEP         No         SEE           1/10         00         001         482,1473         6         487,1473         001         100         File         100	0 REBALANCE LOADS		0.25	0	MOTOR	LARGEST				
200         MB         120         208         V, 3PH, 4W+CRUE         VIET         NEW         VIET         NEW           100         00         001         <	0 1400 + 10%		1	0	NT	5-NON-CO				
200         MB         120/         208         V, SPH, AW, FGRD         NEW         NEW           100         001         2442,14430         HA         2442,14430         0         100         REERES         001         REERES         0         100         REERES	0 LOWEST PHASE PLUS 10%		1	0		4-HVAC				
200         MB         120         208         V, SPH, AW, +GRND         VIE	0 PHASE C		0.65	0		3-KITCHEN				
200         MB         12U         202         V, 3 PH, 4W:-GRU         PHASE         V         OP         NR         RECENS         V         NEV           100         247, 1473         6         2472, 1473         6         2472, 1473         0.01         2472, 1473 <td< td=""><td>0 PHASE B</td><td>7200</td><td>NEC</td><td>7200</td><td>ACLES</td><td>2-RECEPT</td><td></td><td></td><td></td><td>ŝ</td></td<>	0 PHASE B	7200	NEC	7200	ACLES	2-RECEPT				ŝ
20         M         12V         28         V, SH, AW, FGNU         VIE         VIE <th< td=""><td>0 PHASE A</td><td></td><td>1.25</td><td>0</td><td></td><td>1-LIGHT IN</td><td></td><td></td><td></td><td></td></th<>	0 PHASE A		1.25	0		1-LIGHT IN				
200         M         120         208         V, 3PH, 4W+CRUV         INE	LOAD BALANCE PER PHASE	DEM	NEC	CONN	IMARY	LOAD SUN				
200         M         10/         200         V, 3PH, 4W+CW         WRE         000         V/V         SERVES         SERVES <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>										
200         M         12V         208 $y$ ,	SPACE				1	c	1			
200         M         10/         201         NPH, 4W, +GKVL         VIX         <	SPACE				1	B	1			
200         M         120         208 $y_{14}$	SPACE				•	A	•			
200         M         120         208 $y, H, W, H, W, H, W, H, W, H$ NRE         OCP $VA$ SERVES         VIC         VIC $VIC         NRE         NRE         OCP         VA         SERVES         CCT         ZEV         ZEV         SERVES         CCT         ZEV         SERVES         CCT         ZEV         SERVES         CCT         ZEV         SERVES         SERVES         ZEV         SERVES         SERVES         SERVES         SERVES         SERVES         SERVES         SERVES         SERVES       $	SPACE				1	c	-			
200         MB         VI         201         N, SPH, 4W, +GRNU         NUE $OCP$ VA $OCP$ VA $OCP$ VA $OCP$ VA $OCP$ VA $SPE$	SPACE				•	в	I			
IN ICV 208 V, 3PH, 4W-GRUE           VA         OCP         WRE         PHASE         WRE         OCP         VA         SERVES	SPACE				•	A				
200         MB         120         208 $y, y, y, y, w, v, v,$	SPACE				1	c				
200         M         120         208         N, 3PH, 4W.+GRUV         VIC         NE         NE <td>SPACE</td> <td></td> <td></td> <td></td> <td></td> <td>в</td> <td>•</td> <td></td> <td></td> <td></td>	SPACE					в	•			
200MR120208V, SPH, 4W.+GRNUVIC $VIC$	SPACE					A				
200         MB         120/         208         V, SPH, 4W.+GRND         VIC         VIC     <	SPACE				•	c	-			
200MB120208V, 3PH, 4W.+GR.ND $V = V = V = V = V = V = V = V = V = V =$	SPACE				•	В	•			
200         MB         120/         208         V, SPH, 4W.+GRND         VIC	SPACE				•	A	•			
200         MB         120/         208         V, SPH, 4W.+GRND         VIC         VIC         VIC         VIC         VIC         VIC         PHASE         MIRE         OCP         VIC         SERVES         CT         SERVES         CT         CT </td <td>SPACE</td> <td></td> <td></td> <td></td> <td>•</td> <td>c</td> <td>•</td> <td></td> <td></td> <td></td>	SPACE				•	c	•			
200         MB         120/         208         V, 3PH, 4W.+GRND         VIC         VIC         VIC         VIC         VIC         VIC         VIC         VIC         PHASE         MIRE         CCP         VIC         SERVES         CCT         CT         CT <td>SPACE</td> <td></td> <td></td> <td></td> <td>•</td> <td>В</td> <td>•</td> <td></td> <td></td> <td></td>	SPACE				•	В	•			
200         MB         120/         208         V, 3PH, 4W.+GRND         VIC         VIC         VIC         VIC         VIC         VIC         PHASE         MIRE         OCP         VIC         SERVES         CT	SPACE				•	A				
200         MB         120/         208         V, 3 PH, 4W.+GRND         NE         NE </td <td>SPACE</td> <td></td> <td></td> <td></td> <td>•</td> <td>c</td> <td></td> <td></td> <td></td> <td></td>	SPACE				•	c				
200         MB         120/         208         V, 3 PH, 4W.+GRND         NEV         NEV           VA         0CP         WRE         PHASE         WRE         0CP         VA         SERVES         CT           400         20/1         2#12.1#12G         A         2#12.1#12G         20/1         1200         FREEZER         21           1200         20/1         2#12.1#12G         B         2#12.1#12G         20/1         1200         FREEZER         4           1200         20/1         2#12.1#12G         C         2#12.1#12G         20/1         1200         FREEZER         4           1200         20/1         2#12.1#12G         C         2#12.1#12G         20/1         200         WAREHOUSE RECEPS         4           1200         20/1         2#12.1#12G         A         20/1         20/1         20/1         20/1         4	SP ARE		20/1			В	2#12,1#12G	20/1	400	
200         MB         120/         208         V, 3 PH, 4W.+GRND         VI         NEW           VA         0CP         WRE         PHASE         WRE         0CP         VA         SERVES         CCT           600         20/1         2#12,1#12G         A         2#12,1#12G         20/1         1200         FREEZER         21           1200         20/1         2#12,1#12G         B         2#12,1#12G         20/1         1200         FREEZER         4           1200         20/1         2#12,1#12G         C         2#12,1#12G         20/1         1200         FREEZER         4	SP ARE		20/1			A	2#12,1#12G	20/1	1200	
200         MB         120/         208         V, 3PH, 4W.+GRND         NEW           VA         OCP         WRE         PHASE         WRE         OCP         VA         SERVES         CCT           600         20/1         2#12,1#12G         A         2#12,1#12G         20/1         1200         FREEZER         CCT           1200         20/1         2#12,1#12G         B         2#12,1#12G         20/1         1200         FREEZER         4	WAREHOUSE RECEPS	200	20/1		2#12,1#12G	c	2#12,1#12G	20/1	1200	
200         MB         120/         208         V, 3PH, 4W.+GRND         NEW           VA         OCP         WRE         PHASE         MRE         OCP         VA         SERVES         CCT           600         20/1         24/2,14/12G         A         24/2,14/12G         20/1         1200         FREEZER         2	FREEZER	1200	20/1		2#12,1#12G	в	2#12,1#12G	20/1	1200	
200         MB         120/         208         V, 3PH, 4W.+GRND         NEW           VA         OCP         MRE         PHASE         MRE         OCP         VA         SERVES         OCT	FREEZER	1200	20/1		2#12,1#12G	A	2#12,1#12G	20/1	600	
200 MB 120/ 208 V, 3PH, 4W.+GRND NEW	SERVES	VA	OCP		WIRE	PHASE	WIRE	OCP	VA	
	NEW					GRND	208 V, 3PH, 4W.+(	120/	MB	200
		NEW SERVES FREEZER FREEZER FREEZER SPACE S	VA     SERVES       1200     FREEZER       1200     FREEZER       200     WAREHOUSE RECEPS       200     WAREHOUSE RECEPS       200     WAREHOUSE RECEPS       200     SPARE       SPACE     SPACE       SPACE     SPACE <tr< td=""><td>NEW       20/1     1200     FREZER       20/1     1200     FREZER       20/1     1200     FREZER       20/1     200     WAREHOUSE RECEPS       20/1     200     SPARE       20/1     200     WAREHOUSE RECEPS       20/1     200     SPARE       20/1     200     SPARE       20/1     SPARE       SPARE     SPARE</td><td>OCP         VA         SERVES           2011         1200         FREEZER           2011         2011         200           2011         200         WAREHOUSE RECEPS           2011         200         WAREHOUSE RECEPS           2011         201         SPARE           2011         200         WAREHOUSE RECEPS           2011         SPARE         SPACE           2011         SPACE         SPACE           2011         SPACE         SPACE           2011         SPACE         SPACE           201         SPACE         SPACE           202         SPACE         SPACE           203</td><td>WIRE         OCP         VA         SERVES           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           -         2011         2001         SPARE           -         2011         2011         SPARE           -         2011         SPARE         SPARE           -         2011         SPARE         SPARE           -         SPARE         SPARE         SPA</td><td>NEW         PHASE       WIRE       OCP       VA       SERVES         A       24H2.14H2G       2011       1200       REEZER         B       -       2011       2001       SPACE         C       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         C       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         SPACE       -       SPACE       SPACE       SPACE         SPACE       -       SPACE       SPACE       SPACE         SPACE       -       SPACE       SPAC</td><td>VINCE         VILL         VILL</td><td>120/         208         V, 3PH, 4W.+GRND         NE         NE           2011         1412.1412G         6         3412.1412G         201         1200         REEZER         201         REEZER         201         REEZER         201         7200         REEZER         201         201         7200         REEZER         201         201         7200         REEZER         201         201         7200         REEZER         201         201         201         201         REEZER         201         &lt;</td><td>Image: Normal System         Top         Vinite         PHASE         MIRE         OCP         Vinite         Service           Vinite         2472.14730         A         2472.14730         B         2011         SPAGE         26744         26744         26744</td></tr<>	NEW       20/1     1200     FREZER       20/1     1200     FREZER       20/1     1200     FREZER       20/1     200     WAREHOUSE RECEPS       20/1     200     SPARE       20/1     200     WAREHOUSE RECEPS       20/1     200     SPARE       20/1     200     SPARE       20/1     SPARE       SPARE     SPARE	OCP         VA         SERVES           2011         1200         FREEZER           2011         2011         200           2011         200         WAREHOUSE RECEPS           2011         200         WAREHOUSE RECEPS           2011         201         SPARE           2011         200         WAREHOUSE RECEPS           2011         SPARE         SPACE           2011         SPACE         SPACE           2011         SPACE         SPACE           2011         SPACE         SPACE           201         SPACE         SPACE           202         SPACE         SPACE           203	WIRE         OCP         VA         SERVES           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           2#12,1#12G         2011         1200         FREEZER           -         2011         2001         SPARE           -         2011         2011         SPARE           -         2011         SPARE         SPARE           -         2011         SPARE         SPARE           -         SPARE         SPARE         SPA	NEW         PHASE       WIRE       OCP       VA       SERVES         A       24H2.14H2G       2011       1200       REEZER         B       -       2011       2001       SPACE         C       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         C       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         B       -       -       SPACE       SPACE         SPACE       -       SPACE       SPACE       SPACE         SPACE       -       SPACE       SPACE       SPACE         SPACE       -       SPACE       SPAC	VINCE         VILL         VILL	120/         208         V, 3PH, 4W.+GRND         NE         NE           2011         1412.1412G         6         3412.1412G         201         1200         REEZER         201         REEZER         201         REEZER         201         7200         REEZER         201         201         7200         REEZER         201         201         7200         REEZER         201         201         7200         REEZER         201         201         201         201         REEZER         201         <	Image: Normal System         Top         Vinite         PHASE         MIRE         OCP         Vinite         Service           Vinite         2472.14730         A         2472.14730         B         2011         SPAGE         26744         26744         26744

VA 20144		21026	
			21056
T MOTOR	0	0 0.25	0 0.25 0
ONT	600	600 1	600 1 600
	13296	13296 1	13296 1 13296
EN	0	0 0.65	0 0.65 0
TACLES	2600	2600 NEC	2600 NEC 2600
ING	3648	3648 1.25	3648 1.25 4560
UMMARY CON	ĩ	IN NEC	IN NEC DEM
		-	- 800
			- 800
3-#8, 1#10G		50/3	50/3 1000
		20/1	20/1
		20/1	20/1
		20/1	20/1
			4432
			4432
3-#8-1#10G		25/3	25/3 4432
WIRE		OCP	OCP VA
			EXISTIN
	WRE           3#81#10G           3#81#10G           3#81#10G           3#81#10G           13#81#10G           13#81#10G           13#81#10G           13#81#10G           13#81#10G           13#81#10G	WRE         OCP           3#8-1#10G         25/3           3#8-1#10G         20/1           20/1         20/1           20/1         20/1           3#8,1#10G         50/3           4         1.25           5	Image: Name         CCP         VA           3#8-1#103         25/3         4432           2/11         20/1         4432           2/11         20/1         4432           2/11         20/1         4432           3/#8-1#103         50/3         40/3           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           3/#8,1#103         50/3         10/0           50/3         10/0 <t< td=""></t<>

CCT         SERVES         VA         OCP         WIRE           1         OFFICE RECEPS         1400         2011         2#12,1#120           3         OFFICE RECEPS         1600         2011         2#12,1#120           7         BREAK ROOM RECEPS         1200         2011         2#12,1#120           19         BREAK ROOM RECEPS         1200         2011         2#12,1#120           11         BREAK ROOM RECEPS         1200         2011         2#12,1#120           13         DRINKING FOUNTAIN         800         2011         2#12,1#120           14         BREAK ROOM RECEPS         1200         2011         2#12,1#120           15         DRINKING FOUNTAIN         800         2011         2#12,1#120           160         COPY ROOM         1200         2011         2#12,1#120           21         RTU-1         1200         2011         2#12,1#120           23         RTU GFCI         4500             33         SPARE         2011          2011            33         SPACE         201              33         SPACE         201 <th>PANEL</th> <th>: 0L 2</th> <th>00</th> <th>MB</th> <th>120/</th> <th>208</th>	PANEL	: 0L 2	00	MB	120/	208
1         OFFICE RECEPS         1400         2011         2#12.1#120           3         OFFICE RECEPS         1600         2011         2#12.1#120           7         BREAK ROOM RECEPS         1400         2011         2#12.1#120           9         BREAK ROOM RECEPS         1200         2011         2#12.1#120           11         DRINKING FOUNTAIN         800         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         2011         2#12.1#120           14         BREAK ROOM RECEPS         1200         2011         2#12.1#120           15         DRINKING FOUNTAIN         800         2011         2#12.1#120           15         DRINKING FOUNTAIN         800         2011         2#12.1#120           16         DRINKING FOUNTAIN         800         2011         2#12.1#120           21         RTU-1         1200         2011         2#12.1#120           23         SPARE         4560          2           33         SPARE          2011          2           33         SPARE          201              33	CCT	SERVES		AA	OCP	WIRE
3         OFFICE RECEPS         1600         2011         2#12.1#120           5         CONFRENCE ROOM RECEPS         1400         2011         2#12.1#120           9         BREAK ROOM RECEPS         1200         2011         2#12.1#120           11         BREAK ROOM RECEPS         1200         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         2011         2#12.1#120           14         BREAK ROOM RECEPS         1200         2011         2#12.1#120           15         DRINKING FOUNTAIN         800         2011         2#12.1#120           17         BATHROOM GFI         1200         2011         2#12.1#120           21         RTU-1         4560         4503         -           23         INTU GFCI         4560         4503         -           24         SPARE         2011         -         -         -           33         SPARE         2011         -         -         -         -           33         SPACE         2011         -         -         -         -         -         -         -           33         SPACE         201         -         -	-	OFFICE RECEPS		1400	20/1	2#12,1#12
5         CONFRENCE ROOM RECEPS         1400         2011         2#12.1#120           7         BREAK ROOM RECEPS         1200         2011         2#12.1#120           11         BREAK ROOM RECEPS         1200         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         2011         2#12.1#120           14         BREAK ROOM RECEPS         1200         2011         2#12.1#120           15         DRINKING FOUNTAIN         800         2011         2#12.1#120           17         BATHROOM GFI         1200         2011         2#12.1#120           19         COPY ROOM         1200         2011         2#12.1#120           21         RTU-1         4560         453         -           22         RTU GFCI         4560         453         -           23         SPARE         2011         -         -           33         SPARE         2011         -         -           33         SPACE         2011         -         -           33         SPACE         2011         -         -         -           33         SPACE         2011         -         -         -	ω	OFFICE RECEPS		1600	20/1	2#12,1#12
7         BREAK ROOM RECEPS         1200         2011         2#12.1#120           9         BREAK ROOM RECEPS         1200         2011         2#12.1#120           11         BREAK ROOM RECEPS         1200         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         2011         2#12.1#120           14         BREAK ROOM RECEPS         1200         2011         2#12.1#120           15         DRINKING FOUNTAIN         800         2011         2#12.1#120           17         BATHROOM GFI         1200         2011         2#12.1#120           21         RTU-1         4560         453         -           23         JARE         4560         453         -           24         RTU GFCI         450         2011         -           33         SPARE         2011         -         -           33         SPACE         2011         -         -         -           33         SPACE         2011         -         -         -         -           33         SPACE         201         -         -         -         -         -           34         SPACE	ъ	CONFRENCE ROOM RECEPS		1400	20/1	2#12,1#12
9         BREAK ROOM RECEPS         1200         2011         2#12.1#120           11         BREAK ROOM RECEPS         1200         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         2011         2#12.1#120           17         BATHROOM GFI         1200         2011         2#12.1#120           19         COPY ROOM         1200         2011         2#12.1#120           21         RTU-1         4560         453         -           23         PARE         4560         453         -           23         RTU GFCI         4560         453         -           23         SPARE         2011         2#12.1#120         -           23         SPARE         4560         -         -           33         SPARE         2011         -         -           33         SPACE         2011         -         -         -           33         SPACE         2011         -         -         -         -           34         SPACE         201         -         -         -         -         -           35         SPACE         2         201         <	7	BREAK ROOM RECEPS		1200	20/1	2#12,1#12
11         BREAK ROOM RECEPS         1200         2011         2#12.1#120           13         DRINKING FOUNTAIN         800         201         2#12.1#120           14         DRINKING FOUNTAIN         800         201         2#12.1#120           17         BATHROOM GFI         1200         201         2#12.1#120           19         COPY ROOM         1200         201         2#12.1#120           20         RTU-1         4560         453         -           23         RTU GFCI         4560         453         -           26         ITU GFCI         400         201         2#12.1#120           27         RTU GFCI         400         201         -           28         SPARE         201         -         -           33         SPARE         201         -         -           34         SPACE         201         -         -         -           37         SPACE         201         -         -         -         -           37         SPACE         201         -         -         -         -         -           38         SPACE         2         2	9	BREAK ROOM RECEPS		1200	20/1	2#12,1#12
13         DRINKING FOUNTAIN         800         2011         2#12,1#120           15         DRINKING FOUNTAIN         800         201         2#12,1#120           17         BATHROOM GFI         1200         201         2#12,1#120           19         COPY ROOM         1200         201         2#12,1#120           23         INTU-1         4500         201         2#12,1#120           25         RTU-1         4500         450         4-12,1#120           26         RTU-GFCI         4500         201         2           27         RTU GFCI         4500         201         2           28         SPARE         2011         2         2           31         SPARE         2011         2         2           33         SPARE         2011         2         2           33         SPACE         201         2	11	BREAK ROOM RECEPS		1200	20/1	2#12,1#12
15         DRINKING FOUNTAIN         800         2011         2#12,1#120           17         BATHROOM GFI         1200         2011         2#12,1#120           21         RTU-1         450         450         453           23         Introduction         4500         2011         2#12,1#120           25         RTU-1         4560         453	13	DRINKING FOUNT AIN		800	20/1	2#12,1#12
17         BATHROOM GFI         1200         2011         2#12,1#120           19         COPY ROOM         1200         2011         2#12,1#120           23         RTU-1         4560         453         -           25         RTU GFCI         4560         453         -           27         RTU GFCI         4500         2011         -           28         SPARE         400         2011         -           30         SPARE         2011         -         -           33         SPARE         2011         -         -           33         SPACE         2011         -         -           34         SPACE         2011         -         -           35         SPACE         -         -         -           36         SPACE         -         -         -           37         SPACE         -         -         -           41         SPACE	15	DRINKING FOUNT AIN		800	20/1	2#12,1#12
19         COPY ROOM         1200         21/1           21         RTU-1         4560         453           23         Introduction         4560         453           25         RTU GFCI         4560	17	BAT HROOM GFI		1200	20/1	2#12,1#12
21       RTU.1       4560       453         23       1       4560       -         25       RTU GFCI       460       20.1       -         27       RTU GFCI       400       20.1       2.12.1.#120         30       SPARE       0.1       0.1       -         33       SPARE       0.1       0.1       -         33       SPACE       0.1       0.1       -         34       SPACE       0.1       0.1       -         37       SPACE       0.1       0.1       -         38       SPACE       0.1       0.1       -         41       SPACE       0.1       -       -         1       IMMA 1 ENCLOSURE       0.1       0.1       -         2       PROVIDE BOLT ON BREAKERS       3       3       -         3       3       SPACE       0.1       -       -	19	COPY ROOM		1200	20/1	2#12,1#12
23       450       -         25       RTU GFCI       450       -         27       RTU GFCI       400       201       -         28       SPARE       -       201       -         31       SPARE       0       201       -         33       SPACE       0       201       -         37       SPACE       0       0       0       -         38       SPACE       0       0       0       -         39       SPACE       0       0       -       -         41       SPACE       0       -       -       -       -         41       SPACE       0       -       -       -       -       -         1       NOTES:       1       NOTES       1       -       -       -       -       -       -       - <t< td=""><td>21</td><td>RTU-1</td><th></th><td>4560</td><td>45/3</td><td></td></t<>	21	RTU-1		4560	45/3	
25         450         450            27         RTU GFCI         400         201         2-+1/2           29         SPARE         201             31         SPARE         0         201            33         SPARE         0         201            33         SPACE         0         201            33         SPACE         0         0         0            33         SPACE         0         0         0            33         SPACE         0         0             33         SPACE         0         0             34         SPACE         0         0             35         SPACE         0         0             41         SPACE         0         0             41         SPACE         0         0             41         SPACE         0         0             41         SPACE	23			4560		•
27         RTU GFCI         400         201         2#12,1#120           29         SPARE         201	25			4560		
29         SPARE         20/1            31         SPARE         20/1            33         SPARE         20/1            33         SPACE         20/1            33         SPACE         20/1            33         SPACE         20/1            31         SPACE         20/1            32         SPACE         20/1            33         SPACE         20/1            41         SPACE         2         PROVIDE BOLT ON BREAKERS           2         PROVIDE BOLT ON BREAKERS         3	27	RTU GFCI		400	20/1	2#12,1#12
31         SPARE         201            33         SPARE         201            35         SPACE             37         SPACE             38         SPACE             41         SPACE             5         POVIDE SOLT ON BREAKERS             3         POVIDE BOLT ON BREAKERS	29	SPARE			20/1	
33     SPARE     20/1        35     SPACE         37     SPACE         38     SPACE         41     SPACE         5     SPACE         41     SPACE         5     SPACE         5     SPACE         5     SPACE         3     SPACE         3     SPACE	31	SPARE			20/1	-
35     SPACE        37     SPACE        39     SPACE        41     SPACE        41     SPACE        1     NOTES:        1     NEMA 1 ENCLOSURE        2     PROVIDE BOLT ON BREAKERS     3	33	SPARE			20/1	-
37     SPACE     -       39     SPACE        41     SPACE        1     NOTES:        1     NEMA 1 ENCLOSURE     2       2     PROVIDE BOLT ON BREAKERS     3	35	SPACE				I
39 SPACE 41 SPACE NOTES: 1 NEMA 1 ENCLOSURE 2 PROVIDE BOLT ON BREAKERS 3	37	SPACE				•
41 SPACE	39	SPACE				-
NOTES: 1 NEMA 1 ENCLOSURE 2 PROVIDE BOLT ON BREAKERS 3	41	SPACE				1
1 NEMA 1 ENCLOSURE 2 PROVIDE BOLT ON BREAKERS 3	NOTES					
	NOTES: 2	NEMA 1 ENCLOSURE PROVIDE BOLT ON BREAKERS				

![](_page_28_Picture_11.jpeg)

220018 PANEL SCHEDULE

 
 PERMIT SET
 08.29.23

 CITY COMMENTS 09.18.23
 08.29.23

![](_page_28_Picture_14.jpeg)

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086

LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

![](_page_28_Picture_18.jpeg)

CERTIFICATION

![](_page_28_Picture_19.jpeg)

![](_page_28_Picture_20.jpeg)

![](_page_28_Picture_21.jpeg)

![](_page_28_Picture_22.jpeg)

HERITAGE ELECTRIC, L.L.C. 841 N. MARTWAY Olathe, Kansas phone (913) 747 0528 fax (913) 747 0539

PH, 4W.+GRND.					<b>NEW PANEL</b>	
PHASE	WIRE		CP	VA	SERVES	CCT
A	2-#12,1-#12G		20/1	800	OFFICE RECEP	2
в	2-#12,1-#12G		20/1	800	BREAK ROOM RECEPS	4
c	2-#12,1-#12G		20/1	1200	REFRIGERAT OR	6
A	2-#12,1-#12G		20/1	1200	BREAK ROOM RECEPS	8
в	2-#12,1-#12G		20/1	1400	OFFICE RECEP	10
c	2-#12,1-#12G		20/1	1400	OFFICE RECEP	12
A	2-#12,1-#12G		20/1	1200	IT RECEP	14
в	2-#12,1-#12G		20/1	1200	COPY ROOM	16
c	2-#12,1-#12G		20/1	1200	COPY ROOM	18
A	2-#12,1-#12G		20/1	1214	BAT HROOM LIGHTS	20
в	•		45/3	4560	RTU-2	22
c	•			4560		24
A	I			4560		26
в	I		20/1		SPARE	28
c	I		20/1		SPARE	30
A	•		20/1		SPARE	32
в	1				SPACE	34
c	I				SPACE	36
A	•				SPACE	38
в	I				SPACE	40
c	1				SPACE	42
		-				
LOAD SU	MMARY	CONN	NEC	DEM	LOAD BALANCE PER PHASE	
1-LIGHT IN	G	1214	1.25	1517.5	PHASE A	1813
2-RECEPT	ACLES	22400	NEC	16200	PHASE B	165;
3-KIT CHE	V	0	0.65	0	PHASE C	1672
4-HVAC		27360	-	27360	LOWEST PHASE PLUS 10%	
5-NON-CO	T	0	-	0	16520 + 10%	1817
LARGEST	MOTOR	0	0.25	0	PHASES ARE BALANCED	
TOTAL V	A	50974		45077.5		
TOTAL A	NPS	141.5		125.1		

	S	EQU	ENCE	OF C	PERA <sup>-</sup>	TION	IS								
FIRE ALARM SYSTEM MATRIX					i	BUIL	.DING	SYSTE		JTPUT	S	i	I		
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SYSTEM	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTIVATE GENERAL EVACUATION SIGNAL	UNLOCK EXITS AND RELEASE DOOR HOLDERS	DISPLAY CHANGE OF STATUS	ACTIVATE EXTERNAL HORN/STROBE	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	RETURN ELEVATOR TO 2ND FLOOR	RETURN ELEVATOR TO 1ST FLOOR
MANUAL FIRE ALARM PULL BOXES	X	X					Х	Х	Х	X	Х				
AREA SMOKE AND CARBON MONOXIDE DETECTORS	Х	Х					Х	Х	Х	Х	Х				
BUILDING MULTI CRITERIA DETECTORS	Х	Х					Х	Х	Х	Х	Х				
DUCT SMOKE DETECTOR			Х	Х			Х		Х			Х			
FIRE ALARM A.C. POWER FAILURE					Х	Х	Х		Х				Х		
FIRE ALARM SYSTEM LOW BATTERY					Х	Х	Х		Х				Х		
OPEN CIRCUIT					Х	Х	Х		Х				Х		
GROUND FAULT					Х	Х	Х		Х				Х		
NOTIFICATION APPLIANCE CIRCUIT SHORT					Х	Х			Х				Х		
SPRINKLER WATER FLOW	Х	Х					Х		Х	Х	Х				
SPRINKLER TAMPER			Х	Х			Х		Х			Х			

# GENERAL NOTES

 WORK SHALL COMPLY WIH ALL APPLICABLE CODES.
 AS BUILT DRAWINGS ALONG WITH ONE YEAR WARRANTY LETTER WILL BE FORWARDED TO THE APPROPRIATE PARTY UPON COMPLETION OF PROJECT.
 1" CONDUIT MUST BE PROVIED AT ALL NAC PANELS.
 MINIMUM OF 1/2" SLEEVE MUST BE PROVIDED FOR ALL RTU 2000 CFM OR GREATER.

	FIRE ALARM SY	MBOL	LEGEND
FACP	-FIRE ALARM CONTROL PANEL	$\oplus$	-HEAT DETECTOR
NAC	-NAC PANEL	WF	-WATER FLOW MONITOR MODULE
	-CEILING MOUNT HORN-STROBE	Ţ	-TAMPER MONITOR MODULE
×	-CEILING MOUNT STROBE		- RETURN DUCT DETECTOR
\$	-PHOTO ELECTRIC SMOKE DETECOR.	R	-RELAY
F	-PULL-STATION	Ş	-END OF LINE RESISTOR
ANN	-Remote Annunciator		- MONITOR MODULE

![](_page_29_Picture_4.jpeg)

Battery Calculation Summary

### POTTER The Symbol of Protection

NAC 1     MAX Circuit Current (amps       Class:     Class B     Usage:     Not       Wire Type     Ohms/1000ft     Length 1-Way       #14 Solid     3.19     90         Circuit Devices       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95Cl	NAC	Circuit Configuratio	on & Voltage D	rop
NAC 1     MAX Circuit Current (amps       Class:     Class B     Usage:     Not       Wire Type     Ohms/1000ft     Length 1-Way       #14 Solid     3.19     90         Circuit Devices       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CI				
Class:     Class B     Usage:     Not       Wire Type     Ohms/1000ft     Length 1-Way       #14 Solid     3.19     90         Circuit Devices       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CI	NAC	1	MAX Circ	cuit Current (amps
Wire Type     Ohms/1000ft     Length 1-Way       #14 Solid     3.19     90       Circuit Devices     Other Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CI       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1	Class:	Class B	Usage:	Not
Wire Type     Ohms/1000ft     Length 1-Way       #14 Solid     3.19     90       Circuit Devices     Operation       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95Cl				
#14 Solid     3.19     90       Circuit Devices       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CI		Wire Type	Ohms/1000ft	Length 1-Way
Circuit Devices          Qty       Lookup Type       Description         5       User Defined       SYSTEM SENSOR HORN-STROBE 95C0		#14 Solid	3.19	90
Circuit Devices       Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CD				
Qty     Lookup Type     Description       5     User Defined     SYSTEM SENSOR HORN-STROBE 95CI       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -       -     -		Circ	uit Devices	
5     User Defined     SYSTEM SENSOR HORN-STROBE 95Cl       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1       1     1	Qty	Lookup Type	Desc	ription
	5	User Defined	SYSTEM SENSOR H	IORN-STROBE 95CI
Image: Second				

NAC	2	MAX Circ	uit Current (amps):
Class:	Class B	Usage:	Notif
		-	
	Wire Type	Ohms/1000ft	Length 1-Way
	#14 Solid	3.19	80
	Circ	uit Devices	
Qty	Lookup Type	Desc	ription
2	User Defined	SYSTEM SENSOR S	TROBE 15CD
2	User Defined	SYSTEM SENSOR S	TROBE 75CD
1	User Defined	SYSTEM SENSOR H	IORN-STROBE 95CD

![](_page_29_Picture_8.jpeg)

![](_page_29_Figure_9.jpeg)

![](_page_29_Picture_10.jpeg)

![](_page_29_Figure_11.jpeg)

Standby	r (amps)	Alarm (amps)		
Each	Total	Each	Total	
0.000000	0.000000	0.041000	0.082000	
0.000000	0.000000	0.111000	0.222000	
0.000000	0.000000	0.164000	0.164000	
Total Standby:	0.00000	Total Alarm:	0.46800	

### POTTER The Symbol of Protection

NAC Circuit Configuration & Voltage Drop (cont'd)					MIDWEST DISTRI	BUTION	9/16/2023
NAC	3	MAX Circ	uit Current (amps):	3	Source	e Voltage Used (VDC):	20.4
Class:	Class B	Usage:	Notific	ation	Description:	СКТ	3
	Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Rec
	#14 Solid	3.19	200	1.276	0.684	19.53	16
	Cir	cuit Devices		Standb	y (amps)	Alarm (a	imps)
Qty	Lookup Type	Desc	ription	Each	Total	Each	Total
3	User Defined	SYSTEM SENSOR H	ORN-STROBE 150CD	0.000000	0.000000	0.228000	0.6840
				Total Standby:	0.00000	Total Alarm:	0.684

NAC 4		MAX Circuit Current (amps): 3		Source Voltage Used (VDC): 20.4			
lass:	Class B	Usage:	Unus	ed	Description:	ckt 4	1
	Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
	#14 Solid	3.19	185	1.180	0.912	19.32	16
	Circuit Devices		Standby	/ (amps)	Alarm (a	Alarm (amps)	
Qty	Lookup Type	Desc	ription	Each	Total	Each	Total
4	User Defined	SYSTEM SENSOR H	IORN-STROBE 150CD	0.000000	0.000000	0.228000	0.912000
	1			Total Standby:	0.00000	Total Alarm:	0.91200

### POTTER The Symbol of Protection

NAC Circuit Configuration & Voltage Drop (cont'd)

NAC 5	;	MAX Circ	cuit Current (amps):	3
Class:	Class B	Usage:	Notific	ation
	Wire Type	Ohms/1000ft	Length 1-Way	Actua
	#14 Solid	3.19	250	1.
	Ciu	rcuit Devices		
Qty	Lookup Type	Desc	ription	Ea
4	User Defined	SYSTEM SENSOR H	IORN-STROBE 150CD	
		User can add devid	ces on the fly	
		to these bottom 5	rows	
		(No lookup functio	n)	
				Total

NAC	6	MAX Cir	cuit Current (amps):	rrent (amps): 3 Source Voltage Used (VDC): 20.4		20.4	
Class:	Class B	Usage:	Notifica	ation	Description:	СКТ	6
	Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amps)	Volts @ EOL	Min Volts Req'd
	#14 Solid	3.19	285	1.818	0.912	18.74	16
	Cir	cuit Devices		Standby	/ (amps)	Alarm (a	imps)
Qty	Lookup Type	Desc	ription	Each	Total	Each	Total
4	User Defined	SYSTEM SENSOR H	IORN-STROBE 150CD	0.000000	0.000000	0.228000	0.91200
		User can add devi	ces on the fly				
		to these bottom 5	rows				
		(No lookup function	on)				
				Total Standby:	0.00000	Total Alarm:	0.9120

AUA	Power	MAX Cir	cuit Current (amps):	3
	Usage:			Desc
	Wire Type	Ohms/1000ft	Length 1-Way	Actual
	#12 Solid	2.01		0.00
	Circ	uit Devices		
Qty	Lookup Type	Desc	cription	Eac
		User can add devi	ces on the fly	
		to these bottom 5	rows	
		(No lookup functio	on)	

![](_page_29_Picture_21.jpeg)

P:816-918-9917 E:tanastasio@apsinstallations.com Spring Hill, Ks

![](_page_29_Picture_23.jpeg)

COURRAN ARCHITECTURE 5719 LAWTON LOOP E. DR. #212 INDIANAPOLIS, IN 46216 O :: 317 . 288 . 0681 F :: 317 . 288 . 0753

![](_page_29_Picture_25.jpeg)

CERTIFICATION

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PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

> X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086

![](_page_29_Picture_30.jpeg)

ISSUE DATES PERMIT SET 08.29.23

> 220018 GENERAL INFORMATION

![](_page_29_Picture_33.jpeg)

	MIDWEST DISTRI	BUTION	9/16/2023	
	Source	Voltage Used (VDC):	20.4	
	Description:	СКТ	5	
nms	Max Load (amps)	Volts @ EOL	Min Volts Req'd	
	0.912	18.95	16	
	()	61		
tandby	(amps)	Alarm (amps)		
00000	10tal	Each	10tal	
00000	0.000000	0.228000	0.912000	
ndby:	0.00000	Total Alarm:	0.91200	

	Source	e Voltage Used (VDC):	20.4	
tion:			]	
			-	
ms	Max Load (amps)	Volts @ Last Device	Min Volts Req'	
	0.000	20.40	16	
andby	/ (amps)	Alarm (amps)		
	Total	Each	Total	

![](_page_30_Figure_0.jpeg)

![](_page_30_Picture_1.jpeg)

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![](_page_30_Picture_3.jpeg)

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PROJECT INFORMATION

X CORNER OF NE TUDOR RD & MAIN ST

LEE'S SUMMIT, MO 64086

NUMBER BO: E-14378 9/17/23

ISSUE DATES PERMIT SET 08.29.23

220018 OFFICE FIRE ALARM LAYOUT

![](_page_30_Picture_10.jpeg)

![](_page_31_Figure_0.jpeg)

# Submittal Catalog

For

# LEE'S SUMMIT LOGISTICS BUILDING B LOT 2

X CORNER OF NE TUDOR RD & MAIN ST LEE'S SUMMIT, MO 64086

Prepared By:

![](_page_32_Picture_5.jpeg)

1

19430 W 200<sup>th</sup> Terr, Spring Hill, Ks 66083 Tel: 816-918-9917

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SILENT KNIGHT SL-RELAY

SYSTEM SENSOR CEILING MOUNT HORN STROBE

SYSTEM SENSOR WALL MOUNT HORN STROBE

![](_page_34_Picture_0.jpeg)

# Addressable Fire Alarm Control Panels

# 6808

Addressable Fire Alarm Control Panel

The 6808 is an addressable fire alarm control panel (FACP) that is a direct replacement for the 5808 FACP. The 6808 can be configured to achieve a point capacity of 198 points. It has one built-in signaling line circuit (SLC), which can support 99 System Sensor<sup>®</sup> (SK) sensors and 99 SK modules or 127 Hochiki<sup>®</sup> (SD) devices per loop.

A common communications and annunciation link allows up to 17 panels to be connected via copper or fiber optic cable. A designated panel is configured as the communicator for all panels in the link for convenient single-point communications. It also has a built-in, dualline POTS and IP communicator with additional cellular options available.

The 6808 system can be enhanced by adding modules such as the 6860 remote annunciator which also has four programmable function buttons to help automate tasks and reduce time spent at the panel.

SWIFT® wireless compatibility provides options for wireless detection through a Class A mesh network. It is ideal for hard-to-wire locations, buildings where new wiring is not allowed, or to provide an easy install fire system for new construction projects. SWIFT devices can be combined with other hard-wired 6808 compatible devices.

The 6808 also has a form-C trouble relay, two programmable form-C relays, along with powerful features such as drift compensation, pretrouble maintenance alert, a built-in sensor test to comply with NFPA 72 calibration testing requirements, and calibration trouble alert.

![](_page_34_Picture_9.jpeg)

6808

The supports a variety of devices, including the 6860, 5860, and 6855 remote annunciators, 5824 serial parallel printer interface module (for printing system reports), the 5496 NAC expander, 5895XL power module, and SK or SD devices.

# FEATURES & BENEFITS

- Capable of providing up to 198 points to satisfy smaller installation needs
- Connect up to 17 panels on one site with convenient singlepoint access using the SK-NIC Network Interface Card. Connected panels can have mixed compatible FACP models
- Convenient field-upgradeable firmware
- Built-in dual path POTS and IP communications with optional cellular models available for reliable backup reporting
- 6860 annunciator with a 4 x 40 large display
- Four userprogrammable buttons minimize time spent executing complex or routine tasks
- Built-in USB interface for convenient and quick programming
- Programmable date setting for automatic and convenient Daylight Saving Time changes
- JumpStart<sup>®</sup> auto programming reduces installation time
- 125 software zones and 125 output groups for flexible design options

### SIGNAL LINE CIRCUIT (SLC)

The 6808 SLC loop supports multiple device types, maintenance alerts, and a built-in sensor test to comply with NFPA 72 calibration testing requirements.

### INDICATOR LIGHTS

- General Alarm (Red): Flashes if in alarm; solid when alarm is silenced
- Supervisory (Yellow): Flashes if a supervisory condition exists; solid when supervisory is silenced
- System Troubles (Yellow): Flashes if a trouble condition exists; solid when trouble is silenced
- System Silenced (Yellow): On when an alarm, trouble or supervisory condition has been silenced but not yet cleared
- System Power (Green): Flashes for AC failure; solid when power systems are normal

### **USER INTERFACE**

The 6808 built-in 4 x 20 annunciator with 80 character LCD display and large easy-to-use tactile touchpad can be used for system operation, programming and maintenance. It has five LEDs for alarm, supervisory, system trouble, system silenced and system power.

System operations include silencing alarms and troubles, resetting alarms and the display of alarm troubles and memory. The system's non-volatile event history buffer stores 1,000 events for viewing from the builtin or remote annunciator. System operations can be initiated with a mechanical firefighter's key or a valid 4- to 7-digit operator's code.

### PROGRAMMING

The 6808 system offers several options to simplify and speed-up programming. JumpStart® auto programming minimizes programming required to start a new system. The built-in keypad, or the 6860, 5860 or 6855 remote annunciators give you on-site access to current system programming. Programming can also be accomplished using the Windows®-based Honeywell Fire Software Suite (HFSS) program.

### SOFTWARE TOOLS

**SKST:** Silent Knight Selection Tool provides the installer or design architect with a Windows® software system configuration tool to create a detailed Bill of Material (BOM) and battery calculations.

HFSS: Honeywell Fire Software Suite provides communication and panel programming, detector status, event history and additional data. Requires a PC running Microsoft® Windows®.

### **ADDITIONAL INFORMATION**

Twisted-unshielded pair wire is recommended.

The 6808 also has 13 preset notification cadence patterns (including ANSI 3.41).

AGENCY LISTINGS AND APPROVALS NPFA 13, NFPA 15, NFPA 16, NFPA 70, NFPA 72: Central station; remote Signaling; Local Protective Signaling Systems; Auxiliary Protected Premises Unit; Water Deluge releasing service. Suitable for automatic, manual, waterflow, sprinkler supervisory (DACT non-coded) signaling services

- UL Listed: S2766
- CSFM: 7165-0559:0502
- FDNY: COA# 6246
- FM approved

### ORDERING INFORMATION

6808: Addressable Fire Alarm Control Panel. (Red cabinet).

### **COMPATIBLE ANNUNCIATORS**

6860: 4x40 LCD remote fire
annunciator (4 lines and up to
160 characters) per system; four
programmable buttons
5860: 4x20 LCD remote fire
annunciator. 5860 is gray; 5860R is red
6855: 4x20 LCD remote fire
annunciator

**5865-3 or 5865-4:** LED annunciators can display up to 30 LEDs (15 red and 15 yellow). The 5865-4 has key switches for silence and reset, and a system trouble LED.

**5880:** LED / IO module has 40 programmable LED outputs and eight supervised dry contact inputs which are useful for custom applications. You can use up to eight 5880 modules on one control panel for maximum flexibility. Its compact size allows mounting inside the annunciator, or in an accessory cabinet.

### 6808 COMPATIBLE DEVICES AND ACCESSORIES

See the data sheets listed below for a complete listing of the SK, SD or SWIFT devices.

53623: SK Devices Data Sheet 53624: SD Devices Data Sheet 350614, 350616 & 350618: SWIFT wireless devices For a complete and current listing of compatible devices and accessories, visit

### www.silentknight.com.

**Important:** You cannot mix SK and SD devices in the same fire alarm system.
#### SK COMPATIBLE ADDRESSABLE DEVICES

**SK-ACCLIMATE:** Multi criteria photoelectric smoke detector with thermal 135°F fixed temperature

**SK-BEAM:** Reflected beam smoke detector without test feature

**SK-BEAM-T:** Reflected beam smoke detector with test feature

SK-CONTROL: Supervised control module SK-CONTROL-6: Six circuit supervised control module

**SK-DUCT:** Photoelectric duct smoke detector with extended air speed range **SK-FIRE-CO:** Four criteria fire and carbon monoxide detector

**SK-HEAT:** Fixed thermal detector (135°F) **SK-HEAT-W:** Fixed thermal detector (135°F), white

**SK-HEAT-ROR:** Fixed rate of rise detector (135°F)

**SK-HEAT-ROR-W:** Fixed rate of rise detector (135°F), white

**SK-HEAT-HT:** Fixed high temperature thermal detector (190°F)

**SK-HEAT-HT-W:** Fixed high temperature thermal detector (190°F), white

SK-ISO: Fault isolator module

SK-MINIMON: Mini monitor module

SK-MONITOR: Monitor module

**SK-MONITOR-2:** Dual input monitor module

SK-MON-10: 10 input monitor module

SK-PHOTO: Photoelectric smoke detector SK-PHOTO-W: Photoelectric smoke detector, white

**SK-PHOTO-T:** Photoelectric smoke detector with thermal (135°F fixed temperature)

**SK-PHOTO-T-W:** Photoelectric smoke detector with thermal (135°F fixed temperature), white

**SK-PHOTOR:** Photoelectric detector with remote test capability

**SK-PHOTO-R-W:** Photoelectric detector with remote test capability, white

**SK-PULL-SA:** Addressable single action pull station

**SK-PULL-DA:** Addressable dual action pull station

SK-RELAY: Addressable relay module SK-RELAY-6: Addressable Six relay control module

**SK-RELAYMON-2:** Addressable Dual relay/monitor module

**SK-ZONE:** Addressable zone interface module

**SK-ZONE-6:** Six zone interface module

B300-6(-IV): 6" base for SK-W Series B210LP: 6" mounting base

B501(-BL,-IV,-WHITE): 4"flangeless base B501: 4" Flangeless mounting base B200S(-IV,-WH): Intelligent sounder base B200S: Intelligent sounder base B200S-LF(-IV,-WH): Low-Frequency intelligent sounder base B200S-LF: Low-frequency intelligent sounder base B224RB(-IV,-WH): Relay base B224RB: Relay base B224BI(-IV,-WH): Isolator base B224BI: Isolator base

## SD COMPATIBLE ADDRESSABLE DEVICES

**SD505-6AB:** Addressable 6" base **SD505-6IB:** Addressable 6" short circuit isolator base

SD505-6RB: Addressable 6" relay base SD505-6SB: Addressable 6" sounder base SD500-AIM: Addressable input module (switch input)

**SD500-ANM:** Addressable notification module

**SD500-ARM:** Addressable relay module **SD505-DTS-K:** Remote test switch and LED indicator for the SD505-DUCTR

**SD505-DUCT:** Addressable Duct Smoke Detector.

**SD505-DUCTR:** Addressable Duct Detector housing with relay base.

**SD505-HEAT:** Absolute temperature heat detector. Trip point range from 135°F–150°F (0°C–37°C).

**SD500-LIM:** Addressable Line isolator module

**SD500-MIM:** Addressable Mini input monitor module (switch input)

**SD505-PHOTO:** Photoelectric smoke detector

**SD500-PS/-PSDA:** Addressable Single or dual action pull station

**SD500-SDM:** Addressable smoke detector module

#### AUDIBLE/VISIBLE DEVICES

These AV devices are all 2-wire. Color: "R" indicates red; "W" denotes white. For a complete listing of Silent Knight AV devices go to www.silentknight.com.

CHSRL/CHSWL: Wall chime/strobe CHSCRL/CHSCWL: Ceiling chime/strobe CHRL/CHWL: Wall chime HRL/HWL: Wall horn P2RL/P2WL: Wall horn/strobe PC2RL/PC2WL: Ceiling horn/strobe SRL/SWL: Wall strobe SCRL/SCWL: Ceiling strobe SPSRL/SPSCWL: Ceiling speaker/strobe SPSRL/SPSWL: Wall speaker SPCRL/SPCWL: Ceiling speaker

#### SWIFT WIRELESS DEVICES

SWIFT is only compatible with System Sensor (SK) devices. It is not compatible with Hochiki (SD) devices. WSK-WGI: Wireless Gateway

**WSK-PHOTO:** Wireless Photoelectric smoke detector

**WSK-PHOTO-T:** Wireless Multi-criteria photoelectric smoke detector with thermal detection (135°F fixed temperature) and B510W 4" base

**WSK-HEAT:** Wireless Heat, (135°F fixed temperature) and B510W 4" base

WSK-HEAT-ROR: Wireless heat, ROR (135°F fixed temperature) and B510W 4" base

WSK-MONITOR: Wireless monitor module WSK-RELAY: Wireless relay module

**W-USB:** SWIFT Tools USB transceiver used for communication with SWIFT devices

#### SBUS ACCESSORIES

**5496:** A 6 amp notification power expander with four power-limited notification appliance circuit outputs.

**5883:** Relay Interface. Provides 10 Form C relays.

**5824:** Serial/Parallel Printer Interface Module for printer connection.

**5895XL:** Power Supply with six Flexput<sup>™</sup> circuits, and two Form C relays. Max. 16 per system.

**5815RMK:** Remote mounting kit. Dimensions: 10 3/8"W x 10-3/16"H x 3"D

### **COMMUNICATION OPTIONS**

**CELL-CAB-SK:** Cellular communicator, metal enclosure with lock/key\*

**CELL-MOD:** Cellular communicator, plastic enclosure\*

\*Sole path, powered by panel.

**IPGSM-4G:** Dual path fire alarm communicator, cellular and/or IP (primary or backup, selectable)

**SK-IP-2:** Remote reporting via the Internet. Requires a VisorAlarm<sup>®</sup> receiver at the central station

#### MISC. ACCESSORIES

**SK-NIC:** Network Interface Card. Provides a common communications link for the 6808.

SK-NIC-KIT: Installation Accessory Kit SK-FML: Fiber-Optic Multi Mode, transmitter and receiver

SK-FSL: Fiber-Optic Single Mode

**RBB:** Remote battery box accessory cabinet for batteries that are too large to fit in the FACP cabinet. Dimensions: 16" W x 10" H x 6" D (406mm W x 254mm H x 152mm D).

**SK-SCK:** Seismic Compliance Kit used to securely fasten batteries to the fire panel.

## 6808 Technical Specifications

#### PHYSICAL

Overall Dimensions: 16.36"W x 26.37"H x 3.91"D Shipping Weight: 32 lbs. Color: Red

#### ENVIRONMENTAL

**Operating Temperature:** 32°F to 120°F (0°C to 49°C) **Humidity:** 0 to 93% relative humidity (non-condensing)

#### ELECTRICAL

6808 Primary AC: 120 VAC @ 60Hz, 3.3A Total Accessory Load: 6A @ 27.4VDC power-limited Standby Current: 190mA Alarm Current: 250mA Battery Charging Capacity: 7 to 35AH Battery Size: 7AH to 18AH max. allowed in control panel cabinet. Larger capacity batteries can be housed in RBB accessory cabinet.

#### **NOTIFICATION APPLIANCE CIRCUITS (NACs)**

## Four programmable circuits which can be programmed individually as:

NACs: 3A @ 27.4VDC per circuit, power-limited (with a maximum current of 6A)

Auxiliary Power Circuits: 3A @ 27.4VDC per circuit, power-limited

Supports Class B (Style 4) and Class A (Style 6 or 7) configuration for the SLC  $\,$ 

WIRING: See the product manual for wiring details

Flexput<sup>®</sup>, Honeywell<sup>®</sup>, JumpStart<sup>®</sup>, Silent Knight<sup>®</sup>, SWIFT<sup>®</sup>, and System Sensor<sup>®</sup> are registered trademarks of Honeywell International Inc.

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This document is not intended to be used for installation purposes. We try to keep our product information up-to date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For Technical Support, call 800-446-6444.

#### Honeywell Silent Knight

12 Clintonville Road Northford, CT 06472 800-328-0103



# **PSN-106, PSN-64, PSB-10** Installation, Operation, and Instruction Manual





POTTER ELECTRIC SIGNAL COMPANY, LLC St. Louis, MO (866) 956-1211 • (314) 595-6900 • FAX (314) 595-6999 www.pottersignal.com

> Manual #5403590–Rev. A 12/09

PSN-106, PSN-64, PSB-10 • 5403590 • REV A • 12/09

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# Section 1: PSN-106 Installation, Operation, and Instruction Manual

# Notification Power Supplies

(All specifications subject to revision.)

## **WARNING**

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

## **General Description**

The Potter PSN series of power supplies is designed to provide the power and flexibility needed for the most demanding fire system installations. The PSN-106 is a 10 Amp 24Vdc switch mode power supply design which is up to 50% more efficient than linear mode supplies the PSN series is your best choice for powering fire system notification appliances and accessories. New and retrofit construction requirements for ADA compliance are easily accomplished with ample power for additional notification appliances along with the ability to synchronize the notification appliances using built in sync generation for Potter, System Sensor ®, Gentex® and Wheelock ® notification appliances. The PSN series goes even further to make retrofits easier with the advanced QuadraSync feature which allows notification appliances from different manufacturers to sync with each other. You also have the option to monitor an existing circuit by placing a reference resistor of the same value on the power supply and continuing to monitor the circuit without changing the field EOL.

## **System Features**

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 24VDC @ 10A
- Six class "B" Style "Y" notification circuits on the PSN-106
  - Rated at 3 amps max each
  - Can be configured as up to three class "A" Style "Z" notification circuits
  - Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
  - Two Trouble Relays (5A at 30VDC)
    - General System Trouble (programmable for AC delay via dip-switch)
    - Low AC Trouble
- Diagnostic LED's
  - Status LED's for Active NAC and NAC trouble conditions
  - Status LED's for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
  - Trouble Memory feature captures troubles which have previously restored.
- Synchronized notification appliance circuits
  - Potter
  - Wheelock®
  - Gentex®
  - System Sensor®
- Configurable output circuits (D.I.P. switch sets options for each circuit)
  - ANSI temporal-coded
  - Constant Power
  - Door-Holder Power
- Separate DC Power Output (3A)
- Two Trigger Inputs (Class A, Style Z or Class B, Style Y)
- Reference EOL terminals, allows 2K 27K EOL value to be used
- QuadraSync panel wide synchronization of same or multiple brands.
- PassThru mode copies input signals to output (can be used in conjunction with QuadraSync

## **Mounting Instructions**

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept <sup>1</sup>/<sub>4</sub> inch diameter screws maximum. There are seven knock outs provided.

## **Operating Instructions**

## Alarm Condition

### Notification Appliance Circuit:

Alarm devices operate in unison with the Trigger inputs from the main Fire Alarm Control Panel (FACP). When activated by the corresponding trigger input the associated Notification Appliance Circuit (NAC) will reverse polarity from a supervision state to the alarm state and supply power to the associated notification appliances until the trigger is removed. Each activated NAC will also power the L.E.D. associated with it, the L.E.D. will follow the steady or pulsing state of the NAC. The alarm-activated outputs are reset through the operation of the reset function of the Main FACP.

## Trouble Condition

## NOTICE

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time

## Notification Appliance Circuit:

If a trouble occurs on a NAC the associated L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

## DC Power Circuit:

If a trouble occurs on the DC Power output the DC L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### AC:

When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

### Low Battery:

When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Ground Fault:

When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Communication Trouble:

If the Bulk Power Supply and Control Board lose communication with each other the Comm L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Standby Operation

### Notification Appliance Circuit:

When in standby operation the NAC will be in the reversed supervision polarity and the associated L.E.D. will be off. Exception: When the NAC is programmed to be an DC Power Output the associated L.E.D. will be on during normal standby operation.

#### DC Power Circuit:

When in standby operation the DC Power will be on and the DC Power L.E.D. will be illuminated.

## AC:

When in normal operation the AC Power L.E.D. will be on steady.

#### Low Battery:

When in normal operation the Low Battery L.E.D. will be off.

Ground Fault: When in normal operation the Ground Fault L.E.D. will be off

#### Communication

When in normal operation the Comm L.E.D. will flash occasionally to indicate normal communication traffic is occurring.

## Testing and Maintenance

System Testing should be performed periodically to insure proper operation. Test the indicating circuits by initiating an alarm or test at the Main FACP. Test for proper operation by actuating the notification appliance circuit the PSN-106 is monitoring. Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

## **Battery Maintenance**

The PSN-106 should be tested at least once a year for proper operation as follows:

*Output Voltage Test*: Under normal load conditions, the DC output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).

*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires. Note: Maximum charging current is 1 Amp.

Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

Input Voltage	120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz	
Input Trigger	8 VDC to 33 VDC (15 ma) filtered or full wave rectified. Polarity reversal or continuous voltage	
Output Voltage	24 VDC @ 10 Amps	
Notification Outputs	24 VDC 3.0 Amps Maximum, Polarity Reversal	
DC Power	3.0 Amps	
Total System Current	PSN-106 = 10 Amps (total system load from all output circuits must not exceed 10 amps total_	

## **Electrical Operating Characteristics**

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

## **Notification Power Supply**



Primary AC

120VAC 50Hz~60Hz, 5.1AMP Min Low AC Detect 97VAC 240VAC 50~60Hz 2.5AMP Min Low AC Detect 190VAC

Common Relays 3A @ 125VAC (Resistive) 3A @ 30VDC (Resistive)

Battery Charging 27.3VDC @ 1A Low Battery Detect @20.4VDC

Earth Fault to Any Terminal 0 Ohms

Notification Appliance Circuits 1-6 24VDC @3A Power Limited Regulated Synchronization supported on NAC 1-6

DC Power Circuit 20.4VDC - 27.3VDC @3A Power Limited Special Application RSG-DH1224 Listed Door Holder

Fuse Specification 8A-250VAC Time-Lag

Note: Total current draw from NAC 1-6 and DC Power must not exceed 10 amps.

### F.C.C.

This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions: 1. This device may not cause radio interference.

2. This device must accept any interference received including any that may cause undesired operation.

#### Requirements

System must be fully tested after installation. Intended for indoor use in dry locations only. Separation of power limited wiring from non-power limited wiring must be at least 1/4".

For proper operation the voltage drop to the farthest connected device must not exceed 3 volts. This can be calculated using the following formula:

(Alarm Current of Notification Appliances)

X	(Wire Resistance)
	< 3 volts

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

## Wiring Options

## Class B Trigger and Class B Notification Circuit Trigger

Class B Style Y Trigger and Class B Style Y Notification Circuit Trigger inputs IN1 & IN2 can be connected to a Class B Style Y NAC trigger circuit as shown below. The PSN-106 provides 6 Class B Style Y NAC circuits, each rated for 3 amps. Each NAC circuit is individually selectable for Class A Style Z/ Class B Style Y operation, refer to the Dip Switch Programming for information on dip switch programming.



## Class A Trigger and Class A Notification Circuit

Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-106 provides 3 Class A NAC circuits, each rated for 3 amps. Each NAC circuit is individually selectable for Class A/B operation, refer to the Dip Switch Programming section for information on dip switch programming.



## Class B - Multiple Supply Trigger

A single Class B Style Y trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed from the triggering FACP and the last supply in the chain. The EOL resistor is located on the last supply in the chain.



## Class A - Multiple Supply Trigger

A single Class A Style Z trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A total wiring distance of 10,000 feet is allowed from the triggering FACP to the last supply in the chain (including the return wiring).



## Pass Thru Mode

The NAC output of the PSN-106 can be used to trigger additional supplies. Up to 3 supplies maximum can be configured in this manner. Full system synchronization is maintained. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed between each supply.



## Wire Routing

A minimum of ¼ inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing



## **Reference EOL**

The PSN-106 uses a standard 5.1k EOL resistor (Potter part number 3005013).

In retrofit applications where a value other than 5.1k is already in use, a reference EOL input is provided. Simply connect a matching EOL resistor to the reference EOL input. All NAC wiring will then be supervised based on this value. Any EOL value from 2.0k to 27k can be used.

If no reference EOL is connected, 5.1k is assumed.

## **Dip Switch Programming**

			WARN		NG		
Remove	power	before	servicing	or	changing	DIP	switch
programi	ming sel	lections					

Input Trigger Type

(Selects the behavior of trigger inputs.)

- <u>Normal Trigger</u>: Trigger input is sampled at a high rate. Used for simple DC triggers, as well as for sync follow and pass-thru mode. A NAC configured as constant output will follow triggered and immediately activate.
- <u>Slow Debounce (Slow Trigger)</u>: Allows a non-standard trigger signal to be used for activation. The slower response allows the outputs to remain active when the trigger signal is changing. This trigger will operate with ANSI Temporal Code 3.
- <u>Synchronization Triggers (Potter, Gentex®, Wheelock®, System Sensor®)</u>: Used with QuadraSync to maintain synchronization of devices from different manufacturers.



## Bulk Supply Options

## AC Report Delay:

Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

## Supervision:

This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options

$1 \qquad \qquad$	
Supervision	
OFF = Bulk with NAC ON = Bulk only	
AC Delay	
OFF OFF = 1 Hour ON OFF = 3 Hours OFF ON = 6 Hours ON ON = 30 Hours	
DWG# 3590-1	

## Class A/B Selection

Each pair of NACs can be individually configured for class A/B operation. When class A is selected, the individual NAC options for the first NAC in the pair will apply. For example, is the circuit pair 1&2 is programmed for class A operation, then only the individual NAC option dip switch for circuit 1 will be used.

## Door Holder AC Dropout delay

If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If "No doorholder dropout on AC Loss" is selected, door holder power will drop out in response to an alarm condition only.

## DC Power Output is Door Holder

Specifies whether the DC power output will act as door holder power. If selected, the DC power will drop out in response to an alarm condition and optionally a low AC condition.

### Trouble Memory Enabled

When enabled, any trouble conditions will be stored in memory after the condition has been corrected. Stored trouble conditions are indicated on the LED associated with the original trouble condition.



## **Individual NAC Options**

Conditions for activating each NAC are individually programmed. Trigger Selection: specifies which trigger input(s) to respond to.

- Trigger 1: NAC will activate when Trigger 1 is activated
- Trigger 2: NAC will activate when Trigger 2 is activated
- <u>Trigger 1 or Trigger 2</u>: NAC will activate when either Trigger 1 or Trigger 2 is activated.
- <u>Combo</u>: Can be used to separately control horns & strobes when used with one of the supported synchronization protocols. If Trigger 1 is present, both horns and strobes will be activated. If only Trigger 2 is present, horns will be disabled, and strobes will be activated.
- <u>Follow DC Power</u>: When selected, the NAC will exactly follow the activation/deactivation of the DC power output. Can be used to create additional door-holder power circuits.
- <u>Always ON</u>: Used to create a constant ON power output.
- <u>Unused</u>: NAC circuit will be unused .
- <u>Output Selection</u>: Specifies the output pattern to be generated when the output is activated.



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## **Indicator LED Behavior**

The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- <u>NAC Led</u>: Fast Flashing = NAC trouble (EOL missing, EOL shorted, or current limit condition)
- <u>NAC Led</u>: Solid or Pattern = NAC active. LED will follow pattern of NAC
- <u>Comm</u>: Used only to indicate supervision activity between bulk and control boards.

If the trouble memory option is enabled (Trouble Memory dip switch option on) the LEDs indicate if any previous trouble conditions are stored in memory.

Example: Suppose Trouble Memory is enabled and a NAC circuit EOL is detected as missing. While the EOL is missing, the LED associated with the NAC will flash continuously to indicate the trouble. If the EOL is replaced and the trouble condition is no longer present, the LED will begin issuing the trouble memory flash. This flash indicates that a trouble existed previously, but is no longer present. The trouble memory indication consists of two short flashes issued once per second.

Clear/reset Trouble Memory by setting the Trouble Memory dip switch off, and then back on to enable the feature.



DWG# 3590-17

The bulk supply board contains four indicator LEDs:

- <u>AC Power</u>: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- <u>Earth Ground Fault</u>: Flashing = Earth fault detected.
- <u>Comm</u>: Used only to indicate supervision activity between bulk and control boards (about one per second).



DWG# 3590-18

## **Battery Calculation Worksheet**

Standby current for the PSN-106 is 75 milli-amps.

Service Use	Standby Time	Alarm Time	
NFPA 72 • Central Station (PPU) • Local	24 hours 24 hours	5 minutes 5 minutes	

## **Secondary Power Supply Requirements Table**

## **Calculation Table**

1	2	3	4	5	6
Module/Device	Quantity	Standby mA Per Unit	Total Standby Current	Alarm mA Per Unit	Total Alarm Current
PSN-106	1	75	75	75	75
		Total mA		Total mA	
		Convert to A	x 0.001	Convert to A	x 0.001
* Refer to Maximur	n allowable	standby current)Total A		Total A	
`		Multiply by hours	X	5 min/12 or 10 min/6	÷
		Total Standby AH		Total Alarm AH	
				+ Total Standby AH	
				Total AH	
Us	e a battery	with a higher AH rating t	han Required AH	Efficiency Factor	÷ 0.85
* Maximum Allow	able Stand	hy Current (24 hour sto	ndby time)	Required AH	

## \* Maximum Allowable Standby Current (24-hour standby time)

Battery Size	UL 24-hour	ULC 24-hour
7 AH	.213 Amps	.213 Amps
18 AH	.603 Amps	.603 Amps
33 AH	1.134 Amps	.603 Amps
55 AH	1.913 Amps	.603 Amps

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# Section 2: PSN-64 Installation, Operation, and Instruction Manual

# Notification Power Supplies

(All specifications subject to revision.)

## **WARNING**

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

## **General Description**

The Potter PSN series of power supplies is designed to provide the power and flexibility needed for the most demanding fire system installations. The PSN-64 is a 6 Amp 24VDC switch mode power supply design which is up to 50% more efficient than linear mode supplies the PSN series is your best choice for powering fire system notification appliances and accessories. New and retrofit construction requirements for ADA compliance are easily accomplished with ample power for additional notification appliances along with the ability to synchronize the notification appliances using built in sync generation for Potter, System Sensor ®, Gentex® and Wheelock ® notification appliances. The PSN series goes even further to make retrofits easier with the advanced QuadraSync feature which allows notification appliances from different manufacturers to sync with each other. You also have the option to monitor an existing circuit by placing a reference resistor of the same value on the power supply and continuing to monitor the circuit without changing the field EOL.

## **System Features**

•

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 24VDC @ 6A
- Four class "B" initiating circuits on the PSN-64
  - Rated at 3 amps max each
  - Can be configured as up to two class "A" Style "Z" notification circuits
  - Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
  - Two Trouble Relays (5A at 30VDC)
    - General System Trouble (programmable for AC delay via dip-switch)
    - Low AC Trouble
- Diagnostic LED's
  - Status LED's for Active NAC and NAC trouble conditions
  - Status LED's for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
  - Trouble Memory feature captures troubles which have previously restored.
- Synchronized notification appliance circuits
  - Potter
  - Wheelock®
  - Gentex®
  - System Sensor®
  - Configurable output circuits (D.I.P. switch sets options for each circuit)
    - ANSI temporal-coded
    - Constant Power
    - Door-Holder Power
- Separate DC Power Output (3A)
- Two Trigger Inputs (Class A, Style Z or Class B, Style Y)
- Reference EOL terminals, allows 2K 27K EOL value to be used
- QuadraSync panel wide synchronization of same or multiple brands.
- PassThru mode copies input signals to output (can be used in conjunction with QuadraSync

## **Mounting Instructions**

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept ¼ inch diameter screws maximum. There are seven knockouts provided.

## **Operating Instructions**

## Alarm Condition

### Notification Appliance Circuit:

Alarm devices operate in unison with the Trigger inputs from the main Fire Alarm Control Panel (FACP). When activated by the corresponding trigger input the associated Notification Appliance Circuit (NAC) will reverse polarity from a supervision state to the alarm state and supply power to the associated notification appliances until the trigger is removed. Each activated NAC will also power the L.E.D. associated with it, the L.E.D. will follow the steady or pulsing state of the NAC. The alarm-activated outputs are reset through the operation of the reset function of the Main FACP.

## Trouble Condition

## NOTICE

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time.

## Notification Appliance Circuit:

If a trouble occurs on a NAC the associated L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

## DC Power Circuit:

If a trouble occurs on the DC Power output the DC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

## AC:

When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

### Low Battery:

When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Ground Fault:

When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Communication Trouble:

If the Bulk Power Supply and Control Board loose communication with each other the Comm L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

### Standby Operation

### Notification Appliance Circuit:

When in standby operation the NAC will be in the reversed supervision polarity and the associated L.E.D. will be off. Exception: When the NAC is programmed to be an DC Power Output the associated L.E.D. will be on during normal standby operation.

### DC Power Circuit:

When in standby operation the DC Power Circuit will be on and the DC Power L.E.D. will be illuminated.

## AC:

When in normal operation the AC Power L.E.D. will be on steady.

Low Battery: When in normal operation the Low Battery L.E.D. will be off.

Ground Fault: When in normal operation the Ground Fault L.E.D. will be off

Communication When in normal operation the Comm L.E.D. will flash occasionally to indicate normal communication traffic is occurring.

## Testing and Maintenance

System Testing should be performed periodically to insure proper operation. Test the indicating circuits by initiating an alarm or test at the Main FACP. Test for proper operation by actuating the notification appliance circuit the PSN-64 is monitoring. Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

## **Battery Maintenance**

The PSN-64 should be tested at least once a year for proper operation as follows:

*Output Voltage Test*: Under normal load conditions, the DC Power output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).

*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires. Note: Maximum charging current is 1 amp.

Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

Input Voltage	120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz	
Input Trigger	8 VDC to 33 VDC (15 ma) filtered or full wave rectified. Polarity reversal or continuous voltage	
Output Voltage	24 VDC @ 6 Amps	
Notification Outputs	24 VDC 3.0 Amps Maximum, Polarity Reversal	
DC Power	3.0 Amps	
Total System Current	PSN-64 = 6 Amps (total system load from all output circuits must not exceed 6 amps total)	

## **Electrical Operating Characteristics**

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

## **Notification Power Supply**



Battery connection (non-power limited). Use two (2) 12V batteries connected in serie

#### Primary AC

- 120VAC 50Hz~60Hz, 5.1AMP Min Low AC Detect 97VAC 240VAC 50~60Hz 2.5AMP Min Low AC Detect 190VAC
- Common Relays 3A @ 125VAC (Resistive) 3A @ 30VDC (Resistive)

Battery Charging 27.3VDC @ 1 A Low Battery Detect @20.4VDC

Earth Fault to Any Terminal 0 Ohms

Notification Appliance Circuits 1-4 27.3VDC @3A Power Limited Regulated Synchronization supported on NAC 1-4

DC Power Circuit 20.4VDC - 27.3VDC @3A Power Limited Special Application RSG-DH1224 Listed Door Holder

Fuse Specification 8A-250VAC Time-Lag

Note: Total current draw from NAC 1-4 and DC Power must not exceed 6 amps.

#### F.C.C.

This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:1. This device may not cause radio interference.2. This device must accept any interference received including any that may cause undesired operation.

#### Requirements

System must be fully tested after installation. Intended for indoor use in dry locations only. Separation of power limited wiring from non-power limited wiring must be at least 1/4".

For proper operation the voltage drop to the farthest connected device must not exceed 3 volts. This can be calculated using the following formula:

(Alarm Current of Notification Appliances)

(Wire Resistance) Х < 3 volts

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

## Wiring Options

## Class B Trigger and Class B Notification Circuit Trigger

Class B Style Y Trigger and Class B Style Y Notification Circuit Trigger inputs IN1 & IN2 can be connected to a Class B Style Y NAC trigger circuit as shown below. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated for 3 amps. The PSN-64 provides 4 Class B Style Y NAC circuit is individually selectable for Class A Style Z/ Class B Style Y operation, refer to the Dip Switch Programming section for information on dip switch programming.



## Class A Trigger and Class A Notification Circuit

Trigger inputs IN1 & IN2 can be connected to a class A NAC trigger circuit as shown below. The PSN-64 provides 3 Class A Style Z NAC circuits, each rated for 3 amps. The PSN-64 provides 4 Class B Style Y NAC circuits, each rated at 3 amps. Each NAC circuit is individually selectable for Class A Style Z/Class B Style Y operation, refer to the Dip Switch Programming section for information on dip switch programming.



## Class B - Multiple Supply Trigger

A single Class B Style Y trigger can be used to activate multiple supplies as shown below. The EOL resistor is located on the last supply in the chain. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed from the triggering FACP and the last supply in the chain.



## Class A - Multiple Supply Trigger

A single Class A Style Z trigger can be used to activate multiple supplies as shown below. The minimum wire gauge between supplies is 18 AWG. A total wiring distance of 10,000 feet is allowed from the triggering FACP to the last supply in the chain (including the return wiring).



## Pass Thru Mode

The NAC output of the PSN-64 can be used to trigger additional supplies. Up to 3 supplies maximum can be configured in this manner. Full system synchronization is maintained. The minimum wire gauge between supplies is 18 AWG. A maximum wiring distance of 10,000 feet is allowed between each supply.







## Wire Routing

A minimum of <sup>1</sup>/<sub>4</sub> inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing



## **Reference EOL**

The PSN-64 uses a standard 5.1k EOL resistor (Potter part number 3005013).

In retrofit applications where a value other than 5.1k is already in use, a reference EOL input is provided. Simply connect a matching EOL resistor to the reference EOL input. All NAC wiring will then be supervised based on this value. Any EOL value from 2.0k to 27k can be used.

If no reference EOL is connected, 5.1k is assumed.

## **Dip Switch Programming**



Input Trigger Type

(Selects the behavior of trigger inputs.)

- <u>Normal Trigger</u>: Trigger input is sampled at a high rate. Used for simple DC Power triggers, as well as for sync follow and pass-thru mode. A NAC configured as constant output will follow triggered and immediately activate.
- <u>Slow Debounce (Slow Trigger)</u>: Allows a non-standard trigger signal to be used for activation. The slower response allows the outputs to remain active when the trigger signal is changing. This trigger will operate with ANSI Temporal Code 3.
- <u>Synchronization Triggers (Potter, Gentex®, Wheelock®, System Sensor®)</u>: Used with QuadraSync to maintain synchronization of devices from different manufacturers.



### **Bulk Supply Options**

### AC Report Delay:

Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

#### Supervision:

This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options



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## Class A/B Selection

Each pair of NACs can be individually configured for class A/B operation. When class A is selected, the individual NAC options for the first NAC in the pair will apply. For example, is the circuit pair 1&2 is programmed for class A operation, then only the individual NAC option dip switch for circuit 1 will be used.

## Door Holder AC Dropout delay

If the DC power output is used as door holder power, it can be configured to drop out in response to a low AC condition in order to minimize standby current. To minimize nuisance conditions a selectable AC dropout delay is provided. If "No doorholder dropout on AC Loss" is selected, door holder power will drop out in response to an alarm condition only.

## DC Output is Door Holder

Specifies whether the DC power output will act as door holder power. If selected, the DC power will drop out in response to an alarm condition and optionally a low AC condition.

## Trouble Memory Enabled

When enabled, any trouble conditions will be stored in memory after the condition has been corrected. Stored trouble conditions are indicated on the LED associated with the original trouble condition.



## **Individual NAC Options**

Conditions for activating each NAC are individually programmed. Trigger Selection: specifies which trigger input(s) to respond to.

- <u>Trigger 1</u>: NAC will activate when Trigger 1 is activated
- Trigger 2: NAC will activate when Trigger 2 is activated
- <u>Trigger 1 or Trigger 2</u>: NAC will activate when either Trigger 1 or Trigger 2 is activated.
- <u>Combo</u>: Can be used to separately control horns & strobes when used with one of the supported synchronization protocols. If Trigger 1 is present, both horns and strobes will be activated. If only Trigger 2 is present, horns will be disabled, and strobes will be activated.
- <u>Follow DC Power</u>: When selected, the NAC will exactly follow the activation/deactivation of the DC power output. Can be used to create additional door-holder power circuits.
- <u>Always ON</u>: Used to create a constant ON power output.
- <u>Unused</u>: NAC circuit will be unused .
- <u>Output Selection</u>: Specifies the output pattern to be generated when the output is activated.



DWG# 3590-11

## **Indicator LED Behavior**

The NAC control board contains an indicator LED for each NAC circuit and a comm LED:

- <u>NAC Led</u>: Fast Flashing = NAC trouble (EOL missing, EOL shorted, or current limit condition)
- <u>NAC Led</u>: Solid or Pattern = NAC active. LED will follow pattern of NAC
- <u>Comm</u>: Used only to indicate supervision activity between bulk and control boards.

If the trouble memory option is enabled (Trouble Memory dip switch option on) the LEDs indicate if any previous trouble conditions are stored in memory.

Example: Suppose Trouble Memory is enabled and a NAC circuit EOL is detected as missing. While the EOL is missing, the LED associated with the NAC will flash continuously to indicate the trouble. If the EOL is replaced and the trouble condition is no longer present, the LED will begin issuing the trouble memory flash. This flash indicates that a trouble existed previously, but is no longer present. The trouble memory indication consists of two short flashes issued once per second.

Clear/reset Trouble Memory by setting the Trouble Memory dip switch off, and then back on to enable the feature.



The bulk supply board contains four indicator LEDs:

- <u>AC Power</u>: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- <u>Earth Ground Fault</u>: Flashing = Earth fault detected.
- <u>Comm</u>: Used only to indicate supervision activity between bulk and control boards (about one per second).
- AC Power
- Low Battery
- Gnd FaultComm
- DWG# 3590-18
### **Battery Calculation Worksheet**

Standby current for the PSN-64 is 75 milli-amps.

Service Use	Standby Time	Alarm Time		
NFPA 72 • Central Station (PPU) • Local	24 hours 24 hours	5 minutes 5 minutes		

#### **Secondary Power Supply Requirements Table**

#### **Calculation Table**

1	2	3	4	5	6
Module/Device	Quantity	Standby mA Per Unit	Total Standby Current	Alarm mA Per Unit	Total Alarm Current
PSN-64	1	75	75	75	75
		Total mA		Iotal mA	
		Convert to A	x 0.001	Convert to A	x 0.001
* Refer to Maximur	n allowable	standby current)Total A		Total A	
		Multiply by hours	X	5 min/12 or 10 min/6	÷
		Total Standby AH		Total Alarm AH	
				+ Total Standby AH	
				Total AH	
				Efficiency Factor	÷ 0.85
	Use a batte	ery with a higher AH ratir	ng than Required AH	Required AH	
* Maximum Allow					

Battery Size	UL 24-hour	ULC 24-hour
7 AH	.213 Amps	.213 Amps
18 AH	.603 Amps	.603 Amps
33 AH	1.134 Amps	.603 Amps
55 AH	1.913 Amps	.603 Amps

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# Section 3: PSB-10 Installation, Operation, and Instruction Manual

Bulk Power Supplies

# **WARNING**

The fire alarm system employing this power supply must be designed by people trained and competent in the design and layout of fire alarm systems. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the POTTER FIRE POWER SUPPLY. Competent people would be aware of these warnings, limitations, and requirements.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the POTTER FIRE POWER SUPPLY. It is imperative that this manual be completely read and understood before the installation or programming of the power supply. Save this manual for future reference.

#### **General Description**

The Potter PSB series of Bulk power supplies provides continuous power to devices which require 24VDC power. The PSB supply features an efficient switch mode power supply design which is up to 50% more efficient than linear mode supplies. The PSB is used whenever power is needed to power a device which requires up to 10 amps continuously (PSB-10), which is best accomplished by mounting the PSB near the load being serviced, this minimizes voltage drops caused by long cable lengths. Backup power is provided via batteries which can range in size from 7-55 Ahr (17Ahr in cabinet, larger batteries require accessory battery box). Battery integrity is monitored via the built in charger which features a low battery cut-off circuit to protect against damage to the batteries during deep discharge.

#### **Product Features**

- Input voltage: 120/240VAC 50/60Hz
- Output voltage 27.3VDC @10A
- Supervised Battery Charger: 27.3 @ 1A (supports 7-55 Ahr batteries)
- Integrated battery cut-off circuitry to protect batteries from deep discharge
- Two Common Trouble Relays (5A at 30VDC)
  - General System Trouble (programmable for AC delay via dip-switch)
- Low AC Trouble
- Diagnostic LED's
  - Status LED's for Active NAC and NAC trouble conditions
  - Status LED's for Earth Fault (Amber), AC (Green), Battery Fault (Amber)
- Trouble Memory feature captures troubles which have previously restored.

#### **Mounting Instructions**

The standard mounting is a surface mount cabinet. The unit must be securely attached to a permanent partition using suitable fasteners. Five mounting holes are provided to accept ¼ inch diameter screws maximum. There are seven knockouts provided.

#### **Operating Instructions**

#### Normal Operation

The PSB-10 provides constant power to the devices which are connected to it. In the event of a loss of AC the PSB-10 will switch to battery backup and indicate a trouble condition.

#### Trouble Condition

### NOTICE

If the trouble memory feature has been enabled the L.E.D. will provide two brief pulses every second to indicate a trouble condition has occurred but is now restored. This can be useful when troubleshooting brief trouble conditions that come and go over a period of time.

AC:

When the Power supply detects the A.C. power input has fallen below an acceptable level the AC Power L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type and after a programmed delay the Low AC relay will also activate. When the trouble condition has been restored the L.E.D. and trouble relays will return to their normal state. (See notice.)

#### Low Battery:

When the Power supply detects the Battery is no longer functioning properly the Low Battery L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

Ground Fault:

When the Power supply detects a ground Fault condition which indicates a short between the Power Supply ground and the Earth Ground circuits the Ground Fault L.E.D. will flash at a 50% rate to indicate a trouble condition, the trouble relay will also activate during a trouble condition of this type. When the trouble condition has been restored the L.E.D. and trouble relay will return to their normal state. (See notice.)

#### Testing and Maintenance

System Testing should be performed periodically to insure proper operation. Standby batteries and AC transfer are tested by interrupting the AC power line while an alarm condition exists.

#### **Battery Maintenance**

The PSB-10 should be tested at least once a year for proper operation as follows:

*Output Voltage Test*: Under normal load conditions, the DC output voltage should be checked for proper voltage level. Refer to the Power Supply Output Specifications Chart).

*Battery Test*: Under normal load conditions, check that the battery is fully charged. Check specific voltage both at the battery terminal and at the board terminals marked [+BAT-] to ensure there is no break in the battery connection wires. Note: Maximum charging current is 1 amp.

Note: Expected battery life is 5 years; however it is recommended changing batteries in 4 years or less if needed.

#### **Electrical Operating Characteristics**

Input Voltage	120 VAC @ 5.1 Amps or 240 VAC @ 2.5 Amps (Jumper selected) 50/60 Hz
Output Voltage	24 VDC @ 10 Amps
Total System Current	PSB-10 = 10 Amps

The system uses a "Sealed Lead Acid" or "Gel-Cell" type of battery with a capacity of from 7 to 55 amp-hours. Fuse must be replaced with same size and rating (8A-250VAC, Time Lag).

#### Wire Routing

A minimum of <sup>1</sup>/<sub>4</sub> inch separation must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring. See illustration for suggested wire routing



**Note:** The output of the bulk power supply is not power limited. All field wiring must be a minimum of 18 AWG and installed in conduit. All wiring connections must be made within 20 feet (6.1 meters) of the bulk supply.

#### **Dip Switch Programming**

**A** WARNING Remove power before servicing or changing DIP switch programming selections

#### Bulk Supply Options

#### AC Report Delay:

Selects number of hours to delay before activating the general trouble relay in response to a low AC condition. Note that the Low AC relay is activated immediately.

#### Supervision:

This should always be in the OFF position to allow supervision of the wiring between the 24 VDC bulk supply board and the NAC control board.

NAC control board global options



#### **Indicator LED Behavior**

The bulk supply board contains four indicator LEDs:

- AC Power: ON = AC Present, OFF = AC not present).
- Low Battery: Fast Flashing = Low battery condition. ON = Battery Charger Failure
- Earth Ground Fault: Flashing = Earth fault detected.
- Comm: Not Used



#### **Bulk Power Supply**



#### Primary AC

120VAC 50Hz~60Hz, 5.1AMP Min Low AC Detect 97VAC 240VAC 50~60Hz 2.5AMP Min Low AC Detect 190VAC

Common Relays 3A @ 125VAC (Resistive) 3A @ 30VDC (Resistive)

Battery Charging 27.3VDC @ .75A Low Battery Detect @20.4VDC

Earth Fault to Any Terminal 0 Ohms

Output Power 20.4VDC-27.3VDC @10A Non-Power Limited Special Application RSG-DH1224 Listed Door Holder

Fuse Specification 8A-250VAC Time-Lag

#### F.C.C.

This device has been verified to comply with FCC Rules Part 15, Class A Operation is subject to the following conditions:1. This device may not cause radio interference.2. This device must accept any interference received including any that may cause undesired operation.

#### Requirements

System must be fully tested after installation. Intended for indoor use in dry locations only. Separation of power limited wiring from non-power limited wiring must be at least <sup>1</sup>/<sub>4</sub>".

Install in accordance with installation manual Part Number 5403590 Rev A, NFPA 70, and NFPA 72

### **Battery Calculation Worksheet**

Standby current for both the PSB-10 is 30 milli-amps.

#### Secondary Power Supply Requirements Table

Service Use	Standby Time	
NFPA 72 • Central Station (PPU) • Local	24 hours 24 hours	

#### **Calculation Table**

1	2	3	4
Module/Device	Quantity	mA Per Unit	Total Current
PSB-10	1	30	30
		Total mA	
		Convert to A	x 0.001
(* Refer to Maximur	n allowable	standby current)Total A	
		Multiply by hours	X
		Total AH	
		Efficiency Factor	÷ 0.85
Use a battery with a	ı higher AH	Required AH rating than Required AH	

#### \* Maximum Allowable Standby Current (24-hour standby time)

Battery Size	UL 24-hour	ULC 24-hour
7 AH	.213 Amps	.213 Amps
18 AH	.603 Amps	.603 Amps
33 AH	1.134 Amps	.603 Amps
55 AH	1.913 Amps	.603 Amps

# WARRANTY INFORMATION

The essential purpose of any sale or contract for sale of any of the products listed in the POTTER catalog or price list is the furnishing of that product. It is expressly understood that in furnishing said product, POTTER does not agree to insure the Purchaser against any losses the Purchaser may incur, even if resulting from the malfunction of said product.

POTTER warrants that the equipment herein shall conform to said descriptions as to all affirmation of fact and shall be free from defects of manufacture, labeling and packaging for a period of one (1), one and one half (1.5), three (3), or five (5) year'(s), depending on the product, from the invoice date to the original purchaser, provided that representative samples are returned to POTTER for inspection. The product warranty period is stated on the exterior of the product package. Upon a determination by POTTER that a product is not as warranted, POTTER shall, at its exclusive option, replace or repair said defective product or parts thereof at its own expense except that Purchaser shall pay all shipping, insurance and similar charges incurred in connection with the replacement of the defective product or parts thereof. This Warranty is void in the case of abuse, misuse, abnormal usage, faulty installation or repair by unauthorized persons, or if for any other reason POTTER determines that said product is not operating properly as a result of causes other than defective manufacture, labeling or packaging.

The Aforesaid Warranty Is Expressly Made In Lieu Of Any Other Warranties, Expressed Or Implied, It Being Understood That All Such Other Warranties, Expressed Or Implied, Including The Warranties Of Merchantability And Fitness For Particular Purpose Are Hereby Expressly Excluded. In No Event Shall Potter Be Liable To Purchaser For Any Direct, Collateral, Incidental Or Consequential Damages In Connection With Purchaser's Use Of Any Of The Products Listed Herein, Or For Any Other Cause Whatsoever Relating To The Said Products. Neither Potter Nor Its Representatives Shall Be Liable To The Purchaser Or Anyone Else For Any Liability, Claim, Loss, Damage Or Expense Of Any Kind, Or Direct Collateral, Incidental Or Consequential Damages Relative To Or Arising From Or Caused Directly Or Indirectly By Said Products Or The Use Thereof Or Any Deficiency, Defect Or Inadequacy Of The Said Products. It Is Expressly Agreed That Purchaser's Exclusive Remedy For Any Cause Of Action Relating To The Purchase And/or Use Of Any Of The Products Listed Herein From Potter Shall Be For Damages, And Potter's Liability For Any And All Losses Or Damages Resulting From Any Cause Whatsoever, Including Negligence, Or Other Fault, Shall In No Event Exceed The Purchase Price Of The Product In Respect To Which The Claim Is Made, Or At The Election Of Potter, The Restoration Or Replacement Or Repair Of Such Product.

**P)POTTER** 

The Symbol of Protection

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# **SK-PHOTO-W SERIES**

Addressable Photoelectric Smoke Detectors

The Silent Knight<sup>®</sup> SK-PHOTO-W Series feature a modern design and expanded color options support a variety of contemporary aesthetic demands. In addition, each detector is constructed for exceptional installation and maintenance efficiency.

The SK-PHOTO-W Series intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the SK-PHOTO Series detectors. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards. The SK-PHOTO-W Series detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the SK-PHOTO-T-W. The SK-PHOTO-R-W is a remote test capable detector for use with DNR Series duct detector housings.



# **FEATURES AND BENEFITS**

- Designed to meet UL 1268 7th Edition
- Sleek and stylish contemporary design
- Stable communication technique with noise immunity
- Addressable by device
- Rotary, decimal addressing (Refer to the Silent Knight panel manuals for device capacity)
- Two-wire SLC connection
- LEDs blink every time the unit is polled
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs); LEDs blink green in Normal condition and turn on

steady red in Alarm

- Integral communications and built-in device-type identification
- Remote test feature from the panel
- Built-in functional test switch activated by external magnet
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1)
- Low standby current
- Built-in tamper-resistant feature
- Designed for direct-surface or electricalbox mounting

- Sealed against back pressure
- Plugs into separate base for ease of installation and maintenance
- Expanded color options
- SEMS screws for wiring of the separate base
- Optional remote, single-gang LED accessory
- Optional sounder, relay, and isolator bases



#### **INSTALLATION**

The SK-PHOTO-W Series plug-in intelligent thermal detectors use a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector.

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see SK-61045.

**Note:** Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring.

**Note:** When using relay or sounder bases, consult the SK-ISO installation sheet I56-3627 for device limitations between isolator modules and isolator bases.

#### **OPERATION**

Each SK-PHOTO-W Series detector uses one of the panel's addresses (total limit is panel dependent) on the Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The SK-PHOTO-W Series offers features and performance that represent the latest in smoke detector technology.

#### **PRODUCT LINE INFORMATION**

Note: "-IV" suffix indicates ivory color.

SK-PHOTO-W: White, low-profile photoelectric sensor

**SK-PHOTO-T-W:** White, same as SK-PHOTO-W but includes a built-in 135°F (57°C) fixed-temperature thermal device

**SK-PHOTO-R-W:** White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

B300-6: White, standard flanged low-profile mounting base

B300-6-BP: Bulk pack of B300-6, package contains 10

B300-6-IV: Ivory, standard flanged low-profile mounting base

**B501-WHITE:** White, standard European flangeless mounting base

B501-BL: Black, standard European flangeless mounting base

**B501-IV:** Ivory, standard European flangeless mounting base

B501-WHITE-BP: Bulk pack of B501-WHITE, contains 10

B200S-WH: White, Intelligent, programmable sounder base

B200S-IV: Ivory, Intelligent, programmable sounder base

B200SR-WH: White, Intelligent sounder base for retrofit applications

B200SR-IV: Ivory, Intelligent sounder base for retrofit applications

**B200S-LF-WH:** White, Low Frequency Intelligent, programmable sounder base

**B200S-LF-IV:** Ivory, Low Frequency Intelligent, programmable sounder base

**B200SR-LF-WH:** White, Low Frequency Intelligent sounder base for retrofit applications

**B200SR-LF-IV:** Ivory, Low Frequency Intelligent sounder base for retrofit applications

B224RB-WH: White, plug-in System Sensor® relay base

B224RB-IV: Ivory, plug-in System Sensor relay base

B224BI-WH: White, plug-in System Sensor isolator detector base

B224BI-IV: Ivory, plug-in System Sensor isolator detector base

#### ACCESSORIES

TR300: White, replacement flange for B210LP or B300-6 bases

TR300-IV: Ivory, replacement flange for B210LP or B300-6 bases

**RA100Z(A):** Remote 3 – 32 VDC LED annunciator, mounts to a U.S. single-gang electrical box, for use with B501 and B300-6 bases only

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: White, detector color kit, pack of 10

CK300-IV: Ivory, detector color kit, pack of 10

CK300-BL: Black, detector color kit, pack of 10

### **SK-PHOTO-W SERIES TECHNICAL SPECIFICATIONS**

#### PHYSICAL/ENVIRONMENTAL

#### Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

**Size:** 2.0" (5.3 cm) high; base determines diameter

- B300-6: 6.1" (15.6 cm) diameter
- B501: 4" (10.2 cm) diameter

For a complete list of detector bases, see SK-61045.

Shipping weight: 3.4 oz. (95 g)

#### Operating temperature range:

- SK-PHOTO-W: 32°F to 122°F (0°C to 50°C)
- SK-PHOTO-T-W: 32°F to 100°F(0°C to 38°C)
- SK-PHOTO-R-W installed in a DNR/DNRW: -4°F to 158°F (-20°C to 70°C)

UL/ULC Listed Velocity Range: 0-4000 ft/ min. (1219.2 m/min.), suitable for installation in ducts

**Relative humidity:** 10% – 93% non-condensing

**Thermal ratings:** fixed-temperature set point 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C)

#### **ELECTRICAL SPECIFICATIONS**

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.):  $200\mu A @ 24$  VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC ("ON")

# DETECTOR SPACING AND APPLICATIONS

Silent Knight recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A System Smoke Detector Application Guide, document A05-1003, is available at www.systemsensor.com.

# AGENCY LISTINGS AND APPROVALS

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. *Consult factory for latest listing status*.

- UL Listed: S6173
- FM Approved
- CSFM: 7272-0559:0512

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This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

Country of origin: Mexico

#### Honeywell Silent Knight

12 Clintonville Road Northford, CT 06472-1610 203.484.7161 www.silentknight.com

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# SK-PULL-SA / SK-PULL-DA

Intelligent Pull Stations

The SK-PULL-SA is a single action pull station requiring only one motion to activate the station. The SK-PULL-DA is a dual action pull station requiring two motions to active the station. The SK-PULL-SA and SK-PULL-DA are for use with Honeywell Silent Knight Series fire control panel (FACP).

Extremely easy to operate, the SK-PULL-DA and SK-PULL-SA provide a fast and practical means of manually initiating a fire alarm signal. The FACP recognizes each manual pull station by its specific address saving precious seconds in determining the location of an alarm.

#### INSTALLATION

The SK-PULL-SA and SK-PULL-DA can be surface mounted to an SB-I/O surface back box or semi-flush mounted on a standard single-gang with a minimum depth of 2.13"(5.40 cm) or double gang or 4" (10.61 cm) square electrical box. You can also use the optional (System Sensor® PN BG-TR) trim ring if the station is being semi-flush mounted.



SK-PULL-SA



SK-PULL-DA

### FEATURES & BENEFITS

- Installer can open station without causing an alarm condition
- Dual-color LED is visible through handle of station blinks green to indicate normal operation and remains steady red in an alarm condition
- Key operated test and reset lock using lock plate actuator
- Key matches compatible FACP locks
- Meets ADA requirement for 5 lbs maximum pull force to active
- Meets the Americans with Disabilities Act Accessibility Guidelines (ADAAG) controls and operating mechanisms guidelines (Section 4.1.3[13])
- Shell, door, and handle molded from durable LEXAN<sup>®</sup>
- Reliable analog communications for trouble-free operation
- Braille text on station handle
- Rotary address switches for fast installation
- Handle latches in down position and the word Activated appears, clearly indicating the station has been pulled
- UL Listed, including UL 38, Standard of Manually Actuated Signaling System
- CSFM Listed
- MEA Listed

### SK-PULL-SA / SK-PULL-DA Technical Specifications

#### PHYSICAL

**Dimensions:** 5.5" H x 4" W x 1.45" D (14 x 10.2 x 3.7cm)

Housing Material: LEXAN polycarbonate resin Bi-Colored LED:

Blinking Green: Normal

Steady Red: Alarm

Switch: Single pole, single throw (SPST) normally open (N/O) switch which closes upon activation of the pull station

#### ELECTRICAL

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#### ENVIRONMENTAL

**Operating Temperature:** 32°F – 120°F (0°C – 49°C) **Humidity:** 10% – 93% non-condensing

#### **ORDERING INFORMATION**

**SK-Pull-SA:** Single Action Pull Station **SK-Pull-DA:** Dual Action Pull Station

#### ACCESSORIES

**BG-TR:** Optional trim ring.

**SB-I/O:** Surface backbox, indoor/outdoor. \* Unless otherwise noted, specifications apply to SK-Pull-SA and SK-Pull-DA

#### COMPATIBILITY

# The SK-PULL-SA AND SK-PULL-DA are compatible with the following Honeywell Silent Knight fire alarm control panels:

**6820:** Addressable fire alarm control panel **6820EVS:** Addressable fire alarm control panel with an emergency voice system.

6808: Addressable fire alarm control panel
6700: Addressable fire alarm control panel
5700: Addressable fire alarm control panel
5808: Addressable fire alarm control panel
5820XL: Addressable fire alarm control panel
5820XL-EVS: Addressable fire alarm control panel

For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.

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For Technical Support, call 800-446-6444.

For more information

Learn more about Honeywell Silent Knight and other products by visiting www.silentknight.com

#### **Honeywell Silent Knight**

12 Clintonville Road Northford, CT 06472 800-328-0103







# **SK-MINIMON**

Intelligent Mini Monitor Module

The SK-MINIMON is an addressable monitor modules for use with the Honeywell Silent Knight fire alarm control panels (FACPs). The SK-MINIMON acts as an interface to contact devices, such as waterflow switches and pull stations. The SK-MINIMON supports Class B supervised wiring to the load device. Conventional 4-wire smoke detectors can be monitored for alarm and trouble conditions

The SK-MINIMON can be mounted in a single gang junction box directly behind the monitored device. Its small size and light weight allow it to be installed without rigid mounting requirements.



#### INSTALLATION

The SK-MINIMON can be mounted in a single gang junction box directly behind the monitored device. Its small size and light weight allow it to be installed without rigid mounting requirements.

# FEATURES & BENEFITS

- Single contact monitor Rotary address
- SK-Minimon support for Class B (Style B) contact monitor wiring
- Small and lightweight size allows for flexible mounting options
- Rotary address switches for fast installation
- UL Listed
- CSFM Listed
- FM Approved

#### PHYSICAL

**Dimensions:** 2.75" W x 1.3" H x 0.5" D **Weight:** 1.2 oz (37 g)

#### ELECTRICAL

Operating Voltage: 15 - 32VDC SLC Standby and Alarm Current:  $350 \mu$ A End-of-Line Resistance: 47K  $\Omega$ Initiating device circuit wiring resistance:  $1,500\Omega$  max SLC loop resistance:  $40\Omega$  max Wire Length: 6" min.

#### ENVIRONMENTAL

**Operating Temperature:** 32°F – 120°F (0°C – 49°C) **Humidity:** 10% – 93% non-condensing

#### **ORDERING INFORMATION**

SK-MINIMON: Mini monitoring module

#### COMPATIBILITY

# The SK-MINIMON is compatible with the following Honeywell Silent Knight fire alarm control panels:

6820: Addressable fire alarm control panel
6820EVS: Addressable fire alarm control panel
with an emergency voice system.
6808: Addressable fire alarm control panel
6700: Addressable fire alarm control panel
5700: Addressable fire alarm control panel
5808: Addressable fire alarm control panel
5820XL: Addressable fire alarm control panel
5820XL-EVS: Addressable fire alarm control panel

For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.

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#### **Honeywell Silent Knight**

12 Clintonville Road Northford, CT 06472 800-328-0103





# **SK-DUCT**

Intelligent Air Duct Smoke Detector

The SK-DUCT Intelligent air duct smoke detector is used with SK-PHOTOR (included) for detecting smoke and products of combustion present in air moving through an HVAC air handling system. When smoke is detected in a duct, the unit communicates the condition to the Honeywell Silent Knight control panel. The panel, in turn, depending on programming and wiring, turns off fans, blowers, and other devices. The duct housing allows for mounting of SK-RELAY addressable relay module.

The Model SK-DUCT Air Duct Smoke Detector utilizes photoelectric technology for the detection of smoke. It provides early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial and Industrial applications.

The SK-DUCT is in a heavy duty gray steel back box with a clear cover. It features a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct. It installs quickly and easily.

The unit senses smoke in the most challenging conditions, operating in airflow speeds of 100 to 4000 feet per minute, temperatures of  $-4^{\circ}$ F to 158°F, and a humidity range of 0 to 95 percent (non-condensing).



SK-DUCT

## FEATURES & BENEFITS

- Versatile mounting options: square or rectangular configuration
- New Cover tamper signal
- LED alarm indication and communication on sensor head
- Detects and limits the spread of smoke

- Rugged steel back box with clear plastic cover
- Easy to clean
- Large terminal connection screws
- Transparent cover for convenient visual inspection
- Patented sampling tube installs from front or back of the detector with no tools required
- Available space within housing to accommodate mounting of relay module
- UL listed

### SK-DUCT Technical Specifications

#### PHYSICAL

(Rectangular): 14.38" (37 cm) L X 5" (12.7 cm) W X 2.5" (6.6 cm) D (Square): 7.75" (19.7cm) L x 9"(22.9cm) W x 2.5" D (6.35cm)

Weight: 1.6lb (0.73kg)

 $\begin{array}{l} \textbf{ELECTRICAL} \mbox{ (using SK-Photo or SK-PhotoR)} \\ \textbf{Operating Voltage: } 15-32 \mbox{ VDC} \\ \textbf{Standby Current: } 300 \mbox{ } \mu A @ 24 \mbox{ VDC max}. \\ \textbf{Alarm Current: } 6.5 \mbox{ } m A @ 24 \mbox{ VDC max} \mbox{ (with LED on)} \\ \end{array}$ 

#### ENVIRONMENTAL

**Operating Temperature:** -4°F – 158°F (-20°C – 70°C) **Humidity:** 0% – 95% (non-condensing)

#### AIR VELOCITY

100 to 4000 ft/min: (0.5 - 20.3 m/sec.)

#### **ORDERING INFORMATION**

**SK-DUCT:** Intelligent non-relay duct smoke detector

SK-PHOTO: Addressable Photo Detector
 SK-PHOTOR: Addressable Photo Detector with remote test capability (included with SK-Duct)
 SK-RELAY: Addressable Relay Module, must be added if relay function is required, (fits in housing)

#### ACCESSORIES

DST1: Metal Sampling Tube Duct Width up to 1' DST1.5: Metal Sampling Tube Duct Widths 1' - 2' DST3: Metal Sampling Tube Duct Widths 2' - 4' DST5: Metal Sampling Tube Duct Widths 4' - 8' DST10: Metal Sampling Tube Duct Widths 8' - 12' DH4000E-1: Weatherproof Enclosure ETX: Metal Exhaust Tube Duct width 1' RA100Z: Remote LED Annunciator

**DCOIL:** Duct accessory coil, required if using with SK-PHOTO and not SK-PHOTOR (included) with SK-DUCT

**RTS151:** Magnetic Remote Test station **RTS151KEY:** Key-Activated Remote Test station M02-04-00 Test Magnet P48-21-00 Replacement End Cap for Metal Sampling Tube

APA151: Remote annunciator with piezo alarm

#### **IMPORTANT NOTES:**

• The use of either RTS151 or RTS151KEY requires the installation of an accessory coil, DCOIL, sold separately. Please refer to the SK-DUCT installation instructions for more information

• The RTS151/RTS151KEY test coil circuit requires an external 24VDC power supply which must be UL listed.

ACCESSORY CURRENT LOADS AT 24VDC				
Device Standby Alarm				
RA100Z	OmA	12mA Max.		
RTS151	OmA	12mA Max		
RTS151KEY	12mA	12mA Max		

#### COMPATIBILITY

The SK-DUCT is compatible with the following Honeywell Silent Knight fire alarm control panels: 6820: Addressable fire alarm control panel 6820EVS: Addressable fire alarm control panel with an emergency mass notification system. 6808: Addressable fire alarm control panel 6700: Addressable fire alarm control panel 5700: Addressable fire alarm control panel 5808: Addressable fire alarm control panel 5820XL: Addressable fire alarm control panel 5820XL: Addressable fire alarm control panel with an emergency mass notification system. For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.

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Silent Knight<sup>®</sup>, System Sensor<sup>®</sup> and Honeywell<sup>®</sup> are registered trademarks of Honeywell International, Inc.

This document is not intended to be used for installation purposes. We try to keep our product information up-to date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

For Technical Support, call 800-446-6444.

#### For more information

Learn more about Honeywell Silent Knight and other products by visiting www.silentknight.com

#### **Honeywell Silent Knight**

12 Clintonville Road Northford, CT 06472 800-328-0103

Doc 350122 | Rev F | 11/17 © 2017 Honeywell International Inc.





# **SK-RELAY**

Intelligent Relay Module

The SK-RELAY is an addressable relay module for use with Honeywell Silent Knight Series fire alarm control panels (FACPs). The SK-RELAY allows a Silent Knight FACP to switch discrete contacts by code command. The relay contains two isolated sets of Form C contacts, which operate as a DPDT switch. No supervision is provided for the notification appliance circuit.

The SK-RELAY contacts can be used for virtually any normally open or normally closed application. Each SK-RELAY is programmed with a unique signaling line circuit (SLC) loop address. When an event occurs that controls the SK-RELAY, the relay is triggered by the FACP.

#### INSTALLATION

The SK-RELAY mounts directly into a 4" square electrical box. The box must have a minimum depth of 2-1/8". A surface mount electrical box (System Sensor® PN SMB500) is available from Silent Knight.



SK-RELAY

### FEATURES & BENEFITS

- Two sets of Form C contacts
- Rotary address switches for fast installation
- Contacts are rated for a variety of amps (see Specifications)
- Panel controlled status LED that flashes green in normal state and is solid red in alarm
  - Relay programming is completely flexible– can be mapped to zone conditions
- Polling LED visible through the cover plate
- SEMS screws for easy wiring
- UL Listed

#### PHYSICAL

4.675" H x 4.275" W x 1.4" D Shipping Weight: 6.3 oz (196 g)

#### ELECTRICAL

**Operating Voltage:** 15 – 32 VDC **End-of-Line Resistance:** Not used

SLC Standby & Alarm Current: .255mA max @ 24VDC (one communication every 5 sec with LED enabled)

#### ENVIRONMENTAL

**Operating Temperature:** 32°F – 120°F (0°C – 49°C) **Humidity:** 10% – 93% non-condensing

#### **RELAY CONTACT RATINGS**

3.0A @ 30VDC resistive 0.9A @ 110VDC resistive 0.9A @ 125VAC resistive 0.5A @ 125VAC inductive (PF = .35) 0.7A @ 75VAC inductive (PF = .35)

#### **ORDERING INFORMATION**

SK-RELAY: Relay Module

#### ACCESSORIES.

SMB500: 4" Square Surface Mount Electrical Box CB500 :Module Barrier

#### COMPATIBILITY

The SK-RELAY is compatible with the following Honeywell Silent Knight fire alarm control panels: 6820: Addressable fire alarm control panel 6820EVS: Addressable fire alarm control panel with an emergency mass notification system. 6808: Addressable fire alarm control panel 6700: Addressable fire alarm control panel 5700: Addressable fire alarm control panel 5808: Addressable fire alarm control panel 5820XL: Addressable fire alarm control panel 5820XL: Addressable fire alarm control panel with an emergency mass notification system. For a complete listing of all compliance approvals and certifications, please visit www.silentknight.com.

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This document is not intended to be used for installation purposes. We try to keep our product information up-to date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

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#### **Honeywell Silent Knight**

12 Clintonville Road Northford, CT 06472 800-328-0103



## **Selectable Output Horn Strobes, Chime Strobes** and Strobes – Ceiling Mount

For use with the following models: Ceiling Mount Horn Strobes: PC2RL, PC2WL Ceiling Mount Chime Strobes: CHSCRL, CHSCWL Ceiling Mount Strobes: SCRL, SCWL, SCWL-CLR-ALERT

PRODUCT SPECIFICATIONS	
Standard Operating Temperature:	32°F to 120°F (0°C to 49°C)
Humidity Range:	10 to 93% Non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage:	Regulated 12VDC or regulated 24DC/FWR
Operating Voltage Range:	8 to 17.5V (12V nominal) or 16 to 33V (24V nominal)
Operating Voltage with MDL3 Sync Module:	8.5 to 17.5V (12V nominal) or 16.5 to 33V (24V nominal)
Input terminal wire gauge:	12 to 18 AWG

DIMENSIONS FOR PRODUCTS AND ACCESSORIES			MOUNTING BOX OPTIONS
CEILING PRODUCTS	Diameter	Depth	2-Wire Indoor Products
Strobe, Chime Strobe and Horn Strobe	6.83" (173.5mm)	2.47" (62.7mm)	4" x 4" x 1½", Single Gang, Double Ga
Strobe, Chime Strobe, and Horn Strobe with SBBCRL/WL Surface Mount Back Box	6.92" (175.8mm)	2.50" (63.5mm)	4" Octagon, SBBCRL/WL (ceiling)
	C.1.1.	· .	<u>b</u>

**NOTICE:** This manual shall be left with the owner/user of this equipment.

#### **BEFORE INSTALLING**

Please read the System Sensor Audible Visible Application Reference Guide, which provides detailed information on notification devices, wiring and special applications. Copies of this manual are available from System Sensor. NFPA 72 and NEMA guidelines should be observed.

Important: The notification appliance used must be tested and maintained following NFPA 72 requirements.

#### **GENERAL DESCRIPTION**

System Sensor series of notification appliances offer a wide range of audible and visible devices for life safety notification. Our 2-wire horn strobes, chime strobes and strobes come with 8 field selectable tone and volume combinations and 7 field selectable candela settings. Intended for indoor applications and approved for ceiling mount installations.

2-wire horn strobes and strobes are public mode notification appliances intended to alert occupants of a life safety event. The 2-wire chime strobe is a private mode notification appliance. The horn is listed to ANSI/UL 464 requirements (public mode) and the strobe is listed to ANSI/UL 1638 (public mode). 2-wire chime strobe is a private mode notification appliances intended to alert trained personnel to investigate a life safety event and take appropriate actions. The chime portion of the chime strobe is listed to ANSI/UL 464 (private mode) and the strobe portion is listed to ANSI/UL 1638 (private mode).

System Sensor strobes are designed to be used in 12 VDC, 24VDC, or 24V FWR (full wave rectified) systems. System Sensor AV devices can be activated by a compatible fire alarm control panel or power supply. Refer to the appropriate fire alarm control panel manufacturer or power supply for more information.

System Sensor ceiling 2-wire horn strobes, 2-wire chime strobes, and strobes are electrically backward compatible with the previous generation, since 1996, of notification appliances. They come enabled with System Sensor synchronization protocol which requires connections to a power supply capable of generating the System Sensor synchronization pulses, a FACP NAC output configured to System Sensor synchronization protocol, or the use of MDL3 module to generate the synchronization protocol.

#### FIRE ALARM SYSTEM CONSIDERATIONS

The National Fire Alarm and Signaling Code, NFPA 72, requires that all notification appliances, used for building evacuation installed after July 1, 1996, ing,

produce temporal coded signals. Signals other than those used for evacuation purposes do not have to produce the temporal coded signal. System Sensor recommends spacing notification appliances in compliance with NFPA 72.

#### SYSTEM DESIGN

The system designer must make sure that the total current draw by the devices on the loop does not exceed the current capability of the panel supply, and that the last device on the circuit is operated within its rated voltage. The current draw information for making these calculations can be found in the tables within the manual. For convenience and accuracy, use the voltage drop calculator on the System Sensor website (www.systemsensor.com).

When calculating the voltage available to the last device, it is necessary to consider the voltage due to the resistance of the wire. The thicker the wire, the smaller the voltage drop. Wire resistance tables can be obtained from electrical handbooks. Note that if Class A wiring is installed, the wire length may be up to twice as long as it would be for circuits that are not fault tolerant. The total number of strobes on a single NAC must not exceed 69 for 24 volt applications.

#### **AVAILABLE TONES**

System Sensor offers a wide variety of tones for your life safety needs, including temporal 3 pattern (1/2 second on, 1/2 second off, 1/2 second on, 1/2 second off, 1/2 second on, 11/2 off and repeat) which is specified by ANSI and NFPA 72 for standard emergency evacuation signaling.

To select the tone, turn the rotary switch on the back of the product to the desired setting. (See Figure 1.) Available horn settings can be found in Table 1. Available chime settings can be found in Table 2.

#### **AVAILABLE CANDELA SETTINGS**

System Sensor offers a wide range of candela settings for your life safety needs. In order to select your candela output, adjust the slide switch on the rear of the product to the desired candela setting on the selector switch. (See Figure 2.)

The candela setting can also be verified by looking into the small window on the front of the unit. See Table 3 for candela settings for ceiling products. All products meet the light output profiles specified in the appropriate UL Standards. (See Figures 3 to 5.)

3825 Ohio Avenue, St. Charles, Illinois 60174

800/736-7672, FAX: 630/377-6495

www.systemsensor.com

**FIGURE 1. AUDIO SELECTOR** 

AUDIO SELECT

#### FIGURE 2. CANDELA SELECTOR



A0518.00

#### **TABLE 1. HORN TONES**

Pos	Tone	Volume Setting
1	Temporal	High
2	Temporal	Low
3	Non-Temporal	High
4	Non-Temporal	Low
5	3.1 KHz Temporal	High
6	3.1 KHz Temporal	Low
7	3.1 KHz Non-Temporal	High
8	3.1 KHz Non-Temporal	Low

 TABLE 2. CHIME TONES

 Pos
 Tone

 1
 1 Second Chime

1	1 Second Chime	High
2	1 Second Chime	Low
3	1/4 Second Chime	High
4	1/4 Second Chime	Low
5	Temporal Chime	High
6	Temporal Chime	Low
7	5 Second Whoop	High
8	5 Second Whoop	Low

Volume

Setting

#### TABLE 3. CEILING-MOUNT STROBE CURRENT DRAW (mA)

Candela	8-17.5 Volts	16-33 Volts				
	DC	DC	FWR			
15	87	41	60			
30	153	63	86			
75	-	111	142			
95	-	134	164			
115	-	158	191			
150	-	189	228			
177	-	226	264			

# **NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V DC operation when set to any other candela settings.

#### **CURRENT DRAW AND AUDIBILITY RATINGS**

For the horn strobe, the current draw and audibility ratings for each setting is listed in Table 4. For the chime strobe, the current draw and audibility ratings for each setting is listed in Table 5. For the strobe, the current draw for each setting is listed in Table 3.

## FIGURE 3. LIGHT OUTPUT - VERTICAL DISPERSION, CEILING TO WALLS TO FLOOR





#### FIGURE 4. LIGHT OUTPUT – HORIZONTAL DISPERSION

r	
Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25
Compound 45	24
to the left	24
Compound 45	2.4
to the right	



#### FIGURE 5. VERTICAL DISPERSION, WALL TO FLOOR

Degrees*	Percent of Rating
0	100
5-30	90
35	65
40	46
45	34
50	27
55	22
60	18
65	16
70	15
75	13
80	12
85	12
90	12



\*Tolerance of  $\pm 1$  degree is permitted.

#### TABLE 4. CEILING--MOUNT HORN STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)

Current draw (mA)										Sound Output (dBA)											
Pos	Tone	Volume	8-17.	5 VDC		16-33 VDC					16-33 FWR						8-17.5 V	16-3	33 V		
1.03	Tone	Setting	15	30	15	30	75	95	115	150	177	15	30	75	95	115	150	177	DC	DC	FWR
1	Temporal	High	103	167	71	90	143	165	187	217	254	107	135	179	198	223	254	286	84	89	89
2	Temporal	Low	96	165	54	71	137	161	185	211	249	78	101	151	172	199	229	262	75	83	83
3	Non-Temporal	High	106	173	71	90	141	165	187	230	273	107	135	179	198	223	254	286	85	90	90
4	Non-Temporal	Low	95	166	54	71	124	161	170	216	258	78	101	151	172	199	229	262	76	84	84
5	3.1 KHz Temporal	High	111	164	69	94	147	163	184	229	257	108	135	179	200	225	255	289	83	88	88
6	3.1 KHz Temporal	Low	103	163	54	88	143	155	185	212	252	79	101	150	171	196	229	260	76	82	82
7	3.1 KHz Non-Temporal	High	111	172	69	94	144	164	202	229	271	108	135	179	200	225	255	289	84	89	89
8	3.1 KHz Non- Temporal	Low	103	169	54	88	131	155	187	217	259	79	101	150	171	196	229	260	77	83	83

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

#### I56-5846-002 10/02/2018

#### WIRING AND MOUNTING

All wiring must be installed in compliance with the National Electric Code and the local codes as well as the authority having jurisdiction. Wiring must not be of such length or wire size which would cause the notification appliance to operate outside of its published specifications. Improper connections can prevent the system from alerting occupants in the event of an emergency.

Wire sizes up to 12 AWG  $(2.5 \text{ mm}^2)$  may be used with the mounting plate. The mounting plate ships with the terminals set for 12 AWG wiring.

Make wire connections by stripping about 3/8" of insulation from the end of the wire. Then slide the bare end of the wire under the appropriate clamping plate and tighten the clamping plate screw. We provide a wire strip guide. See Figure 6 for wiring terminals and strip guide reference.

#### 

Factory finish should not be altered: Do not paint!

#### ACAUTION

Do not over tighten mounting plate screws; this may cause mounting plate to flex.

#### FIGURE 6. WIRING TERMINALS, SHORTING SPRING, AND STRIP GUIDE



#### SYSTEM WIRING

The 2-wire horn strobe, chime strobe and strobe only require two wires for power and supervision. (See Figure 7.) Please consult your FACP manufacturer or power supply manufacturer for specific wiring configurations and special cases.

#### **FIGURE 7. 2-WIRE CIRCUIT**



#### SHORTING SPRING FEATURE

System Sensor notification appliances come with a shorting spring that is provided between terminals 2 and 3 of the mounting plate to enable system continuity checks after the system has been wired, but prior to installation of the final product. (See Figure 6.) This spring will automatically disengage when the product is installed, to enable supervision of the final system.

#### MOUNTING AND REMOVING APPLIANCE

1. Attach mounting plate to junction box using two of the provided Philips head screws. (See Figure 8.)

2. Connect field wiring according to terminal designations. (See Figures 6 and 7.)  $\,$ 

3. If the product is not to be installed at this point, use the protective dust cover to prevent contamination of the wiring terminals on the mounting plate.

- 4. To attach product to mounting plate:
- a. Remove the protective dust cover.
- b. Hook the tabs on the top of the product housing into the grooves on mounting plate.
- c. Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
- d. Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

*Ceiling Models only:* To remove product from the mounting plate, loosen the captive mounting screw and press the locking button.

#### FIGURE 8. MOUNTING



#### TABLE 5. CEILING-MOUNT CHIME STROBE CURRENT DRAW (mA) AND SOUND OUTPUT (dBA)

				Current draw (mA)							Sound Output (dBA)										
Pos	Chime Tone	Tone Volume 8-17.5 VD			16-33 VDC						16-33 FWR						8-17.5 V	16-3	33 V		
		Setting	15	30	15	30	75	95	115	150	177	15	30	75	95	115	150	177	DC	DC	FWR
1	1 Second	High	96	165	47	69	117	137	165	202	238	63	90	147	169	184	212	245	61	62	62
2	1 Second	Low	93	162	47	68	116	137	165	200	238	63	88	147	169	183	212	244	56	55	55
3	1⁄4 Second	High	94	161	48	70	117	138	166	202	237	65	90	149	170	184	213	246	67	70	70
4	1⁄4 Second	Low	93	157	48	69	116	137	164	199	236	64	89	148	168	184	216	244	61	61	61
5	Temporal	High	93	163	48	70	116	138	165	199	238	64	89	148	169	184	212	245	64	66	66
6	Temporal	Low	92	160	47	69	116	136	164	198	237	63	88	147	169	183	212	245	59	60	60
7	5 Second Whoop	High	98	169	54	77	124	146	173	206	245	75	100	155	178	193	221	255	76	78	78
8	5 Second Whoop	Low	95	166	49	71	117	144	168	202	239	68	91	148	170	186	217	248	62	64	64

**NOTE:** Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12VDC operation when set to any other candela settings.

#### TAMPER SCREW

For tamper resistance, the standard captive screw may be replaced with a Torx screw (sold separately).

1. To remove the captive screw, back out the screw and apply pressure to the back of the screw until it disengages from the housing. Replace with Torx screw. (See Figure 9.)

#### FIGURE 9. TAMPER SCREW



A0493-01

#### **INSTALLING A SURFACE MOUNT BACK BOX**

1. The ceiling surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figure 10.)

2. The ceiling mount box can be used on ceiling horn strobe, chime strobe, strobe as well as ceiling speaker and speaker strobe models. Use the STR cutouts for ceiling horn strobe, chime strobe and strobe installation needs. (See Figure 11.)

3. Threaded knockout holes are provided for the sides of the box for  $\frac{3}{4}$  inch and  $\frac{1}{2}$  inch conduit adapter. Knockout holes in the back of the box can be used for  $\frac{3}{4}$  inch and  $\frac{1}{2}$  inch rear entry.

4. To remove the  $\frac{3}{4}$  inch knockout, place the blade of a flat-head screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver. (See Figure 12.)

# NOTE: Use caution not to strike the knockout near the top edge of the surface mount back box.

5. V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications.

6. To remove the knockout, turn pliers up. (See Figure 12.)

FIGURE 10. SURFACE MOUNTING ON CEILING







A0495-00

A0494-02

## FIGURE 12. KNOCKOUT AND V500/V700 REMOVAL FOR SURFACE MOUNT BACK BOX



#### **A**WARNING

#### THE LIMITATIONS OF HORN/STROBES

The horn and/or strobe will not work without power. The horn/strobe gets its power from the fire/security panel monitoring the alarm system. If power is cut off for any reason, the horn/strobe will not provide the desired audio or visual warning.

The horn may not be heard. The loudness of the horn meets (or exceeds) current Underwriters Laboratories' standards. However, the horn may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The horn may not be heard if it is placed on a different floor from the person in hazard or if placed too far away to be heard over the ambient noise such as traffic, air conditioners, machinery or music appliances that may prevent alert persons from hearing the alarm. The horn may not be heard by persons who are hearing impaired.

NOTE: Strobes must be powered continuously for horn operation.

The signal strobe may not be seen. The electronic visual warning signal uses an extremely reliable xenon flash tube. It flashes at least once every second. The strobe must not be installed in direct sunlight or areas of high light intensity (over 60 foot candles) where the visual flash might be disregarded or not seen. The strobe may not be seen by the visually impaired.

The signal strobe may cause seizures. Individuals who have positive photoic response to visual stimuli with seizures, such as persons with epilepsy, should avoid prolonged exposure to environments in which strobe signals, including this strobe, are activated.

The signal strobe cannot operate from coded power supplies. Coded power supplies produce interrupted power. The strobe must have an uninterrupted source of power in order to operate correctly. System Sensor recommends that the horn and signal strobe always be used in combination so that the risks from any of the above limitations are minimized.

#### FCC STATEMENT

System Sensor Strobes and Horn/Strobes have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and

SUPPLEMENTAL INFORMATION

For the latest Warranty information, please go to: http://www.systemsensor.com/en-us/Documents/E56-4000.pdf For Limitations of Fire Alarm Systems, please go to: http://www.systemsensor.com/en-us/Documents/I56-1558.pdf Speakers only: For the latest Important Assembly Information, please go to: http://www.systemsensor.com/en-us/Documents/I56-6556.pdf





Limitations of

Fire Alarm Systems



Warranty

can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Speakers Only: Assembly Information



# Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.

#### **Features**

- Updated Modern Aesthetics
- Small profile devices for Horns and Horn Strobes
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Mounting plate for all standard and all compact wall units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Strobes and Horn Strobes listed for wall mounting only
- Horns listed for wall or ceiling use

### Agency Listings







FM approved except for ALERT models 3057383, 3057072

pt 7125-1653:0504 5 7135-1653:0503



**The System Sensor L-Series** offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, standard and compact devices, and plain, FIRE, and FUEGO-printed devices, System Sensor L-Series can meet virtually any application requirement.

The L-Series line of wall-mount horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, the L-Series utilizes a universal mounting plate for all models with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

#### **L-Series Specifications**

#### Architect/Engineer Specifications

#### General

L-Series standard horns, strobes, and horn strobes shall mount to a standard 2 x 4 x 17/e-inch back box, 4 x 4 x 1½-inch back box, 4-inch octagon back box, or double-gang back box. L-Series compact products shall mount to a single-gang 2 x 4 x 17/e-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting wall compact models. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the SynceCircuit<sup>™</sup> Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the SynceCircuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, and 185.

#### Strobe

The strobe shall be a System Sensor L-Series Model \_\_\_\_\_\_ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

#### **Horn Strobe Combination**

The horn strobe shall be a System Sensor L-Series Model \_\_\_\_\_\_ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have two audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. The horn on horn strobe models shall operate on a coded or non-coded power supply.

#### Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize Strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a  $4^{11}/_{16} \times 4^{11}/_{16} \times 2^{1}/_{8}$ -inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications	
Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC or regulated 24 DC/FWR <sup>1</sup>
Operating Voltage Range <sup>2</sup>	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Wall-Mount Dimensions (including lens)	5.6 $^{\prime\prime}$ L $\times$ 4.7 $^{\prime\prime}$ W $\times$ 1.91 $^{\prime\prime}$ D (143 mm L $\times$ 119 mm W $\times$ 49 mm D)
Compact Wall-Mount Dimensions (including lens)	5.26" L x 3.46" W x 1.91" D (133 mm L x 88 mm W x 49 mm D)
Horn Dimensions	$5.6^{\prime\prime}L \times 4.7^{\prime\prime}W \times 1.25^{\prime\prime}D$ (143 mm L $\times$ 119 mm W $\times$ 32 mm D)
Compact Horn Dimensions	5.25" L x 3.45" W x 1.25" D (133 mm L x 88 mm W x 32 mm D)

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs. 2. Strobe products will operate at 12 V nominal only for 15 cd and 30 cd.

#### **UL Current Draw Data**

UL Max. Strobe Current Draw (mA RMS)								
		8-17.5 Volts	16–33	Volts				
	Candela	DC	DC	FWR				
Candela	15	88	43	60				
Range	30	143	63	83				
	75	N/A	107	136				
	95	N/A	121	155				
	110	N/A	148	179				
	135	N/A	172	209				
	185	N/A	222	257				

UL Max. Horn Current Draw (mA RMS)							
		8-17.5 Volts	16-33 Vo	lts			
Sound Pattern	dB	DC	DC	FWR			
Temporal	High	39	44	54			
Temporal	Low	28	32	54			
Non-Temporal	High	43	47	54			
Non-Temporal	Low	29	32	54			
3.1 KHz Temporal	High	39	41	54			
3.1 KHz Temporal	Low	29	32	54			
3.1 KHz Non-Temporal	High	42	43	54			
3.1 KHz Non-Temporal	Low	28	29	54			
Coded	High	43	47	54			
3.1 KHz Coded	High	42	43	54			

#### UL Max. Current Draw (mA RMS), Wall Horn Strobe, Candela Range (15–185 cd)

	8-17.5 Volt	s	16-33 Volt	S					
DC Input	15cd	30cd	15cd	30cd	75cd	95cd	110cd	135cd	185cd
Temporal High	98	158	54	74	121	142	162	196	245
Temporal Low	93	154	44	65	111	133	157	184	235
Non-Temporal High	106	166	73	94	139	160	182	211	262
Non-Temportal Low	93	156	51	71	119	139	162	190	239
3.1K Temporal High	93	156	53	73	119	140	164	190	242
3.1K Temporal Low	91	154	45	66	112	133	160	185	235
3.1K Non-Temporal High	99	162	69	90	135	157	175	208	261
3.1K Non-Temporal Low	93	156	52	72	119	138	162	192	242
	16-33 Volt	S							
FWR Input	15cd	30cd	75cd	95cd	110cd	135cd	185cd		
Temporal High	83	107	156	177	198	234	287		
Temporal Low	68	91	145	165	185	223	271		
Non-Temporal High	111	135	185	207	230	264	316		
Non-Temportal Low	79	104	157	175	197	235	283		
3.1K Temporal High	81	105	155	177	196	234	284		
3.1K Temporal Low	68	90	145	166	186	222	276		
3.1K Non-Temporal High	104	131	177	204	230	264	326		
3.1K Non-Temporal Low	77	102	156	177	199	234	291		

### Horn Tones and Sound Output Data

Horn and	Horn and Horn Strobe Output (dBA)							
Switch			8–17.5 Volts	16–33 Volts				
Position	Sound Pattern	dB	DC	DC	FWR			
1	Temporal	High	84	89	89			
2	Temporal	Low	75	83	83			
3	Non-Temporal	High	85	90	90			
4	Non-Temporal	Low	76	84	84			
5	3.1 KHz Temporal	High	83	88	88			
6	3.1 KHz Temporal	Low	76	82	82			
7	3.1 KHz Non-Temporal	High	84	89	89			
8	3.1 KHz Non-Temporal	Low	77	83	83			
9*	Coded	High	85	90	90			
10*	3.1 KHz Coded	High	84	89	89			

\* Settings 9 and 10 are not available on 2-wire horn strobes. Temporal coding must be provided by the NAC. If the NAC voltage is held constant, the horn output remains constantly on.

#### **L-Series Dimensions**



Wall Surface Mount Back Box SBBRL/SBBWL

#### **L-Series Ordering Information**

Model	Description
Wall Horn Strobe	S
P2RL	2-Wire, Horn Strobe, Red
P2WL	2-Wire, Horn Strobe, White
P2GRL	2-Wire, Compact Horn Strobe, Red
P2GWL	2-Wire, Comp 2 fils act Horn Strobe, White
P2RL-P	2-Wire, Horn Strobe, Red, Plain
P2WL-P	2-Wire, Horn Strobe, White, Plain
P2RL-SP	2-Wire, Horn Strobe, Red, FUEGO
P2WL-SP	2-Wire, Horn Strobe, White, FUEGO
P4RL	4-Wire, Horn Strobe, Red
P4WL	4-Wire, Horn Strobe, White
Wall Strobes	
SRL	Strobe, Red
SWL	Strobe, White
SGRL	Compact Strobe, Red
SGWL	Compact Strobe, White
SRL-P	Strobe, Red, Plain
SWL-P	Strobe, White, Plain
SRL-SP	Strobe, Red, FUEGO
SWL-CLR-ALERT	Strobe, White, ALERT

Model	Description				
Horns*					
HRL*	Horn, Red				
HWL*	Horn, White				
HGRL*	Compact Horn, Red				
HGWL*	Compact Horn, White				
Accessories					
TR-2	Universal Wall Trim Ring Red				
TR-2W	Universal Wall Trim Ring White				
SBBRL	Wall Surface Mount Back Box, Red				
SBBWL	Wall Surface Mount Back Box, White				
SBBGRL	Compact Wall Surface Mount Back Box, Red				
SBBGWL	Compact Wall Surface Mount Back Box, White				

#### Notes:

All -P models have a plain housing (no "FIRE" marking on cover). All -SP models have "FUEGO" marking on cover. All -ALERT models have "ALERT" marking on cover. \*Horn-only models are listed for wall or ceiling use.



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