

**PARALLELING GENERATORS
INTERCONNECT WIRING DIAGRAM**

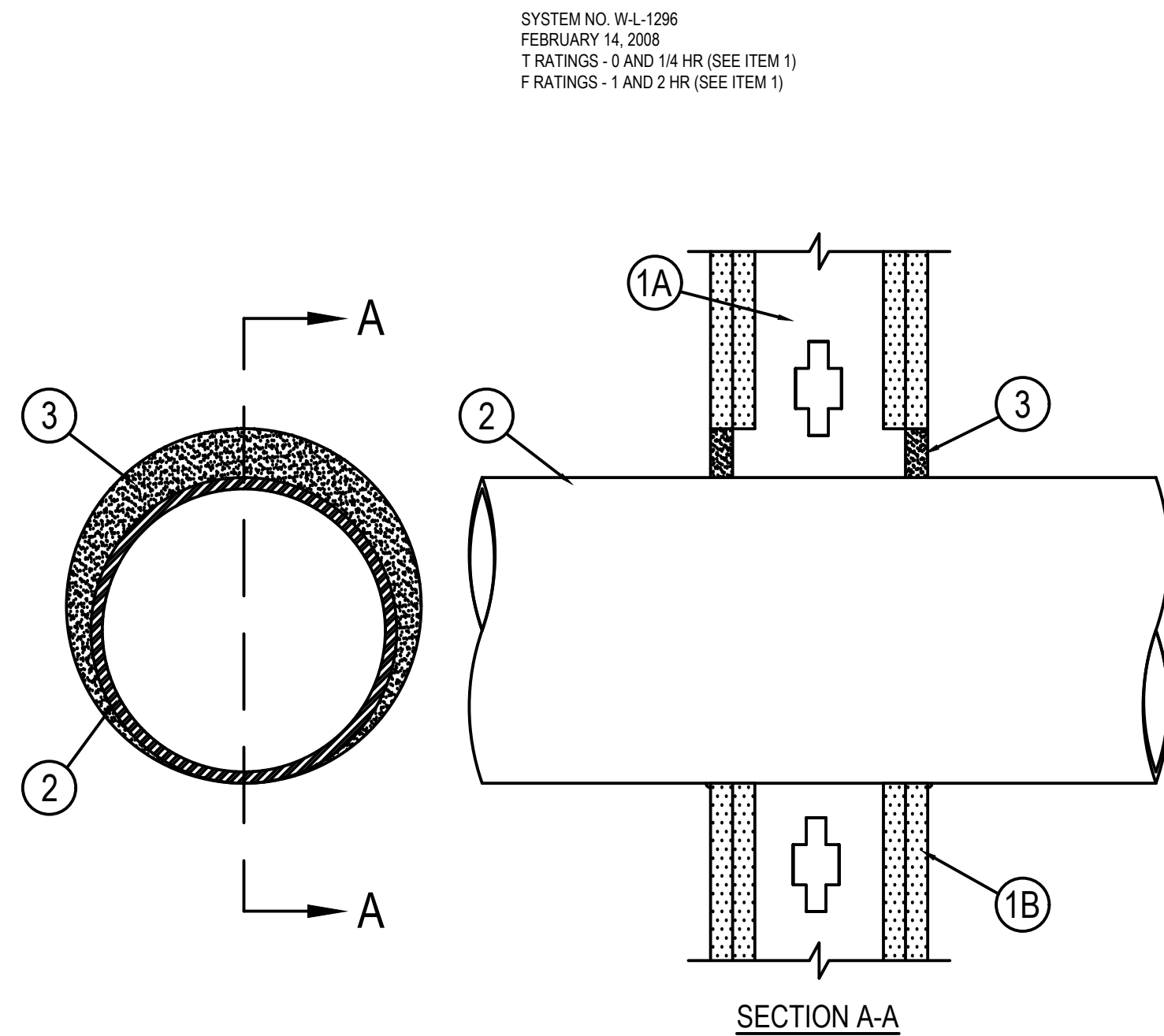
SCALE : NONE

DETAIL GENERAL NOTES :

- REFER TO DRAWING MFE-1 FOR HVAC, PLUMBING/FIRE PROTECTION & ELECTRICAL GENERAL NOTES, ABBREVIATIONS, LEGENDS & DRAWING LIST.
- BUS VOLTAGE SENSING SHALL BE 3-PHASE TO ENABLE VALIDATION OF PHASE SEQUENCE.
- FOR EACH CONTROL WIRING RUN EXTERNAL TO THE GEN-SET ENCLOSURES, PROVIDE MINIMUM (1) SPARE FOR EACH MULTI-CONDUCTOR CABLE AND 50% SPARES FOR ALL OTHER CONDUCTORS.
- BASIC OF DESIGN IS CUMMINS GENERATORS.

DETAIL KEY NOTES :

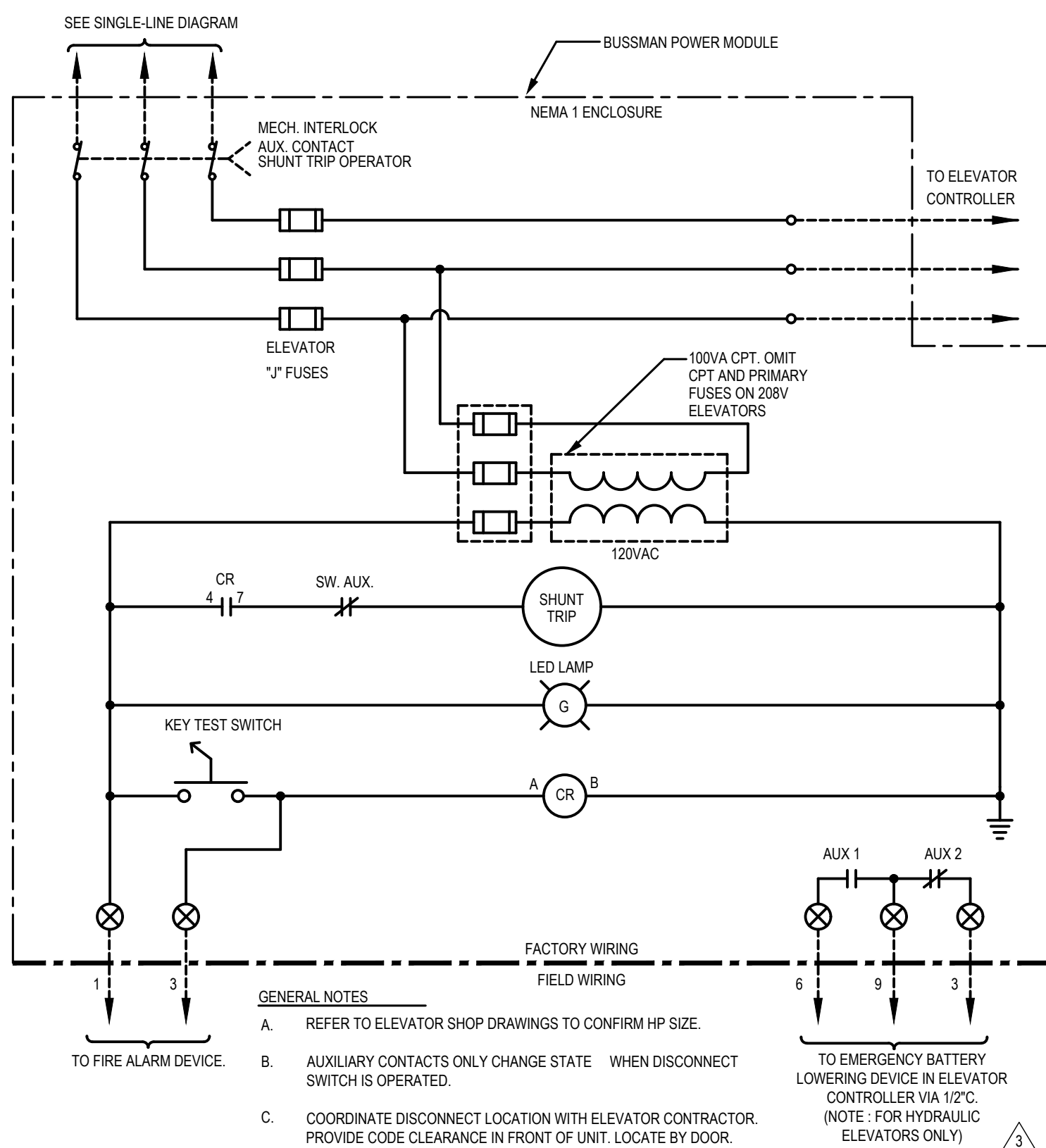
- VOLTAGE AND CURRENT SENSING & CONNECTIONS PROVIDED AND CONNECTED BY EQUIPMENT MANUFACTURER. PARALLELING FUNCTIONS TESTED DURING GENERATOR SET FACTORY TESTING.
- ATS SHALL BE FURNISHED AND INSTALLED WITH APPROPRIATE QUANTITY AND SIZE LUGS FOR ALL POWER CONNECTIONS SHOWN.
- GENERATOR TO GENERATOR CONTROL INTERCONNECTION REQUIRES:
- (1) BELDEN 8729 (2-INDIVIDUALLY SHIELDED PAIR) FOR LOAD SHARING (OR EQUAL)
- (1) BELDEN 3106A (SHIELDED TWISTED PAIR) FOR SYSTEM BUS
- (1) BELDEN 3106A (SHIELDED TWISTED PAIR) FOR FIRST START SENSOR
- ATS START AND STATUS SIGNALS REQUIRE:
- (6) #14AWG STRANDED COPPER CONDUCTORS (EACH)
- GENERATORS WILL EACH MONITOR AND DISPLAY TOTAL SYSTEM LOAD VIA SECONDARY CTS ON EACH GENERATOR CONTROL PANEL. SYSTEM LOAD SIGNALS REQUIRE: (8) #12AWG STRANDED COPPER CONDUCTORS. CTS SHOWN ON LOAD SIDE OF ATS TO DISPLAY LOADS WHILE ATS IS CONNECTED TO EITHER NORMAL OR STANDBY SOURCE(S). NOTE, CT SIGNALS MUST BE IN SEPARATE CONDUIT FROM OTHER CONTROL WIRING.
- EACH REMOTE ANNUNCIATOR REQUIRES:
- (1) BELDEN 8729 (2-INDIVIDUALLY SHIELDED PAIR)
- (2) #14AWG STRANDED COPPER CONDUCTORS
- CUMMINS POWER COMMAND 3300 CONTROL PANEL



3M FIRESTOPPING DETAIL W-L-1296

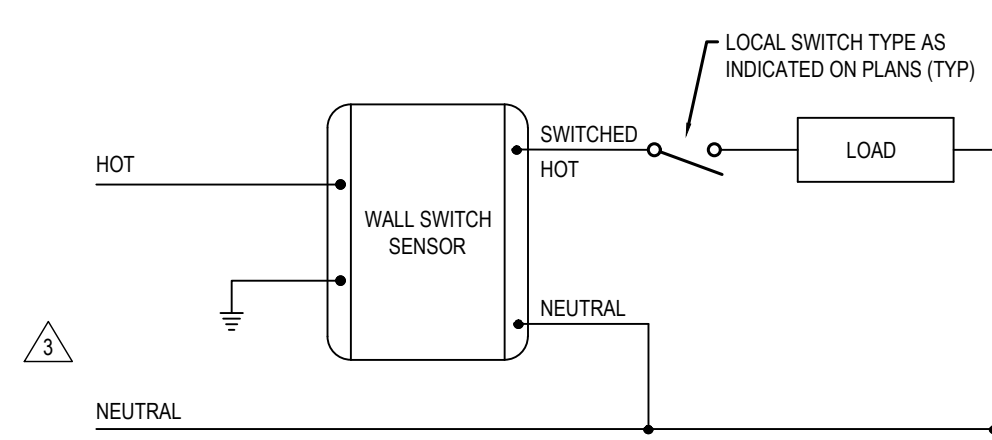
SCALE : NONE

- WALL ASSEMBLY - THE 1 OR 2 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (405 MM) OC. STEEL STUDS TO BE MIN 3-1/2 IN. (89 MM) WIDE SPACED MAX 24 IN. (610 MM) OC.
B. GYPSUM BOARD - THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 10-5/8 IN. (270 MM).
C. STEEL SLEEVE - (OPTIONAL, NOT SHOWN) - CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.019 IN. THICK (0.48 MM) GALV SHEET STEEL AND HAVING A MIN 1/8 IN. (3.18 MM) LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM WALLBOARD LAYERS.
THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
THE HOURLY F RATING IS 0 AND 1/4 HR FOR 1 AND 2 HR RATED ASSEMBLIES, RESPECTIVELY.
2. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT, TUBING OR FLEXIBLE METAL PIPE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING TO BE MIN 0 IN. (0 MM) POINT CONTACT TO MAX 2 IN. (51 MM). PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED:
A. STEEL PIPE - NOM 8 IN. (203 MM) DIAM (OR SMALLER), SCHEDULE 5 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 8 IN. (203 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR NOM 6 IN. (152 MM) RIGID STEEL CONDUIT.
D. COPPER TUBING - NOM 4 IN. (102 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER PIPE - NOM 4 IN. (102 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
F. THROUGH PENETRATING PRODUCT - FLEXIBLE METAL PIPING - THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:
1. NOM 2 IN. (51 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
OMEGA FLEX INC
2. NOM 1 IN. (25 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
GASTITE, DIV OF TITELLEX
3. NOM 1 IN. (25 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
WARD MFG INC
3. FILL, VOID OR CAVITY MATERIAL - CAULK OR SEALANT - MIN 5/8 IN. (16 MM) THICKNESS OF CAULK APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT LOCATION ON BOTH SIDES OF WALL.
3M COMPANY - IC 159B - CP 259B - CAULK OR FB-3000 WT SEALANT
*BEARING THE UL CLASSIFICATION MARK



**POWER MODULE / ELEVATOR DISCONNECT
SWITCH SCHEMATIC WIRING DIAGRAM**

SCALE : NONE

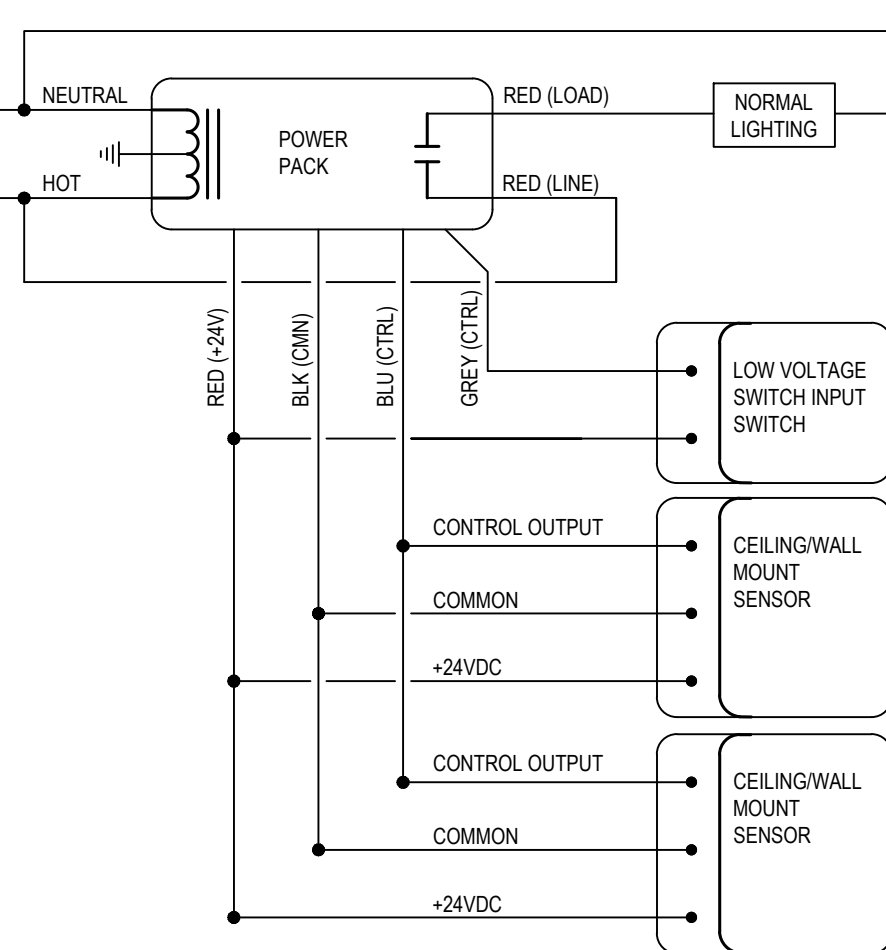


**WIRING DIAGRAM
TYPICAL WALLBOX SENSOR**

SCALE : NONE

DETAIL GENERAL NOTES :

- CONTRACTOR SHALL COORDINATE WITH THE OWNER AND ADJUST THE TIME DELAYS OF SENSORS TO SUIT OWNER'S OPERATION REQUIREMENT.
- SENSOR SHALL BE AUTO-ON, AUTO-OFF.
- PROVIDE SENSOR MASKING IF NECESSARY.
- UNLESS OTHERWISE NOTED, AUTOMATIC WALL SWITCH SHALL BE MOUNTED 48" AFF TO CENTER.



**WIRING DIAGRAM
TYPICAL CEILING SENSOR**

SCALE : NONE

LUMINAIRE SCHEDULE									
DESIGNATION	TYPE	DESCRIPTION	MOUNTING	LAMPS / WATTS	VOLTS	MANUF.	CATALOG#		
A		FOUR (4) FOOT, WALL BRACKET AND/OR SURFACE MOUNT LED, 3500K	CEILING SURFACE	LED / 28.2W	UNIV	LITHONIA W SERIES	WL4-30L-LP35 OR APPROVED EQUAL		
B		METALLIC LED VAPORPROOF FIXTURE, MARINE GRADE ALUMINUM HOUSING, SILICONE GASKETS, FROSTED HEAT TREATED GLASS GLOBE.	WALL	LED / 17W 3000	120	PHOENIX	VA-W-TLED-WW-FGC OR APPROVED EQUAL		
C		2"X4" RECESSED LENSED LED TROFFER, FROSTED POLYSTYRENE LENS, 0-10V DIMMING, UL LISTED FOR DAMP LOCATIONS.	CEILING RECESSED	LED / 40W 3500K, 83CRI	120	RAB	EZPAN2X4-40YND10 OR APPROVED EQUAL		
D		2"X2" RECESSED LENSED LED TROFFER, FROSTED POLYSTYRENE LENS, 0-10V DIMMING, UL LISTED FOR DAMP LOCATIONS.	CEILING RECESSED	LED / 40W 3500K, 83CRI	120	RAB	EZPAN2X2-40YND10 OR APPROVED EQUAL		
EM		SELF-CONTAINED, LED EMERGENCY LIGHTING UNIT, NO LAMP HEADS, SUPPLY WITH WIREGUARD (ELA-WG1)	UNIV	NA	UNIV	LITHONIA QUANTUM SERIES	ELM-T-W-LTP-RD OR APPROVED EQUAL		
EM		SELF-CONTAINED, LED EMERGENCY LIGHTING UNIT, DUAL LAMP HEADS, SUPPLY WITH WIREGUARD (ELA-WG1), WHEN SERVING REMOTE HEADS, ADD TO CAT. NO. "1" FOR HIGH OUTPUT	UNIV	NA	UNIV	LITHONIA QUANTUM SERIES	ELM-T-W-LTP-RD/LTP OR APPROVED EQUAL		
RI		TWIN LED INDOOR REMOTE HEADS, SUPPLY WITH WIREGUARD (ELA-WG1)	WALL	LED / 15W HEAD	UNIV	LITHONIA QUANTUM SERIES	ELA-T-Q-L0309 OR APPROVED EQUAL		
R0		TWIN LED WEATHER-PROOF REMOTE HEADS, GRAY CAST ALUMINUM, SUPPLY WITH WIREGUARD (ELA-WG1)	WALL	LED / 15W HEAD	UNIV	LITHONIA QUANTUM SERIES	ELA-T-QNP-L0309 OR APPROVED EQUAL		
X		SELF-CONTAINED, EMERGENCY LED EXIT SIGN	UNIV	LED / 5W	120	LITHONIA QUANTUM SERIES	LQM-S-X-3-X-120-ELN OR APPROVED EQUAL		

- LUMINAIRE MOUNTING AND FINISH DATA SHOWN TO ESTABLISH A LEVEL OF QUALITY ONLY. THE CONTRACTOR SHALL VERIFY CEILING TYPE AND REQUIRED FINISHES WITH THE OWNER'S REPRESENTATIVE BEFORE ORDERING MATERIAL.
- VERIFY EXACT QUANTITIES AND PLACEMENTS WITH ARCHITECTURAL DRAWINGS BEFORE INSTALLATION.
- E.C. SHALL COORDINATE ALL LIGHTING CONTROLS WITH REQUIRED DRIVERS AND ACCESSORIES TO MAKE FUNCTIONAL.
- REFER TO LIGHTING DESIGNER'S DRAWINGS FOR OTHER LUMINAIRE INFORMATION.