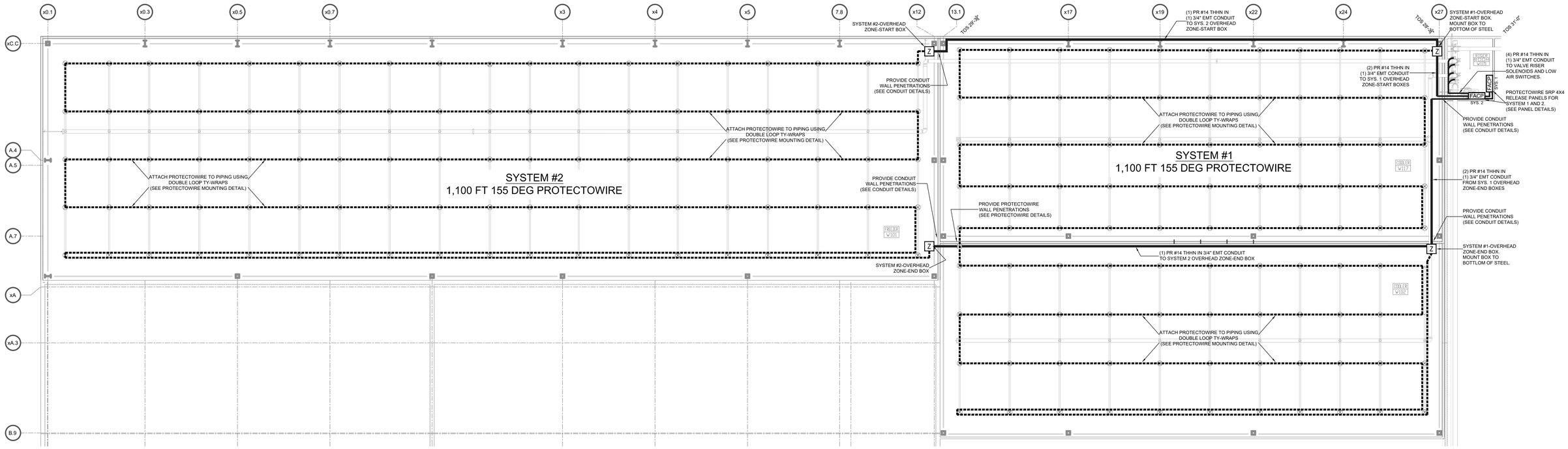


North 0' 2' 4' 8' SCALE 1/8"=1'-0"

SYSTEM 1 AND 2 OVERHEAD PROTECTOWIRE - PLAN VIEW

NOTES

1. PROTECTOWIRE SHALL BE "PHSC-155-EPC" 155°F RATED FOR USE IN FREEZER APPLICATIONS
2. OVERHEAD PROTECTOWIRE WILL BE ATTACHED DIRECTLY TO THE SPRINKLER LINES UTILIZING DOUBLE LOOP TY-WRAPS EVERY 10 FT.
3. THE PROTECTOWIRE HAS BEEN DESIGNED FOR THE SAME SPACING AS THE SPRINKLER PIPE AT THE ROOF

PROTECTOWIRE

3/4" EMT CONDUIT w/ #14 THHN

REMOVE INSULATION FROM EACH WIRE LEAVING 1/2" OF BARE "PROTECTOWIRE" CONDUCTOR, PRESERVING 3/8" OF INSULATION FROM BARE WIRE BACK TO THE COVERING.

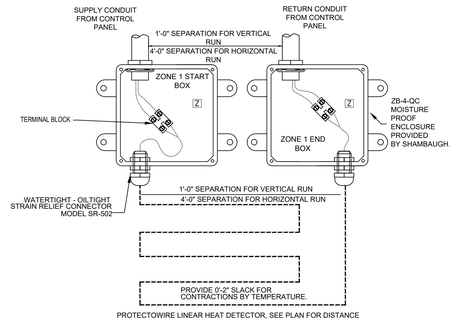
INSTALL WIRES AS SHOWN BELOW MAKING SURE THE ENTIRE 1/2" PORTION OF BARE "PROTECTOWIRE" CONDUCTOR IS EMBEDDED IN SPLICING CONNECTOR.

SECURE "PROTECTOWIRE" BY TIGHTENING THE CONNECTOR SCREWS. PLASTIC SCREW TURRETS MAY BE TRIMMED WITH SNIPS OR UTILITY KNIFE FOR EASIER TAPING.

USING 3" - 4" OF SFTS TAPE, START AT LEAST 2" BEFORE CONNECTOR AND WRAP THE SPLICE. STRETCH AND OVERLAP EACH WRAP OF TAPE BY 1/4" - 1/2" THE WIDTH. FINISH THE SPLICE SEAL BY WRAPPING BLACK ELECTRICAL TAPE OVER THE SFTS SEALANT.

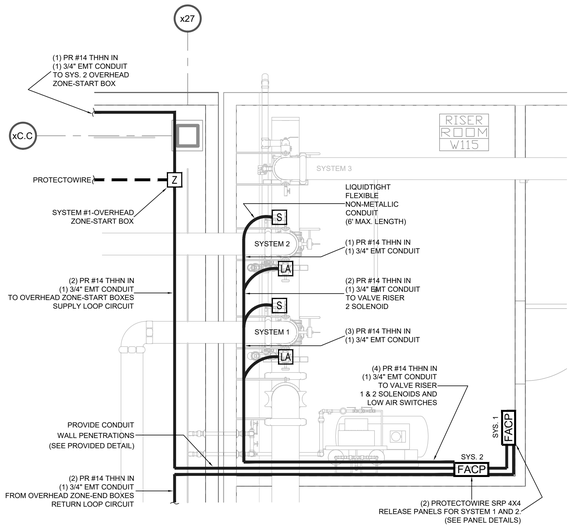
PROTECTOWIRE SPLICING DETAIL

NO SCALE



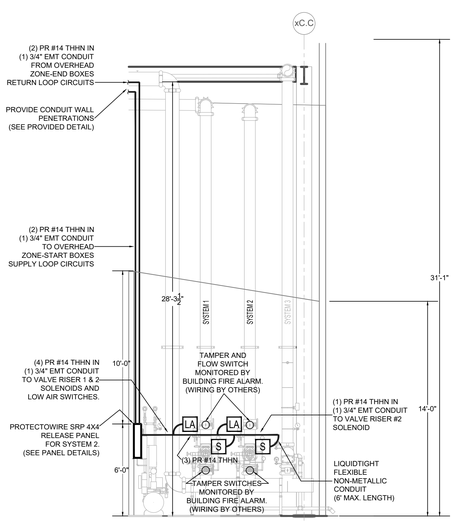
(Z) PROTECTOWIRE CLASS 'A' ZONE BOXES - DETAIL

NO SCALE



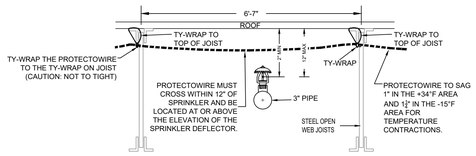
North 0' 2' 4' 8' SCALE 1/2"=1'-0"

RISER ROOM W115 - PLAN VIEW



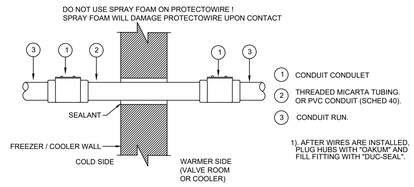
North 0' 1' 2' 4' SCALE 1/4"=1'-0"

RISER ROOM W115 - ELEVATION VIEW



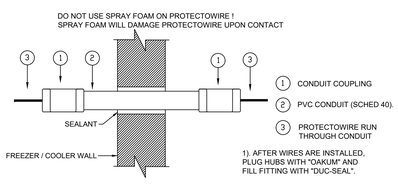
PROTECTOWIRE TY-WRAP MOUNTING DETAIL

NO SCALE



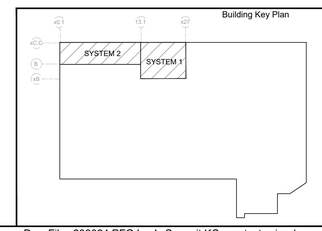
CONDUIT RUN THROUGH FREEZER/COOLER WALLS

NO SCALE



PROTECTOWIRE RUN THROUGH FREEZER/COOLER WALLS

NO SCALE



Stamp or Seal

SYMBOLS LEGEND:
- = Hanger with rod length
- = Trapeze Hanger Location
- = Hydraulic Reference point

Abbreviations:
TOS = Top of Steel
BOS = Bottom of Steel
BOP = Bottom of Purlin
TOW = Top or Wood
BOW = Bottom of Wood
BOC = Bottom of Concrete
BOD = Bottom of Deck

X' TOS = Centerline of pipe below structure above
X'-X" = Centerline of pipe above finished floor

No.	Date	By	Revision
0	10-11-2023	AGK	SUBMITTAL
1	---	---	---
2	---	---	---
3	---	---	---
4	---	---	---
5	---	---	---

Company:

SHAMBAUGH & SON, L.P.
CONTRACTORS• ENGINEERS
7614 OPPORTUNITY DRIVE, FORT WAYNE, IN 46825
P. 260-497-7777

FIRE PROTECTION · FIRE ALARM

Date: OCTOBER 19, 2023

Designed: A. KNUDSON | Checked: B. BIDDLE

PFG LEES SUMMIT

290 SE THOMPSON DR.
LEES SUMMIT, MO 64082

FIRE PROTECTION SYSTEMS

PROTECTOWIRE SYSTEM 1 & 2 ROUTING PLAN

238024

Drawing: FP2.01 | Revision: - 0

Plotted: 10-19-2023

Dwg File: 238024 PFG Lee's Summit KC - protectowire.dwg

HOW IT WORKS

AT THE RATED OPERATING TEMPERATURE, THE DETECTOR'S HEAT SENSITIVE POLYMER INSULATION YIELDS TO THE PRESSURE UPON IT, PERMITTING THE INNER CONDUCTORS TO MOVE INTO CONTACT WITH EACH OTHER. THIS ACTION TAKES PLACE AT THE FIRST HEATED POINT ANYWHERE ALONG THE DETECTOR'S LENGTH. IT DOES NOT REQUIRE THAT ANY SPECIFIED LENGTH BE HEATED IN ORDER TO INITIATE AN ALARM. PROTECTOWIRE IS A FIXED TEMPERATURE SENSOR AND IS THEREFORE CAPABLE OF INITIATING AN ALARM AT ANY POINT ALONG ITS LENGTH, ONCE THE RATED ACTU- ATION TEMPERATURE IS REACHED.

PROTECTOWIRE NOTES

PROTECTOWIRE CAN BE DAMAGE BY CRUSHING AND PINCHING CABLE. THE RESULTS OF SUCH INJURY MAY NOT APPEAR AT ONCE AND MAY NOT BE OBVIOUS BY THE OUTWARD APPEARANCE OF THE WIRE, BUT DAMAGE TO THE OUTER JACKET OR UNNECESSARY MECHANICAL STRESS APPLIED TO THE WIRE DURING INSTALLATION MAY CAUSE "FALSE ALARMS" LATER ON. THEREFORE:

-**DO NOT** LEAVE IT ON THE FLOOR AND WALK ON IT OR SET LADDERS ON IT DURING INSTALLATION.

-**DO NOT** INSTALL IT WITH COMMERCIAL FASTENERS UNLESS SPECIALLY APPROVED BY THE PROTECTOWIRE COMPANY.

-**DO NOT** PLACE IT WHERE IT WILL BE SUBJECT TO MECHANICAL DAMAGE BY EQUIPMENT PROCESSES.

-**DO NOT** OVERTIGHTEN THE FASTENERS AS THIS MAY BREACH THE OUTER JACKET OR CRUSH THE INNER INSULATION, CAUSING UNWANTED ALARMS. ALL FASTENERS MUST ALLOW THE WIRE TO EXPAND AND CONTRACT WITH TEMPERATURE CHANGES.

-**DO NOT** OVER STRETCH THE PROTECTOWIRE RUNS, SOME WIRE "SAG" BETWEEN FASTENERS IS NORMAL.

-**DO NOT** MAKE 90 BENDS IN THE DETECTOR. USE 2.5 INCH (6.4 CM) RADIUS BENDS.

-**DO NOT** HOLD THE WIRE WITH PLIERS TO MAKE BENDS. ALL BENDS SHOULD BE MADE WITH THE FINGERS AND CONSIST OF ROUNDED TURNS WITH A MINIMUM 2.5 INCH (6.4 CM) RADIUS.

-**DO NOT** USE WIRE NUTS OR OTHER SIMILAR DEVICES. ALL CONNECTIONS MUST BE MADE VIA TERMINALS AND/OR PROTECTOWIRE APPROVED SPLICING DEVICES.

-**DO NOT** PAINT THIS DETECTOR, PER UL AND FM REQUIREMENTS.

INSTALLATION ADVISORY- WHEN PROTECTOWIRE IS INSTALLED IN REFRIGERATED WAREHOUSES AND FREEZER APPLICATIONS, PRIOR TO CHILL-DOWN, IT IS IMPORTANT TO PROVIDE ADEQUATE SLACK OR "SAG" IN THE WIRE DURING THE INSTALLATION PROCESS IN ORDER TO AVOID EXCESSIVE STRESS ON SPLICING CONNECTIONS WHICH MAY RESULT IN OPEN CIRCUIT TROUBLE CONDITIONS. THIS BUILT-IN SLACK IS INTENDED TO COMPENSATE FOR THE CONTRACTION OF THE DETECTOR CORE WHICH OCCURS DURING THE REDUCTION IN TEMPERATURE AS THE FACILITY IS BROUGHT DOWN TO IT'S SUBFREEZING OPERATING TEMPERATURE.

INSTALLATION WARNING:
- DO NOT DRILL THROUGH TOP OF ENCLOSURE FOR CONDUIT ENTRY.
- METAL FILINGS AND/OR WATER ENTRY FROM CONDUIT SYSTEM WILL DAMAGE COMPONENTS AND VOIDS FACTORY WARRANTY.
- USE KNOCKOUTS PROVIDED AND SEAL ALL CONDUIT OPENINGS.

SYSTEM IS CONFIGURED TO UTILIZE THE MAXIMUM POWER IT IS CAPABLE OF DELIVERING. MAKE FIELD CONNECTIONS SHOWN ONLY. DO NOT UTILIZE SYSTEM POWER TO OPERATE ANY AUXILIARY DEVICES (ANNUNCIATOR LAMPS, ETC.) OTHER THAN THOSE IT IS DESIGNED FOR.

WARNING:
FATAL ELECTRICAL SHOCK AND EQUIPMENT DAMAGE MAY RESULT FROM FAILURE TO REMOVE ALL POWER PRIOR TO SERVICING SYSTEM.

REFERENCE THE OPERATING AND MAINTENANCE MANUAL.

GENERAL WIRING INSTALLATION:

ALL INSTALLATION MATERIALS SUCH AS CONDUIT, FITTINGS, BOXES, HANGERS, ETC. ARE TO BE SUPPLIED AND INSTALLED BY: SHAMBAUGH AND SON/ ELECTRICAL SUB

EXACT LOCATION OF EQUIPMENT IS TO BE DETERMINED ON SITE, IN ORDER TO COORDINATE THE WORK WITH OTHER TRADES AND CONSTRUCTION. ALL CHANGES IN LOCATION OF DEVICES SHALL BE BROUGHT TO THE ATTENTION OF SHAMBAUGH FIRE PROTECTION AND APPROVED PRIOR TO INSTALLATION.

ALL WIRING MUST CONFORM WITH STATE AND LOCAL CODES. LIMITED ENERGY CABLE MAY ONLY BE USED WHEN A CURRENT LIMITED CIRCUIT EXISTS AND MUST MEET THE APPROVAL OF LOCAL AUTHORITIES, INSURANCE COMPANIES, AND ALL APPLICABLE CODES.

INCOMING POWER TO THE CONTROL PANEL SHOULD BE INSTALLED IN SEPARATE CONDUIT FROM ALL OTHER CIRCUITS.

INITIAL ENERGIZING OF THE 120 VOLT A.C. POWER SUPPLY TO THE CONTROL PANEL SHALL BE DONE IN THE PRESENCE OF SHAMBAUGH FIRE PROTECTION PERSONNEL OR THEIR APPROVED REPRESENTATIVE.

BATTERY CALCULATION

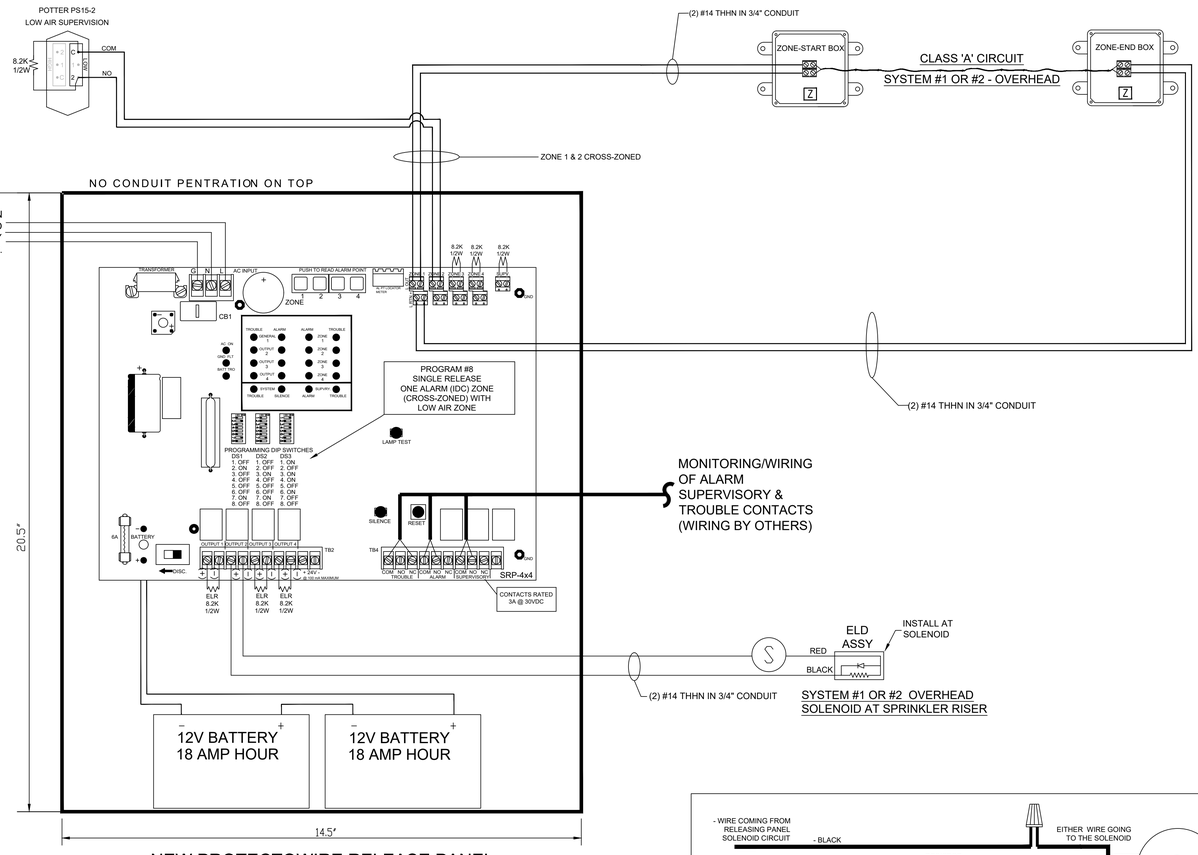
UNIT	QTY.	STAND-BY (AMPS)	SUB-TOTAL	ALARM (AMPS)	SUB-TOTAL
PANEL	1	0.160	0.160	0.160	0.160
SOLENOID	1	0	0	0.375	0.375
	TOTAL STAND-BY 0.100			TOTAL ALARM 0.535	

90 HR. STAND-BY (AMP. X HR.)	10 MINUTE ALARM (AMP. X HR.)
0.160 X 90 = 14.40	0.535 X 0.166 = 0.089

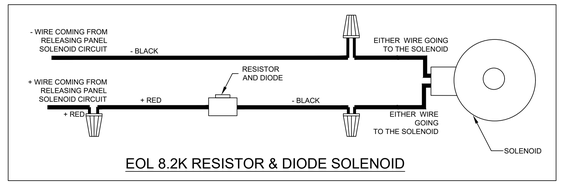
MINIMUM AMP-HOUR BATTERY CAPACITY
14.40 AMP. HR. + 0.089 AMP. HR. = 14.489 AMP.HR.
14.489 AMP. HR. / 0.85 (DE-RATE) = 17.05 AMP.HR.

EQUIPMENT LIST

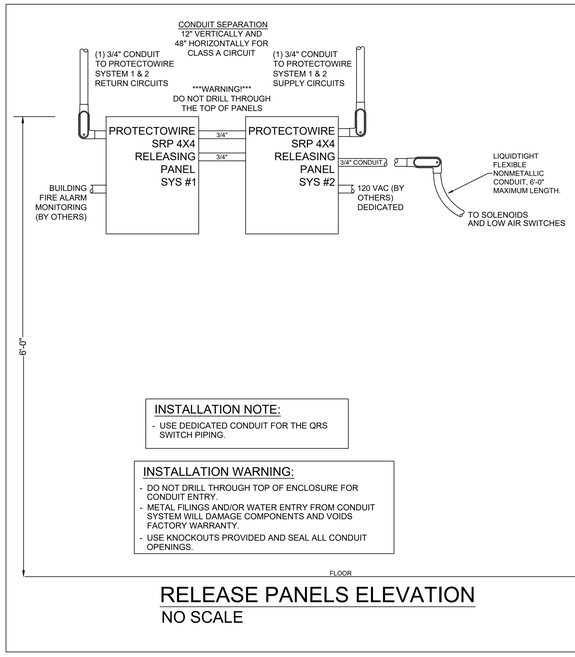
SYM.	QTY.	DESCRIPTION	MODEL
FACP	2	PROTECTOWIRE CONTROL PANEL	SRP 4X4
Z	4	4" SQUARE SEALED ZONE BOX	ZB-4-QC, SR-502
S	2	SOLENOID	VICTAULIC 753-E
LA	2	LOW AIR PRESSURE SWITCH	POTTER PS15-2
——	2,200'	155 DEG. PROTECTOWIRE	PHSC-155-EPC
——	FIELD VERIFY	#14 THHN IN 3/4" EMT CONDUIT	-
	FIELD VERIFY	PROTECTOWIRE STRAPS	PLB4S-M0



NEW PROTECTOWIRE RELEASE PANEL
NO SCALE



EOL 8.2K RESISTOR & DIODE SOLENOID



INSTALLATION NOTE:
- USE DEDICATED CONDUIT FOR THE QRS SWITCH PIPING.

INSTALLATION WARNING:
- DO NOT DRILL THROUGH TOP OF ENCLOSURE FOR CONDUIT ENTRY.
- METAL FILINGS AND/OR WATER ENTRY FROM CONDUIT SYSTEM WILL DAMAGE COMPONENTS AND VOIDS FACTORY WARRANTY.
- USE KNOCKOUTS PROVIDED AND SEAL ALL CONDUIT OPENINGS.

RELEASE PANELS ELEVATION
NO SCALE

RELEASE PANEL MATRIX

A SUPERVISED DOUBLE INTERLOCKED SYSTEM CONTROLLED BY ELECTRIC / PNEU RELEASE

DEVICE - INPUT	EVENT	PROTECTOWIRE RELEASE PANEL - ALARM	PROTECTOWIRE RELEASE PANEL - SUPERVISORY	PROTECTOWIRE RELEASE PANEL - TROUBLE	ACTIVATES OUTPUT #1 RELEASE SOLENOID	ACTIVATES ALARM RELAY MONITORED BY THE BLDG. FIRE ALARM PANEL	ACTIVATES SUPV. RELAY MONITORED BY THE BLDG. FIRE ALARM PANEL	ACTIVATES TROUBLE RELAY MONITORED BY THE BLDG. FIRE ALARM PANEL
ZONE #1 - PROTECTOWIRE LINEAR HEAT DETECTION CABLE	ALARM	●			●			
ZONE #2 - LOW AIR SWITCH	SUPERVISORY		●			●		
ZONE #1 AND ZONE #2 (CROSS ZONED)	ALARM				●			
ANY PANEL OR CIRCUIT TROUBLE CONDITION	TROUBLE			●				●
NO BATTERY OR LOW BATTERY (STAND BY POWER)	TROUBLE			●				●

ACTION - OUTPUT

* SPRINKLER SYSTEMS WATERFLOW AND VALVE TAMPER SWITCHES SHALL BE MONITORED BY THE BUILDING FIRE ALARM PANEL
* ALARM, SUPERVISORY & TROUBLE CONTACTS ON RELEASE PANEL SHALL BE MONITORED BY THE BUILDING FIRE ALARM PANEL.
* WATER WILL NOT BE INTRODUCED INTO SPRINKLER PIPING UNTIL LOSS OF AIR PRESSURE AND PROTECTOWIRE IN ALARM.

REMOVE INSULATION FROM EACH WIRE LEAVING 1/2" OF BARE "PROTECTOWIRE" CONDUCTOR, PRESERVING 3/8" OF INSULATION FROM BARE WIRE BACK TO THE COVERING.

INSTALL WIRES AS SHOWN BELOW MAKING SURE THE ENTIRE 1/2" PORTION OF BARE "PROTECTOWIRE" CONDUCTOR IS EMBEDDED IN SPLICING CONNECTOR.

SECURE "PROTECTOWIRE" BY TIGHTENING THE CONNECTOR SCREWS. PLASTIC SCREW TURRETS MAY BE TRIMMED WITH SNIPS OR UTILITY KNIFE FOR EASIER TAPING.

USING 3" - 4" OF SFTS TAPE, START AT LEAST 2" BEFORE CONNECTOR AND WRAP THE SPLICE. STRETCH AND OVERLAP EACH WRAP OF TAPE BY 1/4" - 1/2" THE WIDTH. FINISH THE SPLICE SEAL BY WRAPPING BLACK ELECTRICAL TAPE OVER THE SFTS SEALANT.

PROTECTOWIRE SPLICING DETAIL
NO SCALE

Stamp or Seal

SYMBOLS LEGEND:
= Hanger with rod length
= Trapeze Hanger Location
= Hydraulic Reference point
Abbreviations:
TOS = Top of Steel
BOS = Bottom of Steel
BOP = Bottom of Purlin
TOW = Top or Wood
BOW = Bottom of Wood
BOC = Bottom of Concrete
BOD = Bottom of Deck
X'-10" = Centerline of pipe below structure above
X'-X" = Centerline of pipe above finished floor

No.	Date	By	Revision
0	10-11-2023	AGK	SUBMITTAL
1	---	---	---
2	---	---	---
3	---	---	---
4	---	---	---
5	---	---	---

Company:
SHAMBAUGH & SON, L.P.
CONTRACTORS • ENGINEERS
7614 OPPORTUNITY DRIVE, FORT WAYNE, IN 46825
P. 260-487-7777

FIRE PROTECTION - FIRE ALARM

Date: OCTOBER 19, 2023
Designed: A. KNUDSON | Checked: B. BIDDLE

PFG LEES SUMMIT
290 SE THOMPSON
LEES SUMMIT, MO 64082

FIRE PROTECTION SYSTEMS

PROTECTOWIRE SYSTEM 1 & 2 PANEL DETAILS

238024

Drawing: FP2.02 Revision: - 0

Plotted: 10-19-2023

Dwg File: 238024 PFG Lee's Summit KC - protectowire.dwg