

# CHEERS T.I.

## FIRE ALARM SYSTEM

### PROJECT INFORMATION

NAME: CHEERS T.I.  
ADDRESS: 4110 S. MERIDIAN  
PUYALLUP, WA 98373

#### SCOPE OF WORK

INSTALLATION OF A NEW ADDRESSABLE FIRE ALARM SYSTEM IN A TENANT IMPROVEMENT SINGLE STORY BUILDING. PER FIRE ALARM CODE FOR THE CITY OF PUYALLUP, THIS SYSTEM WILL BE UL APPROVED AND PROCOMM WILL PROVIDE THE CITY WITH THE REQUIRED UL LISTING/PERMITS. ALL POTTER DEVICES COME WITH A FIVE YEAR WARRANTY. A NEW AES WIRELESS RADIO WILL BE INSTALLED TO MONITOR THE NEW SYSTEM. THE CITY OF PUYALLUP IS ALSO REQUIRING A NEW FULLY FUNCTIONAL SPRINKLER SYSTEM BE INSTALLED WITH-IN THE SPACE.

#### FIRE ALARM SYSTEM CONTRACTOR

NAME: PROCOMM PROTECTION & COMMUNICATIONS INC.  
ADDRESS: 19630 40TH AVE WEST  
LYNNWOOD, WA 98036

PHONE: (425) 774 - 9099

#### APPLICABLE CODES AND STANDARDS

NFPA 72 NATIONAL FIRE ALARM CODE 2016 EDITION  
NFPA 70 NATIONAL ELECTRICAL CODE 2017 EDITION  
INTERNATIONAL BUILDING CODE 2018 EDITION  
INTERNATIONAL FIRE CODE 2018 EDITION

### CIRCUIT LABELING LEGEND

SLC1-### DEVICE IDENTIFIER  
CIRCUIT IDENTIFIER  
SLC = SIGNALING LINE CIRCUIT  
NAC = NOTIFICATION APPLIANCE CIRCUIT

### ABBREVIATIONS

|       |                               |       |                                      |
|-------|-------------------------------|-------|--------------------------------------|
| A     | AMPERE                        | J-BOX | JUNCTION BOX                         |
| AFF   | ABOVE FINISHED FLOOR          | kV    | KILOVOLT                             |
| AHU   | AIR HANDLING UNIT             | kVA   | KILOVOLT AMPERE                      |
| AL    | ALUMINUM                      | kW    | KILOWATT                             |
| AMP   | AMPERE                        | kWh   | KILOWATT HOUR                        |
| AWG   | AMERICAN WIRE GAUGE           | MFR   | MANUFACTURER                         |
| BLDG  | BUILDING                      | MECH  | MECHANICAL                           |
| C     | CONDUIT                       | MIN   | MINIMUM                              |
| CB    | CIRCUIT BREAKER               | (A)   | NEW                                  |
| CCTV  | CLOSED CIRCUIT TELEVISION     | NAC   | NOTIFICATION APPLIANCE CIRCUIT       |
| CKT   | CIRCUIT                       | NEC   | NATIONAL ELECTRIC CODE               |
| CLG   | CEILING                       | NEUT  | NEUTRAL                              |
| CO    | CONDUIT ONLY                  | NFPA  | NATIONAL FIRE PROTECTION ASSOCIATION |
| COMM  | COMMUNICATION                 | NC    | NORMALLY CLOSED                      |
| CU    | COPPER                        | NIC   | NOT IN CONTRACT                      |
| DCV   | DOUBLE CHECK VALVE            | NO    | NUMBER, NORMALLY OPEN                |
| DIA   | DIAMETER                      | NTS   | NOT TO SCALE                         |
| DISC  | DISCONNECT                    | OD    | OVERHEAD DOOR; OVERALL DIAMETER      |
| DN    | DOWN                          | PIV   | POST INDICATOR VALVE                 |
| DO    | DOOR OPERATOR                 | PNL   | PANEL                                |
| (E)   | EXISTING                      | PVC   | POLYVINYL CHLORIDE (PLASTIC)         |
| EA    | EACH                          | PWR   | POWER                                |
| EF    | EXHAUST FAN                   | QTY   | QUANTITY                             |
| ELEC  | ELECTRIC                      | REQD  | REQUIRED                             |
| ELEV  | ELEVATOR                      | RH    | RANGE HOOD                           |
| EMT   | ELECTRICAL METALLIC TUBING    | RMC   | RIGID METALLIC CONDUIT               |
| EOL   | END OF LINE RESISTOR          | SF    | SUPPLY FAN; SQUARE FEET              |
| EOLR  | END OF LINE RESISTOR          | SLC   | SIGNALING LINE CIRCUIT               |
| EXIST | EXISTING                      | SPEC  | SPECIFICATION                        |
| F     | FIXED                         | ST    | SHUNT TRIP                           |
| FA    | FIRE ALARM                    | STD   | STANDARD                             |
| FAA   | FIRE ALARM ANNUNCIATOR        | TEL   | TELEPHONE                            |
| FACP  | FIRE ALARM CONTROL PANEL      | TELCO | TELEPHONE COMPANY                    |
| FAPS  | FIRE ALARM POWER SUPPLY       | TEMP  | TEMPORARY                            |
| FARA  | FIRE ALARM REMOTE ANNUNCIATOR | TS    | TAMPER SWITCH                        |
| FBO   | FURNISHED BY OTHERS           | TYP   | TYPICAL                              |
| FDC   | FIRE DEPARTMENT CONNECTION    | UGND  | UNDERGROUND                          |
| FEC   | FIRE EXTINGUISHER CABINET     | UL    | UNDERWRITERS LABORATORIES            |
| FH    | FIRE HYDRANT                  | UON   | UNLESS OTHERWISE NOTED               |
| FPL   | FIRE POWER LIMITED            | V     | VOLT                                 |
| FPLR  | FIRE POWER LIMITED RISER      | VA    | VOLT AMPERE                          |
| FPLP  | FIRE POWER LIMITED PLENUM     | VAC   | VOLTAGE, ALTERNATING CURRENT         |
| FS    | WATER FLOW SWITCH             | VDC   | VOLTAGE, DIRECT CURRENT              |
| FSD   | FIRE/SMOKE DAMPER             | VR    | VANDAL RESISTANT                     |
| G     | GROUND                        | W     | WATT                                 |
| GEC   | GROUNDING ELECTRODE CONDUCTOR | W/    | WITH                                 |
| GEN   | GENERATOR                     | W/O   | WITHOUT                              |
| HT    | HEAT TRACE                    | WP    | WEATHERPROOF                         |
| IDC   | INITIATING DEVICE CIRCUIT     | Z     | IMPEDANCE                            |

| DEVICE LEGEND |                       |                        |                                                                                                                                    |     |
|---------------|-----------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----|
| SYMBOL        | MANUFACTURER          | PART NO                | DESCRIPTION                                                                                                                        | QTY |
| [FACP]        | POTTER                | IPA-4000               | FIRE ALARM CONTROL PANEL                                                                                                           | 1   |
| [AES]         | AES                   | 7707P-88-UJLP-M        | INTELLINET 2.0 FIRE SUBSCRIBER, 8 ZONE WITH 7794A AES-INTELLIPRO, AND INTEGRATED ONBOARD LOCAL ANNUNCIATOR PLUS MCT, RED ENCLOSURE | 1   |
| [DOC]         | SPACE AGE ELECTRONICS | SSU00689               | FIRE ALARM DOCUMENT BOX                                                                                                            | 1   |
| [F]           | POTTER                | PAD100-PSDA            | ADDRESSABLE PULL STATION DUAL ACTION                                                                                               | 1   |
| [ABV]         | POTTER                | PAD100-DIM             | DUAL INPUT MODULE                                                                                                                  | 3   |
| [H]           | POTTER                | PAD300-HD W/PAD300-6DB | HEAT DETECTOR WITH 6" STANDARD BASE                                                                                                | 1   |
| [S]           | POTTER                | PAD300-PD W/PAD300-6DB | PHOTOELECTRIC SMOKE DETECTOR WITH 6" STANDARD BASE                                                                                 | 13  |
| [H]           | POTTER                | HS-24WW                | HORN STROBE, 24 VDC, WHITE                                                                                                         | 3   |
| [H]c          | POTTER                | CHS-24W                | HORN STROBE, CEILING, WHITE                                                                                                        | 4   |
| [X]c          | POTTER                | CS-24W                 | STROBE, CEILING, WHITE                                                                                                             | 3   |
| [X]           | POTTER                | S-24WW                 | STROBE, 24 VDC, WHITE                                                                                                              | 2   |
| [H]WP         | POTTER                | HS-24WW-WP             | OUTDOOR HORN STROBE, FIXED 75 CANDELA, STANDARD ENCLOSURE, WHITE                                                                   | 1   |

| FIRE ALARM CABLE AND WIRE LEGEND |                |                |         |          |     |                    |                                             |
|----------------------------------|----------------|----------------|---------|----------|-----|--------------------|---------------------------------------------|
| LABEL                            | WIRE TYPE      | WIRE LINE TYPE | MFR.    | PART NO. | AWG | RESISTANCE (Ω/Mft) | DESCRIPTION                                 |
| A                                | SLC CIRCUIT    |                | COMTRAN | 35777    | 16  | 4.09               | 2 COND. SOLID COPPER FPLR ANALOG UNSHIELDED |
| B                                | NAC CIRCUIT    |                | COMTRAN | 38700    | 14  | 3.07               | 2 COND. SOLID COPPER FPLR ANALOG UNSHIELDED |
| C                                | AUX CIRCUIT    |                | COMTRAN | 38700    | 14  | 3.07               | 2 COND. SOLID COPPER FPLR ANALOG UNSHIELDED |
| D                                | P-LINK CIRCUIT |                | COMTRAN | 38697    | 18  | 6.7000             | 4 COND. SOLID COPPER FPLR ANALOG UNSHIELDED |

### FIRE ALARM SYSTEM OUTPUTS

FACP & ANNUNCIATORS C.S. MONITORING NOTIFICATION & CONTROL EQUIPMENT

### FIRE ALARM SYSTEM INPUTS

|                                 |   |  |  |   |   |  |   |   |
|---------------------------------|---|--|--|---|---|--|---|---|
| SYSTEM SMOKE/HEAT DETECTORS     | ● |  |  | ● |   |  |   |   |
| MANUAL PULL STATION             |   |  |  | ● |   |  |   |   |
| SPRINKLER WATER FLOW SWITCH     | ● |  |  |   |   |  | ● | ● |
| SPRINKLER VALVE TAMPER SWITCHES |   |  |  |   | ● |  | ● |   |
| SYSTEM TROUBLE                  |   |  |  | ● |   |  | ● |   |
| BATTERY FAULT                   |   |  |  | ● |   |  | ● |   |
| OPEN CIRCUIT/SHORT              |   |  |  | ● |   |  | ● |   |
| GROUND FAULT                    |   |  |  | ● |   |  | ● |   |
| LOSS OF PRIMARY POWER           |   |  |  | ● |   |  | ● |   |

#### GENERAL NOTES:

- REFERENCE NUMBERS ARE SHOWN IN PARENTHESES (1) FOR "NOTES / NOTATIONS" INDICATED BELOW AND IN HEADINGS TO THE RIGHT.
- FIRE ALARM SYSTEM DEVICES ARE POINT ADDRESSABLE.
- SPRINKLER SYSTEM WATER FLOW AND TAMPER SWITCH EVENTS ARE ANNUNCIATED ON THE FACP.

A

### FIRE ALARM SEQUENCE OF OPERATIONS MATRIX

SCALE = NOT TO SCALE

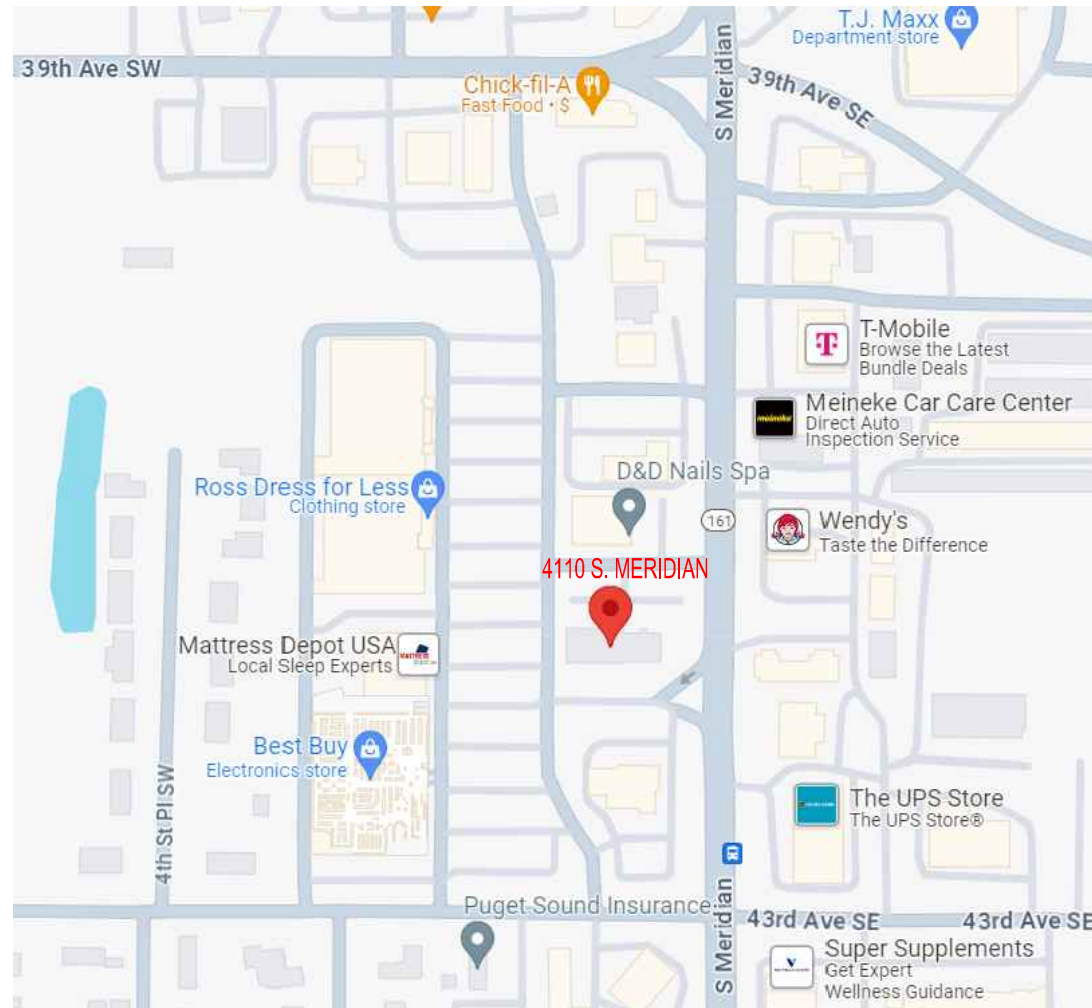
City of Puyallup  
Fire  
REVIEWED  
FOR  
COMPLIANCE

DDrake  
09/18/2024  
1:39:04 PM



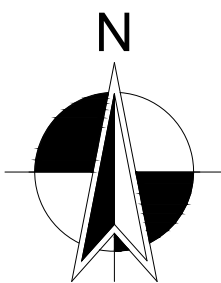
THE APPROVED CONSTRUCTION PLANS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

Approval of submitted plans is not an approval of omissions or oversight by this office or noncompliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable building codes and regulations of the local government.



| City of Puyallup<br>Development & Permitting Services<br>ISSUED PERMIT |          |             |              |
|------------------------------------------------------------------------|----------|-------------|--------------|
| Building                                                               | Planning | Engineering | Public Works |
| Fire                                                                   | Traffic  |             |              |

### VICINITY MAP



### SHEET INDEX

| SHEET NO. | SHEET DESCRIPTION                                        |
|-----------|----------------------------------------------------------|
| FA0.1     | TITLE SHEET                                              |
| FA1.1     | MAIN FLOOR PLAN - FIRE ALARM SYSTEM                      |
| FA2.1     | FIRE ALARM RISER DIAGRAM, BATTERY CALCULATIONS & DETAILS |

#### GENERAL NOTES

- ALL FIRE ALARM SYSTEM WORK COMPLETED UNDER THE SCOPE OF THIS FIRE ALARM PLAN REVIEW SHALL BE FIELD VERIFIED BY FIRE INSPECTION PERSONNEL AND THE FIRE CODE OFFICIAL.
- VISIBLE NOTIFICATION APPLIANCES SHALL REMAIN ACTIVE (FLASHING) WHEN THE AUTOMATIC AND MANUAL FIRE ALARM SYSTEM IS SILENCED.
- FIRE ALARM SYSTEM SHALL TRANSMIT TROUBLE, SUPERVISORY AND FIRE SIGNALS DIRECTLY TO THE COMMUNICATIONS CENTER REMOTE SUPERVISING STATION.
- MOUNT PULL STATIONS AT 42" AT ACTIVATOR WITHIN 5' OF LATCH SIDE OF EXIT DOORS
- MOUNT AUDIO VISUAL DEVICES AT 80" ABOVE FLOOR LEVEL
- A DEDICATED 120VAC, 20A BRANCH CIRCUIT BREAKER SHALL BE PROVIDED, MARKED IN RED, LOCK-ON PROVISION AND IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL". THE LOCATION OF THE CIRCUIT BREAKER WILL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.



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19630 40TH AVE WEST  
LYNNWOOD, WA 98036  
(425)-774-9099

| DATE     |  |
|----------|--|
| REVISION |  |
| SYMBOL   |  |



CHEERS T.I.  
4110 S. MERIDIAN  
PUYALLUP, WA. 98373  
TITLE SHEET

|                 |                 |
|-----------------|-----------------|
| DRAWN BY:       | JRC             |
| CHECKED BY:     | Adrian M. Steik |
| PLOT DATE:      | 9/6/24          |
| PROJECT NUMBER: | 24-088          |

FA0.1

SHEET NUMBER:

DRAWING ONLY TO SCALE IF PLOTTED AT 24" X 36"







City of Puyallup  
Development & Permitting Services  
ISSUED PERMIT

Building

Planning

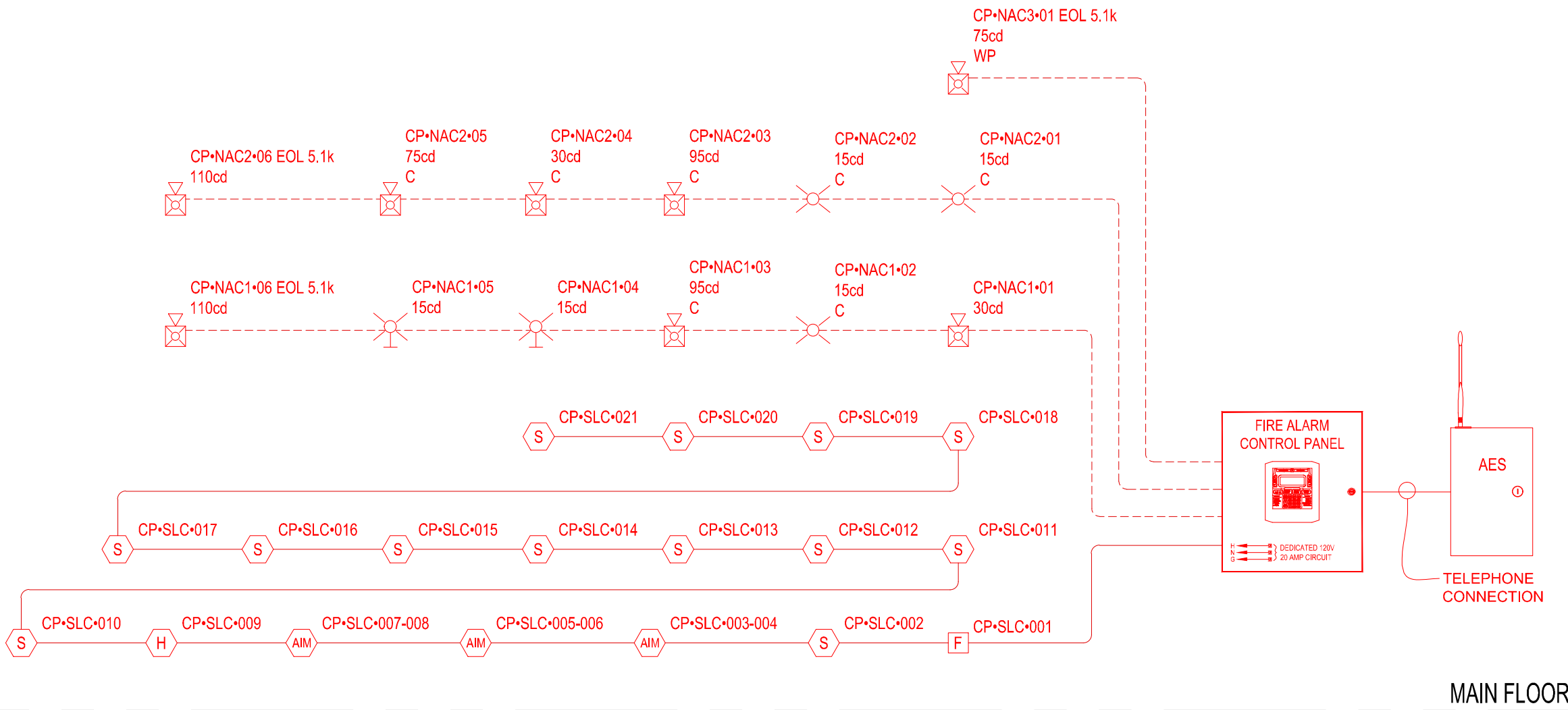
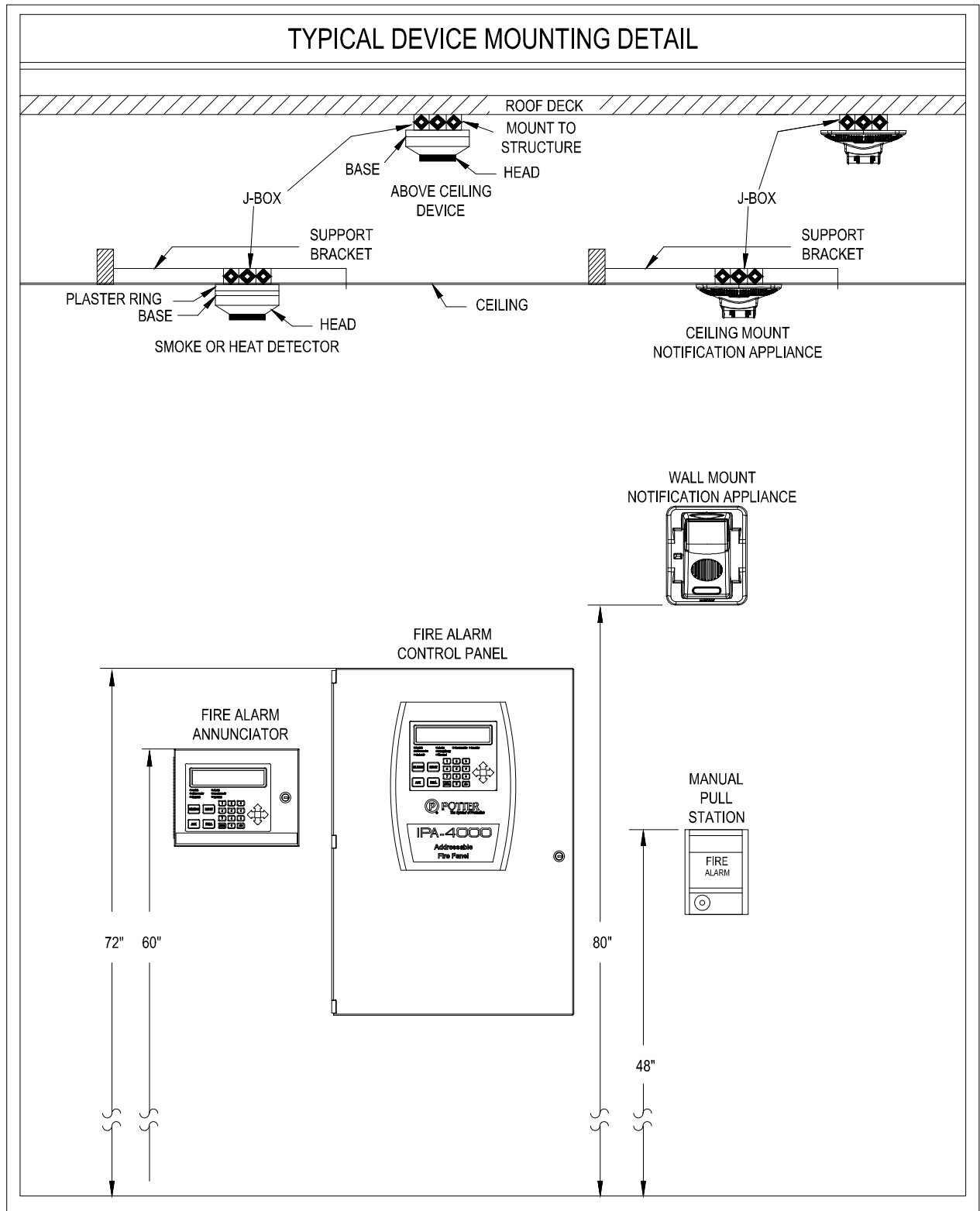
Engineering

Public Works

Fire

Traffic

| REQUIRED DECIBEL OUTPUT BY OCCUPANCY TYPE |               |                   |              |
|-------------------------------------------|---------------|-------------------|--------------|
| OCCUPANCY TYPE                            | AMBIENT NOISE | dBA ABOVE AMBIENT | REQUIRED dBA |
| BUSINESS                                  | 55 dBA        | 15 dBA            | 70 dBA       |
| EDUCATIONAL                               | 45 dBA        | 15 dBA            | 60 dBA       |
| MERCANTILE                                | 40 dBA        | 15 dBA            | 55 dBA       |
| PLACES OF ASSEMBLY                        | 55 dBA        | 15 dBA            | 70 dBA       |
| RESIDENTIAL                               | 35 dBA        | 15 dBA            | 50 dBA       |
| RESIDENTIAL @ PILLOW                      | N/A           | N/A               | 75 dBA       |
| STORAGE                                   | 30 dBA        | 15 dBA            | 45 dBA       |



A FIRE ALARM RISER DIAGRAM  
SCALE = NOT TO SCALE

| PANEL CP (IPA-4000) BATTERY CALCULATION<br>(SECONDARY POWER SOURCE REQUIREMENTS) |                                                                                     |     |                        |                                                                                                                                    |                                                     |           |                                |           |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|--------------------------------|-----------|
| PANEL POWER SUPPLY MAX CURRENT = 10A                                             |                                                                                     |     |                        |                                                                                                                                    | TOTAL USED CAPACITY (IN ALARM) = 2.23412A (22.34 %) |           |                                |           |
| PANEL COMPONENTS                                                                 |                                                                                     | QTY | PART NO.               | DESCRIPTION                                                                                                                        | STANDBY CURRENT (AMPS)                              |           | SECONDARY ALARM CURRENT (AMPS) |           |
|                                                                                  |                                                                                     |     |                        |                                                                                                                                    | CURRENT DRAW (A)                                    | TOTAL (A) | CURRENT DRAW (A)               | TOTAL     |
|                                                                                  |                                                                                     | 1   | IPA-4000 MAIN BOARD    | Main Board for IPA-4000 Fire Alarm Control Panel                                                                                   | 0.13                                                | 0.13      | 0.22                           | 0.22      |
|                                                                                  |                                                                                     | 1   | UD-2000                | PFC Series Digital Alarm Communicator Transmitter                                                                                  | 0.016                                               | 0.016     | 0.023                          | 0.023     |
| CIRCUIT                                                                          | SYMBOL                                                                              | QTY | PART NO                | DESCRIPTION                                                                                                                        | CURRENT DRAW (A)                                    | TOTAL (A) | CURRENT DRAW (A)               | TOTAL (A) |
| CP-IO 1 AES                                                                      |  | 1   | 7707P-88JLP-M          | IntelliNet 2.0 Fire Subscriber, 8 Zone with 7794A AES-IntelliPro, and integrated onboard Local Annunciator plus MCT, Red Enclosure | 0                                                   | 0         | 0                              | 0         |
| CP-NAC1                                                                          |  | 1   | CHS-24W                | Horn Strobe, Ceiling, White 95cd                                                                                                   | 0                                                   | 0         | 0.243                          | 0.243     |
|                                                                                  |  | 1   | CS-24W                 | Strobe, Ceiling, White 15cd                                                                                                        | 0                                                   | 0         | 0.12                           | 0.12      |
|                                                                                  |  | 1   | HS-24WW                | Horn Strobe, 24 VDC, White 30cd                                                                                                    | 0                                                   | 0         | 0.086                          | 0.086     |
|                                                                                  |  | 1   | HS-24WW                | Horn Strobe, 24 VDC, White 110cd                                                                                                   | 0                                                   | 0         | 0.189                          | 0.189     |
|                                                                                  |  | 2   | S-24WW                 | Strobe, 24 VDC, White 15cd                                                                                                         | 0                                                   | 0         | 0.042                          | 0.084     |
| CP-NAC2                                                                          |  | 1   | CHS-24W                | Horn Strobe, Ceiling, White 30cd                                                                                                   | 0                                                   | 0         | 0.143                          | 0.143     |
|                                                                                  |  | 1   | CHS-24W                | Horn Strobe, Ceiling, White 75cd                                                                                                   | 0                                                   | 0         | 0.223                          | 0.223     |
|                                                                                  |  | 1   | CHS-24W                | Horn Strobe, Ceiling, White 95cd                                                                                                   | 0                                                   | 0         | 0.243                          | 0.243     |
|                                                                                  |  | 2   | CS-24W                 | Strobe, Ceiling, White 15cd                                                                                                        | 0                                                   | 0         | 0.12                           | 0.24      |
|                                                                                  |  | 1   | HS-24WW                | Horn Strobe, 24 VDC, White 110cd                                                                                                   | 0                                                   | 0         | 0.189                          | 0.189     |
| CP-NAC3                                                                          |  | 1   | HS-24WW-WP             | Outdoor Horn Strobe, Fixed 75 Candela, Standard Enclosure, White 75cd                                                              | 0                                                   | 0         | 0.226                          | 0.226     |
| CP-SLC                                                                           |  | 3   | PAD100-DIM             | Dual Input Module                                                                                                                  | 0.00024                                             | 0.00072   | 0.00024                        | 0.00072   |
|                                                                                  |  | 1   | PAD100-PSDA            | Addressable Pull Station Dual Action                                                                                               | 0.0002                                              | 0.0002    | 0.0002                         | 0.0002    |
|                                                                                  |  | 1   | PAD300-HD w/PAD300-6DB | Heat Detector with 6" Standard Base                                                                                                | 0.0003                                              | 0.0003    | 0.0003                         | 0.0003    |
|                                                                                  |  | 13  | PAD300-PD w/PAD300-6DB | Photoelectric Smoke Detector with 6" Standard Base                                                                                 | 0.0003                                              | 0.0039    | 0.0003                         | 0.0039    |
|                                                                                  |                                                                                     |     |                        |                                                                                                                                    | TOTAL STANDBY (A)                                   | 0.15112   | TOTAL ALARM (A)                | 2.23412   |
|                                                                                  |                                                                                     |     |                        |                                                                                                                                    | REQUIRED STANDBY TIME = 24 HOURS                    |           |                                |           |
|                                                                                  |                                                                                     |     |                        |                                                                                                                                    | REQUIRED ALARM TIME = 5 MINUTES                     |           |                                |           |
| SECONDARY STANDBY LOAD (A)                                                       |                                                                                     |     |                        | 0.15112                                                                                                                            | 24                                                  | 3.63      |                                |           |
| SECONDARY ALARM LOAD (A)                                                         |                                                                                     |     |                        | 2.23412                                                                                                                            | 0.08                                                | 0.19      |                                |           |
| STANDBY AND ALARM SUBTOTAL (AMP HOURS)                                           |                                                                                     |     |                        |                                                                                                                                    |                                                     | 3.81      |                                |           |
| DERATING FACTOR                                                                  |                                                                                     |     |                        |                                                                                                                                    |                                                     | 1.2       |                                |           |
| SECONDARY LOAD REQUIREMENTS (AMP HOURS)                                          |                                                                                     |     |                        |                                                                                                                                    |                                                     | 4.58      |                                |           |
| PROVIDE (2) 12V 8AH BATTERIES                                                    |                                                                                     |     |                        |                                                                                                                                    |                                                     |           |                                |           |
| *BATTERY BOX SIZE CAPACITY NOT SPECIFIED. REFER TO MANUFACTURER DOCUMENTATION.   |                                                                                     |     |                        |                                                                                                                                    |                                                     |           |                                |           |

| CP NAC1 LUMP SUM REPORT                                                                                |        |          |                                  | CIRCUIT SETTINGS              |                    | TOTALS                     |         |
|--------------------------------------------------------------------------------------------------------|--------|----------|----------------------------------|-------------------------------|--------------------|----------------------------|---------|
|                                                                                                        |        |          |                                  | Starting Calculation Voltage: | 20.4               | Max. Voltage Drop:         | 0.87    |
|                                                                                                        |        |          |                                  | Min. Operational Voltage:     | 16                 | End Of Line Voltage:       | 19.53   |
|                                                                                                        |        |          |                                  | Max. Circuit Current (A):     | 3                  | Voltage Drop Percent:      | 4.26 %  |
|                                                                                                        |        |          |                                  | Wire Resistance (Ω/kF):       | 3.07               | Total Circuit Current (A): | 0.722   |
| Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded |        |          |                                  | Total Circuit Length (Ft):    | 196                | Spare Current (A):         | 2.278   |
| Distance measured using drawn segment lengths with 10.00 % additional length calculated                |        |          |                                  | Total Circuit Resistance (Ω): | 1.203954           | Spare Current (A) Percent: | 75.93 % |
| DEVICE TOTALS                                                                                          | Symbol | Part No. | Description                      | Qty.                          | Device Current (A) | Total Current (A)          |         |
|                                                                                                        | C      | S-24WW   | Strobe, 24 VDC, White 15cd       | 2                             | 0.042              | 0.084                      |         |
|                                                                                                        | C      | HS-24WW  | Horn Strobe, 24 VDC, White 30cd  | 1                             | 0.086              | 0.086                      |         |
|                                                                                                        | C      | CS-24W   | Strobe, Ceiling, White 15cd      | 1                             | 0.12               | 0.12                       |         |
|                                                                                                        | C      | HS-24WW  | Horn Strobe, 24 VDC, White 110cd | 1                             | 0.189              | 0.189                      |         |
|                                                                                                        | C      | CHS-24W  | Horn Strobe, Ceiling, White 95cd | 1                             | 0.243              | 0.243                      |         |

| CP NAC2 LUMP SUM REPORT                                                                                |        |          |                                  | CIRCUIT SETTINGS              |                    | TOTALS                     |         |
|--------------------------------------------------------------------------------------------------------|--------|----------|----------------------------------|-------------------------------|--------------------|----------------------------|---------|
|                                                                                                        |        |          |                                  | Starting Calculation Voltage: | 20.4               | Max. Voltage Drop:         | 1.12    |
|                                                                                                        |        |          |                                  | Min. Operational Voltage:     | 16                 | End Of Line Voltage:       | 19.28   |
|                                                                                                        |        |          |                                  | Max. Circuit Current (A):     | 3                  | Voltage Drop Percent:      | 5.48 %  |
|                                                                                                        |        |          |                                  | Wire Resistance (Ω/kF):       | 3.07               | Total Circuit Current (A): | 1.038   |
| Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded |        |          |                                  | Total Circuit Length (Ft):    | 175                | Spare Current (A):         | 1.962   |
| Distance measured using drawn segment lengths with 10.00 % additional length calculated                |        |          |                                  | Total Circuit Resistance (Ω): | 1.076595           | Spare Current (A) Percent: | 65.40 % |
| DEVICE TOTALS                                                                                          | Symbol | Part No. | Description                      | Qty.                          | Device Current (A) | Total Current (A)          |         |
|                                                                                                        | C      | CS-24W   | Strobe, Ceiling, White 15cd      | 2                             | 0.12               | 0.24                       |         |
|                                                                                                        | C      | CHS-24W  | Horn Strobe, Ceiling, White 30cd | 1                             | 0.143              | 0.143                      |         |
|                                                                                                        | C      | HS-24WW  | Horn Strobe, 24 VDC, White 110cd | 1                             | 0.189              | 0.189                      |         |
|                                                                                                        | C      | CHS-24W  | Horn Strobe, Ceiling, White 75cd | 1                             | 0.223              | 0.223                      |         |
|                                                                                                        | C      | CHS-24W  | Horn Strobe, Ceiling, White 95cd | 1                             | 0.243              | 0.243                      |         |

| CP NAC3 LUMP SUM REPORT                                                                                |        |            |                                                                       | CIRCUIT SETTINGS              |                    | TOTALS                     |         |
|--------------------------------------------------------------------------------------------------------|--------|------------|-----------------------------------------------------------------------|-------------------------------|--------------------|----------------------------|---------|
|                                                                                                        |        |            |                                                                       | Starting Calculation Voltage: | 20.4               | Max. Voltage Drop:         | 0.17    |
|                                                                                                        |        |            |                                                                       | Min. Operational Voltage:     | 16                 | End Of Line Voltage:       | 20.23   |
|                                                                                                        |        |            |                                                                       | Max. Circuit Current (A):     | 3                  | Voltage Drop Percent:      | 0.85 %  |
|                                                                                                        |        |            |                                                                       | Wire Resistance (Ω/kF):       | 3.07               | Total Circuit Current (A): | 0.226   |
| Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded |        |            |                                                                       | Total Circuit Length (Ft):    | 125                | Spare Current (A):         | 2.774   |
| Distance measured using drawn segment lengths with 10.00 % additional length calculated                |        |            |                                                                       | Total Circuit Resistance (Ω): | 0.768472           | Spare Current (A) Percent: | 92.47 % |
| DEVICE TOTALS                                                                                          | Symbol | Part No.   | Description                                                           | Qty.                          | Device Current (A) | Total Current (A)          |         |
|                                                                                                        | WP     | HS-24WW-WP | Outdoor Horn Strobe, Fixed 75 Candela, Standard Enclosure, White 75cd | 1                             | 0.226              | 0.226                      |         |

Calculation Methods:  
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)  
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

B FIRE ALARM BATTERY AND CIRCUIT CALCULATIONS - FACP  
SCALE = NOT TO SCALE



| DATE     |  |
|----------|--|
| REVISION |  |
| SYMBOL   |  |



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SHEET TITLE:  
FIRE ALARM RISER DIAGRAM, BATTERY CALCULATIONS & DETAILS

|                 |                 |
|-----------------|-----------------|
| DRAWN BY:       | JRC             |
| CHECKED BY:     | Adrian M. Steik |
| PLOT DATE:      | 9/6/24          |
| PROJECT NUMBER: | 24-088          |

FA2.1

SHEET NUMBER: