

ADDENDUM NO. 2

RFP F24-002

MASON HEALTH FIRE ALARM DEVICES UPGRADE & PROGRAMMING

Dated: June 11, 2024

RFP Questions & Answers

- 1. Question: Can we use the attached fire alarm rated MC instead of conduit for locations in accessible ceiling spaces?** Answer: No, for new devices all cabling shall be in EMT conduit.
- 2. Question: Shall the quote include any money/time for fire watch?** Answer: No, the expectation is that the fire alarm system will be functional at the end of each workday. If fire watch is needed for short periods of time, then hospital maintenance will help support.
- 3. Question: When is the project expected to start?** Answer: Work is anticipated to begin once the contract is executed with the awarded contractor and materials are available.

Fire Alarm® Control Cable – Type MC – Dual Rated Type MC/FPLP

Plenum Rated Technical Specifications

Armor

Interlocked Galvanized Steel Strip (Painted Red)

Conductors

Solid Copper

Conductor Insulation

TFN 18 & 16 AWG and/or THHN 14 & 12 AWG

Assembly

Polyester Assembly Tape; Twisted Shielded: Laminated Aluminum/Mylar® Shield with Tinned Copper Drain Wire

Maximum Temperature Rating

FPLP: 105°C (Dry)

MC: 90°C (Dry)

Grounding

One or More Grounding Conductors May Be Bare or Insulated Green, See Chart Below

Neutral Conductor

White (Where Applicable)

Maximum Voltage Rating

300V (FPLP)

600V (MC)



MC CABLES

References & Ratings

- UL 66, 83, 1424, 1479, 1569, 1581, 2556, File Reference E80042
- NEC® 300.22(C), 392, 330, 430.2, 501, 502, 503, 530, 504, 505, 518, 530, 645, 725, 760, 760.154(A)
- Cable Tray Rated, install per NEC®
- Federal Specification A-A-59544 (formerly J-C-30B)
- UL Classified 1, 2, and 3 hour through (Fire) penetration product, R14141
- NFPA 262 (formerly UL 910) Plenum Rated - Type FPLP
- Made in USA of US and/or imported materials

Product Code		Trade Size	Grounding Conductor AWG	Approx. Weight/ 1,000ft (lbs)	Approx. Armor O.D. (In)
250' Coil	1000' Reel				
Solid TFN					
1801R42-00	1801R60-00	18-2 Solid (Black, White)	18 bare	110	0.470
1803R42-00	1803R60-00	18-4 Solid (Black, White, Red, Blue)	18 bare	130	0.430
1805R42-00	1805R60-00	18-6 Solid (Black, White, Red, Blue, Yellow, Orange)	18 bare	170	0.490
1810R42-00	1810R60-00	16-2 Solid (Black, White)	16 bare	120	0.470
1813R42-00	1813R60-00	16-4 Solid (Black, White, Red, Blue)	16 bare	147	0.491
Solid THHN					
1834R42-00	1834R60-00	14-2 Solid (Black, White)	14 Solid (Green)	142	0.471
1837R42-00	1837R60-00	14-4 Solid (Black, White, Red, Blue)	14 Solid (Green)	192	0.529
1835R42-00	1835R60-00	12-2 Solid (Black, White)	12 Solid (Green)	177	0.514
1840R42-00	1840R60-00	12-4 Solid (Black, White, Red, Blue)	12 Solid (Green)	249	0.584
Twisted Shielded Pairs					
1895R42-05	1895R60-05	16-2 Solid (1 TSP) (Blue, White) †	16 Solid (Green)	147	0.526
1895R42-06	1895R60-06	16-2 Solid (1 TSP) (Black, Red) †	16 Solid (Green)	147	0.526
4901R42-00	4901R60-00	16-2 Solid (1 TSP) (Black, White) & un-shielded 12-2 Solid (Black, Red) †	12 Solid (Green)	236	0.606
1828R42-00	1828R60-00	14-2 Solid (1 TSP) (Black, White) †	14 Solid (Green)	217	0.565
1828R42-05	1828R60-05	14-2 Solid (1 TSP) (Blue, White) †	14 Solid (Green)	217	0.565
1881R42-00	1881R60-00	14-4 Solid (2 TSP) (Black, Red) (Blue, White) †	14 Solid (Green)	255	0.690
Specialty Colors					
1828R42-05	1828R60-05	14-2 Solid (1TSP) (Blue, White) †	14 Solid (Green)	217	0.565
1834R42-05	1834R60-05	14-2 Solid (Blue, White)	14 Solid (Green)	195	0.627
1834R42-06	1834R60-06	14-2 Solid (Black, Red)	14 Solid (Green)	195	0.627
1834R42-23	1834R60-23	14-2 Solid (Orange, Yellow)	14 Solid (Green)	195	0.627
1834R42-37	1834R60-37	14-2 Solid (Brown, Purple)	14 Solid (Green)	195	0.627
1834R42-44	1834R60-44	14-2 Solid (Gray, Gray*)	14 Solid (Green)	195	0.627
1835R42-05	1835R60-05	12-2 Solid (Blue, White)	12 Solid (Green)	177	0.514
1837R42-05	1837R60-05	14-4 Solid (Blue, Blue*, White, White*)	14 Solid (Green)	192	0.529
1837R42-06	1837R60-06	14-4 Solid (Black, Black*, Red, Red*)	14 Solid (Green)	192	0.529
1895R42-06	1895R60-06	16-2 Solid (1 TSP) (Black, Red) †	16 Solid (Green)	147	0.526

NOTE: All dimensions and weights are subject to normal manufacturing tolerances.

* One conductor insulation has identifying stripe

† All drain wires are 18AWG Tinned Copper in TSP construction

Mylar is a Registered trademark of DuPont

For the electrical properties of Fire Alarm® Control Cable and twists per foot information, see page 30.

Fire Alarm® Control Cable Performance Charts



Conductor Size AWG	XL _r Reactance ¹	R _{ac} Resistance, 75°C ²	Z _r Effective ³ Impedance
Electrical Properties (ohms to neutral per 1000 feet)			
18	0.047	7.77	6.24
16	0.043	4.89	3.93
14	0.042	3.07	2.48
12	0.04	1.93	1.57

¹ In Steel Armor

² To correct for 90°C, multiply by 1.048

³ Effective Impedance is defined as $R \cos(\Theta) + X \sin(\Theta)$ where Θ is the power factor angle of the circuit. Effective impedance values shown in the table above are valid at 80% power factor.

Conductor Size AWG	Twisted Pair ¹	Twisted Shielded Pair ²
Mutual Capacitance (pico farads per foot)		
18	30	47.3
16	33.5	54.8
14	36.3	60.7
12	38.8	66.4

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³ Effective Impedance is defined as $R \cos(\Theta) + X \sin(\Theta)$ where Θ is the power factor angle of the circuit. Effective impedance values shown in the table above are valid at 80% power factor.

Inductance (L) to neutral, per 1000 feet is typically 0.0002mH for sizes 18 AWG through 250 kcmil

$$= 0.1404 \log_{10}(\text{GMD/GMR}) \times 10^{-3} \text{ Henrys to neutral per 1000 feet}$$

Size	Total Number of Conductors Including Ground	Conductor Diameter	Length of Lay	Twists per Foot
Twists per Foot				
18	2	0.08	2.4	5
18	3	0.08	2.8	4.3
18	4	0.08	3.2	3.8
18	5	0.08	3.3	3.7
16	2	0.09	2.7	4.4
16	3	0.09	3.2	3.8
16	4	0.09	3.6	3.3
16	5	0.09	3.7	3.3
14	2	0.105	3.15	3.8
14	3	0.105	3.7	3.3
14	4	0.105	4.2	2.9
14	5	0.105	4.3	2.8
12	2	0.125	3.75	3.2
12	3	0.125	4.4	2.7
12	4	0.125	5	2.4
12	5	0.125	5.1	2.4

Power Limited Fire Alarm Circuit Cable – Type FPLP

Plenum Rated Technical Specifications

Armor

Interlocked Galvanized Steel Strip (Red-Striped)

Conductors

Solid Copper

Conductor Insulation

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Assembly

Polyester Assembly Tape; Twisted Shielded: Laminated Aluminum/Mylar® Shield with Tinned Copper Drain Wire

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FPLP: 105°C (Dry)

Neutral Conductor

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References & Ratings

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- NFPA 262 (formerly UL 910) Plenum Rated - Type FPLP
- Made in USA of US and/or imported materials

Product Code		Trade Size	Approx. Weight/ 1,000ft (lbs)	Approx. Armor O.D. (In)
250' Coil	1000' Reel			
Metal Sheathed Type FPLP Cable				
1850R42-00	1850R60-00	18-2 Solid (1 TSP) (Black, White) †	111	0.470
1827R42-00	1827R60-00	18-2 Solid (1 TSP) (Black, Red) & 14-2 Solid (1 TSP) (Black, White) †	204	0.637
1860R42-00	1860R60-00	16-2 Solid (1 TSP) (Black, White) †	118	0.470
1843R42-00	1843R60-00	16-4 Solid (2 TSP) (Black, White) (Red, Blue) †	195	0.627

NOTE: All dimensions and weights are subject to normal manufacturing tolerances.

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