ROOF SPECIALTIES

FALL ARREST ROOF ANCHORS Specification

Note: This fall arrest roof anchors specification, with minor editing, has been written as a separate section of work. Alternatively,__the appropriate clauses may be incorporated as part of a roofing specification in regions where this feature is desired.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Supply and installation of fall arrest roof anchors, including:
 - 1. Roof anchors
 - 2. Wall anchors
 - 3. Davit arms and bases
 - 4. Outrigger arms and bases
 - 5. Monorails

1.02 RELATED SECTIONS

- A. Section 03300 Cast-in-Place Concrete
- B. Section 05210 Steel Joists
- C. Section 05300 Metal Deck
- D. Section 06100 Rough Carpentry
- E. Section 07200 Thermal Protection
- F. Section 07500 Membrane Roofing
- G. Section 07900 Joint Sealers

1.03 REFERENCES

A. The work of this Section to conform to:

Canadian

1. National Standards of Canada

- A. CAN/CSA-Z91-02 (Safety Code for Window Cleaning Operations).
- B. CAN/CSA- Z271-98 (Safety Code for Suspended Elevating Platforms).

2. Canadian Standards Association

- A. CSA G40.21-M1987, M350W and M300W (Structural Quality Steels).
- B. CSA W47.1-1983 (Certification of Companies for Fusion Welding of Steel Structures).
- C. CSA W59-M1989 (Welded Steel Construction Metal ARC Welding).
- D. CSA G164-M1981 (Hot Dip Galvanizing of Irregularly Shaped Articles).
- E. CSA Z259.13-04 (Flexible-horizontal-lifeline systems)

3. Ontario Ministry of Labour

A. Ontario Regulation 527/88 and 714/82859 -(Regulation for Window Cleaning).

4. Ontario New Home Warranty Program

A. ONHWP Condominium Construction Guide (Chapter 12 - Roof Anchors).

5. Canadian General Standards Board

A. CGSB-51-GP 46MP (Manual for Installers of Spray Urethane Foam Thermal Insulation).

6. Canadian Urethane Foam Contractor's Association

A. CUFCA Manual for Installers of Spray Polyurethane Foam Thermal Insulation.

United States

7. Occupational Safety & Health Administration (U.S. Department of Labor)

- A. OSHA 1910.28, SubPart D (Walking-Working Surfaces)
- B. OSHA 1910.66, SubPart F (Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms).
- C. OSHA 1926.500, SubPart M (Fall Protection).
- D. CAL OSHA, Title 8, Section 3291(f), Article 5. Window Cleaning (General Safety Order, California Code of Regulations).
- E. Department of Labor Memorandum to Regional Administrators for Descent Control Devices.

8. American National Standards Institute

A. ANSI A39.1-1969 (Safety Requirements for Window Cleaning).

9. American Society of Mechanical Engineers

A. ASME A120.1-1996 (Safety Requirements for Powered Platforms for Building

Maintenance).

B. ASME Addenda A120.1a-1997 and A120.1b-1999.

10. International Window Cleaner's Association

A. IWCA I -14, 1-2001 (Window Cleaning Safety Standard).

11. American Society for Testing and Materials

- A. ASTM D3963/D M-87 (Structural Specification for Epoxy Reinforcing Steel).
- B. ASTM A36 (Non exposed Structural Components).
- C. ASTM A123 (Standard Specification for Zinc Coating Hot Dip Galvanizing of and Steel Products).
- D. ASTM Z325 (Bolts, Nuts and Washers).

12. American Welding Society

A. AWS D1.1 (Structural Welding Code)

13. Aluminum Association

A. AA 5AS-30 (Specifications for Aluminum Structures)

1.04 SYSTEM DESCRIPTION

- A. Design safety anchor fall protection system to provide for safe execution of-window washing or other suspended maintenance operations [including travel restraint].
- B. Co-ordinate work of this Section with Section 07500 Membrane Roofing, to provide continuous waterproof protection.
- C. Design anchors to resist without fracture a pull-out force of 5400 lbs (24.03 kN), applied in the most adverse direction.

1.05 SUBMITTALS

- A. Manufacturer's descriptive literature for each product, including section or other type details.
- B. Manufacturer's written installation instructions.
- C. Shop drawings and samples, when required, in accordance with Section [01300]. Shop drawings to show roof layout indicating location and spacing of anchors, including dimensions, detail drawings of securement to structure, design details, and similar data. Drawings to bare stamp of Professional Engineer licensed in the [Province] [State] in which the project is located.
- D. Upon completion of project, provide Owner with Log Book for mandatory annual inspection.

E. Upon completion of project, provide Owner with roof plan showing layout of safety anchor system.

1.06 QUALITY ASSURANCE

- A. Fall arrest roof anchors manufacturer to have minimum 5 years documented experience in the design and fabrication of fall protection systems.
- B. Comply with all requirements of:
 - 1. [NBC (National Building Code of Canada].
 - 2. [OBC (Ontario Building Code].
 - 3. [2003 International building Code (formerly BOCA, ICBO, and SBCCI)]

1.07 SPECIAL WARRANTY

A. Warrant products installed under this section of work to be free of leaks, condensation and defects in materials and/or manufacture for a period of 20 years when installed in accordance with the manufacturer's written instructions.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Provide products as manufactured by Thaler Metal Industries, 1-800-387-7217 (Mississauga, Ontario, Canada) or 1-800-576-1200 (New Braunfels, TX) or provide equal products by another manufacturer approved in advance by the [Architect], based upon:
 - 20 year warranty against leaks, condensation and defects in materials and/or manufacture, as applicable;
 - 2. Ultimate load (structural rating) for up to 5400 lbs (24.03 kN) strength for anchors equipped with forged round eye;
 - 3. structural integrity backed by \$7,000,000.00 liability insurance;
 - injection molded urethane insulation to CGSB-51-GP 46MP and ASTM C1029-90, as applicable;
 - air barrier flashing design using EPDM seals only complying with CSA B272-93 flashing standard;
 - 6. maintenance free design;
 - 7. materials and sizes options, and thicknesses;
 - 8. treated flashing deck flange, as applicable;
 - 9. written installation instructions.

2.02 MANUFACTURED UNITS

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Note: Delete clauses not applicable.

"Fixed Eye" Roof Anchors (Bolt-Through)

A. Fall arrest roof anchors: Thaler [FARA-1 with galvanized forged 1018 steel eye] [FARA-11 with Type 304 stainless steel forged eye] [FARA-11U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer, and Type 304 s.s. 1/4" x 4" x 4" (6 mm x 102 mm x102 mm) underdeck plate, lock washer and nut; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

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,"Fixed Eye" Roof Anchors (Bolt-Through), Non-Standard Height,

<u>B.</u>

-1. Fall arrest roof anchors: Thaler [FARA-1NS with galvanized forged 1018 steel eye] [FARA-11NS with Type 304 stainless steel forged eye] [FARA-11UNS with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 14" (355 mm) high and up welded to 3/4" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer, and Type 304 s.s. 1/4" x 4" x 4" (6 mm x 102 mm x102 mm) underdeck plate, lock washer and nut; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. A. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-11SS with Type 304 stainless steel forged eye] [FARA-11USS with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow s.s. type 304 steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) s.s. type 304 base plate; single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer, and type SJ-34(9), 9" (229 mm) 304 s.s. 1/4" x 4" x 4" (6 mm x 102 x 102 x mm) underdeck plate, lock washer and nut; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and base seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Adhesive Bolt)

B. Fall arrest roof anchors: Thaler [FARA-2 with galvanized forged 1018 steel eye] [FARA-12 with Type 304 stainless steel forged eye] [FARA-12U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive

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anchor bolts (by others); SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. B. 1. for all stainless steel anchor.

1. Fall arrest roof anchor: Thaler [FARA-12SS with type 304 stainless steel forged eye] [FARA-12USS with type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow type 304 s.s. post 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305) high welded to 5/8" x 8" x 8" (-16 mm x 203 x 203 mm) Type 304 s.s. base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Bolt Around Beam)

C. Fall arrest roof anchors: Thaler [FARA-3 with galvanized forged 1018 steel eye] [FARA-13 with Type 304 stainless steel forged eye] [FARA-13U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate: four 5/8" (16 mm) Type 304 s.s. bolts and 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) under-beam plate, lock washers and nuts; SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 244oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange]

Note: Specify 2. 02. C. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-13SS with Type 304 stainless steel forged eye] [FARA-13USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate and Type 304 s.s. 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) underdeck plate, SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Weldable)

D. Fall arrest roof anchors: Thaler [FARA-4 with galvanized forged 1018 steel eye] [FARA-14 with Type 304 stainless steel forged eye] [FARA-14U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 5" x 5" (16 mm x 127 mm x 127 mm) 44W base plate; SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm)

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<u>24</u>+oz. copper] [.0<u>31</u>" (0.79 mm) <u>22 ga.</u> Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. D.1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-14SS with Type 304 stainless steel forged eye] [FARA-14USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 5" x 5" x 5" (16 mm x 127 mm x 127 mm) Type 304 s.s. base plate SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Cast-In-Place)

Fall arrest roof anchors: Thaler [FARA-5 with galvanized forged 1018 steel eye] [FARA-15 with Type 304 stainless steel forged eye] [FARA-15U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. anchor bolt with EPDM weather seal, top nut and washer; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye Roof Anchors (Cast-In-Place), Non-Standard Height,

—1. Fall arrest roof anchors: Thaler [FARA-5NS with galvanized forged 1018 steel eye] [FARA-15NS with Type 304 stainless steel forged eye] [FARA-15UNS with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 14" (355 mm) high and up welded to 3/4" x 8" x 8" (19 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. anchor bolt with EPDM weather seal, top nut and washer; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal.

Note: Specify 2. 02. E. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-15SS with Type 304 stainless steel forged eye] [FARA-15USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate, single 1" (25 mm) Type 304 s.s. anchor bolt with EPDM weather seal, top nut and washer; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Ttype 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange]

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[bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Bolt Around OWSJ)

Fall arrest roof anchors: Thaler [FARA-6 with galvanized forged 1018 steel eye] [FARA-16 with Type 304 stainless steel forged eye] [FARA-16U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) underjoist plate and 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) HSS crosstube assembly; four 5/8" (16 mm) Type 304 s.s. bolts with lock washers and nuts; SJ-37(9), 9" (178 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof anchor (Bolt Around OWSJ), Non-Standard Height

-1. Fall arrest roof anchors: Thaler [FARA-6NS with galvanized forged 1018 steel eyele [FARA-16NS with Type 304 stainless steel forged eye] [FARA-16UNS with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 14" (355 mm) high and up welded to 3/4" x 8" x 8" (19 mm x 203 mm x 203 mm) 44W base plate; 3/4" x 8" x 8" (19 mm x 203 mm x 203 mm) under-joist plate and 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) HSS crosstube assembly; four 3/4" (19 mm) Type 304 s.s. bolts with lock washers and nuts; SJ-37(9), 9" (178 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. F. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-16SS with Type 304 stainless steel forged eye] [FARA-16USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" Roof Anchors (Pre-cast Core Bolt)

G. Fall arrest roof anchors: Thaler [FARA-7 with galvanized forged 1018 steel eye] [FARA-17 with Type 304 stainless steel forged eye] [FARA-17U with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer; galvanized 5/8" x 4" x 12" (16 mm x 102 mm x 305 mm) core slab plate, lock washer and nut; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm)

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24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. G. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-17SS with Type 304 stainless steel forged eye] [FARA-17USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) Type 304 s.s. base plate, single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer; s.s. Type 304 5/8" x 4" x 12" (16 mm x 102 mm x 305 mm) core slab plate; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Bolt Through)

H. Fall arrest roof anchors: Thaler [FARA-31 with galvanized forged 1018 steel eye] [FARA-41 with Type 304 stainless steel forged eye] [FARA-41U with Type 304 stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02][OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt with: EPDM weather seal, top nut, washer, s.s. cotter pin; Type 304 s.s. 1/4" x 4" x 4" (6 mm x 102 mm x102 mm) underdeck plate, lock washer and nut; manufacturer's standard flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. H. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-41SS with Type 304 stainless steel forged eye] [FARA-41USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate, single 1" (25 mm) Type 304 s.s. bolt with: EPDM weather seal, top nut, washer, s.s. cotter pin; Type 304 s.s. 1/4" x 4" x 4" (6 mm x 102 mm x102 mm) underdeck plate, lock washer and nut; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm)-) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Adhesive Bolt)

Fall arrest roof anchors: Thaler [FARA-32 with galvanized forged 1018 steel eye] [FARA-42 with Type 304 stainless steel forged eye] [FARA-42U with Type 304 stainless steel U bolt] roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02]-[OSHA 1910.66, Sub parts D and F] with: EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16

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mm x 203 mm x 203 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); single 1" (25 mm) Type 304 s.s. bolt with: EPDM weather seal, top nut, washer, s.s. cotter pin; manufacturer's standard flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.83153 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. I. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-42SS with Type 304 stainless steel forged eye] [FARA-42USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate, single 1" (25 mm) Type 304 s.s. bolt with: EPDM weather seal, top nut, washer, s.s. cotter pin; four s.s. Type 304 5/8" (16 mm) dia. adhesive anchor bolts (by others); SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Bolt Around Beam).

J. Fall arrest roof anchors: Thaler [FARA-33 with galvanized forged 1018 steel eye] [FARA-43 with Type 304 stainless steel forged eye] [FARA-43U with Type 304 stainless steel U bolt] roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02]-[OSHA 1910.66, Sub parts D and F] with: 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; four 5/8" (16 mm) Type 304 s.s. bolts, 5/8" x 8" x 8" (16 mm x 203 x 203 mm) under-beam plate, lock washers and nuts; manufacturer's standard flashing SJ-37 of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. J. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-43SS with Type 304 stainless steel forged eye] [FARA-43USS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with Type 304 s.s. cap assembly, with 1" (25 mm) Type 304 s.s. bolt, EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate, four 5/8" (16 mm) Type 304 s.s. bolts, s.s. Type 304 5/8" x 8" x 8" (16 mm x 203 x 203 mm) under-beam plate, lock washers and nuts; SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Weldable)

K. Fall arrest roof anchors: Thaler [FARA-34 with galvanized forged 1018 steel eye] [FARA-

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44 with Type 304 stainless steel forged eye] [FARA-44U with Type 304 stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F]: with 1" (25 mm) Type 304 s.s. bolt, EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 5" x 5" (16 mm x 127 mm x 127 mm) 44W base plate; manufacturer's standard flashing SJ-37 of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. K. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-44SS with Type 304 stainless steel forged eye] [FARA-44USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA 1910.66, Sub parts D and F] with 1" (25 mm) Type 304 s.s. bolt, EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 5" x 5" (16 mm x 127 mm x 127 mm) Type 304 s.s. base plate SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. T*ype 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Cast-In-Place)

L. Fall arrest roof anchors: Thaler [FARA-35 with galvanized forged 1018 steel eye] [FARA-45 with Type 304 stainless steel forged eye] [FARA-45 with Type 304 stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02M90] [OSHA 1910.66, Sub parts D and F] with: EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt with EPDM weather seal, top nut and washer; manufacturer's standard flashing SJ-34(9), 9" (229 mm) high-Standard of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. L.1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-45SS with Type 304 stainless steel forged eye] [FARA-45USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA 1910.66, Sub parts D and F] with EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Bolt Around OWSJ)

M. Fall arrest roof anchors: Thaler [FARA-36 with galvanized forged 1018 steel eye] [FARA-46 with Type 304 stainless steel forged eye] [FARA-46U with Type 304 stainless

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steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate; 5/8" x 8" x 8" x 8" (16 mm x 203 mm x 203 mm) under-joist plate and 1/4" x 4" x 4" x 4" (6 mm x 102 mm x 102 mm) HSS crosstube assembly; four 5/8" (16 mm) Type 304 s.s. bolts with lock washers and nuts; manufacturer's standard flashing SJ-37(9), 9" (229 mm) high, of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. M.1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-46SS with Type 304 stainless steel forged eye] [FARA-46USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA 1910.66, Sub parts D and F] with EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate, s.s Type 304 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) under-joist plate and 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) HSS crosstube assembly (by others); four 5/8" (16 mm) Type 304 s.s. bolts with lock washers and nuts; manufacturer's standard flashing SJ-37(9), 9" (229 mm) high New-Standard STACK JACK flashing .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Swivel Eye" Roof Anchors (Pre-Cast Core Bolt).

Fall arrest roof anchors: Thaler [FARA-37 with galvanized forged 1018 steel eye] [FARA-47 with Type 304 stainless steel forged eye] [FARA-47U with Type 304 stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: EPDM weather seal, top nut, washer, s.s. cotter pin; with urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) 44W base plate; single 1" (25 mm) Type 304 s.s. bolt; galvanized 5/8" x 4" x 12" (16 mm x 102 mm x305 mm) core slab plate, lock washer and nut; manufacturer's standard flashing SJ-34(9) 9" (229 mm) high, of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. N.1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-47SS with Type 304 stainless steel forged eye] [FARA-47USS with stainless steel U bolt] swivel eye roof anchor with Type 304 s.s. cap assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: EPDM weather seal, top nut, washer, s.s. cotter pin, with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) Type 304 s.s. base plate, single 1" (25 mm) Type 304 s.s. bolt, s.s. Type 304 5/8" x 4" x 12" (16 mm x 102 mm x 305 mm) core slab plate, lock washer and nut, SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing

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.031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Wall Anchors (Bolt Through)

O. Fall arrest wall anchors: Thaler [FARA-81 with galvanized forged 1018 steel eye] [FARA-91 with Type 304 stainless steel forged eye] [FARA-91U with Type 304 stainless steel U bolt] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single 3/4" (19 mm) dia. s.s. bolt, lock washer, nut and 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) s.s. Type 304 back up plate.

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Wall Anchors (Cast-In-Place)

P.

Fall arrest wall anchors: Thaler [FARA-82 with galvanized forged 1018 steel eye] [FARA-92 with Type 304 stainless steel forged eye] [FARA-92U with Type 304 stainless steel U bolt] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single 3/4" (19 mm) dia. cast-in-place s.s. anchor bolt with lock washer and nut.

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Wall Anchors (Adhesive Bolt)

Q. Fall arrest wall anchors: Thaler [FARA-83 with galvanized forged 1018 steel eye] [FARA-93 with Type 304 stainless steel forged eye] [FARA-93U with Type 304 stainless steel U bolt] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] welded to [5/8" x 8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W galv. base plate] [5/8" x 8" x 8" x 8" (16 mm x 203 mm) Type 304 s.s. base plate].

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Note: Specify 2. 02. Q.1. for all stainless steel anchor

1. Fall arrest wall anchors: Thaler [FARA-93SS with Type 304 stainless steel forged eye] [FARA-93USS with Type 304 stainless steel U bolt eye] wall anchor to [CSA 1910.66, Sub parts D and F] welded to 5/8" x 8" x 8" (16 mm x 203 mm) Type 304 s.s. base plate.

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Wall Anchors (Cladding Bolt),

R. Fall arrest wall anchors: Thaler [FARA-84 with galvanized forged 1018 steel eye] [FARA-94 with Type 304 stainless steel forged eye] [FARA-94U with Type 304 stainless steel U bolt] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single 3/4" (19 mm) dia. s.s. bolt and EPDM washer seal, ASMT 500C HSS cladding spacer 1/4" (6 mm) wall thickness x 4-1/2" (114 mm), 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) s.s. back up plate, lock washer and nut.

Note: Specify 2. 02. R. 1. for all stainless steel anchor.

1. Fall arrest wall anchors: Thaler [FARA-94SS with Type 304 stainless steel forged eye] [FARA-94USS with Type 304 stainless steel U bolt eye] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single 3/4" (19 mm) dia. s.s. bolt and EPDM washer seal, s.s. cladding spacer 1/4" (6 mm) wall thickness x 4-1/2" (114 mm), 1/4" x 4" x 4" (6 mm x 102 mm) s.s. back up plate, lock washer and nut.

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Wall Anchors (Pier Bolt)

Fall arrest wall anchors: Thaler [FARA-85 with galvanized forged 1018 steel eye] [FARA-95 with Type 304 stainless steel forged eye] [FARA-95U with Type 304 stainless steel U bolt] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single

3/4" (19 mm) s.s. pier bolt with EPDM washer, s.s 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) s.s. back up plate; 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) galv. ASTM 500C HSS pier welded to a 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) galv. 44W base plate prepared to receive four 5/8" (16 mm) anchor bolts (by others).

Note: Specify 2. 02. S. 1. for all stainless steel anchor.

1. Fall arrest wall anchors: Thaler [FARA-95SS with Type 304 stainless steel forged eye] [FARA-95USS with Type 304 stainless steel U bolt eye] wall anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with single 3/4" (19 mm) s.s pier bolt and s.s. with EPDM washer, 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) Type 304 s.s. back up plate; 1/4" x 4" x 4" (6 mm x 102 mm) Type 304 s.s. HSS pier welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate prepared to receive four 5/8" (16 mm) anchor bolts (by others).

"Swivel Eye" Terrace Anchor (Adhesive Bolt)

Fall arrest terrace anchors: Thaler FARA-96 anchor with 1/4" (6 mm) Type 304 stainless steel swivel plate eye to [CSA Z91-02]-[OSHA 1910.66, Sub parts D and F] with: hot dip galvanized hollow ASTM 500C steel low post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. welded to 5/8" x 8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); two EPDM washer seals; 22 ga. x 11-1/2" x 11-1/2" (0.76 mm x 292 mm x 292 mm) perforated Type s.s. enclosure box with solid 1/8" x 12" x 12" (3 mm x 305 mm x 305 mm) s.s. pan formed cover; 22 ga. x 17-1/2" (0.76 mm x 445 mm) dia. s.s. flashing disc.

Note: Specify 2. 02. T. 1. for all stainless steel anchor.

1. Fall arrest terrace anchors: Thaler FARA-96SS anchor with 1/4" (6 mm) Type 304 stainless steel swivel plate eye to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: hollow type 304 s.s. low post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); two EPDM washer seals; 22 ga. x 11-1/2" x 11-1/2" (0.76 mm x 292 mm x 292 mm) perforated Type 304 s.s. enclosure box with solid 1/8" x 12" x 12" (3 mm x 305 mm x305 mm) s.s. pan formed cover; 22 ga. x 17-1/2" (0.76 mm x 445 mm) dia. s.s. flashing disc.

"Swivel Eye" High Terrace Roof Anchors (Adhesive Bolt)

T 1. Fall arrest roof anchors: Thaler [FARA-96A with galvanized forged 1018 steel eye] [FARA-106A with Type 304 stainless steel forged eye] [FARA-106AU with Type 304 stainless steel U bolt] roof anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with; EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); 22 ga. (0.76 mm) manufacturer's flashing Type 304 stainless steel; 22 ga. x 11-1/2" x 11-1/2" (0.76 mm x 292 mm x 292 mm) perforated Type 304 stainless steel enclosure box with solid 1/8" x 12" x 12" (3 mm x 305 mm x 305 mm) s.s. pan formed cover, and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. T 1. 1. for all stainless steel anchor.

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1. Fall arrest roof anchors: Thaler [FARA-106ASS with Type 304 stainless steel forged eye] [FARA-106AUSS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with EPDM weather seal, top nut, washer, s.s. cotter pin; urethane insulated hollow Type 304 s.s._-(HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" x 16 mm x 203 mm x 203 mm) Type 304 s.s. base plate; 22 ga (0.76 mm) stainless steel Type 304 flashing to CSA B272-93; 22 ga. x 11-1/2" x 11-1/2" (0.76 mm x 292 mm x 292 mm) perforated Type 304 stainless steel enclosure box with solid 1/8" x 12" x 12" (3 mm x 305 mm x 305 mm) s.s. pan formed cover, and [PVC coated deck flange] [bituminous painted deck flange].

"Fixed Eye" High Terrace Roof Anchors (Adhesive Bolt)

[FARA-106B with Type 304 stainless steel forged eye] [FARA-106BU with Type 304 stainless steel U bolt] to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with: urethane insulated hollow hot dipped galvanized ASTM 500C steel post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114 mm) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); 22 ga. x 8" x 8" (0.76 mm x 203 mm x 203 mm) perforated Type 304 stainless steel enclosure box with solid 1/8" x 8-1/2" x 8-1/2" (3 mm x 216 mm x 216 mm) s.s. pan formed cover; SJ-37, 7" (178 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. T 2. 1. for all stainless steel anchor.

1. Fall arrest roof anchors: Thaler [FARA-106BSS with Type 304 stainless steel forged eye] [FARA-106BUSS with stainless steel U bolt] roof anchor to [CSA 1910.66, Sub parts D and F] with; urethane insulated hollow Type 304 s.s. post (HSS) 1/4" (6 mm) wall thickness x 4-1/2" (114) dia. x 12" (305 mm) high welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) Type 304 s.s. base plate; SJ-37 7" (178 mm) high .031 (0.79 mm) 22 ga. Type 304 stainless steel New Standard STACK JACK flashing to CSA B272-93; 22 ga. x 8" x 8" (0.76 mm x 203 mm x 203 mm) perforated Type 304 stainless steel enclosure box with solid 1/8" x 8-1/2" x 8-1/3" (3 mm x 216 mm x 216 mm) s.s. pan formed cover; with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Rope Stop" Anchors

Rope stop roof anchors: Thaler FARA-100 through bolt 3/4" (19 mm) dia. -Type 304 s.s.rope stop anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F], complete with 9" (229 mm) dia. x 18 ga. (1.2 mm) s.s flashing deck flange welded to rope stop, 2" (51 mm) dia. s.s.stop plug to suit roof condition and 1/4" x 4" x 4" (6 mm x 102 mm x 102 mm) s.s. back up plate, lock washer and nut.

Davit Arm and Base

V.

Davit arms and bases: Thaler FARA-150 complete davit assembly to [CSA Z91-02]

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[OSHA 1910.66, Sub parts D and F], with urethane filled, hot dipped galv. ASTM 500C base 9" dia. x 1/4" (229 mm x 6 mm) welded to 3/4" x 14" x 14" (19 mm x 356 mm x 356 mm) 44W base plate and bolted to 1/4" x 14" x 14" (6 mm x 356 mm x 356 mm) underdeck plate using four 3/4" (19 mm) dia. s.s. bolts; davit arm holder 1/2" x 8-7/8" I.D. (12 mm x 225 mm) galvanized ASTM_500C with weep holes, connected to steel hinge using two 3/4" (19 mm) s.s. hinge pins tethered with 1/8" (3 mm) s.s. cable; mast upright 5/16" x 8-5/8" O.D. (8 mm x 220 mm) 6061-T6 extruded alum. with handle grips; horizontal 6061-T6 alum. I beam 1/4" x 3-1/2" x 6" (6 mm x 89 mm x 152 mm) with 3/8" (10 mm) thick sliding s.s. suspension line attachment plate and handle grips; Type 304 rotatable s.s. head with leveling devices; strut reinforcing 1/4" x 3" x 3" (6 mm x 76 mm x 76 mm) with 1/4" (6 mm) connector plates: SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Davit Arm and Base

Davit arms and bases; Thaler FARA-150-RH Davit Arm Base and FARA-155-RH-Rotating Head Davit Arm complete davit assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F], with urethane filled, hot dipped galv. ASTM 500C base 9" dia. x 1/4" (229 mm x 6 mm) welded to 3/4" x 14" x 14" (19 mm x 356 mm x 356 mm) 44W base plate and bolted to 1/4" x 14" x 14" (6 mm x 356 mm x 356 mm) under-deck plate using four 3/4" (19 mm) dia. s.s. bolts; davit arm mast holder 5/8" x 6-7/8" I.D. (16 mm x 175 mm) hot deep galvanized ASTM 500C with weep holes, connected to steel hinge using two 3/4' (19 mm) s.s. hinge pins tethered with 1/8" (3 mm) s.s. cable; mast upright 5/16" x 8-5/8" O.D. (8 mm x 220 mm) 6061-T6 extruded alum.; Horizontal 6061-T6 alum. HSS rotating boom 1/4" x 4" x 6" (6 mm x 102 mm x 152 mm) with 1" (25 mm) dia. sliding s.s. suspension line attachment bolt and plates; strut reinforcing 1/4" x 3" x 3" (6 mm x 76 mm x 76 mm); solid rubber wheel assembly; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper][.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange]

Recessed Davit Base

X. Pavit arm bases: Thaler FARA-160 Recessed Davit Arm Base designed to receive a FARA-155-RH, rotating head Davit Arm; to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with stainless steel 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) base plate and two s.s. 3/4" (19 mm) locking plates; 18 Ga. x 18-1/2" x 16-1/2" (1.27 mm x 457 mm x 406 mm) stainless steel enclosure box with s.s. cover; 1/8" x 22" x 24" (3 mm x 559 mm x 610 mm) s.s. under-base plate; 3/4" (19 mm) dia. s.s. cage assembly; galvanized davit arm holder 5/8" x 6-7/8" I.D. (16 mm x 175 mm) ASTM 500C, with weep holes, connected to steel flanges using two 3/4" (19 mm) s.s. hinge and locking pins tethered with 1/8" (3 mm) s.s. cable; 1/16" x 10" x 10" (1.59 mm x 254 mm x 254 mm) EPDM plate and [PVC coated deck flange] [bituminous painted deck flange].

Swivel Outrigger Arm and Base,

W. Outrigger arm and base: Thaler FARA-170 complete outrigger assembly to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F], with urethane filled, hot dipped galv. ASTM 500C base 4-1/2" dia. x 1/4" (114 mm x 6 mm) welded to 5/8" x 8" x 8" (16 mm x 203 mm x 203 mm) ASTM 500C base plate and bolted through roof deck to 1/4" x 4" x 4" (6 mm x

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102 mm x 102 mm) back-up plate using a single 1" (25 mm) dia. s.s. bolt; arm holder 5-1/2" x 7-1/2" x 1/4" (140mm x 191mm x 6 mm) s.s Type 304, with 1" (25 mm) dia. s.s. pin tethered with 1/8" (3 mm) s.s. cable; outrigger arm 5" x 7" x 1/4" (127 mm x 178 mm x 6 mm) hollow 6063-T6 alum or galvanized steel; with handle grip and s.s. U bolt suspension line attachment plate; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Portable Outrigger Beams

Z. Portable outrigger beams: Thaler [FARA-175-A] [FARA-175-B] [FARA-175- C] [FARA-175-D] Portable Outrigger Beam to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with 1/4" x 4" x 6" (6 mm x 102 mm x 152 mm) T-6061 aluminum upper and lower sliding beam; 1/4" x 4" x 6" (6 mm x 102 mm x 152 mm); pedestal to receive adjustable beam; 3/8" (10 mm) s.s. eye suspension line attachment rigging plate; aluminum T-6061 transport wheel frame; stainless steel anchor connectors; [galvanized] [stainless steel] urethane insulated tie-back (tie down) anchor and separate lifeline anchor both with [SJ-34, 7" (178 mm) high] [SJ-35,13" (330 mm) high] New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Top Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

"Rope Drop" Anchors

Portable Outriggers

AA. Portable Outriggers: Thaler FARA-155-P Portable Outrigger(s) to [CSA Z91- 02] [OSHA 1910.66, Sub parts D and F], 15'-9" (4.8 m) overall length with 1/4" x 4" x 6" (6 mm x 102 mm x 152 mm) T-6061 aluminum pedestal support, suspension beam and carrier beam; 3/8" (10 mm) s.s. eye suspension line attachment rigging plate; transport wheel assembly; A frame assembly of 1/4" x 3" x 3" (6 mm 76 mm x 76 mm) aluminum tube and two 2" (51 mm) dia. alum. leg supports; s.s. turnbuckle assembly with 3/8" (10 mm) s.s. cable; s.s end caps with s.s. U-bolt turnbuckle and tie-back eyes; [galvanized] [stainless steel] tie-back anchor and separate lifeline anchor.

"Rope Drops" Anchors

BB. Rope drop roof anchor: Thaler FARA-180 adhesive bolt galvanized rope drop anchor to [CSA Z91-M90] [OSHA 1910.66, Sub parts D and F], with: 4-1/2" (114 mm) dia. hollow ASTM 500C steel sleeve section (HSS) 1/4" (6 mm) wall thickness, length to suit application, welded to 5/8" x 10" x 10" (16 mm x 254 mm x 254 mm) 44W base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); removable cap w/set screw tethered to 1/8" (3 mm) s.s. cable; 1" (25 mm) s.s. cross bar; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Note: Specify 2. 02. X.1. for all stainless steel anchor.

 Rope drop roof anchor: Thaler FARA-180SS adhesive bolt Type 304 s.s. rope drop anchor to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F], with: 4-1/2" (114 mm) dia. hollow s.s. steel sleeve section (HSS) 1/4" (6 mm) wall thickness, length to suit application, welded to 1/2" x 10" x 10" (12 mm x 254 mm x 254 mm) s.s. base plate prepared to receive four 5/8" (16 mm) dia. adhesive anchor bolts (by others); removable cap w/set screw tethered to 1/8" (3 mm) s.s. cable; 1" (25 mm) s.s. cross bar; SJ-34(9), 9" (229 mm) high New-Standard STACK JACK flashing of .031" (0.79 mm) 22 ga. Type 304 stainless steel to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

Monorail Suspended Maintenance System

- CC. Monorail Maintenance System (Exposed I Beam): Thaler FARA-200 Monorail Suspended Maintenance System to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with T-6061 aluminum I-beam to suit main structure; 1/4" x 4" x 4" (12 mm x 102 mm x 102 mm) steel angles for bolting I-beam to main structure; 3/8" (10 mm) galvanized clamps; 10" (254 mm) wide steel connector plates; s.s. hanger bolts, washers and nuts of sizes shown on drawings; s.s. trolleys with s.s. eyes.
- 1. Monorail Maintenance System (Bolt Around Beam): Thaler FARA-201 Monorail Suspended Maintenance System to [CSA Z91-02] [OSHA 1910.66, Sub parts D and F] with T-6061 aluminum C channel beam to suit main structure; 1/4" x 5" x 7" (12 mm x 127 mm x 178 mm) galvanized hanger welded to 3/8" x 10" x 10" (10 mm x 254 mm) underbeam plate for bolting to main I-beam structure; 10" (254 mm) wide steel upper plate; s.s. hanger bolts, washers and nuts of sizes shown on drawings; trolleys with s.s. eyes.

Travel Restraint Roof Anchors

Y. Travel restraint roof anchor: Thaler [FARA-710] [FARA-720] anchors including appropriate mounting hardware for fastening to structural roof deck; to [CSA Z91-02] [OSHA 1910.66, sub parts D and F] with, galvanized forged 1018 steel eye; urethane insulated, hollow, hot dipped galvanized ASTM 500C steel post section (HSS) 1/4" (6 mm) wall thickness x 2-3/8" (60 mm) dia., x [18" (457 mm)] [36" (915 mm)] high welded to 44W base plate; [SJ-37, 7" (178 mm) high] [SJ-38, 13" (330 mm) high] [SJ-39, 19" 483 mm) high] New-Standard STACK JACK flashing of [.064" (1.6 mm) mill finish 1100-0T alloy aluminum] [.032" (0.831 mm) 24 oz. copper] [.031" (0.79 mm) 22 ga. Type 304 stainless steel] to CSA B272-93, with EPDM Triple Pressure Grommet Seal and EPDM Base Seal and [PVC coated deck flange] [bituminous painted deck flange].

PART 3 EXECUTION

3.01 EXAMINATION

A. Report to the Contractor in writing, defects of work prepared by other trades and other unsatisfactory site conditions. Verify site dimensions. Commencement of work will imply acceptance of prepared work.

Note: Review design criteria for tapered roof insulation systems if necessary for specific projects.

B. For roofs employing tapered insulation systems, height adjustments may be necessary i.e. ensure anchor eye is minimum 9" (229 mm) above roof surface.

3.02 PREPARATION

Note: The following clauses apply to re-roofing or retrofit installations only.

- A. For re-roofing or retrofit work, remove existing roof assembly as necessary to allow for installation of roof anchors.
- B. In the event of structural deficiencies, deck corrosion or deterioration, ensure that a structural engineer has assessed and approved all surfaces upon which the work of this Section depends. Institute repairs and/or reinforcement where necessary.
- If necessary, protect building interior and contents against ingression of water, dust, debris or other material.

3.03 INSTALLATION

Note: Delete clauses not applicable.

- A. [Roof Anchors] [Davits] [Outriggers] [Monorails]
 - Install anchors or equipment in accordance with manufacturer's printed instructions, shop drawings and as specified.
 - 2. Ensure anchors or equipment is installed under the direct supervision of a Professional Engineer [and Roofing Consultant].
 - Where necessary, provide protection against deterioration due to contact of dissimilar materials.
 - 4. Where bolting is used for fastening anchors, no fewer than two threads is to be exposed and the nut is to be positively locked by deforming threads, welding, pinning or equivalent method.
 - 5. Ensure work is inspected prior to application of roofing.

B. Flashing

 $1. \quad In stall \ roof \ support \ flashing \ in \ accordance \ with \ manufacturer's \ printed \ in structions.$

RITE

Set flashing deck flange over membrane in layer of plastic cement and flash in with 3 overlapping layers of felt flashing.

Modified Bitumen

3. Torch membrane until bitumen is fluid and set flashing deck flange into fluid. Flash in flange with two overlapping layers of ModBit and seal with asphalt sealer. Do not overheat (melt) EPDM Base Seal.

Single Ply

4. Set deck flange in layer of membrane adhesive and extend single ply up sleeve to highest elevation possible and clamp membrane to STACK JACK Flashing.

Note: For PVC membrane, specify PVC coated flashing; weld roofing to deck flange using PVC torch.

PVC Single Ply

 Set deck flange in layer of membrane adhesive and extend single ply up sleeve to highest elevation possible and clamp membrane to flashing. Weld roofing to deck flange using PVC torch.

3.04 FIELD QUALITY CONTROL

- A. Comply with the requirements of Section [01400 Quality Control].
- B. All anchor work to be inspected by a qualified testing agency, Professional Engineer [and Roof Consultant] upon completion of work.

Note: Field testing of roof and wall anchor products is not required. Only the field testing of adhesive fasteners is required. In rare instances where adhesive fasteners must be tested after roof anchors have been roofed in, consult a Professional Engineer for calculation of the load requirement prior to testing.

3.05 ADJUSTING AND FINAL INSPECTION

- A. Verify that all manufactured units have been installed in accordance with specifications and details, and will function as intended. Adjust any items where necessary to ensure proper operation.
- B. Provide necessary documentation certifying system is acceptable for service (Engineer's Certificate of Acceptance).

3.06 CLEANING

A. Clean manufactured units using materials and methods approved by manufacturer. Do not use cleaners or techniques which could impair performance of the roofing system.

End of Section