

Section 11

Horizontal Lifeline Roof Top Fall Protection Safety Systems

Part 1: GENERAL

1.01 Summary

A. Section Includes:

1. Fall protection systems and related appurtenances to protect the workers walking on the rooftop.
2. Furnish and install all cables, intermediate brackets, end terminations, support posts, attachment brackets and user equipment as required to deliver a complete fall protection system that provides coverage for the rooftop as shown on the plans.
3. Prepare training program in the use, care and maintenance of the horizontal lifeline fall protection system.

B. Related Sections:

1. General Conditions, Supplementary Conditions and Division 1 Sections apply to work of this Section.
2. Section _____ Miscellaneous Metal.

1.02 References

A. Occupational Safety and Health Administration (OSHA).

1. Part 1910 Occupational Safety and Health Standards.
2. Part 1926 Safety and Health Regulations for Construction.

B. American Society for Testing and Materials (ASTM).

C. American National Standards Institute, Inc. (ANSI).

1. A 10.32 Fall Protection Systems – American National Standard for Construction and Demolition Operations.
2. Z 359 Fall Protection Code – American National Standard for General Industry

1.03 System Description / Requirements

- A. Design a fall protection system to provide safe working environment on the rooftop as per Occupational Health and Safety regulations. The fall protection system shall allow the user to walk uninterrupted the entire length of the system without having to unhook from the system to pass through intermediate support points and provide secure anchorage to arrest a fall by the user. All essential components shall be included as part of the above referenced system, though not specifically stated in the following Specifications, so as to provide a complete and fully operational system.
- B. System components to meet the requirements of this specifications section 2.0.
- C. Design the horizontal lifeline systems to accommodate _____ users at one time (maximum permissible – 6 workers total with 1 to 4 workers in any one span depending in final design).
- D. All components of the horizontal lifeline system shall be designed to maintain a factor of safety of at least 2, relative to the dynamic forces generated by the falling workers.

1.04 Submittals

- A. Submit the following in accordance with Section
 - 1. Product Data: Manufacturers' data and product information for manufactured materials and products.
 - 2. Shop Drawings: For fabrication and erection. Include plans, member profiles, sizes, elevations and details for anchorages and connections. Show complete layout of the system in plan and elevation. Show clearance over catwalks and platforms.
 - 3. Operations and Maintenance Manual: Include _____ copies of Operations and Maintenance manuals, indicating parts list and maintenance requirements for all equipment, indicating proper procedures and equipment for safe operations of the system.
 - 4. Experience Information: Including type of fall protection system, location and date of installation and Owner's name and address.
 - 5. Installation Certificate: Indicating completion and certification of the installed system.

1.05 Quality Assurance

- A. In order to assure uniform quality, ease of maintenance and minimal parts storage, it is the intent of these Specifications that all equipment called for under this Section shall be supplied by a single source. The equipment supplier shall, in addition to the installer, assume the responsibility for proper and complete installation.

- B. Design of the horizontal lifeline system shall be performed by an engineer with experience in designing not less than 5 installations of similar size and scope. Engineer shall maintain a Errors and Omissions insurance policy with limits of not less than \$1 million per occurrence, \$2 million aggregate.
- C. Manufacturer and installer shall have specific liability insurance (products and completed operations) in an amount of not less than \$9,000,000.
- D. Manufacturer and Installer Qualifications: Firm specializing in design and fabrication and installation of fall protection systems for structures with minimum 15 years' experience.
- E. No equipment shall be supplied by any manufacturer not regularly engaged in the manufacturing and production of fall protection systems. The manufacturer must have installed and had in satisfactory use for a period of not less than two (2) years a minimum of ten (10) installations of the size and type comparable to the unit specified. Bids from manufacturers lacking the experience requirements of the specification, can be considered if the manufacturer provides a satisfactory two (2) year maintenance bond in lieu of evidence of experience and operation. The experience information of maintenance bond shall be submitted in accordance with Section _____. Manufacturer shall maintain a Commercial General and Excess Liability insurance policy for Products and Completed Operations with limits of not less than \$2 million per occurrence, \$10 million aggregate.

1.06 Delivery, Storage and Handling

- A. Deliver materials in manufacturer's original, unopened protective packaging.
- B. Store materials in original protective packaging. Prevent soiling, physical damage or wetting.

1.07 Project Conditions

- A. Field Measurements: Perform prior to preparation of Shop Drawings and fabrication drawings to ensure required fit and dimensions.

Part 2: PRODUCTS

2.01 Manufacturers

- A. Fall Protection System: **ShockFusion Horizontal Lifeline Roof System** as manufactured by **Honeywell Safety Products USA Inc**, 1345 15th Street, Franklin, PA 16323, telephone 1-800-325-6746, Email: EngOrders@honeywell.com and engineered and installed by an approved and authorized Honeywell representative trained in Shock Fusion system design and it's installation.

- B. Substitutions: Fall Protection Associates, Inc. Dba Hy-Safe Technology, 960 Commerce Drive, Union Grove, WI 53182

2.02 Materials

- A. All materials shall be new, and the complete fall protection system, except for accessory equipment, shall be essentially the product of one manufacturer regularly engaged in the production of such equipment.
- B. Stainless Steel Plates and Bars: ASTM A666, Type 304 or 316.
- C. Structural Steel: ASTM A36 and ASTM A500.
- D. Fasteners
 - 1. The Shock Fusion Anchor Post shall be attached to the supporting structure with appropriate fasteners according to the manufacturer's instructions.

2.03 Fabrication

- A. General
 - 1. System components shall be of the same material unless otherwise indicated.
 - 2. Exposed work shall be true to line and level with accurate angles, surfaces and with straight square edges.
 - 3. Coordinate anchorage system with supporting structure. Fabricate and locate anchoring devices as recommended by manufacturer to provide adequate support for intended use.

2.04 Fall Arrest System Components

- A. System to consist of:
 - 1. The Shock Fusion Horizontal Lifeline Fall Protection System as provided by Honeywell Safety Product shall consist of a stainless steel safety cable attached to the structure with anchors at ends and intermediate points as required to meet the performance requirements. The cable shall be continuous or shall have swaged splices, which allow the user to pass without unhooking from the system.
 - 2. The Shock Fusion Lifeline Fall Protection System shall incorporate stainless steel Universal Pass-through Intermediate Brackets, Bendable Pass-through Brackets, and/or Corner Pass-Through Brackets, as required, designed to allow the user to pass without unhooking from the cable.
 - 3. A combination turnbuckle tension indicating mechanism shall be utilized at one or

both ends, as required by the systems design.

4. Shock Fusion Roof Posts shall be spaced, as required, to meet the performance requirements (not to exceed 40 foot maximum intervals).
 5. Shock Fusion End Anchor Post shall be of a **“non-tip-over”** design with built in rolled stainless steel energy absorbers with an activation force of 1,100 lbs. and a shock absorption force of 2,500 lbs. which reduce the loads while controlling the deflection.
 6. Shock Fusion Corners Anchor Post are to be used for angle of 25 degrees or more and shall be of a **“non-tip-over”** design with built in rolled stainless steel energy absorbers with an activation force of 1,100 lbs. and a shock absorption force of 2,500 lbs. which reduce the loads while controlling the deflection.
 7. Shock Fusion Intermediate Post Support shall tip over without extending at an activation force of 1000 lbs. which activates the built-in energy-absorbing component, and ensures the base remains securely attached to the roof surface and shall incorporate 360 degree protection that, in the event of a fall, orients in the direction of the force.
- B. Provide _____ Automatic Pass-Through Shuttle(s) as Manufactured by Honeywell Safety Product, the Shuttle shall be able to be hooked and unhooked at any point on the cable and be able to pass the Universal Intermediate Brackets and splices without having to be detached. The Shuttle shall have a double locking mechanism that is designed for opening with one hand.
- C. Lanyards: Provide _____ tear out shock absorbing lanyard(s) or T-Bak self-retracting lanyard(s) as manufactured by Honeywell Safety Products, having a maximum arresting force of 900 to 1800 lbs., with double locking snap assemblies at each end meeting OSHA regulations and ANSI A10.32 and/or ANSI Z359.1 and as recommended by the fall protection system supplier.
- D. Full Body Harness (es): Provide _____ nylon or polyester full body harness (es) with back “D” ring as manufactured by Honeywell Safety Products that meet OSHA regulations and ANSI A10.32 and/or ANSI Z359 and as recommended by the fall protection system supplier.

Part 3: EXECUTION

3.01 Installation

- A. Install in accordance with approved shop drawings and manufacturer’s instructions.
- B. Examine the existing support structure and the existing conditions under which work is to be installed. Proceed with installation only after any unsatisfactory conditions have been

corrected.

- C. The Shock Fusion fall protection system shall be installed under the direction of a Honeywell authorized and trained representative.
- D. Install anchorages and fasteners in accordance with manufacturer's recommendations to obtain the allowable working loads published in the product literature and in accordance with this specification. Do not load or stress fall protection system until all materials and fasteners are properly installed and ready for service.

3.02 Training

- A. Shock Fusion System training is to consist of one (1) session lasting approximately 1 hour, to be held at completion of installation, and will cover only topics specific to the installed system and its uses and operation.

3.03 Field Quality Control

- A. After the Shock Fusion system is installed and properly tensioned, the Honeywell approved and authorized representative shall inspect and operate the system and shall make all final adjustments for proper operation.
- B. After the Shock Fusion system has been placed into operation, the Honeywell authorized representative shall issue a certificate attesting to the system's design and installation.

3.04 Cleaning

- A. Remove all loose materials, crating and packing material from premises.

END OF SECTION