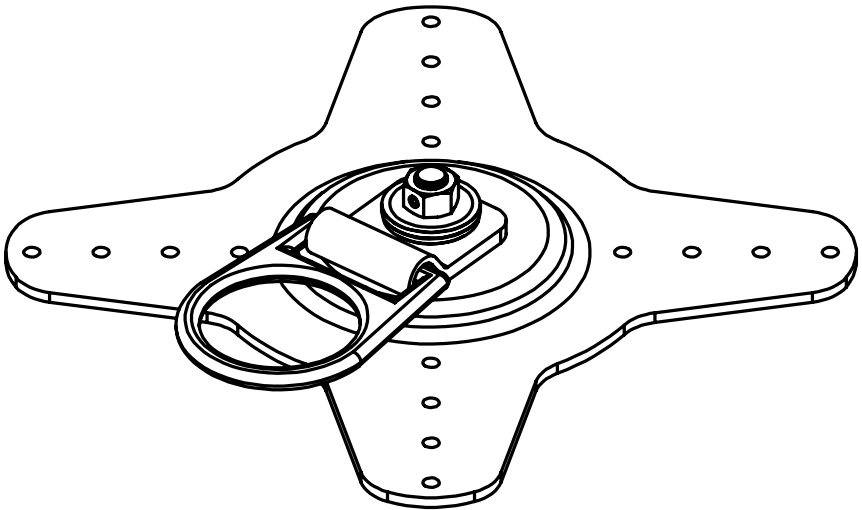




User Instruction Manual

## Rotating D-Ring Roof Anchor



This manual is intended to meet the Manufacturer's Instructions as required by the American National Standards Institute (ANSI) Z359 and should be used as part of an employee training program as required by the Occupational Safety and Health Administration (OSHA).

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For the purposes of this manual, the FallTech Rotating D-Ring Roof Anchor, in all iterations may be referred to collectively as the Rotating D-Ring Anchor, the Rotating Roof Anchor, the D-Ring Anchor, the Anchor, the roof anchor, the anchor, the anchorage connector, the equipment, the device, the product, or the unit.

Throughout this manual, ANSI Z359.0-2012 fall protection words, phrases, and terms are used. These terms are all formally defined in Section 9 of this manual.

Any non-English translations of this user instruction manual are for reference only.

## 1.0 Warnings and Important Information



### WARNING

- Avoid moving machinery, thermal, electrical, and/or chemical hazards as contact may cause serious injury or death.
- Avoid swing falls.
- Follow the weight restrictions and recommendations in this manual.
- Remove from service any equipment subjected to fall arrest forces.
- Remove from service any equipment that fails inspection.
- Do not alter or intentionally misuse this equipment.
- Consult FallTech when using this equipment in combination with components or subsystems other than those described in this manual.
- Do not connect rebar hooks, large carabiners, or large snap hooks to the FBH dorsal D-rings as this may cause a roll-out condition and/or unintentional disengagement.
- Avoid sharp and/or abrasive surfaces and edges.
- Use caution when performing arc welding. Arc flash from arc welding operations, including accidental arcs from electrical equipment, can damage equipment and are potentially fatal.
- Examine the work area. Be aware of the surroundings and workplace hazards that may impact safety, security, and the functioning of fall arrest systems and components.
- Hazards may include but not be limited to cable or debris tripping hazards, equipment failures, personnel mistakes, moving equipment such as carts, barrows, fork lifts, cranes, or dollies. Do not allow materials, tools or equipment in transit to contact any part of the fall arrest system.
- Do not work under suspended loads.



### IMPORTANT

This product is part of a personal fall arrest, restraint, work positioning, suspension, or rescue system. A Personal Fall Arrest System (PFAS) is typically composed of an anchorage and a Full Body Harness (FBH), with a connecting device, i.e., an Energy Absorbing Lanyard (EAL), or a Self-Retracting Device (SRD), attached to the dorsal D-ring of the FBH.

These instructions must be provided to the worker using this equipment. The worker must read and understand the manufacturer's instructions for each component or part of the complete system. Manufacturer's instructions must be followed for proper use, care, and maintenance of this product. These instructions must be retained and be kept available for the worker's reference at all times. Alterations or misuse of this product, or failure to follow instructions, may result in serious injury or death.

A Fall Protection Plan must be on file and available for review by all workers. It is the responsibility of the worker and the purchaser of this equipment to assure that users of this equipment are properly trained in its use, maintenance, and storage. Training must be repeated at regular intervals. Training must not subject the trainee to fall hazards.

Consult a doctor if there is reason to doubt your fitness to safely absorb the shock of a fall event. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women or minors must not use this equipment.

Heavy users experience more risk of serious injury or death due to falls because of increased fall arrest forces placed on the user's body. In addition, the onset of suspension trauma after a fall even may be accelerated for heavy users.

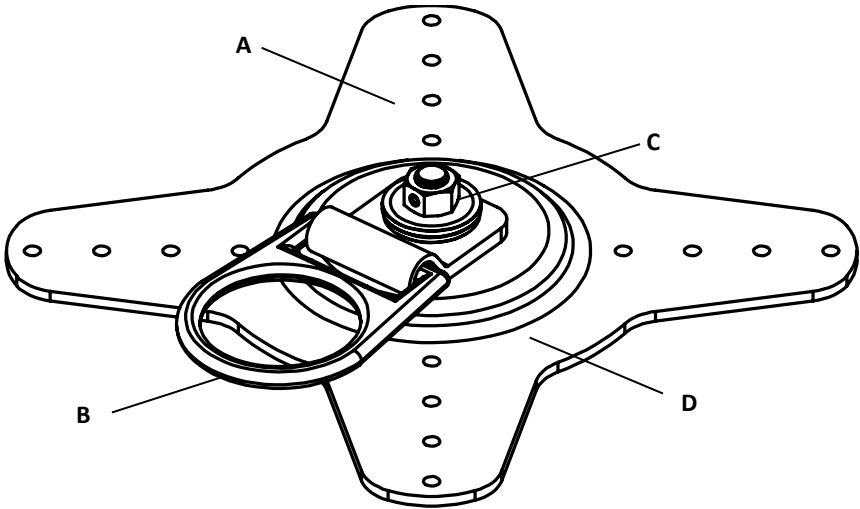
The user of the equipment discussed in this manual must read and understand the entire manual before beginning work.

## 2.0 Description

The FallTech® Rotating D-Ring Roof Anchor is a temporary, reusable anchorage connector designed to provide an easily mounted anchorage for persons working at height on wood or metal deck structures and subject to fall hazards. Included are sixteen (16) 1/4"-14 thread, 2-1/2" length Self-tapping screws.

The anchor is composed of a galvanized and ceramic coated alloy steel base plate and a plated alloy steel swivel D-ring mounted to the base plate with a bolt, bushing, and permanently affixed nut. The anchor is attached to the roof substrate using the included 1/4" self-tapping screws as described in Section 5. See Section 3.3 for roof substrate material compatibility.

The anchor discussed in this manual complies with ANSI/ASSP Z359.18-2017 and all applicable OSHA 29 CFR 1926.502 and 1910.140 regulations. See Table 1 in Appendix A for more product specifications. Figure 1 below describes key components of the Rotating D-Ring Roof Anchor.



**Figure 1 - About FallTech® Rotating D-Ring Roof Anchor**

<b>A</b>	Base Plate	<b>B</b>	D-Ring Connection Point
<b>C</b>	Permanently Affixed Nut	<b>D</b>	Labels (See Section 8)



**WARNING**

**Be sure to read, understand, and follow all instructions and warnings in this manual. Any misuse could result in serious injury or death.**

### 3.0 Application

#### 3.1 Purpose:

The Rotating D-Ring Roof Anchor is designed as an anchorage attachment for a personal fall arrest system (PFAS), work positioning system, or restraint system. DO NOT use the anchor to lift tools or materials.

#### 3.2 Personal Fall Arrest System:

A PFAS is typically composed of an anchorage and a FBH, with an energy absorbing connecting device, i.e., a EAL, an SRD, or a Fall Arrestor Connecting Subsystem (FACSS), attached to the dorsal D-ring of properly fitted and adjusted FBH. All uses and applications of a FBH with this equipment requires the FBH to be properly fitted and adjusted to the user. Failure to properly fit the FBH to the user could result in serious injury or death.

#### 3.3 Application Limits:

Care should be taken to understand the capacity of the system, anchorage strength requirements, total allowable free fall, and the requirements of how the user's PFAS deploys during a fall event. The longer the freefall, the greater the energy in the system, which will result in more significant clearance requirements and impact forces on the body. Take action to avoid sharp edges, abrasive surfaces, and thermal, electrical, and chemical hazards. Installation of the anchor below the full body harness (FBH) dorsal D-ring requires the use of a PFAS designed for extended free fall scenarios. Minimum service temperature is -40°F (-40°C).

Substrate requirements detailed in Section 5 are qualified by FallTech. Any installation of the Rotating D-Ring Roof Anchor into a substrate that is not described by this user instruction manual shall be

approved and/or certified by a Qualified Person or Professional Engineer. See Section 4 for more information on minimum and expected loads by application.

### 3.4 Approved Applications:

Below are applications for which the Rotating D-Ring Roof Anchor are specifically suited:

#### 3.4.1 Personal Fall Arrest:

The Rotating D-Ring Roof Anchor is designed to be used as single person anchor point for a personal fall arrest system. The Rotating D-Ring Roof Anchor may be used as part of a horizontal lifeline system approved by a Qualified Person. OSHA maximum allowable free fall is 6 feet (1.8 m).

#### 3.4.2 Restraint:

The Rotating D-Ring Roof Anchor may be used as a component of a restraint system to prevent the user from reaching a fall hazard. Restraint systems typically include a full body harness containing a body belt and a lanyard or restraint line.

#### 3.4.3 Work Positioning:

The Rotating D-Ring Roof Anchor may be used as a component of a work positioning system to support the user at a work position. Work positioning systems typically include an FBH with integrated side D-rings, a body belt, and a positioning lanyard. A back-up PFAS is required when the user is exposed to a free fall of 2 feet (1.8 m) or more.

#### 3.4.4 Rescue:

The Rotating D-Ring Roof Anchor may be used as an anchor in rescue operations that require specialized equipment beyond the scope of this manual.

## 4.0 System Requirements

### 4.1 Capacity:

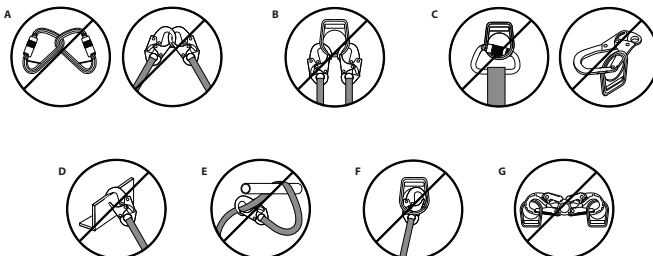
The FallTech Rotating D-Ring Roof Anchor discussed in this manual is rated for a maximum total combined (clothing, tools, etc.) user weight of 425 lbs (192.8 kg). To comply with ANSI Z359, user capacity is limited from 130 to 310 lbs (59 to 141 kg). Heavyweight users must wear an appropriately rated connecting device or self-retracting lifeline. After a fall event, suspension trauma may rapidly develop. Users are advised to deploy suspension trauma relief equipment as soon as possible after a fall event.

### 4.2 Compatibility of Connectors:

Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to open inadvertently regardless of how they become oriented. Contact FallTech® if you have any questions about compatibility. Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. Connectors must be compatible in size, shape, and strength. Substitutions or replacements made with non-OSHA 1926 compliant components or subsystems may jeopardize compatibility of equipment and may affect the safety and reliability of the complete system.

### 4.3 Making Connections:

Only use self-locking connectors with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape, and strength. Do not use equipment that is not compatible. Visually ensure all connectors are fully closed and locked. Connectors (snap hooks, rebar hooks, and carabiners) are designed for use only as specified in this manual.



<b>Figure 2 - Non-Compatible Connections</b>	
<b>A</b>	Never connect two active components (snap hooks or carabiners) to each other.
<b>B</b>	Never connect two active components (snap hooks or carabiners) to a single D-ring at the same time.
<b>C</b>	Never connect in a way that would produce a condition of loading on the gate.
<b>D</b>	Never attach to an object in a manner whereby the gate (of the snap hook or carabiner) would be prevented from fully closing and locking. Always guard against false connections by visually inspecting for closure and lock.
<b>E</b>	Never attach explicitly to a constituent subcomponent (webbing, cable or rope) unless specifically provided for by the manufacturer's instructions for both subcomponents (snap hook or carabiner and webbing, cable or rope).
<b>F</b>	Never attach in a manner where an element of the connector (gate or release lever) may become caught on the anchor thereby producing additional risk of false engagement.
<b>G</b>	Never attach a spreader snap hook to two side/positioning D-rings in a manner whereby the D-rings will engage the gates; the gates on a spreader must always be facing away from the D-rings during work positioning.

#### **4.4 Personal Fall Arrest System:**

PFAS used with this equipment must meet OSHA requirements. A full body harness must be worn when this equipment is used as a component of a PFAS. As required by OSHA, the personal fall arrest system must be able to arrest the user's fall with a maximum arresting force (MAF) of 1,800 lbs (8 kN), and limit the free fall to 6 ft (1.8 m).

An anchorage selected for PFAS must have a strength able to sustain a static load applied in the direction permitted by the PFAS of at least:

- a. Two times the maximum arrest force permitted when certification exists, or
- b. 5,000 lbs. (22.2 kN) in the absence of certification.

Select an anchorage location carefully. Consider structural strength, obstructions in the fall path, and swing fall hazards. In certain situations, the qualified person can determine that a given structure is able to withstand the applied MAF of the PFAS with a safety factor of at least two.

#### **4.5 Restraint System:**

An anchorage selected for restraint must have a strength able to sustain a static load applied in the direction permitted by the system of at least:

- a. Two times the maximum arrest force permitted when certification exists, or
- b. 1,000 lbs. (4.4 kN) in the absence of certification.

An FBH must be worn when this equipment is used as a component of a restraint system. As required by OSHA, the restraint system must prevent the user from reaching a fall hazard area. Free fall is not permitted.

#### **4.6 Work Positioning System:**

An anchorage selected for work positioning must have a strength able to sustain a static load applied in the direction permitted by the system of at least:

- a. Two times the maximum arrest force permitted when certification exists, or
- b. 3,000 lbs. (13.3 kN) in the absence of certification.

An FBH must be worn when this equipment is used as a component of a work positioning system. As required by OSHA, the free fall shall be limited to 2 feet or less. A back-up PFAS is required when the user is working above the appropriate trigger height or is exposed to a free fall of 2 feet (1.8 m) or more.

## 5.0 Installation and Use



### WARNING

**Do not alter or intentionally misuse this equipment. Consult FallTech® when using this equipment in combination with components or subsystems other than those described in this manual. All components or subsystems used with the anchors discussed in this manual must be in compliance with OSHA.**

**Take action to avoid sharp and/or abrasive surfaces and edges when possible.**

### 5.1. Plan the Personal Fall Arrest System (PFAS):

Examine the work area and take action to address hazards. Falls are a serious hazard when working at height. Training and equipment are the tools of fall hazard management. There are several closely related facets of fall hazard management with a PFAS;

- Anchorage
- Minimum Required Fall Clearance (MRFC)
- Swing Fall and Expanded Work Zone
- Overhead (above the FBH D-ring) Anchorage
- Non-overhead (below the FBH D-ring) Anchorage
- Rescue Plan

### 5.2 Minimum Required Fall Clearance:

The MRFC is the minimum distance a user needs between themselves and the nearest obstruction (or ground) below the walking/working surface to avoid serious injury or death in case of a fall event. The user of this equipment must determine the MRFC for units discussed in this manual to ensure adequate clearance exists in the fall path. Variables discussed in this manual include the height of the anchor point relative to the user's FBH D-ring, i.e., overhead, see the user manual of your specific connecting device.

### 5.3 Pre-Use Inspection:

FallTech requires that the following steps be taken during end user inspection prior to each use of this product.

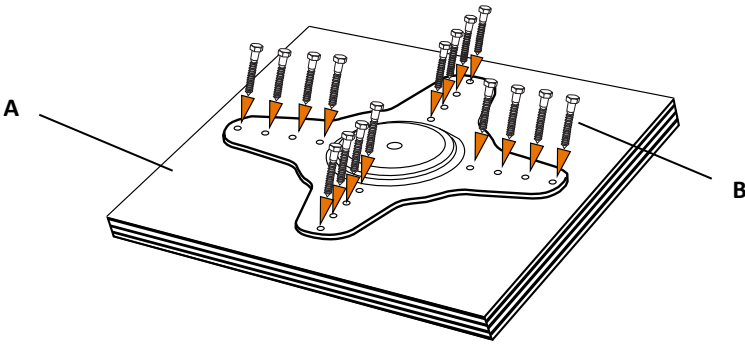
- Inspect the Rotating D-Ring Roof Anchor thoroughly for damage. Inspect all metal parts for cracks, bends, sharp edges, burrs, corrosion, or deformation of any kind.
- Inspect the permanently affixed nut and ensure that it does not rotate on the bolt.
- Inspect all parts for surface contamination which may inhibit the operation of mechanical parts
- Inspect the labels. All labels must be present and fully legible.
- Inspect each system component or subsystem according to the associated manufacturer's instructions.
- If installing a re-used anchor, ensure that new screws are used. DO NOT reuse screws.
- Remove from service any system component or subsystems that fails inspection.

### 5.4 Wood Roof Installation:

#### 5.4.1 CDX Plywood Installation

The Rotating D-Ring Roof Anchor may be installed onto plywood roof decks that are composed of 3/4" thick CDX as part of a structure that can support the loads described in Section 4. Any wood structure other than 3/4" thick CDX must be approved/certified by a Qualified Person or Professional Engineer.

1. Select an appropriate anchorage location as determined by a Competent or Qualified Person as part of the fall protection plan. Inspect the CDX for any damage, abnormalities, or contaminants.
2. Place the anchor onto the CDX in the desired orientation. See Figure 3.
3. Install the Rotating D-Ring anchor into the CDX using all sixteen provided 1/4"-14 thread, 2-1/2" length Self-Tapping Screws. Screws must fully engage CDX and the base plate shall be flush to the CDX when all fasteners are secured. Be careful not to overtighten the screws, which may strip out the CDX and weaken the structure. DO NOT use nails. Use of any fastener other than those specified by FallTech requires approval by a Qualified Person or Professional Engineer.
4. Follow roofing manufacturer's instructions for waterproofing this anchor installation.



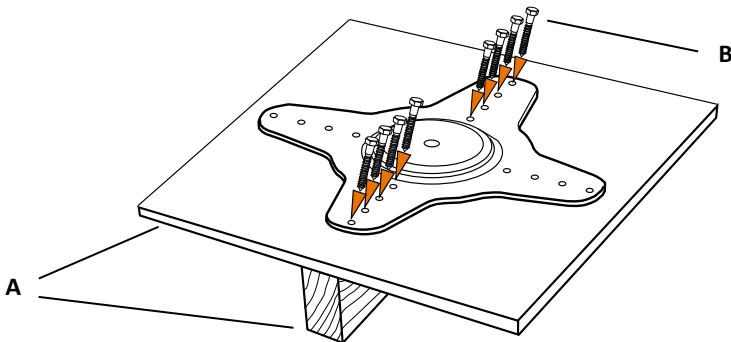
**Figure 3 - CDX Plywood Wood Roof Substrate Installation**

<b>A</b>	Minimum 3/4" thickness CDX plywood
<b>B</b>	Sixteen (16) 1/4"-14, 2-1/2" length Self-Tapping Screws

**5.4.2 Truss with Sheathing Installation**

The Rotating D-Ring Roof Anchor may be installed onto wood structure roofs that are composed of structural truss underneath a minimum 3/8" thick OSB sheathing as part of a structure that can support the loads described in Section 4. Any wood structure other than that described in this section must be approved/certified by a Qualified Person or Professional Engineer.

1. Select an appropriate anchorage location as determined by a Competent or Qualified Person as part of the fall protection plan. Inspect the truss and sheathing for any damage, abnormalities, or contaminates.
2. Place the anchor onto the sheathing in an orientation such that one of the two lines of eight fastener holes is aligned with the truss underneath the sheathing. See Figure 4.
3. Mark and predrill the eight holes aligned with the truss using a 3/32" drill bit. The holes should be drilled into the center of the truss.
4. Align the anchor base plate with the eight pre-drilled holes and install eight (8) provided screws through the baseplate holes and the OSB into the truss. Ensure the base plate is flush with the sheathing. Be careful not to overtighten the screws, which may strip out the wood and weaken the structure. DO NOT use nails. Use of any fastener other than those specified by FallTech requires approval by a Qualified Person or Professional Engineer.
5. Follow roofing manufacturer's instructions for waterproofing this anchor installation.



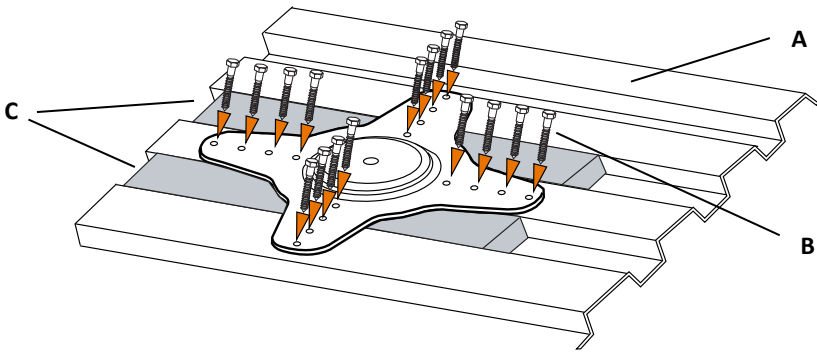
**Figure 4 - Truss with Sheathing Wood Roof Substrate Installation**

<b>A</b>	Minimum 3/8" OSB Sheathing on top of structural truss member
<b>B</b>	Eight (8) 1/4"-14, 2-1/2" length Self-Tapping Screws

### 5.5 Steel Decking or Metal Roof Installation:

The Rotating D-Ring Roof Anchor may be installed onto steel decking or metal roof panels with a minimum 22 gauge material thickness and maximum support intervals of 72 inches as part of a structure that can support the loads described in Section 4. Any structure deviating from the above substrate description must be approved/certified by a Qualified Person or Professional Engineer.

1. Select an appropriate anchorage location as determined by a Competent or Qualified Person as part of the fall protection plan. Inspect the steel decking or metal roof for any damage, abnormalities, or contaminants.
2. Place the anchor onto the steel deck or metal in the orientation shown in Figure 5. Note that one complete line of eight (8) screws shall engage fully with a flat crown section of metal deck. Use wood spacers as shown to fill the gaps as needed for the installation location desired.
3. Install the Rotating D-Ring anchor into the steel deck or metal roof using all sixteen provided 1/4"-14 thread, 2-1/2" length Self-Tapping Screws. Screws must be long enough to have a minimum of five threads protruded through the backside of the steel deck or metal roof. Be careful not to overtighten the screws, which may strip out the metal and weaken the structure. Use of any fastener other than those specified by FallTech requires approval by a Qualified Person or Professional Engineer.
4. Follow roofing manufacturer's instructions for waterproofing this anchor installation.



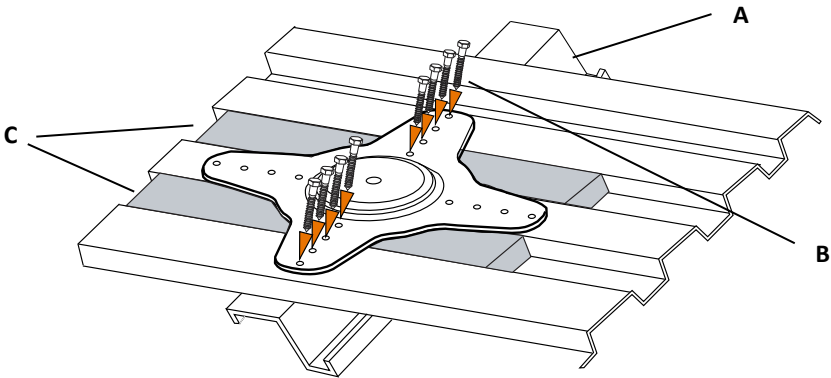
**Figure 5 - Steel Decking/Metal Roof Substrate Installation (con't)**

<b>A</b>	Minimum 22 gauge steel decking/metal roof thickness
<b>B</b>	Sixteen (16) 1/4"-14 Self-Tapping Screws
<b>C</b>	Fill deck gaps with wood spacers as needed for installation location

### 5.6 Steel Z-Purlin Installation:

The Rotating D-Ring Roof Anchor may be installed onto steel Z-purlins with a minimum 16 gauge material thickness as part of a structure that can support the loads described in Section 4. Any structure deviating from the above substrate description must be approved/certified by a Qualified Person or Professional Engineer.

1. Select an appropriate anchorage location as determined by a Competent or Qualified Person as part of the fall protection plan. Inspect the steel decking or metal roof for any damage, abnormalities, or contaminants.
2. Place the anchor onto the deck over the Z-purlin in the orientation shown in Figure 6. Note that the complete line of eight (8) screws shall engage fully with the center of the Z-purlin. Use wood spacers in the deck as shown to fill the gaps as needed for the installation location desired.
3. Install the Rotating D-Ring anchor into the steel Z-purlin through the deck using only eight (8) provided 1/4"-14 thread, 2-1/2" length Self-Tapping Screws. Screws must be long enough to have a minimum of five threads protruded through the backside of the steel deck or metal roof. Be careful not to overtighten the screws, which may strip out the metal and weaken the structure. Use of any fastener other than those specified by FallTech requires approval by a Qualified Person or Professional Engineer.
4. Follow roofing manufacturer's instructions for waterproofing this anchor installation.



**Figure 6 - Steel Z-Purlin Substrate Installation**

<b>A</b>	Minimum 16 gauge steel Z-purlin
<b>B</b>	Eight (8) 1/4"-14 Self-Tapping Screws
<b>C</b>	Fill deck gaps with wood spacers as needed for installation location

### 5.7 Re-Using Rotating D-Ring Roof Anchors:

Anchors that are removed after work has been completed can be reused again if they pass inspection as described in Section 7. DO NOT reuse the provided screws. DO NOT reuse existing holes in any material. New screws shall be used and new holes shall be drilled for any installation of this anchor.

## 6.0 Maintenance, Service, and Storage

### 6.1 Maintenance:

Clean the FallTech® Rotating D-Ring Roof Anchor with water and mild detergent. Do not allow excessive build-up of dirt, paint or other agents that may cause binding of the mechanism. Avoid water or other corrosion causing elements to enter the anchor.

### 6.2 Proper Care:

- Keep the Rotating D-Ring Roof Anchor clean and free of contaminants, this will increase the service life.
- Use a damp rag and a mild soap and water solution to clean the hardware. Wipe the hardware dry with a clean soft cloth.
- DO NOT use heat to dry.
- DO NOT use any solvents or petroleum products to clean this anchor.
- DO NOT attempt to repair or modify this Rotating D-Ring Roof Anchor or any of its components. Such attempts will void the warranty and may result in serious injury or death.

### 6.3 Storage:

Store in a clean, dry, and chemical free environment and kept out of direct sunlight.

## 7.0 Inspection

### 7.1 Pre-Use Inspection:

Please review the Pre-Use Inspection guidelines in Section 5.3 for inspection requirements.

### 7.2 Inspection Frequency:

Inspection by a Competent Person at regular intervals is required; at minimum annually. The Competent Person will use the information in Table 1: Inspection Frequency, to determine the inspection frequency.

### 7.3 Inspection Results:

If an inspection reveals defects in or damage to the equipment, inadequate maintenance or activated fall indicators, remove the equipment from service.

### 7.4 Inspection Document:

Record inspection results on the Inspection Record provided below or on a similar document.

<b>Type of Use</b>	<b>Application Examples</b>	<b>Example Conditions of Use</b>	<b>Competent Person Inspection Frequency</b>
<b>Infrequent to Light Use</b>	Rescue and Confined Space, Factory Maintenance	Good Storage Conditions, Indoor or Infrequent Outdoor use, Room Temperature, Clean Environments	Annually
<b>Moderate to Heavy Use</b>	Transportation, Residential Construction, Utilities, Warehouse	Fair Storage Conditions, Indoor and extended outdoor use, All temperatures, Clean or dusty environments	Semi-annually to Annually
<b>Severe to Continuous Use</b>	Commercial construction, oil and gas, mining, foundry	Harsh Storage Conditions, Prolonged or Continuous outdoor Use, all temperatures, Dirty environments	Quarterly to Semi-annually



