Instructions for the following series products:

Tip Over Roof Anchor

(See back page for specific model numbers.)

User Instruction Manual
Tip Over Roof Anchor

This manual is provided as the Manufacturer's Instructions, and should be used as part of an employee training program as required by OSHA.

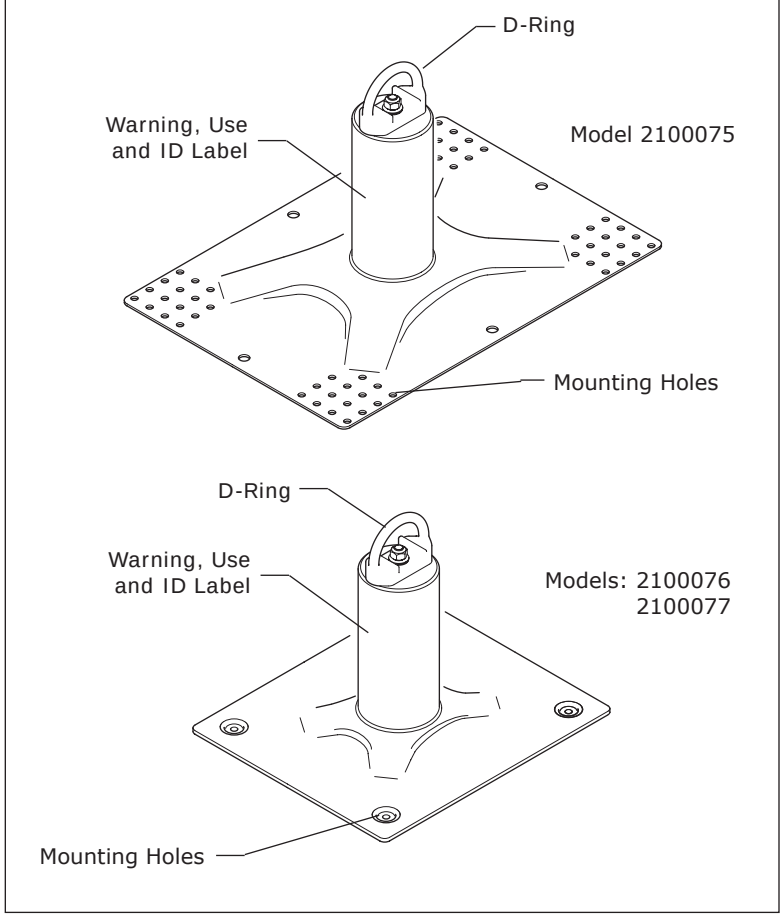
DESCRIPTION

TIP OVER ROOF ANCHOR: Includes integral base plate, post, and D-ring anchor. The D-ring anchor is designed for attachment of a self retracting lifeline (SRL), lanyard, or a lifeline. The base allows for installation to a variety of roof designs and materials. When subjected to fall arrest forces, the post will tip over to reduce uplifting loads on the roof decking. See Figure 1.

WARNING: *This product is part of a personal fall arrest system (PFAS). The users must read and follow the manufacturer's instructions for each component of the system. These instructions must be provided to the users of this equipment. The users must read and understand these instructions or have them explained to them before using this equipment. Manufacturer's instructions must be followed for proper use, care and maintenance of this product. Alterations or misuse of this product or failure to follow instructions, may result in serious injury or death.*

IMPORTANT: *If you have questions on the use, care, or suitability for use of this equipment, contact DBI-SALA immediately. This instruction manual is intended to be used in conjunction with the instruction manuals supplied with each system component mentioned below if applicable. If an instruction was not supplied with the purchase of that component, contact DBI-SALA immediately.*

Figure 1 - Roof Anchor



1.0 APPLICATION

1.1 PURPOSE: The DBI-SALA tip over roof anchor is designed to be used as an anchorage connector on flat roof decks. This anchorage connector may be used as part of a PFAS. This roof anchor is designed for use with the DBI-SALA Ultra-Lok® Leading Edge SRL (PN 3504500), DBI-SALA EZ Stop® and Force 2™ energy absorbing lanyards, DBI-SALA Sayfline™ Synthetic HLL System (models 7600502 to 7600510), or rope grabs/rope adjusters and a lifeline. The DBI-SALA Sayfline Wire Rope HLL System (models 7602020 to 7602100) may also be used, but only when the roof top anchor is attached to the structure using Fablok fasteners. Do not hang, lift or support tools or equipment from these roof anchors or attach guy lines for antennas, phone lines, etc.

IMPORTANT: *The Sayfline Wire Rope HLL may only be used when the roof top anchor is attached to the structure using Fablok fasteners or Toggle Bolts. Lag bolts and Teks screws do not provide sufficient strength to counteract forces generated by a fall while using the Sayfline Wire Rope HLL.*

1.2 LIMITATIONS

A. Structure must be capable of meeting the anchorage strength requirements as set forth in section 2.4. When properly attached, the roof top anchor is designed for use with a variety of roof types:

Ribbed Steel: The roof top anchor (2100075) is designed to accommodate rib spacing from 8 in. to 20 in. in 1 inch increments. The minimum material thickness for ribbed steel decking is 24 gauge (.024 inch).

Membrane: The roof top anchor (2100076, 2100077) is designed to be used on single ply membrane or built-up type roofs with a maximum total roofing material thickness (including insulation and decking) of 5.5 in. (14.0 cm) for model 2100076 or 10.5 in. (27.0 cm) for model 2100077). Sheathing under the membrane and/or built up material and insulation should be corrugated ribbed steel with a minimum thickness of 24 gauge (.024 inch).

Concrete: The roof top anchor (2100075) is designed for use on concrete roof decks.

Plywood (temporary use only): The minimum thickness and material grade for plywood (wood sheathing) is 5/8 inch (1.9 cm) CDX.

Consult DBI-SALA before using this roof top anchor in any other application.

B. **CAPACITY:** This anchorage connector is designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs . (141 kg). Only one personal fall arrest system (PFAS) may be connected to the anchorage connector at a time.

C. **PERSONAL FALL ARREST SYSTEM:** PFASs used with this roof anchor must meet applicable OSHA, state, federal and ANSI requirements. PFASs incorporating a full body harness must be capable of arresting a worker's fall with a maximum arresting force of no greater than 1,800 lbs. (8 kN) [900 lbs. (4kN)] maximum arresting force where used with a Sayfline Synthetic Horizontal Lifeline System] and limit the free fall distance to 6 ft (1.8 m) or less. The deceleration distance for a PFAS must be 42 inches (1.1 m) or less [47 inches (1.2 m) in Canada]. Reference ANSI Z359.1, OSHA and CSA Z259.11 requirements. If the maximum free fall distance of 6 feet (1.8 m) must be exceeded, the employer must be able to document, based on test data, that the maximum permissible arresting forces will not be exceeded, and that the personal fall arrest system will function properly.

When a free fall greater than 6 ft (1.8 m) and up to a maximum of 12 ft (3.7 m) is possible, DBI-SALA recommends using a personal fall arrest system incorporating a DBI-SALA Force2 energy absorbing lanyard. DBI-SALA has performed testing using the Force2 energy absorbing lanyard in free falls up to 12 ft (3.7 m) to ensure the maximum arresting force does not exceed 1,800 lbs. (8 kN), and the system functions properly. The results of these tests are listed in the user instruction manual provided with Force2 shock absorbing lanyards.

D. **LOCKING SPEED OF SRL:** Situations which do not allow for an unobstructed fall path should be avoided. Working in very confined or cramped spaces may not allow the body to reach sufficient speed to cause the SRL to lock should a fall occur. Working on slowly shifting material such as loose shingles may not allow enough speed build-up to cause the SRL to lock. A similar situation may occur on low pitched roofs where a worker may slide instead of fall. A clear path is needed to assure positive locking of the SRL.

E. **CORROSION:** Use near sea water or other corrosive environments may require more frequent inspections or servicing (replacement) to assure corrosion damage is not affecting the performance of the product.

F. **CHEMICAL HAZARDS:** Solutions containing acids, alkali, or other caustic chemicals, especially at elevated temperatures may cause damage to this equipment. Consult DBI-SALA if doubts exists concerning installing this equipment where chemical hazards are present.

G. **ELECTRICAL HAZARDS:** Do not install the roof anchor where it or the user may come into contact with electrical power lines.

H. **TRAINING:** This equipment must be installed and used by persons who have been properly trained in its correct application and use. Installation and use of this equipment must be supervised by a qualified person, as defined by OSHA fall protection standards.

I. **SHARP EDGES:** Avoid working where the lifeline will be in contact with or abrade against unprotected sharp edges.

1.3 Refer to national Standards including ANSI Z359 (.0, .1, .2, .3, and .4) family of standards on fall protection, ANSI A10.32, and applicable local, state and federal (OSHA) requirements governing occupational safety for more information about fall arrest systems.

2.0 SYSTEM REQUIREMENTS

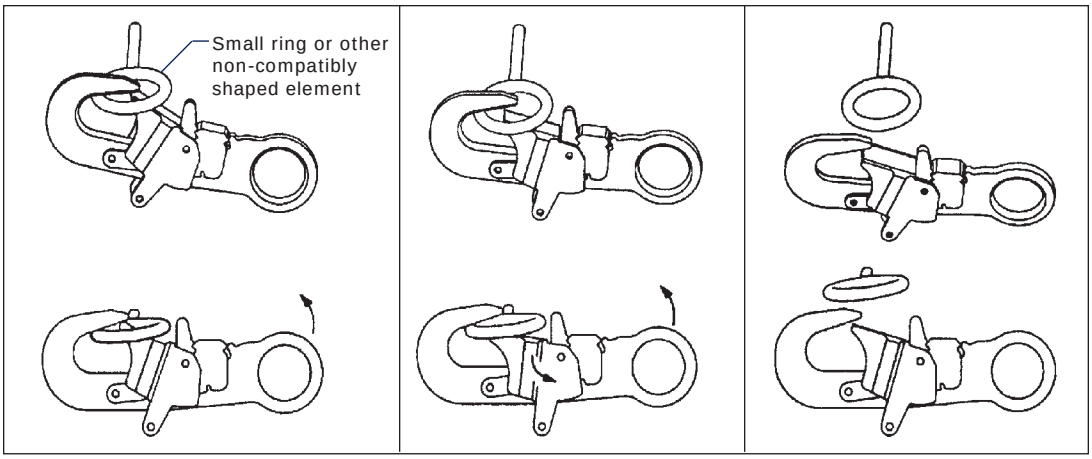
2.1 COMPATIBILITY OF COMPONENTS: DBI-SALA equipment is designed for use with DBI-SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system.

2.2 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 inadvertently open regardless of how they become oriented. Contact DBI-SALA if you have any questions about compatibility.

Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). 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. See Figure 2. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA and CSA Z259.12 in Canada.

Figure 2 - Unintentional Disengagement (Roll-Out)

If the connecting element that a snap hook (shown) or carabiner attaches to is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open unintentionally, allowing the snap hook or carabiner to disengage (Roll-Out) from the connecting point.



1. Force is applied to the snap hook.
2. The gate presses against the connecting ring.
3. The gate opens allowing the snap hook to slip off.

2.3 MAKING CONNECTIONS: Only use self-locking snap hooks and carabiners 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. Ensure all connectors are fully closed and locked.

NOTE: *Large throat opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.*

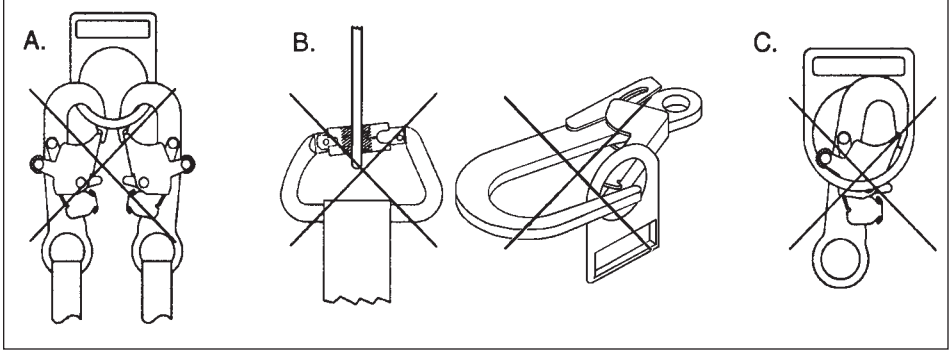
DBI-SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 3a and 3b for inappropriate connections. DBI-SALA snap hooks and carabiners should not be connected to the d-ring in the following manner:

A. To a D-ring to which another connector is attached.

B. In a manner that would result in a load on the gate.

C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point.

Figure 3a - Inappropriate Connections

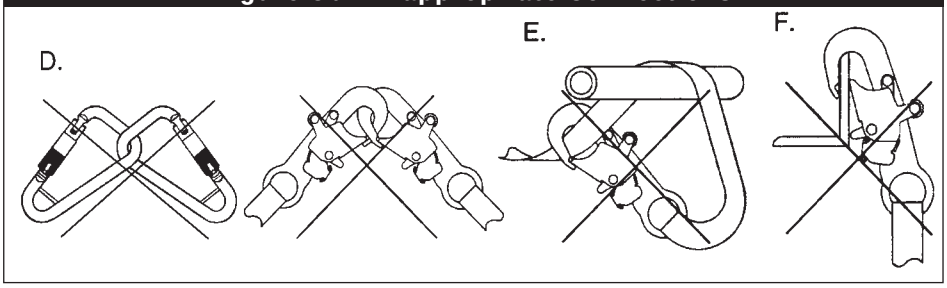


D. To each other.

E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection).

F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.

Figure 3b - Inappropriate Connections



2.4 ANCHORAGE STRENGTH: The anchorage to which the roof anchor is installed must meet minimum strength(s) as given below for the applications selected:

FALL ARREST: Per ANSI Z359.1 - Anchorages selected for personal fall arrest systems (PFAS) shall have a strength capable of sustaining static loads in the direction(s) permitted by the PFAS when in use of at least (A) 3,600 lbs (16 kN) when certification exists; reference ANSI Z359.1 for certification definition), or (B) 5,000 lbs. (22.2 kN) in absence of certification. When more than one PFAS is attached to an anchorage, the anchorage strengths set forth in (A) or (B) above shall be multiplied by the number of PFAS attached to the anchorage.

Per OSHA 1926.500 and 1910.66 - Anchorages used for attachment of personal fall arrest systems (PFAS) shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 lbs (22.2 kN) per user attached, or be designed, installed and used as part of a complete PFAS which maintains a safety factor of at least two and is under the supervision of a qualified person.

3.0 OPERATION AND USAGE

WARNING: *Do not alter or intentionally misuse this equipment. Consult with DBI-SALA if using this equipment in combination with components or subsystems other than those described in this manual. Some subsystems and components combinations may interfere with the proper operation of this equipment.*

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

3.1 BEFORE EACH USE of this equipment, carefully inspect it to assure that it is in serviceable condition. Check for worn or damaged parts. Ensure the roof anchor is secure and not distorted. Inspect for sharp edges, burrs, cracks, or corrosion. Inspect other fall arrest equipment in accordance with the manufacturer's instructions supplied with each system component. Refer to section 5.0 for further inspection details. Do not use if inspection reveals an unsafe condition.

3.2 PLAN your fall arrest system before starting your work. Take into consideration factors affecting your safety at any time during use. The following list gives some important points you must consider when planning your system:

A. ANCHORAGE: Select an anchorage point that is rigid and capable of supporting the required loads (see section 2.4). Locate the roof anchor in accordance with section 3.3.

B. OTHER CONSIDERATIONS: Personal fall arrest systems must be rigged to limit any free fall to a maximum of 6 ft (1.8 m) (OSHA and ANSI Z359.1). Avoid working above your anchorage level since an increased free fall distance will result. Avoid working where your line may cross or tangle with that of another worker or another object. Do not allow the lifeline to pass under arms or between legs. Never clamp, knot or otherwise prevent the lifeline from retracting or being taut, avoid slack line. **Do not lengthen the SRL by connecting a lanyard or similar component without consulting DBI-SALA.**

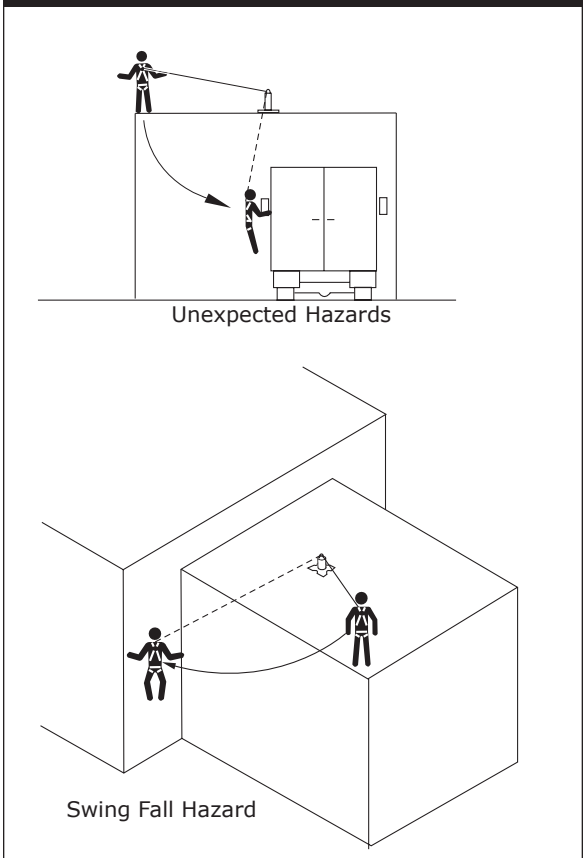
C. TOTAL FALL DISTANCE: Should a fall occur, there must be sufficient clearance in the fall area to arrest the fall before striking the ground or other object. The total fall distance is the distance measured from the onset of a fall to the point where the fall is arrested. A number of factors can influence the total fall distance including; user's weight, anchorage location relative to the fall (swing fall), body support with sliding D-ring, and the type of fall arrest equipment you attach to the roof anchor. For specific clearance requirements read and follow the manufacturers's instructions for your fall arrest equipment.

D. SWING FALLS: See Figure 4. Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object while swinging (horizontal speed of the user due to the pendulum affect) can be great and may cause serious injury. Swing falls can be minimized by working as directly below the anchorage point as possible. In a swing fall situation, the total vertical fall

distance of the user will be greater than if the user had fallen vertically directly below the anchorage point. The user must therefore account for an increase in the total free fall distance and the area needed to safely arrest the fall.

The SRL (if applicable) will activate (lock-up) regardless of it's orientation and location relative to the user's position, however, a commonly followed guideline is not to extend your work zone over 30° from the anchorage point (the roof anchor swivels providing a 30° work area on both sides of the roof anchor). Do not captivate the lifeline of an SRL, it may affect the performance of its braking. If a swing fall hazard exists in your application, contact DBI-SALA before proceeding.

Figure 4 - Swing Falls

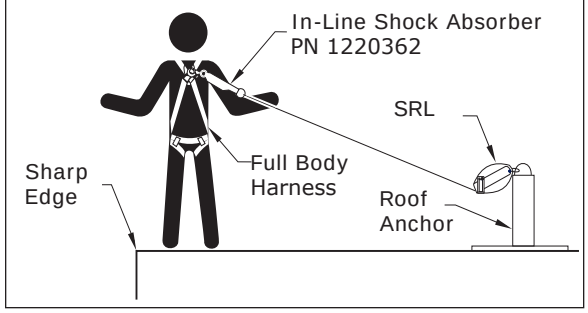


E. SHARP EDGES: Avoid working where the connecting subsystem (i.e. SRL, full body harness, lanyard, lifeline, etc.) or other system components will be in contact with, or abrade against unprotected sharp edges. See Figure 5. If working with this equipment near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge. If you are not using the Leading Edge SRL (PN 3504500), it is recommended that an energy absorber (PN 1220362) be installed in-line between the harness and the self retracting lifeline to further protect the worker. Compatibility and total fall distance issues must be considered if this is done. Contact DBI-SALA before using in-line energy absorbing components or lanyards with self retracting lifelines.

F. RESCUE: Should a fall occur, the user (employer) must have a rescue plan and the means at hand to implement it.

G. AFTER A FALL: Any equipment which has been subjected to the forces of arresting a fall must be removed from service immediately and destroyed or contact a factory authorized service center for repair.

Figure 5 - Sharp Edges

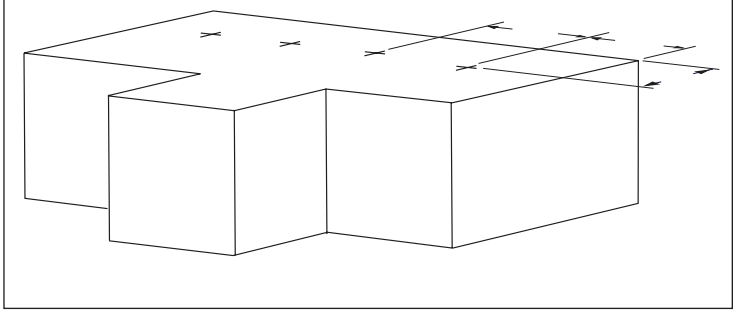


3.3 INSTALLATION REQUIREMENTS:

A. ROOF ANCHOR SITE PLAN: Before starting the roof construction, a plan should be established as to where the roof anchor(s) will be installed and when, during the construction process, they may be used. See Figure 6. The following are guide lines on locating roof anchors:

- This roof anchor is for use in an upright position on flat roofs or pitched roofs with a maximum slope of 3:12 pitch.
- Do not install the roof anchor on unsupported roof structures such as overhangs.

Figure 6 - Roof Anchor Site Plan



B. ROOF ANCHOR INSTALLATION: Roof anchors must be installed in accordance with the previously discussed site plan. Site work rules must be followed regarding when an installed roof anchor is ready for use (i.e. Properly braced, etc.).

Roof anchors must be installed using the recommended fasteners for the specific roof deck material and design. Installation instructions for most compatible roof deck materials and designs can be found in the APPENDIX.

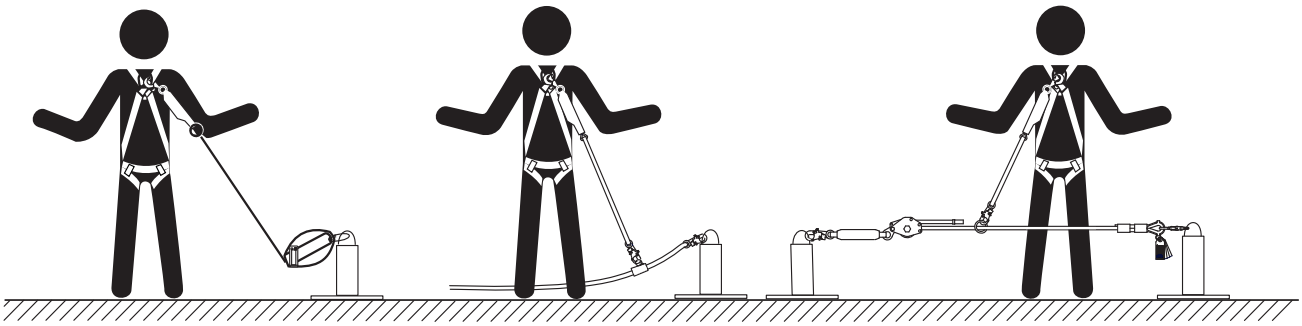
C. ATTACHING LANYARDS OR LIFELINE: Once the roof anchor is secure the energy absorbing lanyard, horizontal lifeline, or rope grab/rope adjuster and vertical lifeline can be attached utilizing the D-ring on the top of the anchor.

3.4 BODY SUPPORT: When using the DBI-SALA swiveling roof anchor, it is recommended that a full body harness be worn. For general fall protection use, connect to the D-ring on the back between the shoulders (dorsal D-ring).

IMPORTANT: *Body belts are not allowed for free fall situations. Body belts increase the risk of injury during fall arrest in comparison to a full body harness. Limited suspension time and the potential for improperly wearing a body belt may result in added danger to the user's health.*

3.5 CONNECTING TO THE ROOF ANCHOR: Figure 7 illustrates the proper connection of typical fall arrest equipment to the roof anchor. Always protect the lifeline from abrading against sharp or abrasive surfaces on the roof. Make sure all the connections are compatible in size, shape and strength. Never connect more than one personal protective system to any single roof anchor at a time.

Figure 7 - Making Connections



SRL: Connection to the installed roof anchor may be made by attaching the self locking snap hook at the end of the SRL lifeline to the back dorsal D-ring (fall arrest attachment point) of the user's body support (i.e. full body harness). When connecting, make sure the connections are fully closed and locked. Review section 3.2 if using an SRL near sharp edges.

ENERGY ABSORBING LANYARDS OR LIFELINE: Connect the energy absorbing end of the lanyard to the back D-ring on the full body harness (see section 3.4). See manufacturer's instruction for more information. HLL SYSTEM: The tip over roof anchor can be used as and end anchor for a DBI-SALA Sayfline™ Synthetic HLL System (models 7600502 to 7600510). This system utilizes energy absorbers on each end to limit end loads to a maximum of 1800 lbs. (8 kN). See manufacturer's instructions for the HLL System for more information. (Contact DBI-SALA for more information on Sayfline Synthetic HLL systems.) The wire rope Sayfline HLL may also be used if the roof anchor is fastened to the structure using the rivet kit (7240200) or 16 Fablok Fasteners.

3.6 NORMAL OPERATION: Once attached, the worker is free to move about within the recommended working areas (30° from either side of the roof anchor).

SRL: Should a fall occur, a speed sensing brake system will activate, stopping the fall and absorbing much of the energy created. Sudden or quick movements should be avoided during the normal work operation since this may cause the SRL to lock-up.

ENERGY ABSORBING LANYARD: Should a fall occur, the energy absorber with deploy, stopping the fall and absorbing much of the energy created.

If a fall has been arrested, the system must be taken out of service and inspected; see section 5.0.

WARNING: *Read and follow the manufacturer's instructions for associated equipment (i.e. SRL, full body harness, lanyard, lifeline, etc.) used in your personal fall arrest system.*

IMPORTANT: *For special (Custom) versions of this product, follow the instructions herein. If enclosed, see attached supplement for additional instructions to be followed when using a customized product.*

4.0 TRAINING

4.1 It is the responsibility of all users of this equipment to understand these instructions, and to be trained in the correct installation, use, and maintenance of this equipment. These individuals must be aware of the consequences of improper installation or use of this equipment. This user manual is not a substitute for a comprehensive training program. Training must be provided on a periodic basis to ensure proficiency of the users.

IMPORTANT: *Training must be conducted without exposing the trainee to a fall hazard. Training should be repeated periodically.*

5.0 INSPECTION

5.1 FREQUENCY: Before each use visually inspect the roof anchor per the steps listed in section 5.2 and 5.3

IMPORTANT: *If this equipment has been subjected to forces resulting from the arrest of a fall, it must be immediately removed from service and destroyed or returned to DBI-SALA for possible repair. See section 5.2.*

5.2 INSPECTION STEPS:

Step 1. Inspect the Roof Anchor for physical damage. Look carefully for any signs of cracks, dents or deformities in the metal. If the anchor has been subjected to fall arrest forces the upright cylinder will be tipped over to one side. Do not use an anchor that has been subjected to fall arrest forces.

Step 2. Inspect the Roof Anchor for signs of excessive corrosion.

Step 3. Ensure the condition of the roof anchor will support the Roof Anchor loads, see section 2.4. An anchor connected to rotten or deteriorated wood should not be used.

Step 4. Check all fasteners. Ensure the Roof Anchor is securely attached to the roof structure. See section 3.3.

Step 5. Inspect each system component or subsystem (i.e. SRL, full body harness, lanyard, lifeline, etc.) per associated manufacturer's instructions. Refer to manufacturer's instruction supplied with each system component for inspection procedures.

Step 6. Record the inspection date and results in the Inspection & Maintenance Log at the end of this manual.

5.3 If inspection reveals a defective condition, remove the unit from service immediately and destroy, or contact a factory authorized service center for repair.

IMPORTANT: *Only DBI-SALA or parties authorized in writing may make repairs to this equipment.*

6.0 MAINTENANCE - SERVICING - STORAGE

6.1 Clean the roof anchor with a mild soap detergent solution. If you have any questions concerning the condition of your roof anchor, or have any doubt about putting it into service, contact DBI-SALA immediately. Refer to the manufacturer's instructions supplied with each system component for maintenance, servicing, and storage procedures.

6.2 Additional maintenance and servicing procedures (i.e. replacement parts) must be completed by a factory authorized service center. Authorization must be in writing.

7.0 SPECIFICATIONS

7.1 COMPONENTS:

MATERIALS: Carbon steel base plate and post, alloy steel D-ring

FINISH: Powder paint over zinc-plate, zinc-plated D-ring

WEIGHT:
2100075: 16 lbs. (7.2 kg)
2100076: 12.6 lbs. (5.6 kg)
2100077: 14.5 lbs. (6.6 kg)

SIZE:

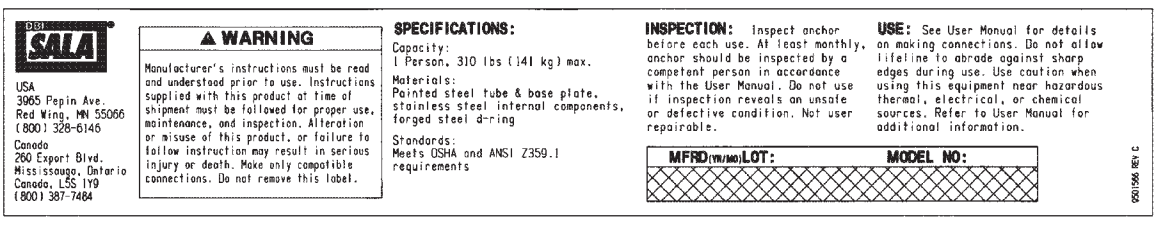
2100075 BASE: 21.14 in. x 14.69 in. (53.7 cm x 37.31 cm)
2100076, 2100077 BASE: 15 in. x 13 in. (38.1 cm x 33.0 cm)
HEIGHT TO TOP OF D-RING: 12.25 in. (31.1 cm)

CAPACITY: 310 lbs. (141 kg) (one person)

MINIMUM BREAKING STRENGTH:
5,000 lbs. (22.2 kN) when secured with 16 Fablok Fasteners or Toggle Bolts.
3,600 lbs. (16 kN) when secured with self drilling or lag screws.

8.0 LABELING

8.1 This label should be attached to the roof anchor and fully legible. See manufacturer's instructions for subsystem components' labels.



Warning, Use and ID Label

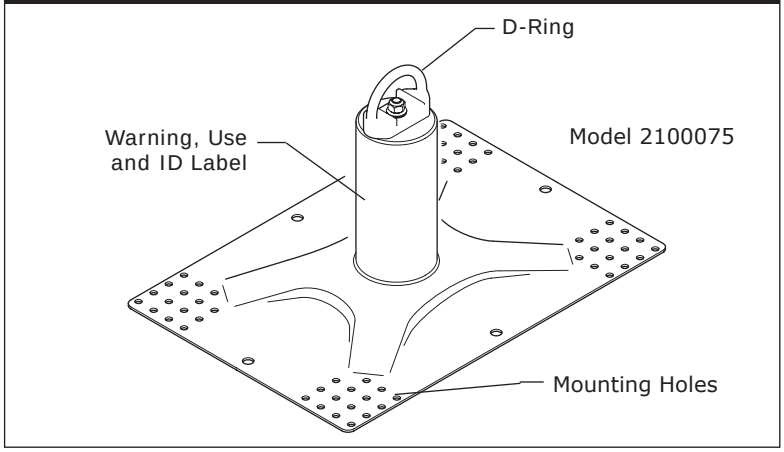
Appendix A
Installation Instructions for:
Permanent Installation to Ribbed Steel Roof Decks

IMPORTANT: *If you have questions on the use, care, suitability, or installation of this equipment, contact DBI-SALA immediately. The Installation Instructions are intended to be used in conjunction with the User Instruction Manuals supplied with each system component mentioned below if applicable. If a User Instruction Manual was not supplied with the purchase of a component, contact DBI-SALA immediately.*

A1.0 APPLICATION

A1.1 PURPOSE: The DBI-SALA tip over roof anchor (2100075) is designed to be used as an anchorage connector on flat ribbed steel roof decks. This anchorage connector may be used as part of a Personal Fall Arrest System (PFAS). This roof anchor is designed for use with the DBI-SALA Ultra-Lok® Leading Edge SRL (PN 3504500), DBI-SALA EZ Stop® and Force 2™ energy absorbing lanyards, DBI-SALA Sayfline Synthetic HLL System (models 7600502 to 7600510), or rope grabs/rope adjusters and a lifeline. The DBI-SALA Sayfline Wire Rope HLL System (models 7602020 to 7602100) may also be used, but only when the roof top anchor is attached to the structure using aluminum blind rivets with sealing washers or Fablok Fasteners. Do not hang, lift or support tools or equipment from these roof anchors or attach guy lines for antennas, phone lines, etc.

Figure A1 - Roof Anchor



IMPORTANT: *The Sayfline Wire Rope HLL may only be used when the roof top anchor is attached to the structure using aluminum blind rivets with sealing washers or Fablok Fasteners. Lag bolts and Teks screws do not provide sufficient strength to counteract forces generated by a fall while using the Sayfline Wire Rope HLL.*

A1.2 STRUCTURE: The structure must be capable of meeting the anchorage strength requirements equal to or greater than the roof top anchor (fall arrest per ANSI Z359.1, OSHA 1926.500, and OSHA 1910.66). The roof top anchor (2100075) is designed to accommodate rib spacing from 8 in. to 20 in. in one inch increments. The minimum material thickness for ribbed steel decking is 24 gauge (.024 inch).

Consult DBI-SALA before using this roof top anchor in any other application.

A2.0 INSPECTION PRIOR TO INSTALLATION

IMPORTANT: *If this equipment has been subjected to forces resulting from the arrest of a fall, or a close inspection reveals a defective condition, it MUST NOT be installed. The item must be destroyed or returned to DBI-SALA or a factory authorized service center for possible repair.*

A2.1 INSPECTION STEPS:

Step 1. Inspect the Roof Top Anchor for physical damage. Look for any signs of cracks, dents or deformities in the metal. If the anchor has been subjected to fall arrest forces the upright cylinder will be tipped over to one side. DO NOT install an anchor that has been subjected to fall arrest forces.

Step 2. Inspect the Roof Anchor for signs of excessive corrosion.

Step 3. Record the inspection date, results, and date of installation in an inspection log. An inspection log is provided with the Roof Top Anchor User Instruction Manual.

IMPORTANT: *Only DBI-SALA or parties authorized in writing may make repairs to this equipment.*

A3.0 INSTALLATION

A3.1 FOLLOW A PREDETERMINED ROOF ANCHOR SITE PLAN

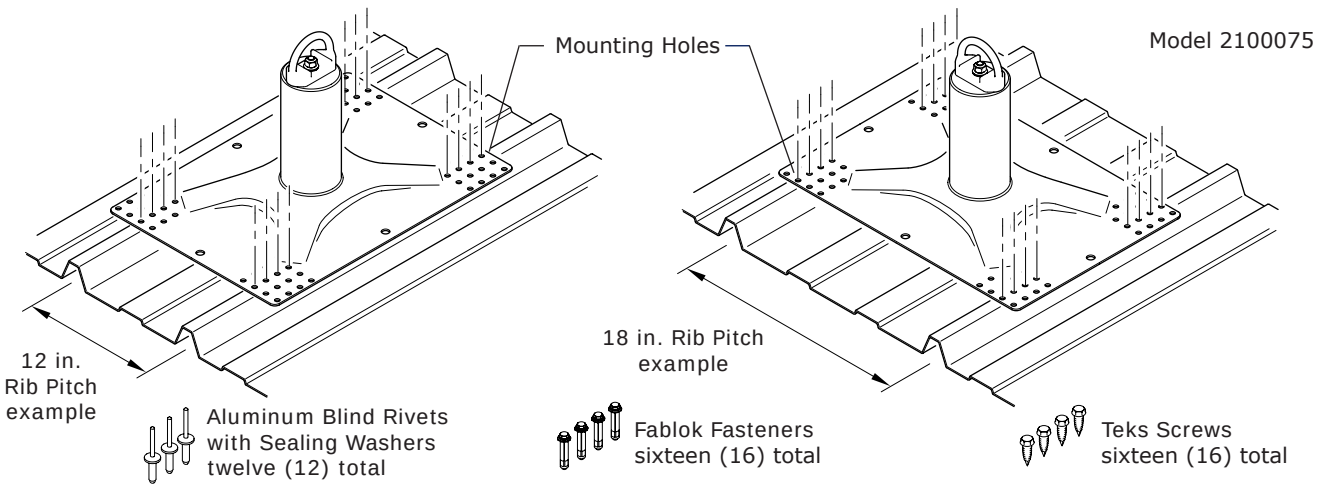
Roof top anchors must be installed in accordance with a previously approved site plan. Site work rules must be followed regarding when the roof top anchor can be installed and used. (i.e. properly braced, etc.).

A3.2 POSITION THE ROOF TOP ANCHOR

IMPORTANT: *The roof anchor plate must be fastened directly to the metal roof decking. If a roof membrane, insulation, or other roofing material is covering the decking. Use DBI-SALA Roof Top Anchor 210076 for membrane covered roof applications.*

Position the roof anchor on the roof so two rows of holes on the base plate are located on the decking ribs. The mounting holes must be located as close as possible to the center of the rib. The mounting holes (and the fasteners you intend to use) MUST NOT be located in the valleys between the deck ribs or on the sloped sides of the deck ribs. The roof anchor can be oriented with either the short side or the long side of the base plate being parallel to the decking ribs. See Figure A2.

Figure A2 - Position Roof Anchor



A3.3 ATTACHING THE ROOF ANCHOR

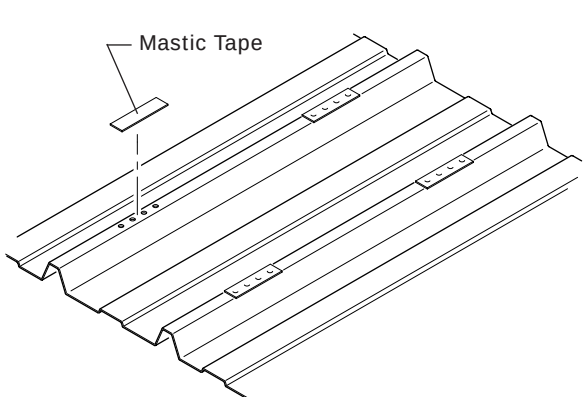
USING RIVETS: The preferred means of fastening the roof anchor to steel decking is using twelve (12) aluminum blind rivets with sealing washers and mastic tape to seal the fastener holes.

Step 1: With the roof anchor in position, drill three (3) 5/16 in. diameter pilot holes through the ribs of the steel decking in each set of anchor plate mounting holes being used. See Figure A2.

Step 2: Remove the roof top anchor and place a length of mastic tape over the pilot holes. See Figure A3.

Step 3: Place the roof top anchor on the decking, aligning the pilot holes in the decking with the holes in the base plate. Install three (3) rivets in each set of anchor plate mounting holes using an appropriate riveting tool. See Figure A2.

Figure A3 - Attach Mastic Tape



IMPORTANT: *Twelve rivets (three in each set of anchor plate mounting holes) must be used to fasten the anchor. If the anchor is not installed correctly the anchor could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

USING FABLOK FASTENERS: The roof anchor may be secured using sixteen (16) Fablok fasteners of appropriate length for the decking thickness (FAC-10-4 manufactured by Textron Fastening Systems to 24 gauge or thicker steel decking) and mastic tape to seal the fastener holes.Decking thicker thatn 1/8 in. requires longer fasteners. Contact your vendor for information on longer Fablok fasteners.

Step 1: With the roof anchor in position, drill four (4) 5/16 in. diameter pilot holes through the ribs of the steel decking in each set of anchor plate mounting holes being used. See Figure A2.

Step 2: Remove the roof top anchor and place a length of mastic tape over the pilot holes. See Figure A3.

Step 3: Place the roof top anchor on the decking, aligning the pilot holes in the decking with the holes in the base plate. Install four (4) Fablok fasteners in each set of anchor plate mounting holes. See Figure A2.

Step 4: Tighten the Fablok fastener using a 5/8 in. 12 point box end wrench to hold the fastener base and a drill with a 5/16 in. 6 point nut driver on the fastener head.

IMPORTANT: *Sixteen (16) Fablok fasteners (four in each set of anchor plate mounting holes) must be used to fasten the anchor. If the anchor is not installed correctly the anchor could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

USING SCREWS: The roof anchor may be secured using sixteen (16) 1/4 - 14 self drilling sheet metal screws (Teks screws). The screws must be 1/4 inch in diameter and a length that leaves at least five full threads protruding through the decking.

Step 1: Determine the position of the anchor, then place a length of mastic tape on the decking where each of the mounting screws will go. Place the roof anchor back into position and secure the base plate to the decking using four (4) screws in each set of anchor plate mounting holes (located at the top of the deck ribs). See Figure A2.

CAUTION: *Use care when tightening self-drilling screws. If screws are over torqued the holes in the metal decking will strip out, and will not provide sufficient strength to resist fall arrest forces.*

IMPORTANT: *Sixteen (16) screws (four in each set of anchor plate mounting holes) must be used to fasten the anchor. If the anchor is not installed correctly the anchor could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

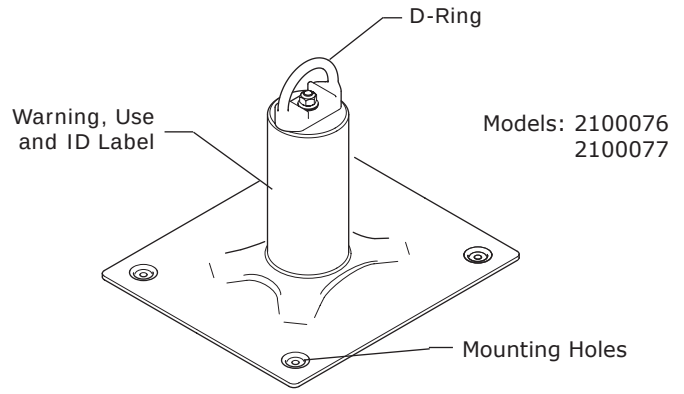
Appendix B
Installation Instructions for:
Permanent Installation of Tip Over Roof Anchor to Single Ply Membrane Covered or Built Up Roof Decks with Ribbed Steel or Wood Decking

IMPORTANT: *If you have questions on the use, care, suitability, or installation of this equipment, contact DBI-SALA immediately. The Installation Instructions are intended to be used in conjunction with the User Instruction Manuals supplied with each system component mentioned below if applicable. If a User Instruction Manual was not supplied with the purchase of a component, contact DBI-SALA immediately.*

B1.0 APPLICATION

B1.1 PURPOSE: The DBI-SALA Tip Over Roof Anchor (2100076, 2100077) is designed to be used as an anchorage connector on flat single ply membrane covered or built up roof decks. This anchorage connector may be used as part of a Personal Fall Arrest System (PFAS). This roof anchor is designed for use with the DBI-SALA Ultra-Lok® Leading Edge SRL (PN 3504500), DBI-SALA EZ Stop and Force 2™ energy absorbing lanyards, DBI-SALA Sayfline™ Synthetic HLL System (models 7600502 to 7600510), or rope grabs/rope adjusters and a lifeline. The DBI-SALA Sayfline Wire Rope HLL System (models 7602020 to 7602100) may also be used. Do not hang, lift or support tools or equipment from these roof anchors or attach guy lines for antennas, phone lines, etc.

Figure B1 - Roof Anchor



B1.2 STRUCTURE: The structure must be capable of meeting the anchorage strength requirements equal to or greater than the Tip Over anchor (fall arrest per ANSI Z359.1, OSHA 1926.500, and OSHA 1910.66). The Tip Over anchor (2100076, 2100077) is designed to be used on single ply membrane covered or built-up type roofs with a maximum total roofing material (including insulation and decking) thickness of 5.5 in. (14.0 cm) for model 2100076 or 10.5 in. (27.0 cm) for model 2100077. Decking under the membrane or built up material and insulation should be corrugated ribbed steel with a minimum thickness of 24 gauge (.024 inch).

Consult DBI-SALA before using this Tip Over anchor in any other application.

B2.0 INSPECTION PRIOR TO INSTALLATION

IMPORTANT: *If this equipment has been subjected to forces resulting from the arrest of a fall, or a close inspection reveals a defective condition, it MUST NOT be installed. The item must be destroyed or returned to DBI-SALA or a factory authorized service center for possible repair.*

B2.1 INSPECTION STEPS:

Step 1. Inspect the Tip Over Anchor for physical damage. Look for any signs of cracks, dents or deformities in the metal. If the anchor has been subjected to fall arrest forces the upright cylinder will be tipped over to one side. DO NOT install an anchor that has been subjected to fall arrest forces.

Step 2. Inspect the Roof Anchor for signs of excessive corrosion.

Step 3. Record the inspection date, results, and date of installation in an inspection log. An inspection log is provided with the Tip Over Anchor User Instruction Manual.

IMPORTANT: *Only DBI-SALA or parties authorized in writing may make repairs to this equipment.*

B3.0 INSTALLATION

B3.1 FOLLOW A PREDETERMINED ROOF ANCHOR SITE PLAN

Tip Over anchors must be installed in accordance with a previously approved site plan. Site work rules must be followed regarding when the Tip Over anchor can be installed and used. (i.e. properly braced, etc.).

B3.2 POSITION THE TIP OVER ANCHOR

Position the roof anchor in the desired location on the roof. All four mounting holes MUST be located over the roof decking and NOT directly over a roof support or beam that would interfere with the toggle bolt guide or toggle. The toggle bolts can be located either on the flat crown surface or on the flat valley surface. The toggles are designed to adjust to the decking profile when tightened. See Figure B2.

B3.3 ATTACHING THE ROOF ANCHOR

USING GUIDED TOGGLE BOLTS: The preferred means of fastening the roof anchor is with a guided steel toggle bolt kit (PN 7240206 or 7240096). The toggle bolts are designed to accommodate the maximum total roofing material thicknesses (including insulation and decking) listed below. One toggle bolt kit (set of 4 complete bolts) is supplied with each new Tip Over anchor assembly.

Anchor	Membrane Attachment Kit	Max. Material Thickness (membrane & decking)
2100076	7240206	5-1/2 in. (14 cm)
2100077	7240096	10-1/2 in. (27 cm)

Step 1: With the roof anchor in position, use the roof anchor as a template to mark the four` (4) mounting hole locations (see Figure B2). Drill test holes with a long 1/4 in. (6.35 mm) drill bit. If any of the holes is located over a sloped rib surface, you will feel the drill deflect. In which case, you must reposition the anchor and mark and drill new holes so that all holes are located on a crown or valley flat surface.

Step 2: Remove the Tip Over anchor and drill four (4) 1-3/8 in. (35 mm) diameter holes through the membrane and into the insulation 3/8-1/2 in. (10-12 mm) deep. This hole acts as a counter bore to properly seat the roof anchor.

Step 3: Drill four (4) 1 in. (26 mm) diameter holes in the center of each previously drilled hole (counter bore). Drill each hole all the way through the insulation and

Figure B2 - Position Roof Anchor

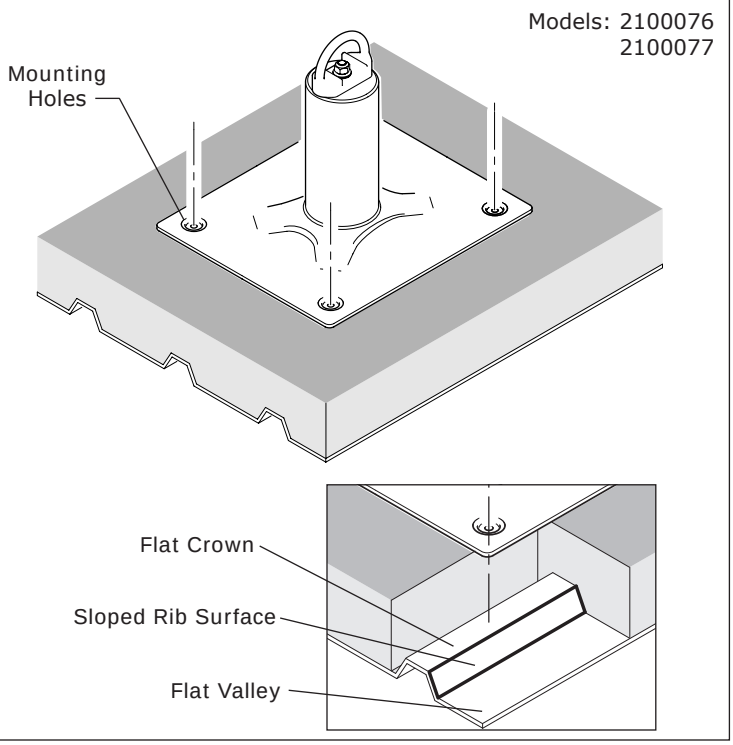


Figure B3 - Toggle Bolt Guides

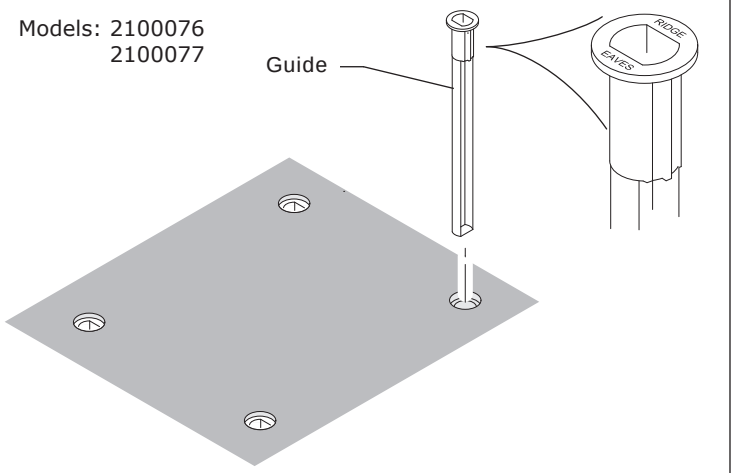
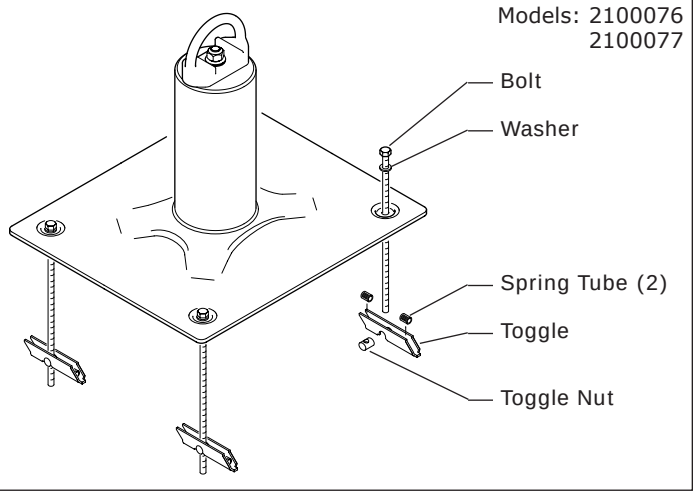


Figure B4 - Toggle Bolt Assembly



the roof deck.

Step 4: Insert a toggle bolt guide into each hole in the roof. Each guide is marked with the words “RIDGE” and “EAVES” on its top flange. The guides must be installed with “RIDGE” closest to the roof’s ridge, and “EAVES” closest to the roof’s edge or eave. This insures the toggle will rest perpendicular to (across) the decking ribs. See Figure B3. Press the guide all the way into the hole until it seats against the base of the counter bore.

Step 5: Assemble all four toggle bolts to the Tip Over anchor. Make sure to install each bolt, washer, toggle, toggle nut, and spring tube as shown. See Figure B4.

IMPORTANT: *Four toggle bolts (one in each anchor plate mounting hole) MUST be used to fasten the Tip Over anchor. If the anchor is not installed correctly it could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

Step 6: With the assembled toggle bolts in position (toggle extended to full length and the longest part of the toggle pointing upward) align the toggles with the guides as shown and lower the Tip Over anchor assembly onto the roof. See Figure B5.

Step 7: Tighten each toggle bolt to 35-53 in-lbs. (4-6 Nm).

Step 8: Install a protective cap on each toggle bolt head. See Figure B6.

Step 9: Weatherproof the Tip Over anchor by installing additional layers of membrane over the edges of the Tip Over anchor. See Figure B7.

IMPORTANT: *Only a roofing contractor approved for servicing the specific type of membrane used should be allowed to properly weatherproof the Tip Over anchors after installation.*

Figure B5 - Roof Top Anchor Assembly

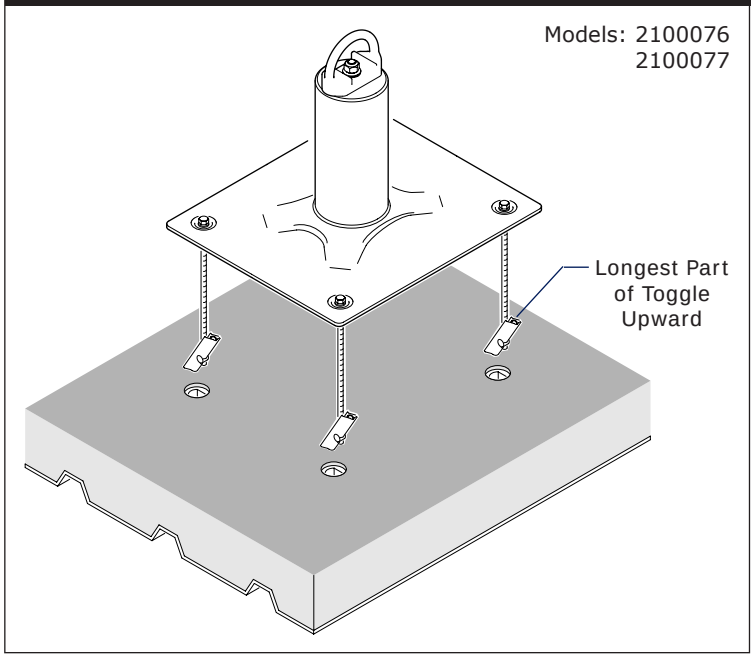


Figure B6 - Install Protective Caps

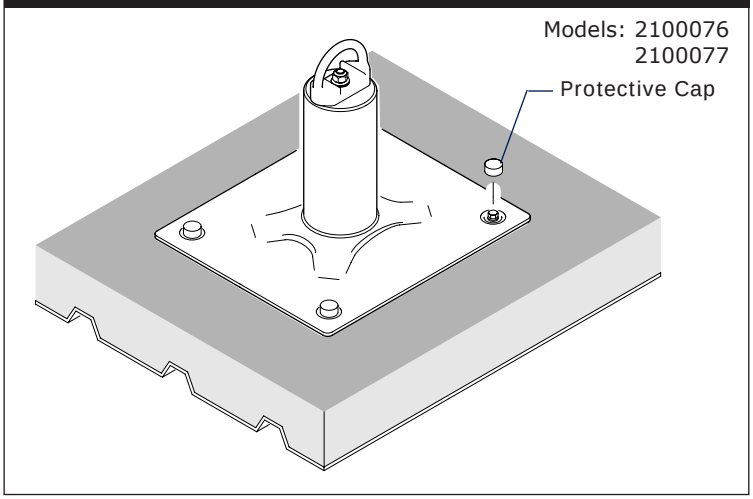
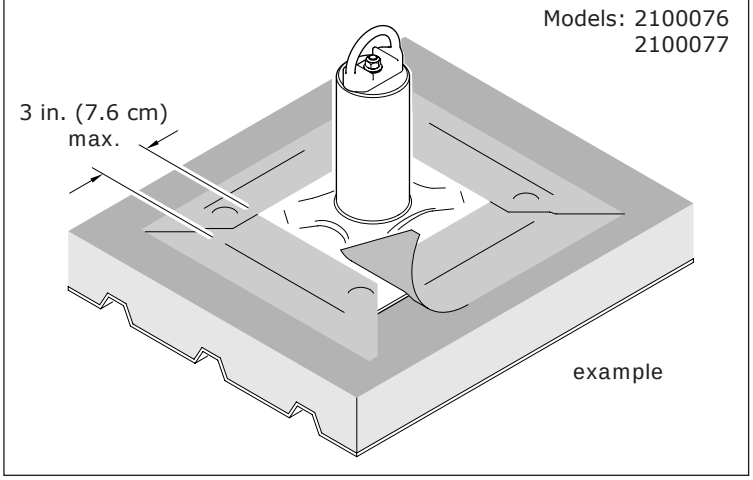


Figure B7 -Weatherproofing



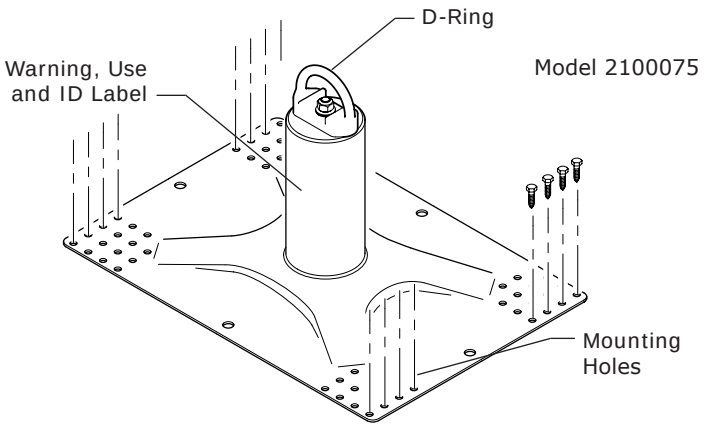
Appendix C
Installation Instructions for:
Permanent Installation of Tip Over Roof Anchor to Concrete Roof Decks

IMPORTANT: *If you have questions on the use, care, suitability, or installation of this equipment, contact DBI-SALA immediately. The Installation Instructions are intended to be used in conjunction with the User Instruction Manuals supplied with each system component mentioned below if applicable. If a User Instruction Manual was not supplied with the purchase of a component, contact DBI-SALA immediately.*

C1.0 APPLICATION

C1.1 PURPOSE: The DBI-SALA tip over roof anchor (2100075) is designed to be used as an anchorage connector on flat concrete roof decks. This anchorage connector may be used as part of a Personal Fall Arrest System (PFAS). This roof anchor is designed for use with the DBI-SALA Ultra-Lok® Leading Edge SRL (PN 3504500), DBI-SALA EZ Stop® and Force 2™ energy absorbing lanyards, DBI-SALA Sayfline™ Synthetic HLL System (models 7600502 to 7600510), or rope grabs/rope adjusters and a lifeline. The DBI-SALA Sayfline Wire Rope HLL System (models 7602020 to 7602100) may also be used. Do not hang, lift or support tools or equipment from these roof anchors or attach guy lines for antennas, phone lines, etc.

Figure C1 - Roof Anchor



C1.2 STRUCTURE: The structure must be capable of meeting the anchorage strength requirements equal to or greater than the roof top anchor (fall arrest per ANSI Z359.1, OSHA 1926.500, and OSHA 1910.66). The roof top anchor (2100075) is designed to be used on concrete roof decks with a minimum concrete compressive strength of 3000 psi. Minimum concrete thickness is 6-1/2 in. (16.5 cm) when using chemical anchors, and 5-1/2 in. (14 cm) when using mechanical anchors.

C2.0 INSPECTION PRIOR TO INSTALLATION

IMPORTANT: *If this equipment has been subjected to forces resulting from the arrest of a fall, or a close inspection reveals a defective condition, it MUST NOT be installed. The item must be destroyed or returned to DBI-SALA or a factory authorized service center for possible repair.*

C2.1 INSPECTION STEPS:

Step 1. Inspect the Roof Top Anchor for physical damage. Look for any signs of cracks, dents or deformities in the metal. If the anchor has been subjected to fall arrest forces the upright cylinder will be tipped over to one side. DO NOT install an anchor that has been subjected to fall arrest forces.

Step 2. Inspect the Roof Anchor for signs of excessive corrosion.

Step 3. Record the inspection date, results, and date of installation in an inspection log. An inspection log is provided with the Roof Top Anchor User Instruction Manual.

IMPORTANT: *Only DBI-SALA or parties authorized in writing may make repairs to this equipment.*

C3.0 INSTALLATION

C3.1 FOLLOW A PREDETERMINED ROOF ANCHOR SITE PLAN

Roof top anchors must be installed in accordance with a previously approved site plan. Site work rules must be followed regarding when the roof top anchor can be installed and used. (i.e. properly braced, etc.).

C3.2 POSITION THE ROOF TOP ANCHOR

Position the roof anchor in the desired location on the roof. See Figure C2.

C3.3 ATTACHING THE ROOF ANCHOR

USING CHEMICAL ANCHORS: The preferred chemical anchor is the Hilti HAS/ HIT HY 150 MAX Adhesive Anchor with Hilti HAS-E galvanized steel threaded rod. In addition to the information provided in this document, always follow the instructions provided by the anchor manufacturer.

Step 1: With the roof anchor in position, use the roof anchor as a template to mark the four (4) mounting hole locations. See Figure C2.

Step 2: Remove the roof top anchor and drill four (4) 9/16 in. diameter holes into the concrete 5 in. (12.7 cm) deep.

Step 3: Clean each hole by inserting an air nozzle into the bottom of the hole and blow out any debris with an air pump or low-pressure compressed air.

CAUTION: *Wear face protection. Low-pressure air can blow debris into your eyes and face.*

Step 4: Inject adhesive into each hole starting at the bottom until the hole is 1/2 to 2/3 full. See Figure C3.

NOTE: When using a new adhesive cartridge, discard the first three trigger pulls of adhesive before filling the first hole.

Step 5: Twist a threaded rod into each hole. You can adjust the threaded rod up and down or side to side during the specified adhesive gel time if necessary. DO NOT disturb the threaded rod between the specified gel time and the adhesive cure time. Consult the manufacturer's documentation to determine the specific gel time and cure time for the current temperature.

Step 6: Place the roof top anchor over the threaded rods and install the four (4) flat washers and hex nuts finger tight. Once the adhesive has fully cured, tighten each hex nut to 30 ft-lbs. (40 Nm). See Figure C4.

USING MECHANICAL ANCHORS: The preferred mechanical anchor is the Hilti HSL-3 Heavy Duty Sleeve Anchor. In addition to the information provided in this document, always follow the instructions provided by the anchor manufacturer.

Figure C2 - Position Roof Anchor

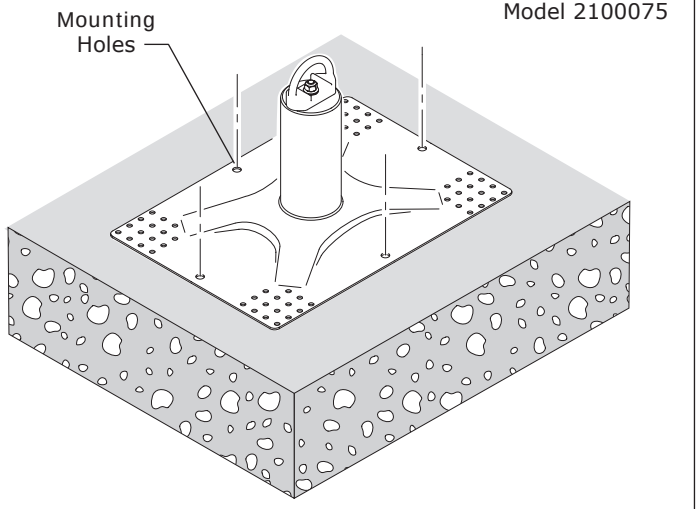


Figure C3 - Inject Adhesive into Holes

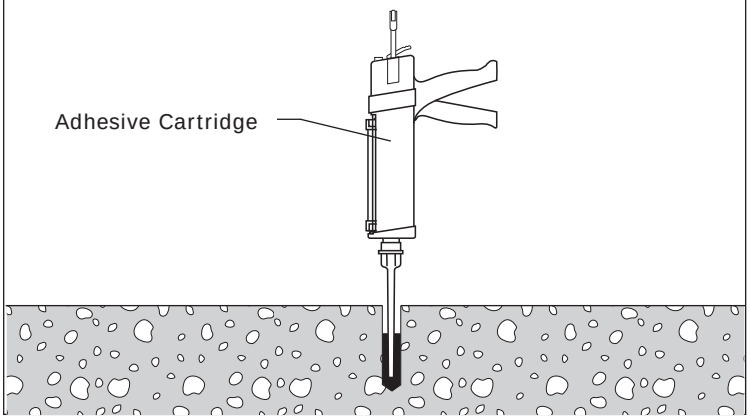
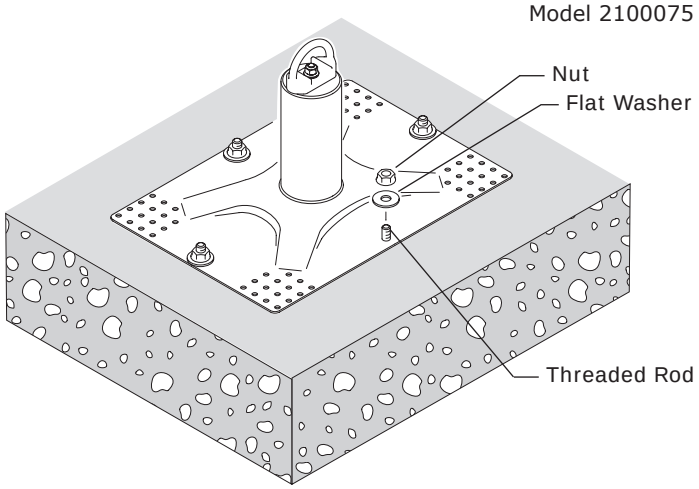


Figure C4 - Install Chemical Anchor Nuts



Step 1: With the roof anchor in position, use the roof anchor as a template to mark the four (4) mounting hole locations. See Figure C2.

Step 2: Remove the roof top anchor and drill four (4) 12 mm diameter holes into the concrete at least 4 in. (10 cm) deep.

Step 3: Clean each hole by inserting an air nozzle into the bottom of the hole and blow out any debris with an air pump or low-pressure compressed air.

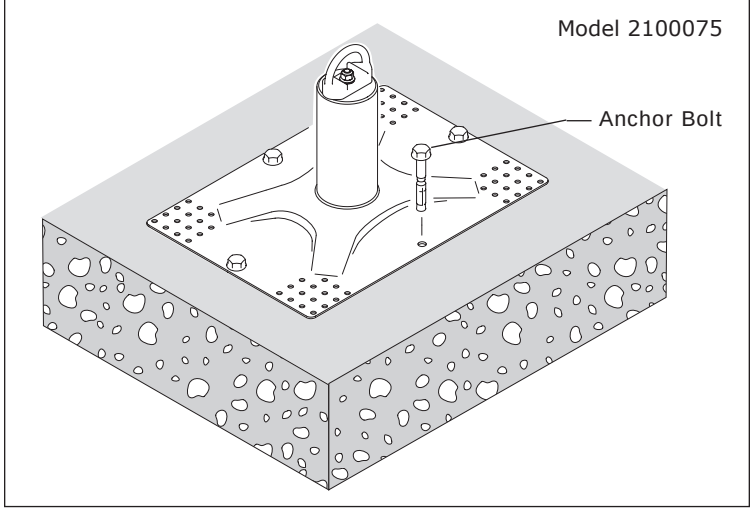
CAUTION: *Wear face protection. Low-pressure air can blow debris into your eyes and face.*

Step 4: Place the roof top anchor on the roof and align the mounting holes over the drilled holes in the roof. Tap each mechanical anchor all the way through the mounting hole in the roof top anchor and into the drilled holes. See Figure C5. DO NOT expand the mechanical anchor by hand prior to installation.

Step 5: Make sure the flange under the anchor bolt head is in contact with the roof top anchor plate before tightening the anchor. Use a 13 mm socket to tighten each anchor bolt to 18 ft-lbs. (25 Nm).

IMPORTANT: *Four mechanical anchors (one in each anchor plate mounting hole) MUST be used to fasten the roof top anchor. If the anchor is not installed correctly it could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

Figure C5 - Install Mechanical Anchors



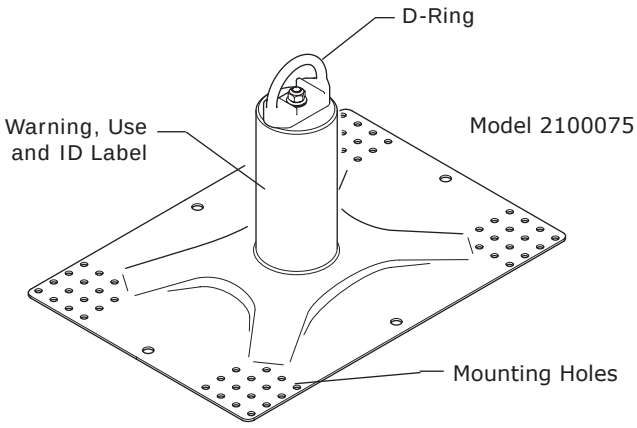
Appendix D
Installation Instructions for:
Temporary Installation of Tip Over Roof Anchor to Plywood Roof Decks

IMPORTANT: *If you have questions on the use, care, suitability, or installation of this equipment, contact DBI-SALA immediately. The Installation Instructions are intended to be used in conjunction with the User Instruction Manuals supplied with each system component mentioned below if applicable. If a User Instruction Manual was not supplied with the purchase of a component, contact DBI-SALA immediately.*

D1.0 APPLICATION

D1.1 PURPOSE: The DBI-SALA tip over roof anchor (2100075) is designed to be used as an anchorage connector on flat plywood decks. This anchorage connector may be used as part of a Personal Fall Arrest System (PFAS). This roof anchor is designed for use with the DBI-SALA Ultra-Lok® Leading Edge SRL (PN 3504500), DBI-SALA EZ Stop and Force 2 energy absorbing lanyards, DBI-SALA Sayfline Synthetic HLL System (models 7600502 to 7600510), or rope grabs/rope adjusters and a lifeline. Do not hang, lift or support tools or equipment from these roof anchors or attach guy lines for antennas, phone lines, etc.

Figure D1 - Roof Anchor



IMPORTANT: *This anchor may not be used with a horizontal lifeline (HLL) system if it is attached to a plywood surface with lag screws.*

D1.2 STRUCTURE: The structure must be capable of meeting the anchorage strength requirements equal to or greater than the roof top anchor (fall arrest per ANSI Z359.1, OSHA 1926.500, and OSHA 1910.66). The minimum thickness and material grade for plywood (wood sheathing) is 5/8 inch (1.9 cm) CDX.

Consult DBI-SALA before using this roof top anchor in any other application.

D2.0 INSPECTION PRIOR TO INSTALLATION

IMPORTANT: *If this equipment has been subjected to forces resulting from the arrest of a fall, or a close inspection reveals a defective condition, it MUST NOT be installed. The item must be destroyed or returned to DBI-SALA or a factory authorized service center for possible repair.*

D2.1 INSPECTION STEPS:

Step 1. Inspect the Roof Top Anchor for physical damage. Look for any signs of cracks, dents or deformities in the metal. If the anchor has been subjected to fall arrest forces the upright cylinder will be tipped over to one side. DO NOT install an anchor that has been subjected to fall arrest forces.

Step 2. Inspect the Roof Anchor for signs of excessive corrosion.

Step 3. Record the inspection date, results, and date of installation in an inspection log. An inspection log is provided with the Roof Top Anchor User Instruction Manual.

IMPORTANT: *Only DBI-SALA or parties authorized in writing may make repairs to this equipment.*

D3.0 INSTALLATION

D3.1 FOLLOW A PREDETERMINED ROOF ANCHOR SITE PLAN

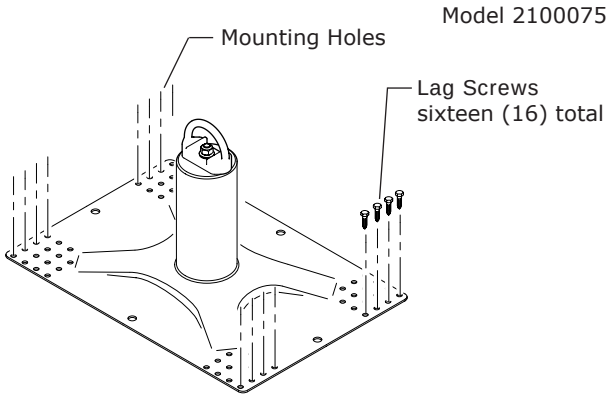
Roof top anchors must be installed in accordance with a previously approved site plan. Site work rules must be followed regarding when the roof top anchor can be installed and used. (i.e. properly braced, etc.).

D3.2 POSITION THE ROOF TOP ANCHOR

IMPORTANT: *The roof anchor plate must be fastened directly to the plywood roof decking. If a roof membrane, insulation, or other roofing material is covering the decking. Use DBI-SALA Roof Top Anchor 210076 for membrane covered roof applications.*

Position the roof anchor in the desired location on the roof. All mounting holes MUST be located over the roof decking and NOT directly over a roof support or beam that would interfere with the mounting screws. See Figure D2.

Figure D2 - Position Roof Anchor



D3.3 ATTACHING THE ROOF ANCHOR

USING LAG SCREWS: The roof anchor may be secured using sixteen (16) 1/4 in. SAE grade 2 lag screws. The screws must be 1/4 inch in diameter and have a length that leaves at least five full threads protruding through the decking.

Step 1: With the roof anchor in position, drill four (4) 3/16 in. diameter pilot holes through the decking in each set of anchor plate mounting holes being used. Use the outermost set of mounting holes if possible. See Figure D2.

Step 2: Align the pilot holes in the decking with the holes in the base plate. Install four (4) lag screws in each set of anchor plate mounting holes. Tighten the lag screws securely. See Figure D2.

CAUTION: *Use care when tightening lag screws. If screws are over torqued the holes in the plywood decking will strip out, and will not provide sufficient strength to resist fall arrest forces.*

IMPORTANT: *Sixteen (16) screws (four in each set of anchor plate mounting holes) must be used to fasten the anchor. If the anchor is not installed correctly the anchor could pull away from the roof structure during a fall arrest, causing a serious injury or death.*

INSPECTION AND MAINTENANCE LOG

SERIAL NUMBER:			
MODEL NUMBER:			
DATE PURCHASED:		**DATE OF FIRST USE:**	

INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			

This instruction applies to the following models:

2100075, 2100076, 2100077

Additional model numbers may appear on the next printing of these instructions

Ces directives se rapportent aux modèles suivants :

2100075, 2100076, 2100077

Il est possible que la prochaine édition de ces directives contiennent des modèles supplémentaires

Esta instrucción se aplica a los siguientes modelos:

2100075, 2100076, 2100077

Es posible que aparezcan números de modelo adicionales en las próximas impresiones de estas instrucciones

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