	Service Bulletin		Document Number : W-013
	Work Instructions: Blast Resistant Multi-Section Assemblies		
	Effective Date: 5.31.2016	Revision: NC	Revision Date: 5.11.2016

1.0 Product Affected

All Blast Resistant Multi-Sections

2.0 Serial Numbers

BRMSXXXXXXXXXX

3.0 Reason for Procedure

To ensure a proper installation of blast resistant multi-sections to meet RedGuard safety standards for occupied lease fleet buildings.

4.0 Description

The following work instructions will define the RedGuard process for installing Multi-section buildings and list all end user responsibilities and requirements for an efficient and safe installation.

5.0 Forms

RedGuard Fall Protection Procedure #42

6.0 Time on Task (Total Hours)


Not counting any delays:

A 24X40 (double wide) assembly should take four (4) hours start to finish. For each additional building, add two (2) hours.

7.0 PPE

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Cut Resistant Gloves
- Leather Gloves
- Latex Disposable Gloves
- FR Clothing (Per Site Requirements)
- H2S Monitor(Per Site Requirements)
- Escape Respirator(Per Site Requirements)
- \* Full Body Harness
- \* Double Self Retracting Lanyard (100% Tie Off)
- \* Horizontal Lifeline(Per Site Requirements)

**\* NOTE: At a minimum, the RedGuard Fall Protection Procedure, #42, shall be followed when any work exceeds 6' above ground level. (Site fall protection policy if directed by facility)**

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## 8.0 Tools Needed

- Makita 1" Impact Wrench w/ Friction Ring Anvil Model TW1000
- DE Walt Impact Driver
- 5/16" Impact Bit
- 100' 12/3 Extension Cord
- 3 Ft. In-Line GFCI Extension Cord with Triple Tap End 15 Amp 12/3
- 2 - 1" DR x 1-1/2" DEEP 6PT IMPACT SOCKETS
- 1" DR x 3" EXTENTION
- 1" DR x 6" EXTENTION
- 1-1/2" COMBO WRENCH
- 1" DR, BREAKER BAR, 27" LENGTH
- 7 in. Forged Sidewalk Scraper
- Wooster Pro 6-1/2 in. x 3/8 in, Cage Frame Roller Assembly
- 4 ft. - 8 ft. Sherlock Extension Pole
- CAULK GUN
- ½" DRIVE HEAVY DUTY VARIABLE SPEED DRILL
- Universal Thinset and Grout Mixer Mixing Paddle
- Extension Ladder
- DE Walt Multi-tool W/ Flat Scraper Blade
- Husky 6 in 1 - 3" Width Painters Scraper
- 5 ton Hydraulic Bottle Jack with Corner Block Lifting Bracket
- Transit Level
- 150' Tape Measure


## 9.0 Materials Supplies & Parts Needed

### 9.1 Parts (per seam)

- 9.1.1 P/N 17-5059: Qty. 8 - 11"X1" Grade 8 Bolt
- 9.1.2 P/N 17-7151: Qty. 4 - 8 ½"X1" Grade 8 Bolt
- 9.1.3 P/N 17-7162: Qty. 12 - 1" Grade 8 Nut
- 9.1.4 P/N 17-7133: Qty. 24 - 1" Grade 8 Washer
- 9.1.5 P/N 17-7063: Qty. 24 - 3 ½"X3 ½" Backer Plate

### 9.2 Materials (per seam)

- 9.2.1 P/N 18-5198: Qty. 1 - 5 Gallon Infinity Coatings Silicone Seam Seal \* See note
- 9.2.2 P/N 18-5197: Qty. 1.5 – Integrity Seam Tape \* See Note
- 9.2.3 P/N 07-5003: Qty. 1- Tube Silicone Caulk Clear

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- 9.2.4 **\*NOTE: For conditions below 60 degrees F, keep silicone seam seal and seam tape in climate controlled storage at or above 65 Degrees F for 24 hours prior to use.**

### 9.3 Supplies

- 9.3.1 Mineral Spirits
- 9.3.2 Lubricating Spray
- 9.3.3 6 ½" X ¾" pile nap, Shed-Resistant Knit Cage Frame Mini Roller Covers
- 9.3.4 3" Stiff Paint Brushes
- 9.3.5 Marking Spray Paint
- 9.3.6 **CUSTOMER SUPPLIED: ¾"X18"X18" Plywood Shims (Qty. depends on how level ground is and/or how soft base structure pack is)**


## 10.0 Procedure

### 10.1 Site Survey

- 10.1.1 Determine area to place multi-section building
- 10.1.2 Verify base structure pack (will it support the structure) and verify foundation material according to engineering documents and blast calculation prior to placing.
- 10.1.3 **If building is going to be placed on uneven surface that requires more than 6 Inches shimming, then backfill must be applied to close the gap.** RedGuard's recommendation is to make sure the building is on a flat/level surface.
- 10.1.4 Determine accessibility by truck and crane so they can access appropriately. Look for turning radius and overhead obstructions.
- 10.1.5 Mark layout of each building with marking spray paint.
- 10.1.6 Check level on ground within layout with transit level making sure to note and mark the high spots.
- 10.1.7 "If needed" for 4-plex or longer ask end user if ground can be leveled.

### 10.2 Unload Buildings

- 10.2.1 If a self-loading trailer is not used to deliver buildings, a crane will be needed to unload the buildings. **\* See Note 10.2.7**
- 10.2.2 **CUSTOMER SUPPLIED:** Offload buildings using a crane and certified rigging equipment and crew. RedGuard tech will verify a site lifting plan is in place.
- 10.2.3 RedGuard does not have a certified rigging crew.
- 10.2.4 RedGuard tech will communicate with rigging and lifting crew on needs and orientation of buildings prior to each lift.

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10.2.5 Only certified lifting devices shall be utilized and properly engaged. If hooks are used they should always be placed in an inward to outward direction along the length of the unit. These hooks should meet the criteria of ASME B30.10.

10.2.6 Approximate weight of a basic OPEN unit i.e. no walls, restroom, countertops etc.... are as follows.

10.2.6.1 End unit 12'X40' open – 28,500 lbs.

10.2.6.2 Center unit 12'X40' open – 27,500 lbs.

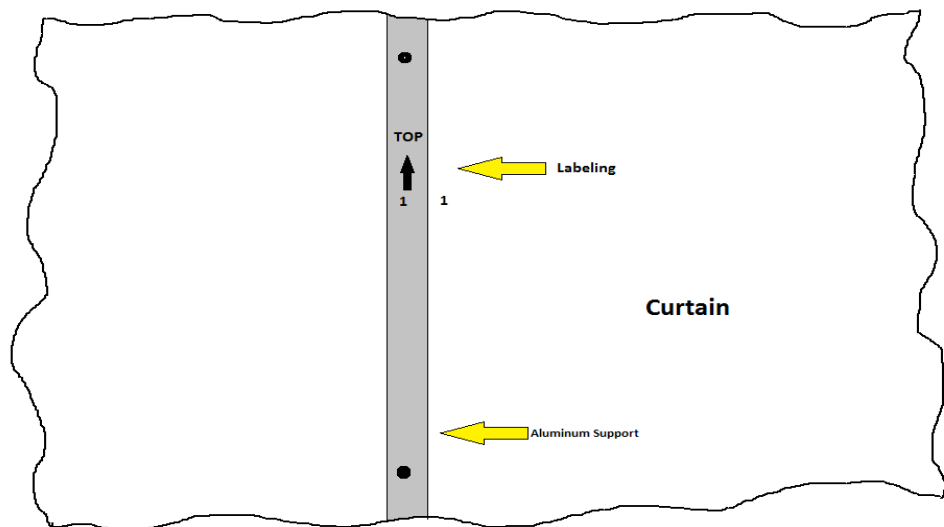
10.2.7 **\* Note:** Use of a Crane is the preferred lifting method of RedGuard for multi-section assemblies. If a forklift is used, 12' forks are required to safely lift 12' wide buildings. **End user assumes all liability for damage to units not lifted with the recommended lifting methods.**

### 10.3 Pre-Installation Prep

#### 10.3.1 **DO NOT CUT CURTAINS**

10.3.2 If not labeled, use sharpie to write position and orientation of vertical supports from left to right, 1 thru 6 on curtain and metal before removing.


Refer to example below



10.3.3 Remove screws from bottom of curtain and vertical supports and dispose of accordingly. **DO NOT REMOVE SCREWS FROM TOPS OF CURTAINS.** **\*See Note**

10.3.4 Store vertical supports in fork tubes once building has been set.

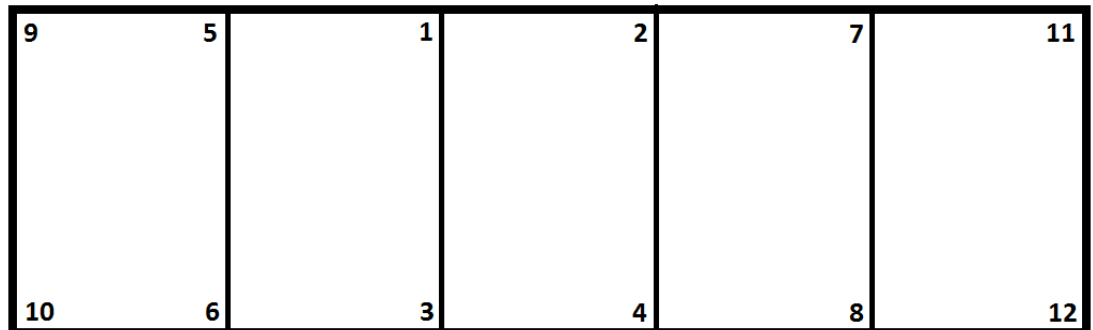
10.3.5 Roll up curtains tight and even from bottom to top and set on opposite side of 1" square tubing away from seam.

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- 10.3.6 Make sure seam is clean and free of debris or old silicone, also make sure no broken screws sticking out side where buildings mate together.
- 10.3.7 Surface to be sealed MUST be cleaned and prepped with mineral spirits and allowed to dry prior to application of tape and sealant.
- 10.3.8 **\*NOTE: If any metal curtain supports are damaged, note on report so disassembly crew can have awareness of materials needed.**

10.4 Install Buildings

- 10.4.1 Set first building on marks. Make sure to shim high enough to get over any high spots.
- 10.4.2 Check level front to back, end to end, and vertical on all four corners, shim as required. **Always shim center of building so not to allow a bowl effect on roof and water to runoff.**
- 10.4.3 Run a bead of silicone on the face of the seam at the bottom of each vertical post and on the ends. Make sure that caulk will make contact with seam tape on ends. Run bead long enough at bottom of posts to make contact with bead run internally on floor seam.
- 10.4.4 Mate next building previously set and leveled building, level building, check floor seams and vertical beam alignment. **Always shim center of building so not to allow a bowl effect on roof and water to runoff.**
- 10.4.5 Spray threads of bolts with lubricating spray.
- 10.4.6 Insert bolt/washer/plate – plate/washer/nut through assembly holes. Have crane hold 1/3<sup>rd</sup> to 1/2 the weight to allow building to come together tight. If necessary use hydraulic jack and corner lifting bracket to make small adjustments to aid in floor alignment.
- 10.4.7 Tighten bolts in pattern shown below, using a torque wrench capable of 750 ft./lbs. torque.



- 10.4.8 Repeat steps 10.4.2 thru 10.4.7 as needed for additional buildings.

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10.5 Seal Seam

- 10.5.1 ***In extreme climates (if possible) arrangements should be made with end user to keep silicone and tape stored above 60 degrees F for at least 24 hours prior to use.***
- 10.5.2 Make sure seams are clean and free of debris. Scrape off old silicone (making sure not scrape off poly coating to bare metal). Clean with mineral spirits and allow to dry completely.
- 10.5.3 Apply Integrity seam tape. **(IF NEEDED, use mineral spirits while applying tape to surface where tape is applied to ensure good adhesion.)** Start at the ground on one side and run over top with a continuous piece to ground on the other side. Press to seal making sure not to create a valley with the tape. If overlap occurs on vertical seam overlap upper tape over lower tape.
- 10.5.4 Cut a qty. of four (4) 13" long pieces of tape per seam to cover top lifting blocks. Apply evenly starting on the vertical side at bottom of lifting block to top horizontal side making sure to cover holes completely to prevent sealant, when applied from leaking into hole before curing.
- 10.5.5 Open bucket of silicone. Mix with mixing paddle and drill. Apply across top horizontal seam, using a 6 1/2" roller, sidewalk scraper or trowel to distribute silicone slowly across entire seam evenly making sure to spread one (1) to two (2) inches past the edge of tape to achieve a minimum thickness of 6 mil. **(Make sure no tape seams are visible after silicone is applied.)**
- 10.5.6 Using 6 1/2" roller, apply silicone to vertical sides make sure to spread one (1) to two (2) inches past the edge of tape to achieve a minimum thickness of 6 mil. **(Make sure no tape seams are visible after silicone is applied.)**
- 10.5.7 Use paint brush to cover tape on top and vertical parts of corner blocks. Make sure to only go to edge of corner block with silicone.
- 10.5.8 Caulk floor seam with clear silicone caulk.


10.6 Final Checks

- 10.6.1 Ensure all exterior doors function properly, make any necessary adjustments.
- 10.6.2 Check all E-light batteries plugged in. If building powered up perform a test.
- 10.6.3 Check all smoke detectors have batteries. If building powered up perform a test.
- 10.6.4 Check that all fire extinguishers are present, fully charged, and inspection certificate attached with at least 6 months left until next inspection required.

11.0 Testing Procedure

N/A

12.0 Additional Information

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13.0 Revision History

<b>Revision</b>	<b>Description of Change</b>	<b>Revision Date</b>	<b>Approved by</b>
NC-New	New Multi-Section Assembly Instructions	08.19.2016	Paul New