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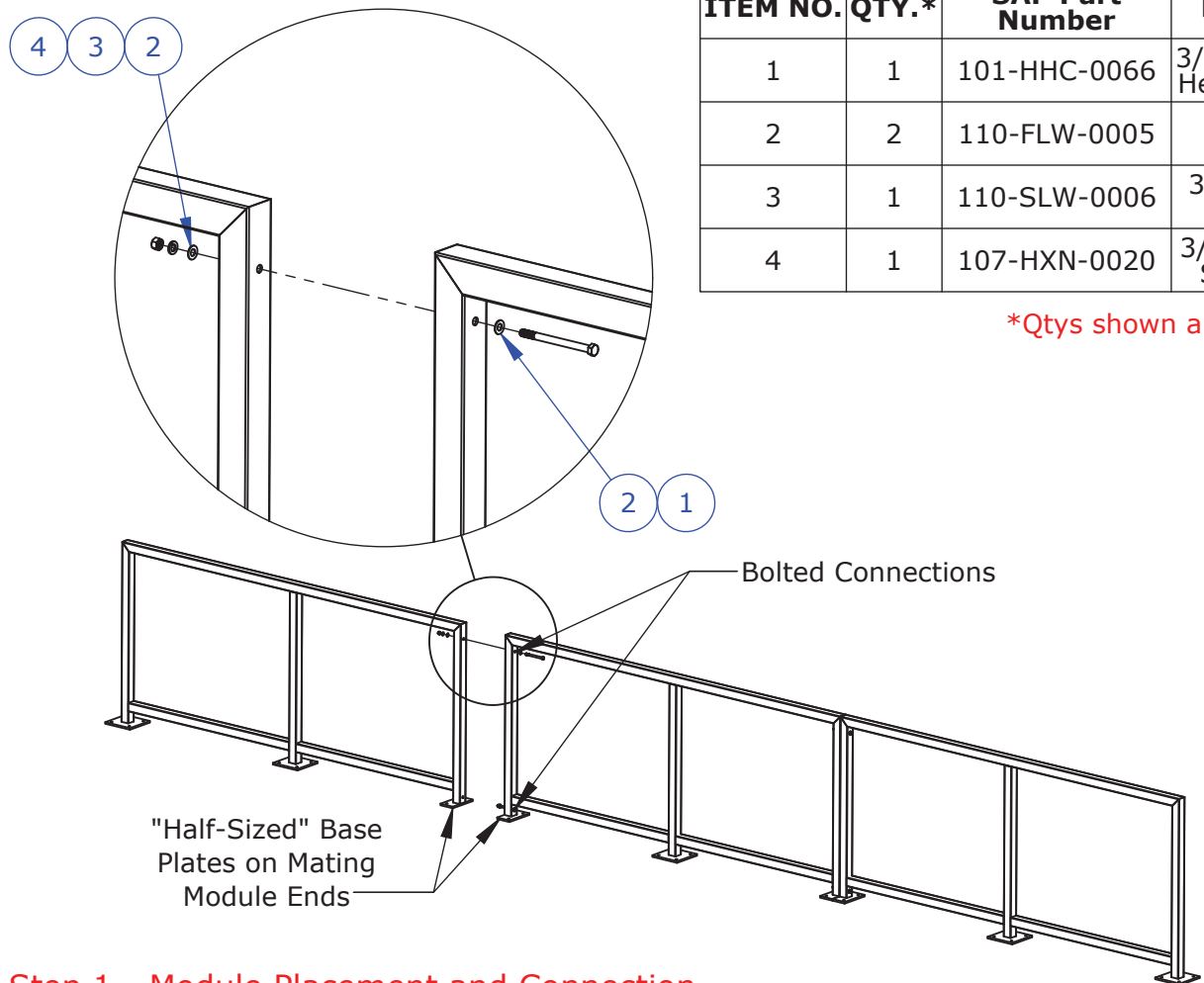
Install Instructions Guard Rail Systems

| Product No. | Product Description |
|--------------------|--------------------------------|
| GRS36 | Modular 36"H Guard Rail System |
| GRS42 | Modular 42"H Guard Rail System |
| GRS48 | Modular 48"H Guard Rail System |
| GRS72 | Modular 72"H Guard Rail System |
| GRS96 | Modular 96"H Guard Rail System |

| | |
|--------------------------------------|------------------|
| Steel Railing Installation | ID-00149 Sheet 1 |
| Expansion Anchor Installation..... | ID-00149 Sheet 2 |
| Net Installation..... | ID-00159 |
| "U" Shaped Padding Installation..... | ID-00160 |
| Flat Padding Installation | ID-00161 |

| ITEM NO. | QTY.* | SAP Part Number | DESCRIPTION |
|----------|-------|-----------------|---------------------------------------|
| 1 | 1 | 101-HHC-0066 | 3/8-16 x 4.75" Hex Head Bolt, 18-8 SS |
| 2 | 2 | 110-FLW-0005 | 3/8 S.S. FLAT WASHER |
| 3 | 1 | 110-SLW-0006 | 3/8-16 S. S. Lock Washer |
| 4 | 1 | 107-HXN-0020 | 3/8-16 STAINLESS STEEL HEX NUT |

*Qtys shown are per connection

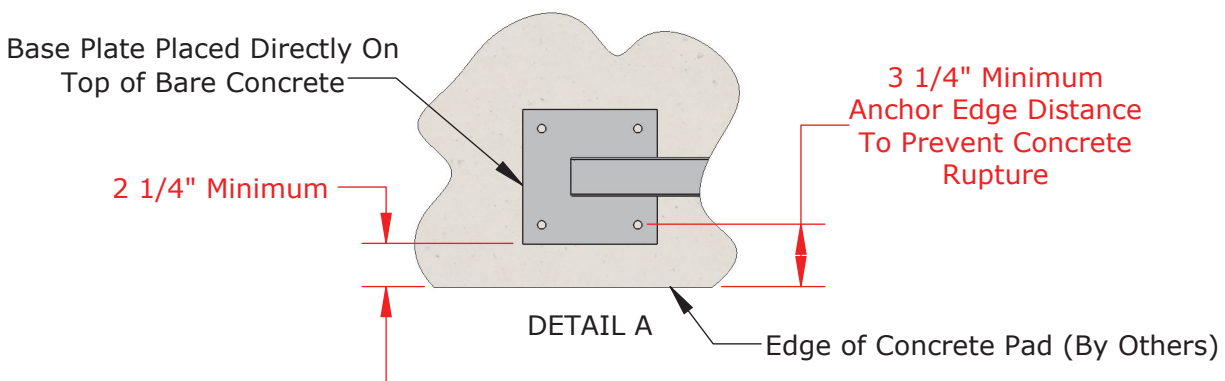


Step 1 - Module Placement and Connection

1. Place the steel railing modules at their proper locations and in their proper orientations. Refer to your Guard Rail System's layout for specific details. Note: mating ends of mating modules have "half-sized" base plates and bolt holes in their mating posts.
- RAIL SECTIONS ARE NOT INTERCHANGABLE**
2. Install the 3/8" diameter module connection hardware as shown in the figure above.
 3. Place the assembled guard rail segment into its final location. Verify that the minimum edge distance of 3-1/4" from the center of the front base plate holes to the edge of the concrete is met.

Step 2 - Mounting Surface Preparation

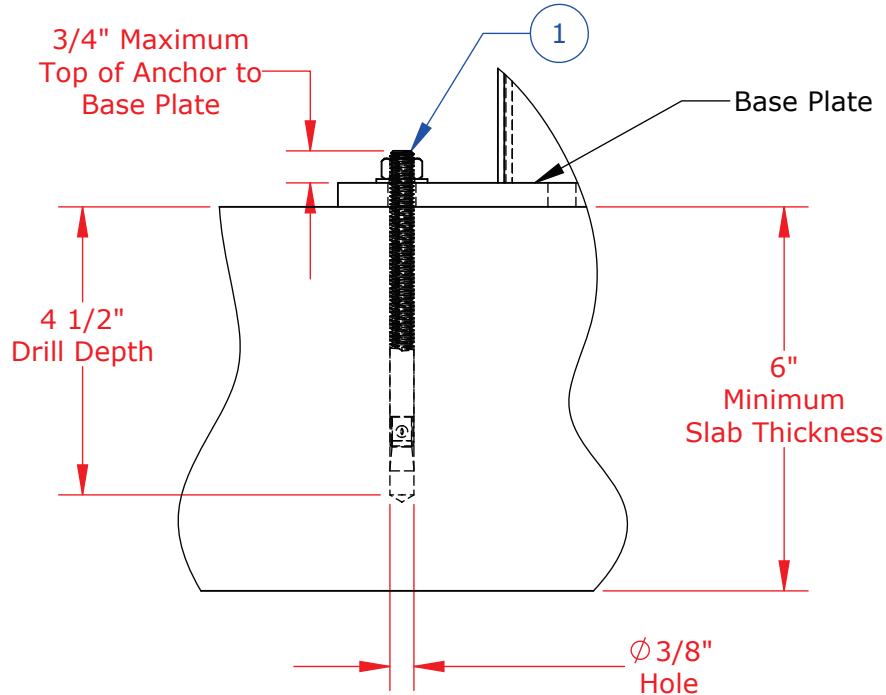
Guard rail base plates must be placed directly on top of bare concrete for a strong and solid connection. If applicable, use the assembled guard rail segment to mark the base plate locations and remove any flooring material on top of the concrete.



| | |
|---|----------------------------|
| TITLE: Steel Railing Installation | DWG NO: ID-00149 |
| | SHEET 1 OF 2 |

| ITEM NO. | QTY.* | SAP Part Number | DESCRIPTION |
|----------|-------|-----------------|--|
| 1 | 4 | PURCHP-0881 | 3/8 x 5" L, Galv. Carbon Steel, DeWALT Power-Stud Wedge Expansion Anchor with Nut and Washer |

*Qtys shown are per connection



Step 3 - Expansion Anchor Installation

1. Using the assembled guard rail segment in its final location as a template, drill 3/8" diameter x 4-1/2" deep holes using a hammer drill at each base plate hole. The concrete slab must be a minimum of 6" thick and the center of the anchor must be a minimum of 3-1/4" away from the edge of the concrete (See Detail A on ID-00149 Sheet 1).
2. Drive the provided expansion anchors into each base plate hole.
3. Tighten the nut to 20 ft-lbs. All threads on the nut should be engaged and the top of the anchor should not be more than 3/4" above the base plate. Failure to do so will result in lack of proper strength and/or interference with the guard rail padding.

TITLE:

Expansion Anchor Installation

DWG NO:

ID-00149

SHEET 2 OF 2

Note: A single net is provided per railing structure.

Step 1

Layout the netting along the field side of the steel railing segment.

Step 2

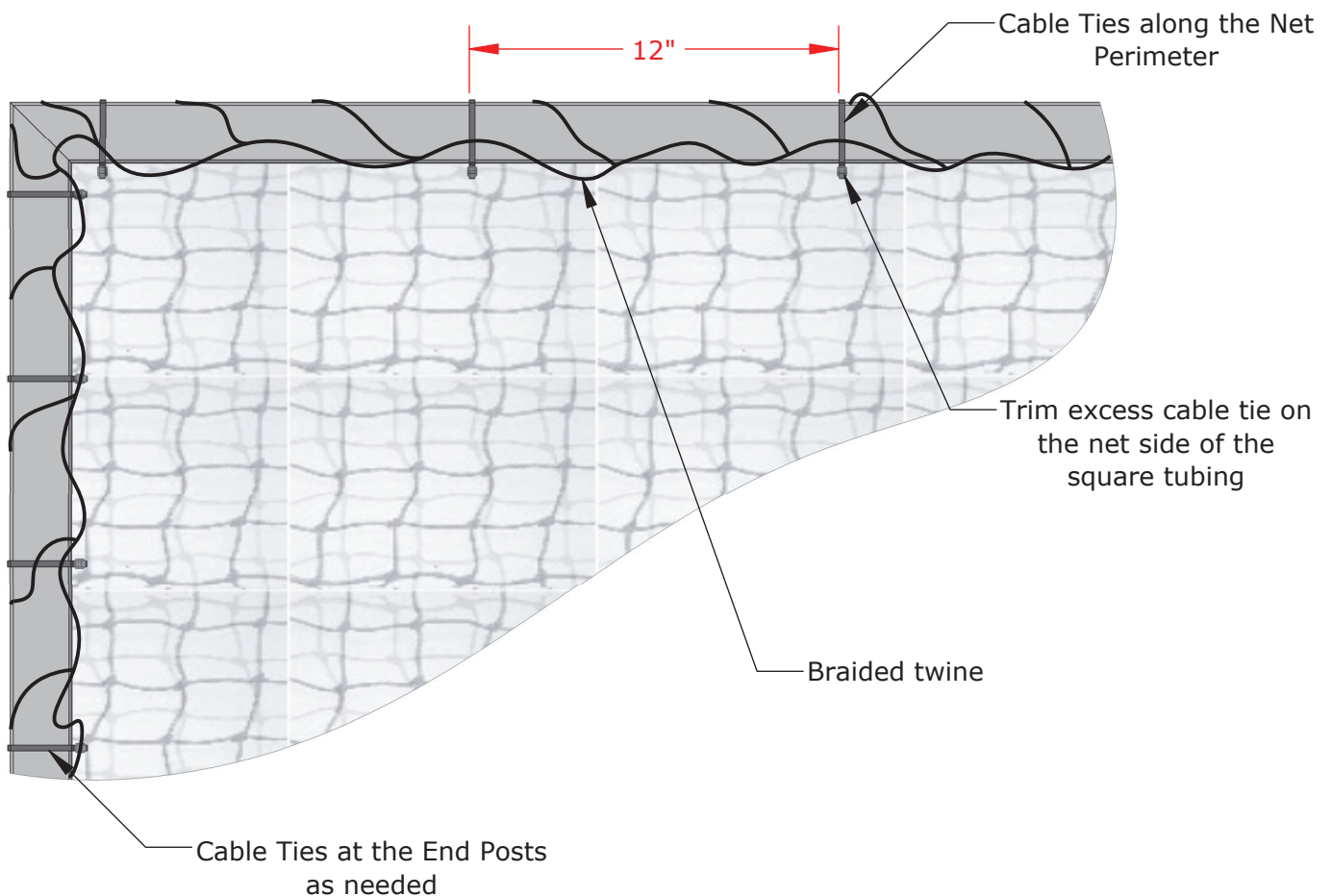
Attach the netting to the steel structure using the provided cable ties along the net perimeter every 12". Install the cable ties on the net side of the square tubing to allow clearance for installation of the padding in future steps. Trim excess cable tie strap.

Step 3

Add cable ties to the end posts as needed to evenly tie down the net.

Step 4

Complete netting installation by lashing net onto the tube frame using braided twine.



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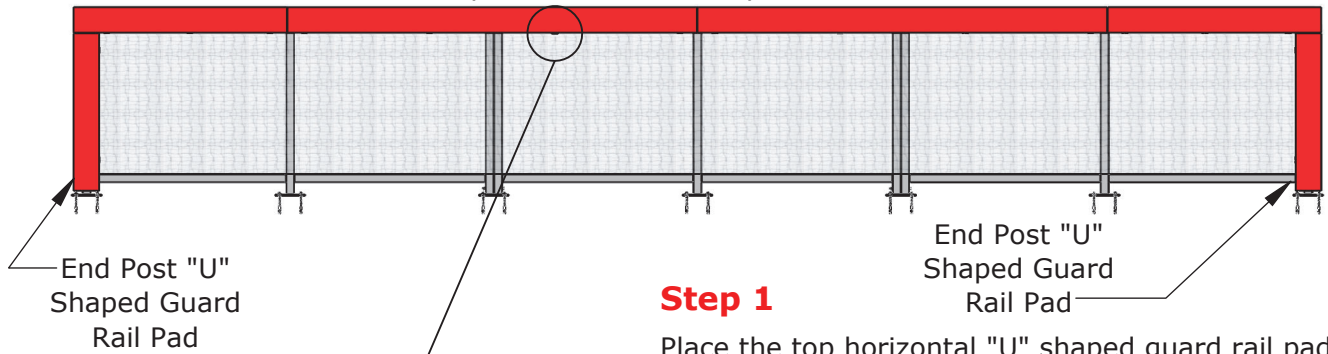
Net Installation

DWG NO:

ID-00159

SHEET 1 OF 1

Top Horizontal "U" Shaped Guard Rail Pads



Step 1

Place the top horizontal "U" shaped guard rail pads onto the top of the railing. Evenly distribute any small gaps in between the pads.

Step 2

Use the provided hat brackets (Item #1) to attach "U" shaped padding to the guard rail structure. Refer to the "Bracket Schedule" table below to determine the quantity of brackets required per pad.

Step 3

Place hat brackets approximately 4" from each end of each pad and evenly space the remaining brackets in the center. Weaving the bracket through the net will be required.

Step 4

For each hat bracket, verify the bottom sides of the plywood on the pads are flush with the bracket. Fasten the hat bracket to the pad using (2) 1-1/4" wood screws per bracket. Fasten at an angle, ensuring the screw is engaging the plywood. Fasten the bracket to the steel structure using (1) 1-1/2" self-drilling screw per bracket. **Do not torque the self drilling screw. Use of an impact driver is NOT recommended.**

Step 5

Repeat steps 1-4 for the end post "U"-shaped pads.

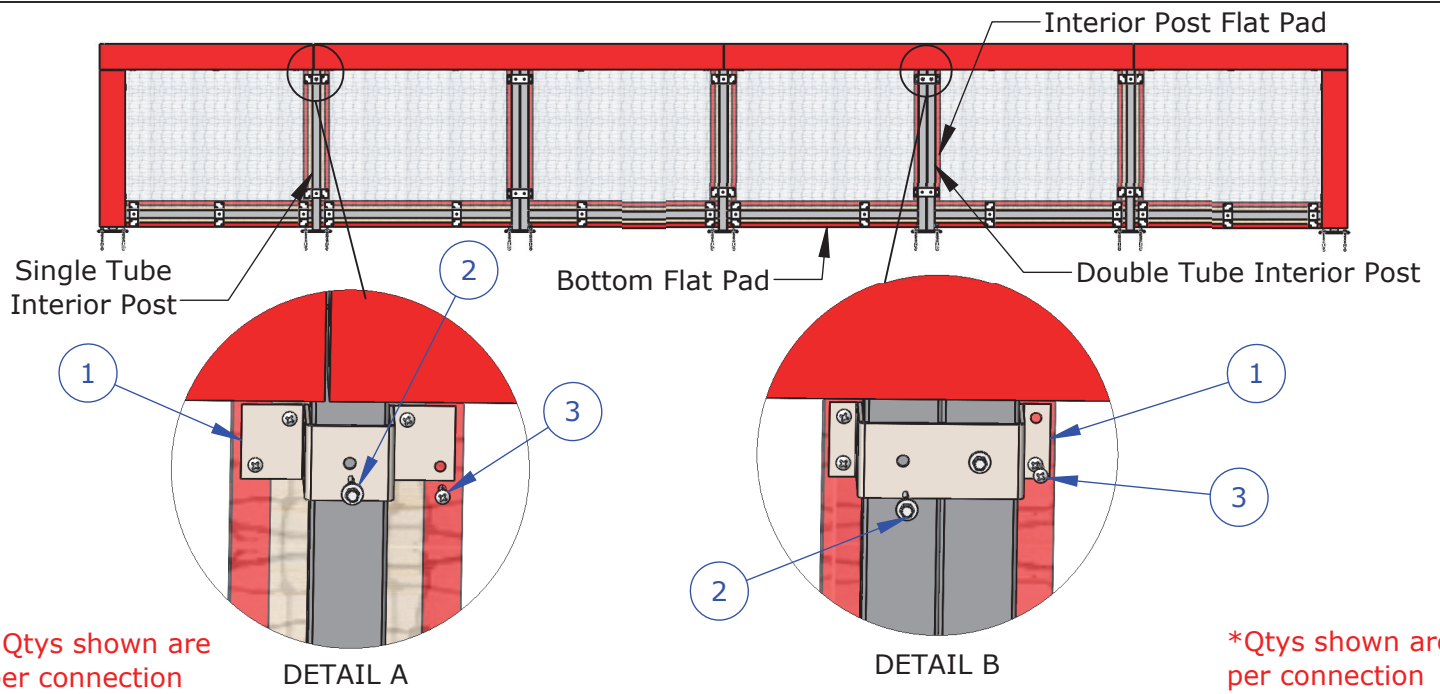
Refer to the padding identification numbers labeled on the pads and on the padding/module layout drawing of your specific system to determine pad placement.

*Qtys shown are per connection

| ITEM NO. | QTY.* | SAP Part Number | DESCRIPTION |
|----------|-------|-----------------|---|
| 1 | 1 | E-1000-0062 | Bracket, Hat, 11 Ga Steel, 2.02" ODH x 2.125" ODW x 1.5" Deep, Painted |
| 2 | 1 | 105-SCREWS-0007 | #12 x 1-1/2" Hex Head Self Drilling Carbon Screws w/Oxyseal Coating and head painted BLACK (06) |
| 3 | 2 | 104-SCREWS-0041 | #10 x 1-1/4" L, Pad Head Marine Wood Screw, Phillips Drive, SS |

| Bracket Schedule | |
|------------------|-------------|
| Pad Length (L) | Bracket QTY |
| L < 42" | 2 |
| 42" ≤ L < 72" | 3 |
| 72" ≤ L ≤ 96" | 4 |

| | | | |
|--------|--|---------|-----------------|
| TITLE: | "U" Shaped Padding Installation | DWG NO: | ID-00160 |
| | | | SHEET 1 OF 1 |



| ITEM NO. | QTY.* | SAP Part Number | DESCRIPTION |
|----------|-------|-----------------|---|
| 1 | 1 | E-0012-0003 | Bracket, GRS Flat Pad to Single Tube Post/Rail Attachment |
| 2 | 1 | 105-SCREWS-0007 | #12 x 1-1/2" Hex Head Self Drilling Carbon Screws w/Oxyseal Coating and head painted BLACK (06) |
| 3 | 4 | 104-SCREWS-0040 | #10 x 1" L, Pan Head Marine Wood Screw, Phillips Drive, SS |

| ITEM NO. | QTY.* | SAP Part Number | DESCRIPTION |
|----------|-------|-----------------|---|
| 1 | 1 | E-0012-0004 | Bracket, GRS Flat Pad to Double Tube Post Attachment |
| 2 | 2 | 105-SCREWS-0007 | #12 x 1-1/2" Hex Head Self Drilling Carbon Screws w/Oxyseal Coating and head painted BLACK (06) |
| 3 | 4 | 104-SCREWS-0040 | #10 x 1" L, Pan Head Marine Wood Screw, Phillips Drive, SS |

Step 1

Install the interior post flat pads centered with the interior posts. The top of the interior post pad should be flush with the bottom surface of the top horizontal "U" shaped pads.

Step 2

Select proper post brackets depending on post width. Refer to the "Bracket Schedule" table below to determine the quantity of brackets required per pad.

Step 3

For each pad, place a bracket approximately 4" from each end of the pad and add the remaining brackets spaced evenly in the center if needed per "Bracket Schedule" table. Weaving the bracket through the netting squares is required.

Refer to the padding identification numbers labeled on the pads and on the padding/module layout drawing of your specific system to determine pad placement.

Step 4

Fasten the pads to the brackets using the hardware shown. Then, fasten the brackets to the steel posts using the hardware shown (See Details and A and B). **Do not over torque the self drilling screws. Use of an impact driver is NOT recommended.**

Step 5

Layout the bottom flat pads along the bottom rail. The pads should be centered with the bottom rail. Evenly distribute any small gaps in between the pads.

Step 6

Repeat fastening procedure using the brackets for single tube members (Item #1).

Step 7

If your guard rail system has a middle horizontal rail (systems taller than 48") attach the middle horizontal rail flat pads (not shown) to the middle rail using Steps 1-6 above. Refer to the "Bracket Schedule" table for the required quantity of brackets per pad.

| Bracket Schedule | |
|------------------|-------------|
| Pad Length (L) | Bracket QTY |
| L < 42" | 2 |
| 42" ≤ L < 72" | 3 |
| 72" ≤ L ≤ 96" | 4 |

TITLE:

Flat Padding Installation

DWG NO:

ID-00161

SHEET 1 OF 1