


GED Integrated Solutions, Inc 31100 Diamond Pkwy Glenwillow, OH 44139		Document No.: ED-0060	Date 01/09/20
		Revision: J	
Description: Finished Muntin Bar Specification, Intergrid & Contour Cross			
Written By: M. Gardner			
Approved By: B. Briese			
Revision History:		Changed By:	Date:
F) Added Specification for Valance Grid		BGJ	01/18/06
G) Add ¼ x 5/16 Valance Grid Holes		BB	05/08/13
H) Added Specification for Cutoff Accuracy ER04582		RJE	03/17/14
I) Update Notch Table - 3/16&¼ x ¾ sizes ER04810		JCL	08/19/16
J) Added Contour Cross Specifications ER 05294		BB	01/09/20

## Scope

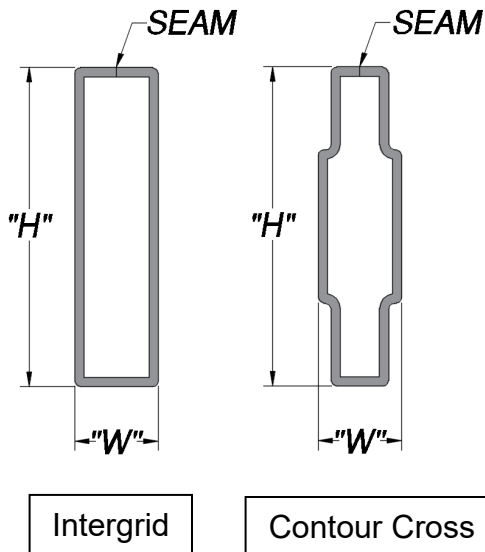
The purpose of this specification is to establish acceptance criteria for notched, formed and cut muntin bars.

This document covers specifications for both Intergrid and Contour Cross products. Unless otherwise noted, the specifications below are applicable for both products even though the graphics may not represent both.

For detailed raw material requirements, refer to *ED-0059 – Intergrid, Contourgrid & Contour Cross Muntin Bar Raw Material Specification*.

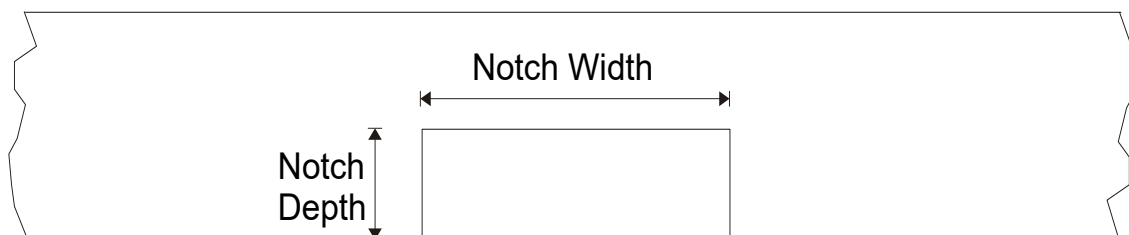
## Bar and Notch Size

1. Measure all four sides of the outside of the bar carefully. Make sure the dimensions match the table below. The width at each end of the bar can differ by as much as 0.007", but BOTH dimensions must be within tolerance.



2. Measure the intersection notch. Make sure the size of the notch matches the table below.

Muntin Size	Grid Type	Width	Height	Notch Width	Notch Depth
3/16" X 9/16"	Intergrid	.190" ± .005"	.551" ± .005"	.559" ± .002"	.693" ± .005"
3/16" X 5/8"	Intergrid	.190" ± .005"	.610" ± .005"	.618" ± .002"	.751" ± .005"
1/4" X 5/8"	Intergrid	.237" ± .005"	.625" ± .005"	.633" ± .002"	.812" ± .005"
3/16" x 3/4"	Intergrid	.190" ± .005"	.775" ± .005"	.785" ± .002"	.917" ± .005"
3/16" X 13/16"	Intergrid	.190" ± .005"	.801" ± .005"	.809" ± .002"	.943" ± .005"
1/4" x 3/4"	Intergrid	.235" ± .005"	.765" ± .005"	.773" ± .002"	.943" ± .005"
1/4" X 5/16"	Intergrid	.230" ± .005"	.312" ± .005"	.319" ± .002"	.484" ± .005"
4.5mm x 17.5mm	Contour Cross	.180" ± .005"	.689" ± .005"	.697" ± .002"	.757" ± .005"



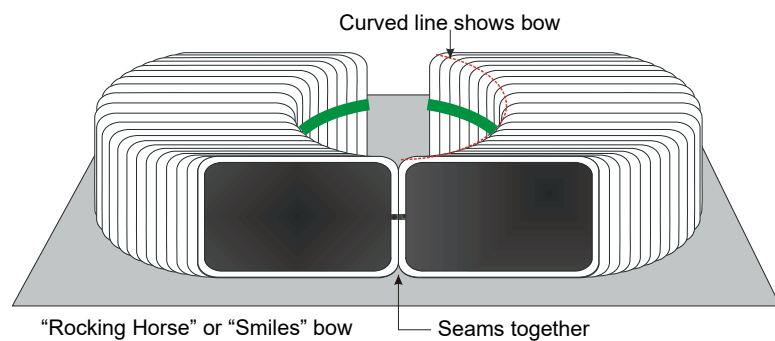
## Bow (Straightness)

A muntin bar can curve or bow from side to side or up and down. Camber can cause bow. If the muntin bars are bowed, make sure the material does not have excessive camber before adjusting the machine.

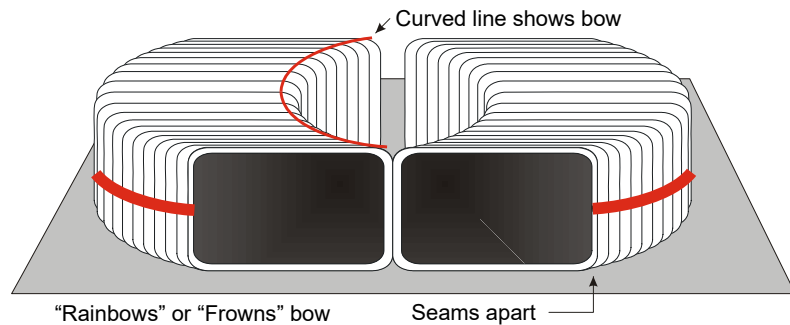
The muntin bars exit the Rollformer seam side up.

### Up and Down Bow

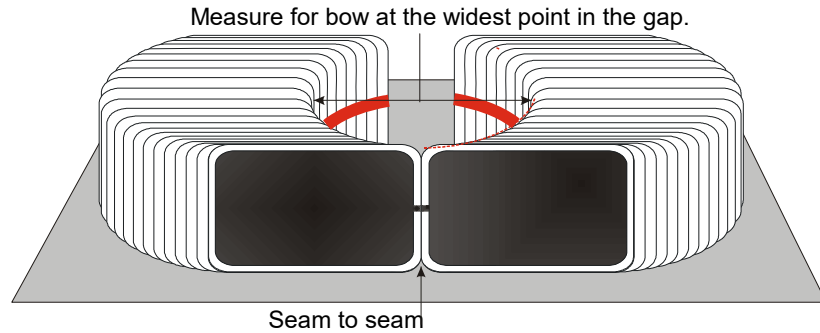
- If the bow is towards the seam (“rocking horse” or “smiles”), this is up-bow. Lower the plate at the exit end of the Rollformer.



- If the bow is away from the seam (“rainbows” or “frowns”), this is down-bow. Raise the plate at the exit end of the Rollformer.



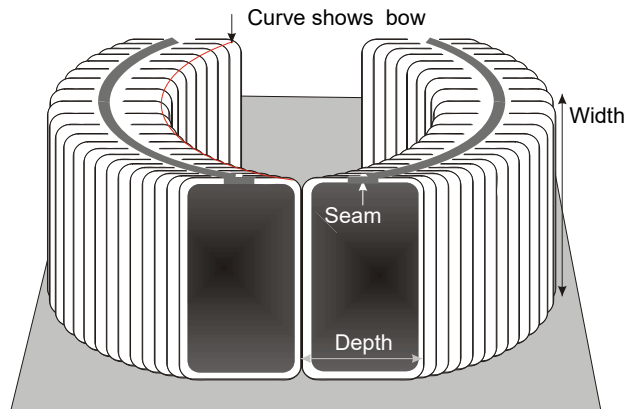
1. Up and down bow must not exceed 0.010" per foot of formed, un-notched bar. Check for bow using two rollformed, unpunched bars 3 ft long.
2. Lay the bars face to face (sitting on the short leg) on a flat surface, so that the ends touch and the gap from the bow, if any, is in the middle. Measure the largest gap.



3. Divide this number by 2 to determine the amount of Bow per Bar.
4. Divide this number (the Bow per Bar) by 3 to determine the amount of Bow per Foot. This number must be 0.010" or less.

### Side to Side Bow

1. Side to side bow must not exceed 0.031" per foot on formed, un-notched bar. Check for bow using two rollformed, unpunched bars 3 ft long.
2. Lay the bars next to each other on a flat surface seam side up, so that the ends touch and the gap from the bow, if any, is in the middle. Measure the largest gap between the bars.

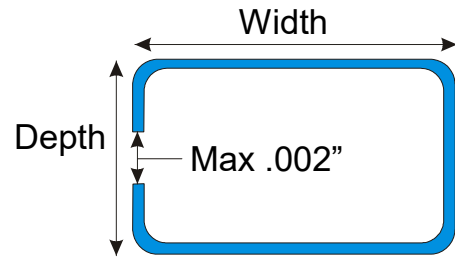


3. Divide this number by 2 to determine the amount of Bow per Bar.
4. Divide this number (Bow per Bar) by 3 to determine the amount of Bow per Foot. This must be 0.031" or less.

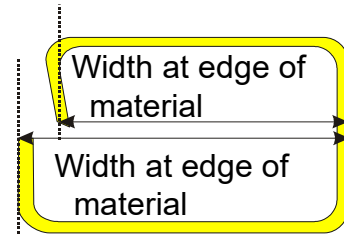
## Seams

1. Measure the any gaps in the seam with a feeler gauge. The maximum gap at any point should be 0.002" or less.
2. The total length of all gaps in the seam should not exceed 10% of the bar length.

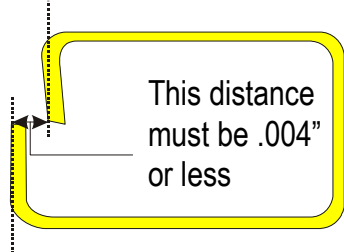
- Use a 3' length of rollformed, unnotched bar. Measure & document the length of each gap.
- Add up the lengths. For a 3' bar, the total length of all gaps must be 3.6" or less.



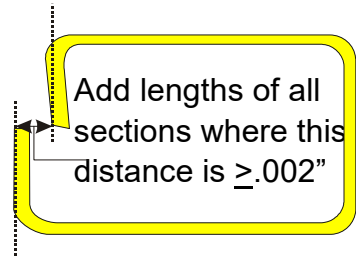
3. Measure the width at both edges of the material. The difference between the widths at the edges must be 0.004" or less (except for areas within 1" of a notch), without exceeding the width limits.
4. The total length of all sections with a width difference greater than 0.002" should not exceed 5% of the bar length.



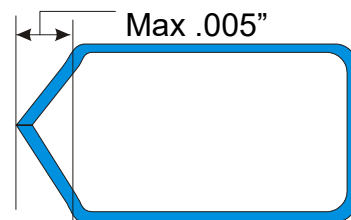
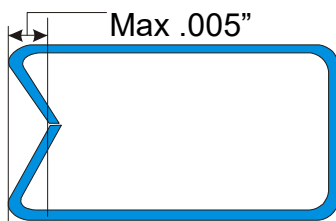
- Use a 3' length of rollformed, unnotched bar. Make sure the width difference at the edges of the material is never more than 0.004".



- Find all sections with a width difference greater than 0.002". Measure & document the length of each section.
- Add up the lengths. For a 3' bar, the total length of all sections with a height difference greater than 0.002" should be 1.8" or less.

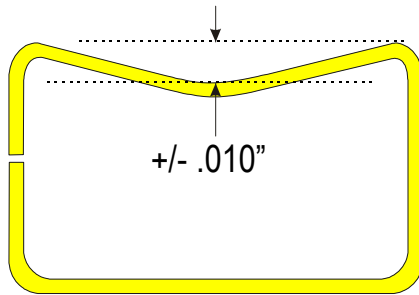
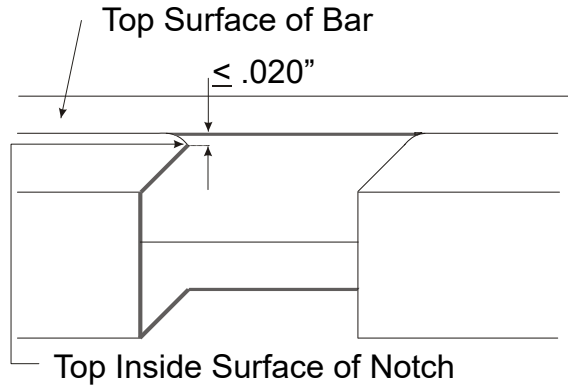


5. Look at the peaks and valleys of the seam. The highest and lowest points on the seam must be within +/- 0.005".



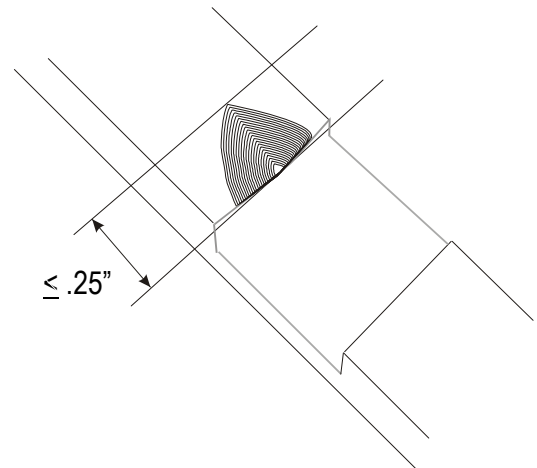
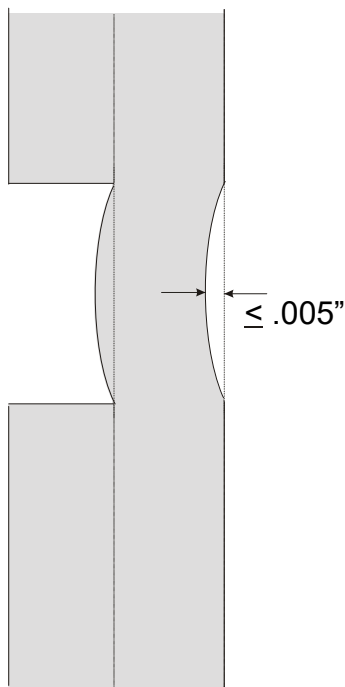
## Notches

1. Use a 3' section of notched, rollformed bar.
2. Carefully measure the difference between the top surface of the bar and the top inside surface of the notch. The difference should be 0.020" or less.



3. Measure the distance from the bottom surface of the bar (inside the notch) to the top (outside) surface. This measurement should be within +/- 0.010" of the nearest un-deflected section of bar.

4. The length of the deflected section should be 0.25" or less.



The length of the deflected section or dimple must be .25" or less.

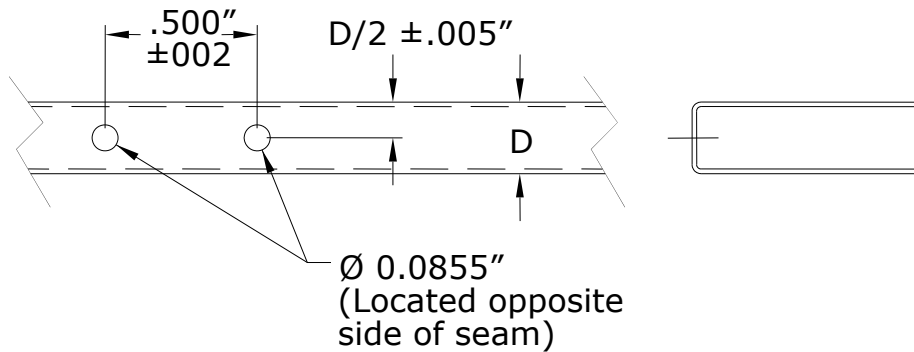
5. Because the muntin material is notched before it is rollformed, the seam side of the notch may exhibit a slight bend. Make sure this bend is not more than +0.005" from the intended straight line.

## Cutoff Accuracy

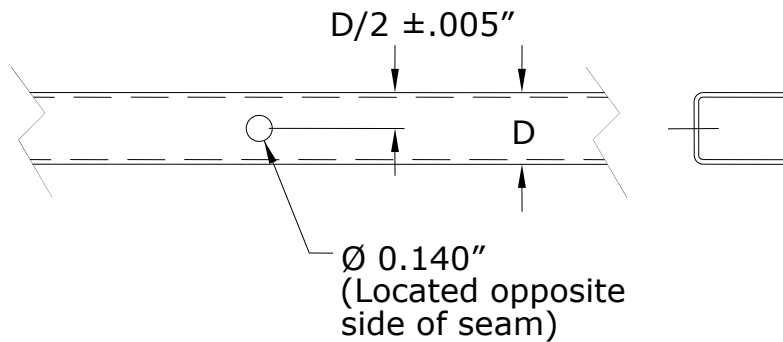
1. Measure the length of the bars the Cutoff should be consistent and accurate to  $\pm 0.015''$  of specified length.

## Valance Grid Holes (Intergrid Only)

The acceptable location for the Valance grid holes is as shown:  
The dual-hole configuration was designed to be used with Allmetal #135138 & 135141 dual-prong muntin bar keepers. Other clips may be used if they conform to these specifications. The single-hole configuration is used exclusively with 1/4 x 5/16 muntin bar size.



Dual-Hole Configuration  
All Muntin Bar Sizes Except 1/4 x 5/16



Single-Hole Configuration  
1/4 x 5/16 Muntin Bar Size Only

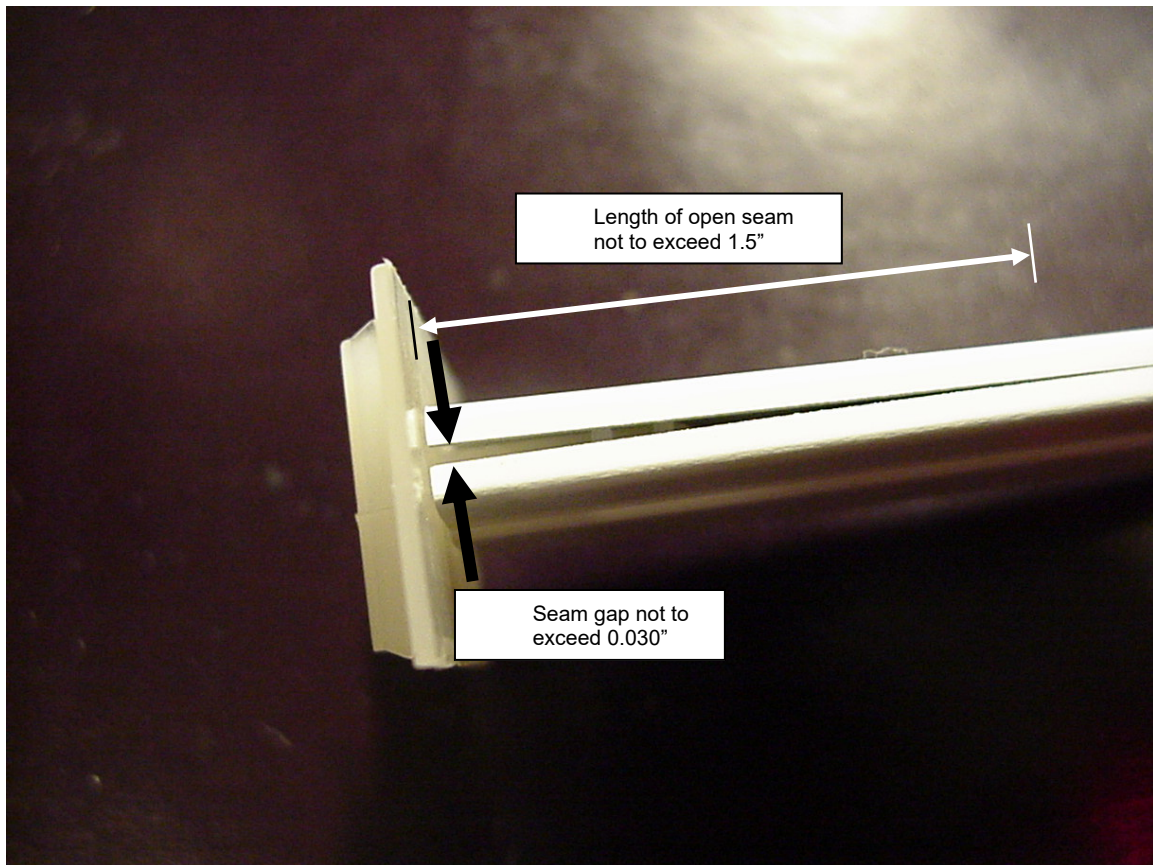
## Cut Ends

Carefully inspect the cut ends of the test muntin bars. The cuts should be clean and sharp.

1. The maximum allowable burr on the outside surface of the depth (short legs) is 0.010".
2. The maximum allowable burr on the outside surface of the width (long legs) is 0.010".
3. Check the paint at the ends and notches. Make sure there are no burn marks or other damage from the cut.

## Seam gap at End Clip

The seam gap at the end clip should not exceed 0.030" with the clip inserted. Also, there should be no open seam beyond 1.5" from the end of the bar. See illustration below.



*Seam gap at end clip should not exceed 0.030" – (shown exaggerated for clarity)  
Length of open seam not to exceed 1.5"*

## **Corners**

1. The outside bend radius must be  $\geq 0.027''$  AND  $\leq 0.035''$ , except as otherwise specified on a profile drawing.

## **Finish**

1. Make a 3ft section of bar. Wait 5 minutes, and then inspect the surface and finish carefully.
2. If the machine is equipped with a lubrication system, make sure there is no visible residue from the cutting and rollforming oils (5 minutes after the oil is applied).
  - The residue, if any, from the cutting and rollforming oils must be able to safely withstand the heat of the oven when the IG units are sealed. Make sure the cutting and rollforming oils do not leave any residue that will outgas volatile chemicals when the IG unit is processed through the oven.
3. Inspect the paint carefully at the slit edge (at the seam). Look for any spots where the paint peels.
  - Make sure the paint does not peel more than 0.001" away from the slit edge (at the seam).
  - If there are any places where the paint is peeling, measure the length of each section, and write it down. Then add up all the lengths. This total must not be more than 5% of the bar length.
  - For a 3ft bar, the total length of all sections where the paint is peeling must be 1.8" or less.