



Version 3.2 (1/18/18)

# The JVI Vector Connector User Guidelines



## INTRODUCTION

**JVI designed the Vector Connector for use as shear and alignment connections between precast concrete elements such as double-tee flanges, slabs, and wall panels.** Prior to the development of the Vector Connector, the precast concrete industry had to rely on various other shear connectors that did not perform to the industry's rigorous standards. JVI specifically developed the Vector Connector to meet the high-performance needs of the precast concrete industry. **JVI holds a patent on the Vector Connector.**

Additional testing performed by the University of Wisconsin—Milwaukee forms the basis for this edition of the JVI Vector Connector Guidelines. Testing has shown that a 2-1/2 in. long weld is adequate to develop the basic capacity of the Vector Connector (instead of the 3 in. and 4 in. of weld previously indicated). By using the shorter, 2-1/2 in. long weld, less heat is generated than with the previously specified weld while also providing for more field tolerance.

Professor Michael Oliva at the University of Wisconsin—Madison developed the testing procedure, which followed the PCI PRESSS program testing criteria, to specifically evaluate various types of connections used by the precast concrete industry. The Vector Connector was tested in tension, vertical shear, and monotonic horizontal and cyclical shear (with and without tension) to simulate all types of loadings, including a seismic event. Precast concrete slabs (4 ft. square by 4 in. thick) were used for these tests. See the following reports for testing procedures, results, and further discussions of the Vector Connector:

- Testing of JVI Flange Connector for the Precast Concrete Double-Tee systems by Professor Michael J. Oliva, University of Wisconsin - Madison, College of Engineering, June 2000.
- JVI Vector Connector for the Precast Double-Tee Members: Report on The Results of Laboratory Testing by A. Fattah Shaikh, P.E., Ph. D, Fellow: ASCE, ACI, PCI, Professor of Structural Engineering and Eric P. Feile, M.S. , Research Assistant, September 2002.
- Additional Testing of the JVI Vector Connector in 4" Slabs. By A. Fattah Shaikh, P.E., Ph.D., Fellow: PCI, ASCE, ACI, Professor Emeritus of Structural Engineering and Eric P. Feile Former Research Assistant University of Wisconsin - Milwaukee, September 2004
- Testing of the third iteration Vector Connector was done under the supervision of Professor Al Ghorbanpoor, P.E., Ph.D., and Director of Structural Laboratory for the College of Engineering and Applied Science University of Wisconsin - Milwaukee, in July 2009 and April 2010.

**The intent of these guidelines is to allow Vector Connector users to benefit from its full, tested capacities.**



## ENGINEERING

1. **Space the Vector Connector to provide capacity for all the forces the structure will encounter.** Typical forces may be transferred from the diaphragm and may include, but are not limited to, vertical forces from wheel loads and wind loads, thermal changes, and construction and erection loads.
2. **Detail the Vector Connector in its proper position** (see attached details for proper positioning). Negative draft is the intended position for maximum performance (as shown through testing). Alternate positioning of the Vector Connector, other than the negative draft position, may prove acceptable with further testing. Detail the Vector Connector for proper concrete coverage and interaction with the concrete reinforcement. The Vector Connector has been tested with and without welded-wire reinforcement (WWR) to simulate a 4 in. double-tee flange/slab. The Vector Connector is not limited to use in a 4 in. thick double-tee flange. It can be used in other precast, prestressed concrete products that require load transfer across joints and which meet the intent of the Vector Connector testing.
3. **Show the details for the setting holes on the Vector Connector faceplate on the construction drawings. These holes must match the form conditions/layout and should be coordinated during production to ensure the appropriate setting blockout is provided.**
4. **Show the alignment position of the Vector Connector on the shop drawings by means of a “+” symbol.** This symbol can be viewed on the top side of the leg and on the upper left side of the faceplate when properly positioned. The use of the JVI blockout, or any other similar, four-sided setting device, is recommended. The Vector Connector face plate must be in full contact with the blockout. The blockout creates space around the edges to allow for expansion of the faceplate during welding. The blockout must be in full contact with the side form. For quality control prior to concrete placement, production personnel can see the “+” symbol on the connector leg when inspecting the product setup. Inspection after concrete placement is also possible as the symbol remains visible on the upper left side of the exposed faceplate **(see drawing numbers JVI-SK3 and JVI-SK5).**
5. **Size the WWR width to be 4 in. less than the actual width of the precast concrete product. The WWR should be 2 in. from the edge on each side of the precast concrete product** for proper connector and WWR placement. This means both wires of the WWR, **the longitudinal and transverse wires, must be detailed and ordered to not interfere with the proper placement of the Vector Connector and the WWR (see drawing numbers JVI-SK1, JVI-SK2, JVI-SK3 and JVI-SK4).** For example: If the production width is 11 ft- 11 in. wide (at mid-height), then the WWR should be a maximum of 11 ft– 7 in. wide.
6. **Design the weld and the erection bar for the calculated forces. The size, length, and type of weld should be specified for the type of erection bar used. The erection bar can be flat or round. Various erection bar widths will be required to account for the varying joint widths. The erection bar length should not be less than the length of the weld. Misalignment between adjacent Vector Connectors can occur. To compensate for this condition, longer erection bars will be required.** Note that the latest testing at the University of Wisconsin - Milwaukee used a 1/4 in. x 2 1/2 in. long weld to develop the capacity of the Vector Connector in vertical and horizontal shear. The use of a weld longer than 3 in. may create unwanted conditions. **Over-welding is not acceptable and should be indicated as such on the contract and shop/erection drawings (see drawing numbers JVI-SK1, JVI-SK2, and JVI-SK6).** **Caution: round erection bars use a flare-bevel weld, which may create higher welding temperature. The maximum round erection bar should be 1” diameter. For joints larger than 1” diameter, only flat erection bars should be used.**
7. **For applied loads less than the capacity of the Vector Connector, a smaller size weld may be used as calculated by the Engineer of Record and/or a precast concrete specialty engineer.**



## ENGINEERING (Continued)

8. **The flat erection bars used for the field connection should have a minimum thickness of 3/8 in. The maximum thickness of the erection bar should be governed by the actual size of the joint and the type of weld. Never detail or use multiple erection bars between adjacent Vector Connectors.** Should the joint width be large enough to induce a bending moment in a flat erection bar, a precast concrete specialty engineer should be consulted for a larger flat erection bar thickness. The use of round erection bars may generate excessive heat during welding. If using round erection bars, the applied weld size may vary and could result in questionable quality.
9. **Place the WWR above or below the anchor legs of the Vector Connector depending on WWR and Vector Connector placement (see drawing numbers JVI-SK1, JVI-SK2, and JVI-SK3).**
10. **Design and perform all welds for connections in accordance with the latest edition of the American Welding Society (AWS) manual.**
11. Consult a precast concrete specialty engineer if greater vertical shear and tension capacities are desired.
12. **Develop, test and approve a welding procedure specification prior to each project. Each field welder shall be pre-qualified for this welding procedure. A fillet weld should be specified for the flat erection bar connection. A flare bevel weld should be specified for the round erection bar connection.**
13. **Have the certified welder, the welding inspector, the Engineer of Record, and the precast concrete specialty engineer review the welding procedures prior to any welding.** Sample welding of the connection should be performed, reviewed and approved. All specifications and details indicated on the construction drawings shall be followed. Any inconsistencies in the construction documents should be brought to the attention of the Engineer of Record. **The welder shall not oversize the weld or weld length.**
14. **Include flat or round erection bars of various widths on field material hardware lists. See item 6 and 8 for erection bar requirements.**
15. **JVI offers stainless steel in 201LN and 304. The 201LN is an austenitic stainless steel stronger and similar in durability to 304 stainless steel. The welding of 201LN is the same as 304. 201LN can be welded to 304. For more information on 201LN and 304 stainless steel, visit the JVI web site: <http://www.jvi-inc.com>**
16. When using "J" Finished Vector Connectors, an application of a zinc-riched coating (ZRC) should be required after welding for corrosion protection.



## PURCHASING

1. **Order welded-wire reinforcement (WWR) 4 in. narrower than the product width. The WWR should be 2 in. from the edge on each side of the precast concrete product.** Verify the correct WWR size with engineering and production (**see drawing numbers JVI-SK1, JVI-SK2, and JVI-SK3**).
2. **Choose the Vector Connector with the correct hole locations in the face plate to fit the side forms.** Different hole locations are available. Coordinate hole locations with engineering and production (see drawing number JVI-SK3).
3. **Select JVI blockouts to fit the product design and casting form.** If not using the JVI blockouts, have the blockouts fabricated with concrete relief on all sides. The relief allows for expansion of the Vector Connector when the connection is made in the field. Verify required blockouts with engineering and production.
4. **Order various width field erection bars to accommodate field-placement conditions.** Flat or round erection bars can be used. Coordinate erection bar sizes with engineering and erection.
5. **JVI offers stainless steel in 201LN and 304. The 201LN is an austenitic stainless steel stronger and similar in durability to 304 stainless steel. The welding of 201LN is the same as 304. 201LN can be welded to 304. For more information on 201LN and 304 stainless steel, visit the JVI web site: <http://www.jvi-inc.com>**



## PRODUCTION

1. **Tightly place the Vector Connector against the setting blockout and side form so as to provide for proper orientation. Improper orientation of the Vector Connector includes not being parallel to the side form and being recessed more than the blockout thickness from the side form. All improper orientations should be corrected.** If not corrected, welding problems may occur in the field. Typical attachment of the Vector Connector/blockout system includes placing a bolt through to side form and attaching it to a wing nut on the back side. These bolts must be removed after preset and prior to curing of the precast concrete product. An alternate system could include plastic/aluminum push pins or rivets. Common causes of improper orientation are over-width sized welded-wire reinforcement (WWR), unsupported WWR, unsecured fastening, improper placement, and plant personnel walking in the formwork near the location of the Vector Connector.
2. **Use a JVI setting blockout or equal with a positive drafted side form. This device will allow for the proper orientation of the Vector Connector, with a negative draft position of the Vector Connector. The backside of the mounting blockout, which is against the side form, must conform to the shape of the side form. This will allow the bottom edge of the Vector Connector to be placed as close to the side form as possible. This positioning is required so that the Vector Connector performs as described in the testing.** If other blockouts are used that place the connector deeper, both vertically and horizontally, into the concrete, or at a different orientation, additional testing should be performed to determine the capacity of the connection.
3. **Place the Vector Connector such that the “+” symbol is visible on the top side of the leg and at the top of the faceplate to ensure tested capacities. The Vector Connector has a “+” symbol stamped on the faceplate and legs.** Other orientations should be tested for capacity of the connection prior to use.
4. **Check the Vector Connector positioning in the form prior to concrete placement. Any improper orientation should be corrected.**
5. **Clean and keep clear all edges of the Vector Connector from any concrete.** The JVI setting blockout will keep these edges clean if fastened properly and are in good condition.
6. **Order and place the WWR to be 2 in. clear of each side form.** For example: If the production width is 11 ft- 11 in. wide (at mid-height), then the WWR should be 11 ft- 7 in. wide.
7. **Place the WWR above or below the anchor legs of the Vector Connector depending on WWR and Vector Connector placement (see drawing numbers JVI-SK1, JVI-SK2, and JVI-SK3).** Proper concrete coverage over the legs should be checked to verify it meets the applicable code provisions.
8. **Use a bolting or other positive fastening system for connection of the Vector Connector to the formwork.** The 0.265 in. diameter holes in the Vector Connector faceplate allow for use of a ¼ in. diameter bolt or pin (see drawing number JVI-SK3).
9. **Do not remove or cut any reinforcement in or around the location of the Vector Connector.** The size and detail of the reinforcement may be adjusted only after receiving approval from a precast concrete specialty engineer.
10. **Prior to concrete placement, inspect the Vector Connector.** Inspection should be a routine Quality Assurance (QA) operation and be a part of your PCI Plant Certification Program and Quality Systems Manual.
11. **Once the precast concrete product is stripped from the formwork, remove the setting blockout and then inspect the Vector Connector for cleanliness and proper positioning.** If necessary, remove any concrete paste from the face and all edges of the Vector Connector. Faceplate cleanliness minimizes the need for the field welder to clean the Vector Connector prior to the welding process.



## PRODUCTION (Continued)

12. **If the Vector Connector is used in a pre-topped parking garage double tee, tool or grind the concrete edges at the top surface and above the Vector Connector, that is created by the blockout, to prevent edge spalling from wheel loads (as well as along the continuous edge of the double tee).**
13. JVI offers stainless steel in 201LN and 304. The 201LN is an austenitic stainless steel stronger and similar in durability to 304 stainless steel. The welding of 201LN is the same as 304. 201LN can be welded to 304. For more information on 201LN and 304 stainless steel, visit the JVI web site: <http://www.jvi-inc.com>.



## ERECTION

1. **Develop, test and approve a welding procedure prior to each project. Each field welder shall be pre-qualified for this welding procedure.**
2. **Require a pre-job meeting to review welding procedures between the certified welder, the welding inspector, the Engineer of Record, and the precast concrete specialty engineer prior to welding. Invite a JVI representative to this meeting.** At this meeting, perform, review, and approve sample welding of the connection. Follow all specifications and all details indicated on the drawings. Any inconsistencies should be brought to the attention of the Engineer of Record. **Advise all welders not to oversize the weld. Do not accept any oversize welds.**
3. **“Weld Zone” markings have been placed on the faceplate. When the connection is welded, visual notches in the top edge of the faceplate indicate the “Weld Zone”. The “Weld Zone” notches indicate the location for the placement of the weld. See drawing number JVI-SK3.**
4. **All welds for making connections should be designed and installed in accordance with the latest edition of the American Welding Society (AWS) manual.**
5. **Specify the size, length and type of weld for the type of erection bar used. The erection bar can be flat or round. Various erection bar widths will be required to account for the varying joint widths.**
6. **The erection bar length should not to be less than the length of the required weld. Misalignment between adjacent Vector Connectors can occur. To compensate for this condition, longer erection bars will be required.** Note that the latest testing at the University of Wisconsin - Milwaukee used a 1/4 in. x 2 1/2 in. long weld to develop the capacity of the Vector Connector in vertical and horizontal shear. The use of a weld longer than 3 in. may create unwanted conditions. **Over-welding is not acceptable and should be indicated as such on the contract and shop/erection drawings (see drawing numbers JVI-SK1, JVI-SK2, and JVI-SK6). Caution: round erection bars use a flare-bevel weld, which may create higher welding temperature. The maximum round erection bar should be 1” diameter. For joints larger than 1”, only flat erection bars should be used.** For applied loads less than the capacity of the Vector Connector, a smaller size weld may be used as calculated by the Engineer of Record and/or precast concrete specialty engineer.
7. **Various width erection bars will be required to weld adjacent Vector Connectors as the joint width will vary. DO NOT weld multiply erection bars together to make the connection.**
8. **Place the erection bars parallel to the top edge of the Vector Connector and within the vertical limits no lower than mid-depth and ¼ in. below the top edge of the Vector Connector (see drawing number JVI-SK1 and JVI-SK2).** Flat or round erection bars should be set perpendicular to the faceplate and should not be in a skewed position relative to the faceplate. Welding below mid-depth can reduce the quality of weld and could cause different performance characteristics of the Vector Connector system.
9. **Should misalignment occur, use longer erection bars and maintain welds centered within the Vector Connector faceplates (see drawing number JVI-SK6).**
10. **Never use multiple erection bars between adjacent Vector Connectors.**
11. **Place the flat or round erection bars such that their top surfaces are ¼ in. below the top edge of the Vector Connector and no more than ¾ in. down from the top of the Vector Connector (see drawing number JVI-SK1 and JVI-SK2).**
12. **Use of a setting tool can help provide proper erection bar placement and ease of welding to the erection bar (see drawing number JVI-SK7).** Other procedures to set the flat or round erection bar may be used as long as the erection bar is in the proper position (see drawing number JVI-SK6).
13. **Center the flat or round erection bar for the field connection within the width of the connection (see drawing number JVI-SK6). Weld within the “Weld Zone” notches. Do not weld within ¾ in. from the ends of the faceplate.**
14. **Should misalignment between adjacent Vector Connectors occur, use longer erection bars and maintain centered welds within the Vector Connector faceplates (see drawing number JVI-SK6). In addition, consult a precast concrete specialty engineer for welding changes and approvals.**



## ERECTION (Continued)

15. **Use flat erection bars for the field connection with a minimum thickness of 3/8 in. Maximum thickness of the erection bar should be governed by the actual size of the joint and the type of weld. Never detail or use multiple erection bars between adjacent Vector Connectors. Use of round erection bars may generate excessive heat during welding.** The larger the diameter round bar used, the larger the weld required, therefore creating more unwanted heat. When welding to these types of erection bars, the applied weld size will vary and thus result in questionable quality. Should the joint width be large enough to induce a bending moment in the flat erection bar, a precast concrete specialty engineer should be consulted for a larger flat erection bar thickness.
16. **Specify a fillet weld for the flat erection bar connection. Specify a flare bevel weld for the round erection bar connection.**
17. **Caution: flare bevel welds with a round bar may create higher welding temperature.** The larger diameter of round erection bars will use larger welds.
18. **Periodically inspect welding and erection bar placement to ensure the Vector Connector will perform as designed.**
19. **JVI offers stainless steel in 201LN and 304. The 201LN is an austenitic stainless steel stronger and similar in durability to 304 stainless steel. The welding of 201LN is the same as 304. 201LN can be welded to 304. For more information on 201LN and 304 stainless steel, visit the JVI web site: <http://www.jvi-inc.com>.**
20. **When using "J" Finished Vector Connectors, an application of a zinc-riched coating (ZRC) should be required after welding for corrosion protection.**



## RECOMMENDATIONS

1. Design the Vector Connector and the field connection for calculated loads only. Use the weld required for the calculated loads; the tested fillet weld was  $\frac{1}{4}$  in. x 2  $\frac{1}{2}$  in. long. Do not oversize the weld for added safety; excessive weld adds excess heat, which could affect the performance of the connection.
2. Place the Vector Connector in the negative draft position with positive fastening and provide an edge relief system. Use the JVI mounting blockout or equal.
3. Keep the top and bottom edges, as well as the sides, of the Vector Connector clean.
4. Use a flat erection bar and a fillet weld for the field connection. Use a flare bevel weld when using a round erection bar. Do not use multiple erection bars.
5. Center the field weld within the width of the Vector Connector faceplate. Do not weld within  $\frac{3}{4}$  in. from the ends of the faceplate. Weld within the "Weld Zone" notches.
6. Place the erection bar parallel to the top edge,  $\frac{1}{4}$  in. below the top edge and at or above mid-depth of the Vector Connector.
7. Should misalignment between adjacent Vector Connectors occur, use longer erection bars and maintain centered welds within the Vector Connector faceplates.
- 8. DO NOT OVER WELD!**

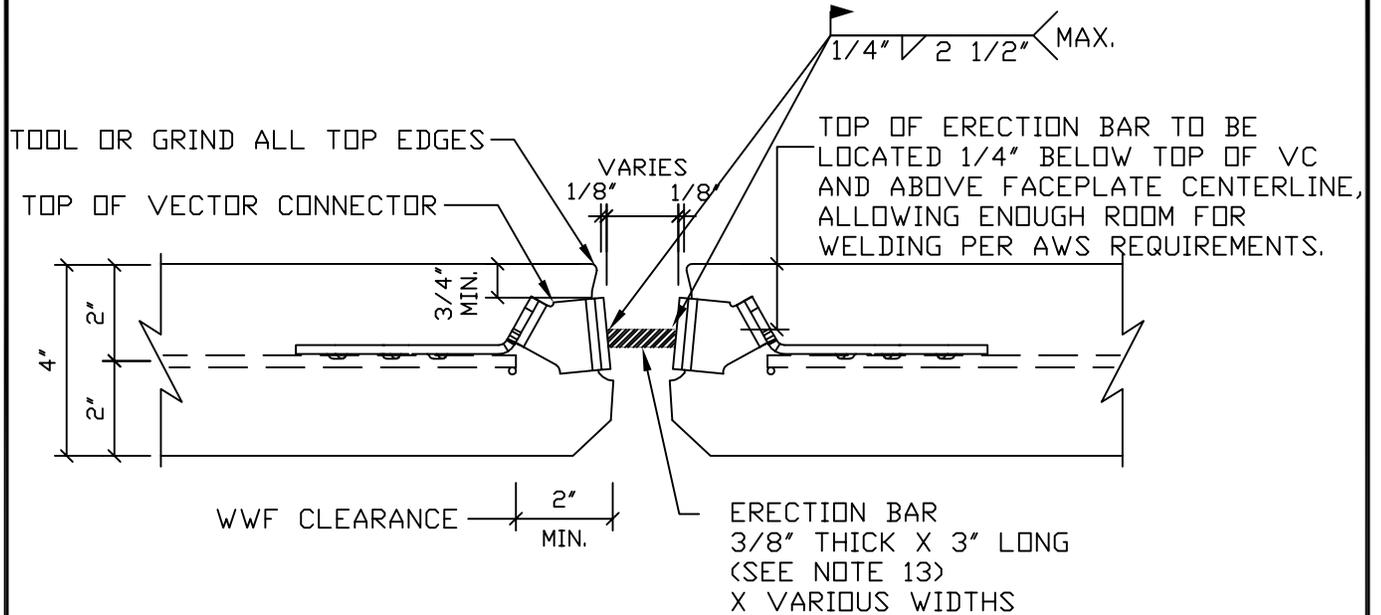
For further information and discussion, please contact the Engineering Department at JVI, 1-800-742-8127.



Version 3.2 (1/18/18)

## REVISION HISTORY

- 3.0 Document Created
- 3.1 Contact Information update
- 3.2 JVI-SK3 & JVI-SK5 updated to VC4



## VECTOR CONNECTOR

### NOTES:

- 1.) CENTER WELD AND ERECTION BAR BETWEEN WELD ZONE NOTCHES ON VECTOR CONNECTOR DO NOT WELD WITHIN 3/4" OF THE CORNERS.
- 2.) DO NOT OVER WELD; 2 1/2" MAXIMUM WELD LENGTH.
- 3.) ERECTION BAR TO BE HORIZONTAL.
- 4.) ALL EDGES OF VECTOR CONNECTOR MUST BE FREE OF CONCRETE.
- 5.) LOCATE WWF MESH SO NOT TO INTERFERE WITH VECTOR CONNECTOR LEGS. ORDER WWF MESH WITH PROPER CLEARANCE.
- 6.) MESH CAN BE LOCATED ABOVE OR BELOW VECTOR CONNECTOR LEGS.
- 7.) FOR DETAIL OF JOINT BEYOND NOT SHOWN, SEE JVI-SK4.
- 8.) FOR STAINLESS STEEL VECTOR CONNECTORS, USE A304 STAINLESS STEEL ERECTION BAR AND USE WELDING ELECTRODE E308.
- 9.) FOR "J" COATED VECTOR CONNECTORS (A36), USE A36 GRADE ERECTION BARS AND USE WELDING ELECTRODE E70XX.
- 10.) USE PROPER SAFETY PROCEDURES WHEN WELDING
- 11.) DETAIL USING ROUND ERECTION BAR, SEE JVI-SK2.
- 12.) ORDER VARIOUS WIDTH ERECTION BARS.
- 13.) LONGER ERECTION BARS MAY BE REQUIRED DUE TO VC MISALIGNMENT- SEE JVI-SK6. ENGINEER'S APPROVAL REQUIRED.
- 14.) SET VECTOR CONNECTOR WITH ⊕ SIGN UP ON FACEPLATE AND LEGS.

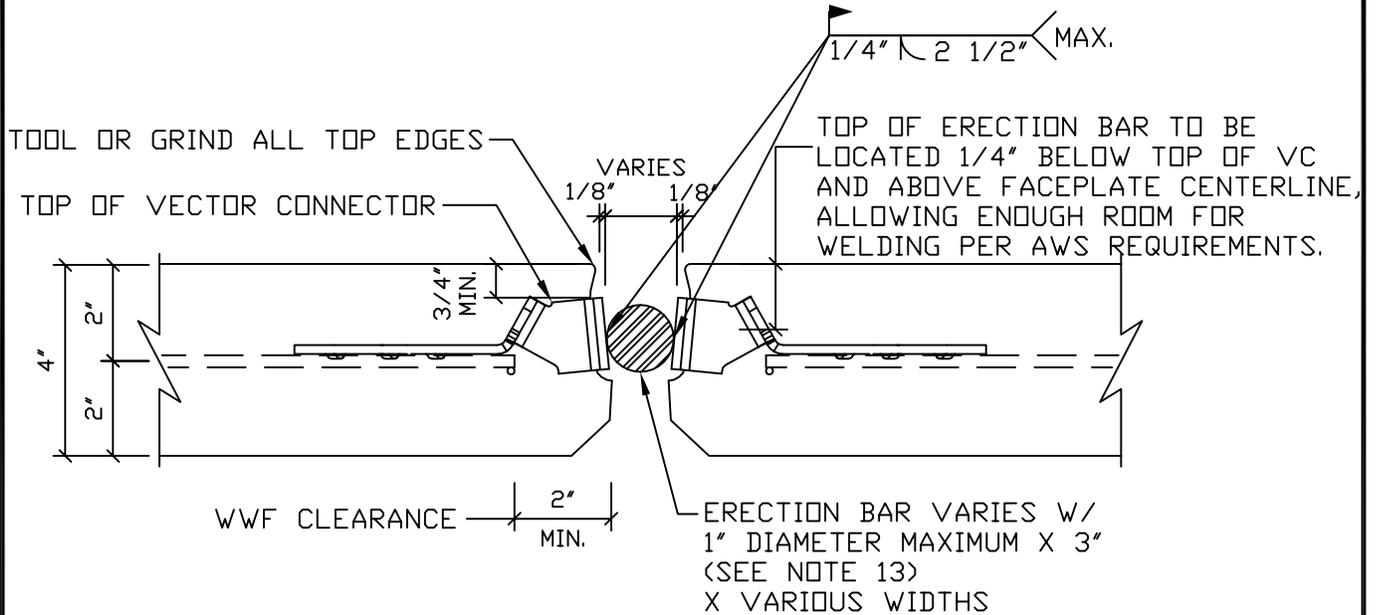
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JVI-SK1



## VECTOR CONNECTOR

### NOTES:

- 1.) CENTER WELD AND ERECTION BAR BETWEEN WELD ZONE NOTCHES ON VECTOR CONNECTOR DO NOT WELD WITHIN 3/4" OF THE CORNERS.
- 2.) DO NOT OVER WELD; 2 1/2" MAXIMUM WELD LENGTH.
- 3.) ERECTION BAR TO BE HORIZONTAL.
- 4.) ALL EDGES OF VECTOR CONNECTOR MUST BE FREE OF CONCRETE.
- 5.) LOCATE WWF MESH SO NOT TO INTERFERE WITH VECTOR CONNECTOR LEGS. ORDER WWF MESH WITH PROPER CLEARANCE.
- 6.) MESH CAN BE LOCATED ABOVE OR BELOW VECTOR CONNECTOR LEGS.
- 7.) FOR DETAIL OF JOINT BEYOND NOT SHOWN, SEE JVI-SK4.
- 8.) FOR STAINLESS STEEL VECTOR CONNECTORS, USE A304 STAINLESS STEEL ERECTION BAR AND USE WELDING ELECTRODE E308.
- 9.) FOR "J" COATED VECTOR CONNECTORS (A36), USE A36 GRADE ERECTION BARS AND USE WELDING ELECTRODE E70XX.
- 10.) USE PROPER SAFETY PROCEDURES WHEN WELDING
- 11.) DETAIL USING FLAT ERECTION BAR, SEE JVI-SK1.
- 12.) ORDER VARIOUS WIDTH ERECTION BARS.
- 13.) LONGER ERECTION BARS MAY BE REQUIRED DUE TO VC MISALIGNMENT- SEE JVI-SK6. ENGINEER'S APPROVAL REQUIRED.
- 14.) SET VECTOR CONNECTOR WITH ⊕ SIGN UP ON FACEPLATE AND LEGS.

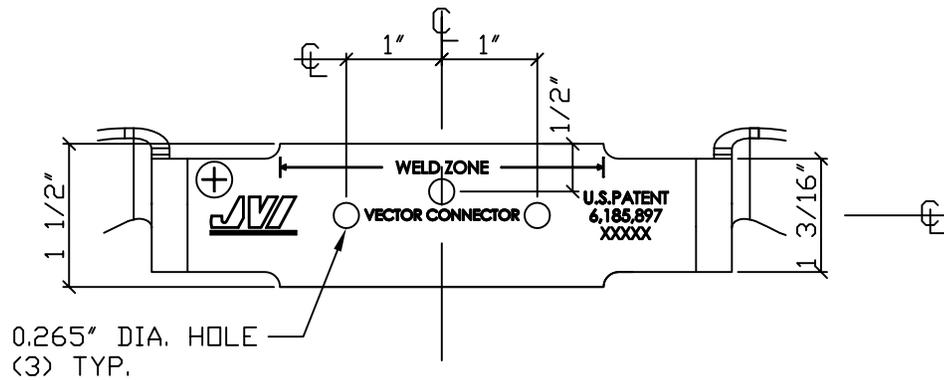
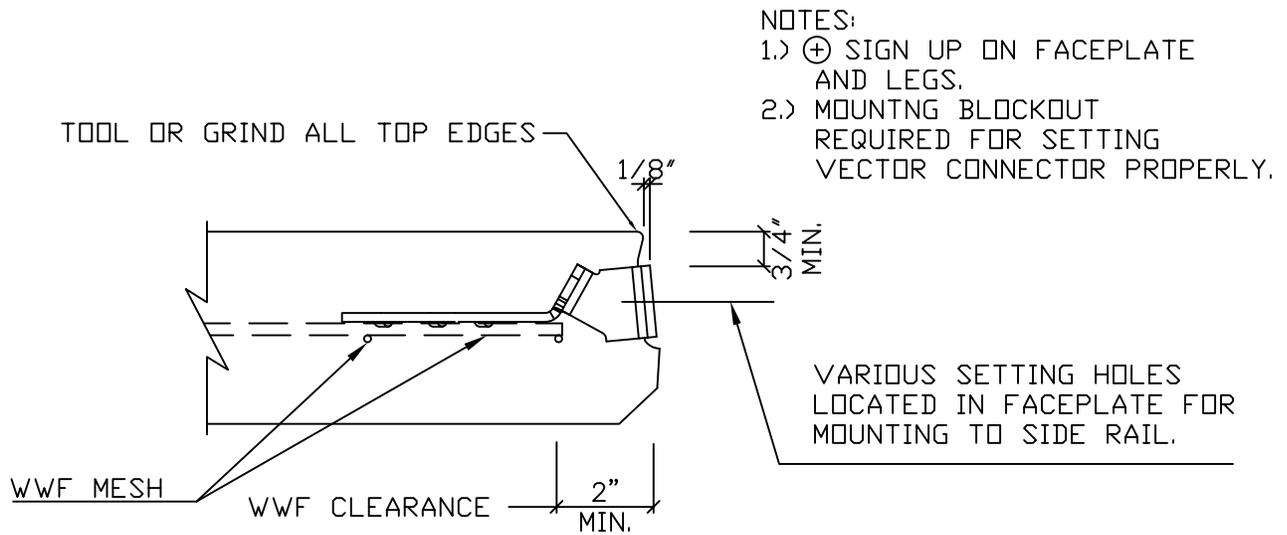
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JVI-SK2



## VECTOR CONNECTOR POSITIONING

### NOTES:

- 1.) USE JVI MOUNTING BLOCKOUT OR EQUAL
- 2.) BLOCKOUT DESIGNED TO PROVIDE RELIEF FROM CONCRETE ALONG ALL VECTOR CONNECTOR FACEPLATE EDGES.
- 3.) POSITION VECTOR CONNECTOR TO SIDE FORM USING BOLTING SYSTEM OR POSITIVE FASTENING SYSTEM.
- 4.) LOCATE WWF MESH SO NOT TO INTERFERE WITH VECTOR CONNECTOR LEGS, ORDER WWF MESH WITH PROPER CLEARANCE.
- 5.) MESH CAN BE LOCATED ABOVE OR BELOW VECTOR CONNECTOR LEGS.

3.1	1.18.18	UPDATE TO VC4
REV	DATE	DESCRIPTION

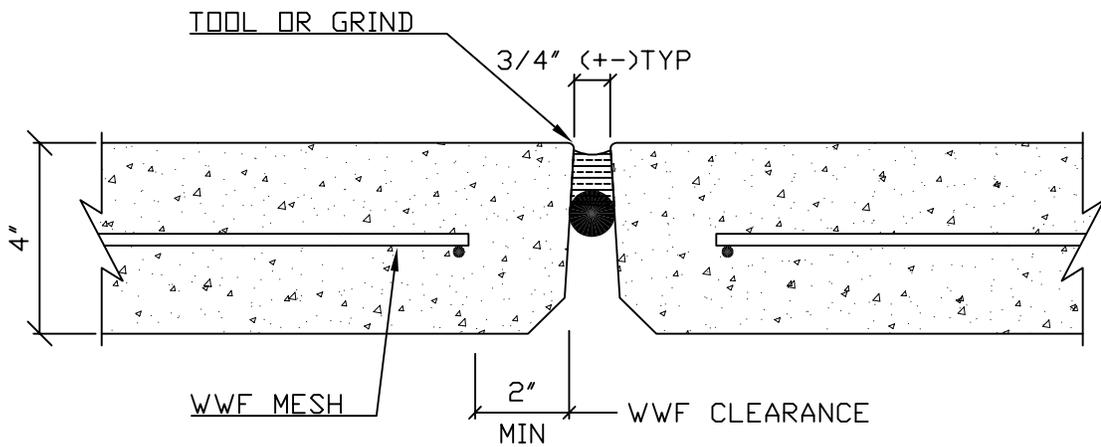
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JVI-SK3



JOINT DETAIL BEYOND CONNECTION  
SUGGESTED DETAIL

Version 3.0

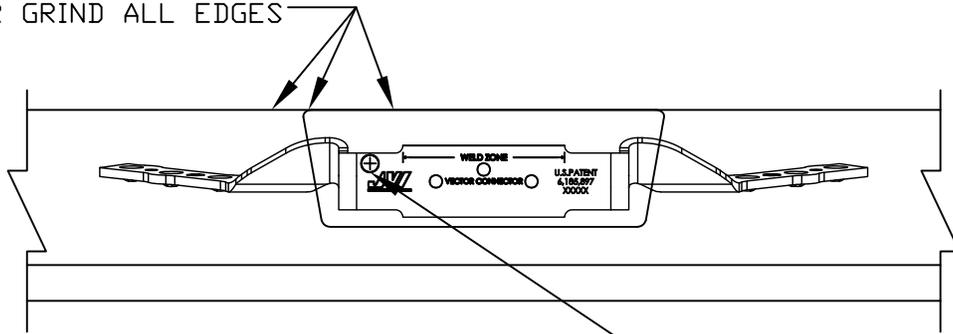


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JVI-SK4

TOOL OR GRIND ALL EDGES



SEE NOTE "2" THIS SHEET

## VECTOR CONNECTOR POSITIONING

### NOTES:

- 1.) THE POSITIVE SYMBOL, ⊕ SHOULD BE ON THE TOP OF THE VECTOR CONNECTOR FACEPLATE FOR PROPER PLACEMENT.
- 2.) ⊕ SYMBOL SHOULD BE VISIBLE ON THE TOP OF THE LEGS FOR PROPER PLACEMENT
- 3.) ALL EDGES OF VECTOR CONNECTOR MUST BE FREE OF CONCRETE.
- 4.) BLOCKOUT CONCRETE AROUND ALL SIDES.
- 5.) FOR HOLE FASTENING LOCATION; SEE JVI-SK3.

3.1	1.18.18	UPDATE TO VC4
REV	DATE	DESCRIPTION

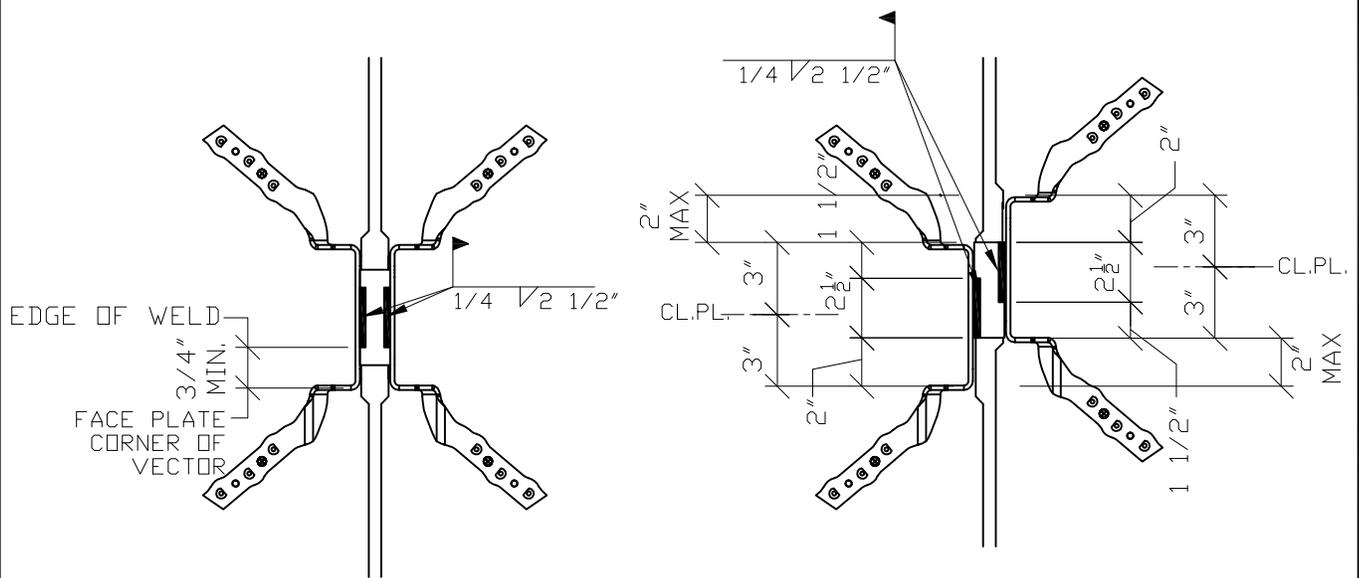
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JVI-SK5



## 4" ERECTION BAR VECTOR CONNECTOR POSITIONING

### NOTES:

- 1.) THE POSITIVE SYMBOL, ⊕ SHOULD BE VISIBLE WHEN IN PLAN (LOOKING DOWN) AT THE VECTOR CONNECTOR LEGS.
- 2.) ALL EDGES OF VECTOR CONNECTOR MUST BE FREE OF CONCRETE.
- 3.) WELD ERECTION BAR TO CENTER OF VECTOR CONNECTOR FACEPLATE. DO NOT WELD WITHIN 3/4" OF THE CORNERS.
- 4.) DO NOT OVER WELD. 2 1/2" WELD MAXIMUM WELD LENGTH.
- 5.) ERECTION BAR SHOULD BE PLACED LEVEL, WITHIN 1/8".

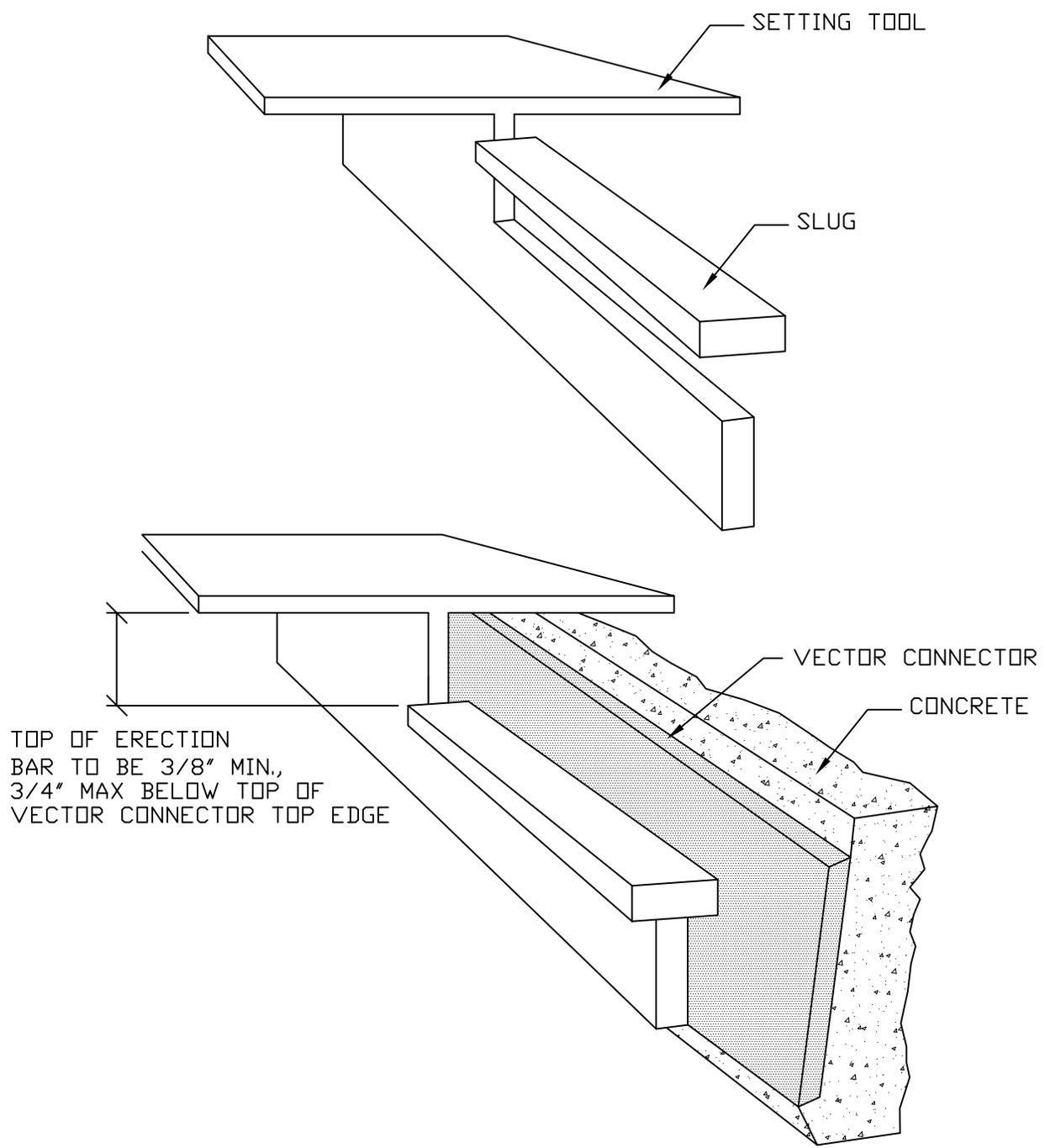
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ERECTION BAR SETTING TOOL  
SUGGESTED DETAIL

Version 3.0



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