

# Vaults and Boxes

## DESIGN REQUIREMENTS

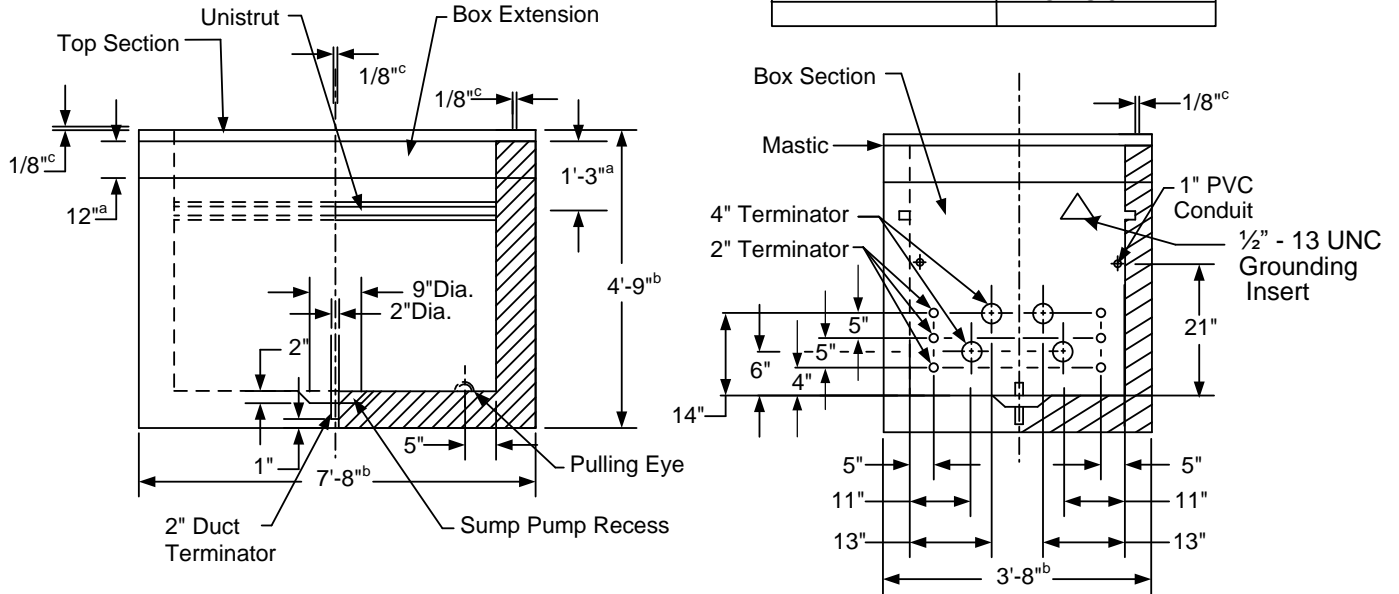
### TOLERANCES:

a = +1/2", -1/2"

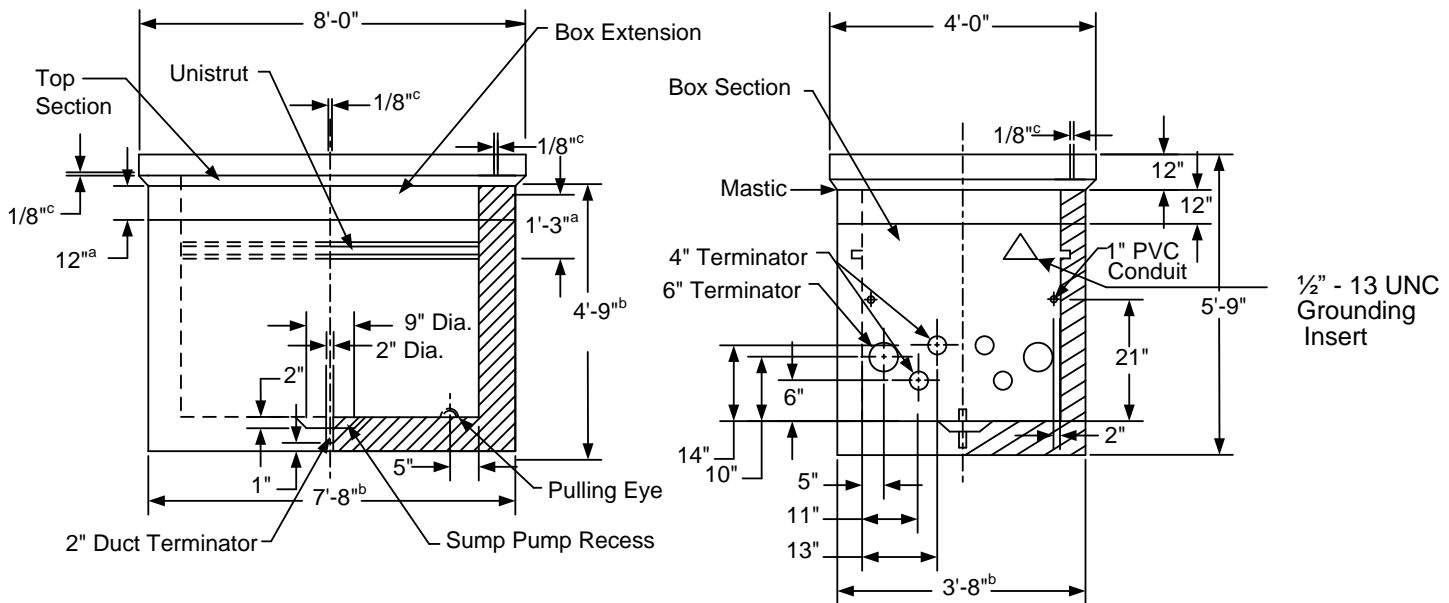
b = 0", -1"

c = 0", -1/16"


APPROVED BOXES	
MANUFACTURER	PULLBOXES
Jensen Precast	J-RS-82
Olson Precast	O-RS-82



**Figure 1. RS-82A Pullbox (Torsion-Assisted Lid) for General Use Applications**



**Figure 2. RS-82B Pullbox (Three Piece Lid) for Special Applications**

				Electric Service Requirements		<b>RS-82</b>
				<b>Pull Box:</b> <b>36" x 84" x 48"</b>		
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## 1. TOP SECTION (FIGURE 1, TORSION ASSISTED LID)

1. "ELE" in 1" letters, centered, bead welded or impressed into the top of one lid section. NOTE: "NVE COMM" shall be used instead of "ELE" on all NVE communications lids.
2. Two 5/8" slotted holes with two captive 1/2" – 13 UNC 304 stainless steel penta-head bolts attached to a latching mechanism and two angle brackets (see Figure 3), which shall be welded continuously to the side of the frame under the slotted holes. Bolts shall be furnished with castle nuts and cotter pins.
3. Both lid sections level to the top of the frame.
4. A 1" diameter hole (for a typical lifting hook), in covering lid section, with a permanent internal safety cover.
5. Two stainless steel (filled with grease) or brass bearing hinges for each lid section.
6. A stainless steel safety pin and chain lanyard shall be installed with each hinge, and provision shall be made to secure each pin when not in use (see Figures 4 and 5 below). McMaster – Carr Cat. No. 92730A120 and Cat. No. 98416A011, or equivalent shall be supplied.



Figure 3




Figure 4



Figure 5

7. Manufacturer shall provide provision(s) to lock each lid in the 90 degree open position.
8. Manufacturer shall provide a maximum 1/8" horizontal and vertical gap around lid with a debris shield welded on the back side of the lid (see Figure 6).
9. Manufacturer shall provide anchoring provision(s) at both ends of the frame.
10. The gap between the precast structure and the lid shall be sealed with mastic or similar material approved by NVE (see Figure 1).
11. Two (2) 1/2" hexagon torsion bars are to be used for each lid. The material shall be 4140 Annealed or 5160 ASQ. Bars to be heat treated to R/C 42-44 and straightened and then cold galvanized or electroplated to prevent corrosion. Design is to allow for easy replacement of torsion bars. Material and heat treating certifications shall be provided on request.
12. Maximum 35 lb. pulling force required to open each lid section.
13. The open angle (by torsion bars) not to exceed 15 degrees between the lid and the frame.
14. An identification tag with the cover manufacturer name, model number and year of manufacture shall be installed on the inside frame.
15. Every twentieth top section assembled shall be tested by opening and closing the lid 25 times.

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16. Four (4) captive 1/2" bolts shall be attached to the frame one in each corner of lid not to interfere with safety latch, for adjusting the cover to grade variations. Bolt length shall be sized to limit adjustment to no more than 3" (see Figure 7).
17. Manufacturer shall provide a place to attach bonding wire at each end of lid frame and install a 3'- #4 copper (stranded) covered bonding wire, shall be green in color using listed connectors. This also includes the RS-82 B lid. (see Figure 8).

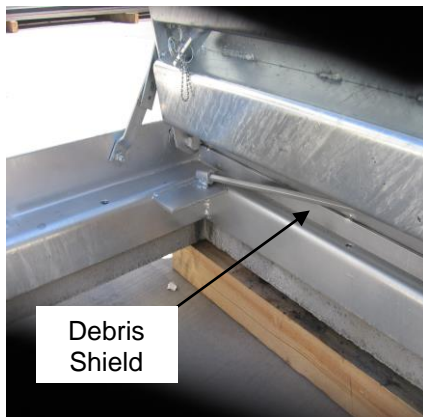


Figure 6

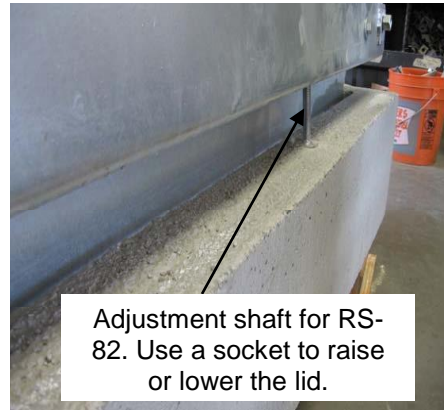



Figure 7



Figure 8

### 2. TOP SECTION (FIGURE 2, THREE PIECE LID)

1. The lid shall have:
  - A. "ELE" in 1" letters, centered, bead welded or impressed into the top of one lid section.
  - B. Three pieces of 5/16" steel diamond plate.
  - C. A 1" diameter hole (for typical lifting hook) in each plate with a permanent internal safety cover.
  - D. Lid sections level to the top of the frame.
  - E. A maximum 1/8" horizontal and vertical gap around lids.
  - F. Intentionally Omitted.
2. The top section shall have:
  - A. Eight I-beams (type W4x13#/ft.)
  - B. Four 1/2"-13 UNC stainless steel penta head hold down bolts per plate.
  - C. The I beams held in place by 1/4" x 2" x 2"-1/4" long angle irons.
  - D. A 5"x3"x1/4" edge frame connected to rebar's.
  - E. The unistrut nut brackets welded on three sides to the vertical side of the frame below top level of I beams.
  - F. A 1-1/2" x 1-1/2" x 3/8" angle iron welded into the top edge frame along the entire length of each 36" wall.
  - G. Anchoring provision(s) at both ends of the frame.
  - H. The frame bolted to the precast extension and the gap sealed with mastic or similar material approved by NVE.
3. All parts must meet dimensional tolerance requirements in Figure 9. NOTE: The three piece lid is permitted for applications with High Voltage Metering Enclosure (RPM-407) or with the approval of supervisor, T&D Standards.

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### 3. BOX EXTENSION

1. 36" (W) x 84" (L) inside dimensions with tolerances of  $\pm 1"$ .

### 4. BOX SECTION FOR GENERAL USE APPLICATIONS

1. Four 4" and six 2" diameter PVC conduit terminators through each end wall.
2. Two 1" diameter PVC conduit through each end wall.
3. Two steel pulling eyes in the floor.
4. A 9" diameter x 2" deep sump pump recess with 2" diameter duct terminator in the middle of the floor. Per T & D Standards: Bow Co. Industries Inc. Part# T2000 or equivalent.
5. Two hot dipped galvanized steel unistruts (P3200HGx84") located on opposite walls.  
**NOTE:** Unistrut to be clear of any concrete, slip or other debris prior to shipment.
6. 36" (W) x 84" (L) inside dimensions with tolerances of  $\pm 1"$ .
7. Two 1/2" grounding inserts nuts, one in each end wall, to be located 4" below unistrut.

### 5. ENTIRE STRUCTURE


1. All exposed steel shall be hot dip galvanized after fabrication, except torsion bars.
2. Torsion bars shall be spray galvanized.
3. Shall meet RS-G2 and RS-G4.  
**NOTE:** For traffic areas (e.g. streets, roads, etc.), use the RS-83 box.
4. For areas subject to vehicular traffic, vehicular protection barriers per RS-6 shall protect the RS-82 box.
5. Shims of any type are not allowed for installation of this box.

### 6. GROUNDING

1. The inserts shall be spaced in accordance with this specification drawing. Inserts to be attached to the internal box rebar by spot welding or approved connector. The insert shall accept 1/2" American Standard Thread. Continuity between all inserts installed in the box sections shall be checked and verified prior to shipping by manufacturer / supplier.

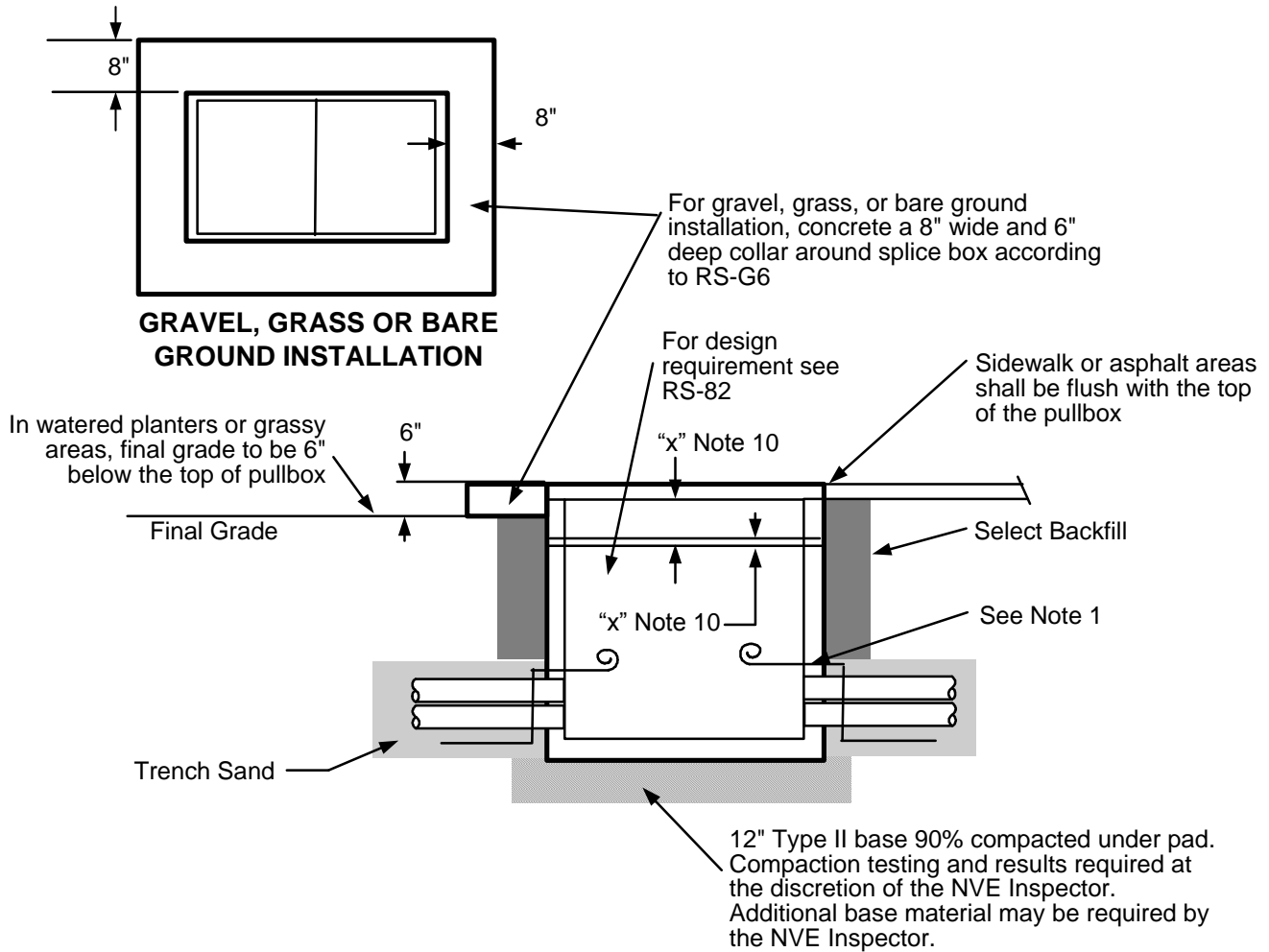
### 7. BOX SECTION FOR SPECIAL APPLICATIONS

1. Four 4" and two 6" diameter PVC conduit terminators through each end wall.
2. Two 1" diameter PVC conduit through each end wall.
3. Two steel pulling eyes in the floor.
4. A 9" diameter x 2" deep sump pump recess with 2" diameter duct terminator in the middle of the floor. Per T & D Standards: Bow Co. Industries Inc. Part# T2000 or equivalent.
5. Two hot dipped galvanized steel unistruts (P3200HGx84") located on opposite walls.  
**NOTE:** Unistrut to be clear of any concrete, slip or other debris prior to shipment.
6. 36" (W) x 84" (L) inside dimensions with tolerances of  $\pm 1"$ .
7. Two 1/2" grounding inserts nuts, one in each end wall, to be located 4" below unistrut.

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## INSTALLATION REQUIREMENTS



**Figure 8. RS-82 Installation Requirements**

**NOTES:**

1. Ground wires shall be installed through a 1" PVC conduit in the structures end walls. Grounding by customer shall consist of the following:
  - A. 2-50' lengths of #2-7 stranded bare copper wire in the bottom of the conduit trench in opposite directions.
  - B. An additional 5' of the ground wire will be left in the box.
  - C. Exceptions are not permitted.
2. This box can handle up to 3 primary cables including 3-4 way modules (see UJ-101 or 201 for installation).
3. 2" conduit(s) shall be installed utilizing knockouts on the property or field side of the RS-82 box.
4. If the final grade is unknown, it's preferable to make the top of the pull box too low, rather than too high.
5. If the designer specifies additional conduit openings, the contractor shall core drill the holes as required.
6. The bottom surface of the box shall be level.

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7. If the ground water level is at least 3' below the bottom of the splice box, the 2" diameter knockout in the sump pump recess shall be removed.
8. Two ½" spring nuts shall be installed by NVE for each module.
9. Intentionally Omitted.
10. All new installations to be set to final grade. Grade changes prior to cable installation will require the box to be raised or lowered. If any final grade adjustment is needed after the cable is pulled, take the actions listed in Table 1.

**Table 1. Adjustment Requirements**

Adjustment	Action
-6" to +5"	NVE contractor shall exchange existing 12" extension with 6" to 17" high extension ordered from the original manufacturer.
+6" to +12"	NVE contractor may order an additional 6" to 12" height extension from original manufacturer.
Below -6" & above 12"	Any extension shorter than 6" or exceeding 12" in height shall be subject to T&D Standard's department approval.

11. This box shall be installed in non-traffic areas only.  
**NOTE:** For traffic areas (e.g. streets, roads, etc.), use the RS-83 box.
12. There shall be a minimum 6' clearance from RS-82 box to the centerline of a fire hydrant.
13. Retaining wall required when grade from the top of the lid rises or lowers more than 1' in 5' horizontally or when required by developer as perimeter wall.
14. Conduits for new construction shall be installed in terminators nearest the property line whenever possible; future conduit stubouts shall be installed in terminators nearest the street whenever possible.
15. NV Energy lineman shall install # 2 bare copper bus to grounding inserts and attach all bonding wires.

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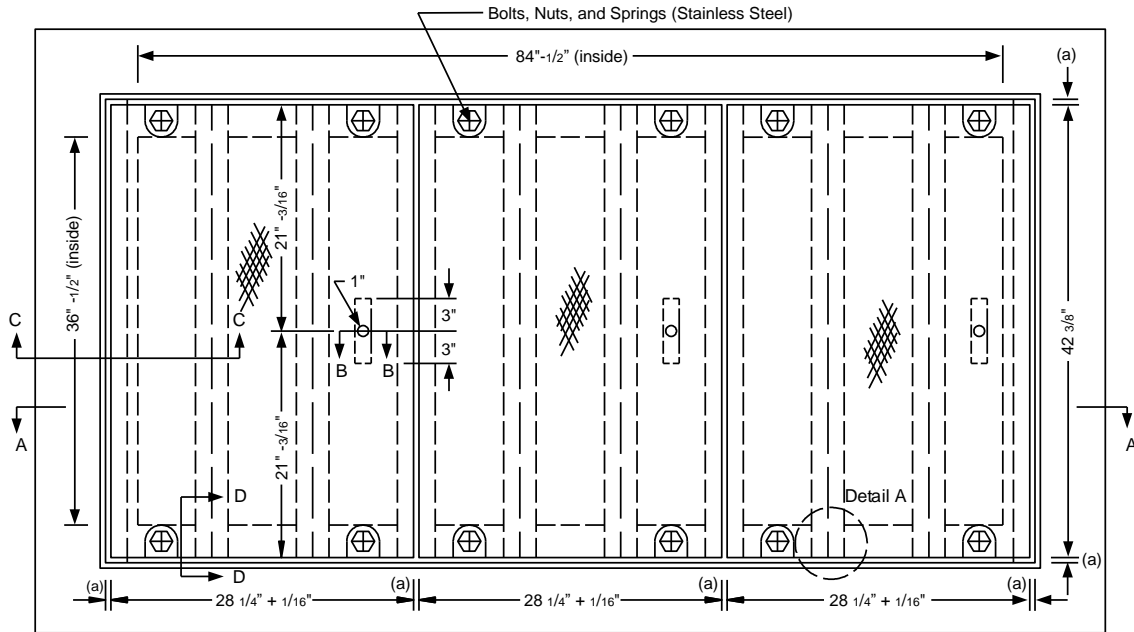
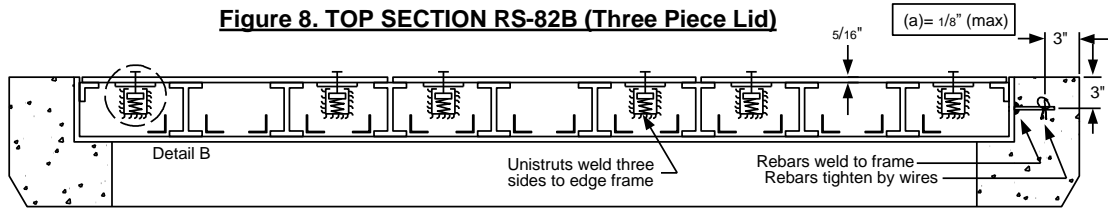
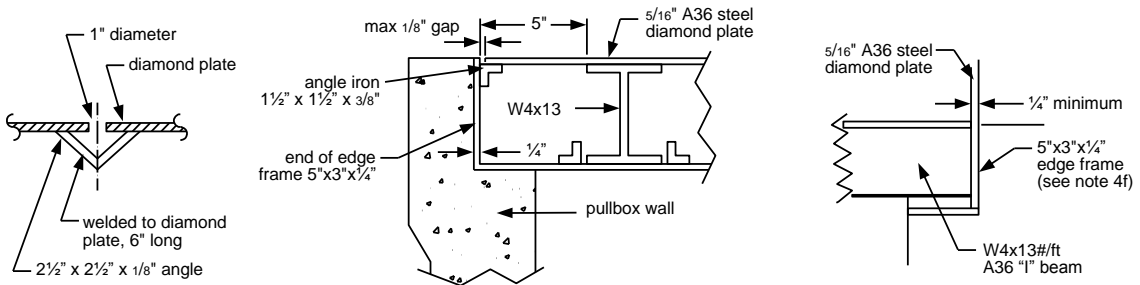


Figure 8. TOP SECTION RS-82B (Three Piece Lid)



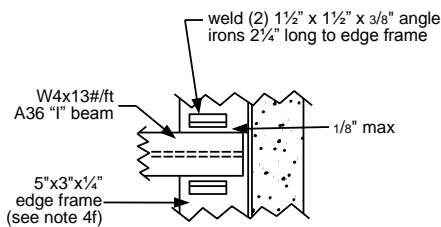
SECTION A-A



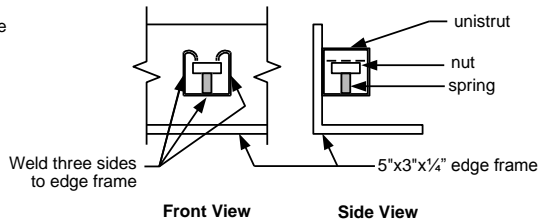
SECTION B-B

SECTION C-C  
END DETAIL

SECTION D-D  
BEAM BEARING




DETAIL "A"




DETAIL "B"

Figure 9.

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