

- a. Using the ratchet drive with the ¾" deep socket and an appropriate size combination wrench, remove the nut (L), lockwasher (K), washer (J), washer (I), nut (H), and bolt (G) from the rough-in plate (A).
 - b. Install the bolt (G) and nut (H) into the corner holes (C), and tighten.
 - c. Install the washer (I), washer (J), lockwasher (K), and nut (L) onto the bolt (G), and tighten. Be sure to assemble the hardware in the correct order.
 - d. Repeat steps a, b, and c for each bolt (G) and attaching hardware.
7. Position the rough-in plate (A) near the ceiling mount, and turn it to the position it will be installed in (see figure 2 on page 4). Check the following:

NOTE:

A floor or ceiling plan should show the access area for the rough-in, consistent with **Side 4** of the ceiling columns access panel.

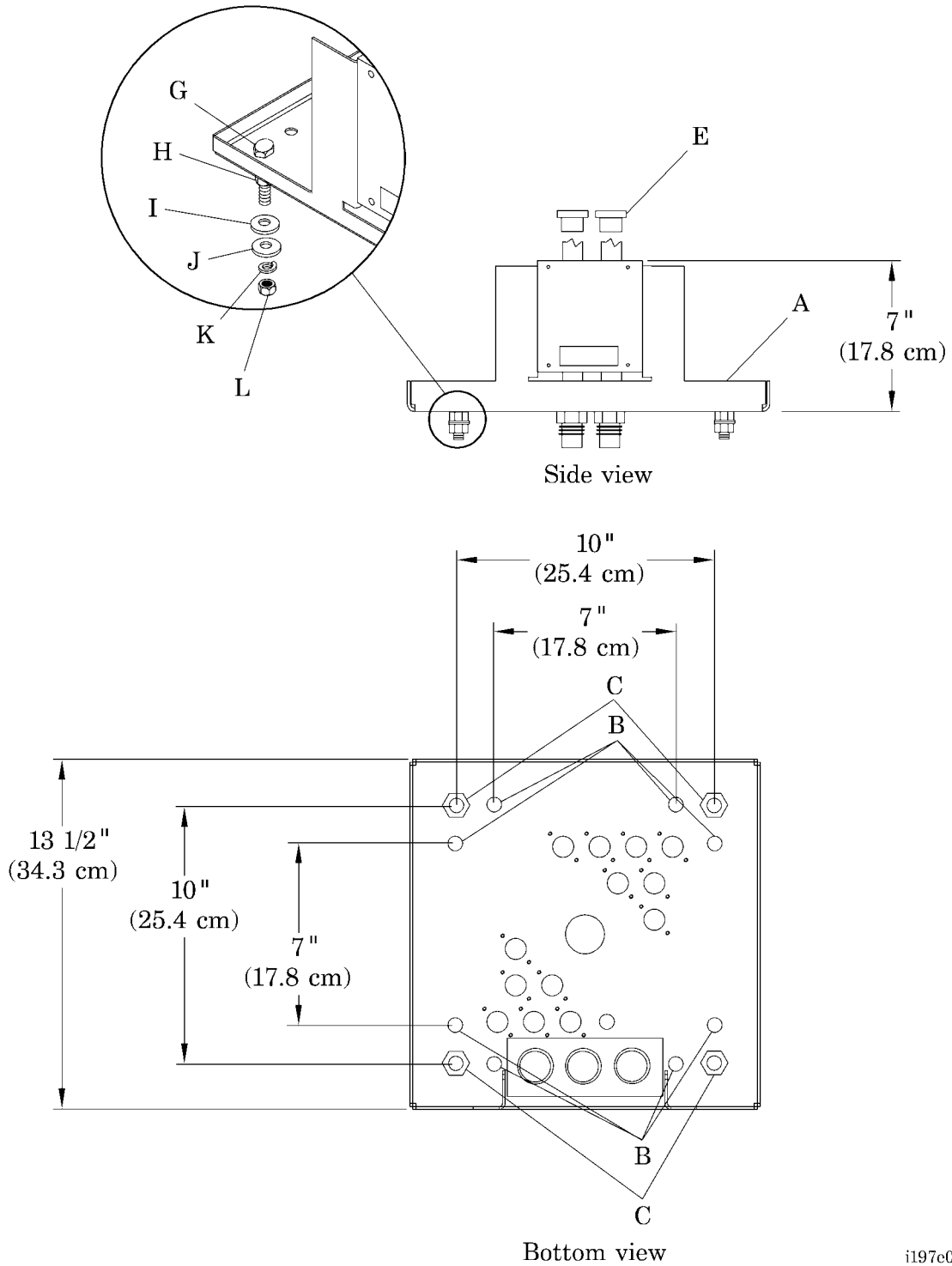
- a. Make sure that the medical gas risers (M) are pointing up.
- b. Check the as-built drawings to make sure that the junction box (Q) is on the side indicated on the floor or ceiling plan with the 18" square access panel.

NOTE:

When properly aligned, the junction box on the rough-in will be mounted away from surgical areas.

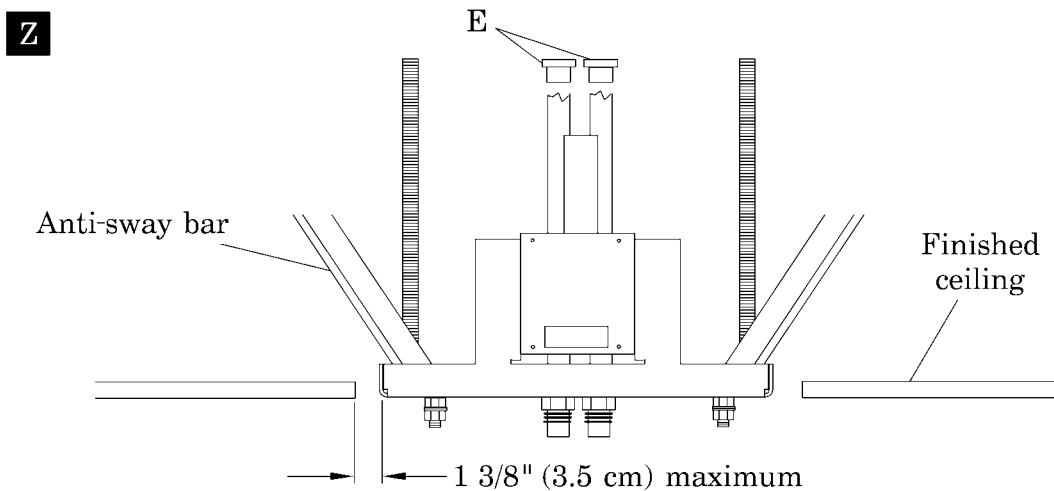
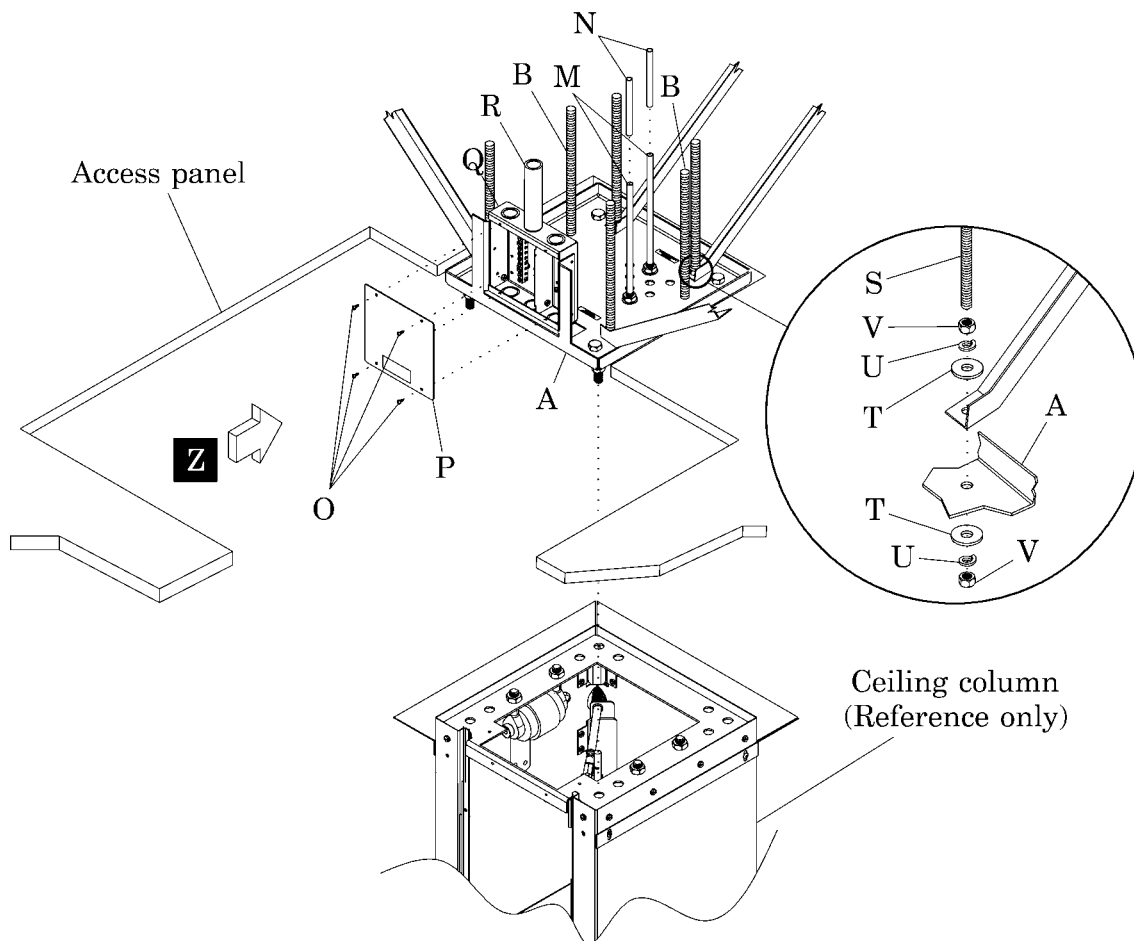
- c. Make sure that the four anti-sway bar holes can align with four of the eight holes (B) on the rough-in plate (A).
 - d. Make sure that the anti-sway bars will not obstruct access to the junction box (Q) after the rough-in plate (A) is installed.
 - e. Hill-Rom recommends the use of 1/2" all-thread rod for additional bracing and support.
8. Ensure that the rough-in plate (A) will have enough clearance to allow for maintenance after the finished ceiling and adjacent walls are installed.

Figure 1. Rough-In Setup



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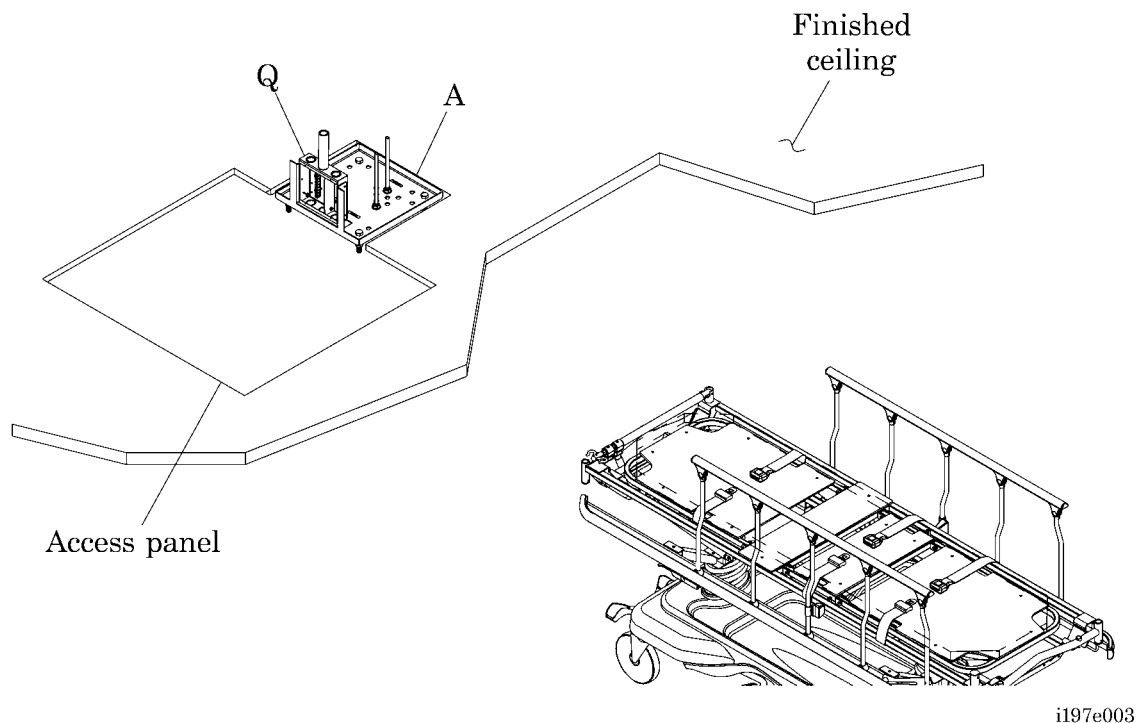
Figure 2. Rough-In Installation—Flush (Standard)



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9. Before the installation, check to ensure that:
- There is no permanently installed equipment that will interfere with the ceiling column or limit access for maintenance.
 - The medical gas drops (N) and medical gas risers (M) can be connected correctly.
 - If the finished ceiling is installed, make sure that there is at least 18" (46 cm) square for the access panel on the side of the rough-in plate (A) that has the junction box (Q) (see figure 3 on page 5).

Figure 3. Access Panel and Junction Box Orientation



Flush Installation (Standard)

1. Before proceeding with the installation, check the as-built drawings to make sure you have a flush (standard) installation.
2. Align the rough-in plate (A) with the anti-sway bars, making sure the rough-in plate is in the correct position (see figure 2 on page 4).



WARNING:

Make sure the rough-in plate is securely attached to the ceiling structure, and the installing contractor supplied anti-sway hardware to support 150 lb (68 kg). If this is not done correctly, personal injury or equipment damage could occur.

3. Attach the rough-in plate (A) to the ceiling structure with the contractor-supplied hardware.
4. Using the all-thread rods (S), washers (T), lockwashers (U), and nuts (V), attach the anti-sway bars to the rough-in plate (A).
5. Using a level, make sure the rough-in plate (A) is level. Level as required.
6. Make sure that the bottom surface of the rough-in plate (A) is flush with the finished ceiling.



WARNING:

Do not cross-connect the medical gas types or vacuum systems. Personal injury and equipment damage could occur.

7. Connect the contractor-supplied medical gas drops (N) to the rough-in plate (A) as follows:
 - a. Make sure the medical gas drops (N) can connect to the correct medical gas risers (M). For the medical gas color codes, see table 1 on page 6 and table 2 on page 7.

Table 1. Gas Labels and Color Codes for the United States

Gas Service	Hose Color	Label
Oxygen	Green	Black lettering, green background
Nitrous oxide	Blue	White lettering, blue background
Air	Yellow	Black lettering, yellow background
Vacuum	White	Black lettering, white background
Evacuation	Purple	White lettering, purple background
Nitrogen	Black	White lettering, black background
Carbon dioxide	Gray	Gray lettering, white background
Helium	Brown	Brown lettering, white background

Table 2: Gas Labels and Color Codes for Canada

Gas Service	Hose Color	Label
Oxygen	White	Green lettering, white background
Nitrous oxide	Blue	White lettering, blue background
Air	Black/white	Black and white alternating lettering and background
Vacuum	Yellow	Black lettering, yellow background
Evacuation	Purple	White lettering, purple background
Nitrogen	Black	White lettering, black background
Carbon dioxide	Gray	Gray lettering, white background
Helium	Brown	Brown lettering, white background

- b. If necessary, remove the plastic caps (E) from the medical gas risers (M).
- c. Prepare the medical gas risers (M) and medical gas drops (N) for brazing according to National Fire Protection Association (NFPA) 99.



WARNING:

Do not cross-connect the medical gas types or vacuum systems. Personal injury and equipment damage could occur.

- d. Connect the medical gas drops (N) to the corresponding medical gas risers (M).
- e. Wrap a water-soaked cloth around the medical gas risers and equipment in the adjacent area, and/or arrange a heat shield to protect items nearby.



WARNING:

Use extreme care when working with brazing equipment. Personal injury or equipment damage could occur.

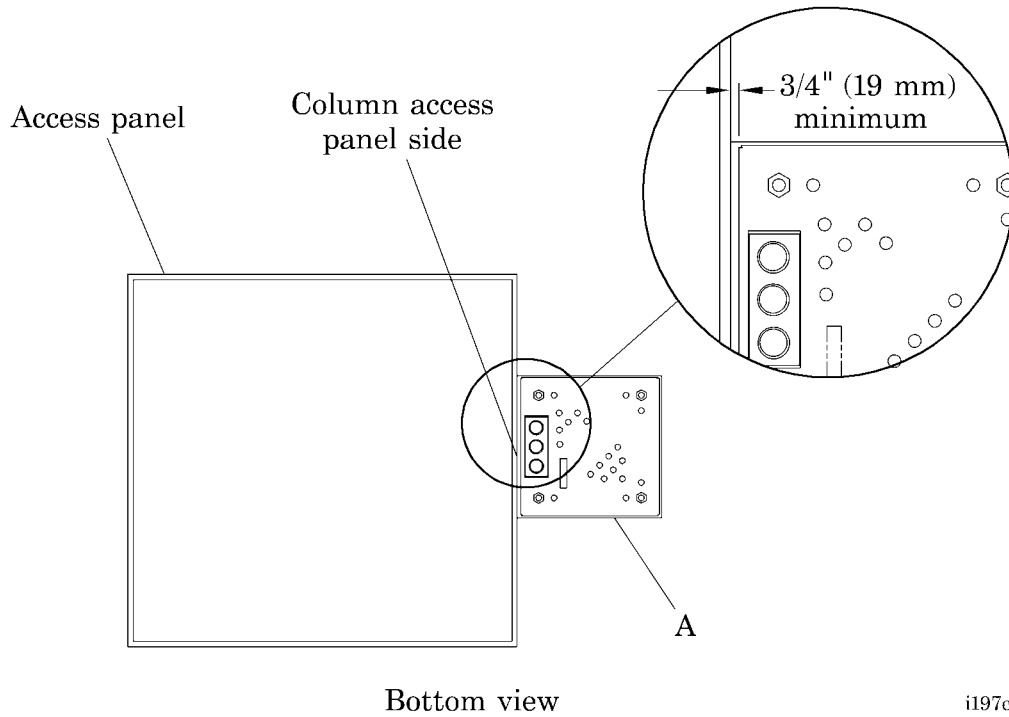
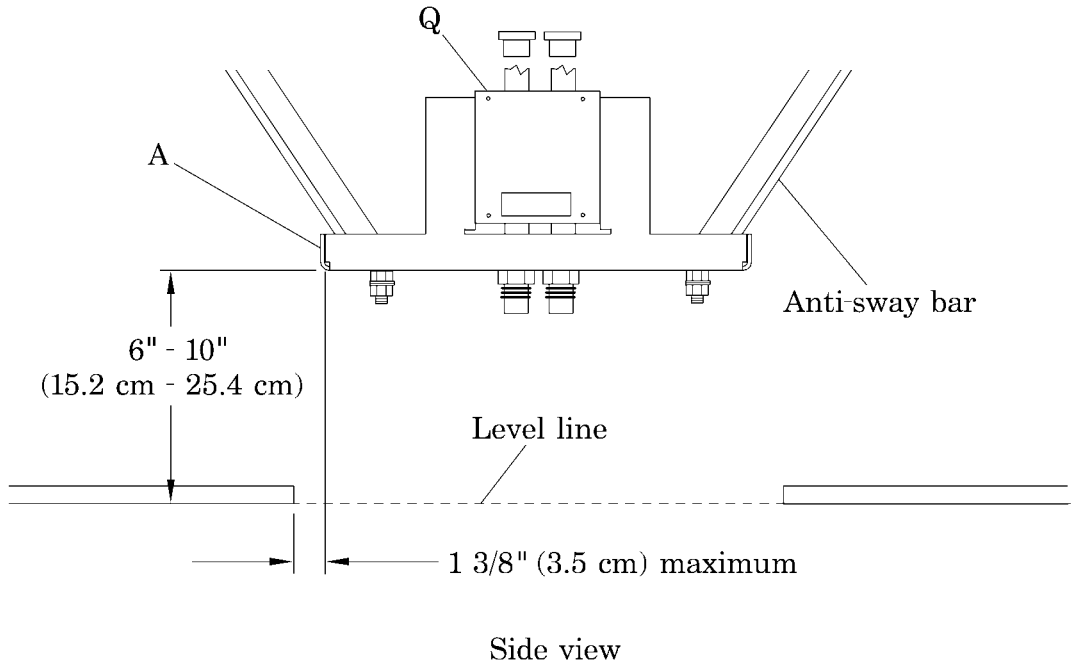
- f. Braze the facility medical gas drops (N) to the corresponding medical gas risers (M) in accordance with NFPA 99.
 - g. Test the braze joints for leaks according to the latest edition of NFPA 99. Gas risers are supplied with the attached test caps.
 - h. If you find leaks, braze the joints until there are no more leaks.
 - i. After the medical gas risers (M) have cooled, remove the water-soaked cloth and/or heat shield.
8. Using a phillips head screwdriver, remove the four screws (O) and cover (P) from the junction box (Q).

9. Remove the knockout plugs, as needed, from the top of the junction box (Q).
10. Referring to the as-built drawings for the correct connections, install the electrical conduit (R) from the facility service panel.

Recessed Installation

1. Before proceeding with the installation, check the as-built drawings to make sure you have a recessed installation.
2. Refer to the as-built drawings for the correct distance from the rough-in to the finished ceiling line.
3. Ensure no bracing or anti-sway bars exist between the rough-in and the access panel opening.
4. Align the rough-in plate (A) with the anti-sway bars.
5. Make sure the bottom surface of the rough-in plate (A) is recessed from the finished ceiling line at the correct distance (see figure 4 on page 9).
6. Make sure there is a gap of at least $\frac{3}{4}$ " (19.1 mm) between the junction box (Q) and the access panel frame.

Figure 4. Rough-in Installation—Recessed Only



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7. Install the rough-in plate (A) in the recessed position. Follow step 2 through step 5 and step 7 of the “Flush Installation (Standard)” on page 5 for details.

Test

1. Pressure test the medical gas system for leaks according to the latest edition of NFPA 99.
2. If leaks are found, braze the medical gas riser (M) and medical gas drop (N) connections again, and repeat the test until there are no more leaks (see figure 2 on page 4).
3. Test the medical gas system for flow and cross-connections according to the latest edition of NFPA 99.
4. If you find flow or cross-connection problems, correct the problems, and repeat the leak test.

Close-Up

Using a phillips head screwdriver, secure the cover (P) to the junction box (Q) with the four screws (O).