



IN-WALL[®] SLIDE-OUT
OEM INSTALLATION MANUAL

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System and Safety Information

WARNING

Always make sure that the slide-out room path is clear of people and objects before and during operation of the slide-out. Always keep away from the gear racks when the room is being operated.

WARNING

Do not work on your slide-out system unless the battery is disconnected. Failure to act in accordance with the following may result in death or serious personal injury.

WARNING

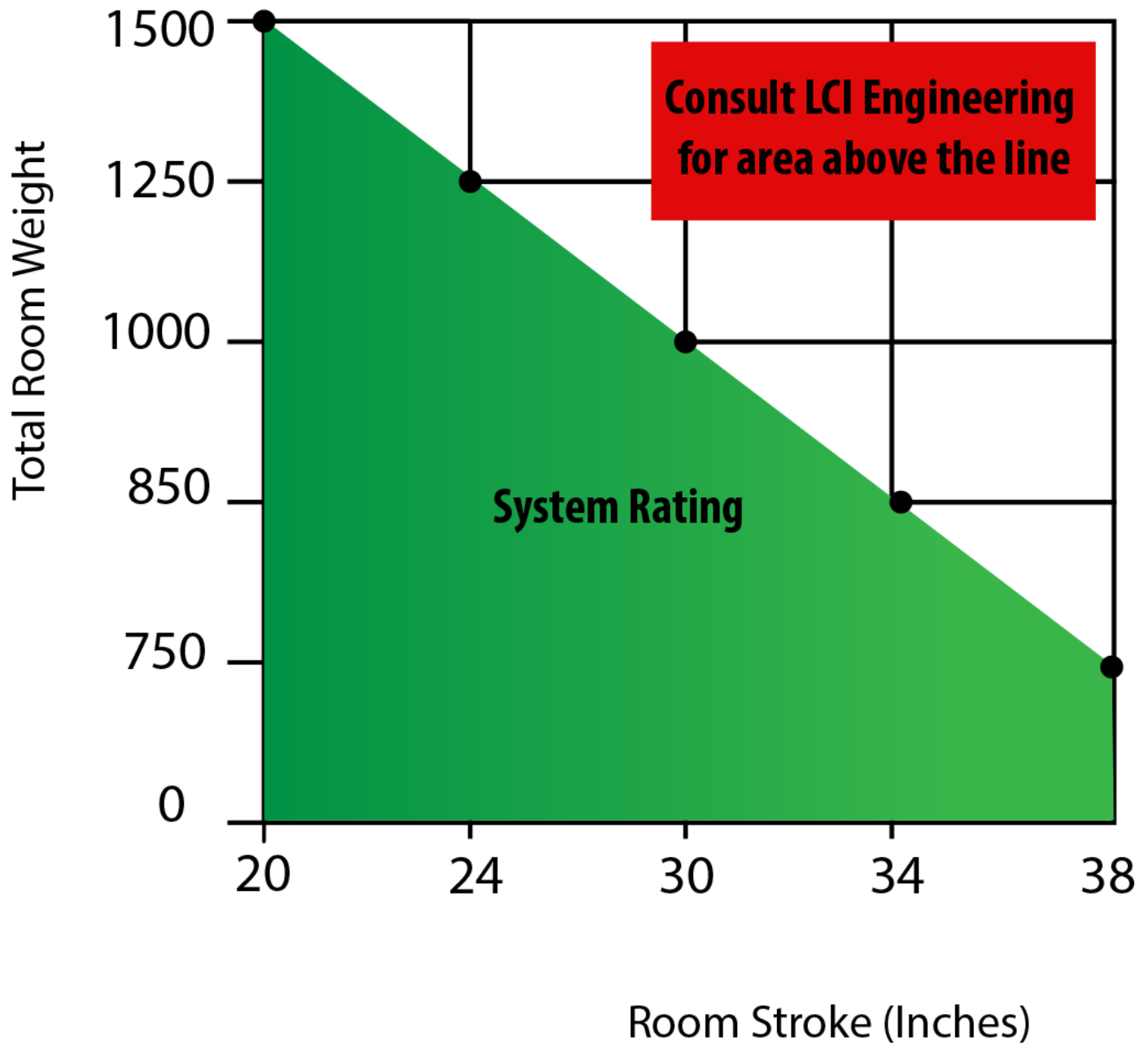
The In-Wall® Slide-out System is intended for the sole purpose of extending and retracting the slide-out room. It should not be used for any purpose other than to actuate the slide-out room. To use the system for any reason other than what it is designed for may result in death, serious injury or damage to the trailer.

CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

IN-WALL[®] SLIDE-OUT SPECIFICATION SECTION

In-Wall Slide



IN-WALL[®] SLIDE-OUT INSTALLATION SECTION

Structural Requirements

NOTE: Slide mechanism is not intended to provide structural integrity for the slide room box or slide room opening.

Additional Support

Additional support must added for any applications that may cause the structure to deviate from square, i.e. rooms with overhangs, large rooms or rooms with heavy appliances. The floors must be supported at all points. Examples of support include rollers, wear bars or wooden toe kicks wrapped in carpet.

Roller Requirements

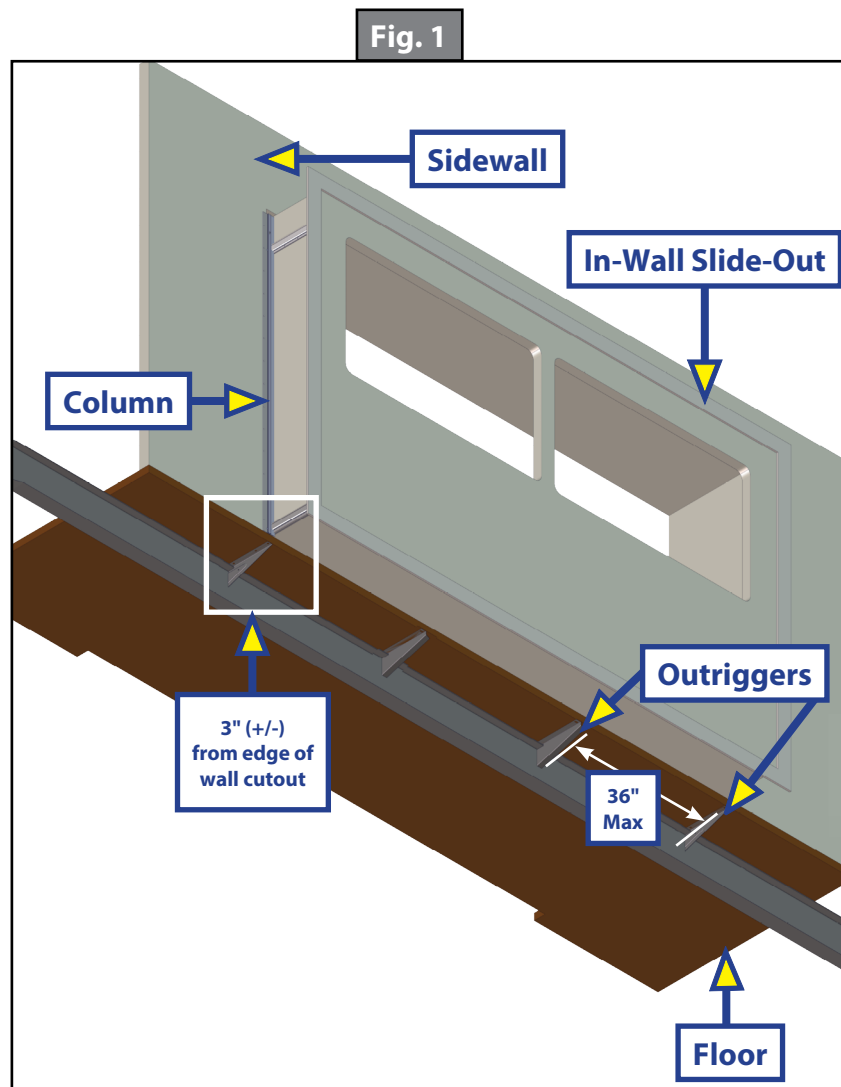
- Rooms over 650 lbs (295 kg) (estimated gross room weight*) or over 72" (183cm) in length require rollers.
- For rooms under 650 lbs (295 kg)(estimated gross weight*) and under 72" (183cm) in length:
 - floor rollers are required OR wear bar (Boyd 3157-XXX) or approved equivalent may be used, with plastic coated or painted (no grit) floors.

* Estimated Gross Room Weight is defined as a fully-loaded room, including the room itself and its contents.

Outrigger Placement

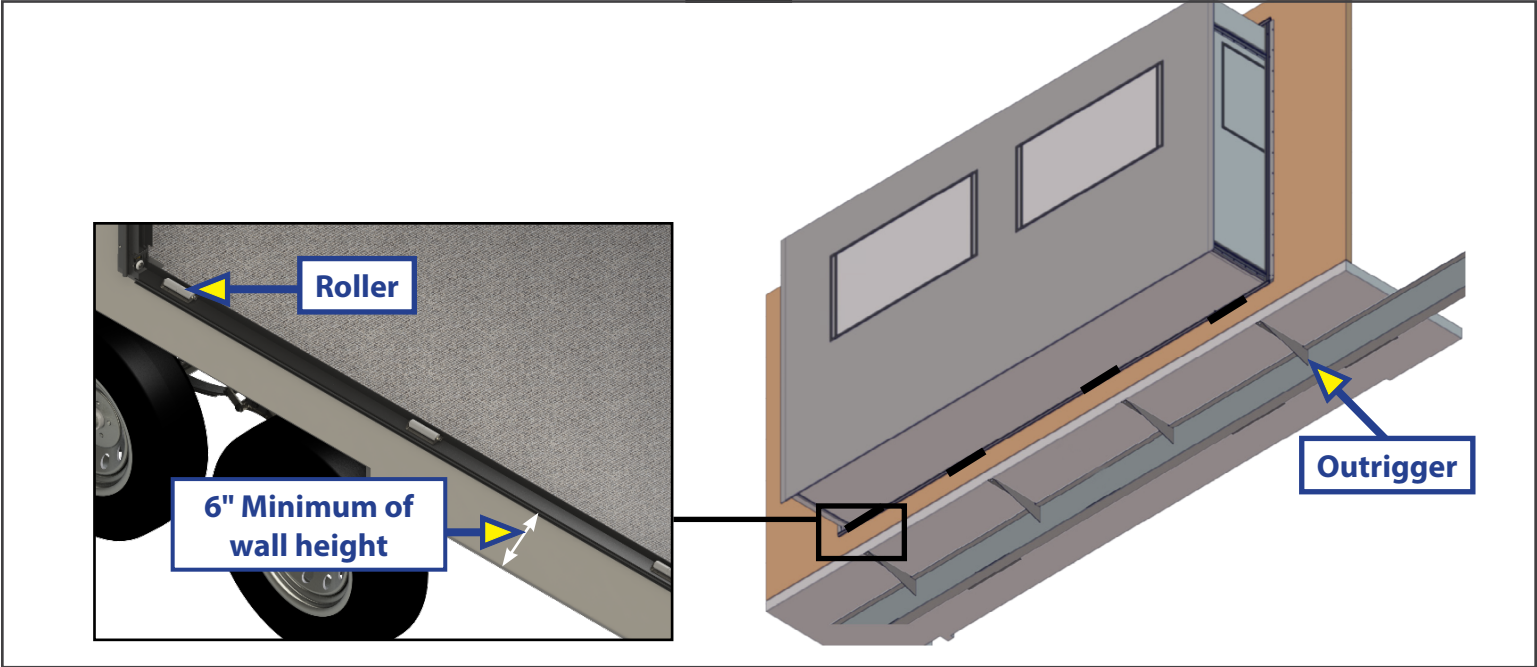
For trailers with rollers mounted to the floor a minimum of four outriggers will be required, one outrigger at each end of the slide room within 3" (76mm) (+/-) (depending on wheel locations) (Fig. 1) from the edge of the wall cutout of the unit and two others spaced evenly under the room but no more than 36" (914mm) apart from any other outrigger. Add additional outriggers as needed to maintain the 36" (914mm) maximum spacing.

NOTE: For laminate walls with sufficient structure 48" (1219mm) maximum outrigger placement will be allowed.



For slide rooms with rollers mounted to the wall (Fig. 2) the outrigger placement is the same as described when rollers are mounted on the floor. For laminate structures 6" (152mm) of wall is recommended beneath the slide room (or adequate structure for support). For stick and tin construction, continuous support is needed for the header and footer for adequate support.

Fig. 2



Slide Room Construction

Wall Backer Specifications	
Thickness	Structure
Greater than or equal to .125" (3.2mm)	Non Stuffed
Less than .125" to .055" (3.2mm to 1.4mm)	Stuffed
Less than .055" (1.4mm)	Not Approved

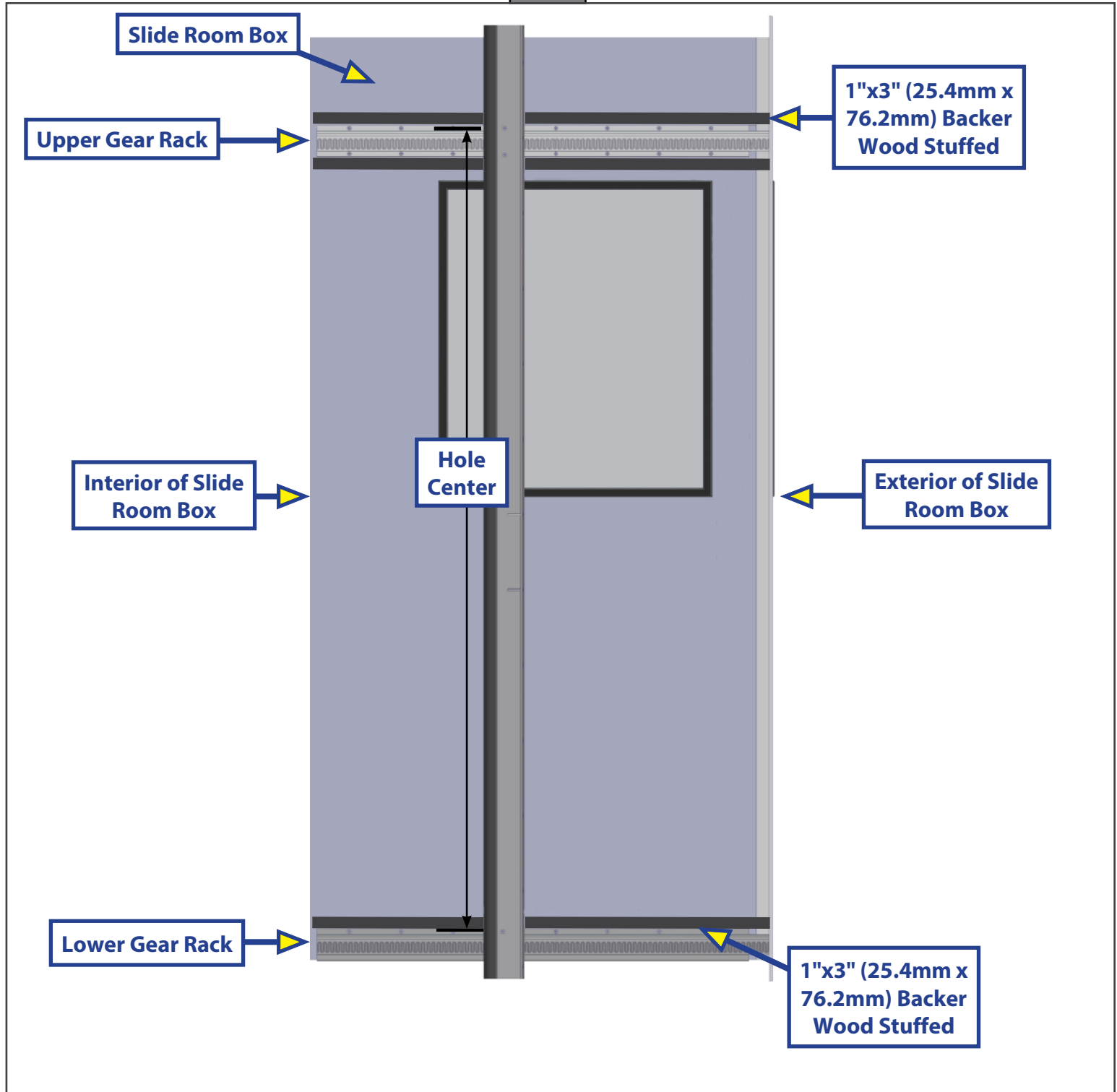
Square

The slide wall opening and the slide box (each) **MUST** not be out of square more than 1/4" (6.3mm) in any direction. The corner to corner diagonal dimensions on the slide room opening or the slide room box **MUST** not differ by more than 1/4" (6.3mm).

Backers

Backers are to be incorporated into slide room construction, positioned where the In-Wall gear racks will be mounted. Lippert recommends the backers be a 1" x 3" .055" (25.4mm x 76.2mm 1.5mm) aluminum that is wood stuffed. See diagram (Fig. 3) of slide room with backers. The backers do not need to be stuffed with wood if the aluminum wall thickness being used is at least .125". Backer location is determined by hole center from the slide system. Measure from the top of the bottom rack to the top of the top rack.

Fig. 3



Prior to Installation

Resources Required

- Cordless or electric drill or screw gun
- Appropriate drive bits
- #10 screws
- Glue
- Sealant

Inspect Slide-Out Mechanism

1. Check the back side of the each gear rack to ensure there is foam tape running the entire length of the gear rack and that the paper backing has been removed from the foam tape. (Figs. 4A and Fig. 4B).

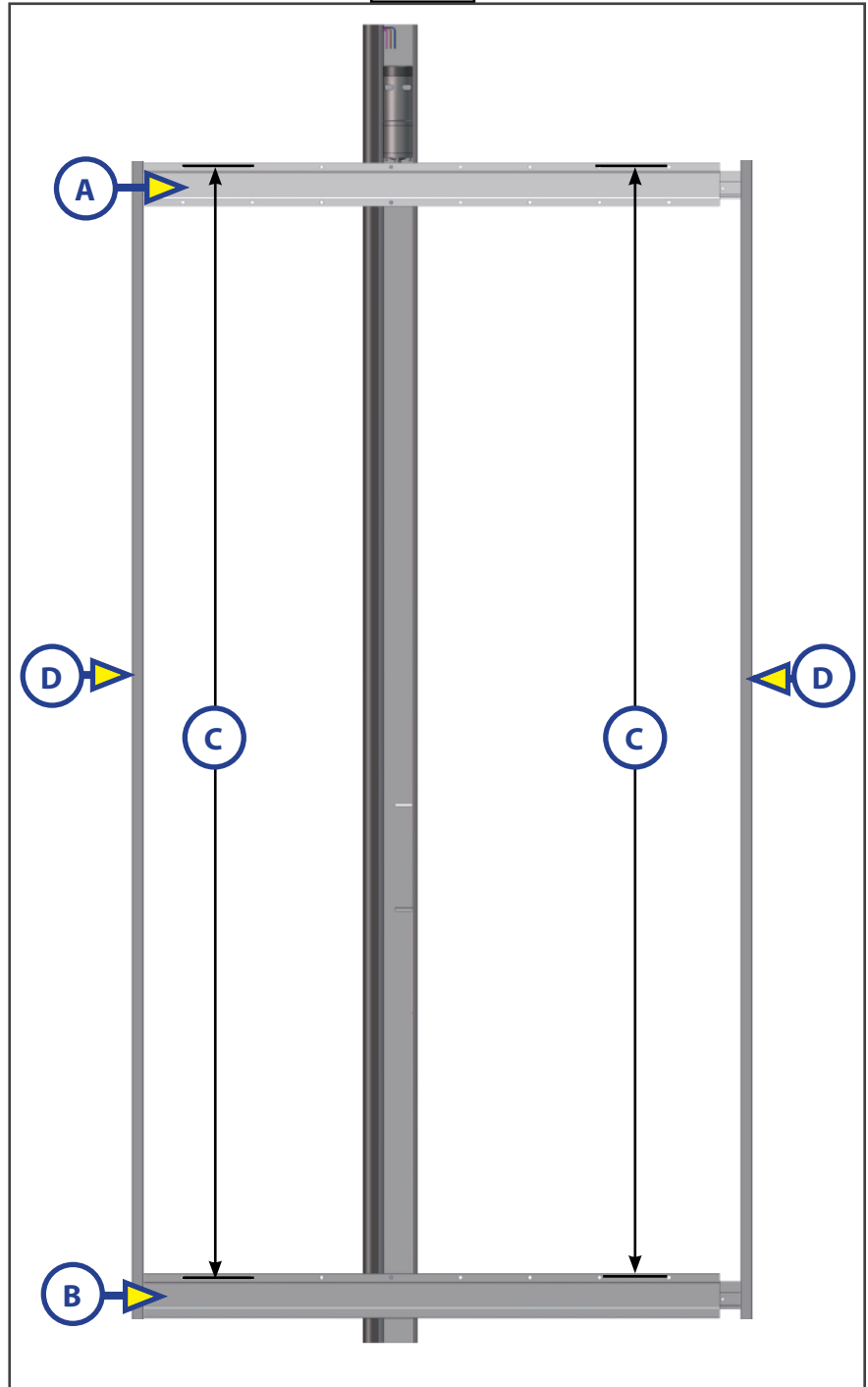
NOTE: Foam tape removed from racks for clarity.

2. Hole center span must be within $\frac{1}{16}$ " (1.6mm) end-to-end (Fig. 4C).

NOTE: In-Wall assemblies are shipped with shipping angles (Fig. 4D) to keep the gear racks parallel and to assist with the installation process. Do NOT remove shipping angles until the gear racks have been installed on the side wall. Removal of the angle results in racks not being installed parallel to one another and perpendicular to the H column.

NOTE: In-Wall assemblies will have attached shipping angles that permit installation of exterior slide room T-molding without removal of the angles. The width of the vertical exterior shipping angle leg does not extend past the gear rack flange. Installers can place the exterior shipping angle flush against the inside of the T-molding and the lower gear rack flange while squaring up to the bottom of the slide box.

Fig. 4

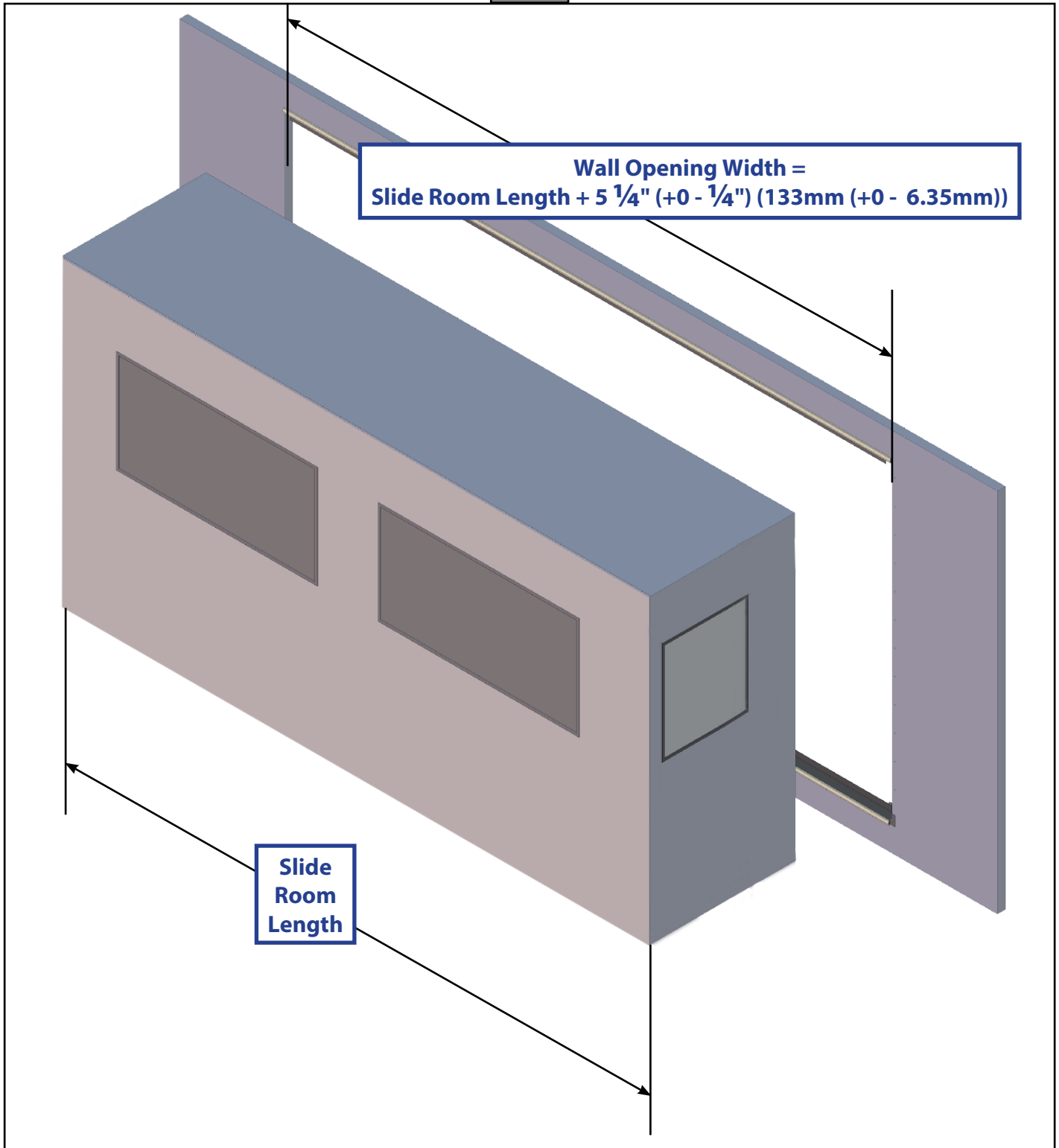


Slide Room Opening Inspection

1. Measure the slide room width and the wall opening (Fig. 5). The wall opening needs to be $5\frac{1}{4}$ " (133mm) wider than the actual slide room measurement. Do not attempt to install the slide room in the trailer if this dimension is more than $5\frac{1}{4}$ " (133mm) or less than 5" (127mm).

NOTE: T-molding may or may not be installed at this point.

Fig. 5

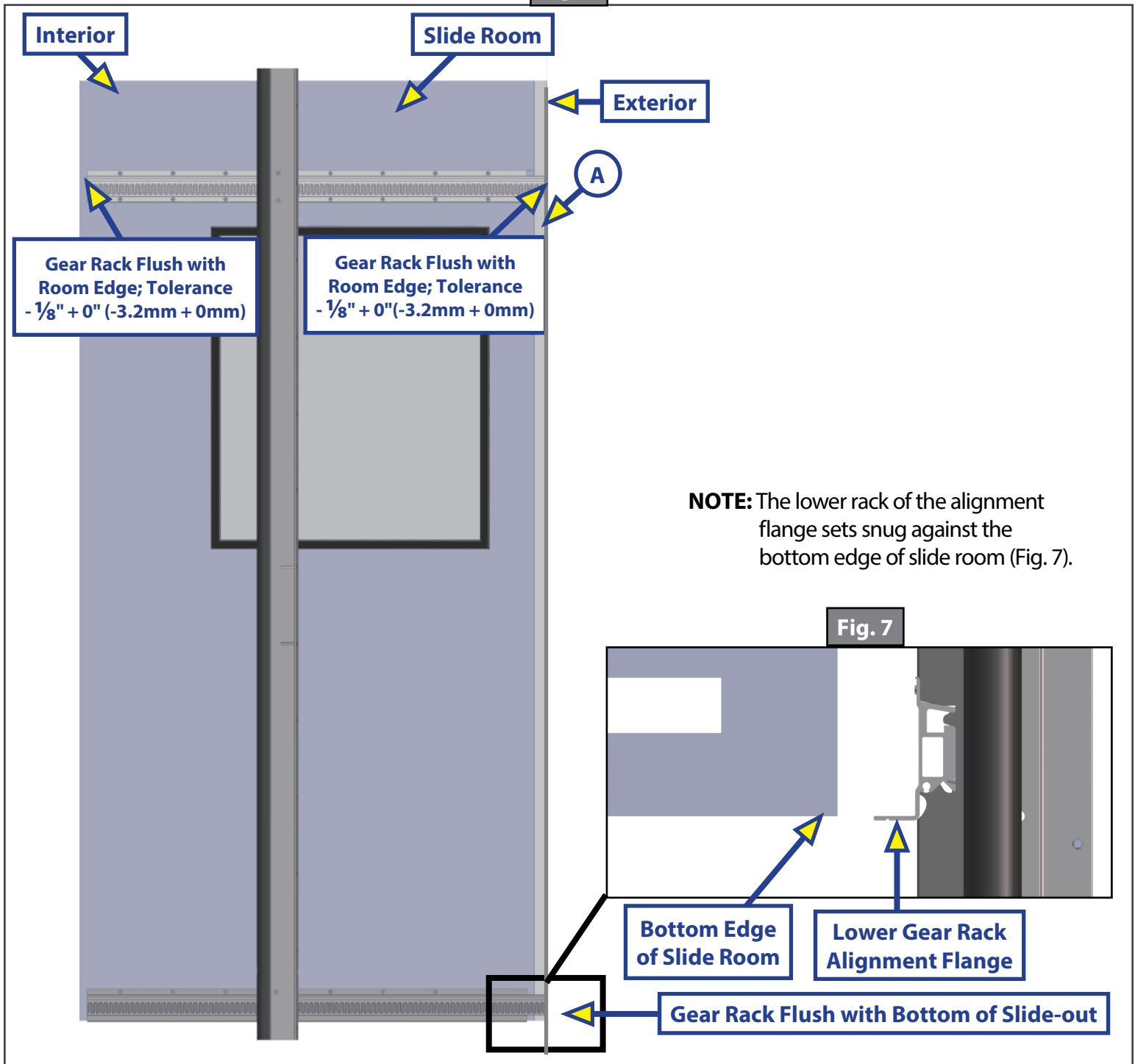


Installing Slide Mechanism to Slide Room

NOTE: The gear rack notch must be toward the exterior of the slide box and the flange of H-column will be to the exterior of the unit. Exceptions must be approved by Lippert engineering.

1. Place the "Fixed" assembly against the left-hand side wall of the slide room (Fig. 6) while facing the unit from the outside.
2. Hook the lower gear rack installation alignment flange on the bottom of the slide-out (Fig. 7).
3. Place the installation alignment flange at the exterior shipping angle flat to the exterior of the slide room (Fig. 6A). Always align the slide-out assembly to the exterior and bottom of the slide room. At this point the system can be adjusted to a tolerance of $-\frac{1}{8}"/+0"$ ($-3.2\text{mm} / +0\text{mm}$) at the interior and exterior to center the system on the wall. The gap at the interior or exterior should be no more than $\frac{1}{16}"$ (1.6mm) variance from the top gap to the bottom gap on the same end of the slide room wall.

Fig. 6

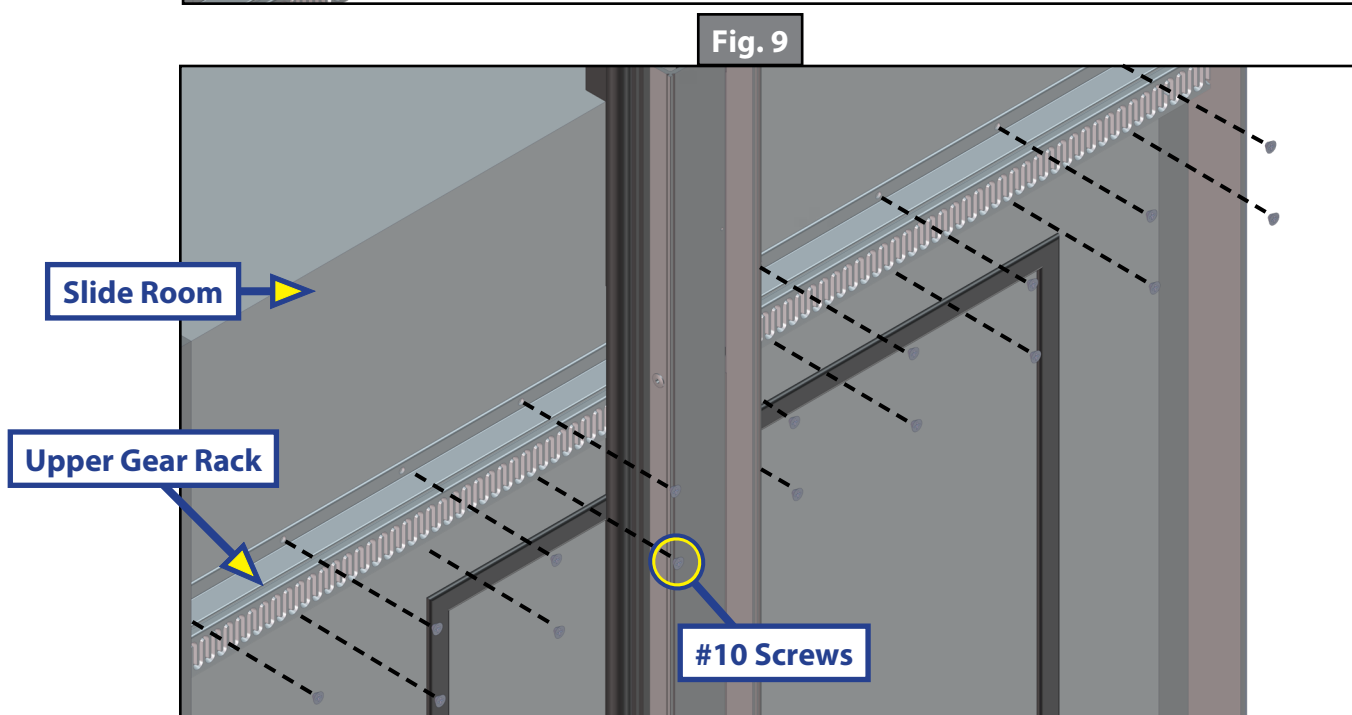
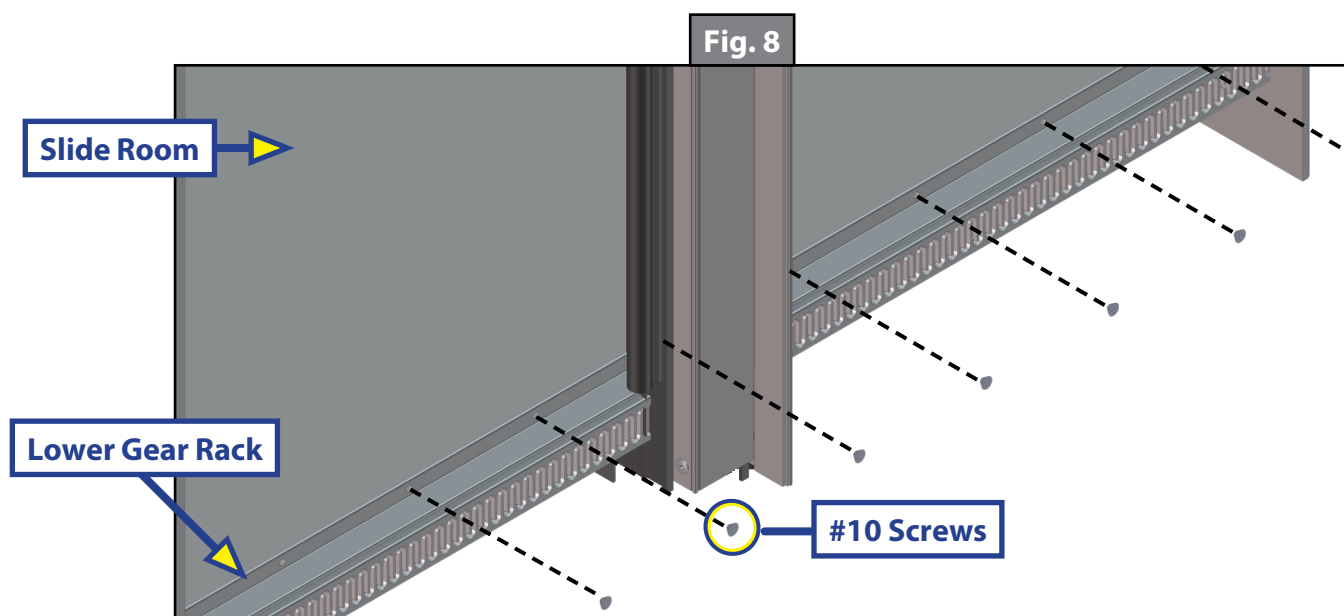


4. While maintaining alignment with the bottom and exterior of the slide room, attach the lower gear rack to the side of the slide room with #10 screws (Fig. 8). The lower gear rack will only have screw holes above the track of the gear rack. Screws should be installed secure and level.
5. While maintaining alignment with the bottom and exterior of the slide room, attach upper gear rack to the side of the slide room with #10 screws (Fig. 8). The upper gear rack will have screw holes above and below the track of the gear rack.
6. Remove the exterior shipping angle from the gear racks.
7. Repeat steps 1 through 4 for attaching the "Float" assembly to the right-hand side of the slide room while facing the unit from the outside.

NOTE: Although the plastic rivet in the "Float" assembly bearing block is designed to shear, it must remain in place during installation.

8. Measure the hole center distance (Fig. 3 and 4) between the upper and lower gear racks at each end to make sure the racks are parallel.

NOTE: A more common practice is to hook the tape measure in the shoe track of the upper gear rack and then measure to a similar point at the lower gear rack.



9. Attach the exterior slide room T-molding, if not already installed.

NOTE: Once the T-molding has been installed, the slide room is ready to be installed into the trailer.

Prepare Wall Opening For Slide Room Installation

1. Prepare upper (Fig. 10A) and lower (Fig.10B) outer wall surfaces according to seal manufacturer's requirements to clean and prepare the area for complete adhesion of sealant.

NOTE: Corners need to be at 90° with no obstructions.

2. Set both left (Fig.11A) and right (Fig. 11B) molded corner cups. Remove liner from tape adhesive.

Fig. 10

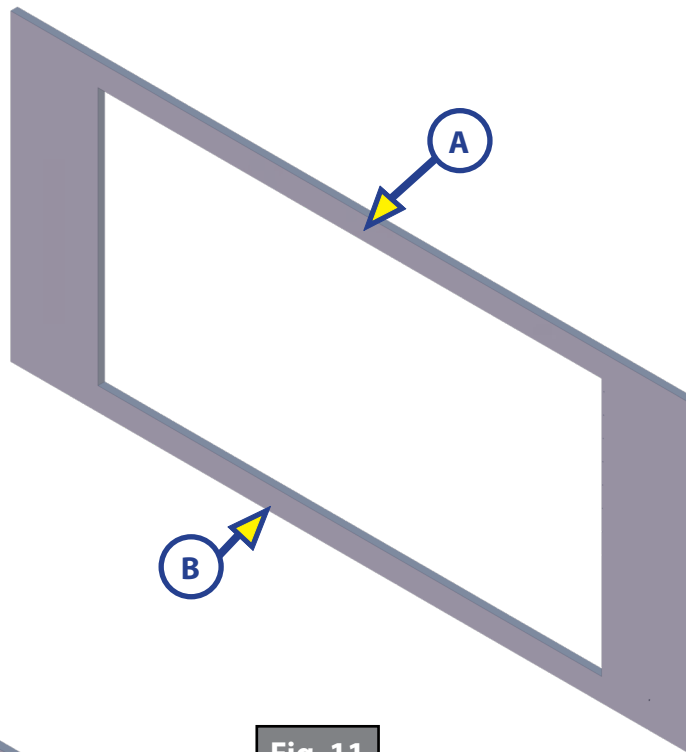
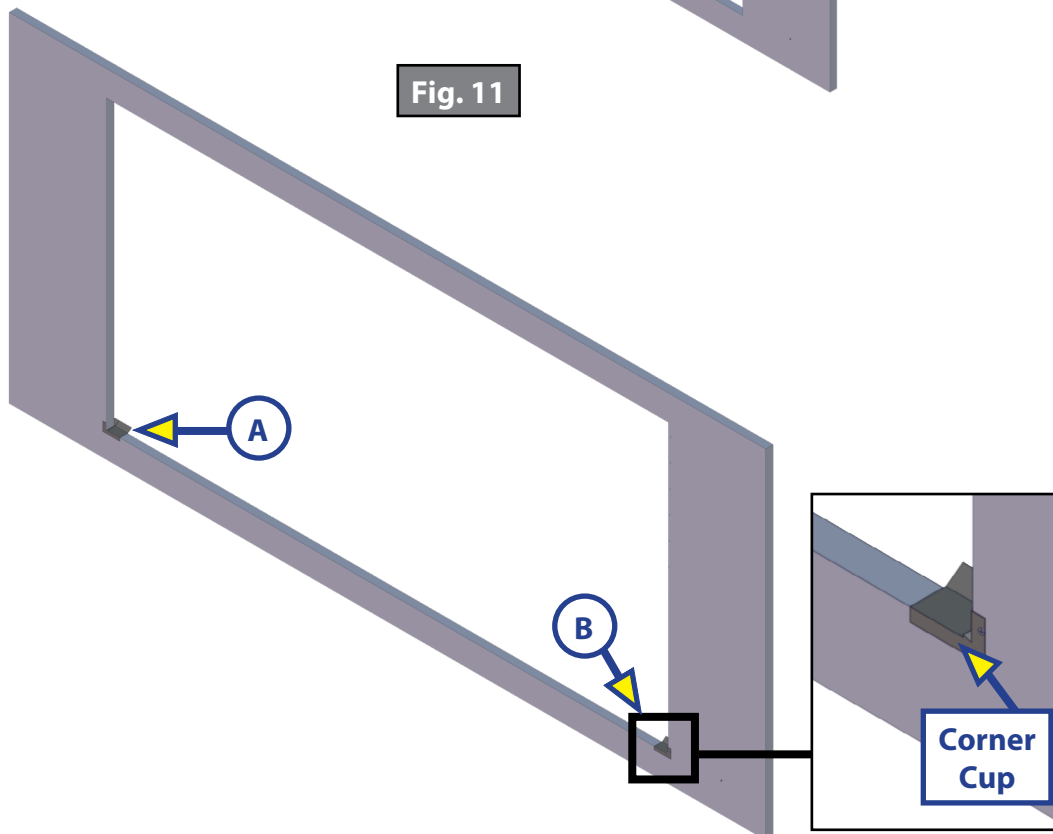


Fig. 11

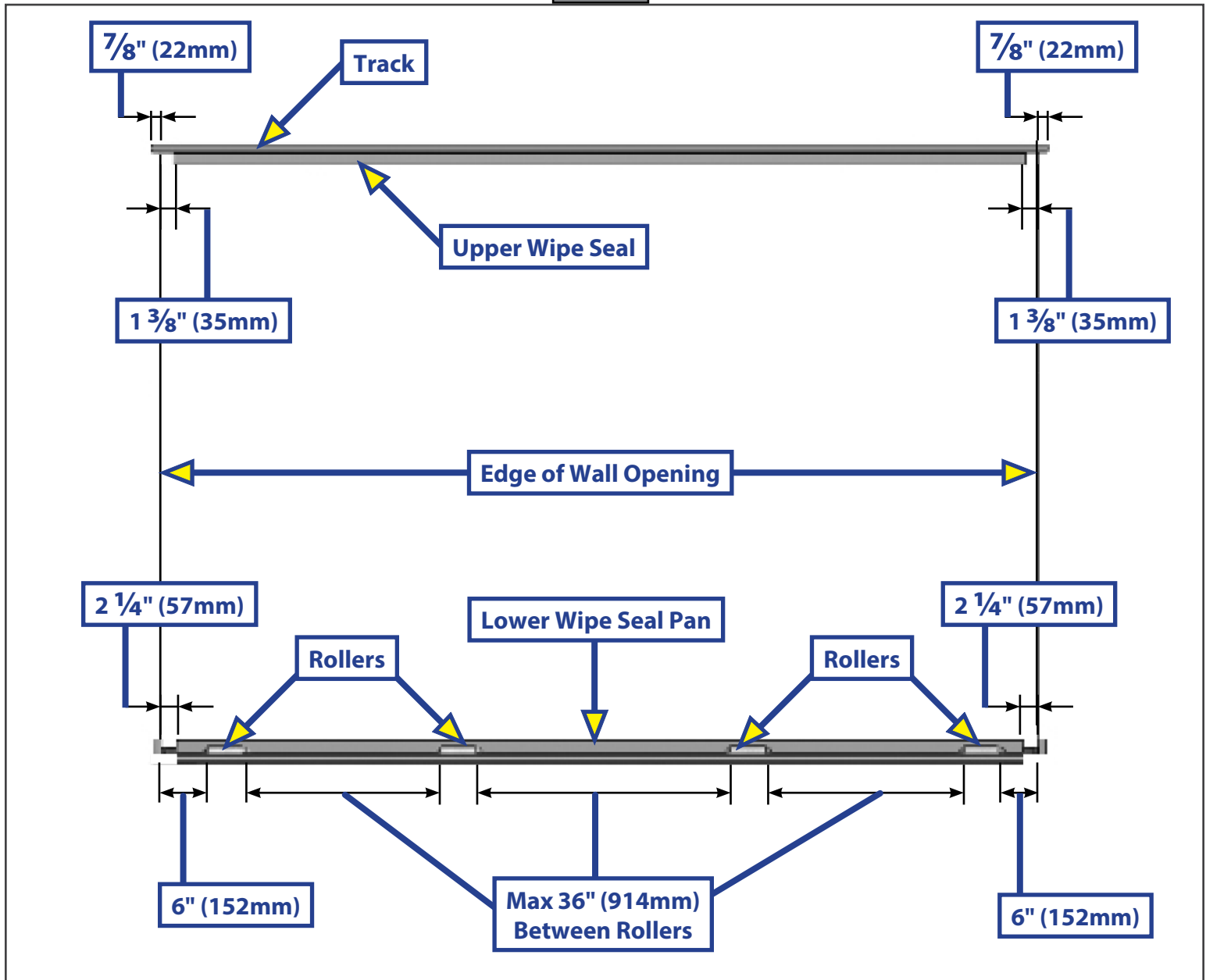


Refer to Fig. 12 for steps 3 through 8. Refer to Fig. 13 for measuring a room with an overhang.

3. Cut lower wipe seal pan to allow a $2\frac{1}{4}"$ (57mm) gap from the edge of the wall to the edge of the pan.
4. Remove the liner from adhesive tape and install as shown.
5. Cut the upper wipe seal to allow a $1\frac{3}{8}"$ (35mm) gap from the edge of the wall. Track extends $\frac{7}{8}"$ (22mm) past wall opening on both ends.
6. Remove liner from adhesive tape and install with tape to outside of wall.
7. Finish by attaching with screws or staples in the clip area for the upper and lower seals.
8. Install rollers per guidelines: End rollers $6"$ (152mm) from wall opening side wall; span rollers along the slide room sill a maximum of $36"$ (914mm) between rollers to support the weight of the slide room.

NOTE: The number of rollers need to be adequate to hold the weight of the slide room.

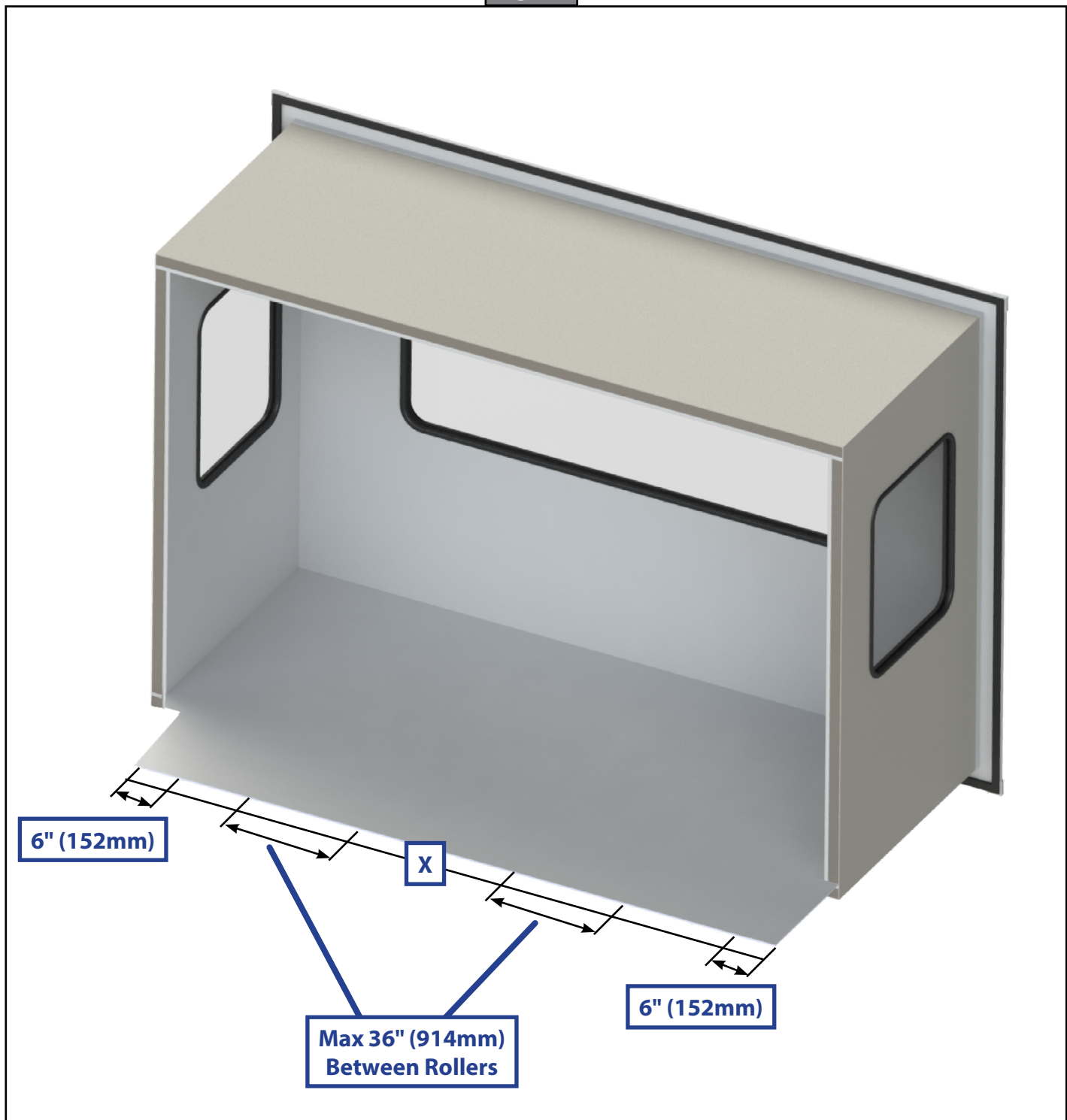
Fig. 12



If the room has an overhang in the interior, use the measurements noted in Fig. 13 to install rollers under the overhang. See "Structural Requirements - Additional Support" on Page 4.

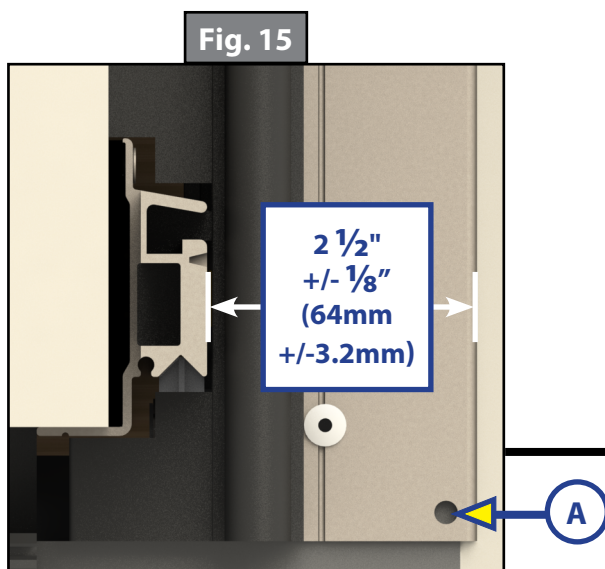
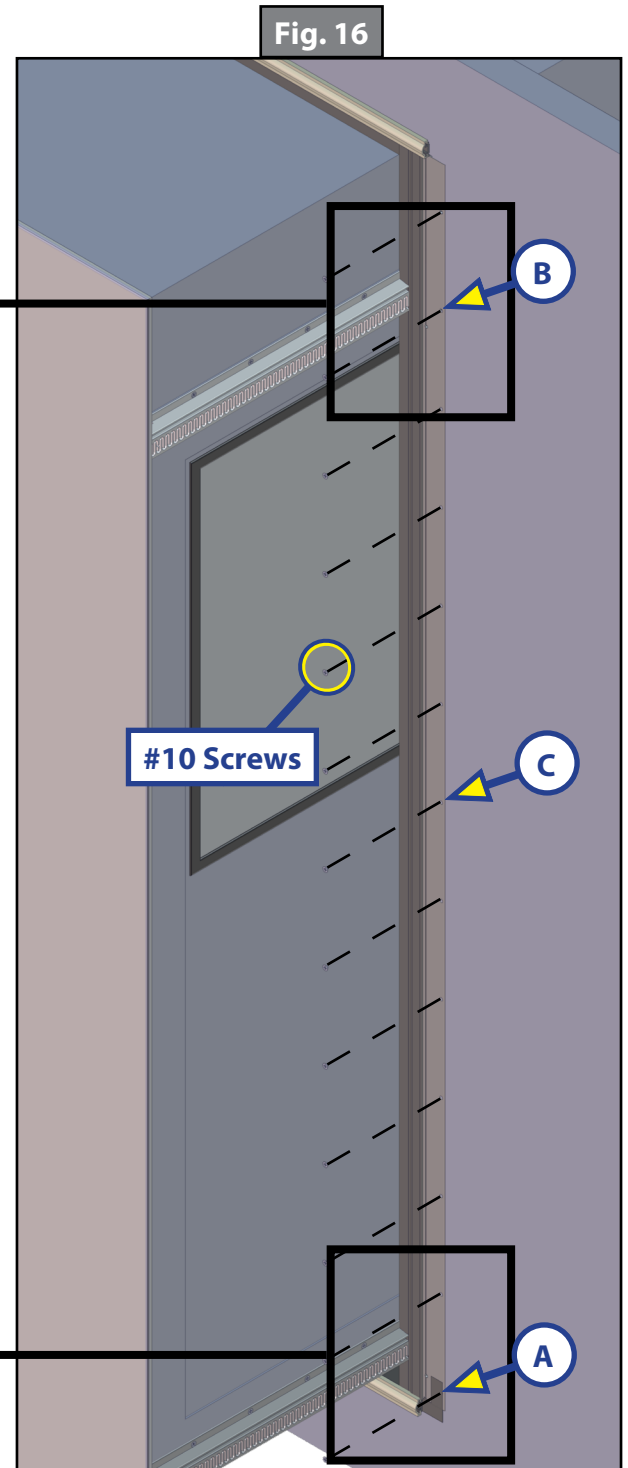
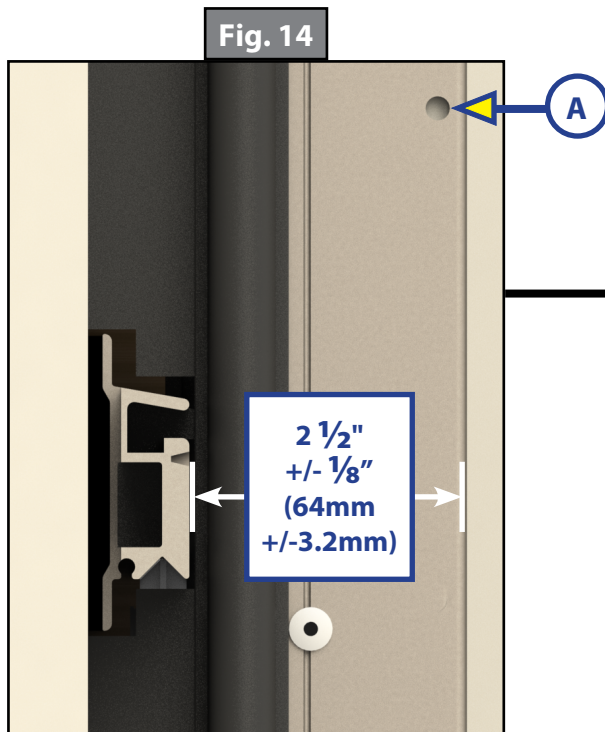
1. Install rollers per guidelines: Span rollers along the slide room sill a maximum of 36" (914mm) between rollers to support the weight of the slide room.

Fig. 13



Slide Room Installation

1. Insert the completed slide room into wall opening, taking care to center "H" columns within the opening.
2. Center the box in slide opening.
3. Starting at the bottom of one "H" column, measure $2\frac{1}{2}$ " (64mm) from the outside edge of the column to the face of the gear rack (Fig. 15).
4. Install one #10 screw in the closest hole to the bottom gear rack (below the gear rack) (Fig. 16A and 15A), while maintaining the $2\frac{1}{2}$ " (64mm) measurement.
5. At the top of the same "H" column, confirm the $2\frac{1}{2}$ " (64mm) measurement from the outside edge of the column to the face of the gear rack (Fig. 14).
6. Install one #10 screw in the first hole above the top gear rack (Fig. 14A and 16B).
7. Double check the $2\frac{1}{2}$ " (64mm) measurement at top and bottom gear racks.



8. If measurement is correct, finish attaching the "H" column to the wall of unit with #10 screws in the remaining holes in any order (Fig. 16C).
 9. Repeat steps 3-7 on the opposite side of the slide box.
 10. Remove the interior shipping angles from the gear racks.
 11. Attach the interior slide room fascia. Fastener spacing must be 6" to 8" apart unless using side-mounted stop angles.
- NOTE:** Interior slide room fascia must be attached prior to operating the slide room for safety precautions.
12. Apply glue to the back of the upper wipe seal and lay it over the top of the vertical wipe seal on the column (Figs. 17 and Fig. 18).

⚠ WARNING

Do not attempt to operate the slide room until both the exterior T-molding and the interior fascia are attached to the slide room.

Fig. 17

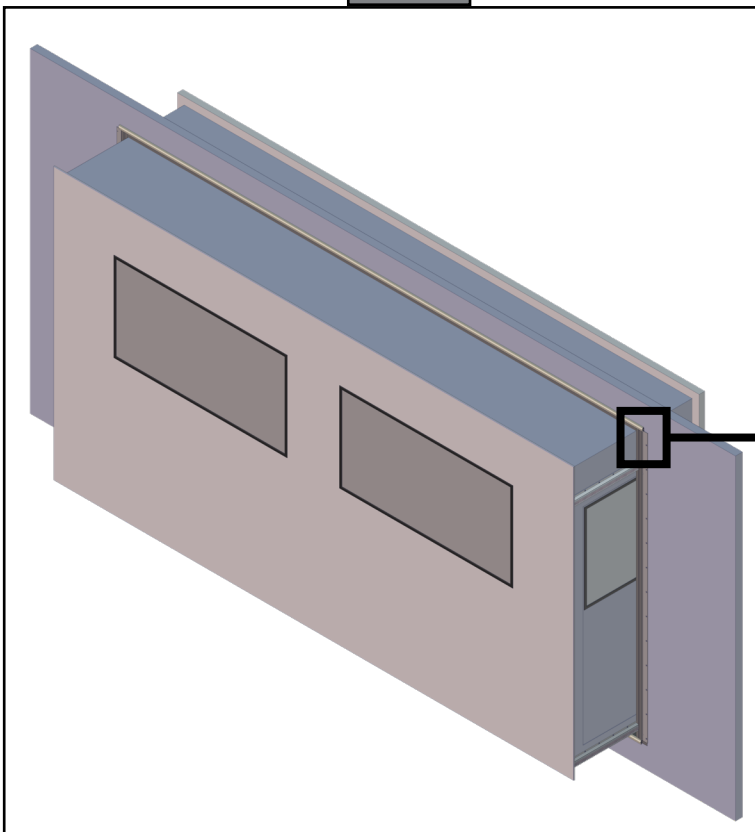
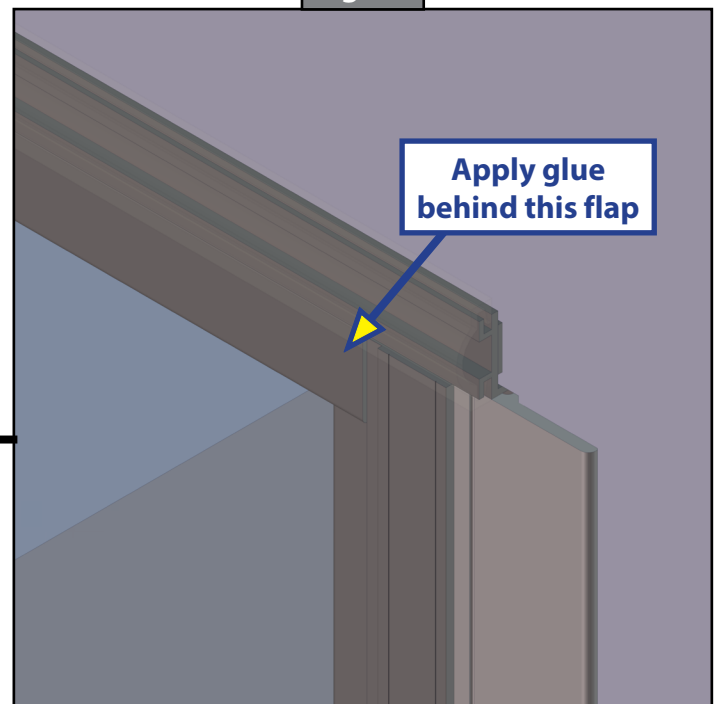


Fig. 18



Required: Installation of Lippert In-Wall Column Clamp

Lippert In-Wall column interior clamps **MUST** be utilized for installed In-Wall Slide-out systems.

NOTE: Clamps are required and available for all In-Wall slide systems from Lippert.

⚠ WARNING

Do not work on your slide-out system unless the battery is disconnected. Failure to act in accordance with the following may result in death or serious personal injury.

⚠ CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

Resources Required

- Cordless or Electric Drill or Screw Gun
- Appropriate Drive Bit
- #10 x $\frac{3}{4}$ " screws

• Interior clamps depending on application:

- Short flat - PN 701324
- Short Z - PN 730695
- Full length flat - PN 389787
- Full length Z - PN 701028

Installation - Full Length Clamps

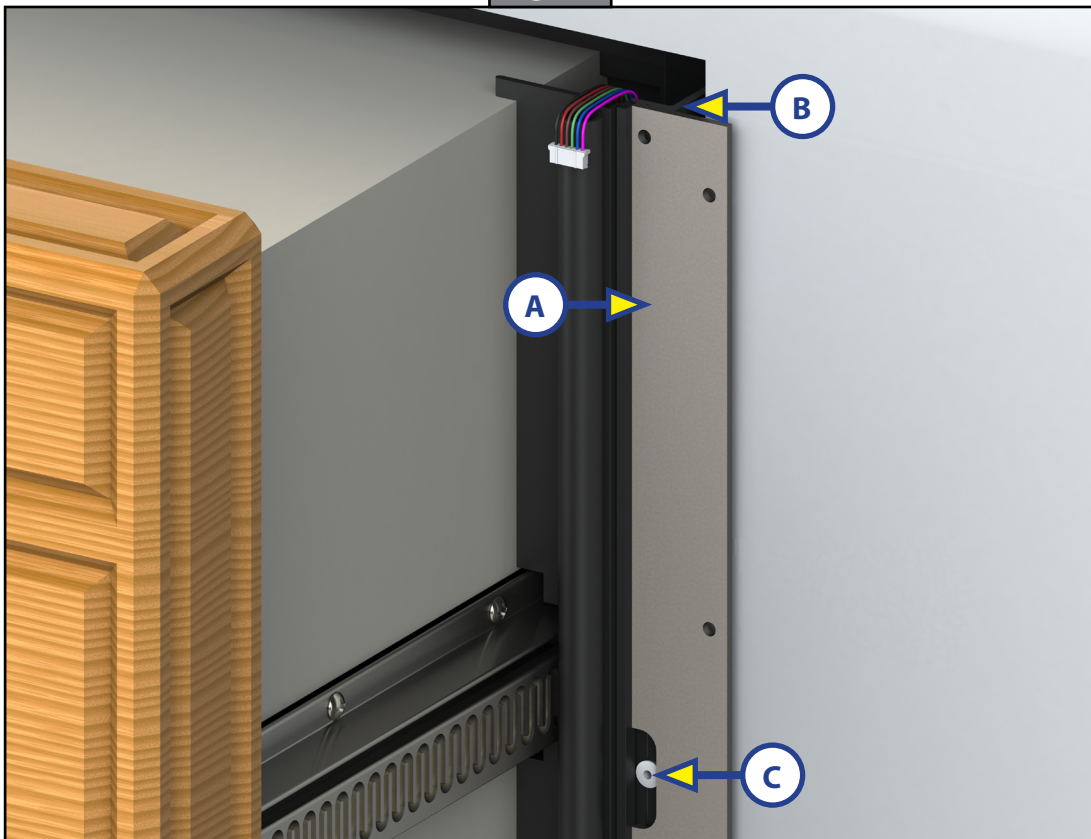
1. Place the In-Wall column clamp (Fig. 19A) on the interior of the slide system (Fig. 19B). The clamp should be flush to the top of the channel, against the bulb seal on the system and hang out over wall.

NOTE: Use self-drilling screws or drill pilot holes.

2. Use #10 x $\frac{3}{4}$ " screws to attach the In-Wall column clamp to the interior of the In-Wall system.
3. Use #10 screws to fasten the In-Wall column clamp to the wall of the unit.
4. Repeat steps 1 - 3 for the opposite side.

NOTE: Notches around the rivet heads are an indication that the clamp is placed correctly (Fig. 19C).

Fig. 19



Installation - Two 16" Clamps (Short)

The fixed side top (Fig. 20) and bottom (Fig. 21) 16" clamp correct positions are:

- Three holes screwed to the column.
- Four holes screwed to the wall opening edge, butted up against the edge of silver rivets and against the rubber seals edge on the column. The clamp will be below the silver rivet for top clamp position and above the silver rivet for bottom clamp position.

The float side clamp installations will be a mirror of the fixed side.

NOTE: Any other orientation of the clamps or added screws could result in damage to the slide-out system.

Fig. 20

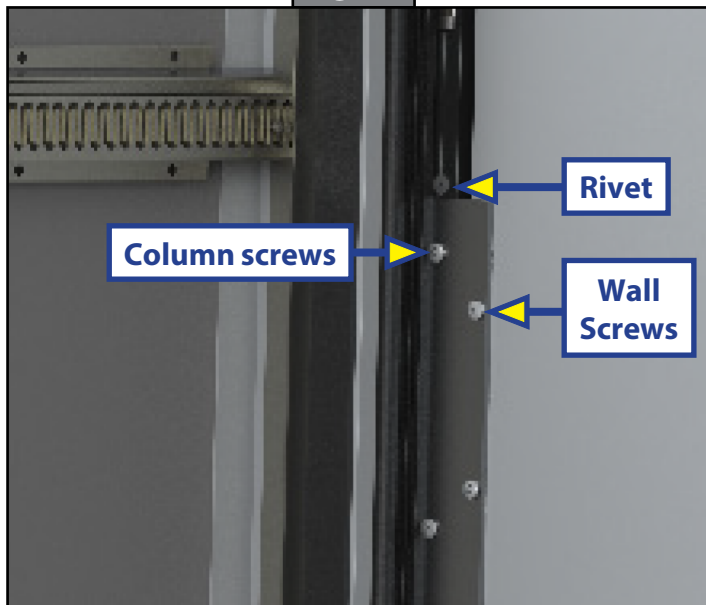
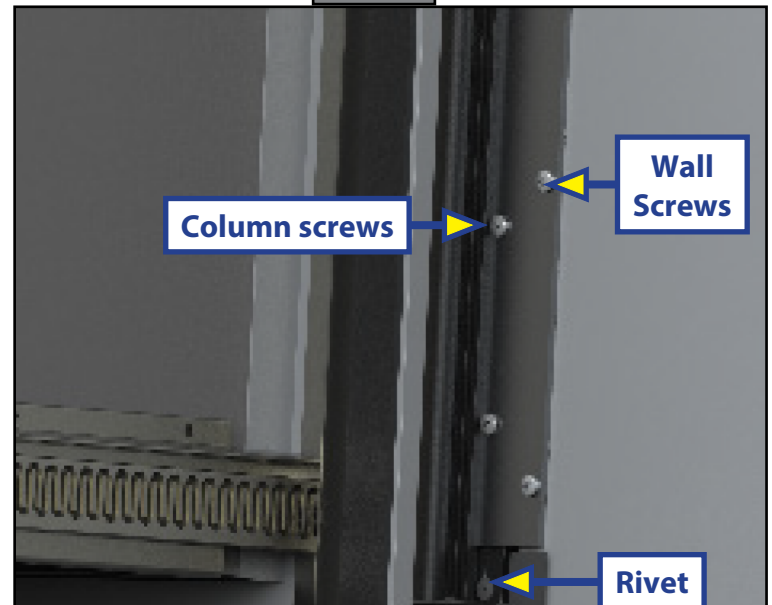


Fig. 21



Controller Installation

1. Mount controller by securing to a solid surface with #8 x 1" wood screws or equivalent.

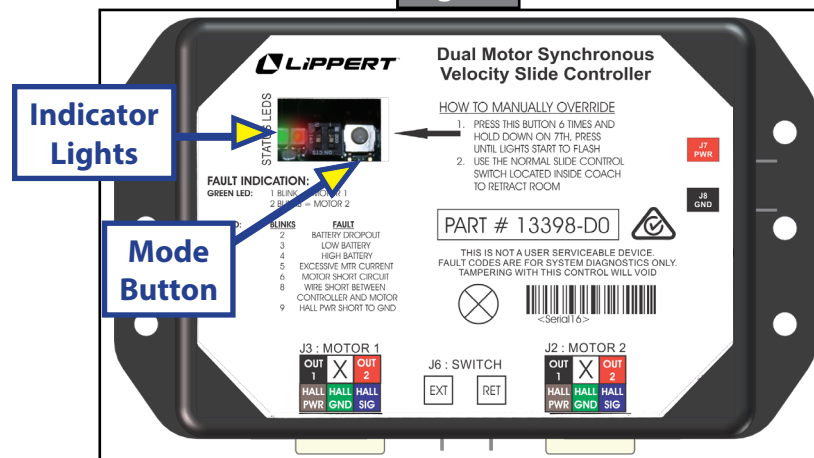
NOTE: The compartment where the controller is installed must be protected from the elements because the controller is not waterproof. Additionally, the controller should be located away from interior water sources that may cause damage.

NOTE: Controllers may **NOT** be mounted in an LP tank storage area.

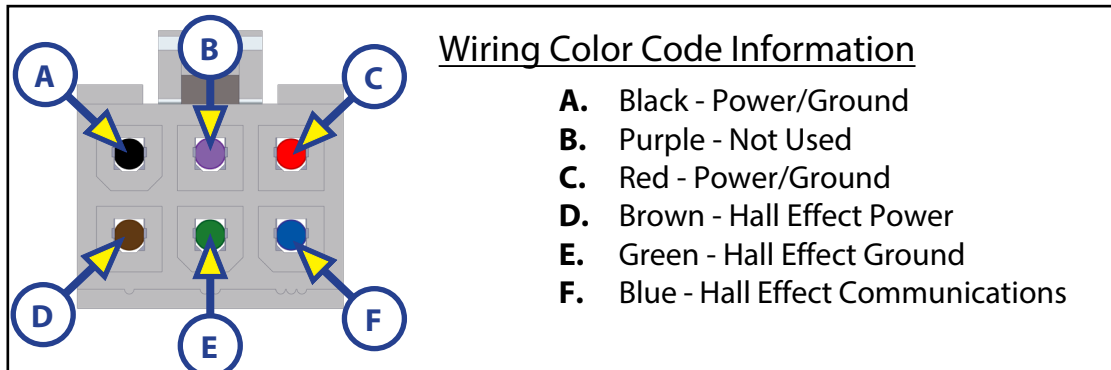
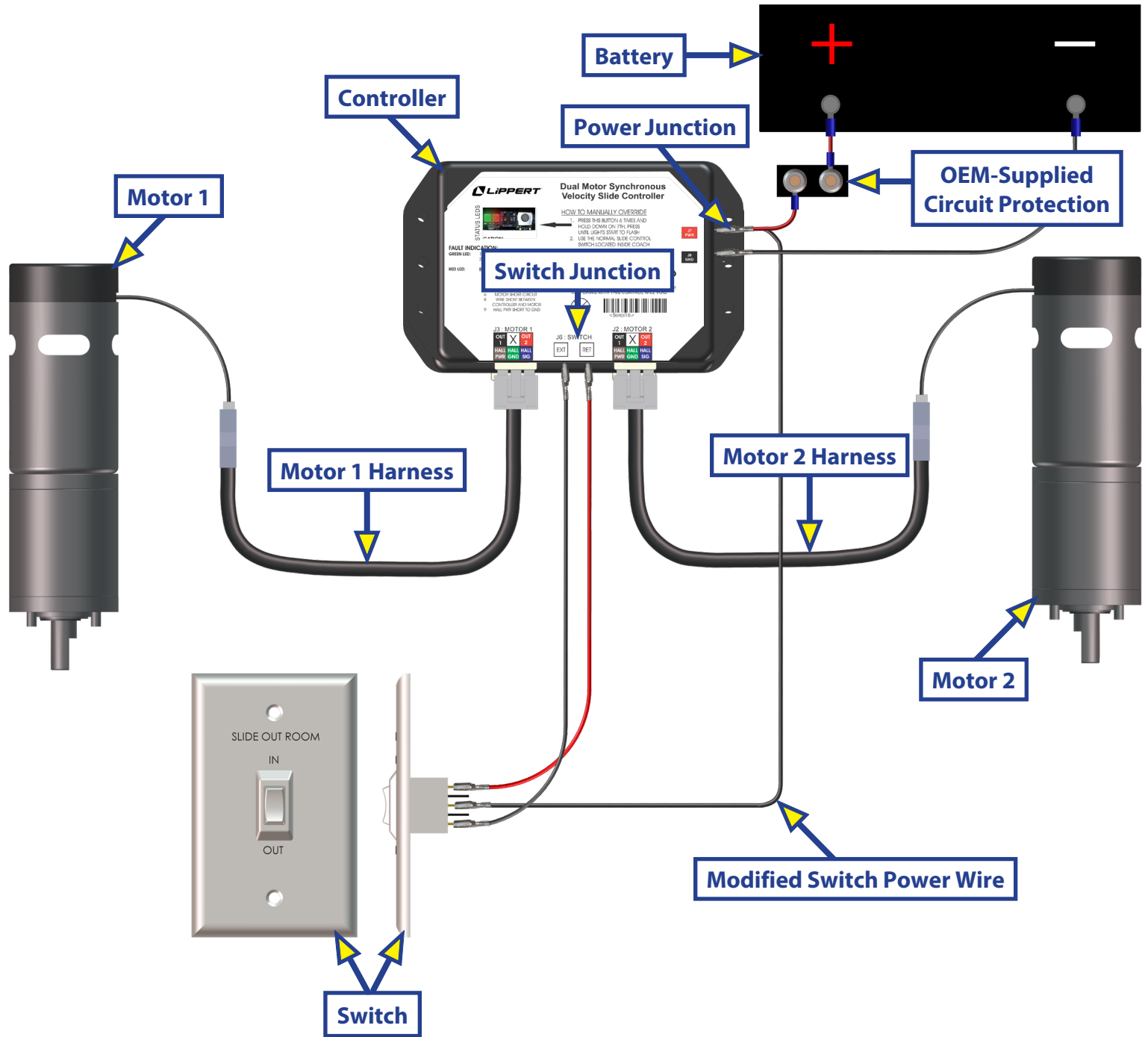
NOTE: The controller (Fig. 22) must be mounted with the face visible, allowing the indicator lights and mode button to be accessible for resetting and troubleshooting purposes.

NOTE: OEM supplied wire and circuit protection to be 10 AWG wire with 30 amp circuit protection installed in-line between the power supply and controller. All wiring to conform to RVIA standards.

Fig. 22



Wiring Diagram



Startup and Final Inspection

1. Inspect both the interior fascia and the exterior T-molding and verify they are securely fastened.
2. Inspect the connections at the controller and verify they are securely attached.
3. Visually inspect all of the gear rack mounting screws to verify they are tight and flush against the gear racks.
4. To synchronize the slide motors:
 - A. Using the wall switch, press the "IN" button.
 - B. Verify that both motors are moving the room in the same direction. If not, stop and check the wiring and connections to verify proper operation. Replace any damaged harness or motor if the wiring is damaged.
 - C. Allow the room to power all of the way in and continue pressing the "IN" button until both sides have completely stopped and the motors turn off by themselves.
 - D. Extend the room 1".
 - E. Retract the room until the motors amp out.
 - F. Repeat steps D and E. In many cases two or three repetitions are necessary to synchronize the system. When the motors are synchronized they will shut down (amp out) at the same time.
5. Using the wall switch, extend the room all of the way out until it stops. Conduct these inspections:
 - A. Verify the room did a full stroke and that the interior seals are evenly compressed.
 - B. Verify the vertical wipe seals are in uniform contact with the side walls of the slide room.
 - C. Verify the upper and lower wipe seals are in uniform contact with the floor and ceiling.
 - D. Verify that all of the floor rollers are in constant contact with the slide box floor.
 - E. Verify the lower wipe seal is of proper length and is clear of all of the rollers.
 - F. Verify the exterior top wipe seal is overlapped and glued at each corner to the vertical wipe seal.

IN-WALL[®] SLIDE-OUT BEST PRACTICES SECTION

Recommended Wall Construction or Equivalent

Wall Support Specifications	
Thickness	Structure
Greater than or equal to .125" (3.2mm)	Non Stuffed
Less than .125" to .055" (3.2mm to 1.4mm)	Stuffed
Less than .055" (1.4mm)	Not Approved

Travel Trailer

Opening perimeter needs to be 1" x 3" .055" (25.4mm x 76.2mm 1.5mm) aluminum for the header and vertical uprights. The header (Fig. 23) should extend 2' (609.6mm) beyond the vertical uprights (Fig. 23) for extra support. The vertical uprights need to be stuffed with wood for securing. If the vertical uprights have a minimum wall thickness of .125", the uprights do not need to be stuffed with wood. Upright wall thickness below .055" is not acceptable.

Fifth Wheel

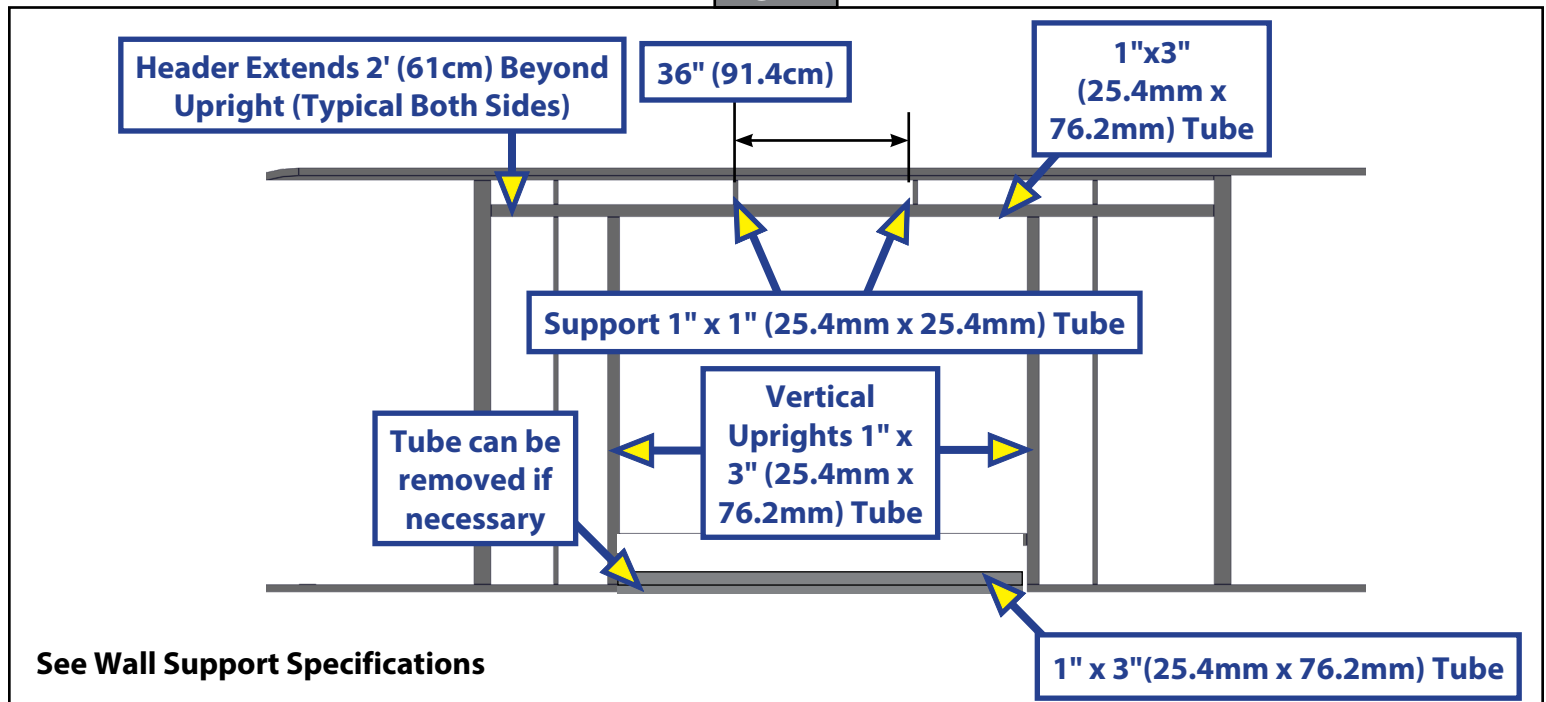
The room opening will be the same except for using 1" x 5" .070" (25.4mm x 127mm 1.78mm) aluminum for the header and 1" x 3" .070" for the vertical uprights. Header should extend 2' (61cm) beyond the room opening. Vertical uprights should be stuffed with wood (Fig. 3). If the vertical uprights are at least .055" thick, the uprights do not need to be stuffed with wood. Upright wall thickness below .055" is not acceptable.

Supports on Top of Slide Room on Main Frame Only

Supports need to be at least .040" (1mm) aluminum and 1" x 1" (25.4mm x 25.4mm) aluminum tube and should extend from the header up into a cross tube. If the room size in the slide wall is less than 4' (121.9cm) in width, no vertical supports are needed above the header. Any room that is more than 4' (121.9cm) and up to under 8' (243.8cm) needs to have one support centered on the room. Every room that is over 8' (243.8cm) up to 12' (365.8cm) needs to have two vertical supports evenly spaced over the top of the room. For example, a 9' opening would have a vertical support 3' (91.4cm) in from each upright (See Fig. 23 for reference). So for every 4' (121.9cm) in room width, one additional vertical support will be needed.

NOTE: These instructions are based off a 1" (25.4mm) sidewall thickness. For example, a 1.5" x 3" (38.1mm x 76.2mm) tube may be used if walls are 1.5" (38.1mm) thick.

Fig. 23

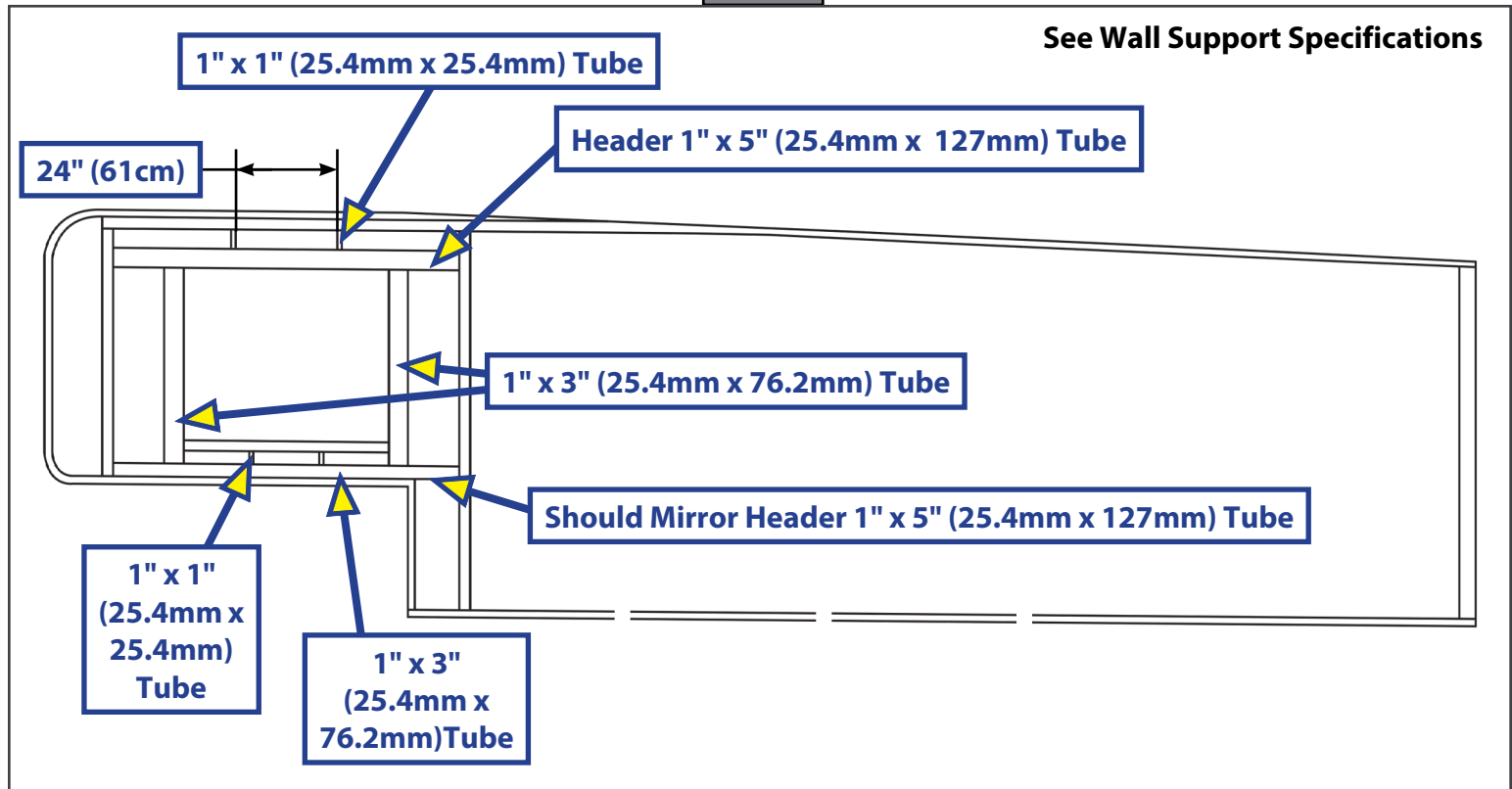


Upper Deck Slide Room Opening

For slide openings in the upper deck area, the bottom cross tube should be equal to, or longer than, the header tube. If additional height is needed, the manufacturer will need to add another cross tube that is .060" (1.5mm) gauge minimum and add vertical supports for strength. The supports must be a minimum 1" x 1" (25.4mm x 25.4mm) aluminum tube and placed accordingly. This applies to top and bottom supports only in the upper deck area (Fig. 24).

- A. Room is 5' (152.4cm) and under, two vertical supports are needed spaced evenly.
- B. More than 5' (152.4m) up to 7' (213.4cm), three supports are needed spaced evenly.
- C. More than 7' (213.4cm) up to 9' (274.32cm), four supports are needed spaced evenly and so on.
- D. Vertical supports need to be .040" (1mm) minimum gauge.

Fig. 24



Slide Room Opening Bottom Section

The bottom tube in the slide room can be .040" (1mm) aluminum unless it falls into the wheel well or upper deck area as explained in the "Upper Deck Slide Room Opening" section. This piece is typically removed when installing the Lippert In-Wall® slide, depending on how the side wall sets in relation to the floor (Fig. 25). When the bottom support tube is left in place, it is because wall openings may fall into a wheel well area that sets higher than the floor (Fig. 25). The bottom tube needs to be .060" (1.5mm) aluminum for travel trailers and .070" (1.8mm) aluminum for fifth wheels only when a tube is needed for the wheel well area.

NOTE: If slide room is in wheel well area, the slide wall structure should start at least 6" above the bottom of the rest of the wall (Fig. 26A). Slide outriggers will not be recommended in this case.

Fig. 25 - Slide Not in Wheel Well Area

See Wall Support Specifications

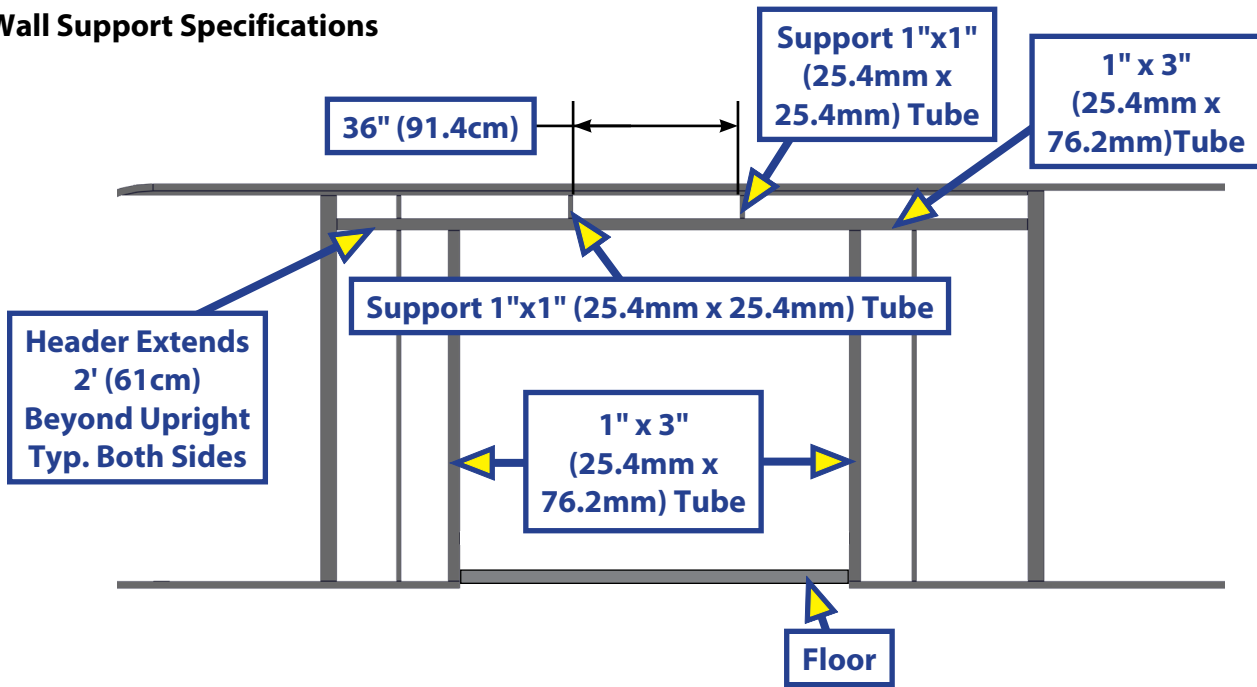
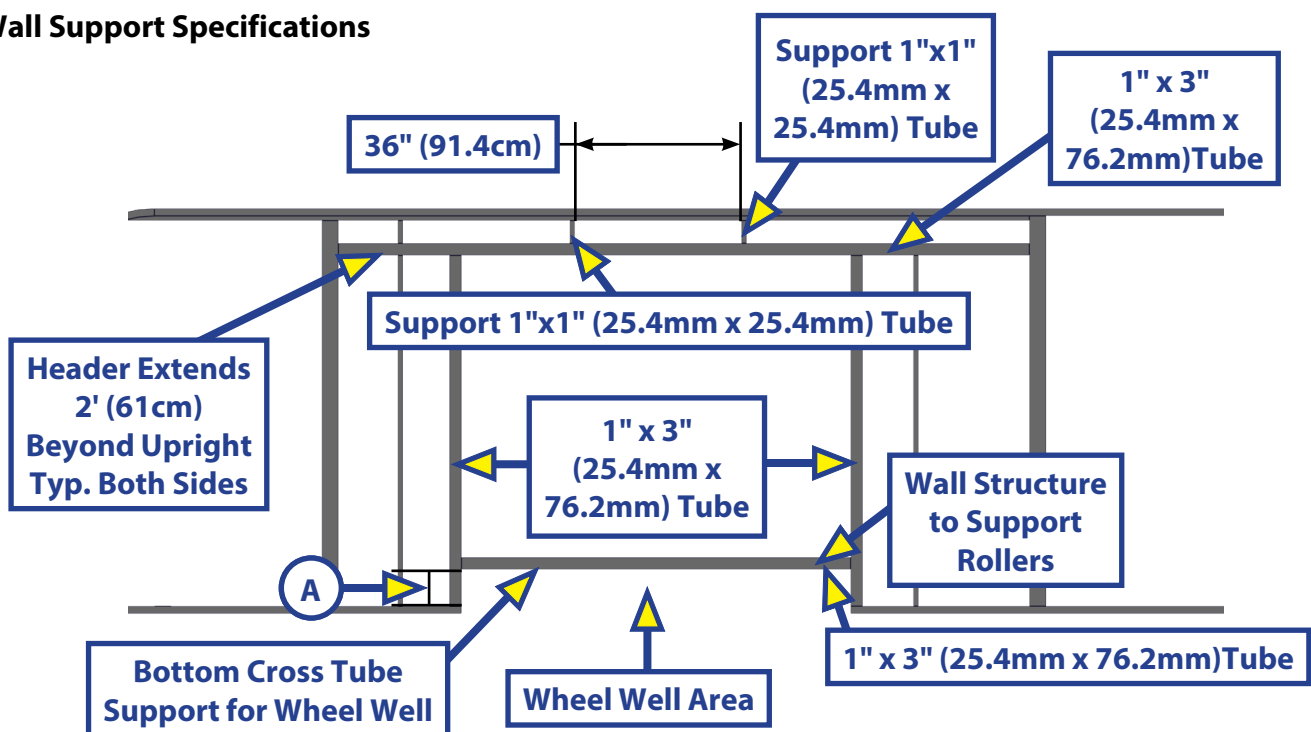


Fig. 26 - Slide in Wheel Well Area

See Wall Support Specifications



Post Installation Check

Room Opening Audit

The room opening is square measuring corner to corner (+/- 1/4") (over +/- 3/8" is Critical Fail)

- Q. Room Measurements: Left to Right
- Q. Room Measurements: Right to Left
- Q. Room Measurements Diff
- Q. Room opening width

(place dimension in box audit section also)

- Q. Is corner drain cups sitting down tight not kicked at an angle. No holes in bottom of drain cup.
- Q. Is fasteners in upper flange or front flange only.
- Q. Is bottom wipe seal cut to the proper length (2 1/4" +/- 1/16") from sidewall and is hooked over the drain cup.
- Q. Is mylar tape removed to activate butyl tape on drain cup.

Customer may extend upper wipe seal to cover column or the wipe seal portion should be cut back 2" from each end. Upper bulb seal track should hang over both ends of opening by 7/8".

Mechanical fasteners through top flange of the bottom seal **MUST** be sealed. Bottom wipe seal drain channel by corner cups is not blocked by debris or sealant or anything else that would prevent proper drainage.

- Q. Does the slide have the proper number of rollers installed.
- Q. First roller 6 in" from end of roller to side wall opening. Dimension:
- Q. Middle rollers spaced 24 in" to 36 in" between ends of rollers. Dimension:
- Q. Roller height (in") measurement correct to spec sheet. Dimension:

Box Audit

The room opening is to be no more than 5 to 5 1/4" over the box length. Up to 1/8" over or under those measurements is a Fail. Any dimension past 5 3/8" or under 4 7/8" is a Critical Fail.

- Q. **Opening** width
- Q. **Minus** box width
- Q. Difference

The room is square measuring corner to corner (+/- 1/4") (over +/- 3/8" is Critical Fail)

- Q. Room measurement from left to right
- Q. Room measurement from right to left
- Q. Measurement difference

The lower gear rack mounting flange is flush to the bottom of the room (+/- 1/16" - 0).

- Q. Are the ends of the gear racks 1/4" or less from the T-Molding or Fascia Backer?

Upper gear rack **MUST** be parallel with bottom gear rack (+/- 1/16 IN) (+/- 1/8" is a fail +/- 3/16" and over is Critical Fail)

- Q. Front column inside
- Q. Front column outside
- Q. Rear column inside
- Q. Rear column outside
- Q. Every hole in the upper and lower gear racks are filled with #10 screws that are properly seated.
- Q. Make sure no screws from Tee molding are under gear rack.
- Q. Are the H Column mounting holes properly covered by sealant

Installation Audit

- Q. Are the columns installed starting the screws with the holes closest to the gear racks first.
- Q. Are all column screw holes filled with a #10 screw. Are the screws properly seated.
- Q. Does the column flange sit flat against the side wall and down in the drain cup.
- Q. Does the room sit down on the rollers or wear bar and the wipe seal touch the floor.
- Q. Gear rack to column dimensions - Measuring from the faces of the gear racks to the edges of the columns, the Pass dimension is $2\frac{1}{2}" \pm \frac{1}{8}"$. ($\pm \frac{3}{16}"$ is a Fail and $\pm \frac{1}{4}"$ or more is a Critical Fail)
- Q. Front column top:
- Q. Front column bottom:
- Q. Rear column top:
- Q. Rear column bottom:

- Q. Is the harness looped and secured around the drain cup in a manner that does not deform the drain cup and prevents the harness from being damaged?
- Q. Is the harness plug tucked inside the top of the column and not dragging against the top of the room during operation?

If inside clamps are installed (recommended for stick and tin) the attachment screws are not interfering with the motor or gear blocks inside the column.

- Q. Inside fascia backer is secure. One screw every 6 to 8" in fascia backer.
- Q. Fascia backer doesn't crush the corner cup flange.
- Q. Exterior upper horizontal wipe seal is glued over the vertical column seal or extends over the slide system column.

- Q. Room moves smoothly and does not have any unusual popping or squeaking noises.
- Q. Bottom wipe seal is not getting caught in the room rollers.
- Q. Seals are not getting caught in the slide V rollers.

- Q. With the slide out fully retracted IN are the seals fully compressed by T molding.
- Q. With the slide out fully extended OUT are the interior seals fully compressed by the fascia.
- Q. Inner bulb seal goes from the top of the column and is tucked inside of the drain cup flange.

Electrical

Controller is powered by 10 ga wires that is protected by a 30amp or less fuse/breaker

- A. If fused less than 30-amp breaker does wire gauge match RVIA code.

The controller **MUST** be mounted in a dry secure location away from any potential water leak and **MUST** not be mounted in a LP tank storage area. Accessible with room in or out.



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