

RF INSTALLATION TIPS AND COMMON PROBLEMS TO AVOID

Painting over sections of the assembly which were taped off to remain as raw steel.

Paint or other non-conductive materials can inhibit radio frequency shielding properties by preventing uniform contact between two conductive surfaces. This negatively impacts the overall performance of the RF assembly. It may be beneficial to remove the seals prior to painting the assembly to prevent the risk of overspray on the seal materials. KSP's recommendation is to distribute and communicate our IG's to the painter for review prior to starting work.

Proper Seal Adjustments (Too tight, too loose or non-uniform)

Seal adjustments can be challenging when first working with RF shielding materials. To attain consistent contact with the panel, follow IG-304 & IG-307. Common mistakes seen are caused by over adjustment on the hinge side of the seals, which can cause many performance and operational issues. One method to control this is to adjust the strike-side seal first, then move to the header, then finally the hinge-side seal.

Fabric-over-foam seal not extending 1/32" to 1/16" past the wire mesh seal.

RF seals need to make full, consistent, uniform contact against the door panel around the perimeter of the opening. It is important that both materials within the seal assembly make uniform contact along the entire perimeter of the opening, including the door bottom against the threshold paying close attention to the corners. The door bottom seal is designed to extend further out than the door panel to make contact with the jambs.

Removing RF tape around the electrical boxes in the frame.

Junction boxes and other preps are sealed using a specialized, metal, RF tape. This prevents radio frequencies from penetrating these openings. Removing or modifying these preps can negatively impact the performance of and RF assembly.

Not taping off the electrified cam-lift hinge junction box after pulling the wires.

As stated above, preps are sealed using a specialized RF tape to prevent leaking at these points. However, when electrified hardware is required, the wires will need to be pulled through the designated prepped opening. Once the cables have been fully installed, the KSP supplied RF tape must be used to reseal any openings that were created.

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Grouting the frame – Not recommended for STC =<50 RF hybrid assemblies.

Grouting makes adjusting RF assemblies difficult, and is not required for STC-50's. Any electrified hardware that is added is nearly impossible to access again after installation if the frame is grouted. RF/STC assemblies are rated for a maximum of STC-50 for which it is recommended to use #8 density rockwool for the frame filler. Grout should only be required when STC-51+ levels of acoustical performance are necessary.

Drilling through-holes in the door panel. Surface mounted fasteners are OK, untreated through-bolts are not.

Any holes not prepped by KSP, or without approval from KSP, will void the warranty on the performance of the panel. Any holes that have been added to the assembly the puncture fully to the other side of the opening has the potential to cause leaking of radio frequencies.

Z-bracket and #2 strike not adjusted properly for solid, positive latching between the door panel and the seals.

Latching of the panel is critical in creating a consistent seal along the entire perimeter of the opening. Radio frequencies can leak through in the strike area if the latching mechanism is not adjusted properly.

Installing conduit penetrations and other similar penetrations right next to the frame opening.

We have seen some issues in the field related to this which are extremely difficult to troubleshoot, due to the penetrations close proximity to the door opening. The door and frame assembly provided by KSP is only as effective as the surrounding environment. Any weak points can drop the performance of an entire area.

EMI caulking can be used as a best practice for any metal-to-metal connection points between the frame interfacing with the partition.

EMI caulking can be used at the connection point between the RF door bottom and door skin. This prevents leaks at seals where the inherent gap is created by the adjustments in the field. The material can be used for a variety of other purposes as well such as underneath the threshold or to seal off any opening/gapping.

Ensure door frame interfaces to the enclosure via wall foil and the interfaces are clean and sufficiently overlapping of RF shielding material.

It is imperative that the foil from the wall is integrated into the frame underneath the trim and the material is clean and smooth upon application. Any wrinkles or tears in the foil or tape has the potential to cause performance problems.