

Cavity Design and U-Channel Relationship



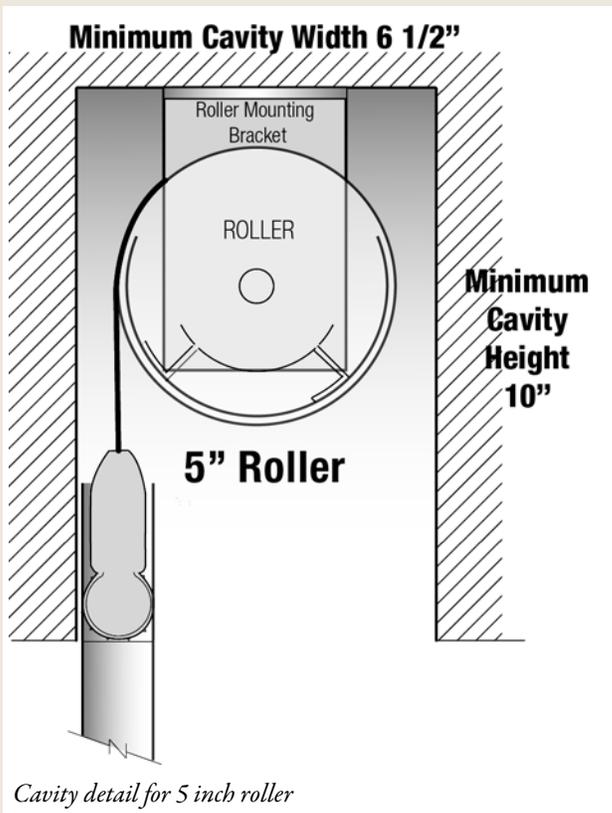
Recessed mount showing detail of cavity contents

This section outlines the factors that determine the size of the cavity and the cavity placement in relationship to the U-channel, which will be embedded into the column during construction.

You will learn how recessed units are installed inside a cavity that is built by the contractor's framer during the construction process. The cavity will require a removable cover so that the motorized screens mechanisms are accessible, but not visible.

We will also cover integration of the side tracks which hold the zippered mesh in place during operation. These tracks are inserted during the final installation process inside the previously embedded U-channel that is both supplied and installed by the local Authorized Phantom representative. The U-channel will be hidden inside the columns during the construction process. The side tracks installed inside the U-channel not only guide the mesh zippers but also allow for adjustment of the side-to-side screen tension for aesthetic purposes.

Note: If standard tracks are used in conjunction with a recessed installation, they cannot be buried or hidden permanently, because they will not allow for adjustment to the side-to-side tension.



Cavity detail for 5 inch roller

Framing Requirements: Determining the Size of the Cavity

The height and width dimensions of the opening to be screened will determine the size of the cavity to be constructed. Phantom Screens offers three different sizes of rollers (2 1/2", 4" and 5") for use in motorized screen applications. Dependant on the opening height and width an appropriate sized roller will be supplied to prevent bowing in the center of the roller. In other words, the larger the opening size, the larger the roller that will be supplied.

The drawing to the left shows the minimum cavity size for a 5" diameter roller. However, because the electrical connections must be accessible from inside the cavity and to allow as much room as possible to install the mounting brackets, roller and mesh, it is highly recommended that the cavities be larger than the minimum dimensions specified. A table of recommended cavity sizes is shown left. If the electrical contractor can make the electrical outlets flush mounted, or temporarily removable, this can simplify installation of the Executive units.

Cavity dimensions given will be the recommended MINIMUM sizes for the cavity. Please refer to your local Phantom distributor if smaller cavity dimensions are needed. However, cavities can be made larger for greater accessibility.

Recommended Cavity Sizes

| Roller Size | Width | Height | Approx. Assembly Weight |
|---------------|--------|---------|---|
| 2.5" diameter | 4 1/2" | 7" | 17lbs PLUS 1.1 ^{lb} /ft + mesh |
| 4" diameter | 5 1/2" | 9 1/2" | 23lbs PLUS 2.7 ^{lb} /ft + mesh |
| 5" diameter | 7" | 10 1/2" | 23lbs PLUS 3.1 ^{lb} /ft + mesh |

Mesh will add 0.03 to 0.01^{lb}/sq ft

Cavity Design and U-Channel Relationship



Hinged removable cover



Before attachment of front cavity cover



Front cavity cover in place

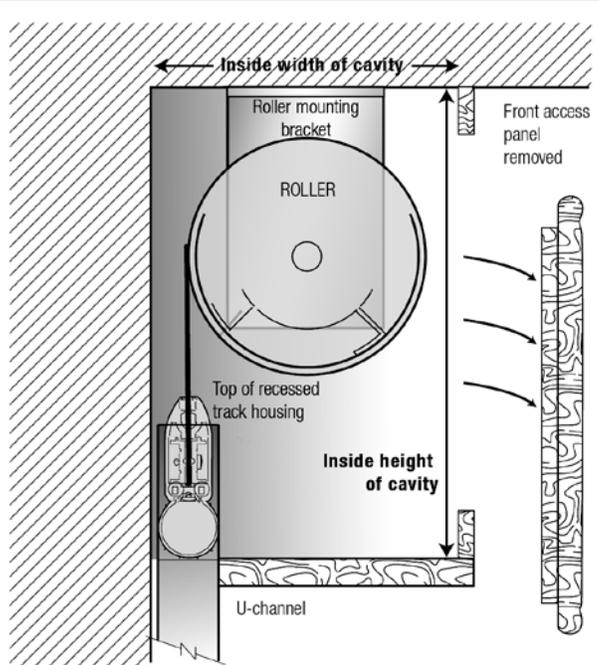
The cavity size is also affected by the possible need to bring the slide bar and bottom rubber seal into the cavity to hide it when the screens are in their “up” position. This is most critical when the screens are to be built into an arch configuration. Details can be found in a later section of this document or your local Phantom Distributor will be available to consult onsite to determine the optimal size for the cavity. They will also be able to provide you with drawings unique to your requirements in any one of the three roller size configurations.

Cavity Placement

Placement of the cavities is normally in one of three places: under a header beam, level with or above a header beam on the inside, or in some cases, above a header on the outside of the beam. The cavity itself must be engineered to keep the relationship between the cavity, the mounting brackets, and the U-channel intact as shown in the drawings throughout this document. The cavity ends must also be structurally capable of carrying the entire load of the recessed Executive unit. This load is supported on both ends of the cavity walls where the motor and idle brackets are mounted.

During the construction of the cavity care needs to be taken to make sure the cavity walls are parallel to each other. Again, no dimension for this cavity should be made smaller than specified. The cavity walls must also be free from anything protruding or running through them (e.g. nails, staples, conduit, gas lines etc.).

Cavity Design and U-Channel Relationship



Front access panel installed on roller cavity

Removable Panels

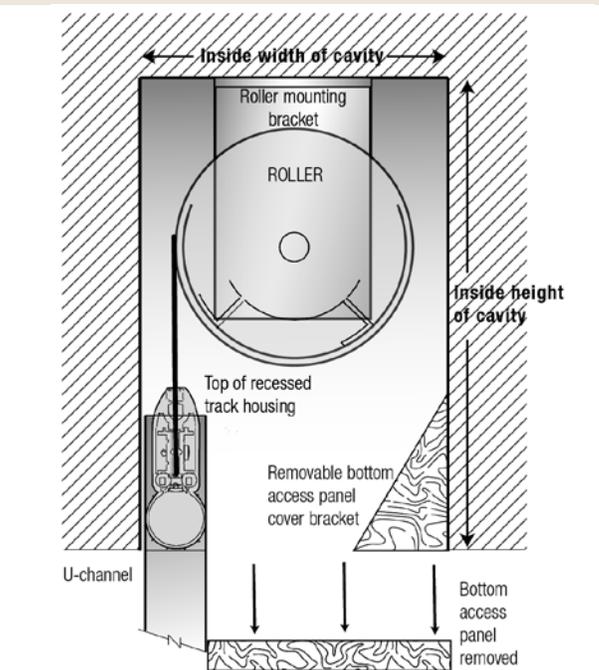
To allow for any future maintenance involving the motor or screen a removable panel must be designed and built to allow access to the cavity from the bottom, front, or back of the unit allowing the screen mechanisms to always remain accessible. The actual size and position of the removable panel should be determined during the engineering of the cavity. This panel needs to be easily removable and allow for easy re-attachment.

To install the roller brackets, roller, motor and mesh there must be an opening that allows unobstructed entry into the entire width of the cavity. This opening can be at the bottom or the top face of the cavity in most installations with the exception of arches, which will be explained in the segment to follow. This removable cover is also critical for any on-going warranty servicing or unscheduled maintenance due to unforeseen damage to the screen or motor which can occur.

The cover must be constructed so that it is wide enough and tall enough to allow complete disassembly and removal of the roller from the cavity.

Typically cavity covers are constructed out of finished plywood or the material used for finishing the ceiling in the area where the screens are located. In most cases they are also trimmed with some of the home's trim package material. The cover usually blends in with the chosen décor of the living area where the motorized screens are located. If caulking is used to seal around the cover and final painting is necessary, the contractor may be asked to remove the cavity covers before any work can proceed. The cavities would then be re-attached by the contractor to re-caulk and paint. Either way, the covers must be made relatively lightweight and easy to maneuver because they will typically be removed from atop a ladder.

Fastening options and any finishing materials such as caulking and paint will need to be removed and replaced after the cavity cover has been removed. Additional charges for warranty repairs or maintenance may result if these suggestions are not taken into consideration. The use of hinges, fasteners, and magnets for holding the cavity covers in place are great solutions to make removal and reattachment as easy as possible.



Bottom access panel installed on roller cavity

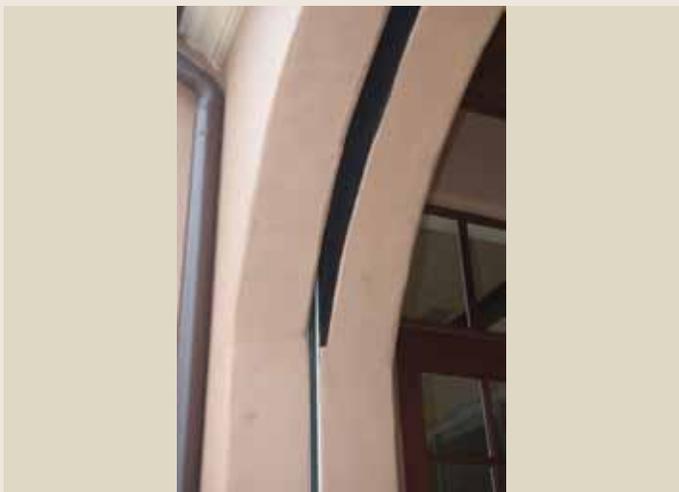
Cavity Design and U-Channel Relationship



Diagram of screen inside arch cavity



Two halves of an arch are visible in this construction view



Finished arch with dark paint used in screen opening for raw materials protection and aesthetics

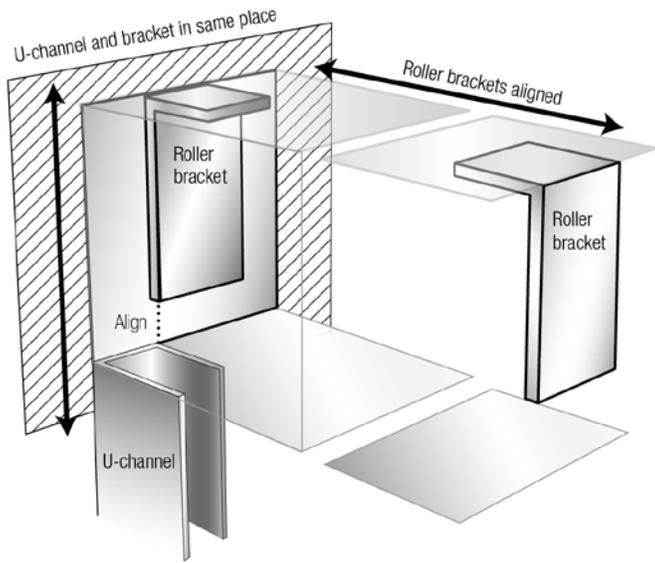
Arches

Arches require the same attention to detail to build the cavity portion as a square opening. However, the lower section of the arch must be built in two halves that are independent stand alone structures. The two halves should be separated in the middle to accommodate the slidebar and the screen as they are lowered and raised during normal use.

The height requirement for this cavity will also be taller because in most cases, the consumer will want to have the slide bar and bottom seal retracted into the arched opening so that they are out of view when the screens are not in use. The gap in the bottom of the lower section of the arch which allows the Executive slidebar and bottom seal to enter and exit, should be determined by the size of the bottom seal (1 $\frac{3}{4}$ " , 3" , 4" , or 6"), in a non-compressed state. Please refer to the Bottom Seal Considerations section of this document.

Please keep in mind that any finishing of the bottom of the arched opening must not interfere with the size of the opening, for example when applying stucco to the surface. These finishes must be planned for when framing the original arch. It is also recommended that a black or dark paint be applied to the bottom of the arched opening to cover and protect the raw materials used to construct the arches. This will also aid in creating a dark area when looking up into the arches after the screens are retracted.

Cavity Design and U-Channel Relationship



U-channel and roller bracket alignments in the cavity

Mounting Bracket Placement

Two brackets, one for the motor side of the roller and one for the idle side of the roller tube, will be installed by the local Authorized Phantom representative inside the constructed cavity. These brackets must be attached through the cavity's structural materials and into a structurally supported framing member or concrete wall. It is the two recessed mounting brackets that support the entire weight of the recessed Executive motorized screen.

The recessed mounting brackets must be installed perfectly level to each other. This is necessary for proper roller installation and operation.

U-Channel Alignment

The U-channel must remain clean and free from any debris. If there is a requirement for the U-channel to be centered in the column it is being integrated into, the cavity itself must be engineered to keep the relationship between the cavity, the mounting brackets, and the U-channel intact.

The recessed U-channel is normally installed just prior to/or during framing. The U-channel is offset either toward the back or the front of the cavity, depending upon the direction chosen for the mesh to unroll. The U-channel should usually be in line with the edge of the recessed mounting bracket. However, when using a 4" roller with a 5 1/2" cavity the U-channel shouldn't be lined up with the bracket, but lined up with the inside edge of the cavity.

It is recommended that once the U-channel is installed any finishing work (e.g. moldings, trim, stucco, siding, corbels, etc.) does not extend beyond the mouth of the U-channel. If this is unavoidable, the space between the additional trim and the U-channel must have a minimum clearance of 3/8" on both sides. This will prevent the bottom rubber from catching during the downward movement of the screens.

Bottom Seal

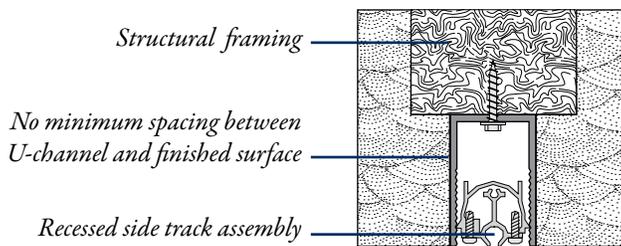
The gap in the bottom of the lowest section of the cavity that allows the Executive slide bar and bottom seal to enter and exit should be determined by the size of the bottom seal (1 3/4", 3", 4", or 6"), in a non-compressed state. This selection is typically driven by the type of finished floor installed, column style selected, and/or any decorative trim used in conjunction with the columns that contain the U-channel. Your local Phantom representative will assist in determining which bottom seal would be best suited to your application. See page 17 for more bottom seal detail information.



Decorative trim is too close to the U-channel



Decorative trim has been cut back 3/8" from the U-channel



The U-channel must remain clean and free of any debris