



## **Imperial Manufacturing Standard Panel Construction**

### ***General***

Imperial Manufacturing walk-in panels are foamed-in-place framed panels. Panels are made-to-measure exact size to allow for using all the available space allotted for the installation. Installation moves smoothly and quickly by avoiding nominal size panels, and designing each panel for specific placement and use.

### ***Construction***

Panels consist of a high-density polyurethane framed perimeter equipped with cams and pins for fast and tight assembly, interior and exterior finish skins and polyurethane insulation.

### ***The Core Insulation***

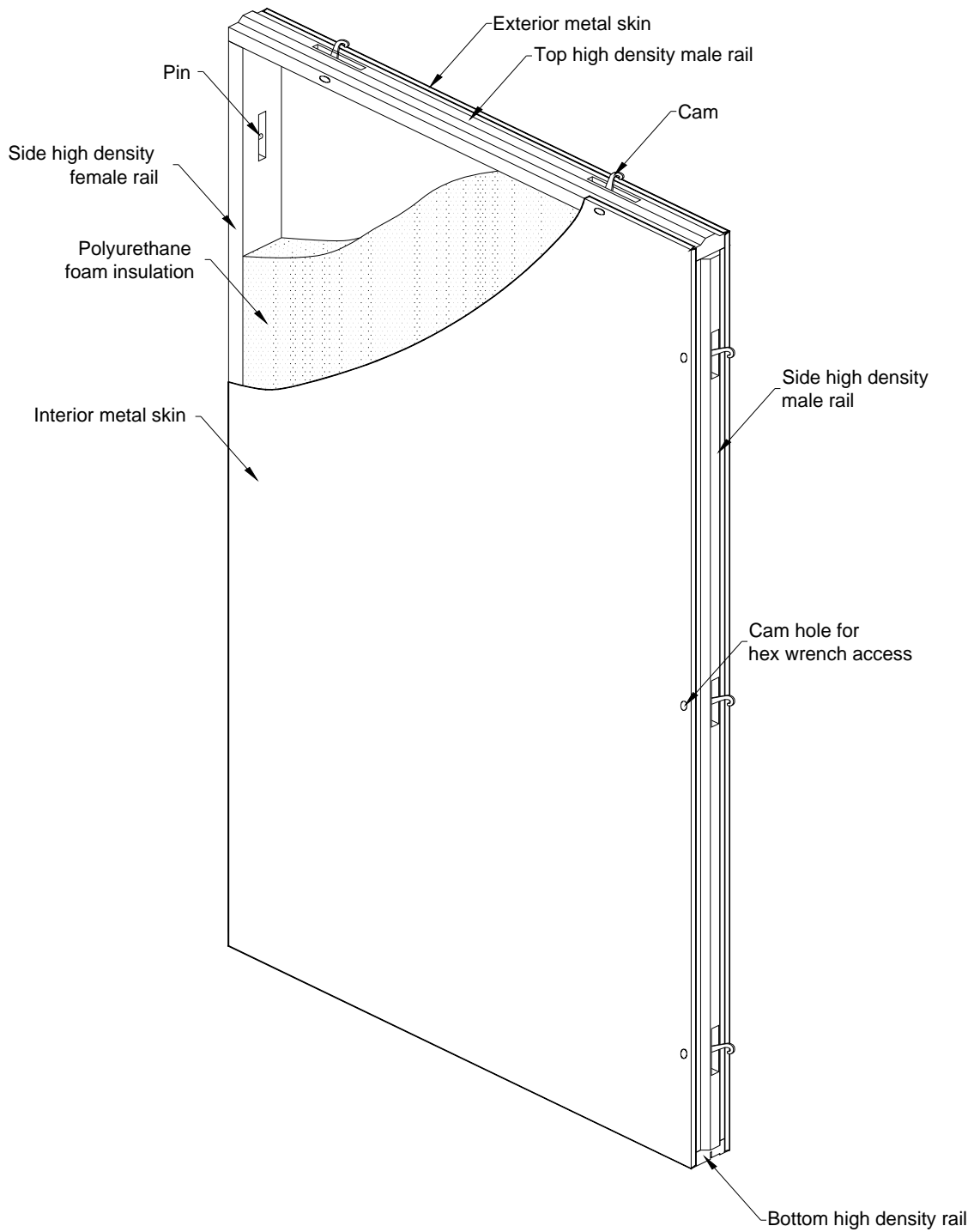
Panels are filled with low density CFC-free, Class 1 polyurethane foam. Urethane foam has a higher R-value per inch than other insulating materials, primarily due to two conditions. Firstly, the close cell structure of the foam is denser than in most materials and secondly, these cells or 'air pockets' are closed and filled with an inert gas that has a higher R-value than oxygen.

### ***The Frame***

The frame is made of high-density polyurethane. It adds structural integrity to Imperial's panels that soft-nose panels do not benefit from. For stronger panels, wood frames may be used in lieu of high-density frames. The frame also seals the panel, preventing out-gassing from occurring. Out-gassing occurs when the foam is exposed directly to atmospheric pressure. The pressure differential between the foam outer-layer of cells and the atmosphere will cause, over time, the inert gas to escape, thus lowering the panel R-value. Soft-nose panels are protected from out-gassing on the faces, but not on the edges.

### ***The Skin***

The skin is generally made out of thin metal like galvanized steel, aluminum or stainless steel. Other materials may be used. The metal skin seals the interior and exterior sides of the panel insulation, thus preventing out-gassing, and adds strength and durability to the panel.



**Figure 1 - Imperial Panel Construction**