



Technical Bulletin

5.10.4.2

01/2001 (formerly 99.8)

Overhead Door Frames



Light Gauge Steel Frames

In many light industrial and warehouse type buildings, it is common to have large commercial overhead doors in the exterior walls. As these doors are frequently being opened and closed, heat gain or heat loss through doorframe conductance becomes irrelevant. Overhead doors are typically installed by welding or screwing the wheel guides or jamb tracks to the building frame. In residential work, wood door bucks installed prior to the wall pour are the norm. In commercial work however, steel bucks are often the material of choice.

Two Frame Options:

This Bulletin will discuss two steel frame options; light gauge steel, and heavy steel channel. A light gauge steel frame will likely be less expensive to fabricate, ship, and install, but may be slightly less abuse and corrosion resistant.

COMMON TO BOTH FRAME TYPES

Though significantly stronger than wood, with sufficient concrete pressure both materials may deflect inward. It is always advised to internally brace an opening and provide rack control by bracing with diagonals. With light gauge steel of 12 to 14 gauge, it is easy to brace with lumber and self-tapping screws. Heavy steel channel may be easier to brace with angle iron and temporary welds. Unless stainless steel is selected, carbon steel should receive a commercial sand blast and red oxide primer as a minimum protective coating. Both frame types typically bolt to a footer or floor slab, and therefore will have welded in anchor plates at the floor line with holes to receive drilled in concrete screws or expansion bolts. Steel straps welded to the backside of the jambs and head permanently anchor the doorframe to the concrete core of the Arxx™ wall. The steel strap anchors are typically spaced at 16-3/4" on centre up the jamb, and across the head, to match the Arxx form heights and miss the plastic webs. Strap anchors are often bent flat bars (the method shown on the attached drawing), bent round stock, weldable rebar, or a Nelson Stud.

SPECIAL TECHNIQUES

The drawings here show use of the 6-1/4" Arxx form with the metal return legs relatively tight to the outside faces of the foam. Some installers prefer to use wider frames that act as the exposed door trim, and thus let the interior and/or exterior finishes tuck in behind the returning legs of the frame. These installers will temporarily shim underneath the returning leg with wood prior to pouring the wall, then strip the wood shim out after the pour and replace it later with the finish materials.

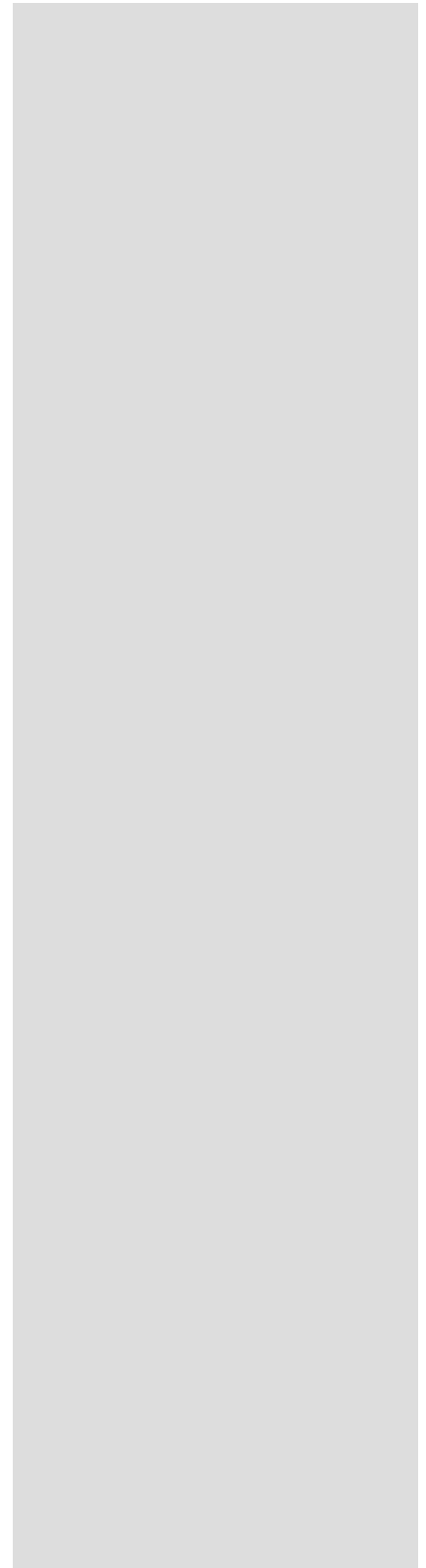
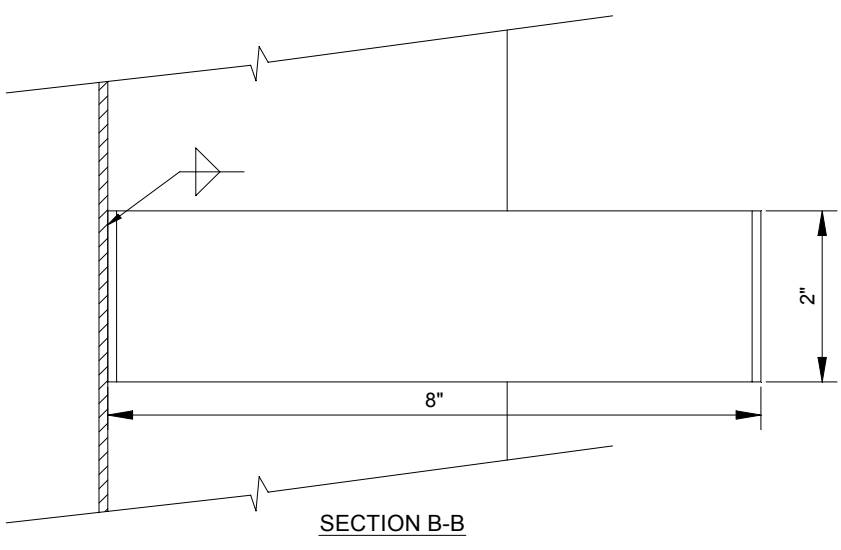
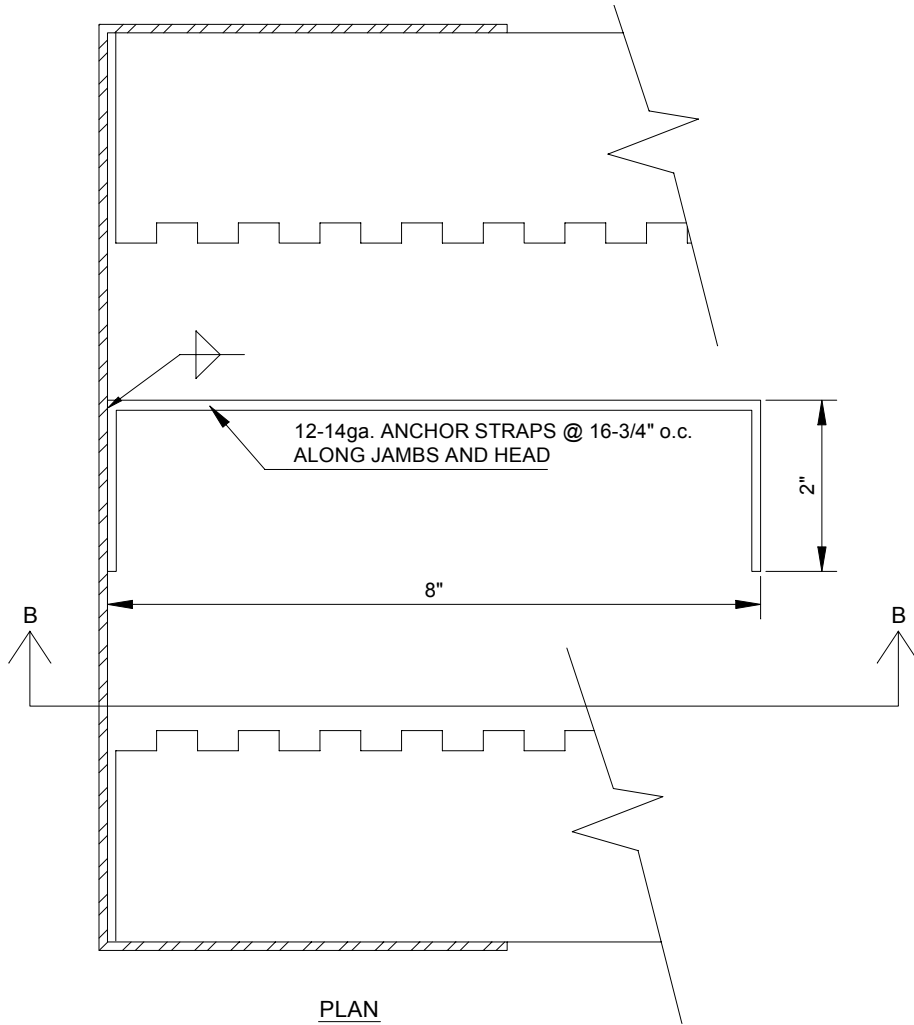
Some installers hold back the Arxx forms within the return legs of the metal frame several inches to permit concrete to flow out and help support the legs. The lighter gauge of the frame, the more important this technique becomes. Be careful however as this concrete may inhibit the use of long sheet metal screws and require the door track to be a welded connection.

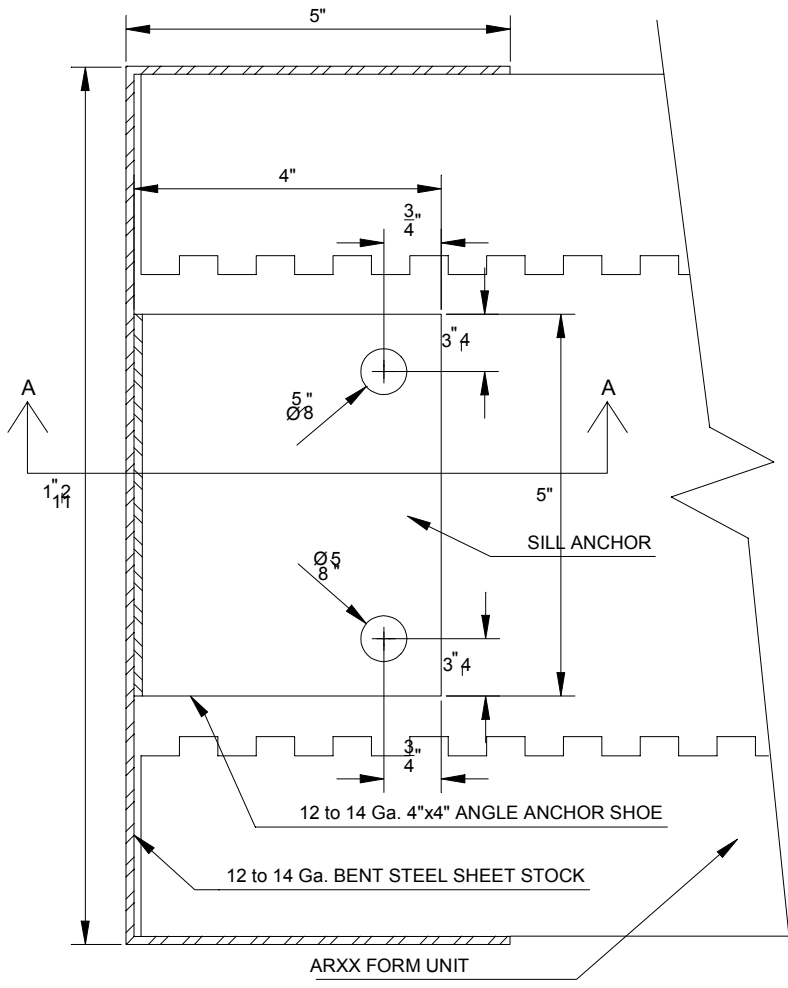
CONCENTRATED LOADS

Door operators utilize electric motors, torsion springs, and chain wheels located above the doors. Installers are reminded to set extra anchor bolts or weld plates to support these heavy loads. Always request and review your door shop drawings and erection details for specific connection details such as fastener size and location, before designing and fabricating the steel doorframes.

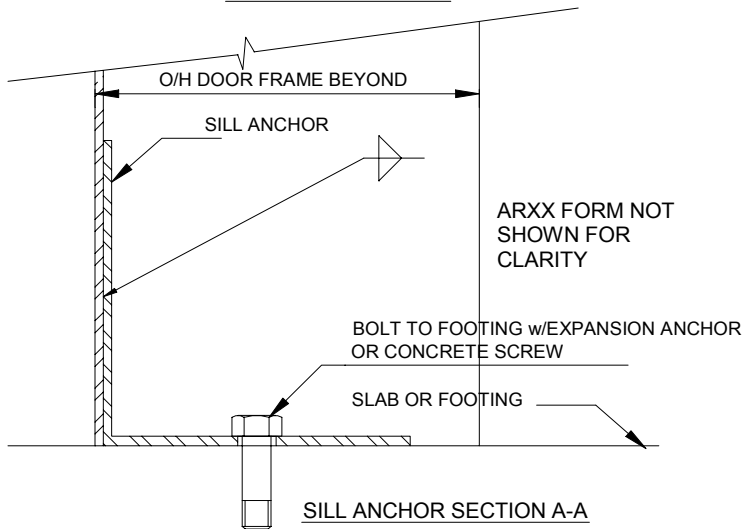
**References – For smaller commercial man doors, reference Arxx Technical Bulletin 5.10.4.1 Cast In Place Hollow Metal Door Frames. See also Arxx™ Installation Guide Section 1.6

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SILL ANCHOR DETAIL



SILL ANCHOR SECTION A-A

Tips!

ROUGH OPENINGS

Confirm frames thickness and exact door size requirements to establish rough opening size for forms.

CONCRETE CONSOLIDATION

Pay special attention to concrete consolidation around the embedded frame anchors.