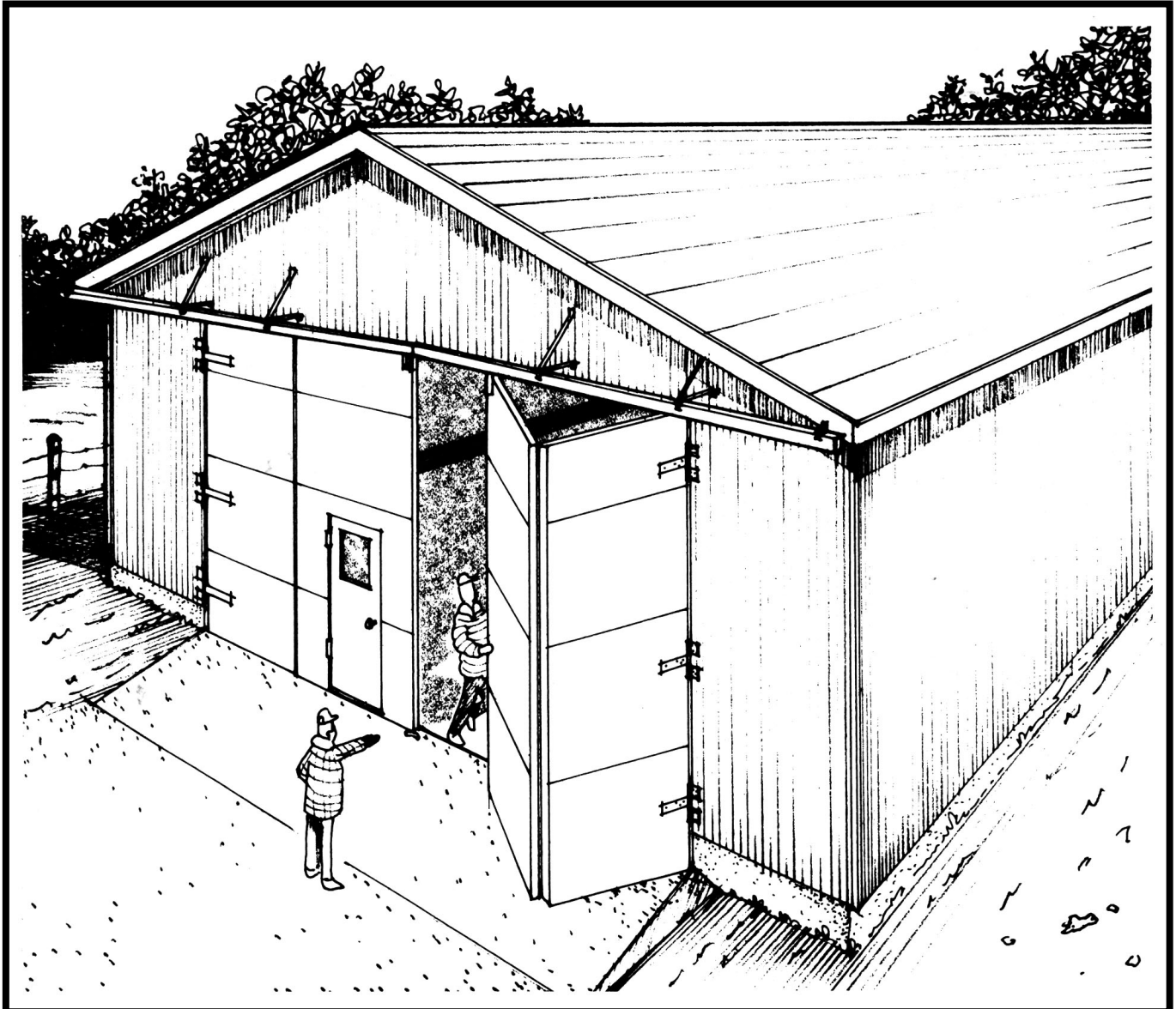




LARGE BI-FOLD SHOP DOOR



DEVELOPED BY CANADA PLAN SERVICE

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CPS
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This plan provides details for building large bi-fold shop or machine-shed doors to fit openings up to 7.2 m (24 ft) wide. Bi-fold swinging doors are easier to operate than most sliding doors. Though not as convenient as commercial overhead doors, these swinging doors can be built on site for about one-third the cost.

The keys to successful bi-fold door construction are:

- heavy duty hinges; and
- extremely rigid door framing, reinforced with plywood glued and nailed in place

FRAMING

Use straight, dry 38 x 89 mm (2 x 4) framing members. Framing on edge provides the structural strength to resist strong winds, as well as more space for insulation. Note that extra framing is required at the hinges. Glue and nail 9.5 mm (3/8 in.) plywood sheathing to the framework, using a water-resistant construction adhesive or carpenters' glue. This will assure that the doors don't warp or sag.

Equally important, use extra-heavy door jambs to support wide doors. Sheath the interior of the building endwall with plywood or flakeboard (even though the building may not be insulated) for extra strength and rigidity.

SUPPORT SYSTEM

The unique feature of the bi-fold door is the pivoting support roller at the top inside corner of each door half. This support prevents sagging of wide doors, and can be any good quality sliding door hardware. Mount the door support track so that it angles outwards about 4° from the endwall. When the doors are completely open and folded back the pivoting support roller will be at least twice the door thickness away from the endwall.

The door may also be built to swing inwards. This requires enough room between the door jambs and the sidewall for the door to fold back (building width at least twice the door width) and enough headroom at the ceiling for mounting the track. An inward-swinging door avoids some snow and ice problems, but reduces usable space in the building.

Hinges for large doors must be very strong. The home-made hinges shown are excellent. Three heavy duty hinges are better than a greater number of weaker ones. Before installing hinges, paint them all over with rust-proof paint, unless galvanized, to prevent unsightly rust stains.

INSULATION OPTIONS

Most doors of this type are filled with common batt insulation. A better but more expensive alternative is to use foamed-in-place polyurethane foam, sprayed into the cavities before putting on the outer cladding. This will require a foam insulation contractor, which increases cost. The polyurethane foam bonds to the interior sheathing and hardens to form an extremely rigid door.

The plan shows a door that is ready for painting. It could also be finished outside by adding prepainted steel siding, coloured to either match or contrast with the building siding.