

HI-FOLD DOORS

*...the only Bi-Fold Door with
high clearance advantages!*

*...for aircraft hangars,
shops, warehouses,
loading areas and
farm buildings.*

*For more information about
Hi-Fold Doors contact:
www.hi-fold.com*





U.S. Patent
No.4,609,027

HI-FOLD DOORS

...give you 12 to 24 inches more door opening clearance than standard bi-folds!

There's no need to increase the height of the entire building or add a support above the roof line, as is often necessary with standard bi-folds, to make-up for clearance lost when the door is fully open. Patented auxiliary arms on the Hi-Fold Door enable it to open to within 10 to 28 inches of the hinge mounting line without putting undue stress on the jamb posts.

Save material and labor on new buildings!

High-clearance advantages of Hi-Fold Doors enable you to trim new building costs in four important ways: (1) column lengths can be shorter, (2) less skin is required, (3) fewer fasteners are needed, and (4) your crew's work time is reduced. These savings, alone, can pay for the Hi-Fold Door.

Retrofit existing doors without losing clearance!

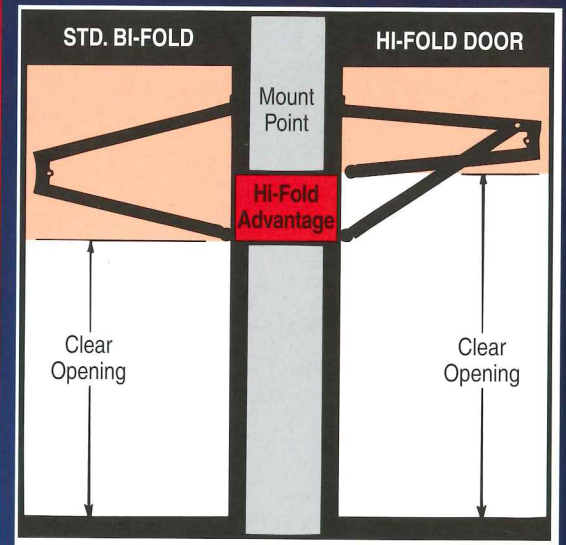
With Hi-Fold Doors, you can replace worn-out or hard-to-operate sliding and overhead doors or cover doorless openings on existing buildings, while adding the convenience of bi-fold doors, without sacrificing door opening clearance. In-place headers are normally adequate for mounting Hi-Fold Doors and building modifications, if any, are minimal. Side-wall doors can also be installed without changing the roof line.

Hi-Fold Doors keep bad weather out! The Hi-Fold Door is unaffected by weather extremes. When fully open, it forms a canopy over the opening for protection from sun and rain. When closed, sturdy jamb latches and a durable bottom seal keep out foul weather and intruders. The center hinge folding action and high-strength cable lift system pulls the door up and away from build-ups of ice and snow to assure efficient, year-around operation.

Hi-Fold Doors can be easily insulated by surface-mounting board or blanket insulation prior to installing the skin. Additional insulation can also be inserted between the grid members. Walk doors and windows, in a variety of attractive styles and sizes, can be added to provide easy access and natural interior lighting.

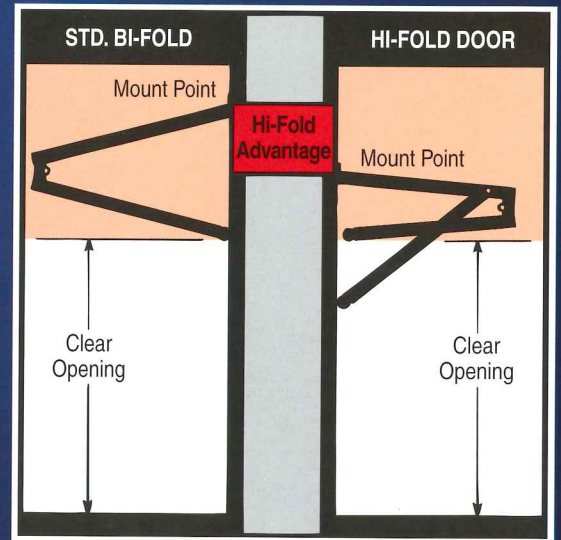


FIXED DOOR MOUNTING HEIGHTS



For fixed door mounting heights (above), as on existing buildings, the Hi-Fold Door provides you with 12" to 24" more door opening clearance than is possible with standard bi-folds.

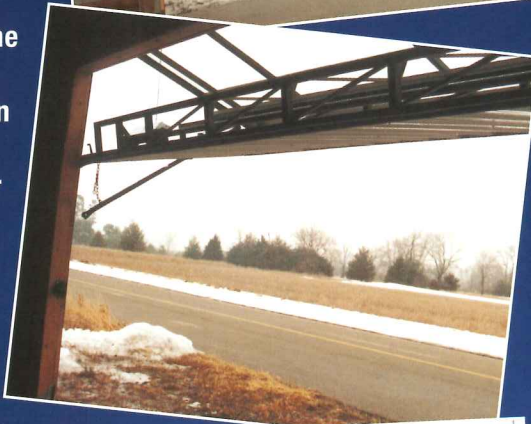
REQUIRED CLEAR OPENINGS



For required clear openings (above), Hi-Fold Doors open to within 10" to 28" of the hinge mounting line, providing clearance without increasing building height, as required with standard bi-folds.

As the Hi-Fold Door rises (right), the smooth-rolling steel wheels on its exclusive auxiliary arms contact the jamb posts to guide and support the door into the full-open position. When the door is closed, the auxiliary arms store themselves against the jamb posts

and remain flush with the building until the next operation.





...top-quality design, materials and workmanship!



Strong, welded-steel frame assures long life.

Hi-Fold Door panels are built with double, rectangular, structural-steel tubes at the center hinge line (2" x 4" on doors to 46' wide; 2" x 6" on wider doors) and 1 1/2" or 2" square structural-steel tubing, depending on door size, for the remainder of the frame. Doors over 46' wide are made in two sections that bolt together through super-strong, 1/2" steel butt-plate joints. Strong mounting hinges (4,5,7 or 9, depending on door width) are welded to the top rail.



Powerful drive system assures dependable operation.

Name brand electric motor (1 h.p. to 2 h.p., depending on door size) with worm-gear speed reducer connected to a torque-free, 2" diameter drive shaft by a double jack-shaft and heavy-duty roller chain opens the Hi-Fold Door. Motor and electrical systems are mounted 18" or more above the floor on the side of the door for easy maintenance and to meet the National Electrical Code, Section 513 specifications, pertaining to aircraft hangars.



Welded-steel trusses withstand strongest wind loads.

All Hi-Fold Doors receive one to three inside trusses. Made of heavy-gauge steel tubing, providing extra strength to control wind-load deflection when the door is closed and to help the "dog-leg" center hinge eliminate sag when the door is open. Doors over 26' wide receive full-width trussing in the middle of the top and bottom panels, plus the bottom truss, which holds the drive system. Smaller doors require the bottom truss only.



Convenient "open-close-stop" push-button control.

24-volt system mounts at any handy location inside the building near the Hi-Fold Door. Normally does not require conduit (depending on local codes), which allows pre-wiring and flexible cable on the building frame. For safety, the operator must push the "stop" button before changing door direction. Can be stopped and started at any mid-point. Electric brake is standard. Comes factory-wired for 110-volts on 1 h.p. doors; 220-volts on 1.5 h.p. & 2 h.p. doors. Radio remote control is optional.



Double-strength center hinge design eliminates sagging.

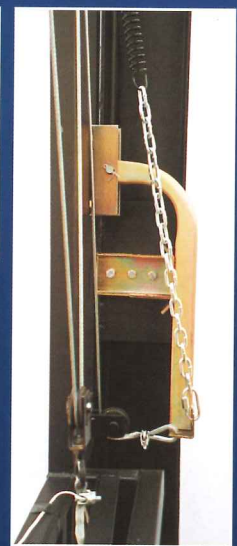
Unique, "dog-leg" center hinge design, formed by the rectangular-steel members on both the top and bottom Hi-Fold Door panels, provides a "double-strength" beam that virtually eliminates sagging in the full-open position. This strength, combined with the strength of the welded-steel trusses on the inside of the door, provides even greater resistance to wind-load when the door is closed. A floor can-bolt on all doors over 40' wide further resists wind-loads.



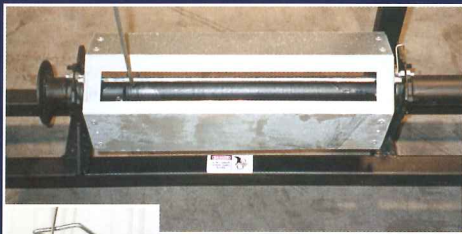
Single location crank latch

(U.S. Patent No. 6,547,292).

Mounted inside building on door, these self-adjusting latches tightly draw and secure Hi-Fold



Door against jambs to protect against thieves and bad weather. Electrical interrupt supplied to guard against damage if locks are not fully released prior to operation. A durable bottom weather seal adjusts to floor irregularities; 9" and 12" top door seals are optional.



Pulley-free design minimizes cable wear and promotes safe operation.



Hi-Fold Doors are delivered completely rigged. 7/32" lift cables with a 5 to 1 safety factor are secured to top rail of the door and wrap around large diameter drums on the full-width drive shaft as the door rises. Cable guards cover the lift drums to protect people, clothing, and pets. Lift cable "poppers" (inset photo) automatically push the center hinge away from the building as the door rises.

Automatic jamb latches optional

(U.S. Patent No. 5,343,923)

Patented automatic, "knee-action" jamb latches release the Hi-Fold Door when opening, and grab latching hardware on your building when closing, to pull it tight against the jambs. An optional full-width safety edge reverses the door if an obstacle is encountered. Automatic cane-bolt, on doors over 40' wide, secures and releases the door at the floor. Optional radio control lets you operate the door from outside your building. Optional remote antenna increases transmitter range.



Auxiliary arms provide high-clearance advantages.

(U.S. Patent No. 4,609,027)

Patented auxiliary arms on each side of the Hi-Fold Door enable it to open completely while requiring less overhead space. As the door rises, smooth-rolling steel wheels on the arms contact the optional reinforcement rails on both jamb posts to provide strong, dependable support. Double-strength center hinge, welded-steel wind trusses and strong, vertical joints combine with the auxiliary arms to hold the door in the horizontal, sag-free, full-open position.

Walk doors and windows are optional.

Add to the convenience and appearance of your Hi-Fold Door by ordering walk doors for easy access to your building and/or windows for natural lighting inside. Choose from a wide variety of attractive styles and sizes. Framed openings for the door and windows you desire are welded into your Hi-Fold Door panels at the factory. Walk door and windows are then easily mounted in place after the Hi-Fold Door is installed on your building.



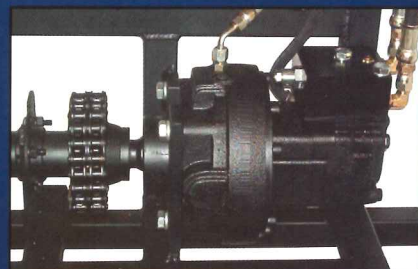
Shipped fully assembled for fast, easy installation.

Hi-Fold Doors are custom built for every job and shipped to your building site completely assembled and wired. When you're ready to install, simply hoist the door into place over the opening, fasten the hinges to the building header, adjust the high-clearance auxiliary arms and connect the wiring to your power source. Except for applying the skin, your Hi-Fold Door is ready to operate.



Retrofit installations retain full door opening clearance.

Hi-Fold Doors are ideal for replacing worn-out or hard-rolling sliding doors, troublesome overhead doors and closing doorless opening on existing buildings without changing building design. In-place headers are normally adequate for mounting the door. Side-wall installations can be made without changing the roof line. Original door opening clearance is retained. Installation is simple, easy and fast.



Hydraulic Lift Unit (Patent Pending)

Powerful hydraulic lift system increases door speed for reduced cycle times. Door travels 2-3 times faster than standard gearbox driven doors. Shipped completely assembled, tested and full of oil. Includes safety brake to lock door in position in the event of sudden hydraulic pressure loss. Wired 220 volt single phase.



Free Standing Door Frame

Jambs and header support for door operation. This frame is ideal when building structure is inadequate or questionable. Jambs can be anchor bolted to concrete or set below grade on a footing. Header to be attached to building to assist with horizontal loads.

Hi-Fold Doors fill many needs!

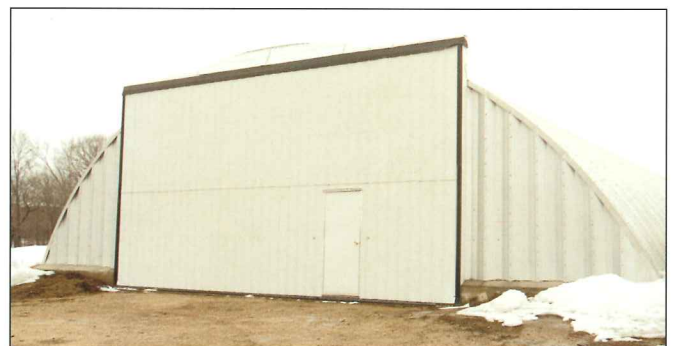
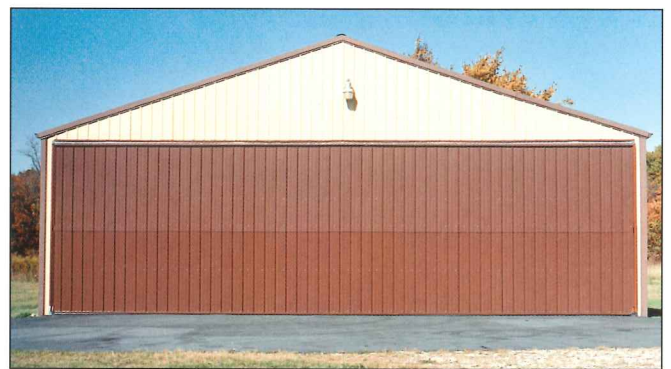
You won't go wrong with quality-built Hi-Fold Doors! They're the only bi-fold doors with high-clearance advantages, requiring less overhead space. Made of heavy-duty steel tubing in sizes up to 70-feet wide and 20-feet high, their rugged, all-welded construction prepares them for many years of day-in and day-out use with minimum maintenance. Cost-saving, standard bi-folds are also available for installations where Hi-Fold advantages are not required. A dependable, three-year warranty covers all materials and workmanship.

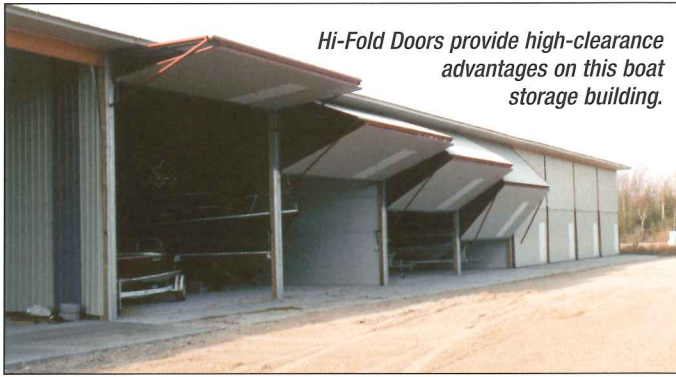


Experimental Aircraft is housed in an all-steel building with a Hi-Fold Door.



117 Hi-Fold Doors on 9 buildings reduced construction costs at this municipal airport.

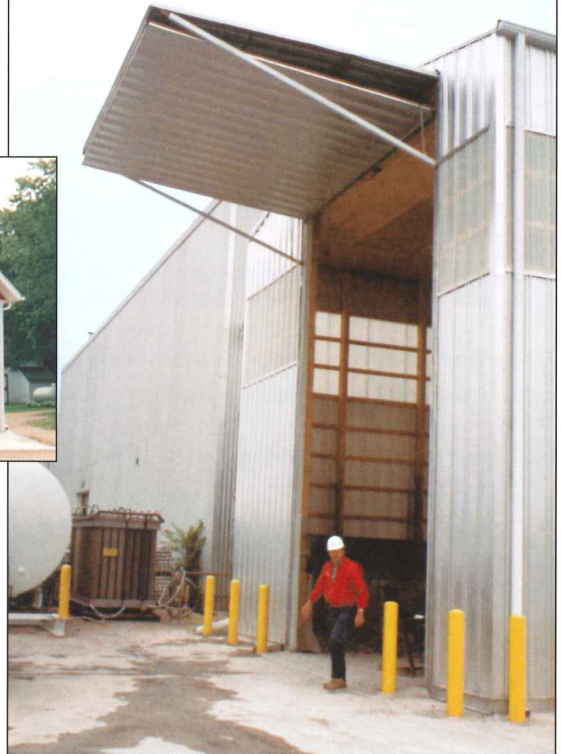




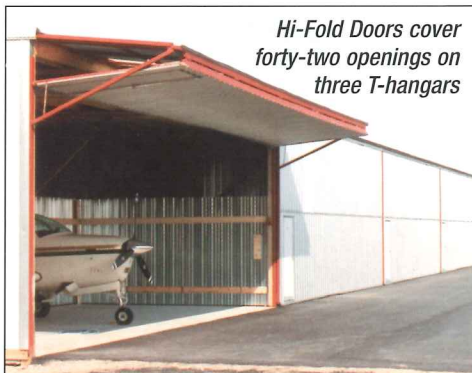
Hi-Fold Doors provide high-clearance advantages on this boat storage building.



Hi-Fold Door allows tall trucks to dump cans at an aluminum recycling plant.



A Hi-Fold Door allows a larger opening on this existing building.



Hi-Fold Doors cover forty-two openings on three T-hangars



Adjacent to this home and personal office is a hangar, with a Hi-Fold Door.

HI-FOLD DOOR SPECIFICATIONS

- **Standard door sizes** - 12' to 70' clear opening width; heights to 20' clear.
- **Main door structure** - Double 2" x 4" x 1/8" Class A500 structural center hinge line tubing on doors to 46' wide and double 2" x 6" Class A500 on larger doors.
- **Door frame** - 14-gauge, welded, Class A513 square steel tubing: 1-1/2" x 1-1/2" on doors up to 46' wide; 2" x 2" on doors over 46' wide. Door frame unitized on doors to 46' x 18'. Doors over 18' high and over 46' wide built in right and left halves. Doors over 18' high may have the top and bottom horizontally divided to facilitate freight.
- **Door trusses** - Heavy-gauge steel tubing: 1 to 3 horizontal trusses, 6 1/2" to 12" deep, depending on door width, height and load requirements.
- **Door finish** - All doors primed with black water base oxide and painted with black ester enamel epoxy.
- **Hinges** - Strong factory welded leaf type hinges are installed on the horizontal centerline and top of the door. Top hinge can be ordered with 9-1/4" wide leaf up for wood buildings or 3" wide leaf up for steel buildings. Five top hinges on doors to 34' wide, seven hinges on doors over 34' and nine hinges on doors over 56' wide and 16' tall.
- **Auxiliary arms** - Patented, high-clearance door support arms made of heavy-gauge square-steel tubing with self-concealing chain followers.
- **Wheels** - roller wheels on door bottom and Auxiliary Arms are solid steel with sealed roller bearings inserts.
- **Drive unit** - 1 h.p. to 2 h.p. totally enclosed fan cooled motor with geared speed reducer. Electric brake installed on all doors. Jack shaft with dual chain drives supplied on all doors. Motor mounted to side on doors over 34' wide.
- **Electrical wiring** - Furnished and completely factory installed. 1 h.p. motors standard 110 volt with circuit breaker: 1.5 hp. and 2 h.p. wired 220 with up electrical safety disconnect. Conduit required to be supplied by others. Electrical components placed on door in a location to meet the requirements of N.E.C. section 513.
- **Operating control** - NEMA type 1 "Up-Down-Stop" three push button control wired 24 volts standard.
- **Up/Down limits** - Easy, positive micro-switch adjustment for top and bottom automatic shut-off contained in relay box with chain drive coupling with drive shaft.
- **Open/Close time** - Approximately one to two minutes, varies with door size.
- **Operating cables** - 7/32" aircraft cables in quantity to provide a 5 to 1 safety factor.
- **Cable lift drums** - Four 2" diameter lift drums with cable guide and cable guard installed on full width drive shaft. Doors smaller than 36' supplied with three lift drums. Doors larger than 56' wide and 16' tall supplied with six lift drums.
- **Drive shaft** - Full width drive shaft constructed of 2" diameter steel torque tube. Load bearings supporting the drive shaft are installed on each side of lift drum and are bronze with grease fitting.
- **Single location lock** - Patented self adjusting latches secure door to jambs with the turn of a crank. Eliminates walking to each side of door to lock/unlock. Micro switch safety disconnect supplied to interrupt power if Single Location Latch is not unlocked.
- **Bottom follower system** - Hold bottom of door against building with door closed.
- **Rubber bottom seal** - 3" space between door frame and finished floor sealed with standard 12" wide bottom seal.
- **Floor cane-bolt** - Factory installed at center of door over 40' wide. Cane-bolt slides thru sleeve on door into a hole drilled in the floor.
- **Warranty** - 3 years on materials and workmanship.

Optional Features

- **Extra-heavy duty trussing** - Standard wind load can be increased or special demands provided.
- **Rubber top seal** - Standard 12" wide rubber roofing membrane with ultraviolet inhibitor to weather proof top of door.
- **Weather-strip package** - Supplied in bulk on a per foot basis for sealing between door frame and building jamb on vertical and horizontal surfaces and at center hinge area.
- **Jamb reinforcement rail** - 10 gauge galvanized steel 5" wide, suitable for doors to 46' wide, 3/16" oxide primed plate 5-1/2" wide available for doors wider than 46'. Wood or concrete jamb buildings require a reinforcing plate for operation.
- **Automatic "knee action" jamb latch** - Patented drive shaft driven latch reaches out and pulls door securely closed before motor shuts off. Automatic cane bolt supplied on doors over 40' wide. Single location latches deleted. Safety edge recommended.
- **Safety edge** - Full width sensing switch to automatically stop and reverse a closing door if obstacle is encountered. Attaches to bottom of door prior to bottom seal.
- **Dead-man operating control** - NEMA type 1 three button control wired so as to require constant pressure for door to raise or lower.
- **Up electrical safety disconnect** - Completely removes power if limit control fails, standard on 1.5 h.p. and 2 h.p. doors. 1 h.p. doors supplied with circuit overload protection.
- **Commercial radio control** - 3 button control allows door to be opened, stopped and closed or any combination from remote location. Requires Automatic Jamb Latch.
- **Remote antenna for radio control receiver** - Increase range of radio control transmitter. Can be installed outside building.
- **Automatic cane-bolt** - Increases wind-load strength of door frame. Standard on doors over 40' wide.
- **Standard bi-fold doors** - Available for use where Hi-Fold Door high-clearance advantages are not needed.
- **Walk doors** - Standard aluminum frame insulated or heavy-duty steel frame insulated doors with residential grade keyed locksets.
- **Windows** - Standard single glazed sliders or insulated commercial grade slider windows. Fixed sash windows available.
- **Framed openings** - Prepared openings for walk doors and windows. Includes step guard for walk door.
- **Free standing door frames** - Jambs and header supplied when adequate building structure is not available.
- **Hydraulic Lift Unit** - Powerful hydraulic lift system increases door speed for reduced cycle times. Door travels 2-3 times faster than standard gearbox driven doors. Shipped completely assembled, tested and full of oil. Includes safety brake to lock door in position in the event of sudden hydraulic pressure loss. Wired 220 volt single phase. Standard on some sizes.

Because of its continuing program of product improvement, Hi-Fold Door Corporation reserves the right to make changes in specifications and designs without notice or obligation.

For more information contact:



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