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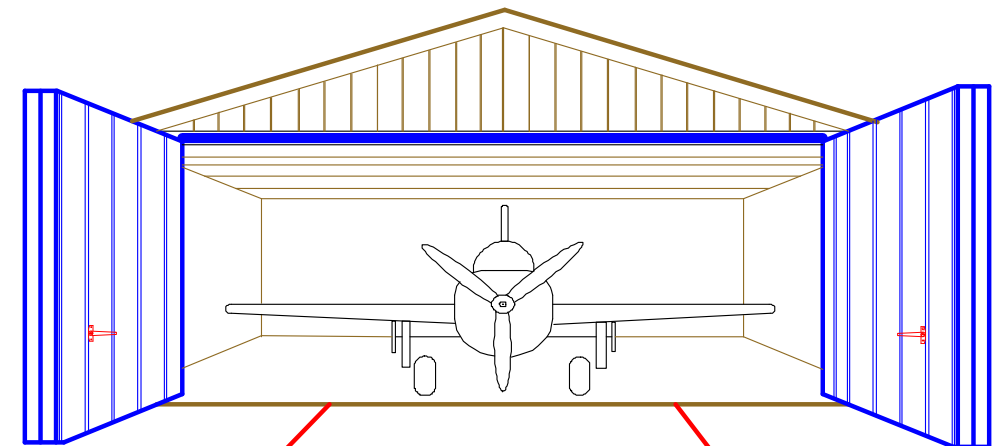
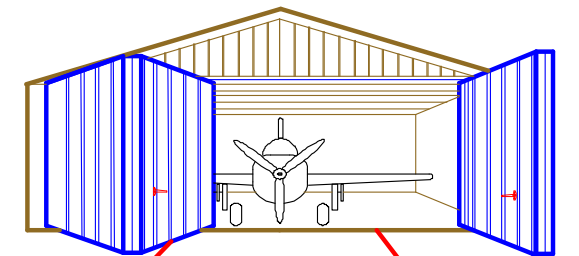
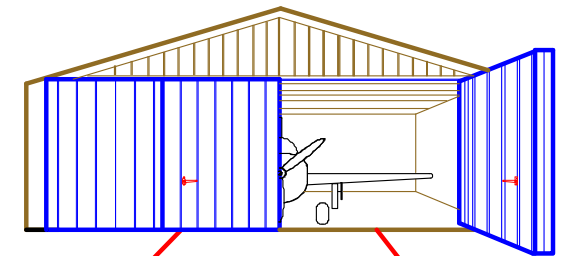
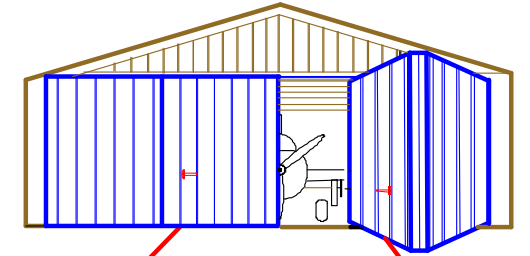
**Cool-Air, Inc.**  
 Po Box 2280  
 Malta, NY 12020  
 Toll Free 866-580-8980 International 518-580-8980  
 Fax 518-691-8347 sales@ManualHangarDoors.com

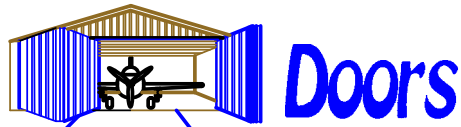


## CSA-4.5-HB Horizontal Bi-Fold Door System From Cool-Air

**Flexible Design works  
 Reducing Construction  
 Cost whether Post Frame,  
 Pre-Engineered Steel,  
 New Construction  
 Or Retrofit.**

**The Easiest Manually  
 Opening Door on the  
 Market**





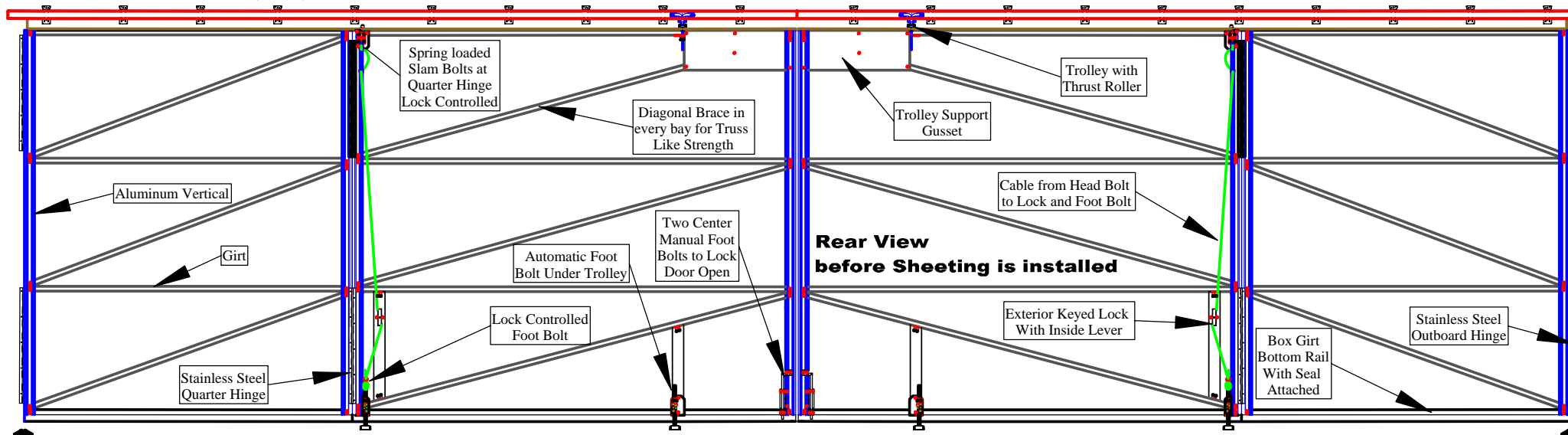
# Cool-Air, Inc. CSA-4.5-HB Horizontal Bi-Fold System

[www.ManualHangarDoors.com](http://www.ManualHangarDoors.com)

**Places the Load on the Building Column where maximum strength is available**

This truly unique door places the minimum load on the building. By hinging the truss like structure on the building column, the majority of the load is placed at the base of that column. Absolutely all the available opening height is available. Requires only five inches to store open on each side. The top mounted guide track requires seven and one quarter inches above the opening offering the prospect of a very low profile building design. No need to have two or three more feet of building height as necessary for the vertical bi-fold doors. This will reduce your cost in building design as well as providing an economical door.

US Patent Number 6,705,377 B1



**Rear View  
before Sheetting is installed**

Door can be installed directly on Post Frame Construction 6X6 wood columns meaning that new doors can be installed on old buildings with a minimum amount of retrofit work. New buildings should not require overkill structure design needed for other doors. Seventy percent of the door weight is on the column with the remaining thirty percent on the overhead structure. Wind load is transferred at the door verticals to the overhead and floor through a total of eight lock points and the two trolleys. Top and bottom seals are provided and vertical joints are virtually self-sealing. Center Astragal supplied.

## Typical 40' X 12' door frame shown

## Diagonal Brace in Each Bay for Truss like strength

**CSA-4.5 Complex Structural Aluminum** vertical rail components extruded from 6063-T3 material. Pre-painted white and will not rust or require maintenance. Unique shapes fit together easily and provides the ability to field assemble components using TEK screws.



**Roll-Formed 20 Gauge Galvanized Steel box tube girt** and horizontal brace snugly fits into the aluminum vertical to create the door structure and provide the solid base needed for the exterior sheeting attachment. Equal Brace and girt system provides truss like strength and allows many sheeting options.



**Stainless Steel Quarter Panel hinge** is offset to provide operating space for the rear mounted head bolt and foot bolt. Two standard 36" Hinges per door half are attached with TEK screw and include a reinforcement channel inside the aluminum vertical.

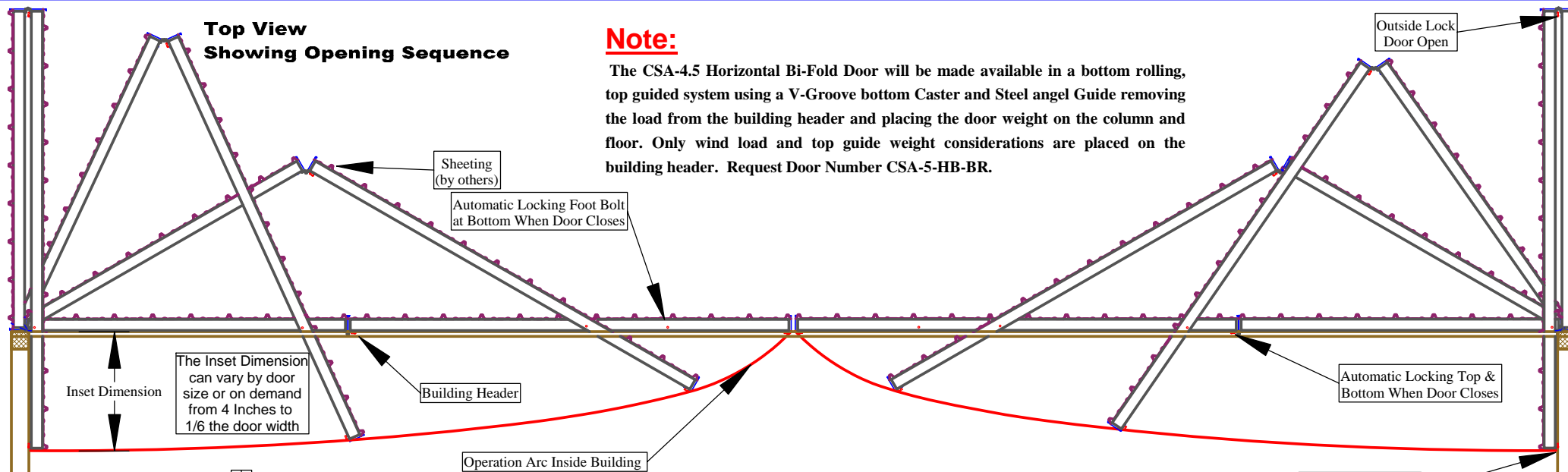


**Stainless Steel Outboard hinge** is pre-punched to bolt to the Outboard vertical and the building column. Hole locations are set to mate the vertical to the building column without needing additional seals. Two standard 36" Hinges per door half.



**Two Galvanized Spring Loaded Slam Latches** per door. Automatically secure the door to the header at the Quarter Hinge line when closed and does not require operator alignment - just push closed. Heavy duty stop works with slam bolt. Slam Bolt retracted by the external keyed lock system. Including steel strike and tension spring.

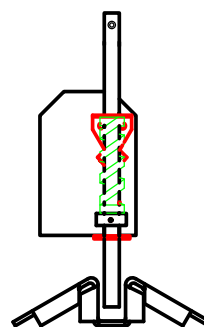
**Top View  
Showing Opening Sequence**



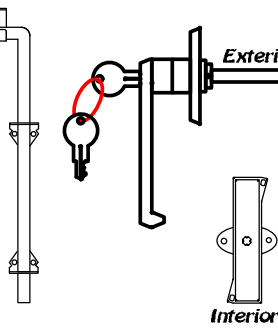
**Note:**

The CSA-4.5 Horizontal Bi-Fold Door will be made available in a bottom rolling, top guided system using a V-Groove bottom Caster and Steel angel Guide removing the load from the building header and placing the door weight on the column and floor. Only wind load and top guide weight considerations are placed on the building header. Request Door Number CSA-5-HB-BR.

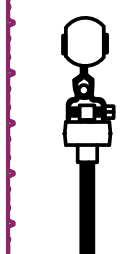
**Floor Mounted Foot Bolt Strike System** Makes locking the door to the floor automatic. Just push the door closed and the foot bolt at the quarter hinge line rides up and drops into the strike. The geometry of the door movement allows the foot bolt located directly under the trolley to slide out of the strike without being raised. This provides for a simplified automatic locking system. Strikes also supplied for the extended foot bolt to lock the door open. This requires a pad or stub column at floor height. Manual foot bolt supplied to attach to door center verticals and hold door open. Top foot bolt guide attach to doubler angle plates and heavy duty bolted lower foot bolt guides supplied.



**Manually operating Foot Bolts** attach to the center verticals and are used to secure the door open and allow the standard foot bolts to close automatically. The Manual Foot bolt can also be used to secure the door open at any intermediate point with an extra hole drilled in the floor. This eliminates the need for a walk door in most applications.



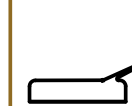
**Keyed Exterior lever Locks** and interior lever are standard and will operate the quarter hinge line locks, Top Slam Bolt and Bottom Foot Bolt, on one half of the door from outside or inside by aircraft control cable connections. This allows the door to be unlocked, opened and secured open from one control position with minimum effort. A Pre-Painted exterior pull handle is positioned to increase operator leverage when opening or closing the door.



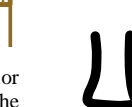
**Delrin Trolleys** include heavy duty round galvanized rollers that are guaranteed for life, have internal roller bearings and have a thrust roller to make door operation smooth and easy. Thrust Roller keeps trolley aligned in the track and protects the header.



**CANNON BALL** heavy duty round galvanized track is self-cleaning so that dirt will not build up inside and make the door hard to open. Riveted Key-Hole mounting Brackets hold the door securely.



**Vinyl Top Seal** with flexible wipe attaches on top of the door acts as a full width stop pressing against the header when the door is closed to secure the door and seal out weather.



**EPDM Bottom Seal** is attached to the bottom rail allowing a flexible space under the door to compensate for irregular floors, allow unrestricted movement and to seal out weather.



**Extruded Aluminum Astragal** attaches at the center of the door to allow operating room between the door halves and seal that space when the door is closed.