

The ASSA ABLOY Group is the global leader in access solutions. Every day we help people feel safe, secure and experience a more open world.

ASSA ABLOY eBook

Tornado Resistant Assemblies

Experience a safer and more open world

ASSA ABLOY

About This eBook...

This eBook is intended to provide an overview of the new ICC 500 2020-2014 Tornado Resistant Standard and ASSA ABLOY Assemblies certified to the new standard

StormPro Doors®: CECO DOOR, CURRIES

Locking Hardware: CORBIN RUSSWIN, MEDECO and SARGENT

Door Accessories: MARKAR, McKINNEY, NORTON, PEMKO, RIXSON, ROCKWOOD, SECURITRON and ASSA ABLOY ACCENTRA

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Common Applications

- K-12
- University
- Worship Centers
- Community Centers
- Healthcare and government facilities
- Community shelters and safe rooms
- 911 call stations, emergency operation centers
- Fire rescue, ambulance and police stations



History of ICC 500

- Beginning in 2002 the International Code Council and the National Storm Shelter Association started working to create the first Standard for the Design and Construction of Storm Shelters, to be released as ICC 500 – 2008.
- ICC 500-2008 was first referenced in the 2009 IBC as the standard for use when people chose to construct a shelter in a public facility. The language remained in place for the 2012 edition of the IBC providing guidance for voluntary construction of shelters, but neither edition contained mandatory requirements for construction of shelters.
- The 2015 Edition of the International Building Code brought two significant changes, first being the adoption of the new edition of ICC 500 2020-2014 and secondly the **mandatory** requirements for shelter construction.



Code and
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Test Methods and Standards

- StormPro® Tornado Resistant Assemblies are UL classified to the below standards and test methods
- ICC 500:
 - The International Code Council (ICC) 500 2020-2014 is a referenced standard in the 2015 International Building Code® (IBC) and the 2015 International Residential Code® (IRC). Buildings or spaces designated for use as a shelter from tornadoes and/or hurricanes within the scope of the IBC and IRC must conform to the requirements in ICC 500.
- FEMA P-361 (2015 and 2021), Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms

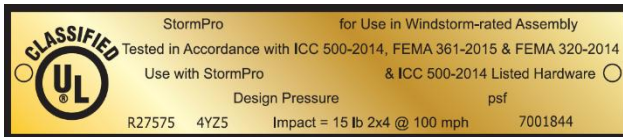


What are StormPro® Assemblies?

- StormPro® is the ASSA ABLOY product designation for all Tornado Resistant Assemblies including doors, frames and hardware that are designed to withstand debris from tornado force winds and help save lives.
- The extra heavy duty StormPro Tornado Resistant Assemblies help fortify the opening to withstand extreme wind speeds of up to 250 miles an hour during a tornado.
- StormPro Assemblies are listed to ICC 500 2020-2014 standard, as required by the International Building Code for use on tornado shelters in new construction at K-12 schools and critical emergency operation facilities.



StormPro® Door Construction



- 1- 3/4" thick door
- Includes 3rd party (Underwrites Laboratories) classification label to ICC 500 2020-2014 and FEMA P-361 2015-2021
- Core Construction*
 - 14 Gauge (12 gauge optional) galvanized or cold rolled steel face sheets with steel stiffened or honeycomb core (polystyrene if not rated) with welded top cap for **multipoint locks**
 - 14 gauge (12 gauge optional) galvanized or cold rolled steel face sheets with steel stiffened or honeycomb core (polystyrene if not rated) and 14 gauge end channels for **exit devices**
 - 14 gauge (12 gauge optional) galvanized or cold rolled steel face sheets and 10 gauge liner, steel stiffened core (polystyrene if not rated) with 14 gauge end channels for **shutters**
- Majority of assemblies fire rated up to and including 3 hours by UL
- Design pressures up to +/- 284 psf
- Optional factory installed 4" x 25" or 10" x 10" visible glass fire rated up to 90 minutes

*Design pressures, assembly construction and manufacturing location may vary to comply with domestic government sourcing regulations, trade agreements or acquisition polices

StormPro® Field Glazed Assemblies



Field Replaceable Glass Module

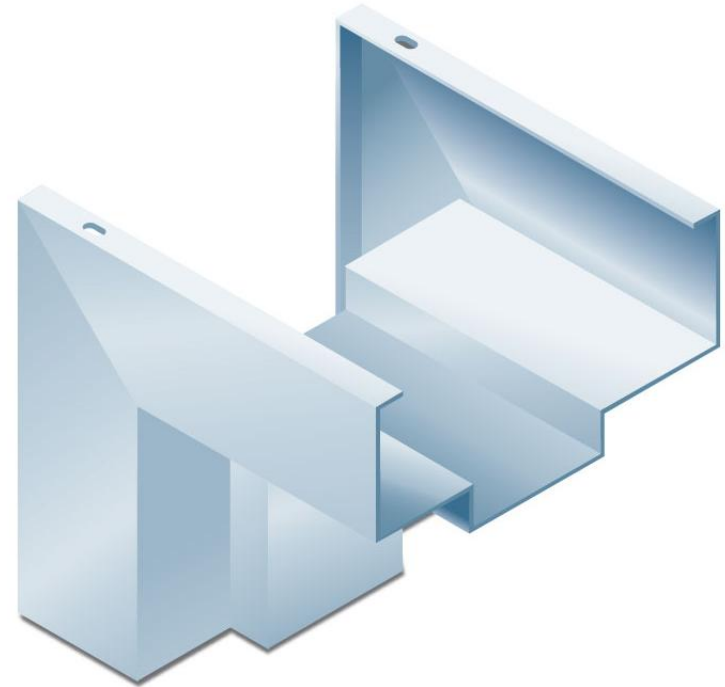
- Patented (US-20230323731-A1) design allows for glass module to be replaced if damaged without replacing the door
- Factory installed 4" x 25" or 10" x 10" visible glass
- Optional UL 90 minute fire label on both glass sizes
- Meets impact requirements for ICC500 2020-2014 and FEMA P-361 2015-2021
- +/-284 psf design pressure

Glazed Assemblies

- Minimum and maximum sizes follow current assembly configurations including singles and pairs
- Available with the following hardware:
 - Corbin Russwin FE6600 Series and SARGENT FM7300 Series multi-point locks
 - Corbin Russwin FE5400S and PED5400 FE Series multi-point exit device
 - SARGENT FM8700 and FM-PE8700 Series surface vertical rod exit device
 - All accessory hardware available with current flush assembly configurations

StormPro® Frame Construction and Anchoring

- 14 Gauge (12 gauge optional) galvanized or cold rolled steel frames
- Jamb depths 4" – 14"*
- Knock down or welded corners
- 4" face head available
- 4 sided frames for shutter doors
- Majority of assemblies fire rated up to 3 hours by Underwriters Laboratories
- Single and pair communicating frames available for Multi-Point locks
- Anchoring options include: existing opening, masonry wire, and masonry T anchors
- Frames can also be used in pour in place walls and can be welded to the building structure
- Frames are not required to be grouted when using existing wall jamb anchors
- *See the StormPro® tech sheets for specific construction and anchoring details on each assembly



Multi-Point Lock Standard Features

- Single or paired openings: Inswing and outswing
 - Min single: 2'8" x 6'8" Min pair: 5'4" x 6'8"
 - Max single: 4'0" x 8'0" Max pair: 8'0" x 8'0"
- Maximum design pressure +/- 284 psf
- SARGENT FM7300 Series and CORBIN RUSSWIN FE6600 Series utilize a mortise lock, engineered to provide a full range of mechanical and electromechanical functions and options
- Fire rated up to three hours
- Three latch points project automatically; Fourth latch point with a single motion
- Concealed vertical rods for additional security and dogging option allows device to operate as standard mortise lock with a single latch point
- Available with Muséo and Studio Collection levers and optional MicroShield™ antimicrobial coating
- SARGENT 998 Series or CORBIN RUSSWIN 988CR surface bolts for inactive doors
- 3/8" door undercut
- 4 Sided frame option and communicating frame option (singles and pairs)
- Replaces SARGENT FM7100 Series, CORBIN RUSSWIN FE6800 Series and YALE 7380F Series locks



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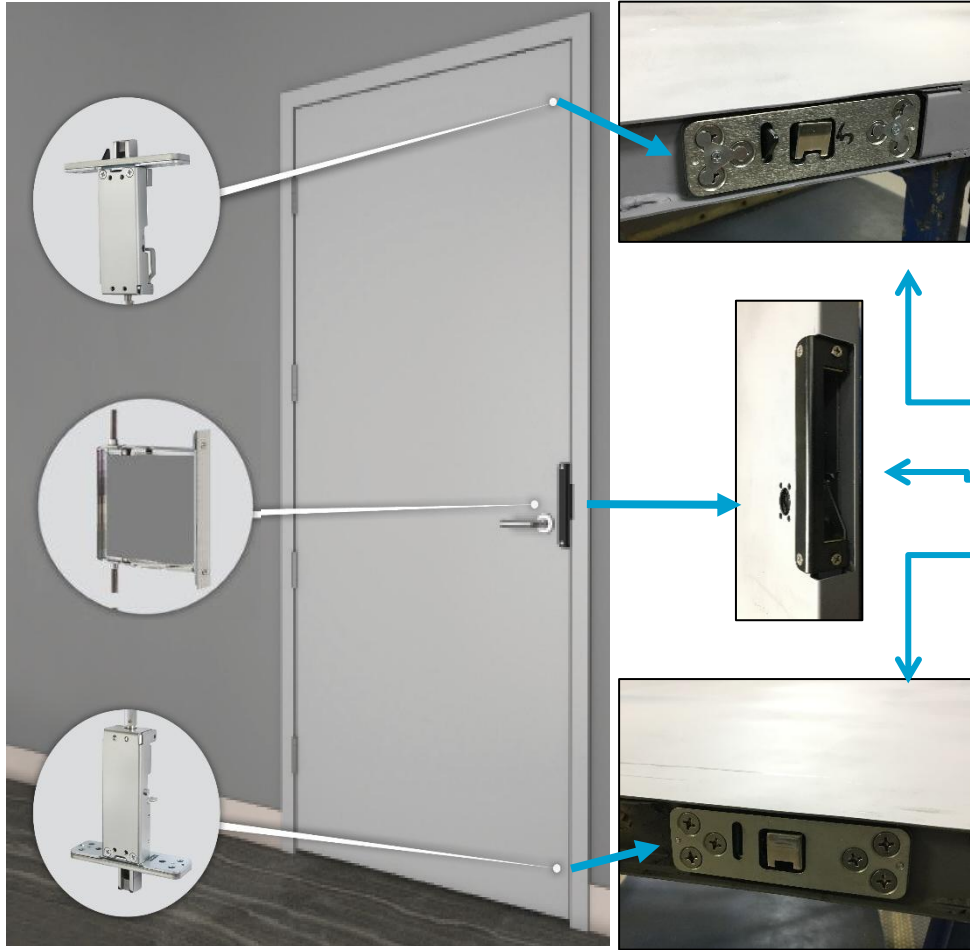
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Multi-Point Lock

Factory Installed Concealed Vertical Rod Assembly

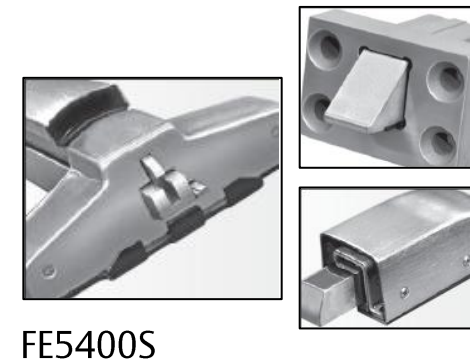
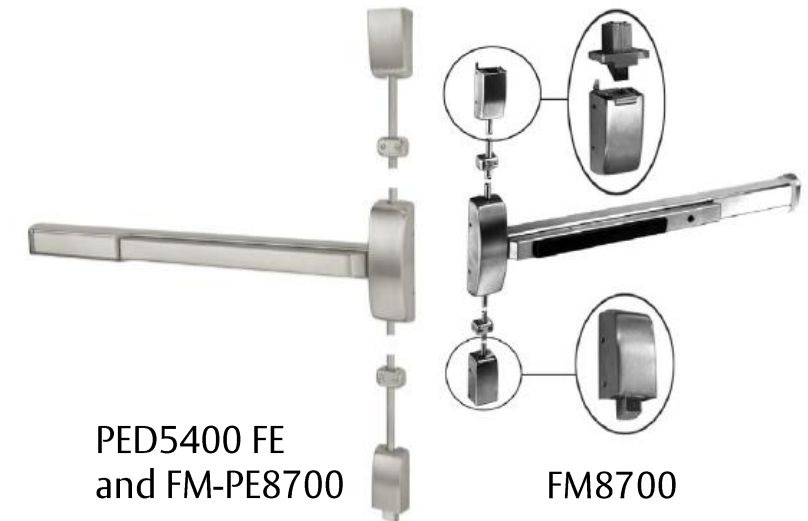


- Current order process does not change. Doors and frames are ordered through the door brands and hardware is ordered through the hardware brands as usual
- Concealed vertical rods, top and bottom bolts, and mortise lock body cassette must be factory installed in a CECO or CURRIES StormPro door
- Top rod latch assembly
- Mortise lock body cassette
- Bottom rod latch assembly
- All other hardware components are shipped directly from SARGENT or CORBIN RUSSWIN and must be installed by a factory trained installer
- **IMPORTANT: DO NOT REMOVE ANY HARDWARE BLOCKING OR FILLER PLATES FROM DOOR OR FRAME UNTIL MORTISE LOCK IS READY TO BE INSTALLED**



Exit Device Standard Features

- Single or paired openings: Outswing only
 - Min single: 2'8" x 6'8" Min pair: 5'4" x 6'8"
 - Max single: 4'0" x 8'0" Max pair: 8'0" x 8'0"
- Maximum design pressure +/- 284 psf
- SARGENT FM8700 Series and CORBIN RUSSWIN FE5400S Series utilize specially machined rails and internal components to make it sturdier and more robust than standard products
- SARGENT FM8700, FM-PE8700 Series and CORBIN RUSSWIN PED5400 FE Series adjustable two point latching device with mullion not required
- CORBIN RUSSWIN FE5400S Series adjustable 3 point latching device with CORBIN RUSSWIN hardware mullions CRFE700 or CRFE700A series are required
- Fire rated up to 3 hours
- Available with Muséo and Studio Collection levers and optional MicroShield™ antimicrobial coating
- 5/8" undercut with optional 3/8" undercut with SARGENT FM8700 Series
- YALE 7180F Series no longer available



Storm Shutters Standard Features

- Single and pair openings: Inswing and outswing
 - Min single: 2'6" x 3'0" Min pair: 5'2" x 3'0"
 - Max single: 4'0" x 6'8" Max pair: 8'2" x 6'8"
- Pairs require 12 gauge hollow metal mullion
- Maximum design pressure +/-284 psf
- SARGENT FM6100 Series multipoint lock or CORBIN RUSSWIN FE6700 Series multipoint lock
(Due to the nature of shutter applications the SARGENT and CORBIN RUSSWIN multipoint locks do not require factory installation)
- Fire rated up to 3 hours singles and pairs
- Concealed vertical rods for additional security
- Available with Muséo and Studio Collection levers and optional MicroShield™ antimicrobial coating
- 1/4" door undercut
- 4 sided frame only for pairs
- See updated accessory hardware in the accessory section
- YALE 7370 Series no longer available



3 Deadbolt (SP 320) Standard Features

- Single openings: Inswing or outswing
 - Min single: 2'8" x 6'8"
 - Max single: 3'0" x 7'0"
- Maximum design pressure +/-254 psf
- Ideal for light commercial or residential storm shelters
- Factory Supplied Hardware (loose)
 - Cylindrical Lock: SARGENT 10X Line Series 28-10XU15XLLX26DLHR
 - Deadbolts: 3 MEDECO Maxum 11C602T-26-DL-T-N A, KA3
 - Hinges: 3 McKINNEY SP 3386 26D (4 1/2" x 4 1/2" x 0.180")
- Optional 10" x 10" visible glass factory installed with patented (#9528316) designed kit
 - Inswing only with glazing
- 3/4" maximum door undercut
- Not fire rated



Hinges

Product Type	Manufacturer	Model/Series
Hinges	MARKAR*	FM300WT Wide Throw Continuous Hinge FS301 and FS302 Continuous Hinge - Outswing Only HS303 Continuous Hinge - Outswing Only HM304 Continuous Hinge - Outswing Only HG305 Continuous Hinge HG305WT10 Wide Throw Continuous Hinge HG306 Continuous Hinge - Outswing Only FS/SC309 Swing Clear Continuous Hinge - Outswing Only HG310 and HG311 Swing Clear Continuous Hinge - Outswing Only HG315 Continuous Hinge FS321 Continuous Hinge - Outswing Only HG322 Continuous Hinge FM/SC325 Swing Clear Continuous Hinge HG326 Swing Clear Continuous Hinge HG329 Swing Clear Continuous Hinge FM344 Continuous Hinge FM600 Continuous Hinge FM3500 Continuous Hinge FS3501 and FS3502 Continuous Hinge - Outswing Only HG3505 Continuous Hinge
	MCKINNEY	Model SP3786 Butt Hinges (4-1/2"x4-1/2", 4-1/2"x5", 4-1/2"x6", 4-1/2"x7", 4-1/2"x8", 5"x4-1/2", 5"x5", 5"x6", 5"x7", & 5"x8" with or without NRP or QC option) Model SP3386 Butt Hinges (4-1/2"x4-1/2", 4-1/2"x5", 4-1/2"x6", 4-1/2"x7", 4-1/2"x8", 5"x4-1/2", 5"x5", 5"x6", 5"x7", & 5"x8" with or without NRP or QC option)

*With or without EL, PoE, HT, Welded End Pin, Security Stud, or Tamper-proof Fastener options (where available).



Accessories

Product Type	Manufacturer	Model/Series
Door Closers	SARGENT	281 Series - Thru-bolt mounting of body to door only 2409 Series - Thru-bolt mounting of body to door only 351 EHT - Thru-bolt mounting of body to door only 2900 Series Closer/Holder - Threat side mounting only
	CORBIN RUSSWIN	DC8000 Series - Thru-bolt mounting of body to door only
	NORTON	7100SZ Series Closer/Holder - Threat side mounting only 7200 Series Closer/Holder - Threat side mounting only 7500 Series - Thru-bolt mounting of body to door only 7700PT Series - Thru-bolt mounting of body to door only
	ASSA ABLOY ACCENTRA	4400 Series - Thru-bolt mounting of body to door only
Astragals	PEMKO	305_N Split Astragal - Threat side mounting only S771 Astragal S772 Astragal
Door Operators	Norton	5600 Series - Threat side mounting only 5700 Series - Threat side mounting only 6000 Series - Threat side mounting only 6300 Series - Threat side mounting only 5800 Series - Thru-bolt mounting of body to door only (Not bearing the UL Mark)



Accessories

Product Type	Manufacturer	Model/Series
Perimeter seals	PEMKO	S77, S771, S771x6, S772, S773, S776, S776x6, HS2000, HS2000xS44, HS2000xS88, 5110, P240, P241, P242, P243, P244, P260, P261, P262, P263, P264, P265, P266, P380, P381, P382, P384, P385, P386, P387, P388, P390, P391, P392, P393, P394, P396, P397, P398, P484, P490, P491, P493, or P497 (with _NB, _S, _PK, _V, _R, _Q, SSE, SSR, SSS, SSN, _SPK, _P, CN, or _N Suffixes) Adhesive Applied Perimeter Seals
		29045, 29344, 29346, 45041, 45061, 45100, 45137, 45175, 45250, 45400, 46062, 90041, 90062, 90100, 90137, 285, 290, 294, 296, 297, 303, 305, 306, 309, 312, 315, 316, 319, 321, 322, 330, 332, 345, 350, 351, 375, 379, 2815, 2891, 2892, 2893, 2902, 2903, 3151, 3452, 18041, 18050, 18061, 18062, 18100, 18137, 18175, 18250, 18400, 28945, 29310, 29313, 29324, 29326, 293100, 335, 336, 368, 307, 308, 56, or 57 (with _NB, _S, _PK, _V, _R, _Q, SSE, SSR, SSS, SSN, _SPK, _P, CN, _N or _M Suffixes) Screw Applied Perimeter Seals - Threat side mounting only
		346 Rain Drip - Threat side mounting only



Accessories

Product Type	Manufacturer	Model/Series
Thresholds	PEMKO	173, 151, 270, 271, 272, 276, 573, 2715, 2716, 2748, 2749, 2750, 273x3, 273x4, 2746x6, or 274x4 (with or without _FG, _SS, or _SSFG Suffixes) Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		166, 154, 169, 170, 171, 172, 175, 176, 1547, 1710, 1715, 1716, 1717, 1718, 1719, 2548, 2549, 2550, 252x2, 252x3, 253x3, 253x4, 253x6, 254x4, 254x5, 255x5, 256x6 (with or without _FG, _SS, or _SSFG Suffixes) Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		157, 158, 2727, or 766x5 (with or without _FG or _SS Suffixes) Offset Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		182 or 566x3 (with or without _FG or _SS Suffixes) Offset Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		273, 274, 278, 279, 2746, or 2755 (with or without _SS Suffix) Half Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		252, 253, 254, 255, 256, 2555, or 2565 (with or without _SS Suffix) Half Saddle Thresholds - Floor Strike must be mounted directly to structural floor



Accessories - Continued

Product Type	Manufacturer	Model/Series
Thresholds	PEMKO	766 Offset Half Saddle Threshold - Floor Strike must be mounted directly to structural floor
		566 Offset Half Saddle Threshold - Floor Strike must be mounted directly to structural floor X X X 2001, 2005, 2006, 2007, 2008, 2009, 2010, 2705, 273x224, 273x292, 2746x292, 274x224, 274x292, 278x224, 278x292, 279x224, or 279x292 (with or without _FG, _FGT, _FGP, _FGPK, _FGV, _P, _PK, _R, _SSFG, _STC, _T, or _V Suffixes) Latching Panic Exit Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		159, 177, 179, 277, 1855, 252x226, 253x226, 254x226, or 255x226 (with or without _FG, _FGT, _FGP, _FGPK, _FGV, _P, _PK, _R, _SSFG, _STC, _T, or _V Suffixes) Latching Panic Exit Saddle Thresholds - Floor Strike must be mounted directly to structural floor
		18/1 or 14/1 Plate Thresholds - Floor Strike must be mounted directly to structural floor ⁵⁴ threshold



Accessories

Product Type	Manufacturer	Model/Series	
Electronic Transfer	SECURITRON	CEPT ICPT	
Door Position Switches	SECURITRON	DPS-M - 3/4" or 1" diameter hole in edge or top of door and frame (not bearing the UL Mark)	
Door Holders	RIXSON	980M - Electromechanical Thru-bolt mounting only 990M - Electromechanical Thru-bolt mounting only 991M - Electromechanical Thru-bolt mounting only 996M - Electromechanical Thru-bolt mounting only 997M - Electromechanical Thru-bolt mounting only 998/998M - Electromechanical Thru-bolt mounting only 999M - Electromechanical Thru-bolt mounting only	
		SARGENT	1560 - Electromechanical Thru-bolt mounting only 1561 - Electromechanical Thru-bolt mounting only 1562 - Electromechanical Thru-bolt mounting only
		ROCKWOOD	491S - Mechanical 494S - Mechanical
Door Stop/Holder	RIXSON	9 Series - Mechanical	
Door Viewers	ROCKWOOD	620 622	
Protection	ROCKWOOD	BFLG1050 Rod Guard K1050 Kick Plate (For fire rated assemblies, must be screw applied)	
Door Coordinators	ROCKWOOD	576 - Outswing Only 1700 - Inswing Only 2600 Series (with or without 2601 Brackets or 1100 Carry Open Bar option) - Inswing Only	



Value Proposition

Benefits

- StormPro® Assemblies
 - Help shield occupants in a safe room from flying debris
 - All assemblies are third party classified by Underwriters Laboratories with listings to meet ICC 500 2020-2014 with certification labels applied to each assembly and fire rated up to 3 hours
 - Factory installed 4" x 25" and 10" x 10" visible glazing available and can be fire rated up to 90 minutes
 - Patented field replaceable glass module allows for glass replacement if damaged without having to replace the door
 - Shutters are available for safe rooms that require natural lighting from windows during normal, non-threatening conditions then can be closed and secured when severe weather threatens
- Multi-Point Hardware
 - Innovative designs ensures rod engagement during installation; Dogging option with indicator available
 - Multiple functions available including classroom, electrified and access control applications
 - Factory installed concealed vertical rod assembly in CECO or CURRIES doors for trouble free operation
 - Sectional trim with wide variety of decorative levers, rose and trim combinations
 - 4 latch points provides maximum protection
 - Communicating frame option is designed for non-classified doors to be used daily with StormPro doors held open in non-threatening conditions then StormPro doors can be closed with severe weather

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Benefits

- Exit Device Hardware
 - FM8700, FM-8700 and PED5400 FE are some of the only 2-point latching exit device in the industry UL certified to comply to FEMA P-361 guidelines and ICC-500 requirements
 - FE5400S Series is a robust three-point latching system engineered to help protect lives by securing community shelter entries
 - Specially machined rail and internal components make both devices sturdier and more robust than standard products
 - Mullion is not required for FM8700, FM-PE8700 or PED5400 FE
 - Shelter safe side access control may be obtained by pairing the Norton 5800 operator with the PED5400 FE or FM-PE8700 remote latch retraction / MELR access control function
 - Electrified trim options available
- Shutter Hardware
 - All three latching points on the active leaf are activated automatically when the shutter is closed
 - Extra heavy-duty steel components secure the shutter to the frame – at the top, bottom and center latch points
 - Fire rated single shutters available up to and including 3 hours
 - High tensile strength alloy HoloKrome fasteners
 - Singles and pairs available



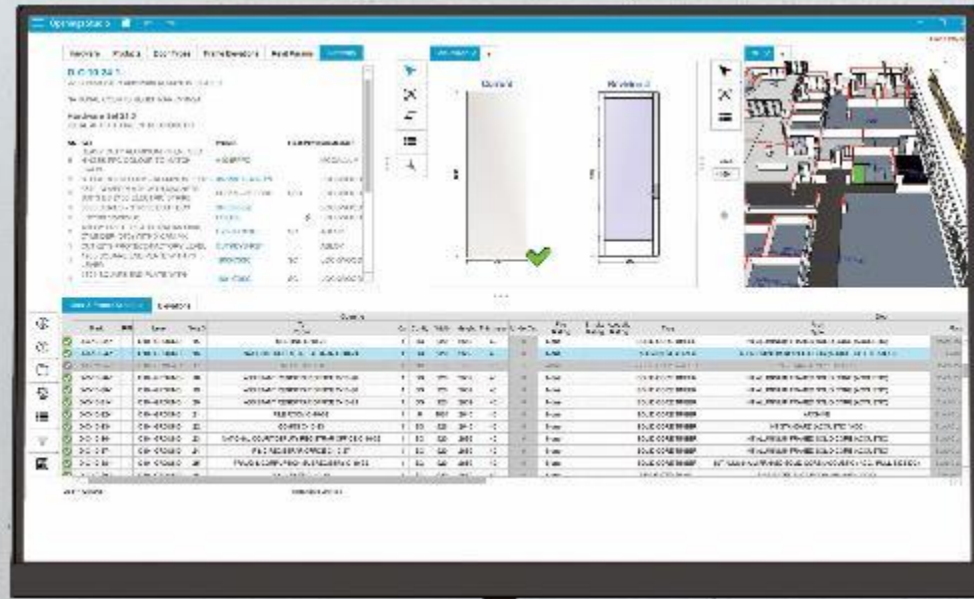
Tools

- ICC 500 Code Resources
 - [Highlights of ICC 500-2014, ICC/NSSA Standard for the Design and Construction of Storm Shelters](#)
 - [Dave's Door Opening – Decoding the New ICC 500 Building Codes](#)
 - [FEMA Commercial Fact Sheet](#)
 - [FEMA Residential Fact Sheet](#)
- Frequently Asked Questions
 - CECO DOOR: [Multi-point lock](#)
 - CORBIN RUSSWIN: [FE6600 Series](#)
 - CURRIES: [Multi-point Lock](#)
 - SARGENT: [FM7300 Series](#)
- Videos
 - [Tornado Resistant Multipoint Lock](#)
 - [Certified vs Non-Certified Tornado Openings](#)
 - BILT APP
 - [CECO DOOR, CURRIES](#)
 - [CORBIN RUSSWIN, SARGENT](#)
- Promotional Materials
 - CECO DOOR
 - [Assembly Overview](#)
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 - [Surface Vertical Rod Exit](#)
 - [Multi-point Exit](#)
 - [Shutter](#)
 - [3 Deadbolt \(320\)](#)
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 - SARGENT
 - [FM7300 Series](#)
 - [FM6100 Series](#)
 - [FM8700 Series](#)
 - [Architectural Accessories](#)

Tools

- Catalogs/Technical Resources
 - CECO DOOR
 - [Technical Data](#)
 - CORBIN RUSSWIN Catalogs
 - [FE6600 Series](#)
 - [FE6700 Series](#)
 - [FE5400S Series](#)
 - [PED5400 FE Series](#)
 - CURRIES
 - [Technical Data](#)
 - SARGENT Catalogs
 - [FM7300 Series](#)
 - [FM6100 Series](#)
 - [FM8700 Series](#)
 - [FM-PE8700 Series](#)
- Contacts
 - Code questions
 - [David Stammen](#) – 704.454.8296
 - Hardware questions
 - [Mia Merrel](#) – 203.498.5668
 - Door and frame questions
 - [Nelson Kraschel](#) – 641.423.1334





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