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ATLNC 1019.01-09 Report Date: 02/22/10
DC Not. # ATLNC 09003

ATLNC Certification # 08-0227.14 Test Dates: 10/19/09 - 01/20/10
FBC Organizational # TST 1555

Test Requested By: Chris Gall
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Test Standards: **FBC – TAS 201-94, 202-94, 203-94**
ASTM E 1886-05, E 1996-09
ASTM E 330-02, E 283-04, E331-00

Note: All tests conducted in accordance with BCCO Test Proposal 09-1190.

Test Conditions: 70-75 degrees F

Design Pressures: 65 psf, -65 psf

Specimen A (Mockup 1-A) Fixed Panel (182-1/2" x 120") as shown in #USA-3103 p 1 of 22
Specimen B (Mockup 1-B) Double Out Swing Doors with sidelites / Transom. (197" x 120") as shown in #USA-3103 p 2 of 22.
Specimen C (Mockup 1-C) Double Out Swing Doors with sidelites / Transom. (197" x 120") as shown in #USA-3103 p 3 of 22.
Specimen D (Mockup F) Fixed Panel (146-1/2" x 108") as shown in #USA-3103 p 5 of 22
Specimen E, (Mockup 5-D) Double Out Swing Doors / Transom (77" x 120") as shown in #USA-3103 p 4 of 22.
Specimen F (Mockup 5-E) Double Out Swing Doors / Transom (77" x 120") as shown in #USA-3103 p 4 of 22.
Specimen G (Mockup H) Double Out Swing Doors (73-5/8" x 98-1/2") as shown in #USA-3103 p 7 of 22.
Specimen H (Mockup G) Single Outswing Door (41" x 99-7/8") as shown in #USA-3103 p 6 of 22.

Configuration: All Specimens were mounted as follows:
Specimens B, C, D, E, F, G, H were mounted in a 2 x 12 wood test buck.
Specimen A was mounted in a steel, CMU block, wood and concrete test buck.

Model Material: Extruded Aluminum 6063 -T5 unless otherwise noted.

Specimen A, Mockup #1-A

Designation: Series BT601/IT600 (Impact) Fixed Panel as shown in drawing USA-3103 sheet 1 of 22.

Overall Size: 182-1/2" x 120"

Configuration: 3 lites wide x 2 lites high

Daylight Opening: 3 lites 57-1/2" x 96": 3 lites 57-1/2" x 15-7/8"

Glazing: 1-5/16" Insulated 1/4"HS + .500" Air + 1/4" HS + .090SGP + 1/4" HS

Glazing Method: Wet Glazed using Dow 995 with 9/16" glass bite

Frame Construction: Extruded Aluminum

Part	Number	Location	Size	Attachment
Head Part NO. BT852 (61543)	3	Top of unit	5" x 2-1/2" x 57-1/2" as shown in drawing USA-3103 sheet 8 of 22	Attached to Jambs and verticals with 4 frame screws each end
Horizontal Part NO. BT862 (61545)	3	15-7/8" from head as shown in drawing USA-3103 sheet 8 of 22	57-1/2" as shown in drawing USA-3103 sheet 9 of 22	Attached to verticals with 3 frame screws each end
Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 120" as shown in drawing USA-3103 sheet 11 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
End Dam part No EC870	2	Subsill End Dam	2-3/8" as shown in USA-3103 Sheet 11 of 20	Side of Subsill
Verticals Part NO BT815 (61540)	2	Intermediate Mullion	5" x 2-1/2" x 119-3/8" as shown in drawing USA-3103 sheet 18 of 22	Attached to the head, horizontal and sill with 4 #12 x 1" HWH SMS Screws at each location

Sill Part NO BT872(61548)	3	Bottom of unit	5" x 3-1/8" x 57-1/2" as shown in drawing USA-3103 sheet 10 of 22	Attached to the sub sill with #12 x 3/4" HWH SMS Type B 2" from end the 16" OC
Subsill Part NO BT870 (61547)	1	Bottom of unit	182-3/4" long and as shown in drawing USA-3103 sheet 10 of 22	Attached to the substrate with 3/8" x 2-1/2" Powerbolt with minimum 2" embedment 2" from end then 16" OC set in a bed of sealant.
Stop Part NO BR863 (61551)	6	Exterior Glazing Stop at mullions and sill	57-7/16" long as shown in drawing USA-3103 sheets 9/10 of 22	Snapped to the sill as shown in drawing USA-3103 sheet 9/10 of 22
Mullion Caps Part NO CP 801	4	Top of verticals and jambs	2-3/8" as shown in USA-3103 sheets 11 and 18 of 22	Attached to top verticals and jambs
Water Deflectors Part # WD 911 Part # WD 912 Part # WD 913	Filler 4 Mullion 4 Jambs 4	End of Horizontals	As Shown in USA -3103 sheets 8/9 of 22	Attached with Dow 795
Setting blocks Part NO SB117	12	Bottom of each Glass piece	As Shown in USA 2958 sheets 9/10 of 22	Between bottom of glass and rails.

Gaskets:

Quantity	Description	Location
113.44 ft	Exterior Gasket Part # NP225	Exterior perimeter of all glass
113.44 ft	Interior Gasket Part # SP250	Interior Perimeter Gasket

Reinforcement: Mullions reinforced with 1/8" Steel channel fastened to the mullion with (2) #12 x 1" HWH SMS 1" from the ends and 12" OC as shown in drawing # USA-3103 sheet 18 of 22.

Screws and Method of Attachment:

CMU Jamb: 3/8" x 3" Powerbolt / 2-1/2" min embedment.

Steel Jamb: 3/8"-13 grade 5 hex head bolt

Sill: 3/8" x 3" Powerbolt / 2-1/2" min embedment.

Header: 3/8" x 3-1/2" Grade 5 Lag Screws / 3" min embedment

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Sealant: Dow 795 perimeter and all joints

Weep Holes: 3/8" diameter located 6" from end and 6" each side of verticals

Specimen B, Mockup # 1-B

Designation: Series BT601/IT600 (Impact) Double Outswing Doors with sidelites / Transom. (197" x 120") as shown in #USA-3103 sheet 2 of 22, mounted in wood test bucks.

Overall Size: 197" x 120"

Configuration: Double Outswing doors with Double Side lights on right side / Transom

Daylight Openings: Side Lights 57-1/2" x 96", Side Light Transoms 57-1/2" x 15-7/8", Doors 26-.7/16" x 82.1/8", Door Transom 72" x 19".

Glazing:1-5/16" Insulated 1/4"HS + 1/2" Air Space x 1/4"HS +.090SGP + 1/4" HS

Glazing Method: Wet Glazed using Tremco Proglaze SSG with 9/16" glass bite

Frame Construction: Extruded Aluminum

Components: As shown in detailed drawings USA-3103 sheets 8 - 22.

Part	Number	Location	Size	
Head Part NO. BT852 (61543)	3	Top of unit	5" x 2-1/2"(2) 57-1/2", (1) 72" as shown in drawing USA-3103 sheet 8 of 22	Attached to Jambs and verticals with 4 frame screws each end
Horizontal Part NO. BT862 (61545)	2	15-7/8" from head as shown in drawing USA-3103 sheet 8 of 22	57-1/2" as shown in drawing USA-3103 sheet 9 of 22	Attached to verticals with 3 frame screws each end
Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 119-3/8" as shown in drawing USA-3103 sheets 11/15 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
Water Deflector Part # WD911 Part # WD912 Part # WD913	Filler 4 Mullion 4 Jambs 4	End of Horizontals	As Shown in USA -3103 sheets 8/9 of 22	Attached with Dow 795

Verticals Part NO BT815 (61540)	2	Vertical Mullions	5" x 2-1/2" x 119-3/8" as shown in drawing USA-3103 sheet 16/18 of 22	Attached to the head and sill with 4 #12 x 1" HWH SMS Screws at each location
Sill Part NO BT872 (61548)	3	Bottom of unit	5" x 3-1/8" (2) 57-1/2" (1) 72" as shown in drawing USA-3103 sheet 10 of 22	Attached to the Jambs sub sill with #12 x 3/4" HWH SMS Type B 2" from end the 16" OC
Subsill Part NO BT870(61547)	1	Bottom of unit	197-1/4" long and as shown in drawing USA-3103 sheets 10/14 of 22	Attached to the substrate with 3/8" x 2-1/2" Powerbolt with minimum 2" embedment 2" from end then 16" OC set in a bed of sealant.
Stop Part NO BR863 (61551)	4	Exterior Glazing Stop	57-7/16" long as shown in drawing USA-3103 sheets 9/10/12 of 22	Snapped to the sill and horizontals
Mullion Caps Part NO CP 801	4	Top of verticals and jambs	2-3/8" as shown in USA-3103 sheets 11/15/ 17 and 18 of 22	Attached to top verticals and jambs
Sub Sill End dam Part No EC 870	2	Each end of sub sill	As Shown in USA 3103 sheet 10 of 22	Attached with 2 #8 x 3/4" PH OH Tek screws
Setting blocks Part NO D917	14	Bottom of each Glass piece	As Shown in USA 3103 sheets 9, 10, 12 of 22	Between bottom of glass and rails.
Top Rail Part NO IE502	1	Top of door	As shown in USA-3103 sheet 12 of 22	Attached to door stile as shown in drawing
Door Header Part NO BT867 (61546)	1	Above door	As shown in USA-3103 sheet 12 of 22	Attached to Verticals
Bottom Rail Part NO IE501	1	Bottom of door	As shown in USA-3103 sheet 14 of 22	Attached to door rail as shown in drawings
Threshold Part NO TH100 (Water Threshold)	1	Bottom of door	As shown in USA-3103 sheet 14 of 22	Attached to jambs and subsill with #12 x 3/4" HWH Screws

Door Rail (Stile) Part NO IE520 (Hinge Stile Right Door)	1	Side of door	As shown in USA-3103 sheet 16 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE520 (Hinge Stile Left Door)	1	Side of door	As shown in USA-3103 sheet 15 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE560/DN350 (Lock Stile)	1	Side of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE550	1	Side of door	As shown in USA-3103 sheets 19 of 22	Attached to top and bottom rails and jambs

Gaskets:

Quantity	Description	Location
127ft	Exterior Gasket Part # NP225	Exterior perimeter of all glass
127ft	Interior Gasket Part # SP250	Interior perimeter all glass
28 ft	NP801 Door Gasket	Door Stop and Threshold
6ft	W-188 Weatherstripping	Door Header
32ft	W-510 Weatherstripping	Doors Stile Sweep

Reinforcement: Mullions reinforced with 1/8" Steel channel fastened to the mullion with (2) #12 x 1" HWH SMS 1" from the ends and 12" OC as shown in drawing # USA-3103 sheet 18 of 22.

Screws and Method of Attachment:

Head / Jambs / Sill: 3/8" x 3-1/2" Lag Screws

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Hardware: AHT 8 Locks on both doors / LCN 4111 Closers
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout 6", 45-1/2", 84-15/16".

Sealants: Spectrum II

Weep Holes: 3/8" diameter located 6" from end and 6" each side of verticals

Specimen C, Mockup # 1-C

Designation: Series BT601/IT600 (Impact) Double Out Swing Doors with sidelites / Transom. (197" x 120") as shown in #USA-3103 sheet 3 of 22, mounted in wood test bucks.

Overall Size: 197" x 120"

Configuration: Double Outswing doors with side lights on both sides / Transom

Daylight Openings: Side Lights 57-1/2" x 96", Side Light Transoms 57-1/2" x 15-7/8", Doors 26.7/16" x 83-1/2", Door Transom 72" x 19".

Glazing: 1-5/16" Insulated 1/4"HS + 1/2" Air Space x 1/4"HS +.090SGP + 1/4" HS

Glazing Method: Wet Glazed using Dow 995 with 9/16" glass bite

Frame Construction: Extruded Aluminum

Components: As shown in drawings USA-3103 Sheets 7 - 20.

Part	Number	Location	Size	Attachment
Head Part NO. BT852 (61543)	3	Top of unit	5" x 2-1/2" (2) 57-1/2" (1) 72" as shown in drawing USA-3103 sheet 8 of 22	Attached to jambs and verticals with 4 frame screws each end
Horizontal Part NO. BT862 (61545)	3	15-7/8" from head as shown in drawing USA-3103 sheet 8 of 22	57-1/2" as shown in drawing USA-3103 sheet 9 of 22	Attached to verticals with 3 frame screws each end
Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 119-3/8" as shown in drawing USA-3103 sheet 11 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
Water Deflector Part # WD911 Part # WD912 Part # WD913	Filler 4 Mullion 4 Jambs 4	End of Horizontals	2-3/8" as shown in USA-3103 sheet 12 of 22	Attached to end horizontals
Verticals Part NO BT815 (61540)	2	Vertical Mullion	5" x 2-1/2" x 120" as shown in drawing USA-3103 sheet 16 of 22	Attached to the head and sill with 4 #12 x 1" HWH SMS Screws at each location
Sill Part NO BT872 (61548)	2	Bottom of unit	5" x 3-1/8" x 57-1/2" as shown in drawing USA-3103 sheet 10 of 22	Attached to the jambs and sub sill with #12 x 3/4" HWH SMS Type B 2" from end then 16" OC

Subsill Part NO BT870 (61547)	2	Bottom of unit	60-1/8" long and as shown in drawing USA-3103 sheet 10 of 22	Attached to the substrate with 3/8" x 2-1/2" Powerbolt with minimum 2" embedment 2" from end then 16" OC set in a bed of sealant.
Stop Part NO BR863 (61551)	5	Exterior Glazing Stop	(4) 57-9/16", (1) 73-15/16" long as shown in drawing USA-3103 sheet 10 of 22	Snapped to the sill as shown in drawing USA-3103 sheet 9 of 22
Mullion Caps Part NO CP 801	4	Top of verticals and jambs	2-3/8" as shown in USA-3103 sheets 11 and 16 of 22	Attached to top verticals and jambs
Sub Sill End dam Part No EC 870	2	Each end of sub sill	As shown in USA 3103 Sheet 10 of 22	Attached with 2 #8 x 3/4" PH OH Tek screws
Setting blocks Part NO D917	14	Bottom of each Glass piece	As shown in USA 3103 sheet 10 of 22	Between bottom of glass and rails.
Top Rail Part NO IE502	1	Top of door	As shown in USA-3103 sheet 12 of 22	Attached to door stile as shown in drawing
Door Header Part NO BT867 (61546)	1	Above door	As shown in USA-3103 sheet 12 of 22	Attached to Mullions
Bottom Rail Part NO IE501	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	Attached to door rail as shown in drawings
Threshold Part NO TH821 (Air Threshold)	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	
Door Rail (Stile) Part NO IE520 (Hinge Stile Right Door)	2	Side of door	As shown in USA-3103 sheet 16 of 22	Attached to top and bottom rails
Door Rail (Stile) Part NO IE560/DN350 (Lock Stile)	2	Side of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails
Door Rail (Stile) Part # IE550	1	Side Of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails

Gaskets:

Quantity	Description	Location
127.43 ft	Exterior Gasket Part # NP225	Exterior perimeter of all glass
127.43 ft	Interior Gasket Part # SP250	Interior perimeter of all glass
6 ft	W-188 Weatherstripping	Door Header
32ft	W-510 Weatherstripping	Door Stile Sweeps
28ft	NP 801 Foam Gasket	Door Stop and Threshold

Reinforcement: Mullions reinforced with 1/8" Steel channel fastened to the mullion with (2) #12 x 1" HWH SMS 1" from the ends and 12" OC as shown in drawing # USA-3103 sheet 16 of 22.

Screws and Method of Attachment:

Head / Jambs: 3/8"" x 3-1/2" Grade 5 Lag Screws

Sill: #14 x 2" Grade 5 PH Tapcon with 1-1/2" minimum embedment as shown in drawings

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Hardware: AHT 8 Locks on both doors / LCN 4111 Closers
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout at 6", 45-1/2", 84-15/16".

Sealants: Spectrum II around perimeter and all joints.

Weep Holes: 3/8" diameter located 6" from end and 6" each side of verticals

Specimen D, Mockup # F

Designation: Series BT601/IT600 (Impact) Fixed Panel as shown in drawing USA-3103 sheet 5 of 22.

Overall Size: 146-1/2" x 108"

Configuration: 3 lites wide x 2 lites high

Daylight Opening: 3 lites 45-1/2" x 80-7/8": 3 lites 45-1/2" x 19"

Glazing: 1-5/16" Insulated 1/4"HS + .500" Air + 1/4" HS .090 Butacite + 1/4" HS

Glazing Method: Wet Glazed using Dow 995 with 9/16" glass bite

Frame Construction: Extruded Aluminum

Part	Number	Location	Size	Attachment
Head Part NO. BT852 (61543)	3	Top of unit	5" x 2-1/2" x 45-1/2" as shown in drawing USA-3103 sheet 8 of 22	Attached to Jambs and verticals with 4 frame screws each end
Horizontal Part NO. BT862 (61545)	3	Horizontal	45-1/2" as shown in drawing USA-3103 sheet 9 of 22	Attached to verticals with 3 frame screws each end
Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 107-3/8" as shown in drawing USA-3103 sheet 11 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
End Dam part No EC870	2	End of subsill	2-3/8" as shown in USA-3103 sheet 11 of 22	Attached end of subsill
Verticals Part NO BT835 (61541)	2	Vertical Mullion	5" x 2-1/2" x 107-3/8" as shown in drawing USA-3103 sheet 17 of 22	Attached to the head and sill with 4 #12 x 1" HWH SMS Screws at each location
Sill Part NO BT872 (61548)	3	Bottom of unit	5" x 3-1/8" x 45-1/2" as shown in drawing USA-3103 sheet 10 of 22	Attached to the jambs and subsill with #12 x 3/4" HWH SMS Type B 2" from end the 16" OC
Subsill Part NO BT870 (61547)	1	Bottom of unit	146-3/4" long and as shown in drawing USA-3103 sheet 10 of 22	Attached to the substrate with 3/8" x 2-1/2" Powerbolt with minimum 2" embedment 2" from end than 16" OC set in a bed of sealant.
Stop Part NO BR863 (61551)	6	Exterior Glazing Stop	45-7/16" long as shown in drawing USA-3103 sheets 9/10 of 22	Snapped to the jamb and sill as shown in drawing USA-3103 sheets 9/10 of 20
Mullion Caps Part NO CP 801	4	Top of verticals and jambs	2-3/8" as shown in USA-3103 sheets 11 and 17 of 22	Attached to top verticals and jambs

Water Deflector Part # WD911 Part # WD912 Part # WD913	Filler 4 Mullion 4 Jambs 4	End of Horizontals, Verticals and Jambs	As Shown in USA -3103 sheets 8/9/10/11/17 of 22	Attached with Dow 795
Setting blocks Part NO SB117	12	Bottom of each Glass piece	As Shown in USA 2958 sheet 10 of 22	Between bottom of glass and rails.

Gaskets:

Quantity	Description	Location
95.43 ft	Exterior Gasket Part # NP225	Exterior perimeter of all glass
95.43	Interior Gasket part # SP250	Interior perimeter of all glass

Reinforcement: None

Screws and Method of Attachment:

Jambs, Head, Sill: 3/8" x 3-1/2" Hex Head Lag screws / 3" min embedment

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Sealant: Dow 795 perimeter and all joints.

Weep Holes: 3/8" diameter located 6" from end and 6" each side of verticals

Specimens E & F, Mockups #5-D and 5-E

Overall Size: 77" x 120"

Configuration: 3080 Double Outswing doors / Transom, mounted in wood test buck as shown in #USA-3103 sheet 4 of 22.

Daylight Opening: Doors 26-7/16" x 83-1/2", Door Transom 72" x 19".

Glazing: 1-5/16" Insulated 1/4"HS + 1/2" Air Space x 1/4"HS +.090SGP + 1/4" HS

Glazing Method: Wet Glazed using Dow 995 with 9/16" glass bite

Frame Construction: Extruded Aluminum

Designation: Series BT601/IT600 Double 3080 Outswing Doors / Transom

Part	Number	Location	Size	
Head Part NO. BT852 (61543)	1	Top of unit	5" x 2-1/2" x 72" as shown in drawing USA-3103 sheet 8 of 22	Attached to jambs and verticals with 4 frame screws each end

Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 120" as shown in drawing USA-3103 sheet 15 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
Mullion Caps Part NO CP 801	2	Top of jambs	2-3/8" as shown in USA-3103 sheet 15 of 22	Attached to top jambs
Top Rail Part NO IE502	1	Top of door	As shown in USA-3103 sheet 12 of 22	Attached to door stile as shown in drawing
Door Header Part NO BT867 (61546)	1	Above door	As shown in USA-3103 sheet 12 of 22	Attached to Mullions
Bottom Rail Part NO IE501	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	Attached to door rail as shown in drawings
Stop Part NO BR863 (61551)	1	Exterior Glazing Stop	as shown in drawing USA-3103 sheet 12 of 22	Snapped to the sill as shown in drawing
Threshold Part NO TH821 (Air Threshold)	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	Attached to substrate with (7) #14 Grade 5 FH Tapcons as shown in drawing
Door Rail (Stile) Part NO IE520 (Hinge Stile Right Door)	2	Side of door	As shown in USA-3103 sheet 16 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE560/DN350 (Lock Stile)	2	Side of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails and jambs
Setting blocks Part NO D917	2 each door	Between glass and bottom rail	As shown in USA-3103 sheet 13 of 22	Bottom Rail
Setting blocks Part NO SB117	2	Between glass and Horizontal	As shown in USA-3103 sheet 12 of 22	Horizontal

Gaskets:

Quantity	Description	Location
51.81 ft	Exterior Gasket part # NP225	Exterior perimeter of all glass
51.81ft	Interior Gasket part # SP250	Interior Perimeter of all glass
28ft	NP801	Door Stop and Threshold
6ft	W-188 Weather stripping	Door Header
32ft	W-510 Weatherstripping	Door Stile Sweeps

Reinforcement: None

Screws and Method of Attachment:

Head / Jambs: 3/8" x 3-1/2" Grade 5 Lag screws as shown in drawings

Sill: #14 x 2" Grade 5 PH Tapcon with 1-1/2" minimum embedment as shown in drawings

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Hardware: Mockup 5-D - Left Hand Door - Ives Flush Bolts
Right Hand Door - Standard Lock
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout at 6", 45-1/2", 84-15/16".

Mockup 5-E - Left Hand Door - US Aluminum Flush Bolts
Right Hand Door - Standard Lock
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout at 6", 45-1/2", 84-15/16".

Sealant: Dow 795 perimeter and all joints.

Weep Holes: None

Specimen G, Mockup # H

Overall Size: 73-5/8" x 98-1/2"

Configuration: 3080 Double Outswing doors / Transom, mounted in wood test buck as shown in #USA-3103 sheet 7 of 22.

Daylight Opening: Doors 26-7/16" x 83-1/5"

Glazing: 1-5/16" Insulated 1/4"HS + 1/2" Air Space x 1/4"HS +.090SGP + 1/4" HS

Glazing Method: Wet Glazed using Dow 995 with 9/16" glass bite

Frame Construction: Extruded Aluminum

Designation: Series BT601/IT600 Double 3080 Outswing Doors

Part	Number	Location	Size	
Head Part NO. BT853 (61030)	1	Top of unit	5" x 2-1/2" x 72" as shown in drawing USA-3103 sheet 21 of 22	Attached to jambs and verticals with 4 frame screws each end
Jambs Part NO IG 510	2	Each side	5" x 13/16" x 96" as shown in drawing USA-3103 sheet 20 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
Top Rail Part NO IE502	1	Top of door	As shown in USA-3103 sheet 21 of 22	Attached to door stile as shown in drawing
Bottom Rail Part NO IE501	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	Attached to door rail as shown in drawings
Threshold Part NO TH821 (Air Threshold)	1	Bottom of door	As shown in USA-3103 sheet 13 of 22	
Door Rail (Stile) Part NO IE520 (Hinge Stile)	2	Side of door	As shown in USA-3103 sheet 20 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE560/DN350 (Lock Stile)	1	Side of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE550 (Meeting Stile)	1	Side of door	As shown in USA-3103 sheet 19 of 22	Attached to top and bottom rails and jambs
Setting blocks Part NO D917	2 each door	Between glass and bottom rail	As shown in USA-3103 sheet 13 of 22	Bottom rail

Gaskets:7

Quantity	Description	Location
36.64 ft	Exterior Gasket part # NP225	Exterior perimeter of all glass
36.64ft	Interior Gasket part # SP250	Interior perimeter of all glass
28ft	NP 801 Foam Gasket	Door Stops and Threshold
6ft	W-188 Weatherstripping	Door Header
32ft	W-510 weatherstripping	Door Stile Sweeps

Reinforcement: None

Screws and Method of Attachment:

Head / Jambs: 3/8" x 3-1/2" Grade 5 Lag screws as shown in drawings
Sill: #14 x 2" Grade 5 Tapcon

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Hardware: Left Hand Door - US Aluminum Flush Bolts
Right Hand Door - Standard Lock
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout at 6", 45-1/2", 84-15/16".

Sealant: Dow 795 perimeter and all joints.

Weep Holes: None

Specimen H, Mockup # G

Designation: Series BT601/IT600 (Impact) Single Outswing Door (41" x 99-7/8") as shown in #USA-3103 sheet 6 of 22, mounted in wood test buck.

Overall Size: 41" x 99-7/8"

Configuration: Single Outswing door

Daylight Openings: Doors 26-7/16" x 83-1/2"

Glazing: 1-5/16" Insulated 1/4"HS + 1/2" Air Space x 1/4"HS +.090SGP + 1/4" HS

Glazing Method: Wet Glazed using Tremco Proglaze SSG with 9/16" glass bite

Frame Construction: Extruded Aluminum

Components: As shown in detailed drawing USA-3103 sheets 8 - 22.

Part	Number	Location	Size	
Head Part NO. BT853 (61544)	1	Top of unit	5" x 2-1/2" x 36" as shown in drawing USA-3103 sheet 22 of 22	Attached to jambs and verticals with 4 frame screws each end
Jambs Part NO BT 805 (61539)	2	Each side	5" x 2-1/2" x 99-1/4" as shown in drawing USA-3103 sheet 15 of 22	Attached to head and sill with 4 #12 x 1" HWH SMS screws at each location
End Dam part No EC870	2	Each jamb	2-3/8" as shown in USA-3103 sheet 15 of 22	Attached at jambs
Mullion Caps Part NO CP 801	2	Top of jambs	2-3/8" as shown in USA-3103 sheet 15 of 22	Attached to top jambs

Subsill Part NO BT870(61547)	1	Bottom of unit	41-1/4" long and as shown in drawing USA-3103 sheet 14 of 22	Attached to the substrate with 3/8" x 4-1/2" Grade 5 HH Lag Bolt with minimum 2" embedment, 2" from end then 16" OC, set in a bed of sealant.
Water Dam Part No WD 913	2	Each end Horizontal	As shown in USA 3103 sheet 9 of 22	Attached with Tremco Spectrum II
Setting blocks Part NO SB917	2	Bottom of each Glass piece	As shown in USA 3103 sheet 14 of 22	Between bottom of glass and rails.
Top Rail Part NO IE502	1	Top of door	As shown in USA-3103 sheet 22 of 22	Attached to door stile as shown in drawing
Bottom Rail Part NO IE501	1	Bottom of door	As shown in USA-3103 sheet 14 of 22	Attached to door rails as shown in drawings
Threshold Part NO TH100 (Water Threshold)	1	Bottom of door	As shown in USA-3103 sheet 14 of 22	
Door Rail (Stile) Part NO IE520 (Hinge Stile Left Door)	1	Side of door	As shown in USA-3103 sheet 15 of 22	Attached to top and bottom rails and jambs
Door Rail (Stile) Part NO IE520 (Lock Stile)	1	Side of door	As shown in USA-3103 sheet 15 of 22	Attached to top and bottom rails and jambs

Gaskets:

Quantity	Description	Location
18.32ft	Exterior Gasket Part # NP225	Exterior perimeter of all glass
18.32ft	Interior Gasket Part # SP250	Interior perimeter of all glass
24ft	Double Hollow Foam Gasket	Door Stops and Threshold
3ft	W-188 Weather Stripping	Door Header

Screws and Method of Attachment:

Head / Jambs / Sill: 1/2" x 3-1/2" Grade 5 HH Lag Bolt

Frame Assembly Screws: # 12 x 1" HWH SMS as shown in drawings.

Hardware: Standard Locks / CL Lawerence Closers(CL 045)
Hinges- 1-1/2 pair Hagar Butt Hinges located from bottom of door to bottom of hinge cutout at 6", 45-1/2", 84-15/16".

Sealants: Tremco Spectrum II perimeter and all joints.

Weep Holes: 3/8" diameter located 6" from end and at center of threshold.

Test Sequence

Specimen A, : Air Infiltration; Positive Design Load; Negative Design Load; Water Infiltration, Positive Test Load; Negative Test Load; Impact: Positive Cycling; Negative Cycling

Specimen B: Air Infiltration; Positive Design Load; Negative Design Load; Positive Test Load; Negative Test Load; Impact: Positive Cycling; Negative Cycling

Specimen C: Air, Impact; Positive Cycling; Negative Cycling

Specimen D: Air Infiltration; Positive Design Load; Negative Design Load; Water Infiltration, Positive Test Load; Negative Test Load; Impact: Positive Cycling; Negative Cycling

Specimen E: Air Infiltration: Positive Design Load, Positive Test Load, Negative Design Load, Negative Test Load, FER**,** Impact; Positive Cycling; Negative Cycling

Specimen F: Impact; Positive Cycling; Negative Cycling

Specimen G: Air Infiltration; Positive Design Load; Negative Design Load; Water Infiltration, Positive Test Load; Negative Test Load

Specimen H: Air Infiltration: Positive Design Load, Positive Test Load, Negative Design Load, Negative Test Load, FER**,** Impact; Positive Cycling; Negative Cycling

Note: All tests were performed in accordance with FBC TAS 201, 202, 203; ASTM E 1886-05; E 1996-09, E 283-04, E 330-02 and E331-00 with no deviations.

Specimen A
Mockup #1-A

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	**Air Infiltration** CFM/Sq. Ft.	**Allowed** CFM/Sq. Ft.	**Results**
6.24	<.01	.06	passed

WATER INFILTRATION TEST
TAS 202, ASTM E 331-00

Design Pressure	PSF Load	Results
	12	Passed

STATIC AIR PRESSURE
TAS 202, ASTM E 330-02

Design Loads +65psf, -65psf

Range of tests			Vertical			Horizontal			Header	
Pos. loads	Time Sec	Load psf	Max. Def.	Perm. Set	Allow.	Max. Def.	Perm Set	Allow.	Perm Set	Allow.
½ Test	30	48.8								
Design	30	65	.455"		.667"	.097"		.31"		.31"
Test	30	97.5		.063"	.24"		0"	.115"	.038"	.115"

Range of tests			Vertical			Horizontal			Header	
Neg. loads	Time Sec	Load psf	Max. Def.	Perm. Set	Allow.	Max. Def.	Perm Set	Allow.	Perm Set	Allow.
½ Test	30	48.8								
Design	30	65	.374"		.667"	.065"		.31"		.31"
Test	30	97.5		.014"	.24"		.006"	.115"	.036"	.115"

Specimen B:
Mock up 1-B

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	Air Infiltration CFM/Sq. Ft.	Allowed CFM/Sq. Ft.	Results
6.24	.15	1.0	passed

STATIC AIR PRESSURE
TAS 202, ASTM E 330-02

Design Loads **+65psf, -65psf**

Range of tests			Right Door Jamb		Vertical	Right Jamb		Door Top Rail	Door Header	
Pos. loads	Time Sec	Load psf	Max Def	Perm Set	Perm Set	Perm Set	Allow	Perm. Set	Max Def	Allow
½ Test	30	48.8								
Design	30	65	.501"				.667"		.11"	.4"
Test	30	97.5		.00"	.09"	.035"	.24"	.02"		.05"

Range of tests			Right Door Jamb		Vertical	Right Jamb		Door Top Rail	Door Header	
Neg loads	Time Sec	Load psf	Max Def	Perm Set	Perm Set	Perm Set	Allow	Perm. Set	Max Def	Allow
½ Test	30	48.8								
Design	30	65	.467"				.667"		.109"	.4"
Test	30	97.5		.096"	.087"	026"	.24"	.025"		.05"

Specimen C:
Mock up 1-C

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	**Air Infiltration** CFM/Sq. Ft.	**Allowed** CFM/Sq. Ft.	**Results**
6.24	.15	1.0	passed

Specimen D:
Mock up F

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	**Air Infiltration** CFM/Sq. Ft.	**Allowed** CFM/Sq. Ft.	**Results**
6.24	<.01	.06	passed

WATER INFILTRATION TEST
TAS 202, ASTM E 331-00

Design Pressure	PSF Load	Results
	9.75	passed

STATIC AIR PRESSURE
TAS 202, ASTM E 330-02

Design Loads **+65, -65**

Range of tests			Vertical			Left Header		Right Header	R & L Header
Positive loads	Time Sec	Load psf	Max. Def.	Perm. Set	Allow	Max Def.	Perm. Set	Perm. Set	Allow
½ Test	30	48.8							
Design	30	65	.403"		.6"	.06"			.25"
Test	30	97.5		.002"	.21"		.004"	.005"	.09"

Range of tests			Vertical			Left Header		Right Header	R & L Header
Neg loads	Time Sec	Load psf	Max. Def.	Perm. Set	Allow	Max Def.	Perm. Set	Perm. Set	Allow
½ Test	30	48.8							
Design	30	65	.316"		.6"	.02"			.25"
Test	30	97.5		0"	.21"		.019"	.005"	.09"

Specimen E
Mockup #5-D

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	Air Infiltration CFM/Sq. Ft.	Allowed CFM/Sq. Ft.	Results
6.24	.74	1.0	passed

STATIC AIR PRESSURE

TAS 202, ASTM E 330-02

Design Loads **+65, -65**

Range of tests			Lock Stile		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.
½ Test	30	48.8			
Design	30	65			
Test	30	97.5		.007"	.19"

Range of tests			Lock Stile		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.
½ Test	30	48.8			
Design	30	65			
Test	30	97.5		.018"	.19"

Forced Entry Test

Forced entry test was conducted in accordance with FBC TAS 202 with no deviations. 300 lbs of force was placed for 5 minutes perpendicular to the door top and bottom in the direction that would open the door with no failure.

Note: Door was operable before and after all tests.

Specimen G
Mockup #H

AIR INFILTRATION TEST

TAS 202, ASTM E 283-04

Tested @ psf	**Air Infiltration** CFM/Sq. Ft.	**Allowed** CFM/Sq. Ft.	**Results**
6.24	.58	1.0	passed

STATIC AIR PRESSURE

TAS 202, ASTM E 330-02

Design Loads +65, -65

Range of tests			Top Center Active Door Rail			Center of Door Panel		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65				.		
Test	30	97.5		.009"	.05"		.012"	.192"

Range of tests			Top Center Active Door Rail			Center of Door Panel		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow	Max. Def	Perm. Set	Allow
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.002"	.05"		.024"	.192"

Range of tests			Top Active Door Lock Stile			Center Active Door Lock Stile		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.022"	.05"		.002"	.192"

Range of tests			Top Active Door Lock Stile			Center Active Door Lock Stile		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow	Max. Def	Perm. Set	Allow
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.234"	.384"		.132"	.384"

Range of tests			Bottom Active Door Lock Stile			Center of Jamb		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.013"	.384"		.002"	.384"

Range of tests			Bottom Active Door Lock Stile			Center of Jamb		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.038"	.384"		0"	.384"

Forced Entry Test

Forced entry test was conducted in accordance with FBC TAS 202 with no deviations. 300 lbs of force was placed for 5 minutes perpendicular to the door top and bottom in the direction that would open the door with no failure.

Note: Door was operable before and after all tests.

Specimen H
Mockup #G

AIR INFILTRATION TEST
TAS 202, ASTM E 283-04

Tested @ psf	Air Infiltration CFM/Sq. Ft.	Allowed CFM/Sq. Ft.	Results
6.24	.03	1.0	passed

WATER INFILTRATION TEST
TAS 202, ASTM E 331-00

Design Pressure	PSF Load	Results
	12	Passed

STATIC AIR PRESSURE
TAS 202, ASTM E 330-02

Design Loads **+65, -65**

Range of tests			Top Active Door Rail			Center of Door Panel		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow	Max. Def	Perm. Set	Allow
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		028"	.05"		.013"	.192"

Range of tests			Top Door Rail			Center of Door Panel		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.024"	.05"		.005"	.192"

Range of tests			Top Lock Stile			Center Lock Stile		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow	Max. Def	Perm. Set	Allow
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.031"	.384"		.026"	.384"

Range of tests			Top Lock Stile			Center Lock Stile		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.112"	.384"		.052"	.384"

Range of tests			Bottom Lock Stile			Center Left Jamb		
Positive loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow	Max. Def	Perm. Set	Allow
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		.012"	.384"		.001"	.384"

Range of tests			Bottom Lock Stile			Center Left Jamb		
Negative loads	Time Seconds	Load psf	Max. Def	Perm. Set	Allow.	Max. Def	Perm. Set	Allow.
½ Test	30	48.8						
Design	30	65						
Test	30	97.5		0"	.384"		.006"	.384"

Forced Entry Test

Forced entry test was conducted in accordance with FBC TAS 202 with no deviations. 300 lbs of force was placed for 5 minutes perpendicular to the door top and bottom in the direction that would open the door with no failure.

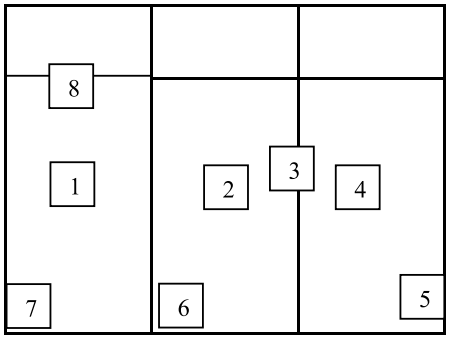
Note: Door was operable before and after all tests.

Impact
Large Missile
TAS 201, ASTM E 1996-05

Type and weight of missile: Missile level D - #2 Southern Pine 2 x 4, Length 96” and 9 lbs.

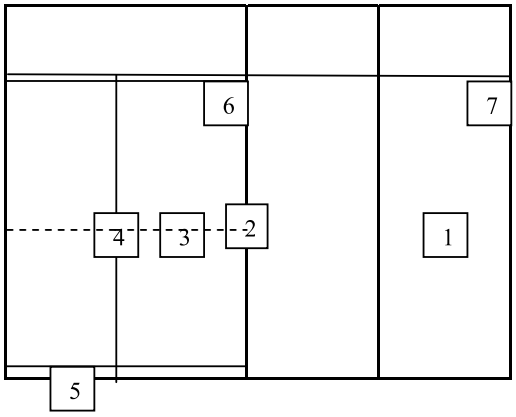
Note:
X measurement from left edge of lite.
Y measurement from bottom edge of lite.

Specimen A
Mock up 1-A



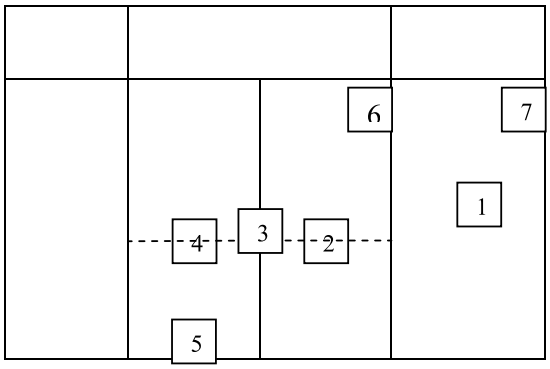
Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	29-3/8"	48-3/4"
2	50	29-1/8"	48"
3	50	Vertical	59"
4	50	28-3/4"	48-1/8"
5	50	51"	7-3/4"
6	50	8-1/8"	7-5/8"
7	50	8-1/2"	8-1/2"
8	50	28-1/2"	Horizontal

Specimen B
Mock up 1-B



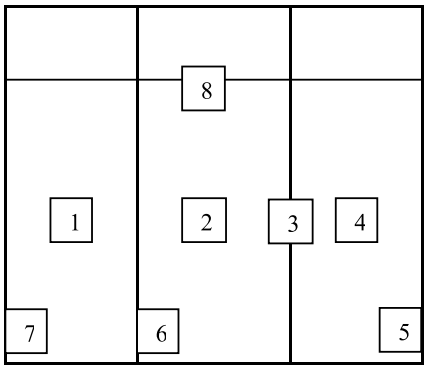
Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	28-1/4"	47-5/8"
2	50	Door Jamb	60"
3	50	13"	36"
4	50	Astragal	45"
5	50	21"	4-3/4"
6	50	18-3/4"	74-1/2"
7	50	50"	90-1/2"

Specimen C
Mock up 1-C



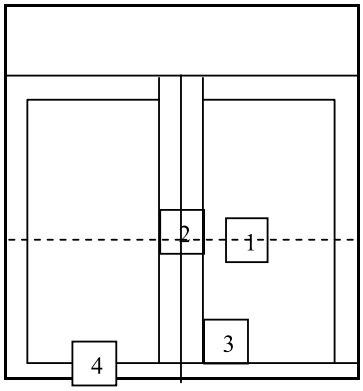
Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	28"	49"
2	50	14-1/2"	42-1/2"
3	50	Astragal	44-3/4"
4	50	37"	Horizontal
5	50	19"	4"
6	50	18-3/4"	76"
7	50	48"	89-1/2"

Specimen D
Mockup F



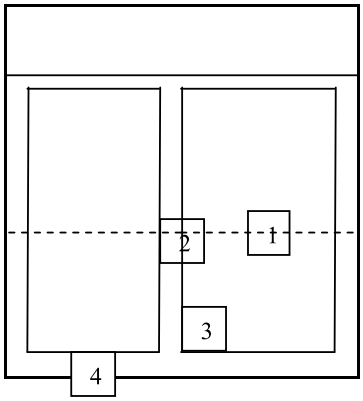
Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	23"	41"
2	50	23-3/4"	41-1/4"
3	50	Vertical	43-1/2"
4	50	23-1/2"	41"
5	50	38"	7-3/4"
6	50	3-3/4"	8"
7	50	7-1/2"	8"
8	50	Horizontal	22-1/2"

Specimen E
Mockup 5-D



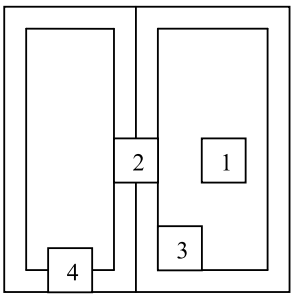
Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	14-3/4"	41"
2	50	Astragal	47-3/4"
3	50	7-1/2"	7-1/2"
4	50	18"	4"

Specimen F
Mockup 5-E



Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	13-7/8"	42-3/4"
2	50	Astragal	46-1/2"
3	50	8"	7-1/2"
4	50	18"	4"

Specimen G
Mockup H



Impact No.	Speed Ft./sec.	X Meas.	Y Meas.
1	50	12-1/2"	43"
2	50	Astragal	42"
3	50	7-1/2"	7-1/2"
4	50	18-1/2"	3-1/2"

Note: No penetration or ruptures occurred from impacts on any specimens.

Cyclical Test
TAS 203, ASTM E 1996-05

Specimens: A, B, C
Design Loads: +65 psf -65psf

Range of test Positive loads	Actual Load psf	# of cycles	Cycles per minute		
			A	B	C
+. 2 – 0.5	13 - 33	3500	38	40	40
+ 0 – 0.6	0 - 39	300	39	40	40
+. 5 – 0.8	33 - 52	600	39	40	40
+. 3 – 1.0	20 - 65	100	38	39	38

Range of test Negative loads	Actual Load psf	# of cycles	Cycles per minute		
			A	B	C
0.3 – 1.0	20 - 65	50	37	40	35
0.5 – 0.8	33 - 52	1050	38	40	40
0 – 0.6	0 - 39	50	39	41	40
0.2 – 0.5	13 - 33	3350	39	41	41

Cycles Completed 9000

Specimens: D, E, F
Design Loads: +65 psf -65psf

Range of test Positive loads	Actual Load psf	# of cycles	Cycles per minute		
			D	E	F
+. 2 – 0.5	13 - 33	3500	44	50	57
+ 0 – 0.6	0 - 39	300	42	51	56
+. 5 – 0.8	33 - 52	600	42	50	56
+. 3 – 1.0	20 - 65	100	41	50	56

Range of test Negative loads	Actual Load psf	# of cycles	Cycles per minute		
			D	E	F
0.3 – 1.0	20 - 65	50	32	49	55
0.5 – 0.8	33 - 52	1050	44	50	56
0 – 0.6	0 - 39	50	47	50	56
0.2 – 0.5	13 - 33	3350	46	50	57

Cycles Completed 9000

Specimen: G
Design Loads: +65 psf -65psf

Range of test Positive loads	Actual Load psf	# of cycles	Cycles per minute
			G
+. 2 – 0.5	13 - 33	3500	50
+ 0 – 0.6	0 - 39	300	50
+. 5 – 0.8	33 - 52	600	50
+. 3 – 1.0	20 - 65	100	50

Range of test Negative loads	Actual Load psf	# of cycles	Cycles per minute
			G
0.3 – 1.0	20 - 65	50	50
0.5 – 0.8	33 - 52	1050	46
0 – 0.6	0 - 39	50	50
0.2 – 0.5	13 - 33	3350	50

Cycles Completed 9000

Description of specimens after test:

Specimens showed no resultant failure or distress after cyclical test. No failure of fasteners or separation of glass from the aluminum frame was observed. All doors were operable before and after all tests.

Tensile Test

ASTM E8

Test Results

Specimen	Dimensions (inches)	Area (inches)	Peak Force (lbs)	Yield Stress (psi)	Ultimate Stress (psi)	Elongation (%)
A	.501 x .078	.039	1,375	31,632	35,163	13
B	.499 x .079	.039	1,321	30,519	33,391	13
C	.500 x .080	.040	1,395	31,683	34,805	13
D	.499 x .080	.040	1,396	31,571	34,937	13
E	.500 x .080	.040	1,331	29,638	33,275	12
F	.499 x .113	.056	1,894	30,633	33,572	12
G	.500 x .077	.038	1,244	29,106	32,301	13
H	.500 x .075	.037	1,209	29,075	32,160	12

Note: 2-mil polyethylene film was used for the Static Air Pressure Test and Cycle Test; it is the opinion of the undersigned that it had no influence on the results of the tests.

Observers-

Tony Sivore / ATL
Keith Owen, Shane Worley, Jeremy Sivore / ATL
Robert Tayler, Josh Thomas / ATL
Chris Gall / US Aluminum Corp.
Terry Hopgood / International Alum Corp.
David Johnson P.E.

Keith Owen / Lab Manager
American Test Lab, Inc.
Keith Owen
2/22/10

All Tests Witnessed and Certified by:
David Johnson P. E.
1656 Calvert Rd.
Brevard, NC 28712
Florida P.E. # 00061915

Engineer Seal And Signature

David Wesley Johnson
2/22/10

Certificate of Independence: The witnessing engineer has no financial interest in American Test Lab of North Carolina, US Aluminum or their parts vendors. Witnessing engineer is in complete compliance of Florida Statue 9B-72, Section 72.110.

Disclaimer

This test report was prepared by American Test Lab North (ATL) for the exclusive use of the above named client; it does not constitute certification of this product. The results are for that particular specimen tested and does not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. ATL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any produced tested or installed.

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2/16/2010

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			BILL OF MATERIALS BT601 / IT600		
	PART	EXTRUSION	DESCRIPTION	MATERIAL	SUPPLIER
1	BT852	61543	HEAD MULLION	ALUM	USAC / INTEX
2	BT862	61545	HORZ MULLION	ALUM	USAC / INTEX
3	BR863	61551	GLAZING STOP	ALUM	USAC / INTEX
4	BT872	61548	HORZ SILL	ALUM	USAC / INTEX
5	BT870	61547	SUB SILL	ALUM	USAC / INTEX
6	BT805	61539	VERT JAMB	ALUM	USAC / INTEX
7	BT867	61546	HORZ HEADER	ALUM	USAC / INTEX
8	IE502	60833	DOOR HEAD RAIL	ALUM	USAC / INTEX
9	IE150	60832	DOOR GLAZING STOP	ALUM	USAC / INTEX
10	IE501	75014	DOOR BOTTOM RAIL	ALUM	USAC / INTEX
11	TH821	61552	AIR THRESHOLD	ALUM	USAC / INTEX
12	TH804	60786	WATER THRESHOLD INSERT	ALUM	USAC / INTEX
13	TH100	61553	WATER THRESHOLD	ALUM	USAC / INTEX
14	IE520	60834	DOOR SIDE RAIL	ALUM	USAC / INTEX
15	BR847	61542	DOOR STOP ADAPTER	ALUM	USAC / INTEX
16	IG146	60837	DOOR STOP	ALUM	USAC / INTEX
17	BT804	61538	VERT MULLION FILLER	ALUM	USAC / INTEX
18	BT835	61541	VERT MULLION	ALUM	USAC / INTEX
19	BT815	61540	VERT MULLION	ALUM	USAC / INTEX
20	IE560	60836	DOOR VERT STILE	ALUM	USAC / INTEX
21	DN350	4981	ATREGAL	ALUM	USAC / INTEX
22	IE550	60835	DOOR VERT STILE	ALUM	USAC / INTEX
23	IG510	61239	VERT DOOR JAMB	ALUM	USAC / INTEX
24	IG047	60819	DOOR STOP ADAPTER	ALUM	USAC / INTEX
25	IG046	60770	DOOR STOP	ALUM	USAC / INTEX
26	IG568	61030	DOOR HEADER	ALUM	USAC / INTEX
27	BT853	61544	DOOR HEADER	ALUM	USAC / INTEX
28	CB802	60785	SHEAR CHANNEL	ALUM	USAC / INTEX
29	CB901	60831	CORNER BLOCK	ALUM	USAC / INTEX
30	CP802	60793	CVR BOLT GUIDE	ALUM	USAC / INTEX
31	AR045	61325	FLUSH BOLT GUIDE	ALUM	USAC / INTEX
			THERMAL FILL	POLYURETHANE	
	SS058		STEEL REINFORCEMENT	A36 STEEL	VARIES
	EC870		END DAM	ALUMINUM	VARIES

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			BILL OF MATERIALS BT601 / IT600		
	PART		DESCRIPTION	MATERIAL	SUPPLIER
	ST268		#12 AB X 3/4" HWH SMS SS		VARIES
	ST266		#12 AB X 1" HWH SMS SS		VARIES
	MF287		3/8-16 X 3" HHCS G5 ZP		VARIES
	ST035		#10B UC X 5/8" PHL FH SMS ZP		VARIES
	MS175		#12-24 UC X 1/4" PHL FH SMS SS		VARIES
	ST190		#8 X 3/4" PHL OH TEK ZP		VARIES
	ST197		#8 AB X3/8" PHL PH SMS ZP		VARIES
	ST240		#10 AB UC X 1/2" PHL FH SMS SS		VARIES
	NP225		TOP LOAD GLAZING GASKET	EPDM	TREMCO
	SP250		SSG GLAZING SPACER	SCR	TREMCO
	SB117		GLAZING BLOCK	EPDM	TREMCO
	D917		GLAZING BLOCK	EPDM	TREMCO
	NP801		FRAME GASKET	TPR	RYCO
			FRAME GASKET DOUBLE HOLLOW	TPR	RYCO
	W-510		STILE WOOL PILE	POLYPROPYLENE	HOPE GLOBAL
	W-188		HEADER RAIN SCREEN WOOL PILE	POLYPROPYLENE	SCHLEGEL
	CP801		MULLION CAP	TPR	FASTEK
	WD911		WATER DEFLECTOR SHALLOW	NYLON	FASTEK
	WD912		WATER DEFLECTOR STANDARD	NYLON	FASTEK
	WD913		WATER DEFLECTOR DEEP	NYLON	FASTEK

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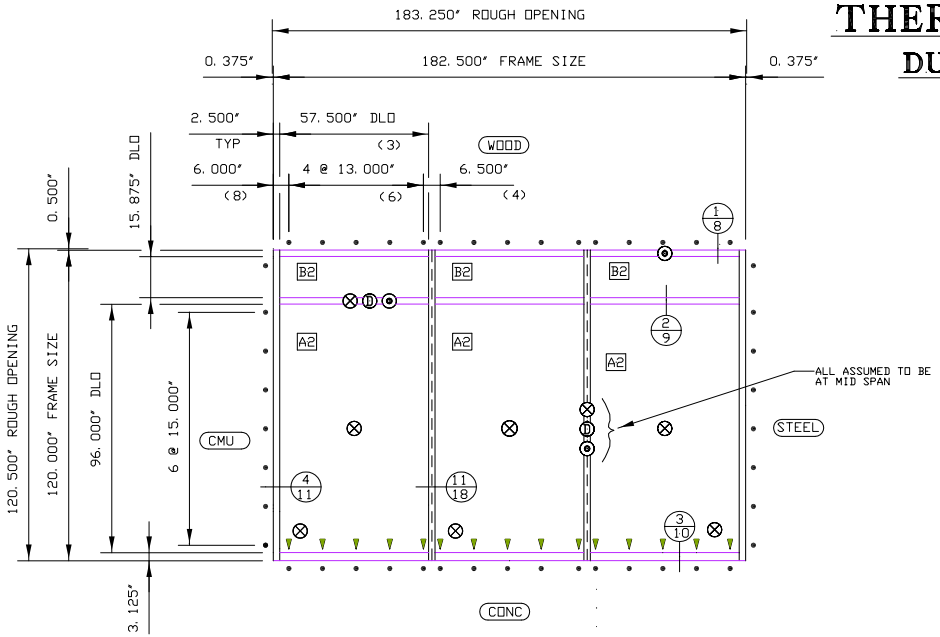
			BILL OF MATERIALS BT601 / IT600		
	PART		DESCRIPTION	MATERIAL	SUPPLIER
			HARDWARE		
	8R3CL/8L3CL		CVR PANICS		AHT
	DH009		BUTT HINGES		HAGER
	LCN4111		LCN 4111 CLOSURE		LCN
	DP235		IVES FLUSH BOLT		IVES
	CL045		CR LAWRENCE CLOSURE		CRL
	DH229		HOOK BOLT		ADAMS RITE
	DP236		USAC FLUSH BOLT		USAC
	DH144		CYLINDER THUMB TURN		RYADON
	PR034		STANDARD PUSH BAR		ROCKWOOD/ABC
	PR032		STANDARD PULL		ROCKWOOD/ABC
	.				

THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED



STOREFRONT MOCKUP #1-A - 1 RQD.

(1) TAS 202 (Dp = 65± PSF)
AIR INFILTRATION - 0.06 CFM MAX.

NOTE: DESIGN LOAD TO BE LOADED BEFORE WATER TEST IS PERFORMED PER TAS 202

WATER INFILTRATION - 12 PSF (a2)
STRUCTURAL
(1) TAS 201/203 LARGE MISSILE/CYCLIC LOAD

INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
A2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 58 5/8" X 97 1/8" (39.54 SQ. FT.) DUPONT	3
B2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 58 5/8" X 17" (6.92 SQ. FT.) DUPONT	3

SEALANT SCHEDULE

	GLAZING - DOW 995	
	PERI. - DOW 795	

TEST REQUIREMENTS

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1.57 psf AND 6.24 psf

ALLOWABLE WATER INFILTRATION:

MUST MEET WATER TEST
65 PSF REQ. 9.75 WATER TEST.
(ASTM E331) STATIC PRESSURE
NO WATER @ 9.75 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97.5 psf
ALLOWABLE DEFLECTION = L/180

IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (A2 INFILL)
(B2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4,500 CYCLES (+) 65 psf
4,500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET

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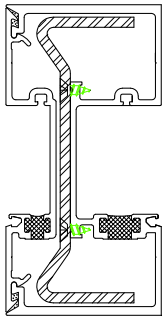
SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12.04.09	DCW
a2	REVISED PER TESTING NOTES	01.26.10	DCW



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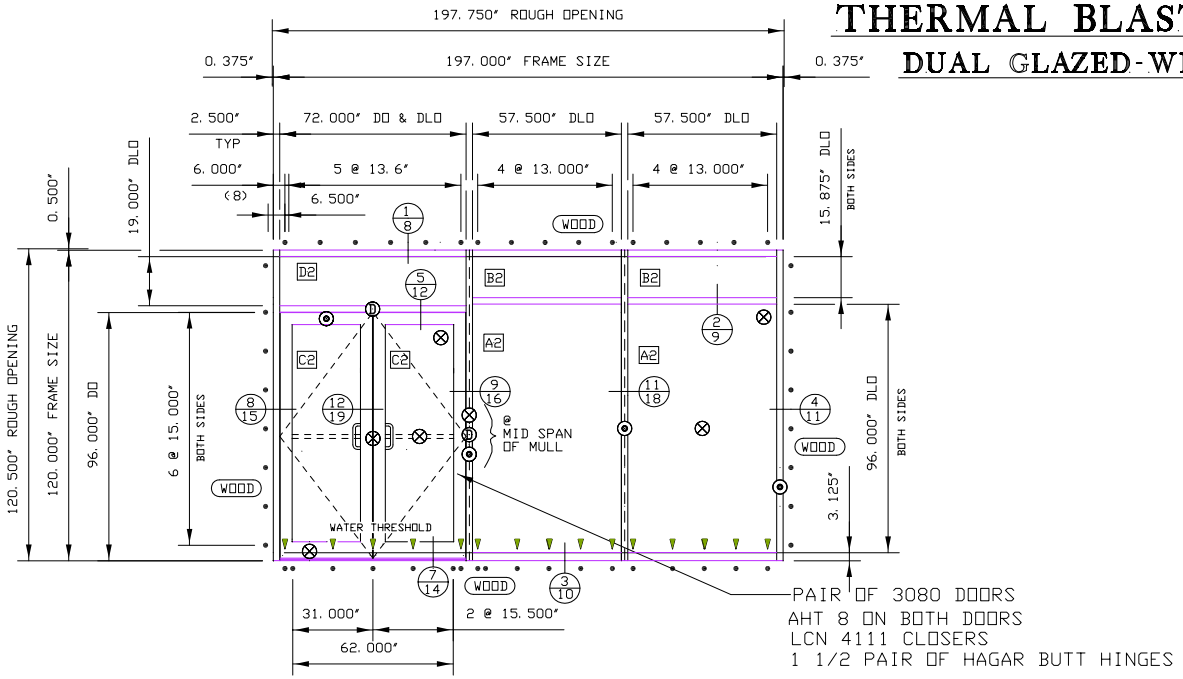
• 200 Singleton Drive
Waxahachie, TX 75165

DRAWN BY	Willie C.
DATE	06/23/09
APPVD BY	
SCALE	FULL SIZE
SYSTEM	SERIES BT601/IT600 (a2) STORMFRONT SYSTEM LAM. GLAZING
DESCRIPTION	ELEVATION & BILL OF MATERIALS
DRAWING NO.	USA-3103
SHEET	1 OF 22

THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED



STOREFRONT MOCKUP #1-B - 1 RQD.

(1) TAS 202 (Dp = 65± PSF)

AIR INFILTRATION (DOOR ONLY)

NOTE: DESIGN LOAD TO BE LOADED BEFORE WATER TEST IS PERFORMED PER TAS 202

STRUCTURAL

(1) TAS 201/203 LARGE MISSILE/CYCLIC LOAD (ALL)

INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
A2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 58 5/8" X 97 1/8" (39.54 SQ. FT.) DUPONT	2
B2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 58 5/8" X 17" (6.92 SQ. FT.) DUPONT	2
C2	1/4 TEMP + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 27 9/16" X 83 1/4" (15.93 SQ. FT.) DUPONT	2
D2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 73 1/8" X 20 1/8" (10.22 SQ. FT.) DUPONT	1

SEALANT SCHEDULE

	GLAZING - PROGLAZE SSG	
	PERI. - TREMCO SPECTREM 2	

TEST REQUIREMENTS

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1. 57 psf AND 6. 24 psf

ALLOWABLE WATER INFILTRATION:
SEE FBC 2411. 3. 2 EXCEPTIONS 1 & 2
(ASTM E331) STATIC PRESSURE
NO WATER @ 9. 75 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97. 5 psf
ALLOWABLE DEFLECTION = L/180

IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (A2 INFILL)
(B2 INFILL)
(C2 INFILL)
(D2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4, 500 CYCLES (+) 65 psf
4, 500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET

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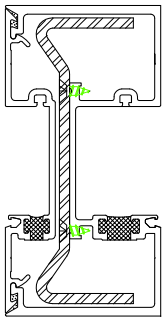
SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW



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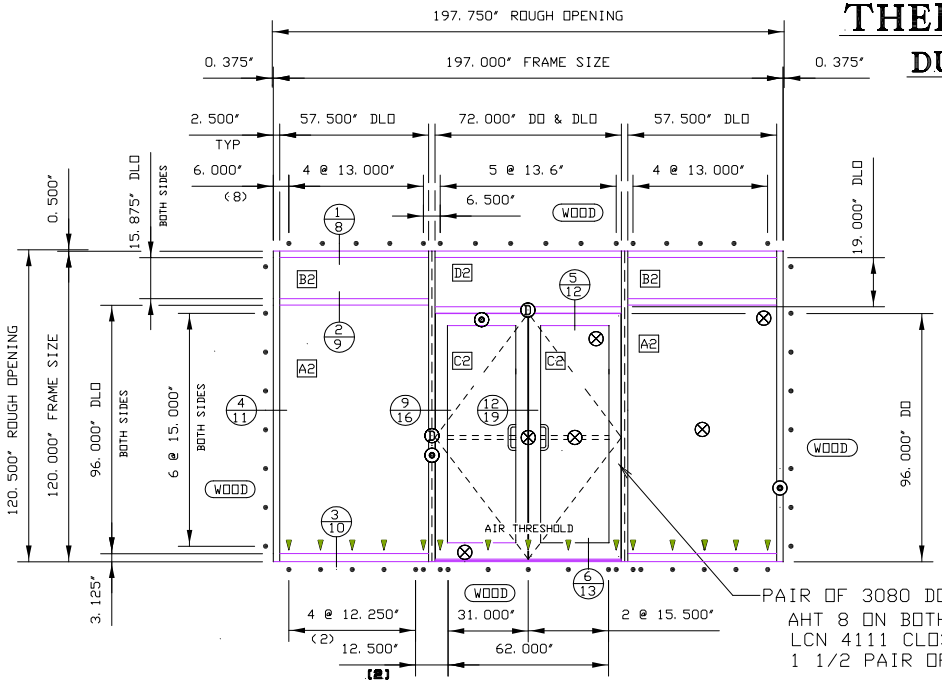
Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165

DRAWN BY: Willie C.	SYSTEM: SERIES BT601/IT600 (a2) STORMFRONT SYSTEM LAM. GLAZING
DATE: 06/25/09	
APPVD BY:	DESCRIPTION: ELEVATION & BILL OF MATERIALS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 2 OF 22

THERMAL BLAST/IMPACT SYSTEM

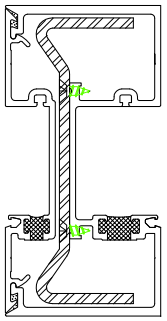
DUAL GLAZED-WET GLAZED



PAIR OF 3080 DOORS
AHT 8 ON BOTH DOORS
LCN 4111 CLOSERS
1 1/2 PAIR OF HAGAR BUTT HINGES

STOREFRONT MOCKUP #1 - C - 1 RQD.

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW



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THIS SPACE RESERVED FOR METRO-DADE USE ONLY

INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
A2	1/4 HS + . 500 AIR + 1/4 HS + . 090 SGP + 1/4 HS 58 5/8" X 97 1/8" (39. 54 SQ. FT.) DUPONT	2
B2	1/4 HS + . 500 AIR + 1/4 HS + . 090 SGP + 1/4 HS 58 5/8" X 17" (6. 92 SQ. FT.) DUPONT	2
C2	1/4 TEMP + . 500 AIR + 1/4 HS + . 090 SGP + 1/4 HS 27 9/16" X 84 5/8" (16. 20 SQ. FT.) DUPONT	2
D2	1/4 HS + . 500 AIR + 1/4 HS + . 090 SGP + 1/4 HS 73 1/8" X 20 1/8" (10. 22 SQ. FT.) DUPONT	1

SEALANT SCHEDULE

	GLAZING - DOW 995	
	PERI. - TREMCO SPECTREM 2	

TEST REQUIREMENTS FOR FBC, HVHZ

ALLOWABLE AIR INFILTRATION: (DOOR ONLY)
(ASTM E283)
1. 57 psf AND 6. 24 psf

IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (A2 INFILL)
(B2 INFILL)
(C2 INFILL)
(D2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4, 500 CYCLES (+) 65 psf
4, 500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET

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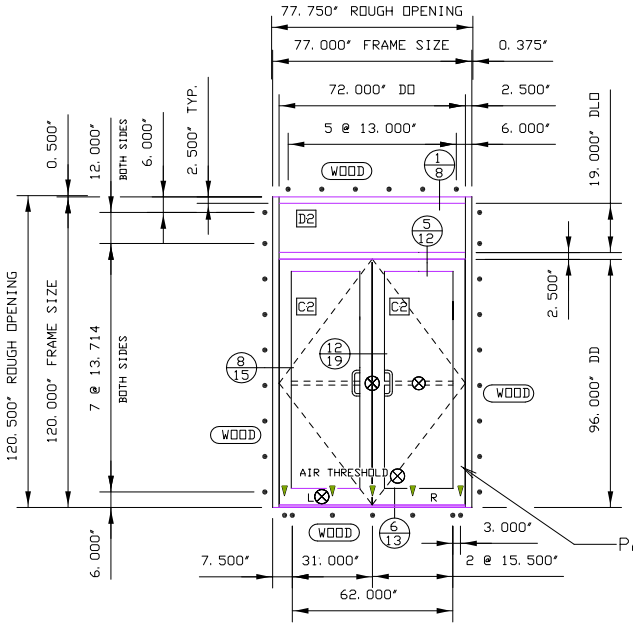
DRAWN BY	Willie C.
DATE	06/25/09
APPVD BY	
SCALE	FULL SIZE
SYSTEM	SERIES BT601/IT600 (a2) STORMFRONT SYSTEM LAM. GLAZING
DESCRIPTION	ELEVATION & BILL OF MATERIALS
DRAWING NO.	USA-3103
SHEET	3 OF 22

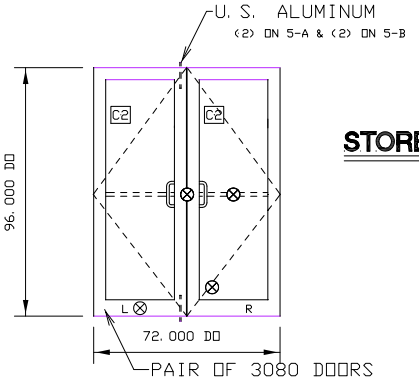
THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW



PAIR OF 3080 DOOR (ADA THRESHOLD)
STANDARD LOCK ON RIGHT DOOR.
IVES FLUSH BOLTS ON THE LEFT DOOR.
CR LAWRENCE SURFACE CLOSERS (CL045).
1 1/2 PAIR OF HAGAR BUTT HINGES



PAIR OF 3080 DOORS
STANDARD LOCK ON RIGHT DOOR. U. S. ALUMINUM FLUSH BOLTS ON THE CR LAWRENCE SURFACE CLOSERS (CL045) 1-1/2 PAIR OF HAGAR BUTT HINGES.

STOREFRONT MOCKUP #5-E - 1 RQD.

(Dp = 65 ±)

(1) TAS 201/203 LARGE MISSILE/CYCLIC LOAD

STOREFRONT MOCKUP #5-D - 1 RQD.

(1) TAS 202 (Dp = 65±PSF)
STRUCTURAL
FORCED ENTRY

(1) TAS 201/203 LARGE MISSILE/CYCLIC LOAD

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INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
C2	1/4 TEMP + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 27 9/16" X 84 5/8" (16. 20 SQ. FT.) DUPONT	4
D2	1/4 HS + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 73 1/8" X 20 1/8" (10. 22 SQ. FT.) DUPONT	1

SEALANT SCHEDULE

	GLAZING - DOW 995	
	PERI. - DOW 795	

TEST REQUIREMENTS FOR FBC, HVHZ

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1. 57 psf AND 6. 24 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97. 5 psf
ALLOWABLE DEFLECTION = L/180

IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (A2 INFILL)
(D2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4, 500 CYCLES (+) 65 psf
4, 500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET

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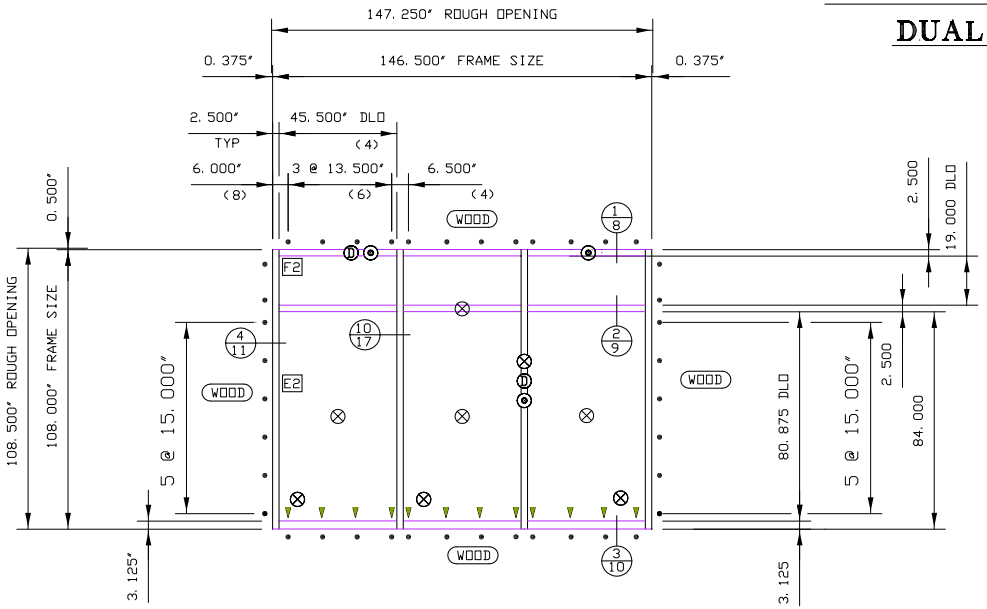
• 200 Singleton Drive
Waxahachie, TX 75165

DRAWN BY	Willie C.
DATE	06/25/09
APPVD BY	
SYSTEM	SERIES BT601/IT600 a2
	STORMFRONT SYSTEM
	LAM. GLAZING
DESCRIPTION	ELEVATION & BILL OF MATERIALS
SCALE	FULL SIZE
DRAWING NO.	USA-3103
SHEET	4 OF 22

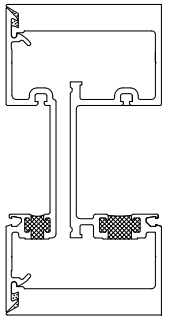
THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED



STOREFRONT MOCKUP F - 1 RQD.

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW



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INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
E2	1/4 HS + . 500 AIR + 1/4 HS + . 090 BUTACITE + 1/4 HS 46. 625" X 82. 000" (26. 55 SQ. FT.) DUPONT	3
F2	1/4 HS + . 500 AIR + 1/4 HS + . 090 BUTACITE + 1/4 HS 46. 625" X 20. 125" (6. 52 SQ. FT.) DUPONT	3

SEALANT SCHEDULE

	GLAZING - DOW 995	
	PERI. - DOW 795	

TEST REQUIREMENTS FOR FBC, HVHZ

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1. 57 psf AND 6. 24 psf

ALLOWABLE WATER INFILTRATION:
MUST MEET WATER TEST 9. 75 P. S. F. H. O.
(ASTM E331) STATIC PRESSURE
NO WATER @ 9. 75 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97. 5 psf
ALLOWABLE DEFLECTION = L/180

IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (E2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4, 500 CYCLES (+) 65 psf
4, 500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET

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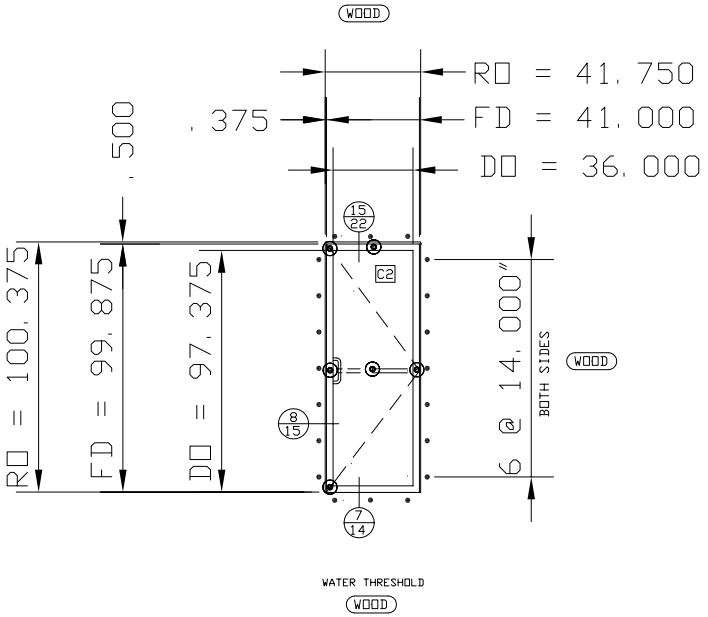
Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165

DRAWN BY	Willie C.
DATE	06/26/09
APPVD BY	
SCALE	FULL SIZE
SYSTEM	SERIES BT601/IT600 a2 STORMFRONT SYSTEM LAM. GLAZING
DESCRIPTION	ELEVATION & BILL OF MATERIALS
DRAWING NO.	USA-3103
SHEET	5 OF 22

THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED

SYM	REVISION	DATE	BY
a1	ADDED PAGE	12.04.09	DCW
a2	REVISED PER TESTING NOTES	01.26.10	DCW



STANDARD LOCK CR LAWRENCE SURFACE CLOSERS (CL045)
1-1/2 PAIR OF HAGAR BUTT HINGES.

STOREFRONT MOCKUP G - 1 RQD.

(1) TAS 202 (Dp = 65± PSF)
AIR INFILTRATION (DOOR ONLY)
NOTE: DESIGN LOAD TO BE LOADED BEFORE WATER TEST IS PERFORMED PER TAS 202
FORCED ENTRY

INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
C2	1/4 TEMP + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 27 9/16" X 84 5/8" (16.1 SQ. FT.) DUPONT	2
	DOOR DLO = 26 7/16" X 83 1/2"	

SEALANT SCHEDULE

	GLAZING - TREMCO PROGLAZE SSG	
	PERI. - TREMCO SPECTRUM 2	

TEST REQUIREMENTS FOR FBC, HVHZ

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1.57 psf AND 6.24 psf

ALLOWABLE WATER INFILTRATION:
SEE FBC 2411.3.2
EXCEPTIONS 1 & 2
(ASTM E331) STATIC PRESSURE
NO WATER @ 9.75 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97.5 psf
ALLOWABLE DEFLECTION = L/180

Ⓓ DEFLECTION
◉ PER. SET a2

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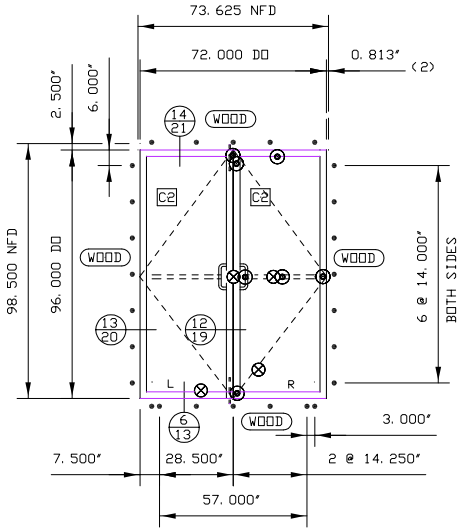
Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165

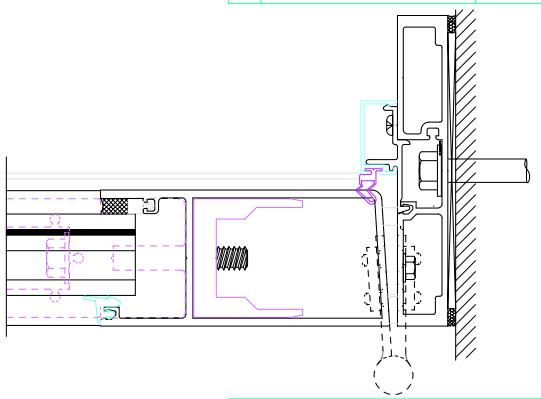
DRAWN BY: DCW.	SYSTEM: SERIES BT601/IT600 a2
DATE: 12.03.09	STORMFRONT SYSTEM LAM. GLAZING
APPVD BY:	DESCRIPTION: ELEVATION & BILL OF MATERIALS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 6 OF 22

THERMAL BLAST/IMPACT SYSTEM

DUAL GLAZED-WET GLAZED

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS REVISED DETAIL BUBBLES,	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW





STANDARD LOCK ON RIGHT DOOR. U. S. ALUMINUM FLUSH BOLTS ON THE CR LAWRENCE SURFACE CLOSERS (CL045) 1-1/2 PAIR OF HAGAR BUTT HINGES.

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STOREFRONT MOCKUP H - 1 RQD.

(1) TAS 202 (Dp = 65±PSF)
STRUCTURAL
FORCED ENTRY
(1) TAS 201/203 LARGE MISSILE/CYCLIC LOAD

INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
C2	1/4 TEMP + .500 AIR + 1/4 HS + .090 SGP + 1/4 HS 27 9/16" X 84 5/8" (16. 1 SQ. FT.) DUPONT	2

SEALANT SCHEDULE

	GLAZING - DOW 995	
	PERI. - DOW 795	

TEST REQUIREMENTS FOR FBC, HVHZ

ALLOWABLE AIR INFILTRATION:
(ASTM E283)
1. 57 psf AND 6. 24 psf

ALLOWABLE WATER INFILTRATION:
SEE FBC 2411. 3. 2
EXCEPTIONS 1 & 2
(ASTM E331) STATIC PRESSURE
NO WATER @ 9. 75 psf

STRUCTURAL PERFORMANCE:
(ASTM E330)
DESIGN = 65 psf
STRUCTURAL = 97. 5 psf
ALLOWABLE DEFLECTION = L/180

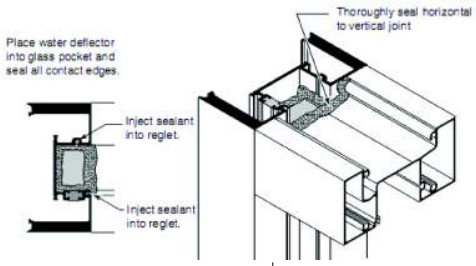
IMPACT TEST:
(FBC PA-201)
LARGE MISSILE (A2 INFILL)
(D2 INFILL)

CYCLICAL LOADING TEST:
(FBC PA-203)
4, 500 CYCLES (+) 65 psf
4, 500 CYCLES (-) 65 psf

⊗ LARGE MISSILE IMPACT
Ⓓ DEFLECTION
◉ PER. SET (a2)

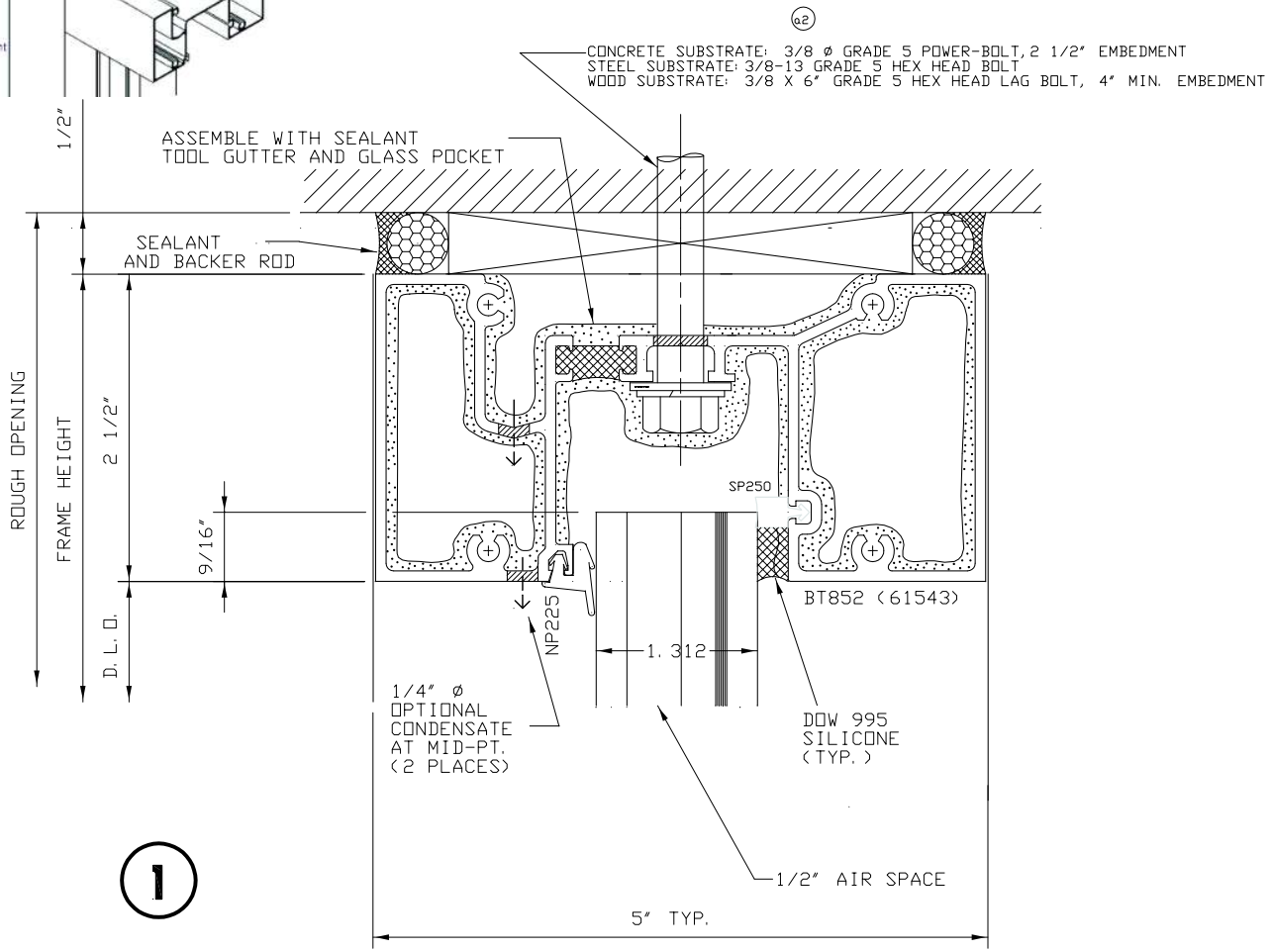
United States Aluminum
• 720 Cel-River Road
Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165

DRAWN BY	Willie C.
DATE	06/25/09
APPVD BY	
SCALE	FULL SIZE
SYSTEM	SERIES BT601/IT600 (a2) STORMFRONT SYSTEM LAM. GLAZING
DESCRIPTION	ELEVATION & BILL OF MATERIALS
DRAWING NO.	USA-3103
SHEET	7 OF 22



WATER DEFLECTORS PER VERTICAL MULLION:
WD911
WD912
WD913

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW



1

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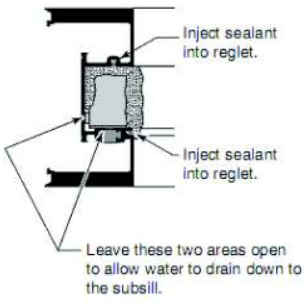
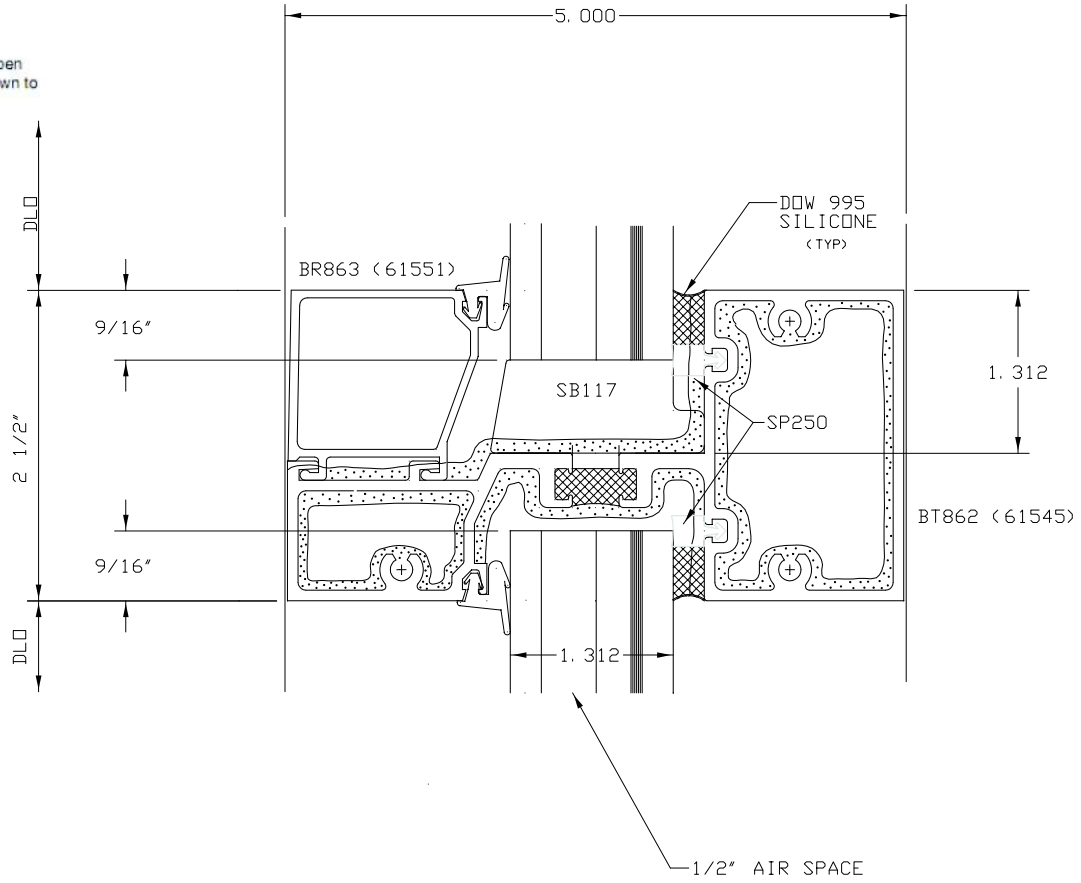
• 200 Singleton Drive
Waxahachie, TX 75165 a2

DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/06/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 8 OF 22



WATER DEFLECTORS PER VERTICAL MULLION:
WD911
WD912
WD913



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SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12.04.09	DCW
a2	REVISED PER TESTING NOTES	01.26.10	DCW
.	.	.	.

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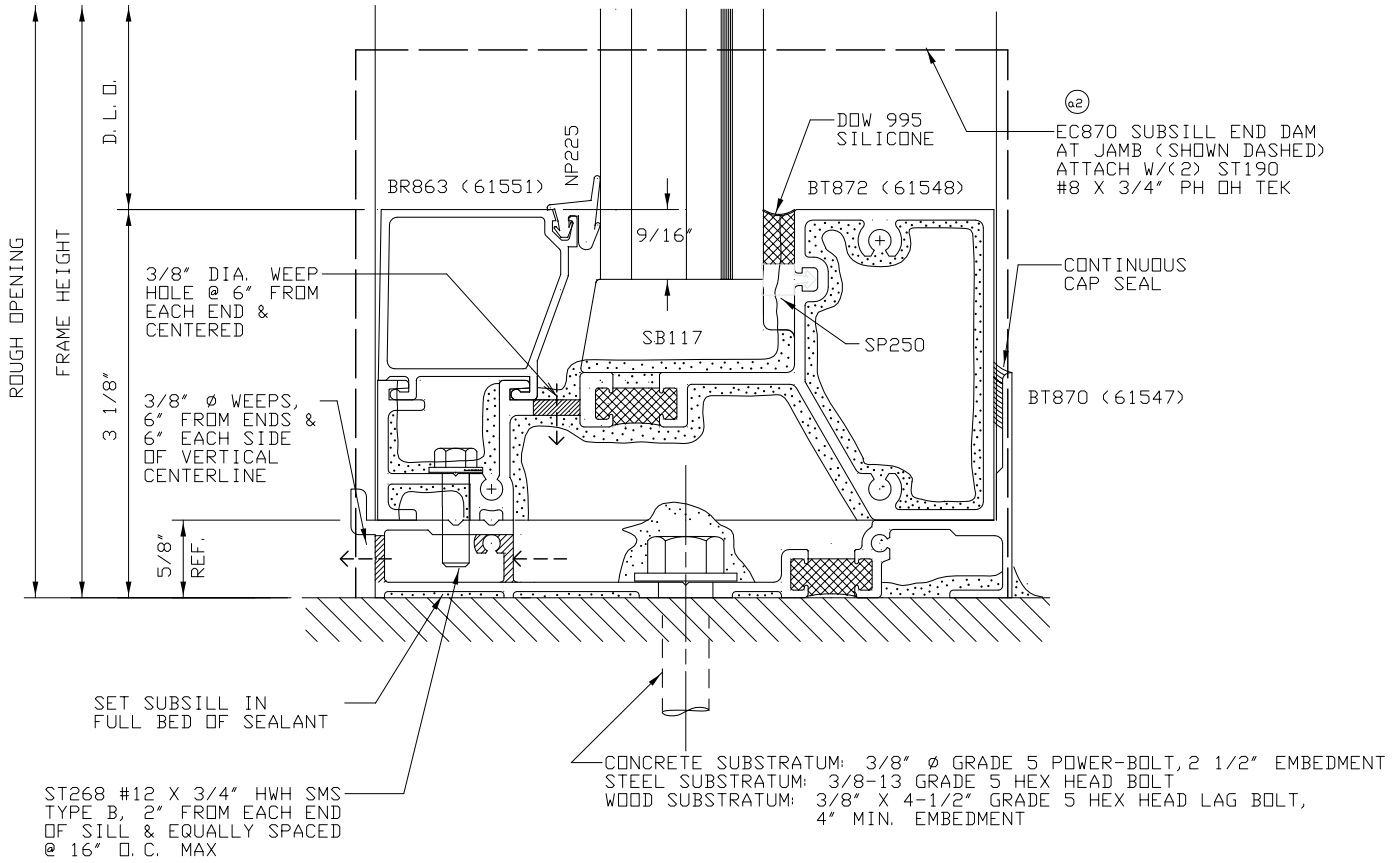
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/06/09	
APPVD BY: .	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 9 OF 22

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW



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• 200 Singleton Drive
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DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/01/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 10 OF 22

SYM	REVISION	DATE	BY
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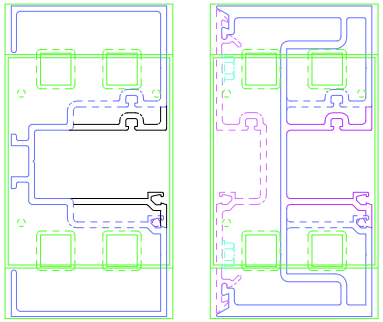
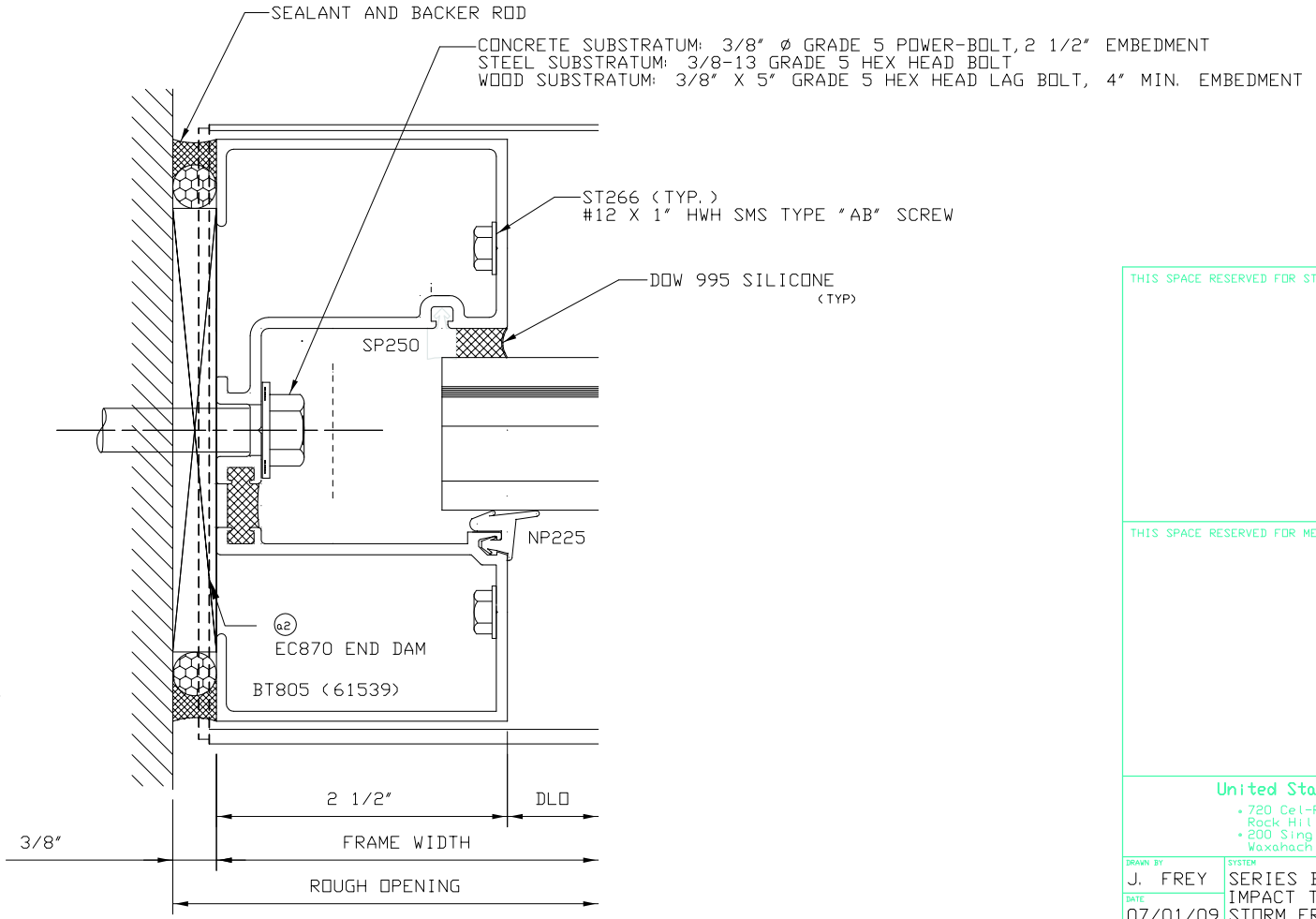
a2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW

CP801 CP801



TYPICAL
MULLION CAP
INSTALLATION
ASSEMBLE WITH
SILICONE.
HALF SCALE



4

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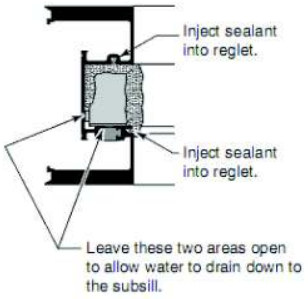
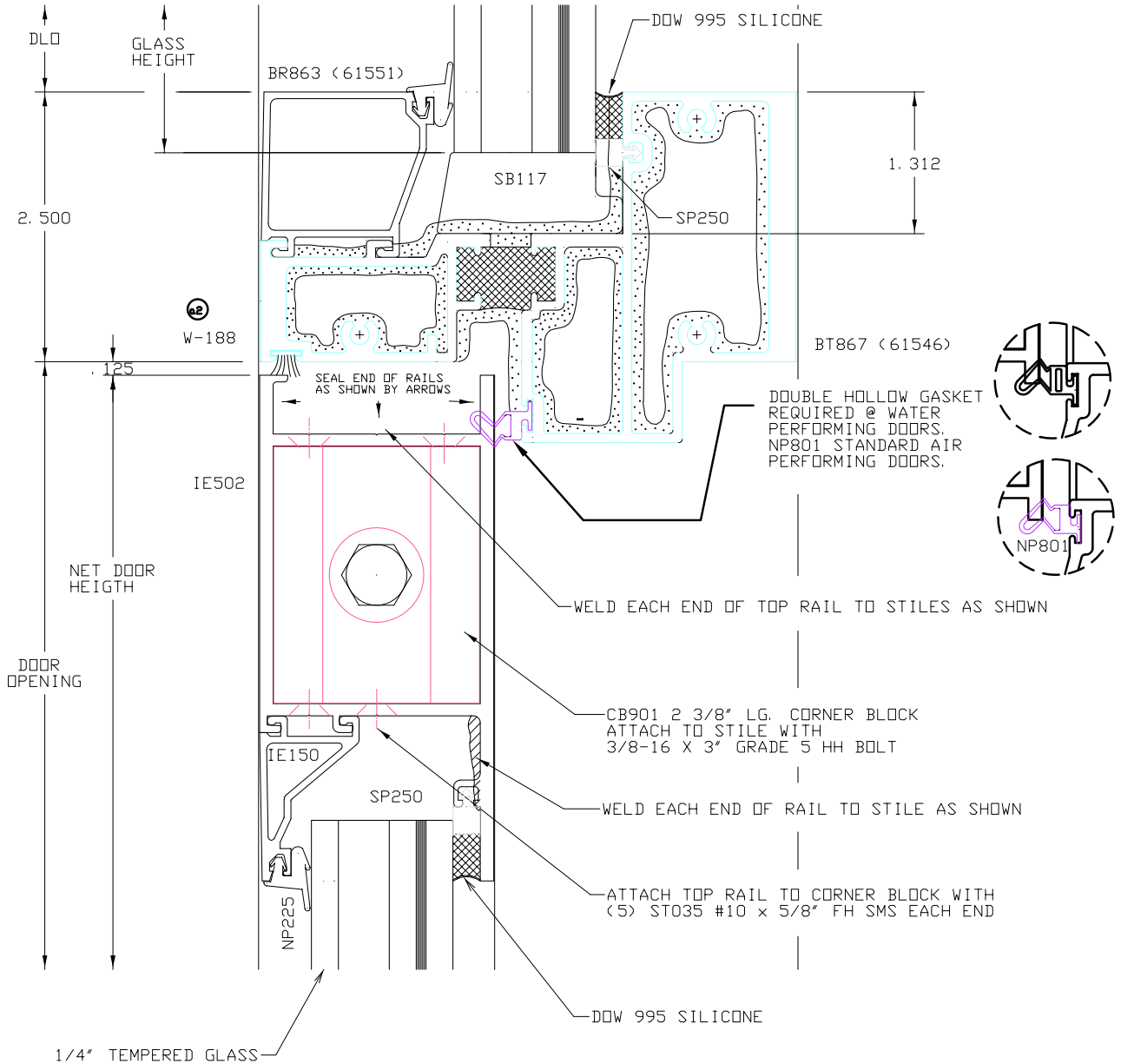
Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165 a2

DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/01/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 11 OF 22



WATER DEFLECTORS PER PER VERTICAL MULLION:
WD911
WD912
WD913



5

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SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12.04.09	DCV
a2	REVISED PER TESTING NOTES	01.26.10	DCV

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• 200 Singleton Drive
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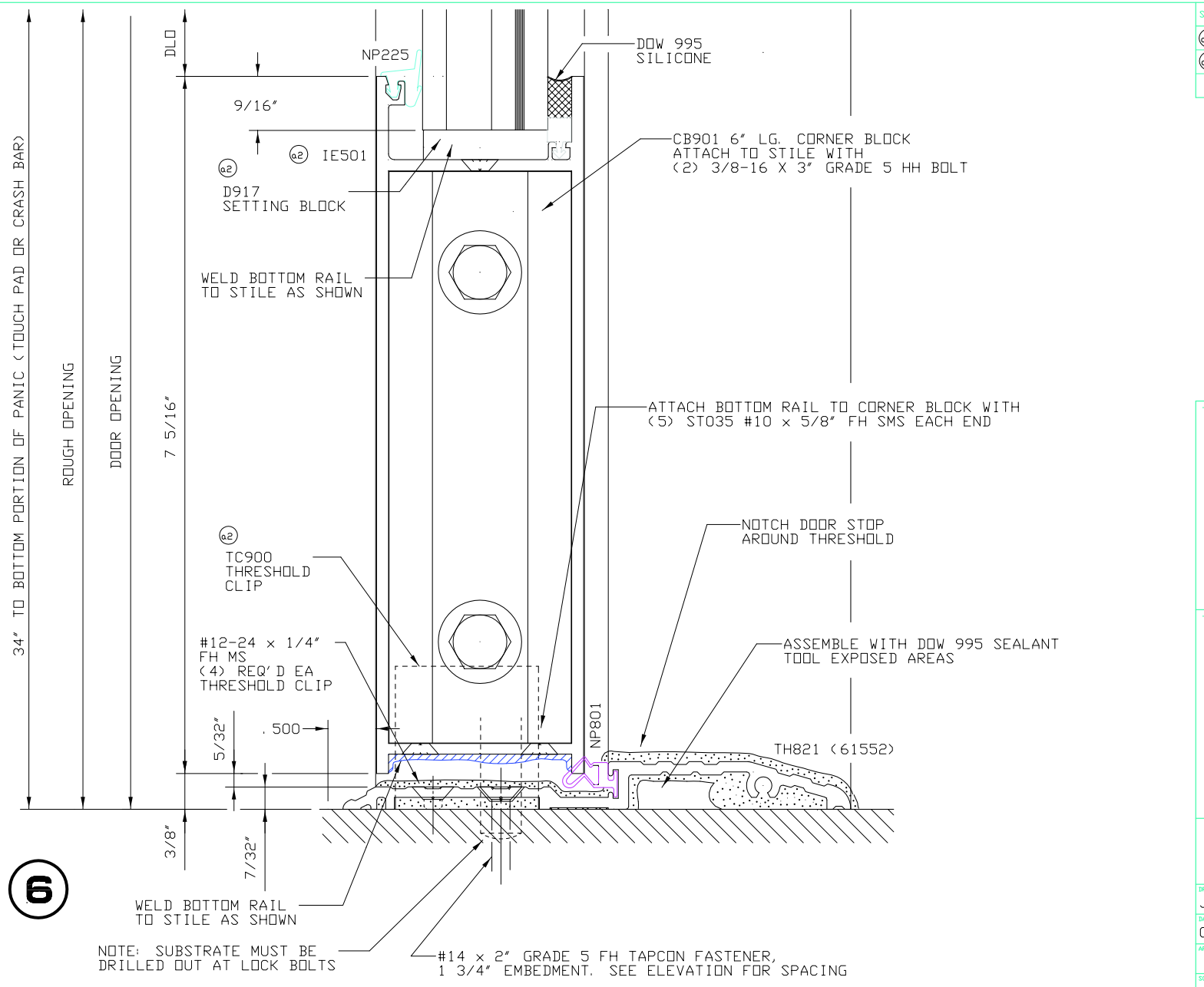
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/01/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 12 OF 22



SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW

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• 200 Singleton Drive
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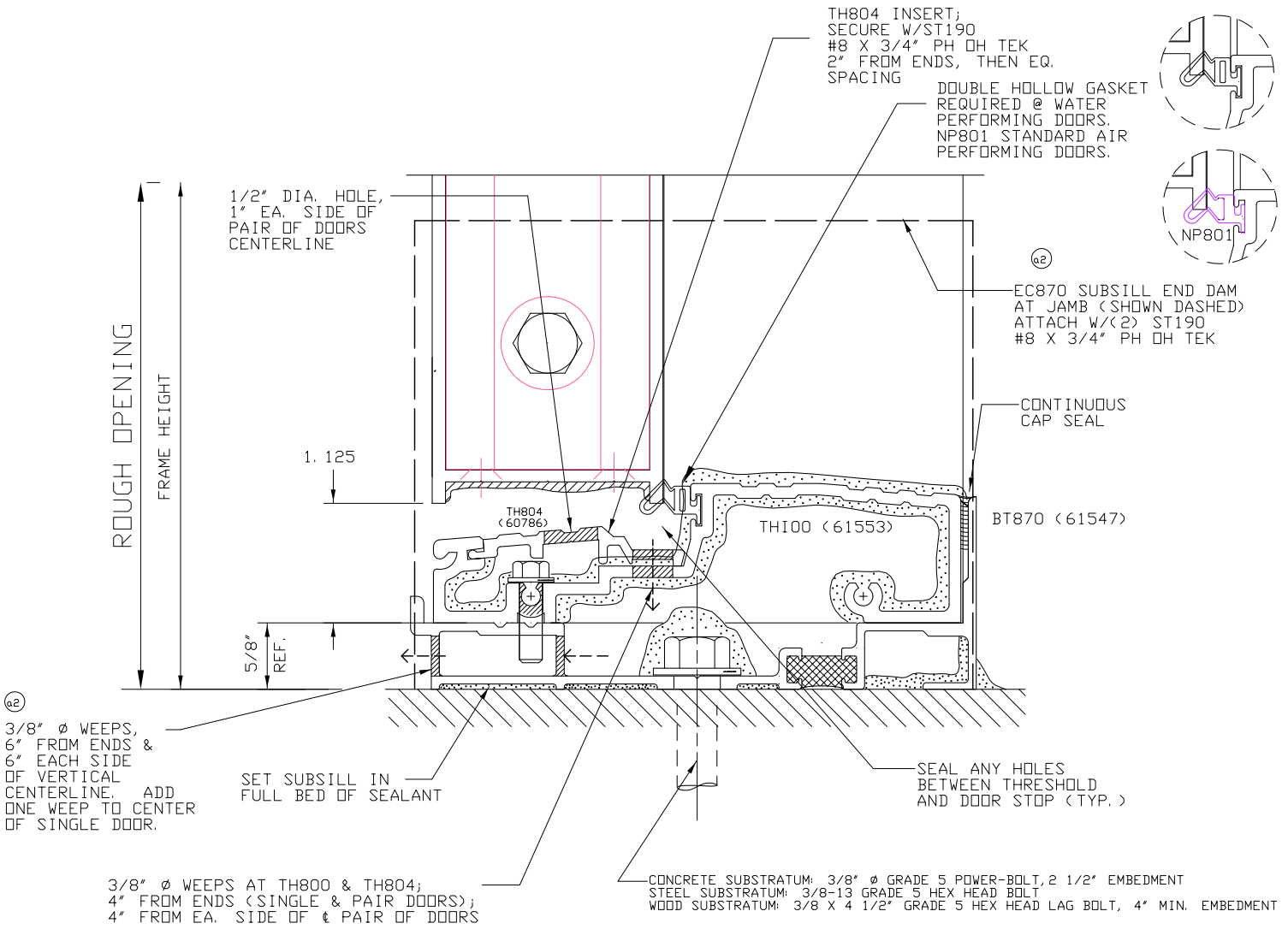
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600
DATE: 07/02/09	IMPACT RESISTANT SYSTEM 1 5/16" GLAZING
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 13 OF 22



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SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12.04.09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01.26.10	DCW

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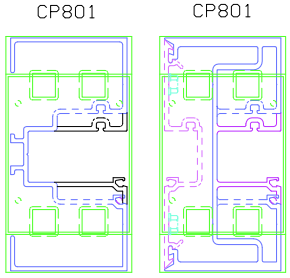
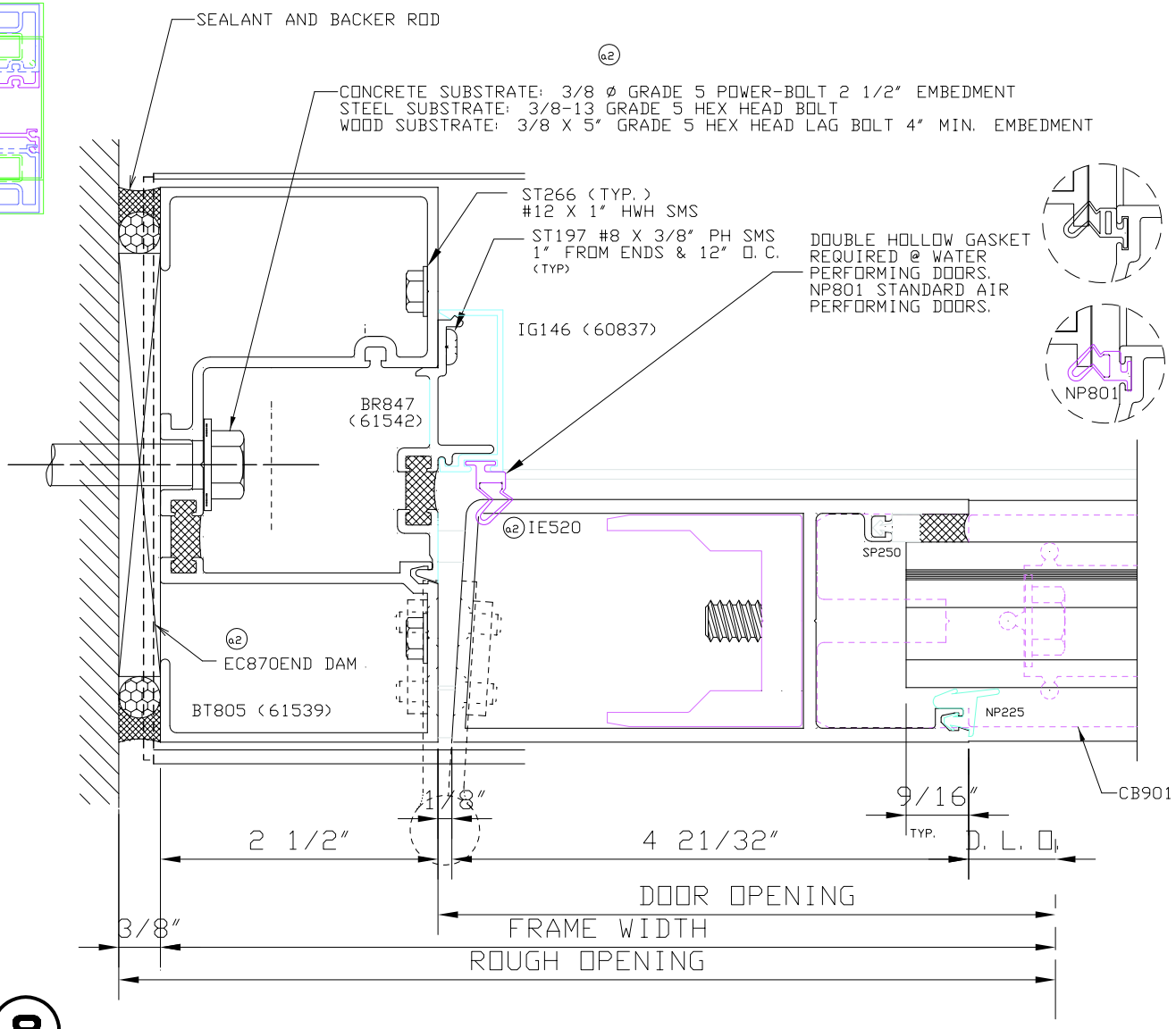
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/BT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/02/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 14 OF 22



TYPICAL MULLION CAP INSTALLATION ASSEMBLE WITH SILICONE. HALF SCALE



8

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SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW

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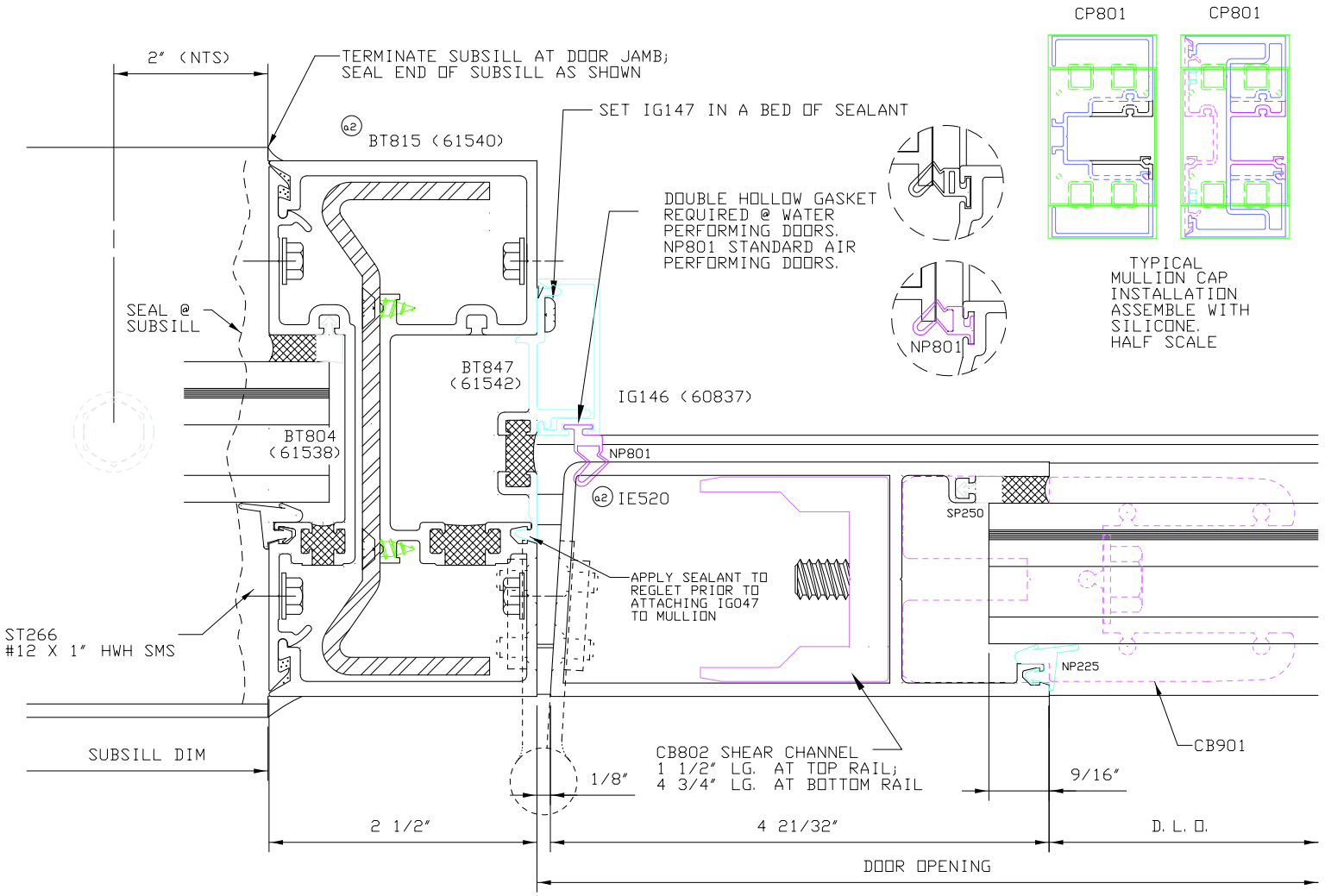
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/02/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 15 OF 22



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SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

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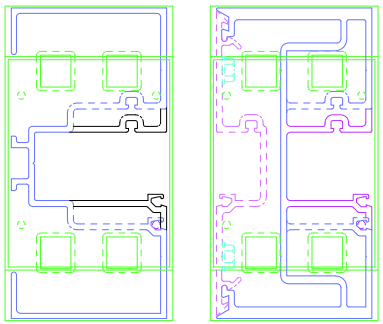
United States Aluminum
• 720 Cel-River Road Rock Hill, SC 29730
• 200 Singleton Drive Waxahachie, TX 75165 a2

DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT RESISTANT SYSTEM 1 5/16" GLAZING
DATE: 07/02/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 16 OF 22

CP801 CP801



TYPICAL
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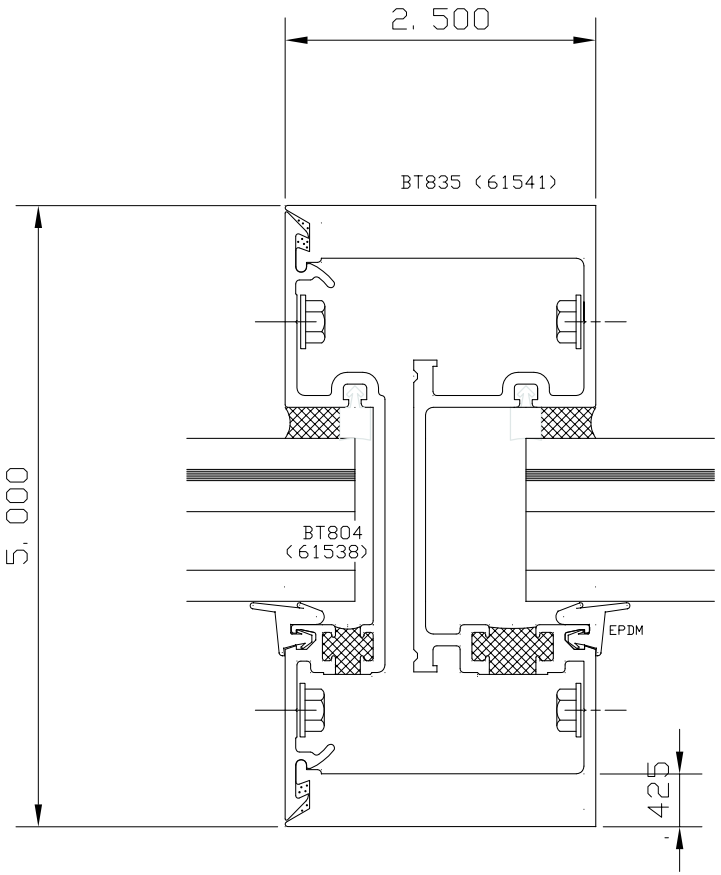
ASSEMBLE WITH
SILICONE.
HALF SCALE



10

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW

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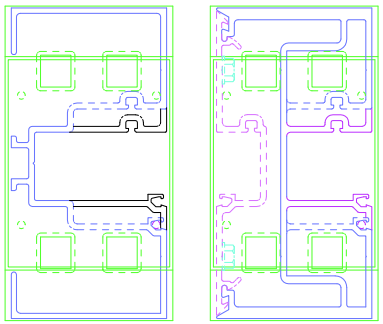
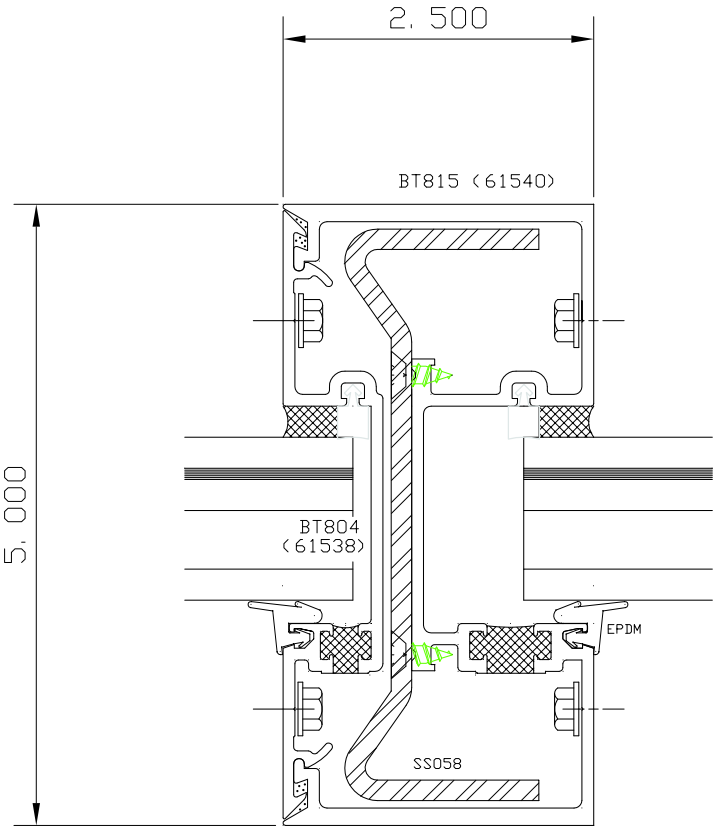
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/06/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 17 OF 22

CP801 CP801



TYPICAL
MULLION CAP
INSTALLATION
ASSEMBLE WITH
SILICONE.
HALF SCALE



11

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW

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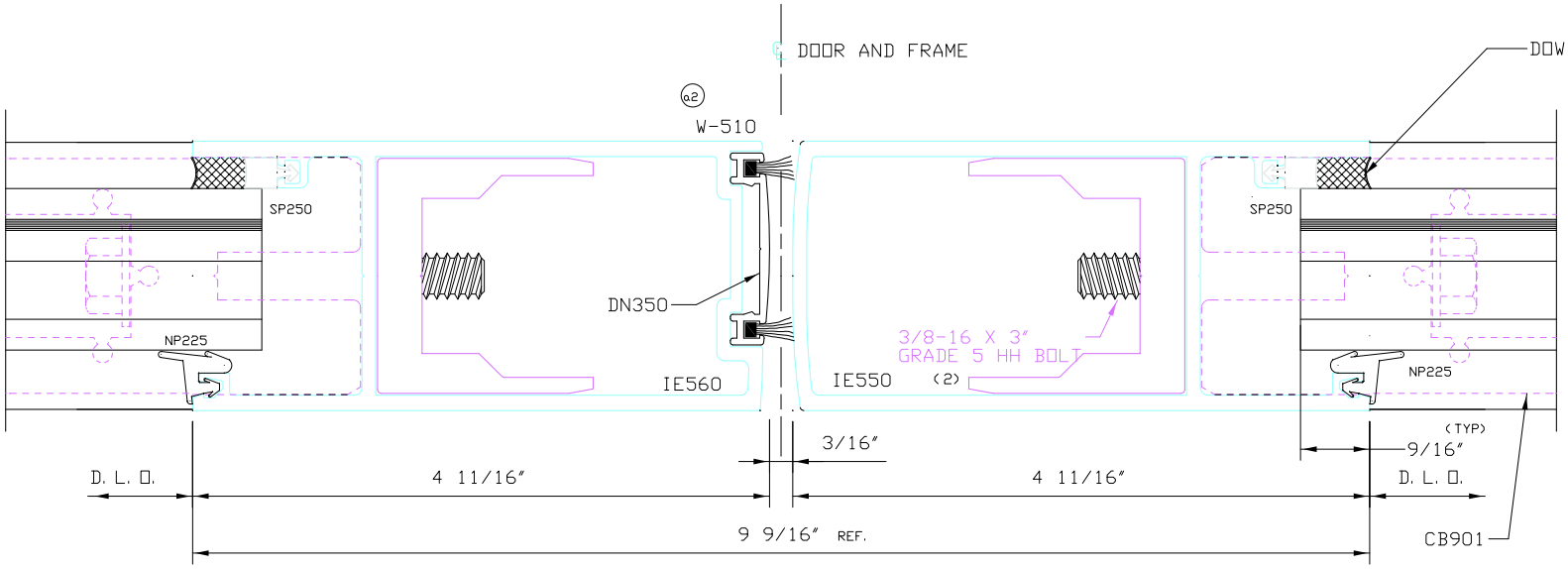
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/06/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 18 OF 22

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PER TESTING NOTES	01. 26. 10	DCW



12

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• 200 Singleton Drive
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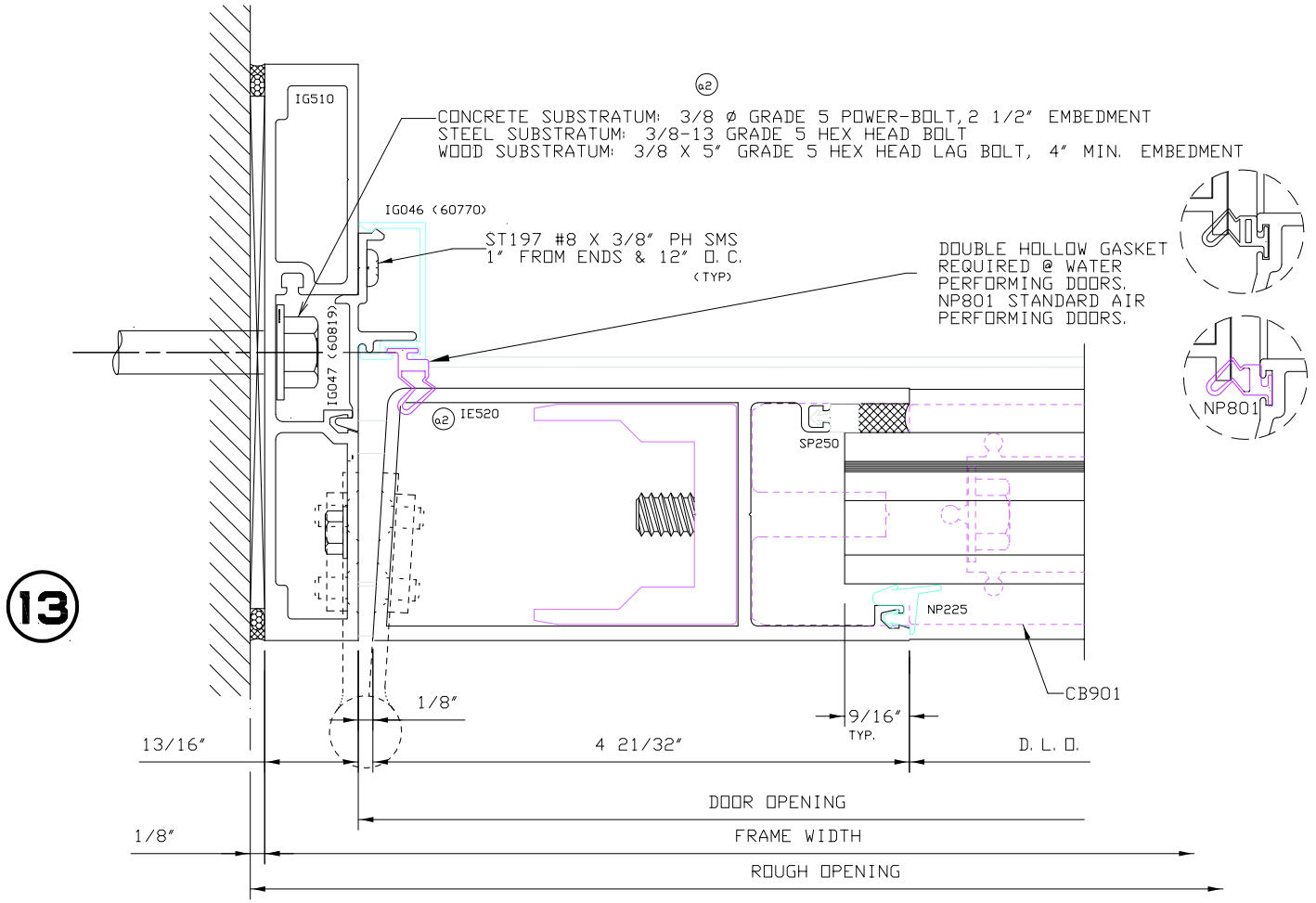
a2

DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/02/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 19 OF 22

SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12. 04. 09	DCW
a2	REVISED PARTS REVISED PER TESTING NOTES	01. 26. 10	DCW



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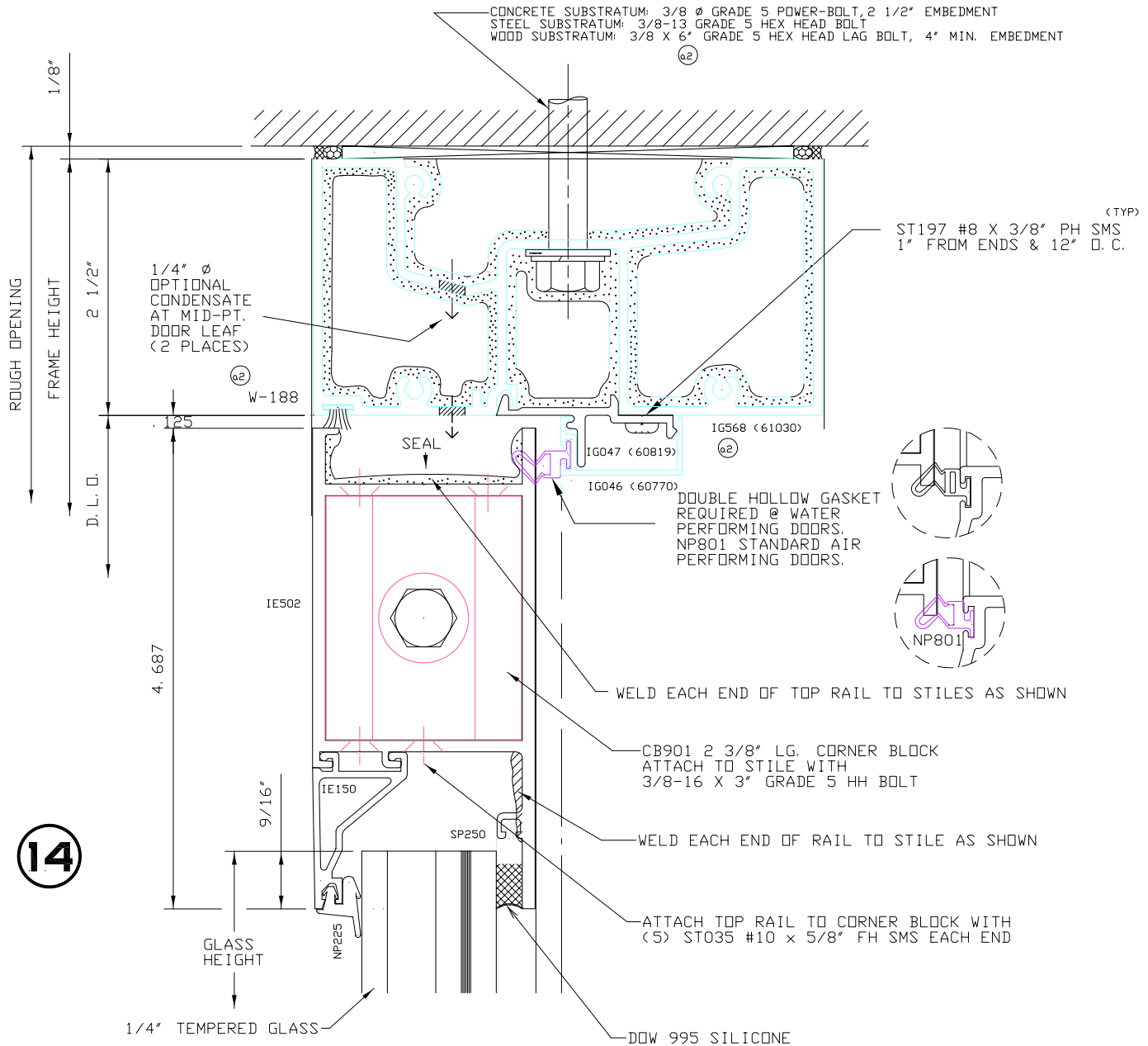
DRAWN BY: J. FREY	SYSTEM: SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 07/01/09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 20 OF 22



SYM	REVISION	DATE	BY
a1	REVISED DETAIL PAGE NUMBERS	12.04.09	DCW
a2	REVISED PART#S REVISED PER TESTING NOTES	01.26.10	DCW

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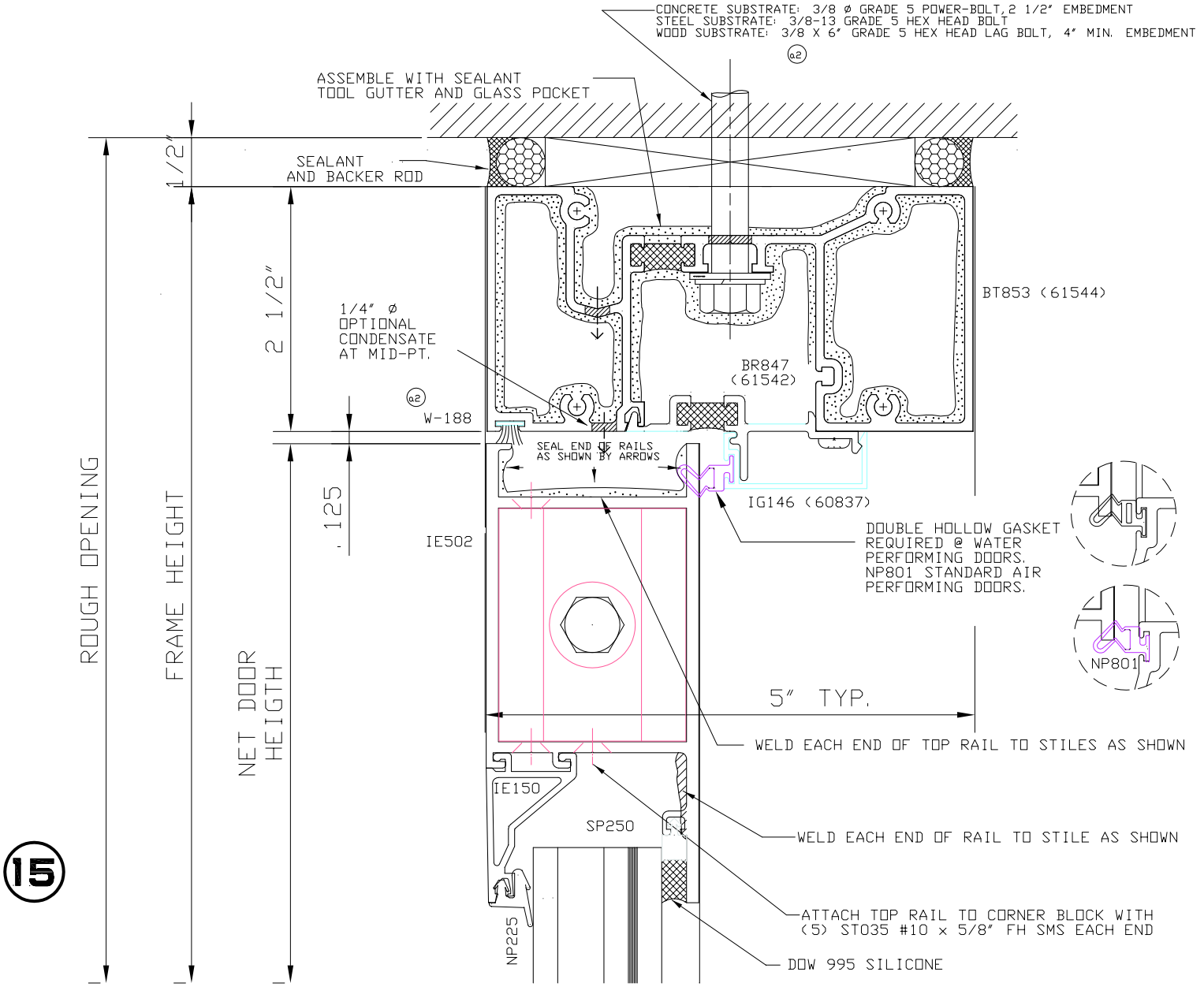
DRAWN BY	J. FREY
DATE	07/06/09
APPVD BY	
SCALE	FULL SIZE
SYSTEM	SERIES BT601/IT600 IMPACT THERMAL STORM FRONT SYSTEM
DESCRIPTION	DETAILS
DRAWING NO.	USA-3103
SHEET	21 OF 22



15

SYM	REVISION	DATE	BY
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@2	REVISED PART#S REVISED PER TESTING NOTES	01. 26. 10	DCW

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Rock Hill, SC 29730
• 200 Singleton Drive
Waxahachie, TX 75165 @2

DRAWN BY: DCW	SYSTEM: SERIES BT601IT600 IMPACT THERMAL STORM FRONT SYSTEM
DATE: 12. 03. 09	
APPVD BY:	DESCRIPTION: DETAILS
SCALE: FULL SIZE	DRAWING NO.: USA-3103
	SHEET: 22 OF 22