

**HR Engineering, Inc.**

1541 E. Market St.
York, PA 17403

29 April 2021

Paul Brand, Product Manager
Nystrom, Inc.
9300 73rd Avenue North
Minneapolis, MN 55428

RE: Florida Eval. Report, XTA/XTL HVAC Access Doors, 2020

Dear Mr. Brand;

The following Nystrom XTA/XTL HVAC Access Doors, have been tested in conformance with TAS 201, TAS 202 and TAS 203 as required by the 2020 Florida Building Code, Paragraph 1709.5 *Exterior window and door assemblies*, for installation in the HVHZ. Testing was done at Intertek Testing, Inc., and is reported in F7964.02-201-18. Then, the doors were evaluated using a combination of comparative and rational analyses, as allowed in Paragraph 1709.5.1 exceptions 3, of the 2020 FBC. There is no glazing used in these doors, so no glass analyses is required. Additional rational analyses have been performed to determine the required installation fasteners in 4 different substrates. All of the evaluations, analyses, and designs in this Evaluation Report have been done by myself, and are in a separate 9 page document titled *INSTALLATION ANALYSES NYSTROM XTA/XTL HVAC ACCESS DOORS 2020 FLORIDA BLDG.-CODE*. A.J. Manufacturing, Inc. manufactures these doors and Nystrom owns them under a private label agreement.

All doors in this series are single out swing entry type with maximum overall nominal dimensions of 36" wide by 48" high. These doors are too short to be used as personnel doors and are exclusively HVAC access doors. They are produced in 5 different standard widths; 12", 18", 22", 24", and 36". The 6 standard heights for these doors are 12", 18", 24", 30", 36", and 48". The largest doors were tested, and they achieved an allowable design wind pressure of +/- 80.0 psf. I have calculated the allowable design wind pressures for all of the smaller standard door sizes, and they appear in the table on the next page.

The tested doors had 2 latches each, and this appears in the table for doors down to 30" high. Then for doors 24" high and shorter, only 1 latch is used. Latches XTL have a lock, and XTA latches do not have a lock. That is the only difference between the latches. The doors with only one latch, the ones 24" high and smaller, have XTL with the lock. The doors that are 30" high, and higher have 2 latches, one XTL with lock, and one XTA without lock.

**ALLOWABLE DESIGN WIND PRESSURES, + AND -,
IN POUNDS PER SQUARE FOOT**

HVAC DOORS, NYSTROM XTA/XTL

		NOMINAL WIDTHS IN INCHES					
		12	18	22	24	36	
NOMINAL HEIGHTS IN INCHES	12	480	320	261	240	160	1 LATCH
	18	320	213	174	160	107	
	24	240	160	130	120	80	
	30	384	256	209	192	128	2 LATCHES
	36	320	213	174	160	107	
	48	240	160	130	120	80	

All of the door panels are 1.700" thick pressure injected polyurethane foam core with 24 gage (.0239") galvanized sheet steel, inside and outside. Frame sill, jambs, and head are all extruded aluminum, 6063-T5, with 0.080" thick walls. The hinge is 0.038" x 2" steel continuous piano-style, on jamb opposite that of the latches. For additional door details, see AJ Manufacturing, Inc. Drawing number x00265, titled *ACCESS DOOR NYSTROM XTA/XTL CROSS SECTION*. In order to pass the water test, a rubber gasket was installed under the hatch housing, and the bore hole was filled with soft sealant.

Installation fasteners, in order to achieve the loadings in the table, must be 12 in number for the 2 latch doors and 8 in number for the 1 latch doors. For the 2 latch doors the installation fasteners must be placed with 1 at each 1/3 length of the head and sill, and 4 evenly spaced at each jamb beginning 2" from each end. For the 1 latch doors, there must be an installation fastener placed at each 1/3 length of the sill, head, and each jamb.

Wood framed installation fasteners are to be #8 (0.164" diameter) x 2-1/4" long, series 300 stainless steel, wood screws with a minimum yield stress of 90,000 psi and minimum penetration of 1-3/4". Steel framed fasteners are to be #14 ITW Buildex, 304 stainless steel Tappers, into minimum substrate thickness of 0.018" thick (26 gage). Concrete framed and masonry block framed installation fasteners are to be 3/16" or 1/4" diameter ITW Buildex Scots Tapcons with a minimum embedment of 1".

These doors conform to the 180 mph wind zone in exposure B with 30' mean roof height maximum. This wind speed, exposure category, and building height are for normal use buildings, not over 60' high, with rectangular floor plans, and enclosed. These, and the above allowable design wind pressures, are in conformance with ASCE 7-10 as required by Section 1609.1.1 of the FBC.

There are no limiting factors for these doors. Manufacturer's label, either permanent or temporary, shall be located on a readily visible location in compliance with section 1709.5.1 of FBC. I trust that this information is sufficient for your needs. If there are any questions about this evaluation report, or if anything additional is required, please contact me.

Sincerely yours;

Allen N. Reeves
Allen N. Reeves, P.E., SECB
Structural Engineer
Florida License Number 19354
3 MAY 2021

ANR:anr

Cc: 21040002

