3980 NORTH FRASER WAY
BURNABY
BRITISH COLUMBIA
V5J 5K5
T: 604.527.8378
F: 604.527.8368
www.qai.org • info@qai.org

MANUFACTURING SPECIFICATION

Effective Date: May 7, 2024
Revision Date: N/A

Applicant File Number:
F487

Report Number:
F487-20-1-MFG
Edition 1

Applicant:
IBP Solutions, Inc. dba Masonite Architectural
1401 E. 4th Street
Marshfield, WI
54449 - 7780
ATTENTION: Jamie Corcoran, Manager Technical and R&D

MANUFACTURING LOCATIONS:
IBP Solutions, Inc. dba Masonite Architectural
3799 Commerce Road
London, ON
N6N 1P9 Canada
ATTENTION: Jamie Corcoran, Manager Technical and R&D

APPLICABLE REQUIREMENTS:

CAN/ULC-S104 (2020)	*Standard Method for Fire Tests of Door Assemblies*
UL10 (b) (2020)	*Fire Tests of Doors Assemblies*
UL10 (c) (2021)	*Fire Tests of Doors Assemblies*
NFPA-252 (2022)	*Standard Methods of Fire Tests of Door Assemblies*

SUBJECT:

MANUFACTURING SPECIFICATION FOR MASONITE- 20 MIN NEUTRAL & POSITIVE PRESSURE RATED CATEGORY “A” FIRE DOOR SLABS WITH HOSE STREAM

20-MINUTE HARRING DOORS STILE AND RAIL WOOD FIRE DOORS:

Minimum 2-1/4" Thickness

Swing Type:	Maximum Dimensions		Panel Type:	Figure:
	Width:	Length:		
Single Swing	3'0" (914 mm)	8'6" (2591 mm)	Flat or Raised	2 to 7
Pairs	6'0" (1829 mm)	8'6" (2591 mm)	Flat or Raised	2 to 7

INCOMING MATERIALS SPECIFICATIONS:

Material	I.D. (Specification)	Approved Supplier(s)
Tectonite	Fire rated for 20 minutes	Warm Springs Composite Products
Particleboard	Fire rated for 20 minutes	Commodity
Laminated Strand Lumber (LSL)	Minimum density 28 pcf	Commodity
Intumescent Panel	Palusol 100 Palusol 210	NGFL Inc.
Adhesive	Dural G2424 or Adbond 3022	Commodity

INCOMING MATERIAL ACCEPTANCE:

As a minimum, the following quality tests must be performed on incoming raw materials. The manufacturer must document all quality tests:

Material	Test	Frequency	Acceptable Limits
Tectonite	Visual Inspection	Every Shipment	Free of visual damage
Laminated Strand Lumber (LSL)	Visual Inspection	Every Shipment	Free of visual damage
Particleboard	Visual Inspection	Every Shipment	Free of visual damage
Intumescent Panel	Thickness	Every Shipment	Palusol 100 Core: 1/16" ± 1/32" Palusol 210 Core: 1/16" ± 1/32"
	Visual Inspection	Every Shipment	Free of visual damage
Adhesive	Visual Inspection	Every Shipment	Dural G2424 or Adbond 3022

MANUFACTURING ALLOWANCES / REQUIREMENTS:

Components	Description of Acceptance	Figure
Stiles and Rails	Outer Stile and Rail • Minimum density 28 pcf, 3/4" after trim Inner Stile and Rail LSL 1-5/8" ± 1/16" in thickness, width varies	N/A
Door Face	1/8" before sanding, (approx.. 1/16" min. after sanding) in allowable species, density 28 pcf	N/A
Pair Edges	3" Tectonite edges or LSL optional without astragal	9
Adhesive	Dural G2424 or Adbond 3022, cross linking PVA 11-12 mm spread rate	10

FINAL QUALITY CONTROL CHECK

A final operational and visual inspection must be conducted on all products. In addition, the following inspection must be documented on 10% of finished product.

Property Measured	Test	Procedure	Acceptable Limits
Overall Dimensions	Measurement	Measure product length, width and diagonal with tape measure	Width and length within ± 1/16". Difference between diagonal measurements ± 1/8"
Aesthetic	Visual	Visual Inspection	No damage, scratches, dents, discolorations.
Correct Labels	Visual	Visual Inspection	Verify the correct label is applied for the fire door core.

TESTS:

Results:
Tests are carried out on a specimen of specific dimensions. Product performance may be affected by variations in the door dimensions, assembly details and installation method. The reader is advised to ensure product conformity with all details of this evaluation report.

Test procedures are designed to test the performance of the test specimen only and are not used to test the performance of the installation, particularly the perimeter sealant joint and the anchoring of the assembly. Products shall be installed in accordance with the manufacturer's recommended instructions.

Test Report	Date Issued
Intertek Test Report# 495-1515	March 20, 2000
Intertek Test Report# 495-1516	March 20, 2000
Intertek Engineering Evaluation# 3096561	May 12, 2006
Intertek Engineering Evaluation# 3077477	May 18, 2005
Intertek Test Report# 3124053COQ-002	May 25, 2007
Intertek Test Report# 3130299COQ-002	October 24, 2007
Intertek Test Report# 3157083COQ-005a	August 25, 2008
Intertek Test Report# 3157083COQ-005b	August 21, 2008
Intertek Test Report# 3160604COQ-001	August 28, 2008
Intertek Test Report# 3160615COQ-001	August 29, 2008
QAI Engineering Evaluation# F424-1-1	March 15, 2017
QAI Engineering Evaluation# F434-1-1	April 18, 2016
QAI Engineering Evaluation# T1083-4	June 30, 2017

APPENDIX

Page	Title
A1	20 min Door Details
A2-A7	Door Detail Drawings

HARRING DOORS

20 MINUTE DETAILS

STILES & RAILS (per door leaf)

• Maximum single opening		3/6 x 8/0
• Maximum paired opening		7/0 x 8/0
• Minimum stile face before sticking	Cyl lock	5"
• Minimum stile face before sticking	mortise lock	6"
• Minimum top rail face before sticking		5"
• Minimum lock rail face before sticking		6 ½"
• Minimum mid rail or mullion face before sticking		3"
• Minimum bar or muntin face before sticking		1"
• Minimum bottom rail face before sticking		6"

Panels (per door leaf)

• Minimum panel size			25 sq. inches
• Maximum panel size	(1 5/8" thick)		2061 sq. inches
• Maximum amount of panels			18
• Minimum flat panel thickness		5/8"	936 sq. inch max
• Minimum raised panel thickness		1 1/8"	1296 sq. inch max

Glass (per door leaf)

• Maximum lite size	¼" wire	54" max dim	1926 sq inches / lite
• Maximum lite size	firelite	68" max dim	1503 sq inches / lite
• Maximum amount of lite panels		18 not to exceed	1503 sq inches total
• ¼" Fireglass 20, impact safety rated			U.S.A.
• ¼" Firelite or firelite NT			Canada
• ¼" Wire glass			North America

Hardware Details
(Fire rated only)

• Cylindrical locks		5" min stile face
• Mortise locks		6" min stile face
• Minimum latch throw	½ singles	¾" on pairs
• Dead bolts minimum 6" from center of lock		6" min stile face
• Surface or mortised flush bolts (auto or manual)		6" min stile face
• Surface vertical rod fire exit hardware		5" min stile face
• Mortise fire exit hardware		6" min stile face
• Auto door bottom (Mortise & surface mount)		Labeled type only
• Wire raceway		Max 3/8" x 3/8"
• Viewers (per NFPA 80) Max 1" diameter placed in 1 ¾" thickness only		
• Concealed vertical rod exit device		

Figure 1: 20 minute Door Details.

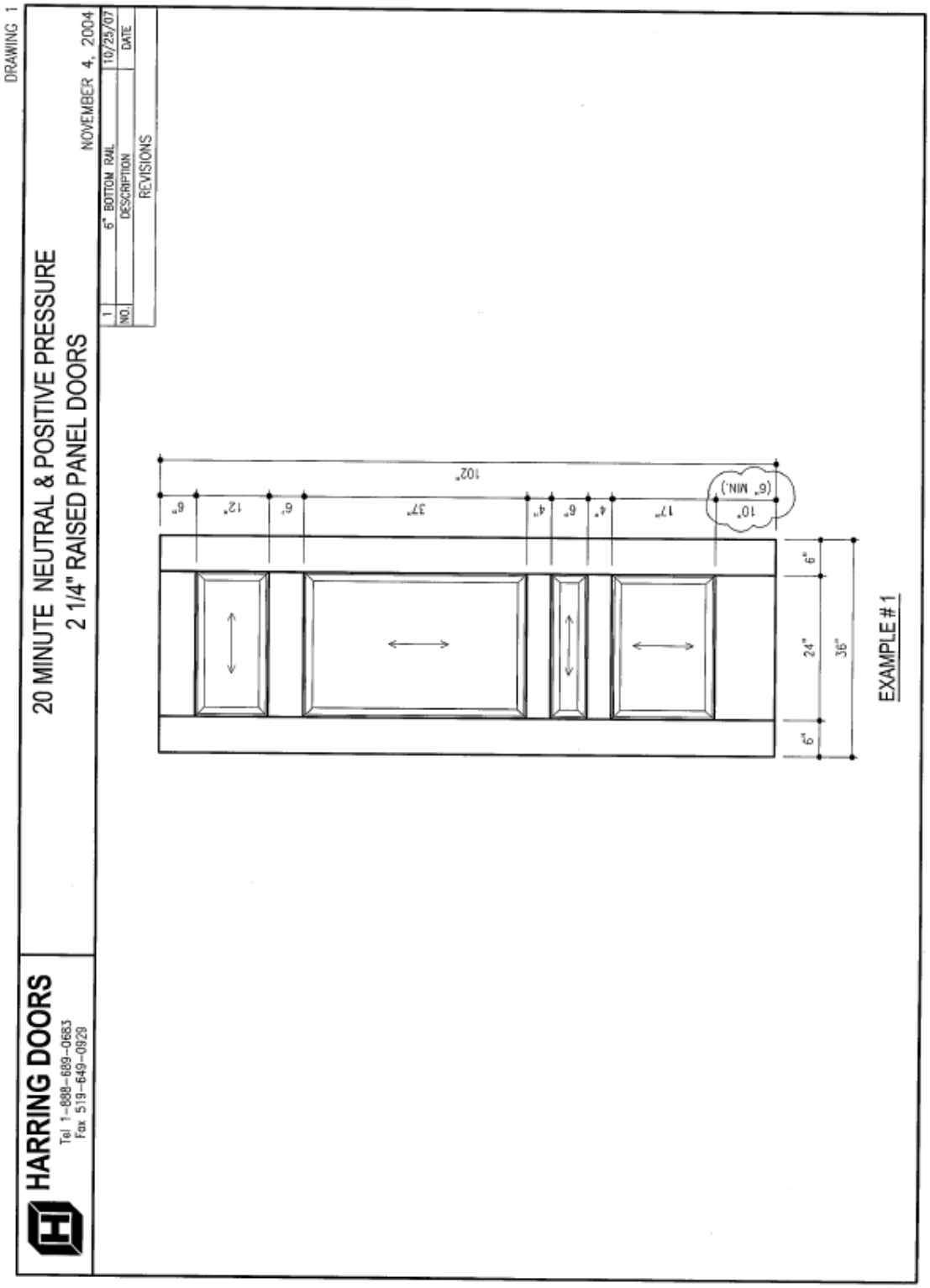

Figure 2: 20 minute Door Assembly.

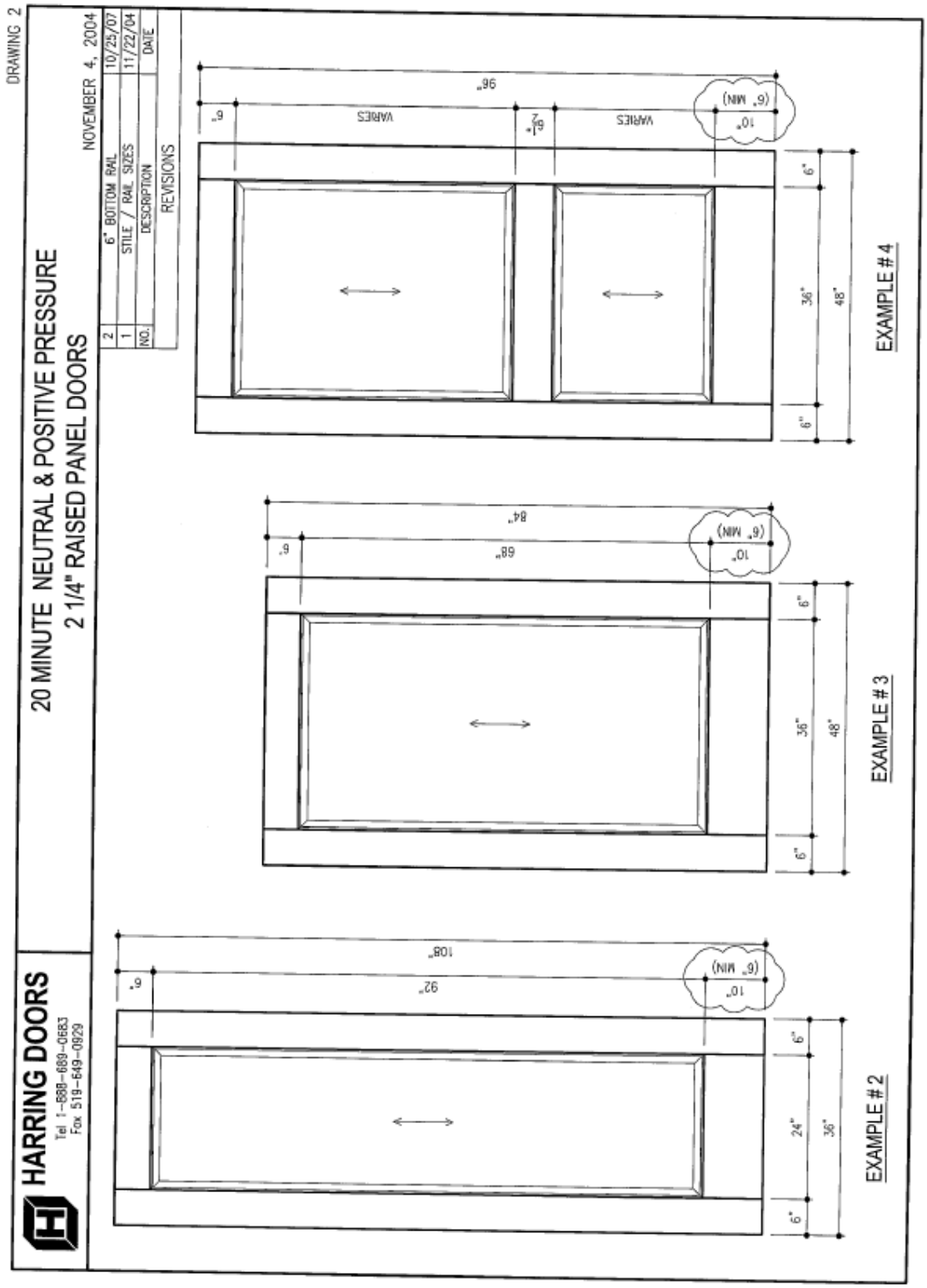

Figure 3: 20 minute Door Assembly.

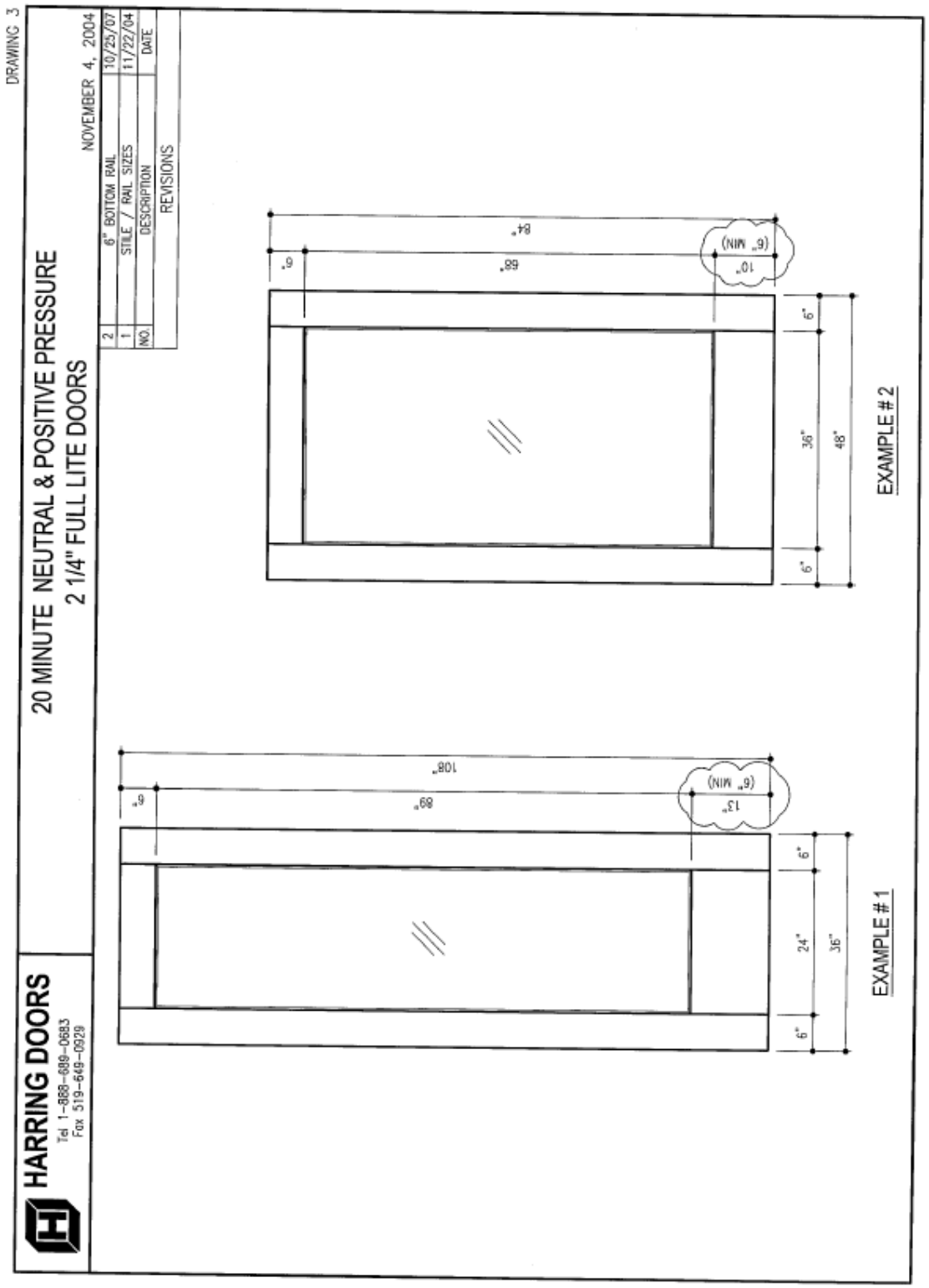

Figure 4: 20 minute Door Assembly.

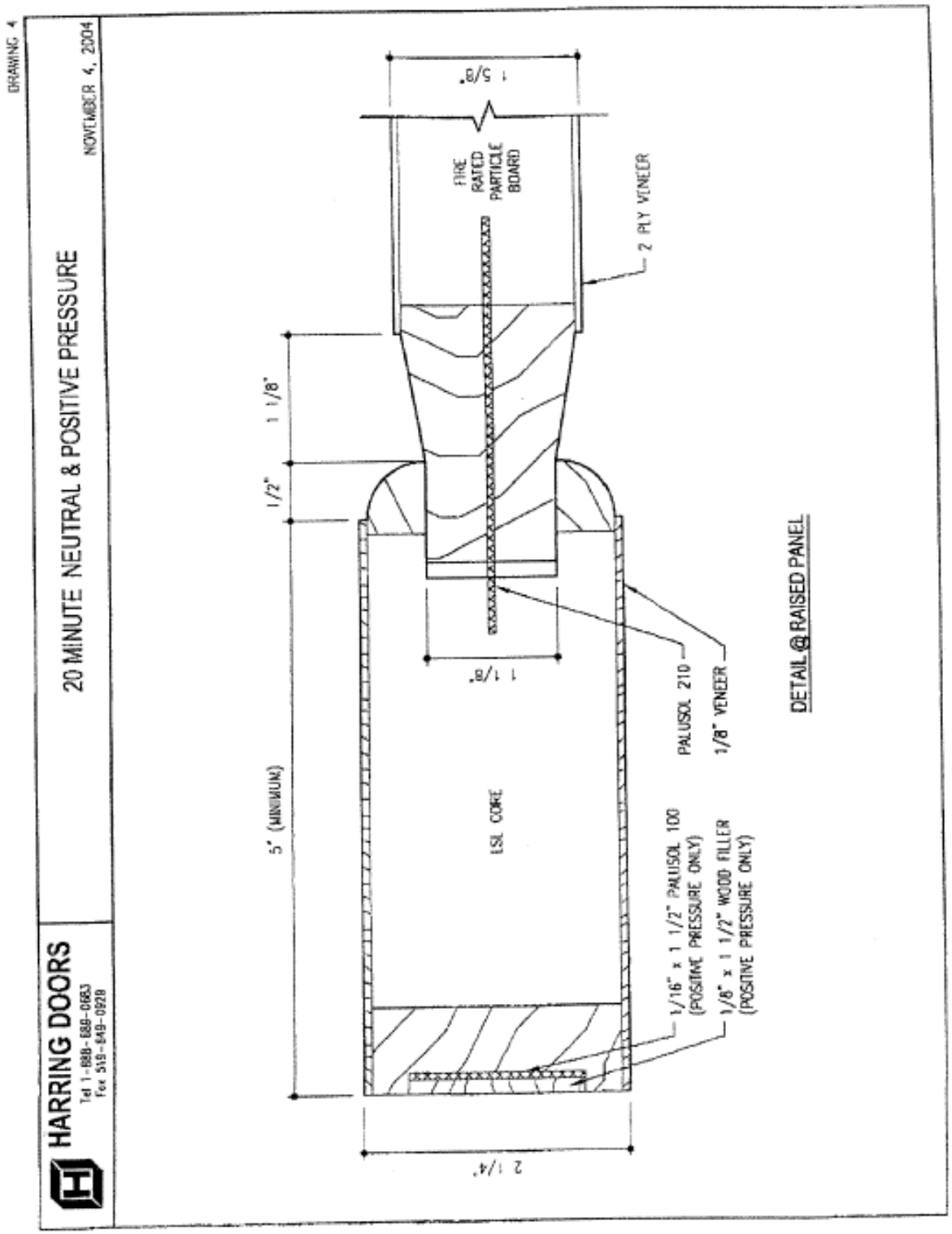

Figure 5: 20 minute Door Assembly Detail.

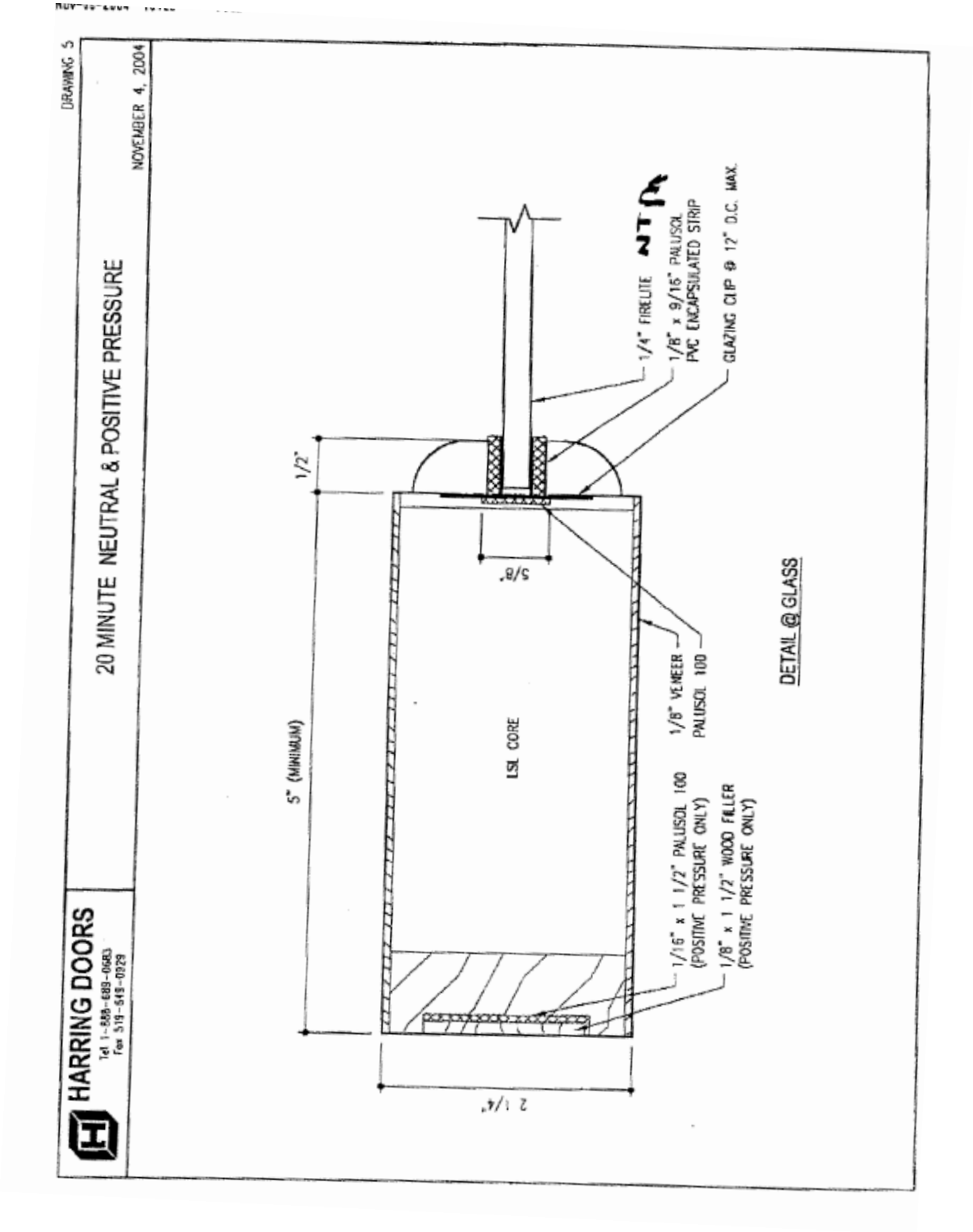

Figure 6: 20 minute Door Assembly Detail.

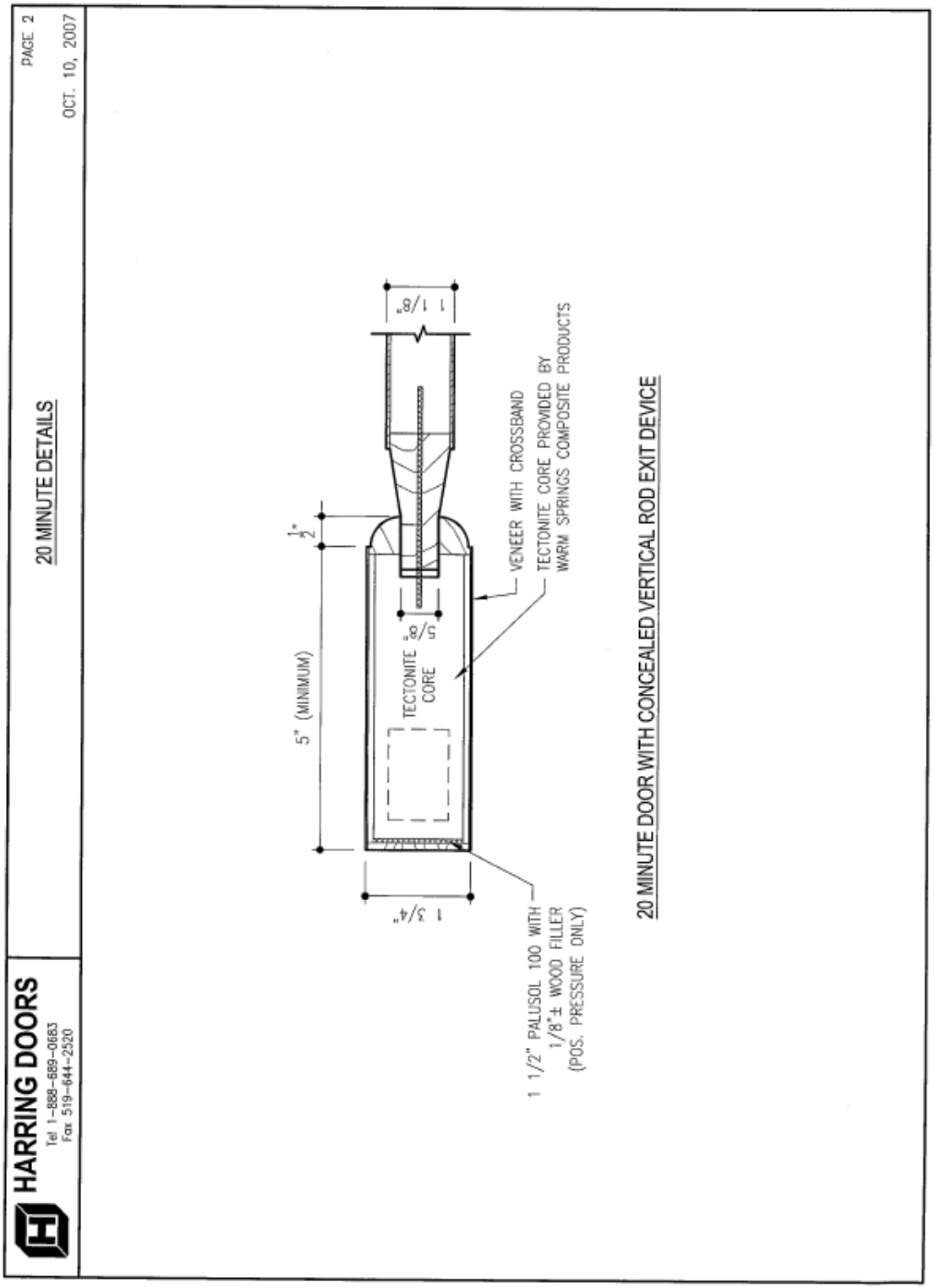

Figure 7: 20 minute Door Assembly Detail.