William E. Whited, Inc.
Engineer, Architect

74 West Street, Portland, ME 04102
Tel 207 878 4530, Fax 207 878 4533

Mr.Frank Grondin, President
Mainland Structures, Inc.
11A Bartlett Road
Gorham, ME 04038

Re: Wilson Street Condos
Portland, ME

Dear Frank:

I have reviewed the reports you provided me of the inspections by the soil, concrete, and other special inspectors. These reports are, I believe, complete.

For the structural special inspections of the framing and masonry work I made a number of visits to the site during construction to observe the installation of framing anchors, the framing methods used, and the masonry work being reinforced with vertical and horizontal reinforcing steel and then grouted as the work progressed.

The observed work was in accordance with the plans and specifications.

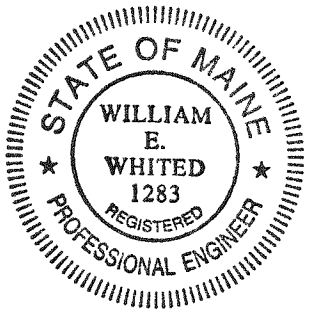
I believe the referenced reports and this letter satisfies the requirements of special Inspections by the City of Portland Building Inspection Department and is complete.

If you have and questions, please call.

Yours truly,

WILLIAM E. WHITED, INC.

William E Whited



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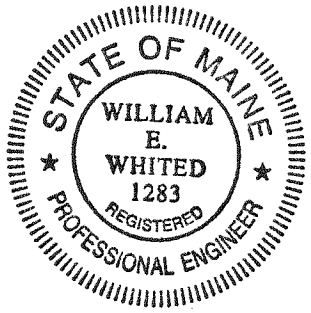


William E. Whited, Pres.

Statement of Special Inspections

Project: Wilson Heights Condominiums

Location: O'Brien & Wilson St., Portland, ME

Owner: Frank D. Grondin Builders, LLC

Design Professional in Responsible Charge:

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural ☒ Mechanical/Electrical/Plumbing

☒ Architectural ☐ Other: _____

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: or ☐ per attached schedule.

Prepared by:

William E. Whited, P.E., R.A.
(type or print name)

William E. Whited 04-06-05
Signature Date

STATE OF MAINE
WILLIAM E. WHITED
1283
REGISTERED
PROFESSIONAL ENGINEER
Design Professional Seal

Owner's Authorization:

Signature Date
Frank D. Grondin

Building Official's Acceptance:

Signature Date

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- ☑ Soils and Foundations
- ☑ Cast-in-Place Concrete
- ☐ Precast Concrete
- ☐ Masonry
- ☐ Structural Steel
- ☐ Cold-Formed Steel Framing
- ☐ Spray Fire Resistant Material
- ☑ Wood Construction
- ☐ Exterior Insulation and Finish System
- ☒ Mechanical & Electrical Systems
- ☐ Architectural Systems
- ☐ Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. **Special Inspection Coordinator** William E. Whited	William E. Whited, Inc.	1321 Washington Avenue Portland, ME 04103 207-878-4530 wwhited@wlwhited.com
2. Inspector - soils To be determined	Sebago Technics	One Chabot Street Westbrook, ME 04098-1339 207-856-0277 dstclair@sebagotechnics.com
3. Inspector - concrete To be determined	R. W. Gillespie & Associates, Inc.	86 Industrial Park Road Ste 4, Saco, ME 04072 207-286-8008 Fax: 207-286-2882
4. Testing Agency - wood William E. Whited	William E. Whited, Inc.	1321 Washington Avenue Portland, ME 04103 207-878-4530 wwhited@wlwhited.com
5. Testing Agency Mechanical & Electrical Systems To be determined		
6. Other - Architectural David Hembre	David Hembre, Architect	45 Casco Street Portland, ME 04101 207-699-2688 dhembre@aol.com

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category

Quality Assurance Plan Required (Y/N) Y

Description of seismic force resisting system and designated seismic systems:

Wall panels, floor diaphragms, roof diaphragms, tie down to foundation.
Seismic Design Category - C
Seismic Use Group - I

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust) 100 mps

Wind Exposure Category B

Quality Assurance Plan Required (Y/N) Y

Description of wind force resisting system and designated wind resisting components:

Wall panels, floor and roof diaphragms, tie downs to foundation.

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Exterior Design Institute (EDI) Certification

EDI-EIFS	EIFS Third Party Inspector

Other

_____ _____

Soils and Foundations

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations	*PE/GE* 2	*Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.* *Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill*
2. Controlled Structural Fill N/A	*PE/GE*	*Perform sieve tests (ASTM D422 & D1140) and modified Proctor tests (ASTM D1557) of each source of fill material.* *Inspect placement, lift thickness and compaction of controlled fill.* *Test density of each lift of fill by nuclear methods (ASTM D2922)* *Verify extent and slope of fill placement.*
3. Deep Foundations N/A	*PE/GE*	*Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria.* *Inspect piles for damage from driving and plumbness.* *Verify pile size, length and accessories.* *Inspect installation of drilled pier foundations. Verify pier diameter, bell diameter, lengths, embedment into bedrock and suitability of end bearing strata.*
4. Load Testing N/A		
4. Other:		

Cast-in-Place Concrete

Item	Agency # (Qualif.)	Scope
1. Mix Design	3 *ACI-CCI* *ICC-RCSI*	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification		
3. Reinforcement Installation	3 *ACI-CCI* *ICC-RCSI*	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters*
4. Post-Tensioning Operations N/A	*ICC-PCSI*	*Inspect placement, stressing, grouting and protection of post-tensioning tendons. Verify that tendons are correctly positioned, supported, tied and wrapped. Record tendon elongations.*
5. Welding of Reinforcing N/A	*AWS-CWI*	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.*
6. Anchor Rods	3	*Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.*
7. Concrete Placement	3 *ACI-CCI* *ICC-RCSI*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
8. Sampling and Testing of Concrete	3 *ACI-CFTT* *ACI-STT*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection	3 *ACI-CCI* *ICC-RCSI*	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:		

Precast Concrete

N/A

Item	Agency # (Qualif.)	Scope
1. Plant Certification / Quality Control Procedures ☐ Fabricator Exempt	*ACI-CCI* *ICC-RCSI*	*Review plant operations and quality control procedures.*
2. Mix Design	*ACI-CCI* *ICC-RCSI*	*Inspect concrete batching operations and verify compliance with approved mix design*
3. Material Certification		
4. Reinforcement Installation	*ACI-CCI* *ICC-RCSI*	*Inspect size, spacing, position and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials.*
5. Prestress Operations	*ICC-PCSI*	*Inspect placement, stressing, grouting and protection of prestressing tendons*
6. Connections / Embedded Items		
7. Formwork Geometry		
8. Concrete Placement	*ACI-CCI* *ICC-RCSI*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated .*
9. Sampling and Testing of Concrete	*ACI-CFTT* *ACI-STT*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
10. Curing and Protection	*ACI-CCI* *ICC-RCSI*	*Inspect curing, cold weather protection and hot weather protection procedures.*
11. Erected Precast Elements	*PE/SE*	*Inspect erection of precast concrete including member configuration, connections, welding and grouting.*
12. Other:		

Masonry N/A

Required Inspection Level: ☐ 1 ☐ 2

Item	Agency # (Qualif.)	Scope
1. Material Certification		
2. Mixing of Mortar and Grout	*ICC-SMSI*	*Inspect proportioning, mixing and retempering of mortar and grout.*
3. Installation of Masonry	*ICC-SMSI*	*Inspect size, layout, bonding and placement of masonry units.*
4. Mortar Joints	*ICC-SMSI*	*Inspect construction of mortar joints including tooling and filling of head joints.*
5. Reinforcement Installation	*ICC-SMSI* *AWS-CWI*	*Inspect placement, positioning and lapping of reinforcing steel.* *Inspect welding of reinforcing steel.*
6. Prestressed Masonry	*ICC-SMSI*	*Inspect placement, anchorage and stressing of prestressing bars.*
7. Grouting Operations	*ICC-SMSI*	*Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.*
7. Weather Protection	*ICC-SMSI*	*Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.*
9. Evaluation of Masonry Strength	*ICC-SMSI*	*Test compressive strength of mortar and grout cube samples (ASTM C780).* *Test compressive strength of masonry prisms (ASTM C1314).*
10. Anchors and Ties	*ICC-SMSI*	*Inspect size, location, spacing and embedment of dowels, anchors and ties.*
11. Other:		

Structural Steel N/A

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt	*AWS/AISC-SSI ICC-SWSI*	*Review shop fabrication and quality control procedures.*
2. Material Certification	*AWS/AISC-SSI ICC-SWSI*	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes*
3. Open Web Steel Joists		*Inspect installation, field welding and bridging of joists.*
4. Bolting	*AWS/AISC-SSI ICC-SWSI*	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections.*
5. Welding	*AWS-CWI* *ASNT*	*Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds.* *Ultrasonic testing of all full-penetration welds.*
6. Shear Connectors	*AWS/AISC-SSI ICC-SWSI*	*Inspect size, number, positioning and welding of shear connectors. Inspect suds for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*
7. Structural Details	*PE/SE*	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*
8. Metal Deck	*AWS-CWI*	*Inspect welding and side-lap fastening of metal roof and floor deck.*
9. Other:		

Cold-Formed Steel Framing

N/A

Item	Agency # (Qualif.)	Scope
1. Member Sizes		
2. Material Thickness		
3. Material Properties		
4. Mechanical Connections		
5. Welding		
6. Framing Details		
7. Trusses		
8. Permanent Truss Bracing		
9. Other:		

Spray-Applied Fire Resistant Material

N/A

Item	Agency # (Qualif.)	Scope
1. Material Specifications		
2. Laboratory Tested Fire Resistance Design	*ICC-SFSI*	*Review UL fire resistive design for each rated beam, column, or assembly.*
3. Schedule of Thickness	*ICC-SFSI*	*Review approved thickness schedule.*
4. Surface Preparation	*ICC-SFSI*	*Inspect surface preparation of steel prior to application of fireproofing*
5. Application	*ICC-SFSI*	*Inspect application of fireproofing.*
6. Curing and Ambient Condition	*ICC-SFSI*	*Verify ambient air temperature and ventilation is suitable for application and curing of fireproofing.*
7. Thickness	*ICC-SFSI*	*Test thickness of fireproofing (ASTM E605). Perform a set of thickness measurements for every 1,000 SF of floor and roof assemblies and on not less than 25% of rated beams and columns.*
8. Density	*ICC-SFSI*	*Test the density of fireproofing material (ASTM E605).*
9. Bond Strength	*ICC-SFSI*	*Test the cohesive/adhesive bond strength of fireproofing ASTM E736). Perform not less than one test for each 10,000 SF.*
10. Other:		

Wood Construction

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt N/A		*Inspect shop fabrication and quality control procedures for wood truss plant.*
2. Material Grading		
3. Connections	4	
4. Framing and Details	4	
5. Diaphragms and Shearwalls	4	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*
6. Prefabricated Wood Trusses N/A		*Inspect the fabrication of wood trusses.*
7. Permanent Truss Bracing N/A		
8. Other:		

Exterior Insulation & Finish Systems (EIFS)

N/A

Item	Agency # (Qualif.)	Scope
1. Material Submittals		
2. Condition of Substrate		
3. Application of Foam Plastic Board		
4. Application of Coatings		
5. Application of Mesh		
6. Ambient Condition and Curing		
7. Flashing and Joint Details		
8. Sealants/Caulks		
9. Other:		

Instructions – Preparation of the Statement of Special Inspections

1. Who Prepares the Form:
   The program of inspection and testing for a project should be prepared by the Registered Design Professional (RDP) that is in responsible charge of the building system requiring inspections and testing. The Structural Engineer of Record (SER) should prepare the sections required for the structural elements such as foundations, concrete, structural steel, etc. The Architect and MEP Engineer of Record should prepare the corresponding sections of the SSI for the building systems that they are responsible for. For further explanation, please refer to the "Guide to Special Inspections and Quality Assurance".

2. The Front Page:
   - 2-1. At the top of the page indicate the project name and location as they appear on the Contract Documents, provide the Owner's name (individual, private company, municipality, government agency, etc.), and indicate the Design Professional In Responsible Charge. This should be the RDP in responsible charge of the building systems for which this Statement of Special Inspections is being prepared. See explanation in item 1 above.
   - 2-2. Next, read the first paragraph and check the box below indicating the discipline(s) that this SSI will encompass (Structural, Architectural, Mechanical/Electrical/Plumbing, or Other).
   - 2-3. After reading the remaining paragraphs, the RDP must indicate the frequency of "Interim Reports" required from the Special Inspection Coordinator for the project. This can be indicated directly on the page, i.e. "weekly", or the adjacent box can be checked to attach a more specific schedule.
   - 2-4. Near the bottom of the page, the RDP must print, sign, and date the form, and stamp the form with their professional seal in the box provided.
   - 2-5. The Owner or Owner's agent must sign and date the front page after the SSI has been completed by the RDP.
   - 2-6. The Building Official must sign and date the form upon acceptance.

3. Page 2 – Schedule of Inspection and Testing Agencies:
   - 3-1. The top of the page lists all of the categories of building systems with a box next to each. The RDP must check the boxes for <u>only</u> the building systems that are going to be covered in this SSI. A completed inspection program page must be attached for each building system that is checked off. (See instruction #5 below.)
   - 3-2. The chart below is where the members of the Special Inspection Program are listed. Their names, addresses, telephone numbers, and emails should be filled out in the appropriate boxes. If the Inspectors and Testing Agencies have not been determined yet, the RDP can fill in the boxes with "To Be Determined".

4. Page 3 – Quality Assurance Plan:
   - 4-1. The RDP must review sections 1705 and 1706 in Chapter 17 of the IBC to determine if the project requires a Quality Assurance Plan for the seismic force and wind force resisting systems and components.
   - 4-2. The RDP must indicate whether or not a Quality Assurance Plan is required by filling in the information requested on the page. It is only necessary to provide descriptions

Mechanical & Electrical Systems

Item	Agency # (Qualif.)	Scope
1. Smoke Control		
2. Mechanical, HVAC & Piping To be determined	5	
3. Electrical System To be determined	5	
4. Other:		

Architectural Systems

Item	Agency # (Qualif.)	Scope
1. Wall Panels & Veneers		
2. Suspended Ceilings		
3. Access Floors		
4. Other:		

Special Cases

Item	Agency # (Qualif.)	Scope

of the seismic and wind force resisting systems if it is determined that a Quality Assurance Plan is required.

5. Inspection Program Pages For Each Building System:

5-1. There is a page attached for each building system where the RDP identifies the inspection requirements of each system. Fill out the pages for only the building systems included in this SSI. Do not include blank pages for building systems not covered under this SSI.

5-2. Indicate the inspection or testing firm (Agency #) that will perform each inspection task. The Agency # is the number listed next to the Inspector or Testing Laboratory on the chart on page 2 of the SSI.

5-3. Indicate the required qualifications of the Inspector for each inspection. A list of qualifications of Inspectors and testing technicians is provided on page 4 of the SSI for reference. The RDP may require additional qualifications beyond the ones listed if they feel it is appropriate. Suggested qualifications have been included for consideration. The RDP must determine what qualifications are appropriate for the particular project and confirm that the selected agency employs individuals with the specified qualifications.

5-4. The scope of each inspection must be filled in by the RDP. The editable text provided in italics reflects the code mandated minimum inspection requirements designated in section 1704 of IBC Chapter 17. The editable text does not include the inspections requirements for seismic and wind resisting systems listed in sections 1705 through 1708. The RDP must determine if the project falls under the requirements of sections 1705 to 1708 and add the required inspections to the building systems. The final scope of the inspections required for the project must be determined by the RDP.

5-5. Descriptions of all inspections must include the required frequency of each inspection or test.

R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 Int'l Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
06 May 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Laboratory Testing

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached laboratory test results.

Laboratory No. (s)	Test (s) Performed
7831	Washed Gradation & MD

RECEIVED
MAY 10 2005

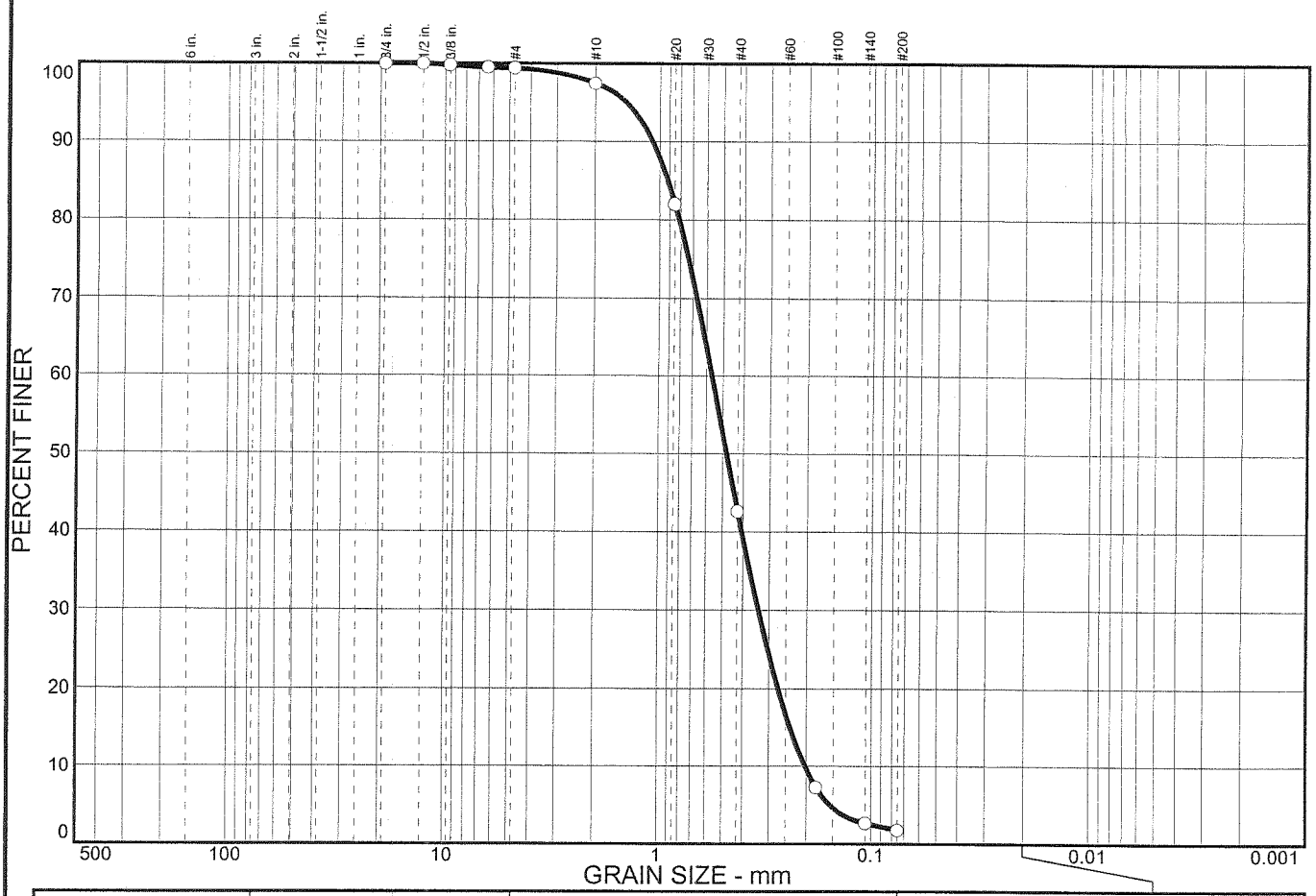
Remarks:

Copy To: none

Signed: Suzan A. Bullock

If enclosures are not as noted, kindly notify us at once.

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.6	2.0	54.8	40.8	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	100.0		
3/8 in.	99.8		
1/4 in.	99.5		
#4	99.4		
#10	97.4		
#20	82.0		
#40	42.6		
#80	7.3		
#140	2.7		
#200	1.8		

* (no specification provided)

Soil Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.918 D_{60}= 0.565 D_{50}= 0.480
D_{30}= 0.338 D_{15}= 0.238 D_{10}= 0.203
C_u= 2.79 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

Tested by: RCM/DCH
Moisture content: 5.6%

Sample No.: 7831 **Source of Sample:** Grondin - Carter Pit **Date:** 5/6/05
Location: On Site Stockpile **Elev./Depth:**

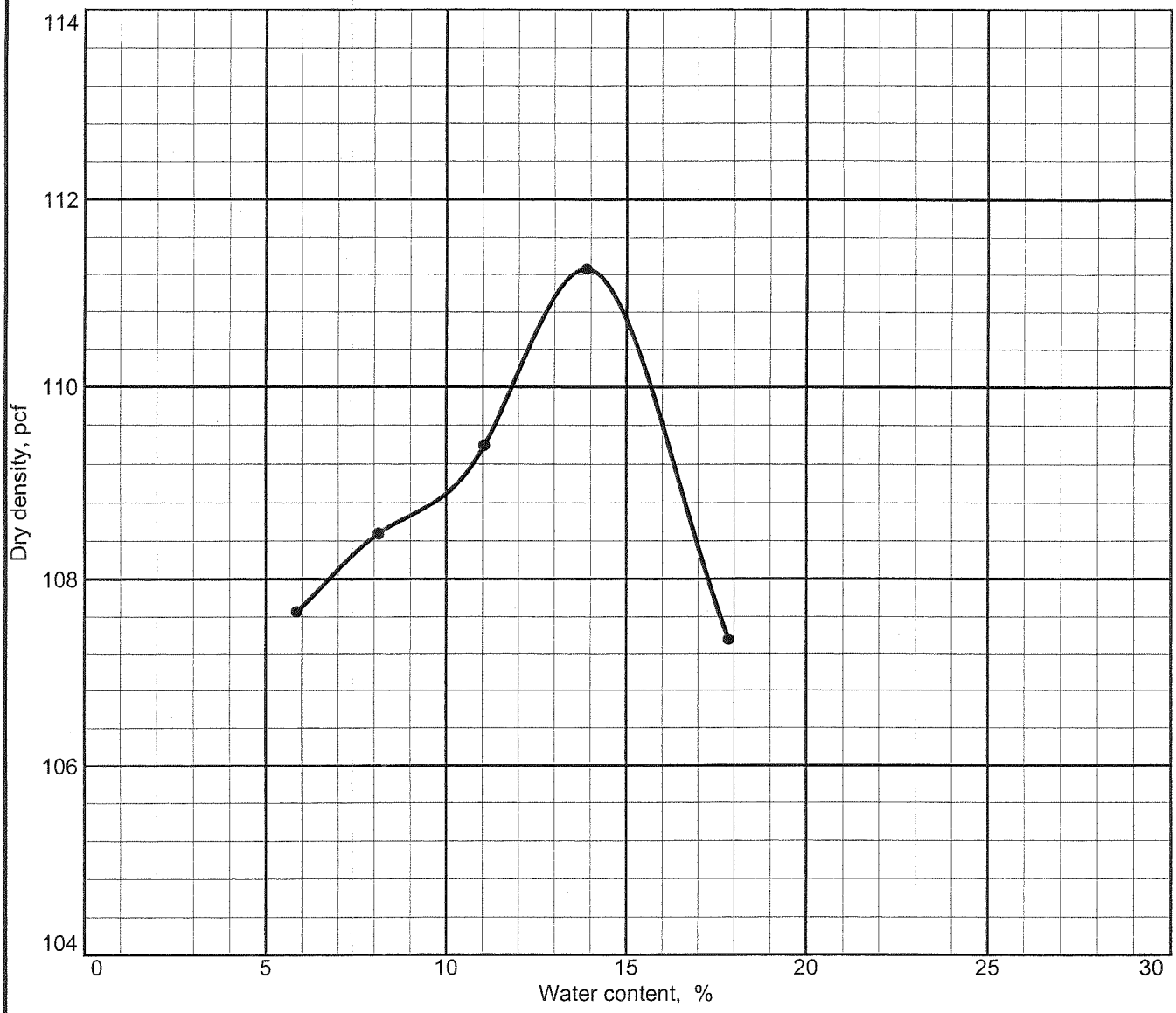
R.W. Gillespie & Associates, Inc.

Client: Mainland Structures
Project: 56 Wilson Street

MTG

Project No: 686-04 **Sample No.** 7831

MOISTURE-DENSITY TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 111.3 pcf Optimum moisture = 13.9 %	

Project No. 686-04 **Client:** Mainland Structures

Project: 56 Wilson Street

● **Location:** On Site Stockpile

Remarks:

Tested by: RCM

MTG

MOISTURE-DENSITY TEST REPORT

R.W. Gillespie & Associates, Inc.

Sample No. 7831

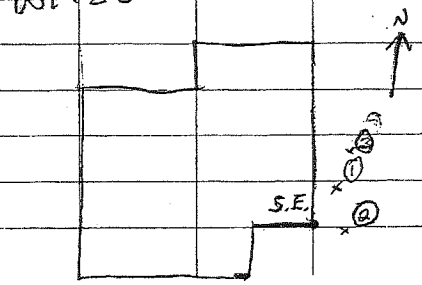
56 Wilson Street 5/6/05

686-04

Guage Model C-300/21059

ID #	Description			M.D.	% M
7834	SILTY	SAND		106.7	11.5

Test	Location					Elevation		D.D	o.m	% P	Material
1	3'E	10'N	of	S.E	corner	4' Below Top		100.6	14.1	94.3	7834
2	4'E	7'S	"	"	"	"	"	102.8	13.2	96.3	"
3	4'E.	15'N	"	"	"	"	"	99.1	14.2	92.9	"



R. J. GRONDIN & SONS
General Contractors

GRADATION ANALYSIS

PROJECT: Wilson Heights Condominiums **PROJECT #:** 5055
CLIENT: Frank D Grondin Builders, LLC
SAMPLE #: 90 **SAMPLED BY:** DABragg **DATE SAMPLED:** 4-13-05
SAMPLE IDENTIFICATION: 3/4" Crushed Stone
SAMPLE LOCATION & SOURCE: Stockpile at source : Brandy Brook Quarry

SIEVE SIZE	PERCENT PASSING	SPECIFICATION %
1"	100	
3/4"	95	
1/2"	3	
3/8"	1	
1/4"	0.2	
#4	0.2	
#8	0.1	
#10	0.1	

COMMENTS: **Meets Specs** _____ **Fails Specs**_____
Washed Gradation ✓

R. J. GRONDIN & SONS
General Contractors

GRADATION ANALYSIS

PROJECT: Wilson Heights Condominiums **PROJECT #:** 5055
CLIENT: Frank D Grondin Builders, LLC
SAMPLE #: 109 **SAMPLED BY:** DABragg **DATE SAMPLED:** 4-27-05
SAMPLE IDENTIFICATION: Aggregate Subbase - Type D : 4" Crushed Gravel
SAMPLE LOCATION & SOURCE: Stockpile at source : Mussey Rd Quarry

SIEVE SIZE	PERCENT PASSING	SPECIFICATION %
6"		
4"		100*
3"	100	
	Portion Passing 3" Sieve	
2"	93	
1"	77	
3/4"	71	
1/2"	62	
3/8"	57	
1/4"	51	25-70
* 4	48	
* 10	39	
* 20	27	
* 40	15	0-30
* 60	10	
* 100	7	
* 200	4.8	0-7.0

COMMENTS: **Meets Specs** ✓ **Fails Specs** _____
Washed Gradation ✓
* modified MDOT 703.06 Type D spec.

11 Bartlett Road • Gorham, Maine 04038 • (207) 854-1147 • Fax (207) 854-4315

R. J. GRONDIN & SONS
General Contractors

GRADATION ANALYSIS

PROJECT: Wilson Height Condominiums **PROJECT #:** 5055
CLIENT: Mainland Structures Inc.
SAMPLE #: 3334G **SAMPLED BY:** SWCole **DATE SAMPLED:** 4-29-05
SAMPLE IDENTIFICATION: Sand Backfill : Bank Run Sand
SAMPLE LOCATION & SOURCE: Face of P.T : Carter Brook P.T

SIEVE SIZE	PERCENT PASSING	SPECIFICATION %
#4	100	
#10	98	
#20	92	
#40	66	
#60	24	
#100	5	
#200	1.4	

COMMENTS: **Meets Specs** _____ **Fails Specs** _____
Washed Gradation ✓

Maximum Dry Density (pcf) 105.4
Optimum Moisture Content (%) 16.7

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R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008

P.O. Box 289, Augusta, ME 04332 207-623-4914

200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
May 9, 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Concrete Testing
56 Wilson Street
Portland, Maine

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached concrete cylinder test results.

Cylinder No. (s)	Age (Days)
50888	7

RECEIVED
MAY 11 2005

Remarks:

Copy To:

Signed: Bertha Dawn

If enclosures are not as noted, kindly notify us at once.

R. W. GILLESPIE & ASSOCIATES, INC.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

CONCRETE TEST/PLACEMENT REPORT

Project Name: 56 Wilson Street
Project No: 686-04
Weather Conditions: Sunny
Method of Placement: Pump
Admixtures: --
Placement Location: Foundation Walls
Test Cylinder Location: 20' from Southwest Corner

Date Cylinders Cast: 02-May-05
Concrete Supplier: Carroll
General Contractor: Mainland
Design Strength: 3,000
Max Agg. Size: 3/4

Date Report Issued: MAY 1 0 2005

6x12 Cylinders	4	Cast by	Matthew T. Grady	Time	
Load No.	1	Slump (in) ASTM C 143	4.0	Batched @	9:40
Ticket No.	4804	Air (°F)	60	Arrived @	10:00
Truck No.	15	Concrete (°F) ASTM C 1064	60	Total Time	95
Cubic Yds.	9.5	Air Content (%) ASTM C 231	9.0		

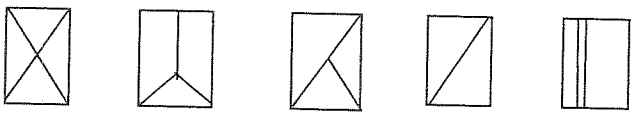
*Concrete sampled by ASTM C 172

Specimen Storage ASTM C 31: Field cure days: 1
Date received: 03-May-05
Condition of Cylinders: Good

Lab No.	Test Date	Avg Dia (in)	Area (in²)	Age (Days)	Load (lbs)	Compressive Strength (psi)	Break type
50888	09-May-05	6.022	28.48	7	65,040	2280	4
50889	30-May-05			28			
50890	30-May-05			28			
50891	HOLD			HOLD			

*Concrete compressive strength by ASTM C 39

Types of Breaks



Cone 1 | Cone & Split 2 | Cone & Shear 3 | Shear 4 | Columnar 5

Load	Ticket Number	Truck Number	Cubic Yds	Slump (inches)	Air Temp (°F)	Conc Temp (°F)	(%) Air Content	Time (min.)
2	4805	10	9.5	--	--	--	--	--
3	5806	14	9	--	--	--	--	--

Remarks: Reinforcing steel was checked for size, grade, and spacing, and was found to be in general conformance with project plan.

Checked by: Matthew T. Grady
For George S. Morrell, Supervisor

R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 Int'l Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
13 May 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Laboratory Testing
56 Wilson Street

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached laboratory test results.

Laboratory No. (s)	Test (s) Performed
7834	Washed Gradation & MD

RECEIVED
MAY 16 2005

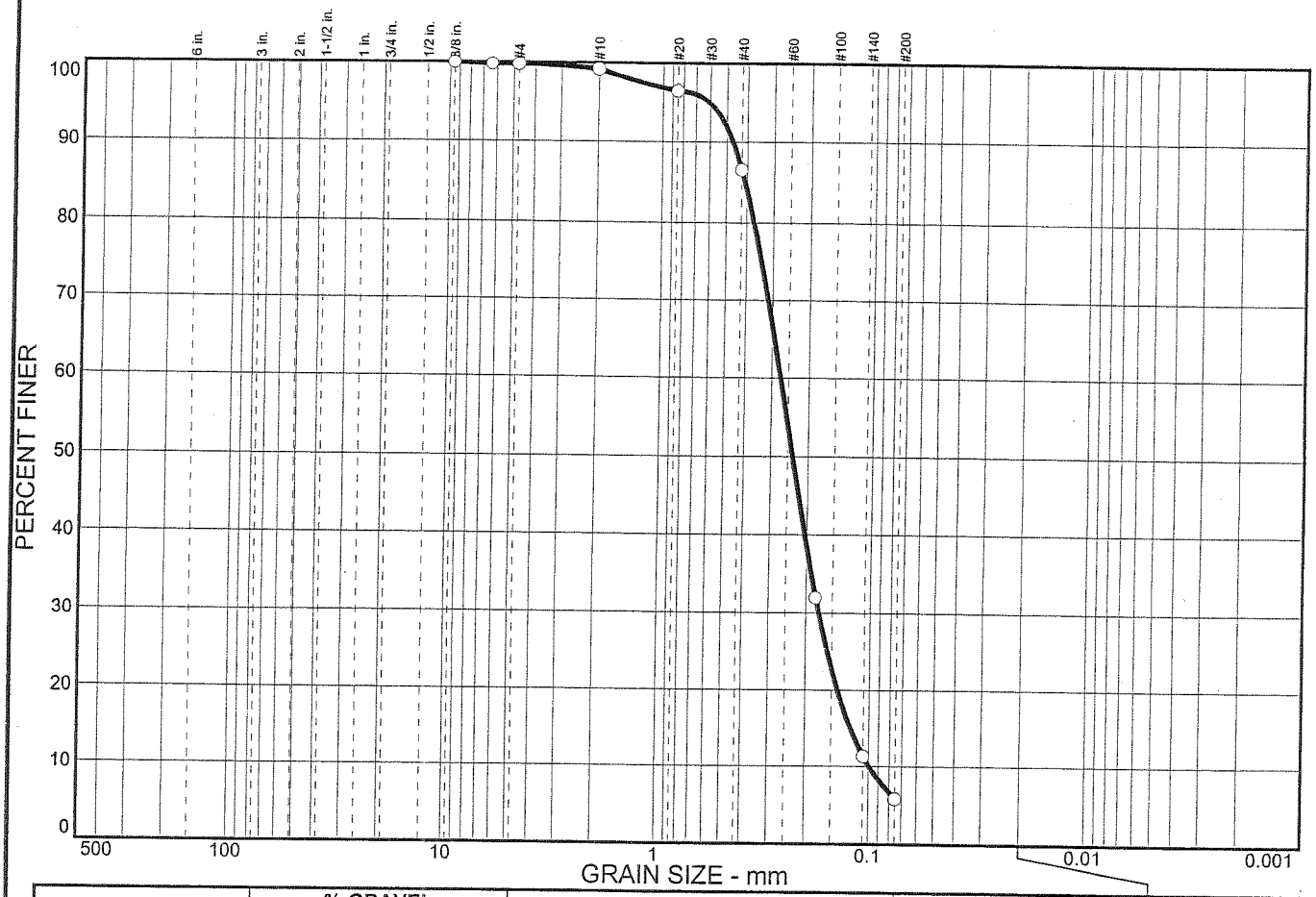
Remarks:

Copy To: none

Signed: Suzan A. Bullock

If enclosures are not as noted, kindly notify us at once.

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.2	0.6	12.7	80.7	5.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
1/4 in.	99.8		
#4	99.8		
#10	99.2		
#20	96.5		
#40	86.5		
#80	31.9		
#140	11.3		
#200	5.8		

* (no specification provided)

Soil Description

Poorly graded sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.410 D_{60}= 0.273 D_{50}= 0.237
D_{30}= 0.174 D_{15}= 0.122 D_{10}= 0.0995
C_u= 2.74 C_c= 1.12

Classification

USCS= SP-SM AASHTO=

Remarks

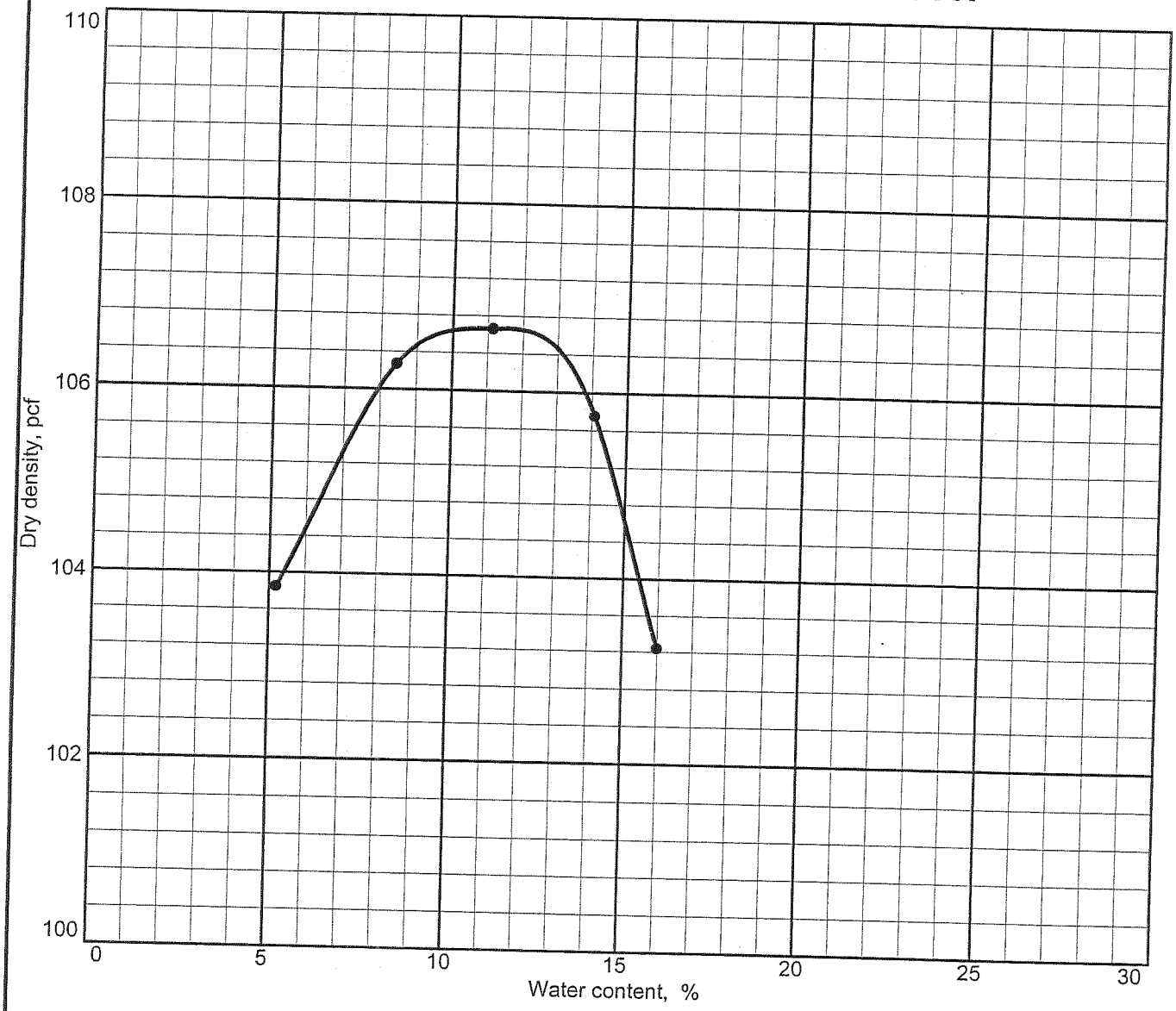
Tested by:DCH
Moisture content: 5.0%

Sample No.: 7834 **Source of Sample:** Scarborough House Lot **Date:** 5/11/05
Location: In Place **Elev./Depth:**

R.W. Gillespie & Associates, Inc.

Client: Mainland Structures
Project: 56 Wilson Street
Project No: 686-04 **Sample No.** 7834

MOISTURE-DENSITY TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SP-SM						0.2	5.8

TEST RESULTS

Maximum dry density = 106.7 pcf

Optimum moisture = 11.5 %

MATERIAL DESCRIPTION

Poorly graded sand with silt

Project No. 686-04 **Client:** Mainland Structures

Project: 56 Wilson Street

● **Location:** In Place

Remarks:

Tested by: DCH

MOISTURE-DENSITY TEST REPORT

R.W. Gillespie & Associates, Inc.

MTF

Lab No. 7834

R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
May 20, 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Concrete Testing
56 Wilson Street
Portland, Maine

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached concrete cylinder test results.

Cylinder No. (s)	Age (Days)
51021	7

Remarks:

Copy To:

Signed: Bertha Dawn

If enclosures are not as noted, kindly notify us at once.

R. W. GILLESPIE & ASSOCIATES, INC.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244
P. O. Box 289, Augusta, ME 04332-0289 207-623-4914

CONCRETE TEST/PLACEMENT REPORT

Project Name: 56 Wilson Street
Project No: 686-04
Weather Conditions: --
Method of Placement: --
Admixtures: Fibermesh
Placement Location: Floor Slab
Test Cylinder Location: Not Noted

Date Cylinders Cast: 13-May-05
Concrete Supplier: Carroll
General Contractor: Mainland
Design Strength: 3,000
Max Agg. Size: 3/4

Date Report Issued: MAY 20 2005

6x12 Cylinders	4	Cast by	Contractor	Time	
Load No.	--	Slump (in) ASTM C 143	--	Batched @	--
Ticket No.	--	Air (°F)	--	Arrived @	--
Truck No.	--	Concrete (°F) ASTM C 1064	--	Total Time	--
Cubic Yds.	--	Air Content (%) ASTM C 231	--		

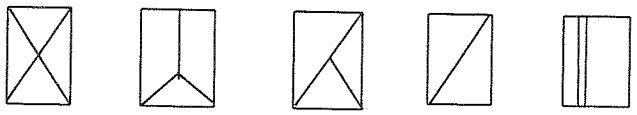
*Concrete sampled by ASTM C 172

Specimen Storage ASTM C 31: Field cure days: 3
Date received: 16-May-05
Condition of Cylinders: Poor Tops - Need Capping

Lab No.	Test Date	Avg Dia (in)	Area (in²)	Age (Days)	Load (lbs)	Compressive Strength (psi)	Break type
51021	20-May-05	6.026	28.52	7	63,760	2240	4
51022	10-Jun-05			28			
51023	10-Jun-05			28			
51024	HOLD			HOLD			

*Concrete compressive strength by ASTM C 39

Types of Breaks



Cone 1 | Cone & Split 2 | Cone & Shear 3 | Shear 4 | Columnar 5

Load	Ticket Number	Truck Number	Cubic Yds	Slump (inches)	Air Temp (°F)	Conc Temp (°F)	(%) Air Content	Time (min.)

Remarks:

Checked by: Matthew J. Gael
George S. Morrell, Supervisor
FOR

R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
May 24, 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Concrete Testing
56 Wilson Street
Portland, Maine

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

RECEIVED
MAY 25 2005

We are sending you attached concrete cylinder test results.

Cylinder No. (s)	Age (Days)
50873	28
50874	28

Remarks:

Copy To:

Signed: Bertha Dawn

If enclosures are not as noted, kindly notify us at once.

R. W. GILLESPIE & ASSOCIATES, INC.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244
P. O. Box 289, Augusta, ME 04332-0289 207-623-4914

CONCRETE TEST/PLACEMENT REPORT

Project Name: 56 Wilson Street
Project No: 686-04
Weather Conditions: --
Method of Placement: --
Admixtures: --
Placement Location: Footings
Test Cylinder Location: --

Date Cylinders Cast: 26-Apr-05
Concrete Supplier: Carroll
General Contractor: Mainland
Design Strength: 3,000
Max Agg. Size: 3/4

Date Report Issued: MAY 24 05

6x12 Cylinders	3	Cast by	Contractor	Time	
Load No.	--	Slump (in) ASTM C 143	--	Batched @	--
Ticket No.	--	Air (°F)	--	Arrived @	--
Truck No.	--	Concrete (°F) ASTM C 1064	--	Total Time	--
Cubic Yds.	--	Air Content (%) ASTM C 231	--		

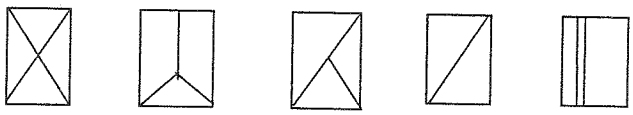
*Concrete sampled by ASTM C 172

Specimen Storage ASTM C 31: Field cure days: 6
Date received: 02-May-05
Condition of Cylinders: Hold Cylinder shaken up - disturbed

Lab No.	Test Date	Avg Dia (in)	Area (in²)	Age (Days)	Load (lbs)	Compressive Strength (psi)	Break type
50873	24-May-05	6.026	28.52	28	107,140	3760	4
50874	24-May-05	6.026	28.52	28	113,440	3980	4
50875	HOLD			HOLD			

*Concrete compressive strength by ASTM C 39

Types of Breaks



Cone 1 | Cone & Split 2 | Cone & Shear 3 | Shear 4 | Columnar 5

Load	Ticket Number	Truck Number	Cubic Yds	Slump (inches)	Air Temp (°F)	Conc Temp (°F)	(%) Air Content	Time (min.)

Remarks:

Checked by: Matthew T. Good
For George S. Morrell, Supervisor

R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
June 1, 2005	686-04

Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)

Re: Concrete Testing
56 Wilson Street
Portland, Maine

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached concrete cylinder test results.

Cylinder No. (s)	Age (Days)
50889	29
50890	29

Remarks:

RECEIVED
JUN 03 2005

Copy To:

Signed: Bertha Dawn

If enclosures are not as noted, kindly notify us at once.

R. W. GILLESPIE & ASSOCIATES, INC.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

CONCRETE TEST/PLACEMENT REPORT

Project Name: 56 Wilson Street
Project No: 686-04
Weather Conditions: Sunny
Method of Placement: Pump
Admixtures: --
Placement Location: Foundation Walls
Test Cylinder Location: 20' from Southwest Corner

Date Cylinders Cast: 02-May-05
Concrete Supplier: Carroll
General Contractor: Mainland
Design Strength: 3,000
Max Agg. Size: 3/4

Date Report Issued: JUN 0 2 2005

6x12 Cylinders	4	Cast by	Matthew T. Grady	Time	
Load No.	1	Slump (in) ASTM C 143	4.0	Batched @	9:40
Ticket No.	4804	Air (°F)	60	Arrived @	10:00
Truck No.	15	Concrete (°F) ASTM C 1064	60	Total Time	95
Cubic Yds.	9.5	Air Content (%) ASTM C 231	9.0		

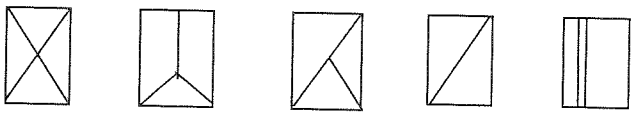
*Concrete sampled by ASTM C 172

Specimen Storage ASTM C 31: Field cure days: 1
Date received: 03-May-05
Condition of Cylinders: Good

Lab No.	Test Date	Avg Dia (in)	Area (in²)	Age (Days)	Load (lbs)	Compressive Strength (psi)	Break type
50888	09-May-05	6.022	28.48	7	65,040	2280	4
50889	31-May-05	6.023	28.49	29	94,420	3310	4
50890	31-May-05	6.023	28.49	29	92,460	3250	4
50891	HOLD			HOLD			

*Concrete compressive strength by ASTM C 39

Types of Breaks



Cone 1 | Cone & Split 2 | Cone & Shear 3 | Shear 4 | Columnar 5

Load	Ticket Number	Truck Number	Cubic Yds	Slump (inches)	Air Temp (°F)	Conc Temp (°F)	(%) Air Content	Time (min.)
2	4805	10	9.5	--	--	--	--	--
3	5806	14	9	--	--	--	--	--

Remarks: Reinforcing steel was checked for size, grade, and spacing, and was found to be in general conformance with project plan.

Checked by: Matthew T. Grady
George S. Morrell, Supervisor
for

R. W. Gillespie & Associates, Inc.
86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
P.O. Box 289, Augusta, ME 04332 207-623-4914
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
June 10, 2005	686-04
Attention: Ray Dulac mail & e-mail (dulacray@maine.rr.com)	
Re: Concrete Testing 56 Wilson Street Portland, Maine	

Mainland Structures Corp.

11A Bartlett Road

Gorham, ME 04038

We are sending you attached concrete cylinder test results.

Cylinder No. (s)	Age (Days)
51022	28
51023	28

Remarks:

RECEIVED
JUN 13 2005

RECEIVED
JUN 13 2005

Copy To:

Signed: Bertha Dawn

If enclosures are not as noted, kindly notify us at once.

R. W. GILLESPIE & ASSOCIATES, INC.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 International Drive, Suite 170, Portsmouth, NH 03801 603-427-0244
P. O. Box 289, Augusta, ME 04332-0289 207-623-4914

CONCRETE TEST/PLACEMENT REPORT

Project Name: 56 Wilson Street
Project No: 686-04
Weather Conditions: --
Method of Placement: --
Admixtures: Fibermesh
Placement Location: Floor Slab
Test Cylinder Location: Not Noted

Date Cylinders Cast: 13-May-05
Concrete Supplier: Carroll
General Contractor: Mainland
Design Strength: 3,000
Max Agg. Size: 3/4

Date Report Issued:

6x12 Cylinders	4	Cast by	Contractor	Time	
Load No.	--	Slump (in) ASTM C 143	--	Batched @	--
Ticket No.	--	Air (°F)	--	Arrived @	--
Truck No.	--	Concrete (°F) ASTM C 1064	--	Total Time	--
Cubic Yds.	--	Air Content (%) ASTM C 231	--		

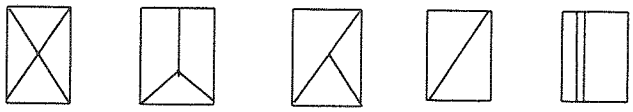
*Concrete sampled by ASTM C 172

Specimen Storage ASTM C 31: Field cure days: 3
Date received: 16-May-05
Condition of Cylinders: Poor Tops - Need Capping

Lab No.	Test Date	Avg Dia (in)	Area (in²)	Age (Days)	Load (lbs)	Compressive Strength (psi)	Break type
51021	20-May-05	6.026	28.52	7	63,760	2240	4
51022	10-Jun-05	6.014	28.41	28	88,340	3110	4
51023	10-Jun-05	6.014	28.41	28	87,960	3100	5
51024	HOLD			HOLD			

*Concrete compressive strength by ASTM C 39

Types of Breaks



Cone 1 | Cone & Split 2 | Cone & Shear 3 | Shear 4 | Columnar 5

Load	Ticket Number	Truck Number	Cubic Yds	Slump (inches)	Air Temp (°F)	Conc Temp (°F)	(%) Air Content	Time (min.)

Remarks:

Checked by: Matthew T. Good
George S. Morrell, Supervisor

CITY OF PORTLAND, MAINE
BUILDING AND INSPECTION SERVICES
ELECTRICAL

Address: 456 Wilson St.

Date: 05/12/05

The wiring _____ this NEW SERVICE UPTOWN

has been inspected and approved.

MO

_____ Inspector

CITY OF PORTLAND
INSPECTIONS DIVISION

This building at 456 Wilson St. has been inspected today, 05/12/05 and found satisfactory for lathing or closing in.

to be unsatisfactory. (See instructions reverse side.)

MO Inspector of Buildings.

It is UNLAWFUL TO OCCUPY any new or altered building until a certificate that same has been built or altered according to law has been procured from the Inspector of Buildings.

THIS TAG IS TO BE KEPT IN CONSPICUOUS PLACE UNTIL THE ABOVE CERTIFICATE HAS BEEN PROCURED.

FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT
HEATING OR POWER EQUIPMENT

PERMIT ISSUED
APR 14 2006
CITY OF PORTLAND

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 3 NG Jewett Use of Building 4 unit Date 3-27-06

Name and address of owner of appliance Mainland Structure West Brook ME

Installer's name and address The Hearth Doctor Inc. 64 Town Farm Rd. Gray ME 04039 Telephone 207 657 5397

Location of appliance:
- ☐ Basement
- ☑ Floor
- ☐ Attic
- ☐ Roof

Type of Fuel:
- ☑ Gas
- ☐ Oil
- ☐ Solid

Appliance Name: Regency P36D

U.L. Approved ☑ Yes ☐ No

Will appliance be installed in accordance with the manufacture's installation instructions? ☑ Yes ☐ No

IF NO Explain: _____

The Type of License of Installer:
- ☐ Master Plumber # _____
- ☐ Solid Fuel # _____
- ☐ Oil # _____
- ☑ Gas # PNT 3568
- ☐ Other _____

Type of Chimney:
- ☐ Masonry Lined
  Factory built _____
- ☐ Metal
  Factory Built U.L. Listing # _____
- ☑ Direct Vent
  Type Astro Cap UL# _____

Type of Fuel Tank
- ☐ Oil
- ☐ Gas City Gas

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ **feet.**

Cost of Work: $ 9,890.00

Permit Fee: $ 111.00

Approved

Fire: _____

Ele.: _____

Bldg.: _____

Approved with Conditions

☐ See attached letter or requirement

_____ Inspector's Signature

_____ Date Approved

Signature of Installer _____

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

Attn Dalton

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: **1-800-TEC-WOOD (832-9663)**

CLASS A-B-C/I-II-III FLAMESPREAD, CLASS A-B-C ROOF COVERINGS, AND HOURLY FIRE RESISTANCE RATINGS

Flamespread classes, roofing classes and hourly ratings are confusing terms and they sometimes get misused. The first is based on the ASTM E-84/UL 723 "Test for Surface Burning Characteristics of Building Materials," the second is based on ASTM E-108/UL 790, "Test for Fire Performance of Roofing Materials," and the third is based on ASTM E-119 "Fire Tests of Building Materials."

FLAMESPREAD CLASSES

The UBC and BOCA codes use the I-II-III designation, and the Standard code uses A-B-C. The flamespread categories are as follows per ASTM E-84/UL 723:

Class A or I:	Flamespread 25 or less (FRTW, some FR surface coatings)
Class B or II:	Flamespread 26 to 75 (other FR surface coatings)
Class C or III:	Flamespread 76 to 200 (untreated lumber and plywood)

FRTW must have a flamespread of 25 or less in the 10-minute ASTM E-84/UL 723 test, plus the test is continued for 20 more minutes during which there must be no evidence of significant progressive combustion and the flame front may not progress more than 10.5 feet from the burner. This is far more severe than the 10-minute ASTM E-84 test used for fire retardant surface coatings and other building materials.

CLASS A-B-C ROOF COVERINGS

Class A, B, or C roofing systems are sometimes confused with Class A-B-C/I-II-III flamespread categories above. The tendency is to assume that Class A roof systems have a Class A flamespread, and so on, but there is no correlation.

The ASTM E-108/UL 790 roof coverings test does not produce a flamespread rating. It is a pass-fail test under which a product either passes the criteria as a Class A, B or C roof covering system or it doesn't. It is an entirely different test from ASTM E-84/UL 723, and it includes weathering per the ASTM D-2898 "Standard Rain Test." The highest fire classification is Class A. Note that a Class C roof system is considered fire resistant while a Class C (or III) building material (as above) is not. Non-classified roof systems have no fire rating.

HOURLY FIRE RESISTANCE RATINGS

Hourly ratings are a function of the assembly being used (wall, floor, door, ceiling, roof, etc.) and generally require use of a noncombustible membrane (e.g. gypsum, masonry). ASTM E-119 "Fire Tests of Building Construction Materials" is the test used to determine the hourly rating of an assembly. It exposes an assembly to heat and flame on one side and tests for heat transmission, burn-through, structural integrity and ability to withstand a hose stream from a fire hose.

Flamespread classification per ASTM E-84, 30 minute duration, has no relation to a 30-minute rating or any other hourly rating (which must be determined by ASTM E-119). ASTM E-119 is not a required test for FRTW, therefore FRTW has no different hourly rating than untreated wood and it cannot be substituted for noncombustible materials such as gypsum in a rated assembly. FRTW's advantage over untreated wood and other combustible materials is the fact that it doesn't ignite or contribute to the spread of flame.

CLASSES, 4/95

BOISE™

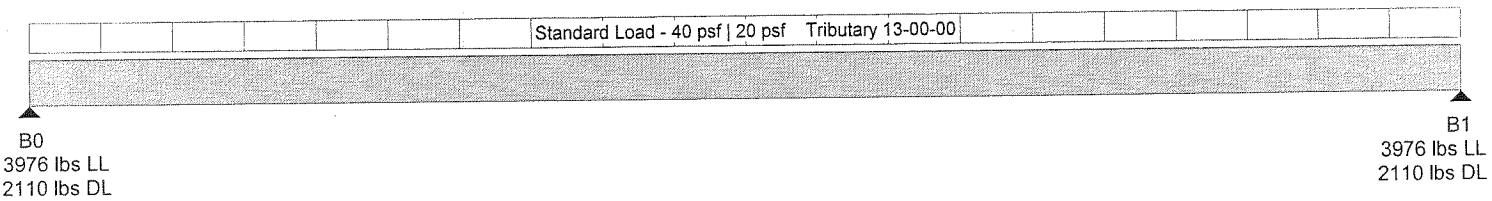
BC CALC® 2003 DESIGN REPORT - US

Friday, August 26, 2005 14:45

Single 5 1/4" x 11 7/8" VERSA-LAM® 3080 DF

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: ICBO 5663, NER 442

File Name: 403391.BCC : FB01
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



Total Horizontal Length - 15-03-08

General Data

Version:	US Imperial
Member Type:	Floor Beam
Number of Spans:	1
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
Tributary:	13-00-00
Live Load:	40 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	Trib.	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	15-03-08	Live	40 psf	13-00-00	100%
						Dead	20 psf	13-00-00	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	23267 ft-lbs	73.4%	100%	2	1 - Internal
Neg. Moment	0 ft-lbs	n/a	100%		
End Shear	5299 lbs	44.7%	100%	2	1 - Left
Total Load Defl.	L/275 (0.668")	87.4%		2	1
Live Load Defl.	L/420 (0.437")	85.7%		2	1
Max Defl.	0.668"	66.8%		2	1

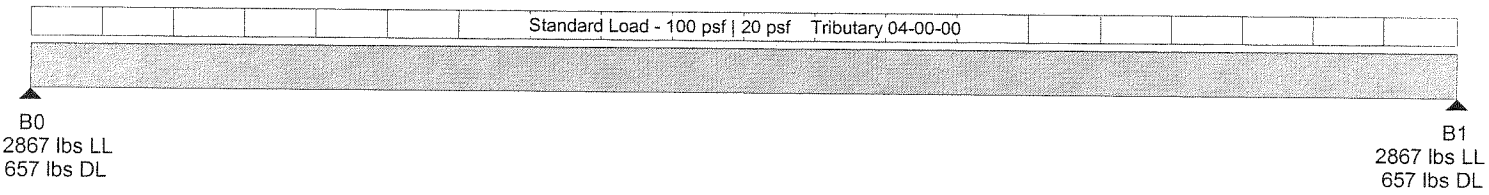
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 1-1/2".
Minimum bearing length for B1 is 1-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Double 1 3/4" x 11 7/8" VERSA-LAM® 3100 SP

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: ICBO 5512, NER 629

File Name: 403391.BCC : FB02
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



Total Horizontal Length - 14-04-00

General Data

Version:	US Imperial
Member Type:	Floor Beam
Number of Spans:	1
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
Tributary:	04-00-00
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	Trib.	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	14-04-00	Live	100 psf	04-00-00	100%
						Dead	20 psf	04-00-00	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	12627 ft-lbs	59.4%	100%	2	1 - Internal
Neg. Moment	0 ft-lbs	n/a	100%		
End Shear	3037 lbs	37.8%	100%	2	1 - Left
Total Load Defl.	L/360 (0.478")	66.7%		2	1
Live Load Defl.	L/442 (0.389")	81.4%		2	1
Max Defl.	0.478"	47.8%		2	1

Notes

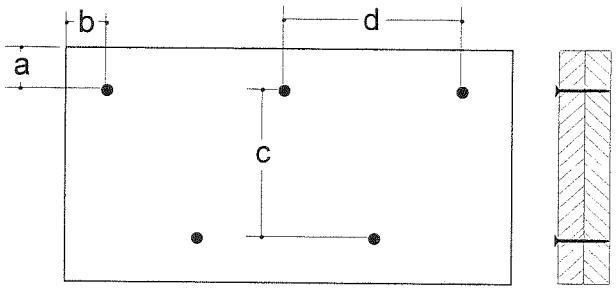
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 1-1/2".
Minimum bearing length for B1 is 1-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Connection Diagram

Member has no side loads.

Connectors are: 16d Sinker Nails

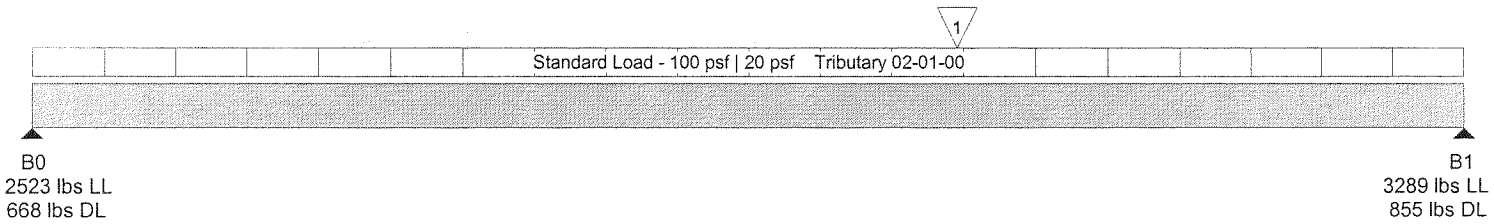
a = 2"
b = 3"
c = 7-7/8"
d = 12"



Single 5 1/4" x 11 7/8" VERSA-LAM® 3080 DF

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: ICBO 5663, NER 442

File Name: 403391.BCC : Floor 4\B_10
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



General Data

Version:	US Imperial
Member Type:	Floor Beam
Number of Spans:	1
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
Tributary:	02-01-00
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	Trib.	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	15-03-08	Live	100 psf	02-01-00	100%
						Dead	20 psf	02-01-00	90%
1		Conc. Pt.	Right	05-05-00	05-05-00	Live	2627 lbs	n/a	115%
						Dead	641 lbs	n/a	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	18541 ft-lbs	50.8%	115%	3	1 - Internal
Neg. Moment	0 ft-lbs	n/a	100%		
End Shear	3881 lbs	28.5%	115%	3	1 - Right
Total Load Defl.	L/383 (0.479")	62.6%		3	1
Live Load Defl.	L/483 (0.38")	74.6%		3	1
Max Defl.	0.479"	47.9%		3	1

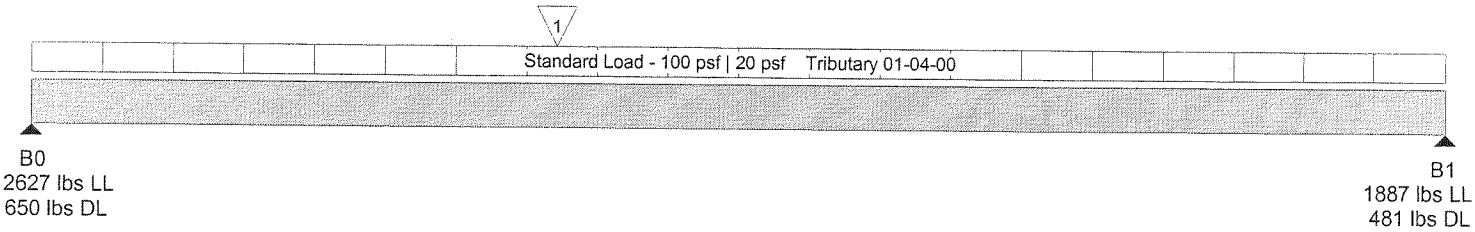
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 1-1/2".
Minimum bearing length for B1 is 1-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Double 1 3/4" x 11 7/8" VERSA-LAM® 3100 SP

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: ICBO 5512, NER 629

File Name: 403391.BCC : Floor 4\Trimmer_2
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



Total Horizontal Length - 12-04-04

General Data

Version:	US Imperial
Member Type:	Floor Beam
Number of Spans:	1
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
Tributary:	01-04-00
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	Trib.	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	12-04-04	Live	100 psf	01-04-00	100%
						Dead	20 psf	01-04-00	90%
1		Conc. Pt.	Left	04-07-00	04-07-00	Live	2867 lbs	n/a	115%
						Dead	657 lbs	n/a	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	13207 ft-lbs	54.0%	115%	3	1 - Internal
Neg. Moment	0 ft-lbs	n/a	100%		
End Shear	3107 lbs	33.6%	115%	3	1 - Left
Total Load Defl.	L/470 (0.316")	51.1%		3	1
Live Load Defl.	L/585 (0.253")	61.5%		3	1
Max Defl.	0.316"	31.6%		3	1

Notes

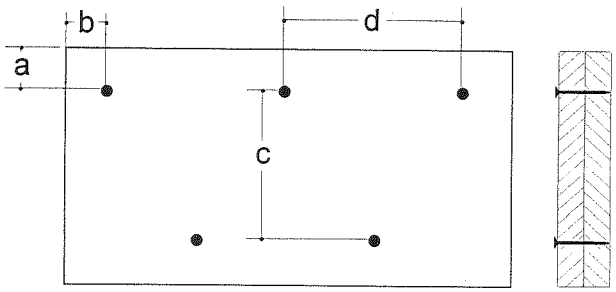
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 1-1/2".
Minimum bearing length for B1 is 1-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing
Connector Manufacturer: Simpson Strong-Tie® Company Inc.

Connection Diagram

Member has no side loads.
Concentrated loads are not considered in side load analysis.

Connectors are: 16d Sinker Nails

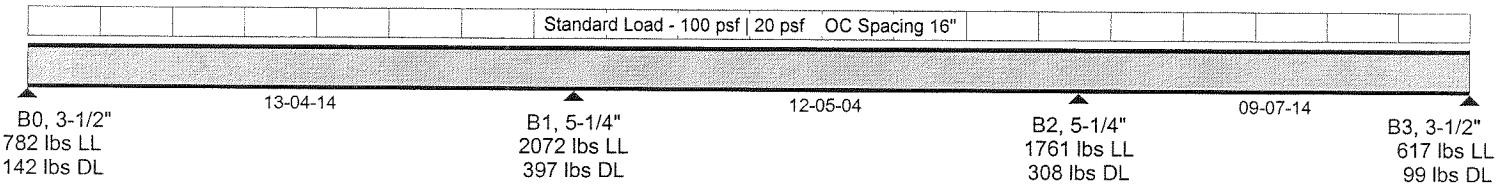
a = 2"
b = 3"
c = 7-7/8"
d = 12"



Single 11 7/8" AJS™ 20 MSR

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: BOCA 22-09, SBCCI 9707D, ICBO PFC-5504

File Name: 403391.BCC : Roof\J_16
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



Total Horizontal Length - 35-06-00

General Data

Version:	US Imperial
Member Type:	Joist
Number of Spans:	3
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
OC Spacing:	16"
Repetitive:	Yes
Construction Type:	Glued
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	OCS	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	35-06-00	Live	100 psf	16"	100%
						Dead	20 psf	16"	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	3112 ft-lbs	76.4%	100%	6	2 - Left
Neg. Moment	-3112 ft-lbs	76.4%	100%	6	1 - Right
End Reaction	925 lbs	66.7%	100%	4	1 - Left
Int. Reaction	2469 lbs	84.3%	100%	6	1 - Right
Cont. Shear	1305 lbs	87.6%	100%	6	1 - Right
Uplift	24 lbs	n/a		5	3 - Right
Total Load Defl.	L/739 (0.218")	32.5%		4	1
Live Load Defl.	L/851 (0.189")	56.4%		4	1
Total Neg. Defl.	-0.083"	16.7%		4	2
Max Defl.	0.218"	21.8%		4	1
Span / Depth	13.5	n/a			1

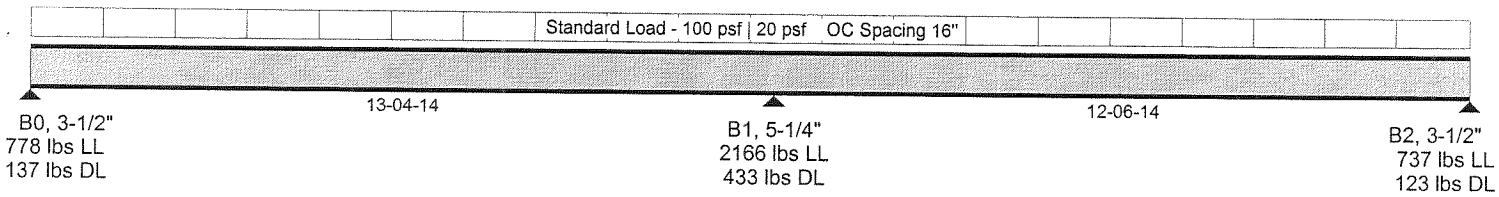
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets User specified (L/480) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 3-1/2".
Minimum bearing length for B1 is 5-1/4".
Minimum bearing length for B2 is 5-1/4".
Minimum bearing length for B3 is 3-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Single 11 7/8" AJS™ 20 MSR

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: BOCA 22-09, SBCCI 9707D, ICBO PFC-5504

File Name: 403391.BCC : Roof\J_19
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



Total Horizontal Length - 25-11-12

General Data

Version:	US Imperial
Member Type:	Joist
Number of Spans:	2
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
OC Spacing:	16"
Repetitive:	Yes
Construction Type:	Glued
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	OCS	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	25-11-12	Live	100 psf	16"	100%
						Dead	20 psf	16"	90%

Controls Summary

Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	3384 ft-lbs	83.1%	100%	2	2 - Left
Neg. Moment	-3384 ft-lbs	83.1%	100%	2	1 - Right
End Reaction	915 lbs	66.0%	100%	4	1 - Left
Int. Reaction	2600 lbs	88.8%	100%	2	1 - Right
Cont. Shear	1325 lbs	88.9%	100%	2	1 - Right
Uplift	0 lbs	n/a		4	2 - Right
Total Load Defl.	L/761 (0.211")	31.5%		4	1
Live Load Defl.	L/863 (0.186")	55.6%		4	1
Total Neg. Defl.	-0.067"	13.4%		4	2
Max Defl.	0.211"	21.1%		4	1
Span / Depth	13.5	n/a			1

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets User specified (L/480) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 3-1/2".
Minimum bearing length for B1 is 5-1/4".
Minimum bearing length for B2 is 3-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

BOISE™

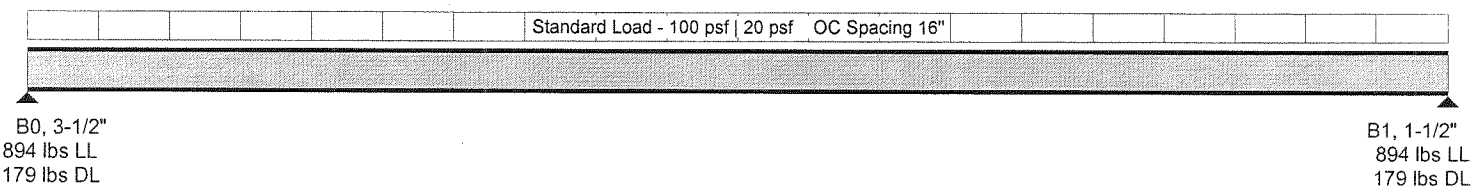
BC CALC® 2003 DESIGN REPORT - US

Friday, August 26, 2005 14:46

Single 11 7/8" AJS™ 20 MSR

Job Name: WILSON HEIGHTS
Address:
City, State, Zip: PORTLAND , ME
Customer: HANCOCK
Code reports: BOCA 22-09, SBCCI 9707D, ICBO PFC-5504

File Name: 403391.BCC : Roof\J_30
Description:
Specifier: BH
Designer:
Company: Wood Structures INC.
Misc:



General Data

Version:	US Imperial
Member Type:	Joist
Number of Spans:	1
Left Cantilever:	No
Right Cantilever:	No
Slope:	0/12
OC Spacing:	16"
Repetitive:	Yes
Construction Type:	Glued
Live Load:	100 psf
Dead Load:	20 psf
Partition Load:	0 psf
Duration:	100

Disclosure

The completeness and accuracy of the input must be verified by anyone who would rely on the output as evidence of suitability for a particular application. The output above is based upon building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with the current Installation Guide and the applicable building codes. To obtain an Installation Guide or if you have any questions, please call (800)232-0788 before beginning product installation.

Load Summary

ID	Description	Load Type	Ref.	Start	End	Type	Value	OCS	Dur.
S	Standard Load	Unf. Area	Left	00-00-00	13-04-14	Live	100 psf	16"	100%
						Dead	20 psf	16"	90%

Controls Summary

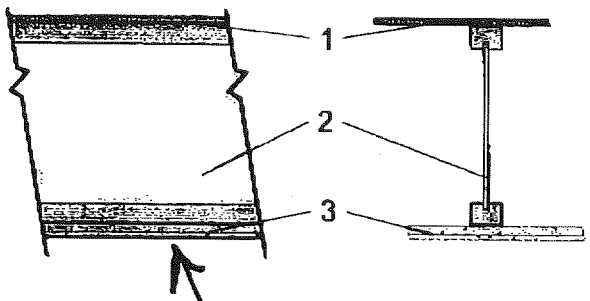
Control Type	Value	% Allowable	Duration	Load Case	Span Location
Moment	3594 ft-lbs	88.2%	100%	2	1 - Internal
Neg. Moment	0 ft-lbs	n/a	100%		
End Reaction	1072 lbs	93.7%	100%	2	1 - Right
Total Load Defl.	L/506 (0.318")	47.4%		2	1
Live Load Defl.	L/607 (0.265")	79.1%		2	1
Max Defl.	0.318"	31.8%		2	1
Span / Depth	13.5	n/a			1

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets User specified (L/480) Live load deflection criteria.
Design meets arbitrary (1") Maximum load deflection criteria.
Minimum bearing length for B0 is 3-1/2".
Minimum bearing length for B1 is 1-1/2".
Entered/Displayed Horizontal Span Length(s) = Clear Span + 1/2 min. end bearing + 1/2 intermediate bearing

Boise BCI® One-Hour Assembly found in literature and code approvals ICBO PFC-5208 and NER 594

One-Hour Floor/Ceiling Assembly



Contact your local Boise Engineered Wood Products Distributor for specific assembly requirements.

FIRE ASSEMBLY COMPONENTS

1. 3/4" tongue-and-groove plywood or 23/32" APA Rated Sheathing (Exposure 1 or exterior glue)
2. BCI® Joists at 24" o.c.
3. Two layers 1/2" Type X gypsum board

SOUND ASSEMBLY COMPONENTS

when constructed with resilient channels

- Add carpet & pad to fire assembly: STC=53 IIC=64 or
- Add 3 1/2" glass fiber insulation to fire assembly: STC=53 IIC=44 or
- Add an additional layer of 5/8" T&G OSB and 3 1/2" glass fiber insulation to fire assembly: STC=61 IIC=50

DELETE ONE LAYER?
NFPA 13R SPRINKLER SYSTEM USED THROUGHOUT

Fire Barrier CP 25WB+Caulk

Product Data

FILL VOID OR CAVITY MATERIALS CLASSIFIED BY UNDERWRITERS LABORATORIES, INC.® FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS (XHEZ). SEE CURRENT UL FIRE RESISTANCE DIRECTORY 50L6, 90G9

1. Product Description

3M™ Fire Barrier CP 25WB+ Caulk is a premium elastomeric latex caulk designed for use as a one-part fire, smoke, noxious gas and water sealant. In addition, the unique intumescent property of this material (expands when heated) means that as cable or pipe insulation is consumed by fire, CP 25WB+ Caulk expands to maintain the penetration seal.

CP 25WB+ Caulk features superior adhesion strength, caulk rate and no-sag application with expanded UL Classified fire protection systems plus a halogen-free formula.

3M Fire Barrier CP 25WB+ Caulk can be installed with a standard caulking gun, pneumatic pumping equipment or it can be easily applied with a putty knife or trowel. CP 25WB+ Caulk will bond to concrete, metals, wood, plastic and cable jacketing. No mixing is required.

CP 25WB+ Caulk Features

- Water Base: Easy clean up, no special handling, routine disposal.
- Intumescent: Expands when heated to seal around items consumed by fire.
- Endothermic: Absorbs heat energy, releases chemically bound water.
- Thixotropic: Will not sag or run in overhead or vertical applications.
- Halogen-free.
- Fast dry: Tack-free in approximately 10-15 minutes.
- Paintable. (Best results obtained after 72 hour cure.)
- Minimal shrinkage.
- Brown color.
- Water seal: Seals against inadvertant water spills in the unexpanded state.
- High caulk rate: 1000 g/min. with in. nozzle.
- Point contact allowed.
- Continuous Operating Temperature not to exceed 120°F (48°C).

2. Applications

Use to seal construction openings, blank openings and penetrating items against the passage of flame, noxious gas, smoke and water. Restores fire rated construction to original integrity. Also for use with 3M Brand Fire Barrier FS195+ Wrap/Strip and CS-195+ Composite Sheet.

3. Specifications

Product

The firestopping caulk shall be a one-part, intumescent, latex elastomer. The caulk shall be capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The caulk shall be listed by independent test agencies such as UL or FM and be tested to, and pass the criteria of, ASTM E 814 Fire Test, tested under positive pressure. It shall comply with the requirements of the NEC (NFPA-70), BOCA, ICBO, SBCCI and NFPA Code #101.

Typically Specified Divisions

Division 7	Thermal and Moisture Protection Firestopping
07270	
Division 13	Special Construction Fire Suppression and Supervisory Systems
13900	
Division 15	Mechanical
15250	Mechanical Insulation Fire Protection
15300	
Division 16	Electrical
16050	Basic Electrical Materials and Methods

4. Performance

A. Typical Physical Properties

	Unit	Value
Tack Free Time (ASTM C679-87)	Minutes at 72°F (22°C)	10-15
Expansion at 662°F (350°C)	X	2.0-3.0
Color	—	Reddish Brown
Density	Lb./gal. (Kg/l)	11.2 (1,35)
Adhesion	All construction substrates	Very Good
Application	Method	Caulk guns, trowel, spatula pressurized pumps
Durometer (hardness)	Shore A	70
ASTM E 84		
Flame Spread	—	5
Smoke Development	—	0
Solids	Percent (%) by weight	79
VOC	Percent (%) by weight	0
Odor	—	Pleasant, non-irritating
Flow Rate	Grams/min.	1000
1/4 in. (6,35 mm) nozzle at 50 psi		
Boeing Flow (Sag Characteristics)	Inches	0

B. Firestopping Properties

Meets the criteria of ASTM E 814 Fire Test, tested under positive pressure. Consult current UL Fire Resistance Directory for systems listed under 3M Product CP 25WB+ Caulk.

C. Firestopping Code Requirements

ICBO Uniform Building Code (1997 Edition)	SBCCI Standard Building Code (1997 Edition)	BOCA Basic/National Building Code (1996 Edition)		NFPA Life Safety Code 101 (1997 Edition)
702 DEFINITIONS	104.2.4 PLANS MUST SHOW HOW INTEGRITY IS MAINTAINED FOR ASSEMBLIES PENETRATED	702.0 REVISED AND EXPANDED DEFINITIONS FOR PENETRATIONS AND JOINTS	709.6 PENETRATIONS - REFER TO 714	6-2.3.2.4 PENETRATIONS AND MISC. OPENINGS &FIRE BARRIERS
706 CONSTRUCTION JOINTS	202 DEFINITIONS	703.1 CONSTRUCTION DOCUMENTS SHALL INDICATE DETAILS AND MATERIALS FOR PROVIDING RATINGS AT JOINTS AND PENETRATIONS	709.7 JOINTS	6.2.4.2, EXCEPTION 5 OPENINGS (EXPANSION OR SEISMIC JOINTS) IN FLOORS
708 WOOD FRAME CONSTRUCTION FIREBLOCKING	705.3 WOOD FRAME CONSTRUCTION FIREBLOCKING	703.1.1 PENETRATIONS AND JOINTS SHALL NOT BE CONCEALED FROM VIEW BEFORE INSPECTION	711.0 FIRE PARTITIONS	APPENDIX A-6-2.4.2
709 WALL & PARTITION PENETRATION PROTECTION	705.3.1.5 CURTAIN WALL GAP	703.2 BUILDINGS FOR MORE THAN TWO STORIES SHALL INDICATE ALL PENETRATIONS	711.6 PENETRATIONS - REFERS TO 714	6-3.6.1 PENETRATIONS AND MISC. OPENINGS IN FLOORS AND SMOKE BARRIERS
709.3.2.2 CURTAIN WALL GAP	705.4 (GENERAL) PENETRATIONS OF FIRE RATED ASSEMBLIES	704.1.1 SUFFICIENT DATA SHALL BE AVAILABLE TO JUSTIFY UNTESTED MATERIALS USED FOR RESTORATION OF FIRE RATINGS	711.7 JOINTS - REFER TO 709.7	NFPA #221
710 FLOOR/CEILING OR ROOF/CEILING PENETRATION PROTECTION	705.5 (WALLS)	707.0 FIRE WALLS AND PARTY WALLS	713.0 FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES	FIRE WALLS AND BARRIERS
711.3 SHAFT ALTERNATIVE	705.6 (FLOORS)	707.10 PENETRATIONS - REFERS TO 714	713.2 CURTAIN WALL GAP	**NFPA Code 70 NEC National Electric Code**
714 THROUGH-PENETRATION FIRESTOPS F&T REQUIREMENTS	705.7 FIRE RESISTANT JOINT SYSTEMS	707.8 JOINTS - REFERS TO 709.7	713.4 PENETRATIONS - REFERS TO 714	300-21 FIRESTOPPING
UBC STANDARD 7-1 EQUIVALENT TO ASTM E 119		709.0 FIRE SEPARATION ASSEMBLIES	713.5 JOINTS - REFERS TO 709.7	**CABO One and Two Family Dwelling Code (1995 Edition)**
UBC STANDARD 7-5 EQUIVALENT TO ASTM E 814			714.0 PENETRATIONS - ALL REQUIREMENTS (GENERAL)	602.7 FIRESTOPPING (FIREBLOCKING IN OTHER MODEL CODES)
			714.1 THROUGH 714.1.6.2 WALL ASSEMBLIES	
			714.2 THROUGH 714.2.6.5 FLOOR/CEILING AND ROOF/CEILING ASSEMBLIES	
			714.3 THROUGH 714.3.2 NONRATED ASSEMBLIES	
			721.0 FIREBLOCKING AND DRAFTSTOPPING	

5. Installation Techniques

Shown are examples of approved applications of CP 25WB+ Caulk. Additional drawings and details are available through your Authorized 3M Fire Protection Products Distributor.

Installation Notes:

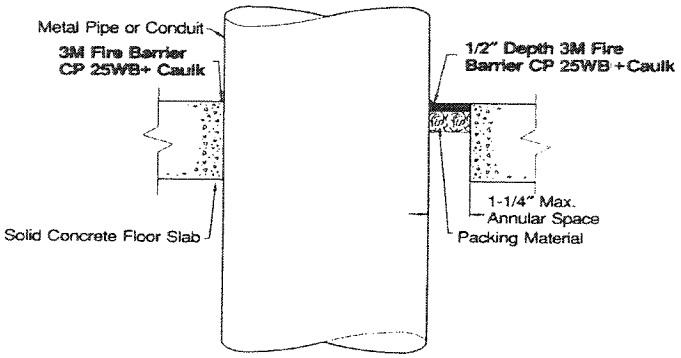
1. Metal Pipe/Conduit applications through nominal 12 in. (304,8 mm) outside diameter.
   - Installed depth of CP 25WB+ Caulk depends on annular space.
   - When the annular space is less than 1-1/4 in. (31,8 mm), a 1/2 in. (12,7 mm) minimum depth of CP 25WB+ Caulk is required.
   - When the annular space is greater than 1-1/4 in. (31,8 mm), a 1 in. (25,4 mm) minimum depth of CP 25WB+ Caulk is required.
   - Common building materials, such as backer rod may be used for metal pipe applications.

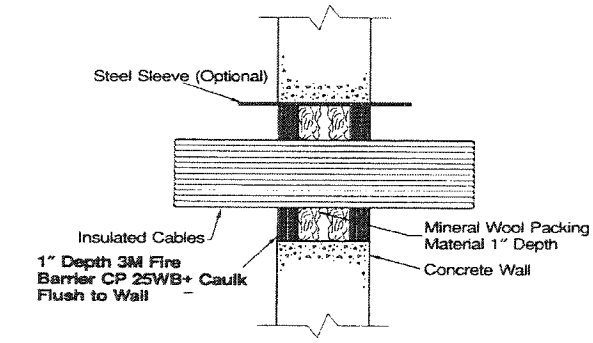
2. Metal Pipe applications larger than nominal 12 in. (304,8 mm) outside diameter.
   - All cases require a 1 in. (25,4mm) minimum depth of CP 25WB+ Caulk.

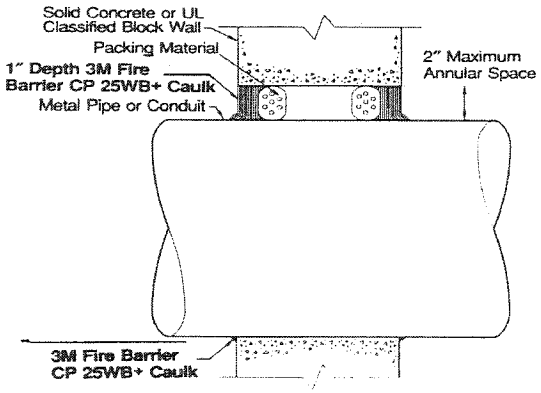
3. Insulated Cable Applications.
   - All cases require a 1 in. (25,4mm) minimum depth of CP 25WB+ Caulk.
   - All cases require mineral wool (safing) for packing.

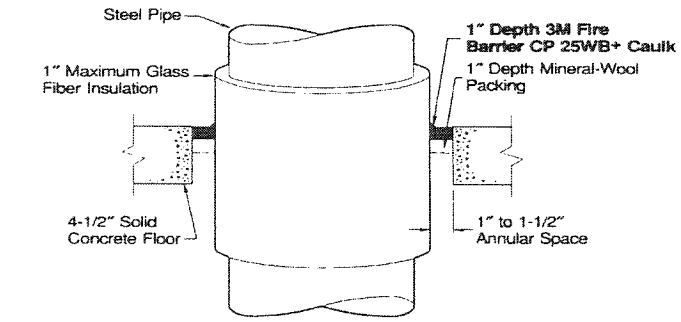
4. Fiberglass Insulated Pipe Applications.
   - 1 in. (25,4 mm) of fiberglass insulation on up to a nominal 12 in. (304,8 mm) of metal pipe may be firestopped with a 1 in. (25,4 mm) depth of CP 25WB+ Caulk.
   - 1 in. (25,4 mm) depth of mineral wool packing required.

Typical Penetration Firestops For Metal Pipe/Conduit and Insulated Cable Through Fire Rated Construction









6. Maintenance

The CP 25WB+ Caulk is stable under normal storage conditions and has a one year shelf life. Normal stock and stock rotation are recommended.

Recommended

Store between 40°F (4°C)-90°F (32°C) for maximum shelf life. Keep from freezing.

7. Availability

3M Brand Fire Barrier CP 25WB+ Caulk is available from Authorized 3M Fire Protection Products Distributors. It is available in Standard 10.1 fl. oz. cartridge, 20 oz. sausage, 27.0 oz. cartridge, 2 gallon pail and 5 gallon pail.

Warranty and Limited Remedy. This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

Limitation of Liability. Except where prohibited by law, 3M will not be liable for any loss or damages arising from the use of this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

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3M

2000 Silicone Sealant

Product Data

FILL, VOID OR CAVITY MATERIALS
CLASSIFIED BY
UNDERWRITERS LABORATORIES, INC.®
FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS.
SEE CURRENT UL FIRE RESISTANCE DIRECTORY.
84HM
MADE IN USA

1. Product Description

3M Fire Barrier 2000 Silicone Sealant (Nonslump) is a ready-to-use, gun-grade, one-component silicone elastomer. It cures upon exposure to atmospheric humidity to form a flexible seal.

3M Fire Barrier Sealant firestop openings and penetrations through floor slabs, walls and other fire-related building partitions and assemblies. 3M Fire Barrier Sealant, when installed properly, will control the spread of fire before, during and after exposure to open flames.

3M Fire Barrier 2000 Silicone

Sealant Features

The sealant remains elastomeric and is weather resistant. It will bond to most common construction materials.

- Superior adhesion
- Compression/extension recovery of ±40 percent of original joint width
- Re-enterable/repairable
- Excellent weatherability
- Provides up to a 4-hour fire-rating
- Maximum pipe size of 24 inches (609,6 mm)
- Cures upon exposure to atmospheric humidity
- Applied with conventional caulking gun

2. Applications

A.

Ideal for sealing simple penetrations such as around metallic or glass pipes and conduits to control the spread of fire. Helps limit the spread of noxious gas, smoke and water. Maintains the integrity of fire-rated construction. The sealant is designed for use in fire-rated control and isolation joints.

Primary sealing applications:

- Telephone and electric wires
- Cables and cable trays
- Electrical conduit (metal)
- Pipes (steel, copper and glass)

Nonpenetrated opening applications:

- Control joints
- Isolation joints
- Blank openings

B. Limitations

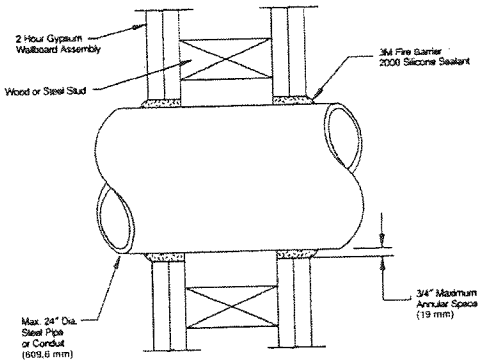
3M Fire Barrier 2000 Silicone Sealant should not be applied to:

- Polycarbonates
- Building materials that bleed oils, plasticizers or solvents (e.g., impregnated wood, oil-based caulks, green or partially vulcanized rubber)
- Unvented spaces where sealant is not exposed to atmospheric moisture
- Wet or frost-coated surfaces
- Areas that are continuously damp or immersed in water
- "Yellow" brass (high zinc, 34 to 37 percent zinc)
- Painted surfaces

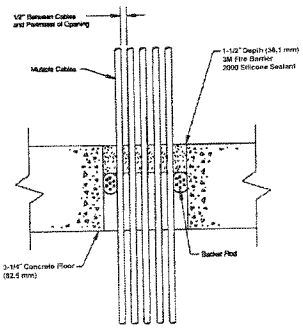
3. Physical Properties

Product	Unit	Volume	Units/Ctn.	Wt./ctn. Lbs.
Fire Barrier 2000 Silicone Sealant	10.3 fl. oz. (304,6ml)	18.6 cu. in. (304,7cm^3)	12	13.9 (6,3 kg)
	4.5 gallon (17,0L)	1040.0 cu. in. (0,017 m^3)	1	55.5 (25,1 kg)

2. Metal pipe/conduit applications for 2 hour rated gypsum wallboard assemblies.
   - Minimum 1-1/4 inch (31,7mm) thickness of 2000 Silicone Sealant is required plus inch thick bead at the pipe/wall interface.
   - A nominal 3/4 inch (19,1mm) annular space is required.
   - Maximum pipe size is 24 inches. (609,6 mm)



3. Insulated cable applications.
   - All cases require a minimum of 1-1/2 inches (38,1mm) depth of 2000 Silicone Sealant.
   - Common building materials such as backer rod, may be used for insulated cable applications
   - Maximum five 7/C No. 12 AWG PVC insulation with PVC jacket allowed with 1/2 inch (12,7mm) between cables and perimeter of opening.
   - Concrete thickness must be a minimum 3-1/4 inches (82,5mm).



Complete document includes system/application pages.

7. Maintenance

3M Fire Barrier 2000 Silicone Sealant is stable under normal storage conditions. Cartridges have a one year shelf life. Pails have a six month shelf life. Normal stock and stock rotation are recommended. **Store below 90°F (32°C) for maximum shelf life.**

8. Availability

3M Fire Barrier 2000 Silicone Sealant is available from 3M Authorized Fire Protection Products Distributors and Dealers.

9. Safe Handling Information

Consult Material Safety Data Sheet prior to handling and disposing of 3M Fire Barrier 2000 Silicone Sealant.

Warranty and Limited Remedy.

This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

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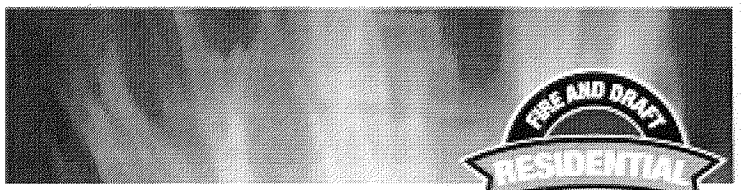
3M Fire Block SEALANT

FB 136

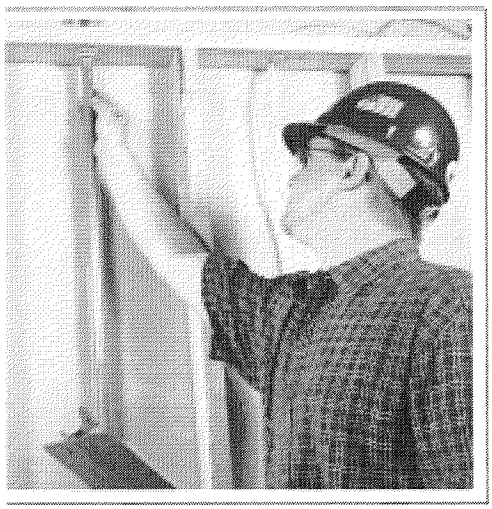


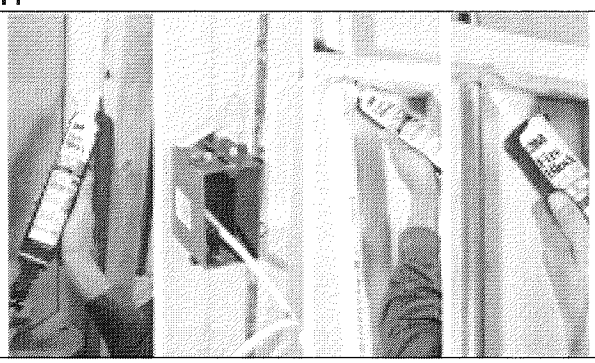
for Residential and Combustible Construction

3M, a leader in firestopping technology, has introduced a fireblocking material that meets all IBC, IMC, IRC, IRMC, NFPA, IFGC, IFC and ASTM E136* requirements for fireblocking in residential and combustible construction. Properly installed and cured, Fire Block FB 136 forms a solid, permanent, non-combustible, non-sag barrier that helps prevent the spread of drafts, fire, smoke and noxious gases.

This high-quality, non-sag sealant is ideal for the following interior applications:

HVAC ducts & vents | Masonry | Electrical | Plumbing
Chimneys/Fireplaces | General construction gaps





RESIDENTIAL & COMBUSTIBLE CONSTRUCTION – Know the Fireblocking Code

In all building codes, the designs and location for fireblocking are required to be indicated on the construction documents, and are subject to inspection before occupancy in new construction. In areas around pipes, vents, ducts and other penetrants, the integrity of fireblocks is often compromised. 3M's FB 136 offers an ideal method for sealing these areas to fireblocking code and, as a result, mitigates the potential risks they may represent.

* IBC - International Building Code, IMC - International Mechanical Code, IRC - International Residential Code, IRMC - International Residential Mechanical Code, IFGC - International Fuel Gas Code, IFC - International Fire Code, ASTM - American Society for Testing and Material

In addition to meeting Section 717 of 2003 IBC, 3M Fire Block FB 136 meets the following requirements*:

Standards met by FB 136 = ✔

705.7	✔	Noncombustible fireblock required where combustible framing intersects into hollow spaces of masonry or concrete firewall	803.4.1	✔	Subfloor construction
707.2, exc 6	✔	Shaft requirement may be eliminated for chimneys when fireblocked	1406.2.4	✔	Combustible exterior wall veneers
708.4	✔	Fireblocking required in fire partitions when not continuous between deck and ceiling	2111.11/2111.13	✔	Fireplace clearances and fireblock requirements
			2111.19/2111.20	✔	Chimney clearance and fireblock requirements (IMC 801.18.4)

In addition to meeting IRC Section R602.8, 3M Fire Block FB 136 meets the following requirements:

Standards met by FB 136 = ✔

R502.13	✔	Wood frame construction required to be fireblocked	R1003.11/R1003.13	✔	Fireplace clearances and fireblock requirements
R602.4	✔	Interior load bearing and non load bearing walls to be fireblocked same as exterior walls	M1601.3.3	✔	Duct installations shall be fireblocked
R1001.15/R1001.16	✔	Chimney clearance and fireblock requirements	M1801.9	✔	Chimneys and vents shall be fireblocked
			G2425.15.4	✔	Chimneys and vents (using fuel gas) shall be fireblocked

*The International Mechanical Code (IMC) contains similar requirements for chimneys and fireplaces and has a number of locations where it prohibits penetrations through fireblocking. However, where fireblocking is permitted, the IMC refers to the International Building Code for compliance.

3M – The Leader in Fire Protection

For more than 25 years, 3M has been delivering innovative firestop systems to building professionals. Effective and easy to install, FB 136 is part of a family of 3M fire protection products that offer affordable, long-lasting solutions in a variety of commercial and residential applications. And it's brought to you by 3M, the #1 brand preferred by firestop professionals.

PREFERRED BY FIRESTOP CONTRACTORS #1 BRAND

FB 136 offers the following benefits:

- Excellent durability
- Easy application – high caulk rate, no mixing & tack-free in approx. 15 minutes
- Halogen-free, has less impact on the environment
- Thixotropic, will not sag or run in vertical or overhead applications
- Easy clean-up with water
- Routine disposal – no special handling required
- Brings new & renovation projects to fireblocking code

APPLICATIONS

3M Fire Block FB 136 is ideal for use in residential (single, two-family and combustible) construction in areas that require sealing to maintain the integrity of a fireblock. 3M FB 136 can be easily applied with a standard caulking gun, pneumatic pumping equipment or simply a putty knife and/or trowel. It adheres to virtually any material, including wood, masonry, metal and plastic. It is gray in color and applies like conventional caulk.

- Wires, Cables & Conduit
- Plumbing
- HVAC Ducts & Vents
- General Construction Gaps
- Chimneys & Fireplaces

3M

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Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: FireDam (TM) Spray 200
MANUFACTURER: 3M
DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 05/05/2006
Supercedes Date: 02/07/2006

Document Group: 20-6955-7

Product Use:
Specific Use: Fire retardant spray

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
Copolymer	Trade Secret	25 - 45
Water	7732-18-5	25 - 45
Limestone	1317-65-3	15 - 25
Alumina Trihydrate	21645-51-2	5 - 10

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Viscious grey liquid with the consistency of paint.
General Physical Form: Liquid
Immediate health, physical, and environmental hazards:

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:
Contact with the skin during product use is not expected to result in significant irritation.

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*Not Applicable*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*No Data Available*
Flammable Limits - UEL	*No Data Available*
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA
Material will not burn.

5.3 PROTECTION OF FIRE FIGHTERS
Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it

appears dry. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Collect the resulting residue containing solution. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Contents may be under pressure, open carefully. Avoid breathing of vapors, mists or spray. Avoid eye contact with vapors, mists, or spray. For industrial or professional use only.

7.2 STORAGE

Keep container in well-ventilated area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation on open containers. Use with functioning spray booth or local exhaust. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray. The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
Limestone	ACGIH	TWA	10 mg/m3	
Limestone	OSHA	TWA, respirable	5 mg/m3	Table Z-1
Limestone	OSHA	TWA, as total dust	15 mg/m3	Table Z-1
POLYETHYLENE GLYCOLS	AIHA	TWA, as aerosol	10 mg/m3	

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists
CMRG: Chemical Manufacturer Recommended Guideline
OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Viscious grey liquid with the consistency of paint.
General Physical Form:	Liquid
Autoignition temperature	*Not Applicable*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*No Data Available*
Flammable Limits - UEL	*No Data Available*
Boiling point	>=212 °F
Vapor Density	*No Data Available*
Vapor Pressure	>=27 psia [@ 131 °F]
Specific Gravity	1.29 [*Ref Std:* WATER=1]
pH	7
Melting point	*No Data Available*
Solubility in Water	Complete
Volatile Organic Compounds	0.2 g/l
Percent volatile	41 %
Viscosity	80,000 centipoise

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
None known.	Not Specified

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Cure (harden, set, or react) the product according to product instructions. Dispose of completely cured (or

polymerized) wastes in a sanitary landfill. As a disposal alternative, incinerate uncured product in an industrial or commercial incinerator.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):
98-0400-5521-6

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - No

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
The components of this product are in compliance with the chemical notification requirements of TSCA.

The components of this product are listed on the Canadian Domestic Substances List.

Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

WHMIS: Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification
Health: 1 **Flammability:** 0 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the

inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 1 **Flammability:** 0 **Reactivity:** 0 **Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS®) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:
Section 9: Property description for optional properties was modified.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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3M MSDSs are available at www.3M.com

Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M Fire Barrier Water Tight Sealant 1000 NS and 1003 SL
MANUFACTURER: 3M
DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 10/19/2006
Supercedes Date: 08/11/2006

Document Group: 08-8510-3

Product Use:
Specific Use: Sealant Used For Fire Protection

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
Calcium Carbonate	1317-65-3	15 - 40
Siloxanes and Silcones, Di-Me, Hydroxy-Terminated	70131-67-8	25 - 35
Poly(Dimethylsiloxane)	63148-62-9	20 - 25
Ketoxime Silane	22984-54-9	3 - 7
Amorphous Silica	7631-86-9	0.5 - 4.5
(Trimethoxysilylpropyl)Ethylenediamine	1760-24-3	0.5 - 1.0

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Paste
Odor, Color, Grade: Low odor, thixotropic caulk
General Physical Form: Solid
Immediate health, physical, and environmental hazards: May cause allergic skin reaction.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.
Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Target Organ Effects:
Persons previously sensitized to amines may develop a cross-sensitization reaction to certain other amines.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA
Non-combustible. Choose material suitable for surrounding fire.

5.3 PROTECTION OF FIRE FIGHTERS
Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid contact with oxidizing agents. For industrial or professional use only.

7.2 STORAGE

Store away from acids. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact. The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials. Gloves made from the following material(s) are recommended: Polyvinyl Chloride.

8.2.3 Respiratory Protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
Calcium Carbonate	ACGIH	TWA	10 mg/m3	
Calcium Carbonate	OSHA	TWA, respirable	5 mg/m3	Table Z-1
Calcium Carbonate	OSHA	TWA, as total dust	15 mg/m3	Table Z-1
Amorphous Silica	CMRG	TWA, as respirable dust	3 mg/m3	

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Paste
Odor, Color, Grade:	Low odor, thixotropic caulk
General Physical Form:	Solid
Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*
Specific Gravity	1.32 [*Ref Std:* WATER=1]
Melting point	*No Data Available*
Solubility in Water	Nil
Volatile Organic Compounds	16 g/l
Percent volatile	1.2 %

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong acids; Strong bases; Strong oxidizing agents

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon dioxide	During Combustion
Oxides of Nitrogen	During Combustion

Hazardous Decomposition: silicon dioxide, calcium oxide and possible traces of incompletely burned carbon products.

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste product in a sanitary landfill. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):
98-0400-5276-7, 98-0400-5278-3, 98-0400-5279-1, 98-0400-5281-7

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - No

FIFRA

Status	Registration Number
Registered	5383-50

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

WHMIS: Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 2 **Flammability:** 1 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 2 **Flammability:** 1 **Reactivity:** 0 **Protection:** B

Hazardous Material Identification System (HMIS®) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:
Section 2: Ingredient table was modified.
Section 8: Exposure guidelines ingredient information was modified.
Section 8: Exposure guideline note was deleted.

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3M MSDSs are available at www.3M.com

Duraflake® FR
PARTICLEBOARD

Flakeboard
Passion for Panels™

Flakeboard Duraflake® FR particleboard is the preferred solution for applications where fire safety is required. Duraflake® FR particleboard is a UL® approved, Class A/Class 1-rated fire retardant panel, which makes it suitable for interior, non-structural use when building codes and public safety requirements are important. Architects specify Duraflake® FR particleboard in restaurants, schools, hospitals, hotels, malls, airports, offices and public buildings.

Duraflake® FR Particleboard Specifications *(Albany, OR)*

APPLICATIONS

- Elevator Cabs
- Passenger Boarding Bridges
- Architectural Woodwork
- Wainscoting
- Display Panels
- Door Components
- Furniture
- Fixtures
- Commercial Case Goods
- Shelving
- Cabinets
- Countertops

STORAGE AND HANDLING

Duraflake® FR particleboard should never be stored or used outdoors. The indoor storage area should be clean, dry, well-ventilated, and free of dust, dirt or particles that could contaminate the particleboard. Store flat on stickers on a level, hard, dry surface. Constant relative humidity and temperature should be maintained. Before use, allow to stabilize to the same conditions as are expected after the panel is installed. Condition 48 to 72 hours prior to lamination. For more information, see *Composite Panels Association Technical Bulletin: Storage and Handling of Particleboard and MDF.*

FEATURES AND BENEFITS

Strength and Dimensional Stability
Douglas fir and other western softwood particles have proven dimensional stability, low linear expansion, and low thickness swell. Multi-layer construction of Duraflake® FR particleboard adds to the strength and stability of the finished product.

Smooth Finishing Surface
Fine particle distribution results in a smooth surface for laminating and finishing.

Excellent Machining and Low Tool Wear
Consistent manufacturing processes and a well-balanced surface-to-core construction result in an easy-to-machine panel when sawing and routing.

Wide Range of Products and Sizes
Flakeboard Duraflake® FR particleboard is stocked at distributors across North America. Stocked lengths are 6', 8', 10' and 12'. Thicknesses range from 3/8" to 1 1/2", or metric units within this range. Standard widths range from 3' to 5'. Custom dimensions may be ordered up to 6' wide. Cut-to-size is also available.

Finishes and Decorative Laminates
Flakeboard Duraflake® FR particleboard is available from secondary manufacturers with a wide variety of wood veneers, high- and low-pressure laminates and thin roll laminates.

PRODUCT USES

Flakeboard Duraflake® FR particleboard is a high-quality, interior, non-structural panel made from Douglas fir and other western softwood particles, fire retardant chemicals and special formulas of resins and waxes. The flame retardant is distributed evenly throughout the panel, making it an effective Class A/Class 1 fire retardant particleboard. It can be drilled, routed, bullnosed, beveled and precision-machined without affecting the flame spread rating.

Limitations
- Duraflake® FR particleboard should be specified for interior use only and is not intended for use in exterior applications or damp conditions.

Duraflake® FR Particleboard Specifications *(Albany, OR)*

USAGE NOTES

- **Some laminates applied to Duraflake® FR particleboard may change the flame spread rating.**
- **Standard available woodworking glues have been successfully used in lamination. However, some adhesives may have compatibility problems with the chemical system used to manufacture Duraflake® FR particleboard.** Any adhesive should be tested for compatibility with the chemical system in Duraflake® FR particleboard prior to full-scale gluing. Questions should be directed to the glue supplier.
- When using Duraflake® FR particleboard in wall systems, an integral vapor barrier must be a properly installed component of the wall in any of the following conditions:
  - The wall has an exterior side
  - The wall separates spaces conditioned unequally
- Joints between panels to be designed to accommodate movement of up to .40 percent. Splined or articulated joints for reveals per AWI Section 500, 500A-G-4 "Joints and Transitions" or similar is suggested.

TECHNICAL DATA

Applicable Standard Tests

- ASTM E 84 Standard Test for Surface Burning Characteristics of Building Materials
- ASTM C 236 Guarded Hot Box Test
- UL 723 Test for Surface Burning Characteristics of Building Materials

Building Codes

- ICC - International Code Council
  - 2000, 2003, 2006 International Building Code
- NFPA - National Fire Protection Association
  - NFPA 101 Life Safety Code
  - NFPA 5000 Building Construction Safety Code

Agency Approvals

- California State Fire Marshall 2660-1627:100
- City of New York MEA 177-78-M
- City of Los Angeles RR 24811
- City and County of San Francisco 6260W34.1B
- City and County of Denver M-88-46

Underwriter's Laboratories, Inc. Classified Wood Particleboard

Surface Burning Characteristics, UL 723
(Based on 100 for Untreated Red Oak)

Flame Spread	20
Smoke Developed	25

See UL Classified Building Materials Index: Listed under Wood Particleboard.

Thermal Conductivity (k) and Thermal Resistance (1/k = R)[1]

Thickness (in)	3/8	1/2	3/4	1
k=	0.54	0.62	0.55	0.69
R=	1.85	1.61	1.82	1.45

1. R and k values obtained using ASTM C 236 "Thermal conductance and transmittance of built-up wall sections by means of the 'Guarded Hot Box' in tests conducted by Northwest Testing Laboratories."

Properties

Grade		Duraflake® FR Particleboard	
Thickness[1]	(in)	3/8-3/4	13/16- 1 1/2
Specification		Class A/Class 1 Flame Spread	Class A/Class 1 Flame Spread
Density	(pcf)	47 - 50	44-47
MOR	(psi)	1,600	1,600
MOE	(psi)	300,000	250,000
Internal Bond	(psi)	80	60
Face Screw Hold	(lb)	250	250
Edge Screw Hold	(lb)	225	175
Linear Expansion	(%)	0.40	0.35
Thickness Tolerance	(in)	+/- 0.005	+/- 0.005
Length and Width	(in)	+/- 1/16	+/- 1/16
Squareness	(in)	+/- 1/8	+/- 1/8

1. Metric thickness available.

The above properties are based on averages of normal production. Testing for conformance to the above specifications must be done in accordance with procedures in the American National Standard for Particleboard (ANSI A208.1-1999)

As with any building project, always wear proper eye, ear, and breathing protection and follow local building codes.

A Material Safety Data Sheet is available upon request.

P.O. Box 428, Albany, OR 97321
888.650.6302 *or* 541.928.3341, 541.928.4116 *(fax)*
www.flakeboard.com

- Contains 100% Recycled/Recovered Wood Content
- Conforms to both ANSI A208.1 Table A and HUD 24 CFR Part 3280 Formaldehyde Emission Requirements for Particleboard

COMPOSITE PANEL ASSOCIATION

ENGINEERED WOOD

640 SACO STREET
WESTBROOK, ME 04092
PH: 207-854-3400
FAX: 207-854-3403

ATLANTIC PLYWOOD CORP.

Fax

To: Laura **From:** Natalie Nye

Fax: (207) 856-2825 **Pages:** 3 (including cover)

Phone: (207) 856-1817 **Date:** 12/13/06

Re: **CC:**

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Laura,

We sell the DuraFlake Particleboard. Let me know the size & quantity you need and I can provide a price. Thank you.

Natalie Nye
(207) 854-3400

2 sheets 3/4

Attn Dalton

HOOVER TREATED WOOD PRODUCTS, INC.

TECHNICAL NOTE

FOR ADDITIONAL INFORMATION: **1-800-TEC-WOOD (832-9663)**

CLASS A-B-C/I-II-III FLAMESPREAD, CLASS A-B-C ROOF COVERINGS, AND HOURLY FIRE RESISTANCE RATINGS

Flamespread classes, roofing classes and hourly ratings are confusing terms and they sometimes get misused. The first is based on the ASTM E-84/UL 723 "Test for Surface Burning Characteristics of Building Materials," the second is based on ASTM E-108/UL 790, "Test for Fire Performance of Roofing Materials," and the third is based on ASTM E-119 "Fire Tests of Building Materials."

FLAMESPREAD CLASSES

The UBC and BOCA codes use the I-II-III designation, and the Standard code uses A-B-C. The flamespread categories are as follows per ASTM E-84/UL 723:

Class A or I:	Flamespread 25 or less (FRTW, some FR surface coatings)
Class B or II:	Flamespread 26 to 75 (other FR surface coatings)
Class C or III:	Flamespread 76 to 200 (untreated lumber and plywood)

FRTW must have a flamespread of 25 or less in the 10-minute ASTM E-84/UL 723 test, plus the test is continued for 20 more minutes during which there must be no evidence of significant progressive combustion and the flame front may not progress more than 10.5 feet from the burner. This is far more severe than the 10-minute ASTM E-84 test used for fire retardant surface coatings and other building materials.

CLASS A-B-C ROOF COVERINGS

Class A, B, or C roofing systems are sometimes confused with Class A-B-C/I-II-III flamespread categories above. The tendency is to assume that Class A roof systems have a Class A flamespread, and so on, but there is no correlation.

The ASTM E-108/UL 790 roof coverings test does not produce a flamespread rating. It is a pass-fail test under which a product either passes the criteria as a Class A, B or C roof covering system or it doesn't. It is an entirely different test from ASTM E-84/UL 723, and it includes weathering per the ASTM D-2898 "Standard Rain Test." The highest fire classification is Class A. Note that a Class C roof system is considered fire resistant while a Class C (or III) building material (as above) is not. Non-classified roof systems have no fire rating.

HOURLY FIRE RESISTANCE RATINGS

Hourly ratings are a function of the assembly being used (wall, floor, door, ceiling, roof, etc.) and generally require use of a noncombustible membrane (e.g. gypsum, masonry). ASTM E-119 "Fire Tests of Building Construction Materials" is the test used to determine the hourly rating of an assembly. It exposes an assembly to heat and flame on one side and tests for heat transmission, burn-through, structural integrity and ability to withstand a hose stream from a fire hose.

Flamespread classification per ASTM E-84, 30 minute duration, has no relation to a 30-minute rating or any other hourly rating (which must be determined by ASTM E-119). ASTM E-119 is not a required test for FRTW, therefore FRTW has no different hourly rating than untreated wood and it cannot be substituted for noncombustible materials such as gypsum in a rated assembly. FRTW's advantage over untreated wood and other combustible materials is the fact that it doesn't ignite or contribute to the spread of flame.

CLASSFS, 4/95