

OUTLINE
SPECIFICATIONS

152 SHERIDAN STREET
PORTLAND, MAINE



ARCHETYPE, P.A.
ARCHITECTS
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March 2, 2014

152 Sheridan Street – Portland, Maine

**Report on Subsurface and Foundations Investigation
November 2013**

(For Information Only)



Geotechnical Report

**New Residential Building
Sheridan Street
Portland, Maine**

Prepared for:

Great Falls Construction
20 Mechanic Street
Gorham, Maine 04038

Prepared by:

Summit Geoengineering Services

Project #13163
November 2013



October 29, 2013
SGS #13163

Jonathan Smith
Great Falls Construction
20 Mechanic Street
Gorham, Maine 04038

RE: Geotechnical Engineering Investigation, Proposed Building
Rosenblatt Property, Sheridan Street, Portland, Maine

Dear Jonathan;

We have completed the geotechnical investigation for the proposed new building on Sheridan Street in Portland. Our scope of services included performing 3 test borings at the site and preparing this report summarizing our findings and geotechnical recommendations.

1.0 Site and Project Description

The site slopes steeply (approximately 2H:1V) down to the west from Sheridan Street to an existing retaining wall which borders the adjacent property. The site is partially wooded with grass and shrubs in open areas.

The project consists of the construction of a new 3 story wood-framed building with a footprint of about 4,700 square feet. The main level of the building will be at or near the elevation of Sheridan Street on the upper side of the site and east side of the building. The ground surface at the west side of the building is at about 90 feet. Support of this side of the building will require posts approximately 20 feet long. Current planning is to support the east portion of the building on a spread footing foundation. The posts will be supported on a spread footing foundation on the west side of the building.

The purpose of our investigation is to determine the soil conditions at the upper and lower portions of the site for design of conventional spread footing foundations. We also evaluated the stability of the existing slope and the effects of the new foundations on the slope.

2.0 Subsurface Exploration

Summit Geoengineering Services (SGS) explored the subsurface conditions with the drilling of 3 borings on September 13, 2013. The borings were advanced using 2-1/2" hollow stem augers. The borings were drilled into dense glacial till and terminated at depths ranging from 26.5 feet to 40 feet. Standard penetration tests (SPT) with split spoon samples were obtained at 5-foot intervals.

Summit was onsite to coordinate and perform the explorations. The location of the borings is shown on the Test Boring Location Plan in Appendix A. The borings were located by taping from existing site features. Logs of the borings are included in Appendix B.

3.0 Subsurface Conditions

The subsurface conditions generally consist of a thin layer of granular fill over a sandy ablation till, over a silt and clay glacial marine layer, over dense silty basal till.

The fill is 2 to 3 feet thick and varies from sand to silty sand with gravel to sandy gravel. It is loose to compact and is classified as SP, SM, or GM in accordance with the USCS. The fill is entirely of mineral composition: no organics, man made materials, or other materials were observed in the borings.

The ablation till layer varies from brown medium to coarse sand with a little gravel to brown gravelly sand with a trace of silt. This layer was 16 feet thick at B-1 (adjacent to Sheridan Street) and 6 to 9 feet thick at B-2 and B-3. SPT-N values in the ablation till ranged from 15 to 52 blows per foot (bpf) and averaged 28 bpf. This layer is humid to damp and is classified as SM or SP.

The glacial marine layer was encountered only at B-2 and B-3, where it is 5.5 to 9.5 feet thick. This layer is described as olive-brown clayey silt or olive-gray silt with a little sand. SPT-N values in this layer ranged from 16 to 26 bpf and averaged 20 bpf. This soil is moist and classified as ML.

The basal till layer, encountered at all the boring locations, varies from gray sandy silt with varying proportions of clay and a trace of gravel. SPT-N values ranges from 10 to 36 and averages 25 bpf. The basal till extended to the bottom of the borings.

Refusal was not encountered in the borings, drilled to depths ranging from 26.5 to 40 feet below the existing ground surface.

Groundwater was not observed at the B-1 location, where the borehole remained open to a depth of 26.5 feet. The bore holes collapsed at depths of 8 feet and 21 feet at the B-2 and B-3 locations. No groundwater was observed at these locations.

4.0 Foundation Design Recommendations

Current planning is to support the building with a combination of a conventional frost wall and slab-on-grade and steel or concrete posts supported on a shallow spread footing. The frost wall and slab-on-grade would be constructed in an 8 foot strip at the east (uphill) side of the building. This will be designed to provide the required lateral support for the building. The remaining portions of the building will be supported on steel framing extending to the west side of the building and supported on steel or concrete posts bearing on conventional isolated or continuous spread footings. Due to the dense nature of the soil at this site and assuming that the foundations

are designed and constructed in general accordance with the recommendations below, the overall stability of the slope will be satisfactory for the proposed foundation types and loads.

A. Soil Design Parameters

We recommend that the following design parameters be used for the existing gravelly sand ablation till and sandy silt glacial till.

Table 1. SOIL PARAMETERS		
Parameter	Structural Fill	Ablation Till (native)
Total Natural (moist) Unit Weight	130 pcf	125 pcf
Friction Angle	34 °	32 °
Cohesion	0 psf	0 psf
Friction Coefficient	0.60	0.55
Passive Equivalent Fluid Pressure	400 psf/ft	275 psf/ft
Active Equivalent Fluid Pressure	35 psf/ft	40 psf/ft
At Rest Earth Pressure Coefficient	0.44	0.47
Modulus of Elasticity	600 ksf	350 ksf
Vertical Subgrade Modulus	290 pci	200 pci
Lateral Subgrade Modulus (constant for upper 10 feet of embedment)	600 pci	400 pci

B. Frost Protection

The design air freezing index for the Portland area is approximately 1,200 degree F days (10 year, 90% probability). Based on this, exterior footings should be constructed at a minimum depth of 4 feet below the exterior finished grade.

We recommend that the outside of the foundations be backfilled with Structural Fill (SF) and meeting the following gradation specifications.

Table 2. STRUCTURAL FILL (SF)	
Sieve Size	Percent finer
3 inch	100
1/4 inch	25 to 70
No. 40	0 to 30
No. 200	0 to 7

The maximum particle size should be limited to 6 inches. This material is referenced to MDOT Specification 703.06, Type D.

Structural Fill should be placed in a maximum of 12-inch loose lifts and should be compacted to a minimum of 95 percent of its maximum dry density, determined in accordance with ASTM D1557. This compaction criterion is especially important where SF is placed to provide lateral support for foundation elements.

C. Allowable Bearing Pressure

We recommend that the foundations be designed using an allowable bearing pressure of 4,000 psf for exterior isolated and continuous footings. For the proposed footing loads, the total long term settlement associated with the above bearing pressure is estimated to less than ½ inch. Due to the uniformity of the subsurface conditions and assuming that the footing subgrade is prepared as discussed below, differential settlement will be negligible.

The allowable bearing pressure and associated settlement is based on the following conditions:

- Footings are placed at the minimum frost protection depth of 4 feet below the finished ground surface measured from the downhill side of the footing.
- Footing trenches are proofrolled after excavation with a walk-behind vibratory compactor to re-densify soil loosened during excavation.
- A perimeter underdrain is installed adjacent to and along the outside of the exterior footing on the uphill side of the building.

D. Lateral support for Foundations

We recommend that all foundation backfill required to support lateral loads consist of SF compacted to 95% of its maximum dry density in accordance with ASTM D1557. Mobilization of the passive lateral resistance will require some slight horizontal movements of the foundations. The minimum movement to mobilize the full passive EFP noted in Table 1 is expected to be on the order of 0.01 times the overall height of the wall. For a wall constructed at frost depth this movement will be negligible. It is important that the SF in the lateral support zone remain unsaturated. Installation of an underdrain at the base of the footing on the uphill side of the foundation wall is highly recommended.

E. Groundwater Control

Groundwater was not observed or measured in the boreholes at this site. Based on this, we do not expect that groundwater will be encountered during construction. Under normal conditions, underdrains would not be strictly necessary at this site. However, due to the foundation lateral support requirements and to account for unanticipated changes in regional hydrogeology and to

control potential infiltration of surface water, we recommend that perimeter foundation drains be installed adjacent footings on the east and west sides of the building.

Underdrains, if used, should consist of 4 inch rigid perforated PVC placed adjacent to the exterior footings and surrounded by a minimum of 6 inches of crushed stone wrapped in filter fabric to prevent clogging from the migration of the fine soil particles in the foundation backfill soils. The underdrain pipe should be outlet to a location where it will be free flowing. Where exposed at the ground surface, the ends of pipes should be screened or otherwise protected from entry and nesting of wildlife, which could cause clogging.

F. Seismic Design

Based on the soil types and the blow counts obtained in the test borings, the soil at the site is classified as Seismic Site Class D (Stiff Soil Profile). The following seismic site coefficients are in accordance with the 2009 International Building Code (IBC):

SITE SEISMIC DESIGN COEFFICIENTS – IBC 2009	
Seismic Coefficient	Site Class D
Short period spectral response (S_S)	0.240
1 second spectral response (S_1)	0.078
Max short period spectral response (S_{DS})	0.385
Max 1 second spectral response (S_{D1})	0.187
Design short period spectral response (S_{DS})	0.256
Design 1 second spectral response (S_{D1})	0.125

5.0 Earthwork Considerations

The existing ablation till will be suitable for reuse at the site in areas not requiring SF. This soil will not consistently meet the requirements for SF.

We do not expect that groundwater will be encountered within the building excavations. Diversion and control of surface water should be performed to prevent water flow from adjacent wet areas or from rain or snowmelt from entering the excavations.

Excavations below 4 feet should be sloped no greater than 1.5H to 1V for the gravelly sand and sand ablation till, 1H:1V for the silty clay glacial marine soil, and 0.75H:1V for the basal till. These slopes are based on the current OSHA Excavation Guidelines.

We recommend that a qualified geotechnical consultant be retained to monitor and test soil materials used during construction and confirm that soil conditions and construction methods are in consistence with this report.

6.0 Closure

Our recommendations are based on professional judgment and generally accepted principles of geotechnical engineering. Some changes in subsurface conditions from those presented in this

report may occur. Should these conditions differ materially from those described in this report, Summit should be notified so that we can re-evaluate our recommendations.

We appreciate the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,
Summit Geoenvironmental Services,



William M. Peterlein
Principal Geotechnical Engineer



APPENDIX A

TEST BORING LOCATION PLAN

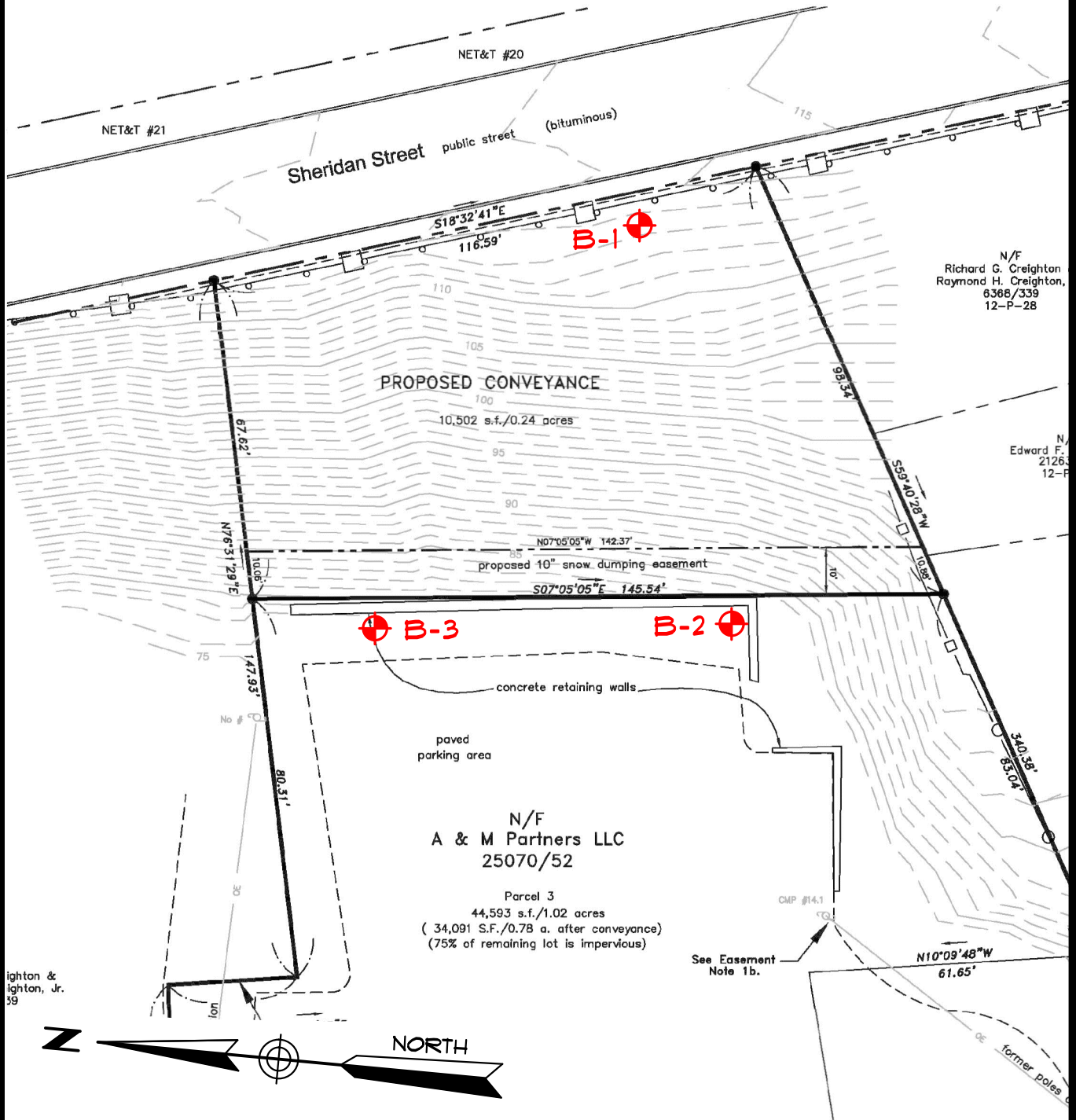
LEGEND



B-1 SUMMIT TEST BORING
(SEPTEMBER 13, 2013)

PLAN REFERENCE

"PLAN OF LOT DIVISION MADE FOR A & M PARTNERS", DATED JULY 19, 2002, PREPARED BY TITCOMB ASSOCIATES.



TEST BORING LOCATION PLAN NEW BUILDING SITE

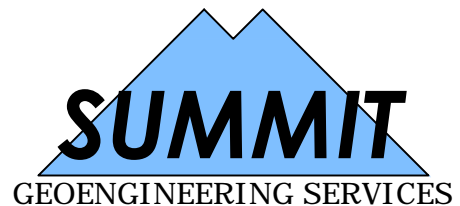
SHERIDAN STREET - PORTLAND, MAINE
PREPARED FOR

GREAT FALLS CONSTRUCTION

145 LISBON STREET - SUITE 601
LEWISTON, ME 04240

Tel.: (207) 576-3313
www.summitgeoen.com

DATE: 9-17-13	DRAWN BY: KRF	CHECKED BY: UMP
JOB: 13163	SCALE: 1" = 30'	FILE: 13163 BOR



APPENDIX B

BORING LOGS

EXPLORATION REPORT COVER SHEET

The exploration report has been prepared by the geotechnical engineer from both field and laboratory data. Differences between field logs and exploration reports may exist.

It is common practice in the soil and foundation engineering profession that field logs and laboratory data sheets not be included in engineering reports, because they do not represent the engineer's final opinion as to appropriate descriptions for conditions encountered in the exploration and testing work. The field logs will be retained in our office for review. Results of laboratory tests are generally shown on the borings logs or are described in the text of the report as appropriate.

Drilling and Sampling Symbols:

SS = Split Spoon	Hyd = Hydraulic advance of probes
ST = Shelby Tube – 2” OD, disturbed	WOH = Weight of Hammer
UT = Shelby Tube – 3” OD, undisturbed	WOR = Weight of Rod
HSA = Hollow Stem Auger	GS = Grain Size Data
CS = Casing – size as noted	PI = Plasticity Index
Sv = Vane Shear	LL = Liquid Limit
PP = Pocket Penetrometer	w = Natural Water Content
RX = Rock Core – size as noted	USCS = unified Soil Classification System

Water Level Measurements:

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable groundwater levels. In impervious soils, the accurate determination of groundwater elevations may not be possible, even after several days of observations; additional evidence of groundwater elevations via observation or monitoring wells must be sought.

Gradation Description and Terminology:

Boulders:	Over 8 inches	Trace:	Less than 5%
Cobbles:	8 inches to 3 inches	Little:	5% to 15%
Gravel:	3 inches to No.4 sieve	Some:	15% to 25%
Sand:	No.4 to No. 200 sieve	Silty, Sandy, etc.:	Greater than 25%
Silt:	No. 200 sieve to 0.005 mm		
Clay:	less than 0.005 mm		

Density of Granular Soils and Consistency of Cohesive Soils:

CONSISTENCY OF COHESIVE SOILS		DENSITY OF GRANULAR SOILS	
SPT N-value blows/ft	Consistency	SPT N-value blows/ft	Relative Density
0 to 2	Very Soft	0 to 3	Very Loose
3 to 4	Soft	4 to 9	Loose
5 to 8	Firm	10 to 29	Compact
9 to 16	Stiff	30 to 49	Dense
17 to 32	Very Stiff	50 to 80	Very Dense
>32	Hard		



SOIL BORING LOG

Boring #: **B-1**

Project: Rosenblatt Residence
 Location: Sheridan Street
 City, State: Portland, Maine

Project #: 13163
 Sheet: 1 of 1
 Chkd by:

Drilling Co: Summit Geoengineering Services
 Driller: C. Coolidge, P.E.
 Summit Staff: B. Peterlein, P.E.

Boring Elevation: 113 ft +/-
 Reference: Interpolated from Site Survey by Titcomb Associates, July 19, 2002
 Date started: 9/13/2013 Date Completed: 9/13/2013

DRILLING METHOD	SAMPLER	ESTIMATED GROUND WATER DEPTH			
Vehicle:	Length:	Date	Depth	Elevation	Reference
Rubber Tracked	24" SS	9/13/2013			Hole dry at 26.5 ft
Model: AMS Power Probe	Diameter: 2"OD/1.5"ID				
Method: 2-1/2" H.S.A.	Hammer: 140 lb				
Hammer Style: Auto	Method: ASTM D1586				

Depth (ft.)	SAMPLER					SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"	N ₆₀			
1	S-1	24/12	0 to 2	1		Brown Silty SAND, little Gravel, trace rootlets, damp, loose, SM	FILL	
				1				
				5				
2				7		Cobbles and Boulders		
3						Brown medium to coarse SAND, trace Gravel, humid, compact, SP	ABLATION TILL	
4								
5	S-2	24/16	4.5 to 6.5	4				
				7				
				9				
				8				
6								
7								
8								
9								
10	S-3	24/12	9.5 to 11.5	10		Brown Gravelly SAND, trace Silt, humid, dense, SP		
				32				
				17				
				15				
11						Brown Gravelly SAND, trace Silt, damp, very dense, SP		
12								
13								
14								
15	S-4	24/18	14.5 to 16.5	9				
				14				
				38				
				27				
16								
17								
18						Gray Sandy SILT, trace Clay and Gravel, moist, very stiff, ML	BASAL TILL	
19								
20								
21	S-5	24/24	19.5 to 21.5	12				
				10				
				10				
				11				
22								
23								
24						Gray Sandy SILT, little Clay, trace Gravel, moist, very stiff, ML		
25	S-6	24/24	24.5 to 26.5	10				
				16				
				16				
				17				
26						End of Boring at 26.5 ft		
27								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft	< 5% Trace 5-15% Little 15-30% Some > 30% With	Bedrock Joints Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft			
11-30	Compact	5-8	Firm			
31-50	Dense	9-15	Stiff			
>50	V. Dense	16-30	V. Stiff			
		>30	Hard			



SOIL BORING LOG

Boring #: **B-2**

Project: Rosenblatt Residence
 Location: Sheridan Street
 City, State: Portland, Maine

Project #: 13163
 Sheet: 1 of 2
 Chkd by:

Drilling Co: Summit Geoengineering Services
 Driller: C. Coolidge, P.E.
 Summit Staff: B. Peterlein, P.E.

Boring Elevation: 76 ft +/-
 Reference: Interpolated from Site Survey by Titcomb Associates, July 19, 2002
 Date started: 9/13/2013 Date Completed: 9/13/2013

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	Rubber Tracked	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	AMS Power Probe	Diameter:	2"OD/1.5"ID	9/13/2013			Hole caved at 8 ft
Method:	2-1/2" H.S.A.	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	N ₆₀	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
1	S-1	24/16	0 to 2	3		Brown medium to coarse SAND, trace Gravel, damp, loose, SP		FILL
				4				
				3				
2				3				
3								
4								
5								
6	S-2	24/18	5 to 7	5		Brown medium to coarse SAND, little Gravel, trace to little Silt, moist, compact, SM		ABLATION TILL
				7				
				8				
7				9				
8								
9								
10								
11	S-3	24/18	10 to 12	4		Olive brown Clayey SILT with fine sandy silt seams (seams at 4" +/- intervals), moist, stiff, ML		GLACIAL MARINE
				7				
				9				
12				9				
13								
14								
15								
16	S-4	24/24	15 to 17	3		Gray Sandy SILT, little Clay, trace Gravel, damp, stiff, ML		BASAL TILL
				4				
				6				
17				7				
18								
19								
20								
21	S-5	24/24	20 to 22	6		Gray Sandy SILT, little Clay, trace Gravel, damp, very stiff, ML		
				6				
				10				
22				14				
23								
24								
25								
26	S-6	24/24	25 to 27	14		Gray Sandy SILT, trace Clay and Gravel, wet, hard, ML		
				16				
				20				
27				19				

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft		Bedrock Joints Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft	< 5% Trace		
11-30	Compact	5-8	Firm	5-15% Little		
31-50	Dense	9-15	Stiff	15-30% Some		
>50	V. Dense	16-30	V. Stiff	> 30% With		
		>30	Hard			



SOIL BORING LOG

Boring #: **B-2**

Project: Rosenblatt Residence
 Location: Sheridan Street
 City, State: Portland, Maine

Project #: 13163
 Sheet: 2 of 2
 Chkd by:

Drilling Co: Summit Geoengineering Services
 Driller: C. Coolidge, P.E.
 Summit Staff: B. Peterlein, P.E.

Boring Elevation: 76 ft +/-
 Reference: Interpolated from Site Survey by Titcomb Associates, July 19, 2002
 Date started: 9/13/2013 Date Completed: 9/13/2013

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	Rubber Tracked	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	AMS Power Probe	Diameter:	2"OD/1.5"ID	9/13/2013			Hole caved at 8 ft
Method:	2-1/2" H.S.A.	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	No.	Pen/Rec (in)	Depth (ft)	blows/6"	N ₆₀	SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
28								
29								
30								
31	S-7	24/24	30 to 32	19		Gray Sandy SILT, trace Clay and Gravel, wet, hard, ML Auger to 40 ft - hard drilling		BASAL TILL
32				16				
33				18				
34				34				
35								
36								
37								
38								
39								
40								
41						End of Boring at 40 ft		
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								
54								

Granular Soils		Cohesive Soils		% Composition ASTM D2487	NOTES: PP = Pocket Penetrometer, MC = Moisture Content LL = Liquid Limit, PI = Plastic Index	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency			
0-4	V. Loose	<2	V. soft		Bedrock Joints Shallow = 0 to 35 degrees Dipping = 35 to 55 degrees Steep = 55 to 90 degrees Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches Gravel = < 3 inch and > No 4, Sand = < No 4 and >No 200, Silt/Clay = < No 200	Dry: S = 0% Humid: S = 1 to 25% Damp: S = 26 to 50% Moist: S = 51 to 75% Wet: S = 76 to 99% Saturated: S = 100%
5-10	Loose	2-4	Soft	< 5% Trace		
11-30	Compact	5-8	Firm	5-15% Little		
31-50	Dense	9-15	Stiff	15-30% Some		
>50	V. Dense	16-30	V. Stiff	> 30% With		
		>30	Hard			



SOIL BORING LOG

Boring #: **B-3**

Project: Rosenblatt Residence
 Location: Sheridan Street
 City, State: Portland, Maine

Project #: 13163
 Sheet: 1 of 1
 Chkd by:

Drilling Co: Summit Geoengineering Services
 Driller: C. Coolidge, P.E.
 Summit Staff: B. Peterlein, P.E.

Boring Elevation: 76 ft +/-
 Reference: Interpolated from Site Survey by Titcomb Associates, July 19, 2002
 Date started: 9/13/2013 Date Completed: 9/13/2013

DRILLING METHOD		SAMPLER		ESTIMATED GROUND WATER DEPTH			
Vehicle:	Rubber Tracked	Length:	24" SS	Date	Depth	Elevation	Reference
Model:	AMS Power Probe	Diameter:	2"OD/1.5"ID	9/13/2013			Hole caved at 21 ft
Method:	2-1/2" H.S.A.	Hammer:	140 lb				
Hammer Style:	Auto	Method:	ASTM D1586				

Depth (ft.)	SAMPLER					SAMPLE DESCRIPTION	Geological/ Test Data	Geological Stratum
	No.	Pen/Rec (in)	Depth (ft)	blows/6"	N ₆₀			
1	S-1	24/12	0 to 2	3		Dark brown Sandy GRAVEL, little Silt, moist, compact, GM		FILL
				5				
				6				
2				6		Brown medium to coarse SAND, trace Silt, humid, compact, SP		ABLATION TILL
3								
4								
5								
6	S-2	24/14	5 to 7	5				
7				7				
8				8		Brown Silty SAND, little Gravel, humid, compact SP		
9				8				
10								
11	S-3	24/18	10 to 12	9				
12				13				
13				12		Olive-gray SILT, little Sand, trace Clay, damp, very stiff, ML		GLACIAL MARINE
14				10				
15								
16	S-4	24/20	15 to 17	13				
17				12				
18				14				
19				16		Gray Sandy SILT, trace Gravel and Clay, damp, stiff, ML		BASAL TILL
20								
21	S-5	24/18	20 to 22	9				
22				8				
23				7				
24				8		Gray Sandy SILT, trace to little Clay, trace Gravel, moist, very stiff, ML		
25								
26	S-6	24/24	25 to 27	9				
27				14				
				17		End of Boring at 27 ft		
				16				

Granular Soils		Cohesive Soils		% Composition		NOTES:	Soil Moisture Condition
Blows/ft.	Density	Blows/ft.	Consistency	ASTM D2487			
0-4	V. Loose	<2	V. soft			PP = Pocket Penetrometer, MC = Moisture Content	Dry: S = 0%
5-10	Loose	2-4	Soft	< 5% Trace		LL = Liquid Limit, PI = Plastic Index	Humid: S = 1 to 25%
11-30	Compact	5-8	Firm	5-15% Little		<u>Bedrock Joints</u>	Damp: S = 26 to 50%
31-50	Dense	9-15	Stiff	15-30% Some		Shallow = 0 to 35 degrees	Moist: S = 51 to 75%
>50	V. Dense	16-30	V. Stiff	> 30% With		Dipping = 35 to 55 degrees	Wet: S = 76 to 99%
		>30	Hard			Steep = 55 to 90 degrees	Saturated: S = 100%
						Boulders = diameter > 12 inches, Cobbles = diameter < 12 inches and > 3 inches	
						Gravel = < 3 inch and > No 4, Sand = < No 4 and > No 200, Silt/Clay = < No 200	

OUTLINE SPECIFICATIONS

DIVISION 1 - GENERAL CONDITIONS

1. All supervision necessary to complete project on agreed upon schedule.
2. Temporary power, heat and toilet facilities during construction.
3. Daily cleanup of construction debris.
4. Certificate of insurance for the General Contractor. Owner to provide Builders Risk Policy for term of construction.
5. Monthly lien waivers for all subcontractors and suppliers.
6. All state and local inspections required by law.
7. Building permit and town fees by General Contractor.
8. All testing by Owner.
9. Special Inspections by Owner.

DIVISION 2 - SITEWORK

02321 - BUILDING EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes: Excavating, filling and backfilling, trench excavation, and grading indicated or required for building footings, foundation walls, slabs-on-grade, mechanical work, and electrical work within 5'-0" of building line.

1.02 SUBMITTALS

- A. Quality control submittals:
 1. Complete shoring and bracing plans, designs, and other means of retaining undisturbed earth for Architect's files.

2. INTENT IS TO DEMONSTRATE CONTRACTOR'S UNDERSTANDING OF REGULATIONS; NO REVIEW WILL BE MADE OF THIS SUBMITTAL.
3. Excavating or trenching requiring depths over 3'-0" without this submittal is STRICTLY PROHIBITED.

1.03 PROJECT CONDITIONS

- A. Protection:
 1. Protect benchmarks and monuments; if disturbed or destroyed, replace in original position.
 2. Protect existing facilities and adjacent property. Prevent ponding or washing of water on site, on adjacent property, or downstream. Erect straw bale barricades and retention ponds as indicated or required.
 3. Protect areas outside limits of construction from encroachment by construction personnel or equipment, regardless of property ownership. Access by specific written permission or easement only.
 4. Protect active utilities; remove or relocate as indicated. Remove or relocate active utilities encountered but not indicated.
 5. Plug or cap inactive utilities encountered, not less than 5'-0" outside building lines.
 6. Identify and protect utilities for Project duration.
- B. Items of historic or archaeological value discovered during earthwork operations remain Owner's property.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Compacted structural fill: ASTM D1241-68 (1979), Coarse Aggregate, Type I, Gradation B, gravel, crushed gravel, or crushed stone; compacted to 95% Standard Proctor.

1" Sieve:	75-to-95% retained.
No. 10 Sieve:	20-to-45% retained.
No. 200 Sieve:	5-to-15% retained.
- B. Porous fill: ASTM C33-86, size 3; crushed stone or gravel.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Excess, unsuitable, and insufficient materials:

1. Remove excess and unsuitable materials from Project site. Legally dispose of materials off Owner's property.
2. Provide satisfactory fill material in areas where existing materials are insufficient or unsuitable.
3. Clear and grub site; stockpile loam if possible.
4. Protect existing trees and other site work
5. Remove existing sidewalk.

3.02 APPLICATION

A. Excavation:

1. Excavate on basis of unclassified excavation. Include excavation under Contract Sum of soil materials required to establish grades indicated and excavation for utilities, structures, and appurtenances.
2. Assume responsibility for design and construction of excavation shoring and bracing capable of supporting excavations and construction loads. Selected materials and methods are in accord with regulatory requirements and Contractor's option.
3. Excavation of unsuitable soil material:
 - a. If unsuitable soil material, including mass or trench rock or muck is encountered, clear away earth to expose material. Notify Soils Engineer and receive written instructions prior to proceeding.
 - b. Remove rock to a depth of 6" below slabs and pavement, 2'-0" outside building walls, 6" below and 8" each side of piping in utility trenches and 1'-0" below finished grade in areas to receive landscaping and grassing.
 - c. Perform blasting only after receiving written approval from Architect and notifying Owner's insurance company of intent. Engage experienced mechanics to perform blasting. Provide heavy mats to minimize concussion. Handle, store, and use explosives in accord with "Manual of Accident Prevention in Construction" by Associated General Contractors of America, Inc., 1971 edition.
 - d. Remove unsuitable soil materials to extent directed by Testing Agency.
4. Excavate to lines and levels required to obtain finish elevation indicated. Provide space for foundation work and inspection. Cut excavations clean with level bottoms. Where changes in levels occur, provide vertical steps in horizontal footings.
5. Cut footing trenches to exact size of footing; omit forms if soil conditions permit. Notify Soils Engineer, in writing, if earth of doubtful bearing is encountered or if indicated design bearing capacity is not encountered within 8" of indicated depth; await Soils Engineer's written instructions.
6. If excavations are by error carried deeper than indicated, fill additional depth with concrete class specified for foundations at no additional cost.
7. Protect excavations against cave-ins, ponding, and freezing. Provide bracing, shoring, and sheeting to contain excavations. Slope embankments over 5'-0" high at 45° angle away from excavation, or shore. When freezing can be

- anticipated prior to concrete placement, protect excavations or delay carrying excavations to full depth until concrete can be placed.
8. Maintain excavations including utility trenches free of surface water. Provide pumps and well points if required to drain excavations. Provide and maintain temporary drainage ditches.
 9. Notify Soils Engineer immediately of subsurface water encountered; await written instructions.
 10. Notify Testing Agency when footing excavations are complete. Testing Lab shall verify bearing capacity determined by Soils Engineer just prior to footings placement.
 11. Trench excavation: Excavate trenches to a maximum width equal to pipe diameter plus 2'-0" for pipe 2'-6" diameter and smaller; 2'-6" for pipe exceeding 2'-6" diameter. Do not over-excavate. If specified trench widths are exceeded, Architect may require installation of stronger pipe or special installation procedures at no additional cost.
- B. Fill and backfill:
1. Provide satisfactory soil material to perform earthwork operations indicated; include filling and backfilling to bring grade to elevations indicated.
 2. Surface preparation to receive fill:
 - a. Remove vegetation, unsuitable soil materials, obstructions, and deleterious materials from ground surface prior to fill placement. Break up sloped surfaces steeper than one vertical to four horizontal for fill material to bond with existing surface.
 - b. Proofroll areas to receive fill, foundations, pavements, and building slabs with fully loaded 20-ton dump truck or equivalent. Make two complete coverages of areas in each pass of two perpendicular passes. Undercut and replace areas exhibiting "pumping" during proofrolling with selected fill materials compacted in accord with requirements of this section. Perform proofrolling under Testing Agency observation.
 3. Placement and compaction:
 - a. Place fill materials in layers not more than 6" in loose depth.
 - b. Placing rocks exceeding 3" diameter in top 1'-0" fill is prohibited. Before compaction, moisten or aerate each layer to provide optimum moisture content. Compact each layer to specified percentage of maximum density for area classification.
 - c. Placing backfill or fill material on muddy or frozen surfaces or surfaces containing frost or ice is prohibited.
 - d. Perform placement under observation of Testing Agency if required.
 4. Bed pipe in trenches on continuous soil foundation shaped to lowest one-fourth of pipe profile. Form depressions for hubs and similar joints only in sizes required for making joints.
 5. Backfill against pipe in layers not more than 6" loose depth. Place backfill evenly along both sides of pipe to level of piping top; compact each layer with power

tampers. Rock placement exceeding 3" diameter in first 1'-0" of fill directly over piping top is prohibited.

6. Backfill excavations promptly, but not prior to completion of following:
 - a. Inspecting, testing, and recording locations of underground utilities.
 - b. Shoring and bracing removal, and backfilling voids.
 - c. Debris removal from excavations.
 - d. Permanent or temporary horizontal bracing for unsupported walls.
7. Place backfill against below grade walls in uniform lifts to prevent wedging action. Placement of backfill until slabs on grade and framed floors lending lateral bracing is in place and until concrete has developed design compressive strength is prohibited.
8. Place porous fill layer in indicated thickness underneath slabs on grade.

C. Compaction:

1. Perform soil materials compaction for fills using mechanical soil compaction equipment for type and size materials to be compacted. Hand compact materials in areas inaccessible to machinery and within 5'-0" of below grade walls.
2. Percentage of maximum density requirements: Provide not less than percentages of maximum density required to obtain design bearing capacity.
3. Moisture control: Where subgrade or soil layer must be moisture conditioned before compaction, apply water to surface of subgrade or soil layer. Scarify and air dry soil material too wet to permit compaction to specified density.
4. Soil material removed because of excess wetness to permit compaction may be stockpiled or spread where directed by Architect and permitted to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to satisfactory value determined by moisture-density relation tests. When accepted by Soils Engineer, soil material may be used in compacted backfill or fill.

D. Grading:

1. Grade areas to lines and elevations indicated, including adjacent transition areas. Smooth finished surface within specified tolerances, compact and bring to uniform levels of slopes between points where elevations are indicated, or between such points and existing grades.
2. Provide finish surfaces free from irregular surface changes.
3. After grading, compact subgrade surfaces to depth and percentage of maximum density for each area classification.
4. Where compacted areas are disturbed by construction operations, scarify surface, reshape, and compact to required density.
5. Protection of graded areas: Protect newly graded surfaces from traffic and erosion. Keep free of debris. Where graded or compacted surfaces are damaged by subsequent operations, return to indicated grade and state of compaction.

E. Tolerances:

1. Surfaces under walks and pavements: Shape surface area under walks to line. Grade and cross-section with finish surface not more than 0.10' above or below required subgrade elevation.
2. Surface under building slabs and foundations: Grade level, free of voids, compacted as specified, within 0.05' of required elevation.
3. Grassed areas: Shape areas to receive topsoil within 0.05' above or below required subgrade elevation.
4. Grade areas adjacent to building lines to drain away from building to prevent ponding. Finish grades within 0.05' of indicated elevations.

3.03 FIELD QUALITY CONTROL

A. Testing:

1. Perform the following testing as requested by Owner:
 - a. Compaction tests: In accord with ASTM D698-78.
 - b. Field density tests for each 2'-0" lift in accord with ASTM D1556-82; one test for each 2000 SF fill.
 - c. Inspection and testing subgrades and proposed fill materials.
 - d. Examination of foundation excavations to determine if required soil bearing has been achieved.
 - e. Inspection of excavation bracing system, including providing and monitoring slope indicator devices and settlement gauges.
2. Contractor's duties relative to testing include:
 - a. Provide representative fill soil samples to Testing Agency for test purposes. Provide 50 lb. samples of each fill soil.
 - b. Advise Testing Agency sufficiently in advance of operations to allow for quality tests completion and personnel assignment.
3. Contractor shall be responsible for paying costs of additional testing beyond scope required and retesting if initial tests reveal non-conformance with specified requirements.

02900- LANDSCAPING

A. General:

SCOPE: The extent of work shall be as shown on Drawings and called for in these specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. Complete grading and spreading topsoil over areas shown on plans.
2. Provide planting of trees and shrubs as shown on plans.
3. Water, cultivate and protect planting until the final acceptance of the project.
4. Site cleanup at project completions.

152 Sheridan Street – Portland, Maine

5. Provide topsoil and seeding in any areas disturbed by grading operations apart from those areas designated for lawn.

DELIVERY, STORAGE AND HANDLING

Plant materials shall be properly labeled and certified free from insect infestation and disease. Plants shall be delivered in first class condition and in time for immediate planting. If this is not possible, plants shall be temporarily heeled in a shady location, and watered daily.

- B. Products:

MATERIALS FOR PLANTING:

Plants: Shall conform to standards of the American Association of Nurseryman Inc. Plants shall be of standard quality, true to name and type, and conform to the varieties specified in the plant list.

Mulch: For plant beds shall be a combination of two types: (1) bark mulch which is clean, shredded, free of weeds, seeds, insects and extraneous materials, and (2) bark nuggets, coarse pieces of Douglas Fir bark, or an approved equal.

- C. Execution:

PLANTING OF TREES, SHRUBS, AND GROUND COVERS:

Planting Method: All tree pits shall be of size and shape as shown in the Drawings. Shrub beds shall be continuous areas, excavated to the limits shown on the Drawings.

Ground cover areas shall be the same as topsoil areas for lawns (six inch depth).

Locations for all plantings shall be pre-approved by the Architect. Stake all individual tree locations and show perimeters for shrub beds and ground cover areas.

Topsoil mix for all planting shall consist of top soil (equal to topsoil in seeded areas), suitable subsoil (B Horizon) of similar soil texture to topsoil, and peat moss.

Topsoil mix for mound and backfill, up to within six inches (6") of finish grade of plant pit, shall be a mix of B-Horizon subsoil (70%) and peat moss (30%). Top six inches (6") shall be standard topsoil with 2 inches (2") composted manure well mixed in.

Guarantee Period: All plants shall be guaranteed by the Contractor for a period of not less than one year from time of acceptance. At the end of the guarantee period' any plant that is missing, dead, or not satisfactory in growth or general appearance shall be replaced at no cost to the Owner.

DIVISION 3 - CONCRETE

CONCRETE & FOUNDATION NOTES: See Structural Drawings

A. GENERAL:

All concrete shall be in compliance with ACI 301 "Specifications for Structural Concrete for Buildings."

Wherever in these Specifications compliance with ASTM standards is stipulated, the Contractor, upon request by the Architect, shall furnish a certificate of compliance from the manufacturer or supplier.

Concrete tests shall comply with ASTM standards.

SCOPE: The extent of work shall be as shown on Drawings. Performance shall meet the requirements of these Specifications or Drawings, whichever requires the higher standards. The work covered by this section of Specifications consists of the following:

1. Complete installation of plain and reinforced concrete work of the entire project shown, called for or otherwise indicated on plans.
2. Furnishing and installing all reinforcing steel, steel mesh, bars and ties.
3. Installing items to be built into concrete.
4. Installing items necessary to fasten and hold reinforcement in place.
5. Furnish and install vapor barrier below slabs
6. Seal exposed garage level concrete floor slab. Floors in units will not be sealed.

For protecting concrete from freezing, the following precautions shall be observed. The Concrete, when placed in the forms, shall have a temperature not less than 70 degrees F. nor more than 140 degrees F. Before placing concrete on any form or on any surface or around reinforcement, heat shall be applied in such a manner that snow and ice will be completely removed. No concrete shall be placed on a subgrade that is frozen or contains frozen materials. After being deposited in the forms, concrete shall be kept at a temperature of 50 degrees F. or more, for at least five (5) days. The use of salts, chemicals, or other materials to lower the freezing point of concrete is prohibited. The use of high early strength cement may reduce the time during which heat is required.

For grout, mortar or patching cement used in freezing weather, the sand, stone and water shall be heated as follows:

All sand shall be heated in such a manner as to remove all frost, ice, and excess moisture. The equipment and method used for heating sand shall be such as will prevent burning or scorching the sand.

B. PRODUCTS:

Forms for exposed concrete: Shall be of new plyform (or of equivalent quality) or shall be lined, to provide continuous, straight, smooth, exposed surfaces.

Steel reinforcement shall be deformed bars complying with the requirements of ASTM, A-615 grade 60, and of domestic manufacture. Mesh reinforcement shall conform to the requirements of ASTM, A-185. Fiber reinforcing shall conform to ASTM C-1116, Type III virgin polypropylene fibers.

Cement shall be Portland cement of domestic manufacture conforming to the requirements of ASTM, C-150, Type 1 or 11, ASTM C-94 for Ready Mixed concrete. Only one brand of cement shall be used throughout the project.

Coarse aggregate - clean crushed stone or natural gravel, conforming to ASTM specifications C-33, and not larger than three quarter inch (3/4") for slabs or one and one half inches (1-1/2") for walls and footings. Maximum size of coarse aggregate for reinforced concrete shall be three quarter of minimum spacing between reinforcement or between reinforcement and form.

Fine aggregate - washed natural sand with strong sharp particles, without clay content or foreign matter.

Water - clean, generally suitable for domestic consumption.

Vapor barrier shall be Super Sampson 4SSB by Raven Industries or equal under garage slab.

Metal accessories shall include all spacers, chairs, ties, anchor bolts and other devices for properly spacing, supporting and fastening reinforcement in place.

Perimeter insulation shall be material and size as shown on Drawings. See section 07200 Insulation and Vapor Barriers.

Exposed concrete floor slab sealer to be "Floorcoat" or approved equal, by Euco, in garage.

Use air entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits:

Concrete structures and slabs exposed to freezing and thawing or subjected to hydraulic pressure require air entraining air content to be within the following limits:

4% for maximum 2" aggregate



152 Sheridan Street – Portland, Maine

6% for maximum	3/4" aggregate	See Structural Drawings
7% for maximum	1/2" aggregate	
Other concrete:	2% to 4% air.	

Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions. Comply with ASTM C-260.

C. EXECUTION:

MIXING:

Proportion design mixes to provide concrete with the following properties:

1. Interior Slab on Grade:
 - a. Strength: 3500 psi @28 days, 3/4" aggr.
 - b. W/C Ratio: 0.50
 - c. Entrained Air: 3% ± 1%
 - d. Slump: 3" ±

2. Footings:
 - a. Strength: 3000 psi @28 days, 3/4" aggr.
 - b. W/C Ratio: 0.60
 - c. Entrained Air: 3% ± 1%
 - d. Slump: 4" ±

3. Exterior Slabs, and all other exposed Site Concrete:
 - a. Strength: 4000 psi @28 days, 3/4" aggr.
 - b. W/C Ratio: 0.45
 - c. Entrained Air: 6% ± 1%
 - d. Slump: 4" ±
 - e. DCI Corrosion Inhibitor by Grace: 3 1/2 gal/cy.
Add @ Batch Plant

4. Walls & Piers
 - a. 4,000 ¾ Aggregate
 - b. .50 W/C
 - c. 5% Air
 - d. Slump 4

Do not increase the water ratio in concrete for easier movement of concrete in the formwork. Use admixtures for cold weather pouring in compliance with Portland Cement Association standards.

Proportions of cement, fine and coarse aggregate, other permitted additives and mixing water shall be selected to produce concrete of the required placeability, durability,

workability and strength, and other required properties. ACI 301, Specifications for Structural Concrete or ACI 318, Building Code Requirements for Reinforced Concrete, shall be utilized to proportion ingredients for concrete.

Submit written reports to Architect/Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect/Engineer.

Materials for concrete shall be thoroughly mixed in accordance with ACI 301 to assure that a uniform distribution of all materials has been achieved.

Any concrete which has developed initial set or which is not poured within 1-1/2 hours after water has been added shall not be used. If air temperature is above 90 degrees F., reduce mixing and delivery time to 60 minutes.

D. TESTING:

Owner will employ a testing lab to inspect, sample and test the materials, the production of concrete, and to submit test reports.

Contractor shall give Architect and testing agency 48 hours notification prior to each placement.

Sampling and testing for quality control during placement of concrete includes the following:

Sampling Fresh Concrete: ASTM C 172

Slump: ASTM C 143; one test for each concrete load at point of discharge.

Compression Test Specimen: ASTM C 31; one set of 3 standard cylinders for each compressive strength test.

Compressive Strength Tests: ASTM C 39; one set for each 100 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; one specimen tested at 7 days, one specimen tested at 28 days, and one specimen retained in reserve for later testing if required.

Strength level will be considered satisfactory if averages of sets of three consecutive test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

Test results will be reported on same day that tests are made, in writing, to Architect, Owner, and Contractor. Reports shall contain project name, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in

structure, design compressive strength at 28 days, concrete mix proportions, and break strength and type of break for both 7 and 28 day tests.

E. FORMWORK, REINFORCING STEEL AND INSERTS:

Formwork shall be in accordance with ACI 347 - Recommended Practice for Concrete Formwork. Forms shall be oiled with non-staining oil and shall be erected to achieve finished concrete built true to elevations, lines and dimensions shown on Drawings. Walls shall be straight and plumb and corners shall be 90 degrees square.

Reinforcement shall comply exactly with the design. Remove scale, rust and other materials which reduce bonding with concrete before placing reinforcing steel. Place and secure accurately. Use metal spacers to hold steel in place. Wire stirrups to the bars at top and bottom. Tie crossing bars together. Lap steel 30 diameters at splices. Stagger splices.

Placement of sleeves, collars, knockouts, conduit, nailers, blocks, anchor bolts and other inserts shall be done according to Drawings and as necessary for electrical, plumbing and mechanical requirements.

Contractor is responsible for coordinating locations of such elements with appropriate trades and other subcontractors.

Notify Architect for inspection purposes of time of proposed completion of Formwork, Reinforcing and Inserts 24 hours before pouring concrete.

F. PLACING CONCRETE:

In Walls:

Upon undisturbed or compacted (95%) base, place concrete continuously in layers not over 12 inches (12") deep, and thoroughly compact by means of vibrators, hand tamping and spading during the operation of placing, thoroughly work the concrete around reinforcement, embedded fixtures, pipes, conduits and into the corners of the forms so as to prevent interior voids, honeycomb, and the patching of concrete surfaces after forms are removed. Internal vibrators should be used to aid in the compaction of the concrete. Extreme care shall be used on thin sections and exposed concrete.

When pouring is once started, it shall be carried on as a continuous operation until the placing of the panel, section or individual foundation is completed. The top surface shall be level.

No concrete shall be placed at freezing temperatures except in compliance with procedures outlined in "Cold Weather Concrete Placement", ACI 306-78.

G. FLOOR SLABS:

Floor Slabs on Fill: Slabs shall be of thickness indicated, poured on moisture barrier and gravel fill specified. Reinforce the slab with wire reinforcing mesh. Concrete shall be full thickness of slab and troweled out as specified below. Slabs in the area where floor drains occur shall be pitched to drains with a uniform gradual pitch in all directions. Lap reinforcing mesh a minimum of one section of the mesh.

Generally slab thickness shall be four inches (4"). Greater thickness according to Drawings shall be provided to depths shown. Slabs shall be thickened under all bearing partitions and under non-bearing masonry walls.

Slabs shall be constructed in accordance with ACI-302, "Recommended Practice for Concrete Floor and Slab Construction."

Before Pouring Floor Slab: Install perimeter insulation as shown on Drawings. Wall insulation shall be held in place to concrete with cold setting cement and all insulation joints shall be tight.

Super Sampson 4SSB by Raven Industries or equal vapor barrier shall be laid over two inches (2") maximum layer of leveling sand in ten foot (10'-0") wide strips. Lap one foot (1'-0") minimum where lapping is necessary. Care shall be taken not to puncture vapor barrier; also tape vapor barriers to collars and other slab penetrations to insure complete seal. Allow adequate extension of vapor barrier at perimeter walls to overlap sill plate as shown on Drawings.

Install control joints as shown on Drawings according to manufacturer's recommendations.

FINISHING FLOOR SLAB:

Accurately screed slab, to a uniform level surface; thoroughly compact with a mechanical or wood float and then steel trowel to a true, hard, dense, smooth surface. Steel troweling should not be started until the pressure of a finger ceases to make an indentation. Finish concrete floor surfaces shall be true within a tolerance of one quarter (1/4") in ten feet (10'-0"); cut down high spots and fill low spots. Slab finishing shall be in accordance with ACI-301.

Apply Euco floor coat slab sealer to garage slab and all exterior concrete slabs or pads as soon as possible after concrete finishing - immediately after the disappearance of "Sheen" of surface moisture. Apply with roller, low pressure sprayer or lambs wool applicator according to manufacturer's recommendations. Do not apply sealer to interior unit slabs. Finish of upper level slabs to be coordinated with individual Owners.

H. FORM REMOVAL:

Forms shall not be removed until sufficient strength has been obtained to support the member's weight and any superimposed loads, and minimum of twenty four hours (24) after pouring, longer if colder than 50 degrees F. Removal of forms and shores shall be in strict accordance with the specified provisions of ACI 318 covering this subject.

Upon form removal, concrete shall be cleaned of any oil residue and all tie holes, honeycomb and other voids shall be patched with 1:2 mortar and damp cured. Concrete shall be clean in preparation for dampproofing application.

"Fins" and other protrusions shall be cleaned and finished on all areas of exposed concrete.

Concrete surfaces to be exposed shall be smooth and free of voids or other defects and protrusions. Architect shall approve all concrete which will remain exposed.

I. CURING:

Keep exposed surfaces of concrete moist for a period of at least five (5) days after forms are removed. In hot weather, thoroughly wet exposed concrete at least twice daily during the first week. All concrete shall be cured in accordance with ACI 301.

Related Work: 07200 Insulation

DIVISION 5- STRUCTURAL STEEL

PART 1 GENERAL

1.01 DESCRIPTION OF WORK:

- A. Structural steel work includes, but is not limited to new steel columns, cap plates, base plates, beams, bearing plates anchor rods and leveling plates. It includes schedules, notes and details to show size and location of members, typical connections, and type of steel required. It is that work defined in AISC "Code of Standard Practice".

1.02 REFERENCE SPECIFICATIONS:

- A. AISC "Code of Standard Practice for Steel Buildings and Bridges.
- B. AISC "Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design", including "Commentary" and Supplements thereto as issued.
- C. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts".
- D. AWS D1.1 "Structural Welding Code" - Steel.

1.03 SUBMITTALS

- A. Product Data: Submit producer's or manufacturer's specifications and installation instructions for structural steel including mill reports and high-strength bolts.
- B. Shop Drawings: Submit shop drawings, including complete details and schedules for fabrication and assembly of structural steel members, procedures and diagrams.
- C. Connection Design: Submit design calculations prepared and stamped by a Professional Engineer registered in the State of Maine for all connections not shown on the drawings and/or tabulated in the AISC "Manual of Steel Construction" (ASD or LRFD).

PART 2 PRODUCTS

2.01 MATERIALS:

- A. Structural Steel Wide Flange Shapes: ASTM A992, Grade 50
- B. Other Structural Steel Shapes, Plates and Bars: ASTM A36
- C. HSS shapes (square, rectangular and round): ASTM A500, Grade B, $F_y = 46$ ksi
- D. Steel Pipe: ASTM A53, Grade B
- E. Anchor Rods: ASTM F1554, Grade 36 headed unless otherwise indicated.
- F. Unfinished Threaded Fasteners: ASTM A 307, Grade A
- G. Structural Steel Primer Paint: Fabricator's standard zinc rich, rust inhibitive primer. Coat all exposed exterior steel with 2 part epoxy primer and paint system. Prep steel surfaces as needed.
- H. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
 - 1. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A325
 - 2. Direct-tension-indicator bolts conforming to ASTM F1852 or direct-tension-indicating washers conforming to ASTM F959 may be used at Contractor's option.

- I. Electrodes for Welding: E70XX and comply with AWS Codes.

PART 3 EXECUTION

3.01 ERECTION:

- A. General: Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
- B. Surveys: Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds.
- C. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads.
- E. Setting Plates and Base Plates: Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations.
- H. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress.
- I. Paint Damage: Touch up shop applied paint whenever damaged or bare..

3.02 QUALITY CONTROL:

- A. Testing: Owner shall engage an independent testing agency to inspect all high-strength bolted and welded connections, to perform tests and prepare reports of their findings.

DIVISION 6 - WOOD AND PLASTICS

06100 - ROUGH CARPENTRY

A. GENERAL

SCOPE: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. All rough carpentry work as required by Drawings and as specified under this section to include: framing, sheathing, siding and exterior trim, vents, access panels, meter enclosures, certain site improvements and temporary structures, caulking framing for air sealing and other misc. items specified elsewhere and shown on Drawings. Install safety rails to meet OSHA and contractors standards.

2. Installation of metal and other items furnished by other trades, if specifically noted in these specifications and cutting/patching for other trades as necessary for proper execution of their work. Provide blocking for all kitchens and bathrooms.
3. A representative with authority, chosen by the Contractor and approved by the Architect and Owner, shall give general supervision and superintendence.

B. PRODUCTS:

All lumber shall be as shown on Drawings or called for in this section. Lumber shall be live stock, thoroughly seasoned, and well manufactured. Materials shall be free from warp that cannot be corrected by bridging or nailing.

Framing Lumber: SPF, NELMA #2 grade or better. Lumber shall be stamped SPF dry with moisture content not to exceed 19%, dressed four sides sound and free from significant warps, checks, splits, and knots. Dressed sizes shall comply with American Lumber Standards and sizes shown on Drawings are nominal unless shown as actual by inch ("") notations.

Pressure Treated Lumber used for sills, all deck framing, and in other contact with concrete, water, or earth shall meet AWPA C-2 for acceptable water-borne preservative process (no creosote or Pentachlorophenol).

Sheathing: All sheathing shall bear A.P.A. stamp. See drawings for specifications.

Wall Sheathing: APA Rated plywood sheathing 24/0, span rating of 24 o.c. 19/32" minimum thickness installed according to manufacturer's recommendations and in accordance with ANSI A 208.1 (U.B.C. Standard #25-25. See drawings for sizes.

Floor Sheathing: See Drawings.

Roof Sheathing: See Drawings.

Exterior Trim: See Drawings.

Trim Flashing: Copper "Z" flashing 24 gauge with 1/4" lower lip.

Nails: As noted in these Specifications and on Drawings.

Screws, Bolts and Other Fasteners: as shown on Drawings and of length adequate to support loads where shown; where not shown, consult Architect.

Decks: Deck to be composite bd. Equal to "Cross Timbers" Professional Grade by GAF.

Sill Sealer: All sills set in Latex Caulk.

C. EXECUTION:

General: The Contractor shall carefully lay out and erect all structural members of rough carpentry, framing, sheathing, blocking, bridging and other items of work as necessary to install the finished work as shown on Drawings and as noted in Specifications. All members shall be properly braced, plumbed and leveled. A sufficient number of nails, as shown on Drawings and nailing schedule, screws and bolts shall be used to insure the rigidity of the construction.

Framing: All framing shall be installed closely fitted, accurately set in place to the required lines and levels, and shall be of the dimensions shown on Drawings. Do not impair structural members by improper cutting or drilling, that is, no more than 25% of center cross section removed from any framing member. Columns shall be continuous without splices from base to girder and shall be joined by nailing alternate sides with 2-16d nails 12" o.c.

All top plates shall have stud supports at butt joints (bottom plate if double top). Double top plate joints staggered with minimum 4'-0" between.

Framing Over Girders and Bearing Partitions: Joists may be butted together over the center bearing, only with prior approval of Architect and provided joists are tied together. Normally joists shall be lapped and nailed together. Minimum lap, 5 inches; maximum overhang, 12 inches. Joists shall be doubled under all parallel bath partitions. Install sill sealer below pressure treated sill plate. Exterior studding to be 24" o.c. with double 2x6's. Interior walls to be 16" o.c. for 2x4's.

Blocking: (2x6, 2x8 or wider) shall be provided as necessary for the application of subflooring, plumbing and fixtures, toilet accessories, shelving & millwork and kitchen cabinets located on Drawings, drapery track and other wall mounted accessories, electrical and communications equipment: and to provide firestopping. Provide either blocking for or center stud in closet backwalls for closet rod/shelf bracket. Provide blocking at interior base of exterior walls to receive wood baseboard.

Wall Sheathing: May be applied horizontally. Blocking required at horizontal joint leave 1/8" - 1/4" space at panel side joints and end joints, unless otherwise recommended by manufacturer. Nail 5/8" sheathing with 8d common nails at 4" o.c. at edges, 12" o.c. at intermediate supports.

Installation of oriented strand board must meet manufacturer's recommendations for cut edge treatment, protection and all other aspects of this product.

Roof Sheathing: Shall be installed continuous over two or more spans with long dimension across supports. End joints shall be over supports and staggered in adjacent courses. Leave 1/4" space at panel edge joints and 1/8" space at panel end joints; unless otherwise

recommended by manufacturer. Nail: 6d common at 6" o.c. at panel edges, 12" o.c. at intermediate supports or staple: 1-1/2" 16 GA galvanized wire staples with 3/8" min. crown at 4" o.c. at panel edges and 8" o.c. at intermediate supports. H" clips required at joints perpendicular to framing midway between every support.

Floor Sheathing: Shall be installed continuous over two or more spans with long dimension across support. Sheathing to be glue-nailed using only adhesives conforming to APA specification AFG-01 applied in accordance with manufacturers recommendations.

If OSB Panels with sealed surfaces and edges are used, use only solvent-based glues; check with panel manufacturer. Apply continuous glue bead to joists and to groove of T&G panel. Avoid squeeze out. Fully nail plywood subfloor at time of gluing and nail with 8d at 12" o.c. at intermediate supports and 6" o.c. at edges. Stagger end joints in adjacent courses and leave 1/8" space at side and end joints. Joints are to be flush, nail heads shall not protrude, floors shall not squeak, and surface shall be acceptable for gypsum flooring.

Wood Shingles Siding: Shall be clear eastern white cedar by Maibec, 5" exposure. See attached installation guide.

Door Frames: Shall be securely anchored to the supporting construction. Install solid wood blocking at all hinges and door latch locations. Framing shall be so door can be hung true and plumb (See Section 08200 Doors). Window framing shall be as shown on Drawings, true and plumb.

06200 - FINISH CARPENTRY

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet the requirements of these Specifications. The work covered by this section of Specifications consists of the following:

1. All finished carpentry work and millwork as required by Drawings and as specified under this section.
2. Installation of metal and other items furnished by other trades, if specifically noted in these Specifications.

2. PRODUCTS:

2.1 BOARD LUMBER shall comply with the American Lumber Standards Simplified Practice Recommendation No. 16. Grade of board lumber shall be suitable for its intended use. Finish lumber is to be painted and shall be dressed free of tool marks and other objectionable defects. All exposed lumber to be architectural quality grade: Custom.

2.2 INTERIOR TRIM:

In corridors and stair - 6" Birch Base 2" Birch trim at windows and doors.

2.3 STAIR RISERS AND TREADS: 3/4" APA plywood in common area or hard pine board in townhouses.

2.4 STAIR RAILINGS: Brosco, #75 Fir (1-1/2" x 1-3/4" round).

2.5 WALL BASE AND STAIR SKIRTBOARDS: 6" Birch.

2.6 STAIR HANDRAIL BRACKETS: Stanley SP7081, Brush Chrome finish. Secure with #8 or #10 Brass screws of adequate length for wall condition, minimum 1-1/4" into blocking.

2.7 NAILS: 6d for 1/2" finish stock and 4d finish for thinner wood. Use 8d generally for nailing 3/4" wood trim to framing.

2.8 SCREWS, BOLTS & OTHER FASTENERS: With penetration into framing or blocking adequate to support loads shown.

3. EXECUTION:

3.1 ALL ITEMS OF MILLWORK shall be carefully erected, leveled and plumbed with tight-fitting joints and square corners, carefully cut and secured. Exposed nails shall be set adequately for putty. Moulds and faces shall be free from hammer or other tool marks, clean-cut and true pattern. All work shall be thoroughly cleaned and sanded to receive the finish. Sharp corners of small members of finished woodwork shall be slightly rounded. All trim baseboards, etc. fastened to walls shall be secured to wall framing members and nails set. Care shall be taken to avoid splitting ends of trim boards.

3.2 INTERIOR TRIM: Install trim with finishing nails and glue where required to assure permanent, tight joints, according to Drawing details.

3.3 STAIRS: Handrails supported every 4'-0" o.c. minimum secured into solid blocking (1-1/4" minimum screw depth for handrails). Risers and treads to be glued and screwed together.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07100 - VAPOR BARRIERS

1. See Drawings.

07200 - INSULATION

1. Walls: 5-1/2" NuWool, See typical exterior wall section. Interior walls as shown on plans
2. Roof: see drawings.
- 3 Under Concrete floor slab 2" extruded polystyrene board, high density.
4. Buried insulation as shown on foundation drawings to be expanded polystyrene high density, 2" thick.
5. On exterior walls above grade see typical wall section.
6. Sill Sealer: Latex caulk all sills. Windows and doors frames provide expanding foam insulation at all voids. Allow min. 1/2" at jambs and head to ensure continuous.

07500 - PVC MEMBRANE ROOFING

PART 1 GENERAL

1.01 QUALITY ASSURANCE

- A. Roofing contractor to be approved in writing by the membrane manufacturer. Contractor shall be able to substantiate that he has been trained by the membrane manufacturer.
- B. Roofing and flashing workmanship to comply with industry standards. The National Roofing Contractors Association's (NRCA) ROOFING AND WATERPROOFING MANUAL along with ARCHITECTURAL SHEET METAL MANUAL as published by Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) will be used to establish industry standards.

1.02 SUBMITTALS

- A. Sample ten (10) year watertight warranty for the PVC membrane. Warranty shall include wind speeds up to 72 miles per hour. The standard 55 MPH is not acceptable for this job.
- B. Manufacturer's details of the proposed fascia system.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in their original, unopened containers, clearly labeled with manufacturer's name. All material to be stored in waterproof trailers or sheds, up on raised platforms and under lock and key until use. Do not use materials damaged in handling or storage. Replace damaged material with new material. Store adhesives between 60 and 80 degrees F. Should they be exposed to lower temperatures, restore to

152 Sheridan Street – Portland, Maine

room temperature for three to five days prior to use.

1.04 WARRANTY

- A. A ten (10) year watertight warranty shall be issued by the PVC membrane manufacturer. Warranty shall include wind speed up to 72 MPH.
- B. The roofing contractor shall furnish the Owner with his personal two (2) year watertight warranty.

PART 2 PRODUCTS

2.01 ROOF INSULATION

- A. Roof insulation to be polyisocyanurate closed-cell foam core with manufacturer's standard facing laminated to both sides, complying with FS HH-I-1972/2, Class 1. Roof insulation to be ISO 95+ by Firestone, H-Shield by Hunter Panels or approved equal. Minimum R49
- B. Over all foam insulation, high density fiberboard roof insulation, meeting ASTM C 208, Type II Grade 2, cellulosic-fiber insulation board.

2.02 MEMBRANE ROOF SYSTEM

- A. Membrane roofing to be fully adhered white 0.060" PVC sheet roofing equal to Sarnafil Energy Smart G410-15. Roof membrane to be fully adhered to the 1/2" high density fiberboard roof insulation.
- B. Use the roof membrane for flashing of curbs and walls per the manufacturer's standard details.
- C. Adhesives, sealants, thinner, cleaner and accessories to be furnished by the membrane manufacturer.

2.03 METAL FLASHING

- A. Fascia system to be Metal-Era System 200, FA-65 or approved shop-formed two piece fascia system. Water dam to be 24 gauge galvanized steel. Fascia to be .050" Kynar 500 finished aluminum. Fascia extensions and soffit trim to be 0.050" Kynar 500 finished aluminum. Color to be white.

PART 3 EXECUTION

3.01 PREPARATION OF SURFACES

152 Sheridan Street – Portland, Maine

- A. Surfaces on which the roofing system is to be applied shall be clean, smooth, dry, free of fins, rot, sharp edges, loose and foreign materials, oil and grease.

3.02 ROOF INSULATION

- A. Insulation shall be tightly butted with joints not more than 1/8" in width. Stagger joints with those in layer below. Fiberboard to be installed with a 1/16"-1/8" gap at all joints when board size is greater than 2' x 4'.
- B. Fasten insulation to the roof deck with the appropriate screws and plates. Fastener quantity and layout must meet the requirements of the PVC manufacturer to obtain their 72 MPH wind speed warranty.
- C. Stagger joints in one direction for each course. For multiple layers, stagger joints in both directions between courses, leaving no gaps and allowing a complete thermal envelope to be formed.
- D. Provide tapered units to suit drainage pattern indicated.
- E. Do not install more insulation in a day than can be covered with membrane before end of day or before start of inclement weather.

3.03 ROOF MEMBRANE

- A. Adhere the 0.060" PVC membrane to the 1/2" high density fiberboard in strict accordance with the manufacturer's specifications.

3.04 FLASHING - WALLS, PARAPETS, CURBS AND VENTS

- A. Use the longest pieces of material which are practical. All flashing and terminations shall be done in accordance with the applicable manufacturer's details.

3.05 SOFFITS AND FASCIA

- A. Install fascia system in strict accordance with the manufacturer's printed instructions, except that the fascia shall be crimped to the cant dam at intervals not to exceed 24" on center. Fascia and soffit trim to be secured using screws through oversized pre-punched holes at 20" on center.

PART 4 JOB CONDITIONS

- A. Roofing to be applied in dry weather.
- B. Completed roof areas shall not be trafficked. The work shall be coordinated to prevent this situation by working toward the roof edges.

152 Sheridan Street – Portland, Maine

- C. This project is subject to compliance with all requirements of the Occupational Safety and Health Administration (OSHA). All work on this project must meet the requirements of all applicable state and local codes, laws and ordinances.

07900 - JOINT SEALERS AND AIR SEALING

1. GENERAL:

- 1.1 DESCRIPTION OF WORK: The extent of work shall be as shown on Drawings and called for in these Specifications. Performance shall meet requirements of these Specifications.

2. PRODUCTS:

2.1 CAULKING MATERIAL

- A. One part polyurethane on exterior walls for caulking joints at all junctions as necessary to obtain complete watertight construction.

3. EXECUTION:

- 3.1 ALL POTENTIAL INFILTRATION cracks & joints to be caulked. Caulking shall be done only by workmen who are thoroughly experienced in this work. Exterior caulking shall be applied around windows, doors, vents, utilities, and any other infiltration "crack".
- 3.2 INTERIOR CAULKING shall be applied to seal all penetrations through top plates of interior walls, (due to electrical or plumbing), and at tubs, showers, counter tops, bottom of party walls GWB, and other as shown on Drawings.
- 3.3 IN GENERAL see Drawings for any additional applications. Joints and spaces to be caulked shall be dry and free from dust. Finished caulking "bead" shall be neat and smooth, free of gaps and sags and run continuously. Complete all caulking work and allow to stand for the manufacturer's recommended time period before painting. Prime if required before finish coat of paint is applied.

DIVISION 8 - DOORS AND WINDOWS

08000 - DOORS

- 1. All doors and frames shall be of the material, type and finish as called for on the Drawings or in these specifications. All dimensions shall be as shown by Door Schedule

on Drawings. Door identified by manufacture's name and type of brand name may be substituted for other so equal quality only with the approval of the Architect. Doors delivered for installation shall be carefully stored to prevent damage or warping.

2. All interior unit swing doors and sliding shall be 1-3/8' Atherton #550 moulded smooth panel doors by Door Craft Inc. and distributed by Brosco or equal. Units shall be prehung and primed. Verify finish and coordination with painting specification.
3. Apartment Entry Door: Birch door and frame, 20 minute rating.

08610 - WINDOWS

1. Install windows as shown on Drawings.
2. Equal to Eagle aluminum clad with fir interior.

08360 - SECTIONAL DOORS

Garage door to be equal to custom door by Overhead Door Corp. Glazing tempered glass. See drawings for style.

DIVISION 9 - FINISHES

09250 - GYPSUM DRYWALL

1. 5/8" thick gypsum board installed per U.S.G. Handbook, taped and finished.
2. Cement backer board at all shower units in apartments 3rd floors, floor to ceiling. 2nd and 3rd floor 6' off finish floor.
3. Third floor gypsum board to reinforce plaster veneer, hand finish. Samples to be completed for Owners approval 4'x4'.

09600 - FLOOR COVERINGS

See Drawings

09900 - PAINTING

Exterior:

1. Doors: one coat primer; two coats finish, Medium Gloss finish.
2. Exterior Trim: Two (2) coats at exposed surfaces after installation on all trim and cornice. Seal all ends. Paint to be Sherwin Williams Duration Paint, acrylic latex.

152 Sheridan Street – Portland, Maine

Note: Shingle siding comes prefinished. Contractor to field touch up any sanded or cut exposed wood edges.

Interior

1. Wood Trim and Doors: Bin all knots. One coat primer; two coats finish - Semi Gloss Finish.
2. Apartment entry doors and birch trim in corridors to receive three (3) coats polyurethane.
3. Gypsum Board: One coat primer; two coats finish - Eggshell Finish.
4. Ceilings: One coat primer; one coat finish - Flat Finish Ceiling White.
5. Wood floors, see drawings. Hardwood floor to receive three (3) coats of polyurethane.

DIVISION 10 - SPECIALITIES

10550 - POSTAL SPECIALITIES - MAILBOXES

As manufactured by Auth-Florence 1400 Series provide for 4 boxes.

DIVISION 14 – CONVEYING SYSTEMS

Elevator – Two (2) stop residential elevator to 3rd floor only. To be by Matot Residential Elevator, "In Line Style A" winding drum. Install per manufactures requirements.

15710 – SPRINKLER

Design and install complete sprinkler system to meet NFPA 13R with dry system in garage. Provide testing, Fire Marshal approval and meet specification requirements of 1.5, Project Closeout, see above.

Appendix A

Maibec Siding Installation Guide

Installation Guide

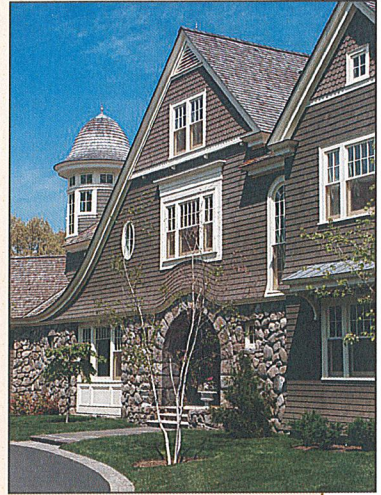
Before you begin, take the time to read this entire guide to clearly understand the requirements and steps to follow for proper installation.

Warning

The specifications in this guide apply to the installation of factory-stained white cedar shingles to exterior wall surfaces only.

Do not install defective material. **maibec** will only replace defective material if notified prior to installation. For more details, contact us.

Before you begin, consult your local building code for the installation requirements for shingle siding, breather membrane (housewrap), caulking, etc. Follow manufacturer's instructions for the breather membrane and caulking.



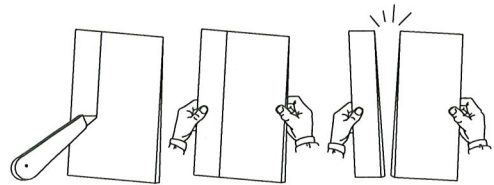
Failure to follow maibec's installation requirements will void the warranties.

Storage

- Store the shingle siding in a dry and ventilated area.
- Always cover the uninstalled material after a day's work.
- Leave shingles boxes on pallet. Do not store the material in direct contact with the ground or a cement floor.

1 Cutting Shingles

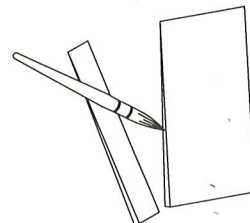
Since cedar is a soft wood, shingles can be easily cut with a utility knife. Cutting a shingle lengthwise is simple: make a straight cut into its surface, then snap the shingle cleanly along the scored line.



2 Touch Up

Apply touch up on all cuts, planed edges, and small damaged areas.

All bare wood must be touched up, regardless of whether it is visible or not once installed. Touch up on cuts must be performed prior to shingle installation. Use a small brush that will ensure better control and a more precise application.



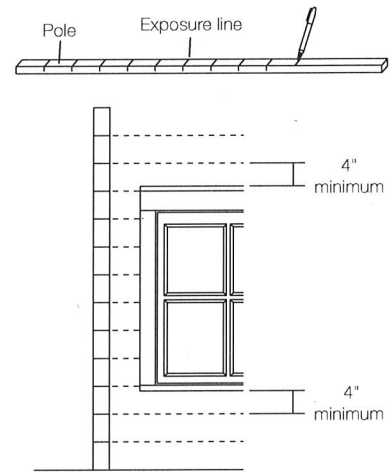
3 Determining Exposure

The exposure is the part of the shingle that you see. The exposure varies depending on the height of the wall and the window positions. **The recommended exposure is 5" (127 mm)*.**

To determine the number of courses needed and the exposure, measure the height of the wall from its lowest point (above the foundations). The butt edge of the first course of shingles must extend at least 1" (25 mm) beyond the foundation, so add 1" (25 mm) to the height of the wall. To determine the number of courses, divide the height of the wall by the exposure (example: 5"). Then calculate back by dividing the height of the wall by the number of courses previously obtained (rounded off) to determine the exact exposure.

Use a wooden pole that is long enough to measure the exposure over several courses. A straight furring strip should do the job. Once marked, place the pole against the wall to check the alignment of the courses with the windows. If possible, the shingle courses should be aligned with window tops and bottoms, or the exposure should be at least 4" (102 mm) in these areas. The last course at the top of the wall should also have at least 4" (102 mm) of exposure. If not, recalculate to get enough exposure, then mark the pole once again. Using the pole, mark the exposure lines on the wall. Keep the pole as a reference while installing the shingles.

* For maximum exposure, please contact us.



4 Fasteners

Rust-resistant fasteners only

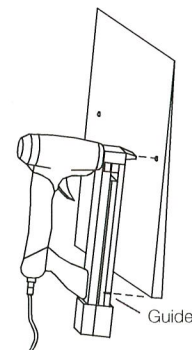
- ring shank blunt tip nail with minimum 7/32" (5.6 mm) head or
- staple with minimum 7/16" (11.2 mm) crown, minimum 16 gauge.

Two fasteners per shingle, regardless of its width.

Located 3/4" (19 mm) from each edge and 1" (25 mm) above the butt line of the overlapping shingle.

Must penetrate solid nailable substrate minimum 1/2" (13 mm).

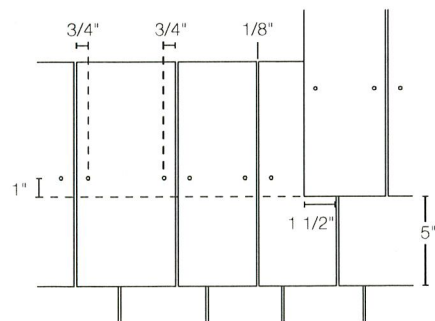
Mark off on the nail gun handle a reference point as to ensure proper nail placement.



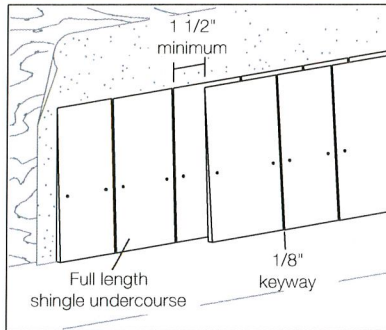
5 Exposure and Keyway Spacing

For walls, the recommended exposure is 5" (127 mm).

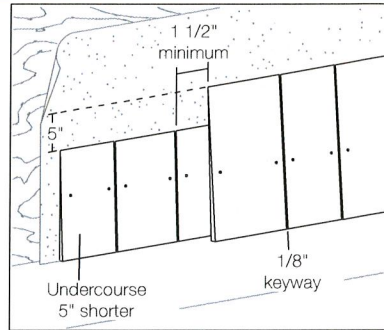
Leave a keyway space of at least 1/8" (3 mm) between shingles. The edges should not touch. The keyway spacings on consecutive rows must be offset a minimum 1 1/2" (38 mm).



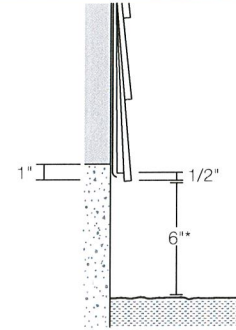
6 The Starter Course



The starter course has two layers of shingles. The easiest method consists of installing 2 courses of full-length shingles one on top of the other, making sure that joints aren't aligned over subsequent courses.



Another method consists of installing the first course using shingles trimmed 5" (127 mm) from the base, then continuing the second course with full-length shingles, making sure that joints aren't aligned over subsequent courses. With this method, all the courses will have the same thickness on the wall.



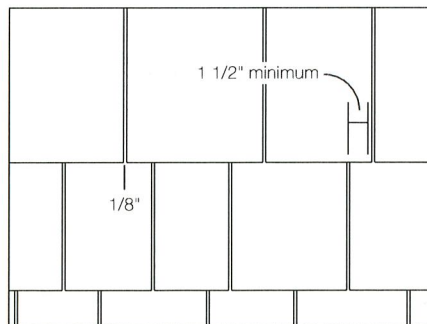
The starter course must extend at least 1" (25 mm) beyond the foundation to keep water off the wall. The second course extends slightly below (1/2" or 13 mm) the starter course to allow water to drip at the base of the shingles by gravity.

The butt line of the starter course must have a minimum clearance of 6"* (203 mm) with the ground surrounding the building.

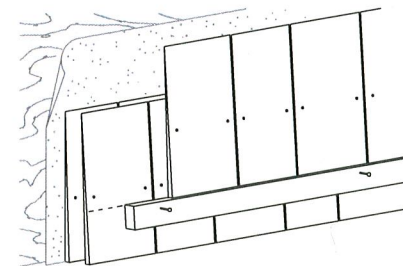
Allow a minimum clearance of:

- 1" (25 mm) from adjacent horizontal structures (example: deck),
- 2" (51 mm) from roof shingles.

Subsequent Courses



Shingles come in random widths, so you must make sure that the joints are not aligned over subsequent courses. Leave a keyway spacing of at least 1 1/2" (38 mm) from the shingles in the previous course. Ideally, no joints should be aligned over three subsequent courses. No joint should occur over a knot.



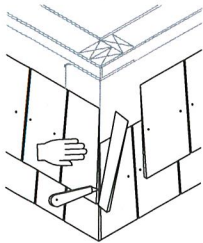
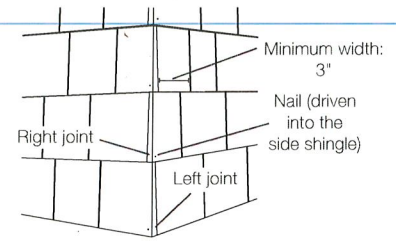
Install subsequent courses in a single layer on the rest of the wall according to the determined exposure. Keep your courses straight and level. To make shingle alignment easier, tack a furring strip beneath the exposure line or make a chalk line.

* Or according to building code.

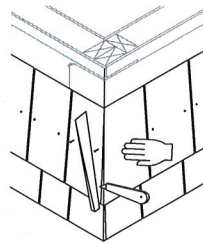
8 Corners Finish Details

The « Boston » Corner (Woven Corner) 4165

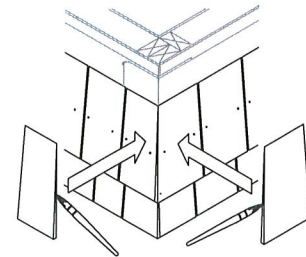
The most common and traditional outside corner trim is made by overlapping shingles so that the joints alternate successively on each side of the corner. Nail the lower corner of the shingle with a ring shank blunt tip nail (Pre-drilling of the shingles may be required).



1. Choose a corner shingle that is wide enough to extend beyond the wall. Trim excess cleanly with a utility knife. You can trim it in place using the corner of the wall as a guideline, but for greater precision, you can mark a pencil line on the back of the shingle and cut it flat.



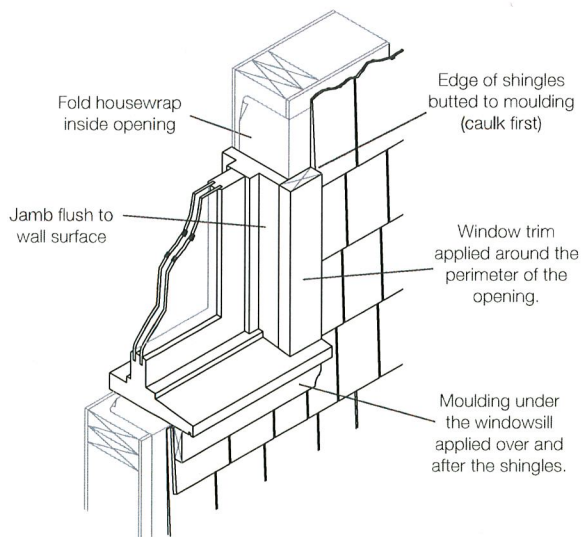
2. Tack the shingle in place while you install a second shingle that also extends beyond the wall on the other side. Trim the shingle, using the first shingle as a guideline. For a smooth finish, use a plane.



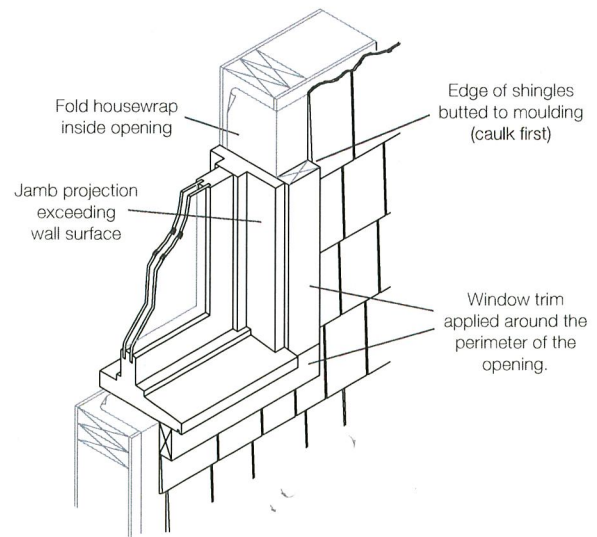
3. Apply touch up stain to the cut edges, then nail the shingles in place according to the nailing recommendations.

9 Window Finish Details

Wood Cased Moulding

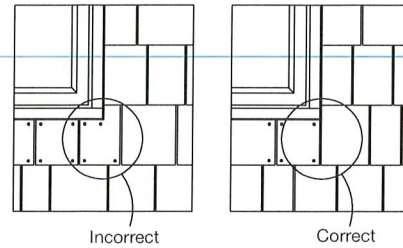


Perimeter Wood Moulding



Window Finish Details (Continued)

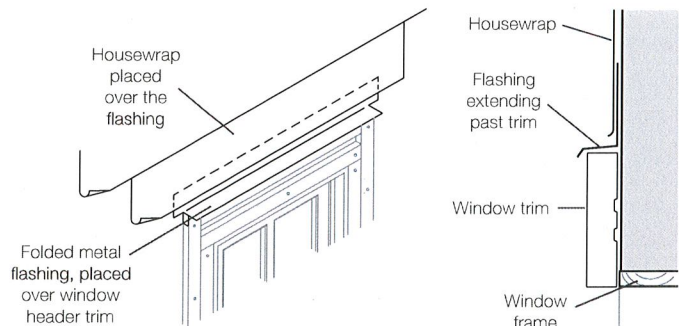
When a shingle is installed against the lower corner of the window opening, the joint must be aligned with the edge of the opening. For greater stability of shingles below openings, apply glue to the back and nail the bottom corners. Pre-drilling of the shingles may be required.



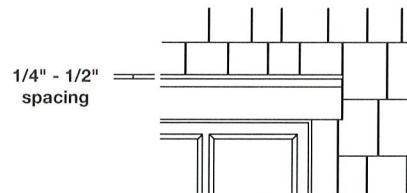
The Window Header

The window header is a crucial element where water could accumulate and seep behind shingles, which could affect the structural integrity of the window frame.

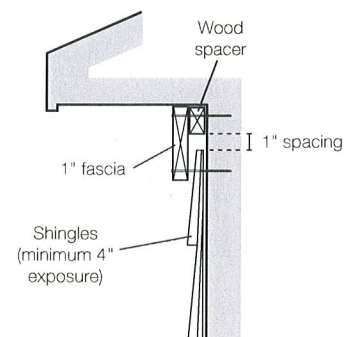
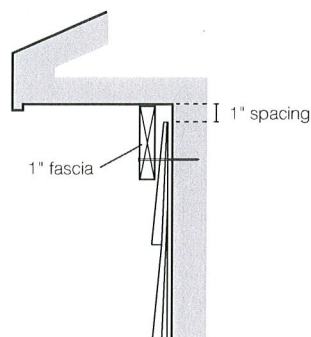
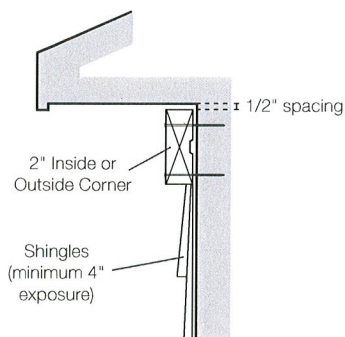
Metal flashing is essential to keep moisture away from the window header. The flashing should extend beyond the trim that will be installed.



Shingles installed above window and door headers must be spaced 1/4" (6 mm) to 1/2" (13 mm) to ensure proper drainage and airflow.



10 Top of The Wall Finish Details

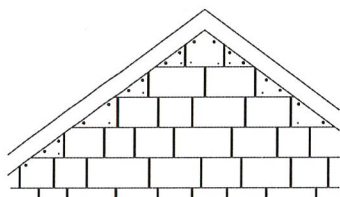


The typical way to finish the top of a wall is to install a moulding and have the shingles butt directly to it. This is traditionally done when the shingle course is wide enough, a minimum 4" (102 mm) long shingle is the norm for this type of application. To facilitate airflow at the top of the wall, it is important to leave a 1/2" (13 mm) gap between the moulding and the soffit.

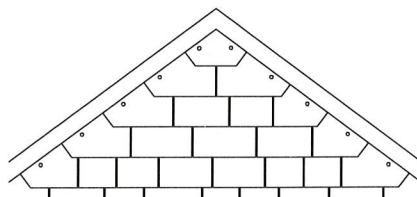
Another way of finishing the top of a wall is to place a 1" fascia board over the installed shingles. This is typically called « capping ». A wood spacer is sometimes needed behind the fascia trim for a proper flush setting, as is the case with gables. To facilitate air flow behind the moulding in this application, it is important to leave a 1" (25 mm) gap between the last shingle and the wood spacer.

11 Gables

Finishing under sloping soffits such as gables calls for special attention because the remaining triangular shingles have visible nails. These shingles are often narrower and more fragile. You must glue the back, cover with a trim and sometimes nail the lower corner for greater stability and to keep them from curling. There are several ways this can be done.



1. Cut the shingles at the end of the course on the same angle as the gable.
This way the end shingles need fewer nails.

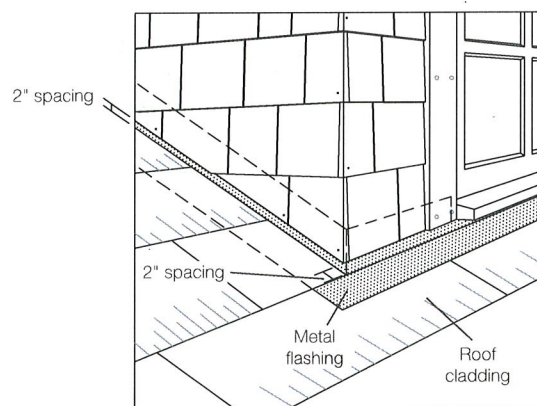


OR
2. Leave the section open at the end of the course.

12 Dormer/Roof Junction Finish Details

The shingle must be spaced at least 2" (51 mm) when it ends adjacent to the roof surface.

The spacing is necessary to properly drain water and prevent the build-up of ice against the shingles siding.



Maintenance

- As with all sidings, dirt build-up can occur; this could be due to a number of factors such as surrounding vegetation, dust or air pollution.
- Periodic cleaning can be required. Wash down with a hose or a mild detergent to avoid damaging the stain. Do not use a pressure washer. Contact us for more details.



660, rue Lenoir
Québec (Québec)
G1X 3W3 CANADA

☎ 418 659-3323
1 800 363-1930
1 866 659-4354

Technical Specifications

Species: Eastern White Cedar – *Thuja occidentalis*

Resquared and Rebutted. Natural (kiln dried) or Factory-Stained.

Dimensions

- Butt Thickness: 3/8" (9,5 mm)
 - Width: 3 1/2" (89 mm) - 11" (279 mm)
average: 5.5" (140 mm)
 - Nominal length: 16" (406 mm)
- Dimensions may vary due to kiln-drying.

Also available certified (on request).

Manufacturing

- Stellite-tipped blades: minimize raised grain.
- Kiln-dried to 14 % - 18 % moisture content.

Factory-Staining

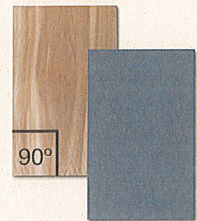
Every shingle is factory-coated on all sides in a controlled environment for maximum stain absorption and retention. This also provides increased protection from the damaging effects of the sun and the elements.

Following the stain application, the shingles are sent through a state of the art drier for curing. The product of European technology, this drier cures the stain from the inside out. The shingles are then cooled down and packaged. This unique system increases the durability of the product once installed.

Packaging and Coverage

- 4 boxes per square at 5" (127 mm) exposure.

For sidewall application only.



Finishes	Warranty against wood decay ¹	Warranty on stain ¹
Water-based Finishes		
Semi-transparent stain by Cabot® (one coat)	50 years	No warranty is offered.
Clear Solution by Cabot® (one coat)	50 years	No warranty is offered.
Solid stain by Cabot® (one coat) - US only	50 years	5 years
Solid stain by Cabot® (2 coats)	50 years	15 years
Oil-based Finishes		
Bleaching Oil by Cabot® (one coat)	50 years	No warranty is offered.
Misty Gray (one coat)	50 years	No warranty is offered.

Available in three grades:

Grade A (Extra)
No imperfections².

Grade B (Clear)
No imperfections on exposed face².

Grade C (2nd clear)
Sound knots on exposed face. Contrasting tones.

¹ Some restrictions apply. See detailed warranties.

² In accordance to 118-2-2007 standard of the Canadian Standards Association (CSA).

Technical Specifications

Species: Eastern White Cedar – *Thuja occidentalis*

Resquared and Rebutted. Natural (kiln dried) or Factory-Stained.

Dimensions

- Thickness: 1 3/8" (35 mm)
- Height: 22 5/8" (575 mm). Equivalent to 3 rows with a 7" (178 mm) exposure.

Dimensions may vary due to kiln-drying.

Also available certified (on request).

Manufacturing

- Stellite-tipped blades: minimize raised grain.
- Kiln-dried to 14 % - 18 % moisture content.

Factory-Staining

Every shingle is factory-coated on all sides in a controlled environment for maximum stain absorption and retention. This also provides increased protection from the damaging effects of the sun and the elements.

Following the stain application, the shingles are sent through a state of the art drier for curing. The product of European technology, this drier cures the stain from the inside out. The shingles are then cooled down and packaged. This unique system increases the durability of the product once installed.

Packaging and Coverage

- 8 corners/box. 4 left and 4 right

For sidewall application only. For outside corners when using maibec panels.



Finishes	Warranty against wood decay ¹	Warranty on stain ¹
Water-based Finishes		
Primer Cabot® (one coat)	50 years	No warranty is offered.
Semi-transparent stain by Cabot® (one coat)	50 years	No warranty is offered.
Clear Solution by Cabot® (one coat)	50 years	No warranty is offered.
Solid stain by Cabot® (2 coats)	50 years	15 years
Oil-based Finishes		
Misty Gray (one coat)	50 years	No warranty is offered.

¹ Some restrictions apply. See detailed warranties.

COMPOSITION OPTION

maibec[®]

sidings

Eastern White Cedar

Pre-assembled strip

Technical Specifications

Species: Eastern White Cedar – *Thuja occidentalis*

Resquared and Rebutted. Natural (kiln dried) or Factory-Stained.

Dimensions

- Butt Thickness: 3/8" (9,5 mm)
- Width of pre-assembled strip: 32" (813 mm)
- Nominal length: 16" (406 mm)
- 6 shingles per strip

Dimensions may vary due to kiln-drying.

Also available certified (on request).

Manufacturing

- Stellite-tipped blades: minimize raised grain.
- Kiln-dried to 14 % - 18 % moisture content.

Factory-Staining

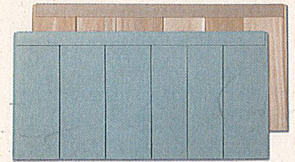
Every shingle is factory-coated on all sides in a controlled environment for maximum stain absorption and retention. This also provides increased protection from the damaging effects of the sun and the elements.

Following the stain application, the shingles are sent through a state of the art drier for curing. The product of European technology, this drier cures the stain from the inside out. The shingles are then cooled down and packaged. This unique system increases the durability of the product once installed.

Packaging and Coverage

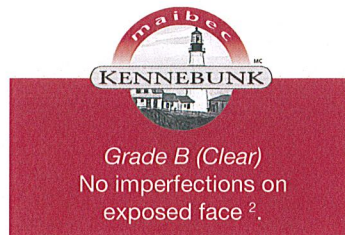
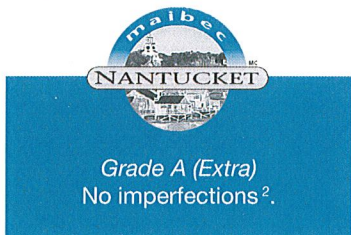
- 22 strips/bundle. 4 boxes per square at 5" (127 mm) exposure.

For sidewall application only. Perfect for big projects.



Finishes	Warranty against wood decay ¹	Warranty on stain ¹
Water-based Finishes		
Semi-transparent stain by Cabot® (one coat)	50 years	No warranty is offered.
Clear Solution by Cabot® (one coat)	50 years	No warranty is offered.
Solid stain by Cabot® (one coat) - US only	50 years	5 years
Solid stain by Cabot® (2 coats)	50 years	15 years
Oil-based Finishes		
Bleaching Oil by Cabot® (one coat)	50 years	No warranty is offered.
Misty Gray (one coat)	50 years	No warranty is offered.

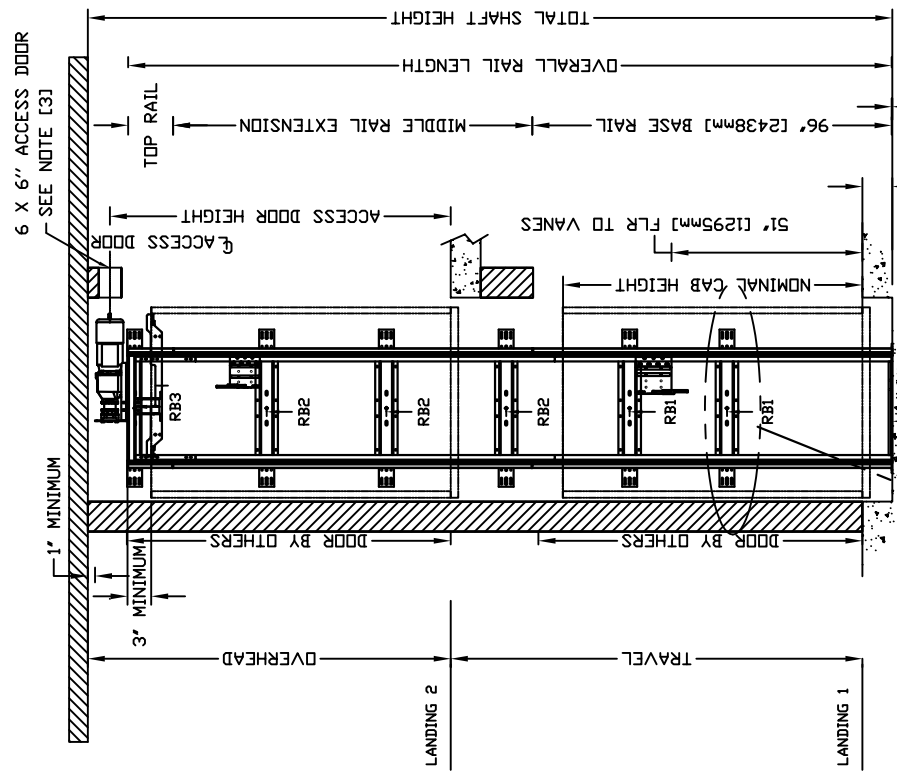
Available in two grades:



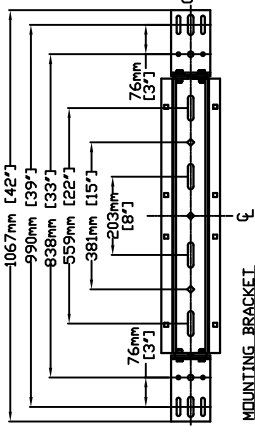
¹ Some restrictions apply. See detailed warranties.

² In accordance to 118-2-2007 standard of the Canadian Standards Association (CSA).

SECTIONAL VIEW - ECLIPSE Model 36X54 TYPE 1R



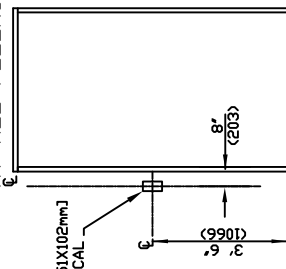
2 MOUNTING POSITIONS CENTER OR SIDE



4 WALL ANCHOR POINTS MIN. PER BRACKET
2 PER SIDE OF RAIL BRACKET CENTER LINE
PULL OUT FORCE PER FASTENER 69 kg [152 LBS]

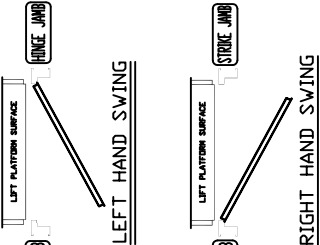
BELOW THE MOTOR CONSULT YOUR CONCORD REPRESENTATIVE FOR EXACT RB3 LOCATION	RB3	LOCATION
FINAL RAIL BRACKET	32" [813mm] INTERVALS AFTER 2nd BOTTOM BRACKET	RB2
INTERMEDIATE RAIL BRACKET	44" [1118mm] & ABOVE PIT FLOOR	RB1

HALL BUTTON NEEDED AT ALL FLOORS

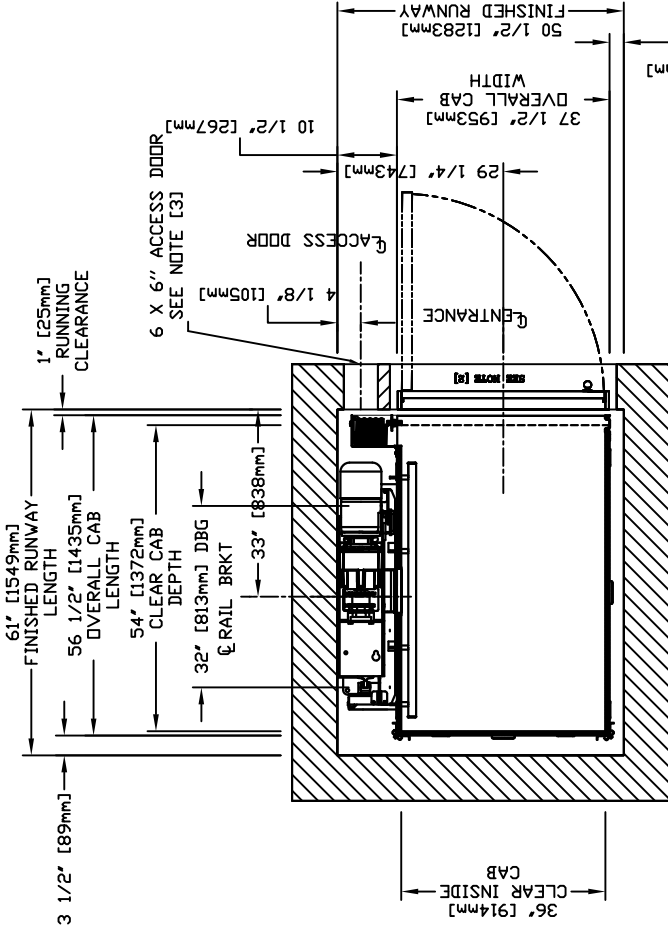


LEFT HAND SHOWN
RIGHT HAND OPPOSITE

DOOR SWING

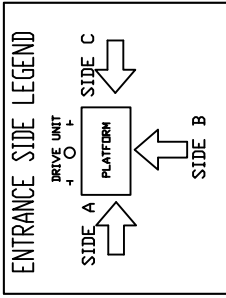


PLAN VIEW - ECLIPSE Model 36X54 TYPE 1R



RAIL FORCES

*R1	*R2
1382 kg [304 lb]	882 kg [194 lb]
1304 kg [292 lb]	1034 kg [228 lb]
RAIL WEIGHT: 680 lbs / ft	
PIT FORCE: R3	
PIT FLOOR TO SUPPORT LOAD (INCLUDES IMPACT)	
2909 kg [6400 lbs]	



CHARACTERISTICS

GENERAL

APPLIED CODE: _____ CONCORD
 MOTOR _____ 2.0 HP/1660 RPM W/Broke
 GEAR MODEL _____ 42:171 Ratio Gear Box
 MOTOR CONTROLLER _____ Preprogrammed VF Drive.
 CAPACITY: _____ (750, 1000 LBS)
 NOMINAL SPEED: _____ 40 FPM
 TRAVEL: _____
 TYPE: _____ DUAL #60 ROLLER CHAIN
 CONSTRUCTION: _____ ANSI B29.1
 NOMINAL STRENGTH: _____ 9020 LBS PER CHAIN
 ELECTRICAL _____
 POWER SUPPLY: _____ 60 Hz/1 Phase/230 volt
 CAB PANEL SELECTION: _____ (SEE CHART)
 PBT LIGHT FINISH (4): _____ (SS, BRZ, BRSS)
 CEILING SELECTION: _____ (WTH, MATCH)
 TRIM COLOUR: _____ (CLR, BRZ)
 CAB FLOORING: _____ (PLYW, FINISH)
 CAR STATION PLATE (W/P): _____ (CLR, BRZ, BRSS)
 FINISHED FLOOR THICKNESS: _____ (1/8 to 3/4")
 HAND RAIL TYPE: _____ (CLR, BRZ, BRSS)
 CAB HEIGHT: _____ (80, 96")
 TELEPHONE BOX: _____ (CLR, BRZ, BRSS)
 CAB OPERATION: _____ (AUTO)
 GATES REQUIRED: _____ (AUTO, MAN)
 GATE TYPE: _____ (VFOLD, CFOLD, CAB SILL)
 SS _____

LOCKS/CALL STATIONS/TRAVEL/DOORS (BY OTHERS)

TRAVEL	LANDING 1	LANDING 2	LANDING 3	LANDING 4	MIN OVERHEAD=96"/114"
ENTRANCE SIDE	SIDE C	SIDE C	SIDE C	HATCH SIDE C	OH:
DOOR SWING					
LOCK TYPE					
AUTO DOOR OP.					

STANDARD OPTIONS PROVIDED:

BUTTON MARKING: NUMERIC (1 to 4)
 HALL CALL KEYED: NO
 HALL CALL FINISH: MATCH CAR STATION
 HALL CALL SHAPE: RECTANGULAR
 PREWIRE PACKAGE: NO
 CONTROLLER LOCATION: EXTERNAL

DISCONNECT (2): NO
 BUFFER SPRING: NO
 TEMP. RUN BUTTON: NO
 EXTRA CABLE (REMOTE): 0'
 WALL FASTENERS: LAG

PROVISIONS BY OTHERS

- *HOISTWAY, CONSTRUCTION SITE, CLEARANCE
- 1- HOISTWAY CONSTRUCTION AND PIT BY OTHERS. DUE TO LIMITED SPACE WITHIN THE HOISTWAY IT IS ESSENTIAL THAT THE PIT IS LEVEL AND WALLS ARE SQUARE AND PLUMB THROUGHOUT THE HOISTWAY. THE HOISTWAY FRAMING MUST BE WITHIN 13 MM (1/2") OF PLUMB AND SQUARE FROM TOP TO BOTTOM FOR PROPER OPERATION OF THE ELEVATOR THROUGHOUT THE HOISTWAY.
- 2- CLEARANCES FROM DOOR SILL TO HOISTWAY DOOR TO BE 76 MM (3") MAXIMUM AND ELEVATOR CAR DOOR TO HOISTWAY DOOR TO BE 127 MM (5") MAXIMUM TO COMPLY WITH CSA B44 (ASME/ANSI A17.1). CONSULT YOUR LOCAL INSPECTION AUTHORITIES FOR CODES WHICH MAY TAKE PRECEDENCE.
- 3- HOISTWAY MUST HAVE A MINIMUM 152 MM X 152 MM (6" X 6") LOCKABLE ACCESS HATCH (PROVIDED BY SAVARIA CONCORD) LOCATED AT THE TOP OF THE HOISTWAY. LOCATION MUST BE IN AN AREA WHICH WILL PROVIDE ACCESS TO THE ELEVATOR DRIVE ASSEMBLY BY THE MANUAL LOWERING HANDLE. MANUAL LOWERING HANDLE WILL ENABLE USER TO OVERPOWER BRAKE AND LOWER CAR WITHOUT BODILY ENTRY TO THE SHAFTWAY.
- 4- THE PIT FLOOR SHALL BE CONSTRUCTED TO WITHSTAND AN IMPACT LOAD OF 2903 KG (6400 LBS). REF. CSA B44 SECTION 2.11 (ASME/ANSI A17.1 SECTION 106.)
- 5- HOISTWAY TO BE FREE OF ALL PIPES, WIRING AND OBSTRUCTIONS NOT RELATED TO THE OPERATION OF THE ELEVATOR.
- 6- HOISTWAYS CONSTRUCTION REQUIREMENTS MAY VARY FROM REGION TO REGION. DIMENSIONS GIVEN ARE MANUFACTURERS RECOMMENDED CLEARANCES. THEY REFLECT THE RUNNING AND ACCESS CLEARANCES. CONSULT YOUR LOCAL AUTHORITY TO ASSURE COMPLIANCE WITH PROVINCE AND LOCAL CODES.
- *DIMENSIONS WARNING:
 CONTRACTOR/CUSTOMER TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO OUR OFFICE IMMEDIATELY.
- *STRUCTURAL
- 7- A LOAD BEARING WALL IS REQUIRED TO SUSTAIN RAIL REACTIONS AS SPECIFIED IN KEY TO RAIL REACTIONS ON DRAWING. BUILDING CONTRACTOR TO CONTACT STRUCTURAL ENGINEER TO DETERMINE IF SURROUNDING WALL WILL SUSTAIN RAIL REACTIONS. FOR COMPLYING WITH LOCAL CODES.
- 8- SUITABLE LINTELS MUST BE PROVIDED BY OWNER/AGENT.
- 9- ALL FULL HEIGHT DOORS MUST BE ALIGNED WITH THE DOOR CENTERLINE SHOWN ON PLAN DETAIL. RECOMMEND INSTALLING A SOLID CORE 2032 MM (6'-8") HIGH DOOR WITH A MINIMUM CLEAR OPENING OF 813 MM (2'-8") WIDE.
- 10- DOOR HANDLE AND LATCH SD LATCH SET REQUIRED FOR ALL FULL SIZE DOORS.
- 11- SEE INSTALLATION MANUAL FOR DETAILS ON THE INTERLOCKS. INTERLOCKS ARE REQUIRED FOR ALL FULL SIZE DOORS.

*ELECTRICAL

- 12- THE ELEVATOR CONTROLLER IS 680 MM (24.4") WIDE X 584 MM (23") HIGH X 170 MM (6.7") DEEP. THE CONTROLLER IS PROVIDED BY SAVARIA CONCORD AND IS EITHER:
 A. ATTACHED TO THE RAIL WALL INSIDE THE HOISTWAY BETWEEN THE 4TH RAILS WITH ACCESS EITHER UNDER THE CAB OR THROUGH THE CAB OF THE ELEVATOR; OR
 B. IN A REMOTE LOCATION EXTERNAL TO HOISTWAY, THAT NEEDS PROPER STRUCTURAL WALL TO SUPPORT THE CONTROLLER ON ALL 4 CORNERS HOLES POSITION ARE = 597 MM (23.5") WIDE BY 546 MM (21.5") HIGH.
- 13- ARRANGE FOR A POWER SUPPLY WITHIN SIGHT OR NEXT TO THE ELEVATOR CONTROLLER PRIOR TO DELIVERY OF THE UNIT (BOTH 115 VOLT AND 208/240 VOLT). THE 208/240 VOLT CIRCUIT SHALL ORIGINATE FROM A LOCKABLE 2 POLE FUSED DISCONNECT (20 AMP RK 5 RATED FUSES) LOCATED NEAR THE RESIDENCES INCOMING ELECTRICAL PANEL. THE ELECTRICAL CIRCUIT PROVIDED FOR THE CONTROLLER SHALL BE 208/240 VOLT, SINGLE PHASE, DEDICATED CIRCUIT WITH NEUTRAL AND GROUND. FUSING MUST BE SELECTIVELY COORDINATED. FUSE 208/240 VOLT FOR 20 AMP SERVICE. FUSE 115 VOLT FOR 15 AMP SERVICE FOR LIGHT. A LOCKABLE AUXILIARY 240 VOLT AND 115 VOLT DISCONNECT IS REQUIRED INSIDE THE HOISTWAY OR IN SIGHT OF THE CONTROLLER. ALL ELECTRICAL TO DISCONNECTS SHALL BE PROVIDED AND INSTALLED BY OTHERS (MUST COMPLY WITH APPLICABLE CODES).
- 14- FIELD ELECTRICAL WIRING AND CONNECTIONS TO HALL-CALLS, PIT SWITCH AND INTERLOCKS ARE PROVIDED.
- 15- THE ILLUMINATION SHALL BE NOT LESS THAN 200 LX (19 FC) AT THE FLOOR LEVEL IN ALL MACHINE ROOMS AND MACHINERY SPACES. THE SWITCH FOR THE LIGHT MUST BE WITHIN 457 MM (18") OF THE HOISTWAY ACCESS. THE LIGHT MUST BE GUARDED TO PREVENT ACCIDENTAL BREAKAGE OR CONTACT WITH THE HOT BULB. THE SWITCH, LIGHT, AND GUARD ARE PROVIDED AND INSTALLED BY OTHERS. (MUST COMPLY WITH APPLICABLE CODES).
- 16- IF A TELEPHONE CIRCUIT IS REQUIRED (OPTION FOR ELEVATOR), JACK IS PROVIDED AND INSTALLED BY OTHERS. THIS CIRCUIT SHALL BE BROUGHT TO A LOCATION NEXT TO THE CONTROLLER AND BE AVAILABLE TO CONNECT AND TEST UPON ELEVATOR INSTALLATION.

*WHEN CONTROLLER EXTERNAL

- 17- LOCATION / ACCESS - "CONTROLLER ROOM" LOCATED AT THE LOWEST LEVEL ADJACENT TO HOISTWAY UNLESS SHOWN OTHERWISE ON THE LAYOUT DRAWINGS. FIELD ADJUSTMENT BY INSTALLER MAY BE NECESSARY TO MEET JOB SITE CONDITIONS OR REGULATIONS. ACCESS TO CONTROLLER ROOM TO BE THROUGH A SELF CLOSING LOCKABLE DOOR WHERE CODE CONSIDER IT AS A MACHINE ROOM.
- *WHEN APPLICABLE SLEEVES FOR ELECTRIC LINES:-
 18- FROM CONTROLLER ROOM TO RUNWAY AS REQUIRED.
 19- POSITION PER INSTALLERS INSTRUCTIONS.
- *CODE

19. ALTHOUGH THE ELEVATOR IS DESIGNED TO MEET CSA B44 (ANSI A17.1), LOCAL CODES MAY VARY. DEALER IS RESPONSIBLE FOR COMPLYING WITH LOCAL CODES.
 NOTE A
 ALL COMPONENTS WEIGHTS CAN BE FOUND IN THE PLANNING GUIDE
 NOTE B
 ALL INFORMATION IS SUBJECT TO CHANGE.
 PLEASE REFERENCE OUR ON-LINE DRAWINGS AT
 WWW.SAVARIACONCORD.COM FOR THE MOST RECENT UPDATES

RESIDENTIAL ELEVATOR
 ECLIPSE MODEL 36X54 TYPE 1R

CUSTOMER:	DATE:
PROJECT:	REVISION DATE:
LOCATION:	COMPLETED BY:

DISCONNECT (2): NO
 BUFFER SPRING: NO
 TEMP. RUN BUTTON: NO
 EXTRA CABLE (REMOTE): 0'
 WALL FASTENERS: LAG