HIP ROOF

GABLE ROOF

6 ROOF COMPONENT AND CLADDING
(LOADING DIAGRAM)

SCALE: N.T.S.

ASSEMBLY NUMBER	NAILED CONNECTION: 2 ROWS 16d COMMON WIRE AT 12" O.C.	NAILED CONNECTION: 3 ROWS 16d COMMON WIRE AT 12" O.C.	THROUGH BOLTED CONNECTION: 2 ROWS 1/2" BOLTS AT AT 24" O.C.	THROUGH BOLTED CONNECTION: 2 ROWS 1/2" BOLTS AT AT 12" O.C.
A	470	705	505	1010
B	355	530	380	760
C	N/A	N/A	340	680

3 MULTIPLE MEMBER BEAMS
(SIDE LOADED CONNECTION)

SCALE: N.T.S.

T:/06WD&PLS/110FRAMG/06110163

NOTES:
INFILL FRAMING BELOW HEADER TO OPENING HEIGHT. SINGLE CRIPPLE STUDS - L ≤ 3'-6" U.O.N.
DOUBLE CRIPPLE STUDS - 3'-6" < L ≤ 9'-0" U.O.N.

2 FRAMING DETAIL
(TYPICAL WALL FRAMING)

SCALE: N.T.S. (1:32)

P:/HAWTHORN/ME-PORTLAND/PUMP HOUSE/DETAILS/10530207

**SEE SHEET PH3.3 FOR SHEATHING GRADE

5 DIAPHRAGM NAILING

SCALE: 1/2" = 1'-0"

P:/HAWTHORN/ME-PORTLAND/PUMP HOUSE/DETAILS/10530206

** VALID FOR LATERAL LOADS ONLY **

COMMON NAIL SPACING	GAUGE	EQUIVAILENT O.C. SPACING OF STA[LES: 16	15	14
	PENETRATION	1"	1"	1"
6d	4"	3-1/2"	4"	5"
	6"	5"	6"	7"
	8"	6-1/2"	8"	9-1/2"
	10"	8-1/2"	10"	12"
	12"	10"	12"	14-1/2"
8d	4"	2-1/2"	3-1/2"	4"
	6"	4"	5"	6"
	8"	5-1/2"	6-1/2"	8"
	10"	6-1/2"	8"	10"
	12"	8"	10"	12"
10d	4"	2"	2-1/2"	3"
	6"	3-1/2"	3-1/2"	5"
	8"	4-1/2"	4"	6-1/2"
	10"	5-1/2"	7"	8"
	12"	6-1/2"	8"	9-1/2"

NOTES:
1. PENETRATION IS THE DEPTH OF EMEDMENT OF THE STAPLE INTO THE MAIN MEMBER REQUIRED TO ATTAIN ITS FULL CAPACITY (SHEAR VALUE) FOR LATERAL LOADING.
2. TABLE IS ONLY INTENDED FOR USE IN DIAPHRAGM NAILING OF ROOF, FLOOR, AND WALL SHEATHING.

4 STAPLES AND NAILS
(TABLE OF EQUIVALENT)

SCALE: N.T.S.

NAILING SCHEDULE

NO.	CONNECTION	NAILING (note 1)
1	Joist to sill or girder, toenail	3-8d
2	Bridging to joist, toenail each end	2-8d
3	1x6" subfir or less to each joist, face nail	2-8d
4	Wider than 1x6" subfloor to ea. joist, face nail	3-8d
5	2" subfir to joist or girder, blind & face nail	2-16d
6	Sole plate to joist/blocking, face nail	16d-16"oc
7	Top plate to stud, end nail	2-16d
8	Stud to sole plate	4-8d toenail or 2-16d endnail 2-20d nails @ 3x sole plates
9	Double studs, face nail	16d-24" oc
10	Doubled top plates, typical face nail Double top plates, at lap splices	16d-6" oc 8-16d
11	Blocking between joists/rafters to top plate	3-8d toenail
12	Rim joist to top plate	8d @ 6" oc
13	Top plates, laps and intersections, face nail	2-16d
14	Continuous header, two pieces	16d @ 16" oc along ea. edge
15	Ceiling joists to plate, toenail	3-8d
16	Continuous header to stud, toenail	4-8d
17	Ceiling joists, laps over partitions, face nail	3-16d
18	Ceiling joist to parallel rafters, face nail	3-16d
19	Rafter to plate, toenail	3-8d
20	1" brace to each stud and plate, face nail	2-8d
21	1x8" shthg or less to each bearing, face nail	2-8d
22	Wider than 1x8" shthg to each bearing, face nail	3-8d
23	Built up corner studs	16d-24" oc
24	Built up girder and beams	20d @ 32"oc T&B and stagger 2-20d @ ends and at splices
25	2" planks	2-16d at each bearing
26	Wood structural panels and particleboard (note 2) Subfloor, roof and wall sheathing to framing 1/2" and less 19/32" - 1" 1-1/8" - 1-1/4" Combination subfloor-underlayment to framing 3/4" and less 7/8" - 1" 1-1/8" - 1-1/4"	 6d 8d 10d 6d 8d 10d
27	Panel siding to framing 1/2" and less 5/8"	 6d corrosion resist 8d corrosion resist

NOTES:
1. Refer to nail diameters for nail size.
2. Nail spaced 4" oc edges, 10"oc at intermediate supports, except 4" oc at all supports where spans are 48" or more. For nailing of plyw'd and particleboard diaphragms and shear walls, refer to schedules.

	NAILING DIAMETERS
6d	.113" *
8d	.131" *
10d	.148" *
16d	.162" *
20d	.192" *

1 NAILING SCHEDULE
(MINIMUM REQUIREMENTS)

SCALE: N.T.S.

T:/06WD&PLS/110FRAMG/06110153

GENERAL STRUCTURAL NOTES

CODE:
All material and workmanship shall conform to the requirements of the 2009 International Building Code.

DESIGN LOADS:
A. Floor live load — 125 psf
B. Roof live load — 20 psf
C. Roof snow load — 40 psf
   Flat-roof snow load — Pf= 40 psf
   Snow exposure factor — Ce= 1.0
   Snow load importance factor — I= 1.0
   Thermal factor — Ct= 1.1
D. Basic wind speed — 100 mph (3) second gust
   Importance factor — I
   Occupancy category — II
   Wind exposure — B
E. Seismic design category — B
   Importance factor — I
   Occupancy category — II
   Spectral response accelerations — Ss= 0.316 S1= 0.077
   Site class — C
   Spectral response coefficients — Sds= 0.253 Sd1= 0.087
   Seismic-force-resisting system(s) — ASCE 7-05 Method 12.8:A.13 & G.1
   Design base shear — V= 0.039 W
   Seismic response coefficient(s) — Cs= 0.039
   Response modification factor(s) — R= 6.5
   Analysis procedure used — Equivalent lateral force procedure

GENERAL:
A. Contractor shall be responsible for all construction methods, techniques, sequencing and safety required to complete construction.
B. Contractor shall verify all dimensions and details prior to proceeding with constuction. All discrepancies shall be approved by the Architect or Engineer of record.
C. Contractor shall verify all required openings on Architectural, Mechanical and Electrical plans.

FOUNDATION:
A. Footing have been designed for a maximum allowable soil bearing pressure of 4,000 psf on native material or properly compacted structural fill.
B. All footings shall be constructed as shown on the plans and in accordance with S. W. Cole Engineering, Inc. report for project 14-1188s dated 01/16/2015.
C. No excavation shall be made below any footing closer than one to one slope to the bottom of same.
D. All bottom of exterior footings to be a minimum of 54" below finish grade.
E. Back fill all pipe trench excavations below footings with lean concrete to the bottom of the footings.

CONCRETE:
A. Concrete to develop a unit compressive stress of 3,000 psi minimum at 28 days per I.B.C. section 1905 with 5 sacks of cement/ cubic yd. minimum.

REINFORCING STEEL FOR CONCRETE:
A. All reinforcing steel shall be rail steel deformed bars conforming to ASTM A615, grade 60 bars except where welding is required use A706, grade 60 bars.
B. Details of reinforcing steel shall conform to ASTM Manual of Standard practice, Code of Standard Practice for detailing reinforcing materials, by CTSI and WCRSI (latest edition).
C. All concrete slab reinforcing steel shall be supported at the required heights by approved bolsters.
D. Provide 2'-0" X 2'-0" corner bars for all horizontal wall steel at all corners and intersections.
E. Splices shall be lapped 36 bar diameters or 2'-0" minimum unless detailed otherwise.

REINFORCING PROTECTION:
A. Concrete deposited against earth = 3 inches
B. Concrete formed surfaces exposed to ground or weather:
   #5 rebar and smaller = 1 1/2 inches.
   #6 rebar and larger = 2 inches.
C. Slabs = 3/4 inches.

STEEL:
A. All anchor bolts to be ASTM A-307 minimum.
B. All wedge anchors to be Simpson Wedge-all or approved equivalent.

STRUCTURAL WOOD:
A. All sawn lumber, excluding stud wall framing, to be #1/#2 grade SPF, except 4x lumber to be No. 2 Douglas Fir Larch, 6x lumber or larger to be No. 1 Douglas Fir Larch, per I.B.C. section 2303.1.1.. All stud wall framing to be stud grade SPF or better.
B. The contractor shall furnish and install all bolts and plates as required to complete the job.
C. All bolt heads and nuts bearing on wood to be provided with standard cut washers, except where otherwise shown.
D. All wood members in contact with concrete, masonry or exposed to weather shall be pressured treated.
E. Fasteners in contact with preservative-treated wood shall be of hot-dipped zinc coated galvanized steel, silicon bronze or copper. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum. Connectors that are used in exterior applications and in contact with preservative-treated wood shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A 653, type G185 zinc-coated galvanized steel, or equivalent, shall be used. Exception: Plan carbon steel fasteners in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment shall be permitted.
F. All nailing not shown shall be called for in I.B.C. table 2304.9.1, fastening schedule.
G. Roof sheathing shall be 15/32" CDX plywood with a span rating of 24/16.

ROOF TRUSSES:
A. Roof framing members shall be designed to support the specified loads and limit maximum total load deflection to L/240 of the span.
B. Roof truss manufacturer's design shall include required bearing, bracing, blocking, fastening and attaching devices to carry the specified loads.
C. Erection and installation shall be in accordance with the specifications set fourth by the manufacturer.
D. The roof truss manufacturer shall supply all trusses, associated load transfer blocks, hangers, bracing, blocking and beveled plates as to complete the roof truss framing.
E. Maximum stress load of trusses not to exceed 0.90 CSI for any trusses.

STRUCTURAL INSPECTION AND TESTING:
A. All construction shall be inspected in conformance with the 2009 Edition International Building Code.
B. All items noted as required special inspection per the International Building Code 2009 Edition in accordance with section 1704, shall be performed by a qualified person who can demonstrate competence for the particular type of construction being inspected. The special inspections shall be performed in addition to the inspections required by the International Building Code, The plans and Specifications, The Architect of Record, and the Building Officials.

ITEM	CONTINUOUS [3]	PERIODIC [3]	COMMENTS
SOILS			
Grading, Excavation & Backfill			By Geotech.
Final Foundation Inspection			By Geotech.
CONCRETE			
Reinforcing Placement		X	
Reinforcing Welding			Ref. Note 6
Anchor Bolts & Inserts		X	
Preparation of Test Specimens			F'c 2500 psi
Concrete Placement			
Epoxy Anchor Placement			
Expansion Anchor Placement		X	
STRUCTURAL STEEL			
High Strength Bolting			A325 [89] A490 [89]
Welding of Anchors & Studs			
Welding Stairs/Railing System			
Embedded Plates			
SHOP WELDING			
Single Pass Fillet Welds ≤ 5/16"			Ref. Note 4
Fillet Welds > 5/16"			Ref. Note 4
Partial/Complete Penetration			Ref. Note 5
FIELD WELDING			
Single Pass Fillet Welds ≤ 5/16"			Ref. Note 4
Fillet Welds > 5/16"			Ref. Note 4
Partial/Complete Penetration			Ref. Note 5
Prefab. Construction			Ref. Note 7
WOOD			
Plywood Nailing		X	
Holdown Installation		X	

1. The items marked with a 'X' shall be inspected in accordance with 2009 I.B.C. Section 1704 by a certified special inspector from an established test agency. For material sampling and testing requirements, refer to the material sampling and testing section, the project specifications and the specific general notes sections. The testing agency shall send copies of all structural testing and inspection reports directly to the Architect, engineer, contractor and building official. Any materials which fail to meet the project specifications shall immediately be brought to the attention of the architect. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority and to the building official. The special inspector shall submit a final signed report stating whether the work requiring special inspection was to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the code. Special inspection testing requirements apply equally to all bidder designed components.
2. Special inspection is not required for work performed by an approved fabricator per 2009 I.B.C. section 1704.2.2.
3. Continuous special inspection means that the special inspector is on site at all times observing the work requiring the special inspection (2009 I.B.C. section 1704). Periodic special inspection means that the special inspector is on the site at the time intervals necessary to confirm that all work requiring special inspection is in compliance.
4. All welds shall be visually inspected.
5. All complete penetration welds shall be tested ultrasonically or by using approved method.
6. Periodic special inspection is only required for welding of ASTM A706 reinforcing steel not greater then No. 5 used for embedments, provided the materials, qualifications of welding procedures and welders are verified prior to the start of work; periodic inspections are made of work in process: and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.
7. Inspection for prefabricated construction shall be the same as if the material used in the construction took place on site. Continuous inspection will not be required during prefabrication if the approved agency certifies the construction and furnishes evidence of compliance.
8. Snug tight.
9. Turn of the nut method.

C. Contractor to retain an approved special inspector to observe and approve all high strength bolt installations.

Reviewed for Code Compliance
Inspections Division
Portland, Maine
Date: 09/20/16

STATE OF MAINE
Daniel S. Green
No. 8667
PROFESSIONAL ENGINEER
9/9/16

lenity architecture
3150 Kettle Court SE, Salem, Oregon 97301
P 503 399 0090 F 503 399 0565 w lenityarchitecture.com

COLSON AND COLSON
GENERAL CONTRACTOR, INC.
2280 McGILCHRIST STREET SE, SUITE 200
SALEM, OREGON, 97302
PHONE (503) 586-7401

PORTLAND
RETIREMENT RESIDENCE
802 OCEAN AVE. PORTLAND, MAINE 04103

STRUCTURAL SPECIFICATIONS

©2015 Lenity Architecture

DATE
5/27/2016

REVISED DATE

SHEET
PH3.3

save:6/8/2016 3:34 PM jaycol pc:6/10/2016 8:55 AM jaycol file:p:\hawthorn\me-portland\pump house\ph3.3 structural specifications.dwg PH3.3