GENERAL NOTES:

1. The design is in accordance with the 2009 IBC Building code.
2. The structural drawings shall be used in conjunction with the architectural, mechanical, electrical, plumbing, and landscape drawings and specifications.
3. Details shown as typical are applicable to all similar conditions.
4. All dimensions, elevations and conditions shall be verified in the field by the contractors and any discrepancies shall be brought to the attention of the Engineer for clarification before proceeding with the affected part of the work. For work attached to or within existing structures, the contractors shall determine all necessary dimensions, elevations and conditions required for the accurate fabrication and erection of the building components. The contractor shall verify all dimensions and conditions at the site and report any discrepancy to the engineer before ordering material and proceeding with the work. Dimensions and elevations noted in the contract documents as (+/-) and all field conditions shall be verified in the field (V.I.F.) by the contractors prior to the submission of shop drawings. Upon receipt of shop drawings, the engineer has the right to assume that all field dimensions, elevations and conditions have been verified by the contractors and that the shop drawings accurately reflect such verifications unless stated otherwise on the shop drawings.
5. All blasting shall be completed prior to the placement of concrete.
6. The contractor is entirely responsible for the stability of the structure during all phases of erection & construction. The contractor shall take special note that the horizontal stability of the building relies on the floor slabs and the roof deck diaphragm as well as by the bracing shown on the drawings. Temporary guys and bracings shall be provided as required in the AISC Specification considering this building as a non self-supporting frame.
7. Where drawings and specifications show conflicting information, it shall be brought to the attention of the Engineer for clarification.
8. General Contractor to Submit a Stamped Anchor Bolt Survey Plan of Anchor Bolt As-Builts.

FOUNDATIONS:

1. Foundations shall bear on compacted granular fill or natural undisturbed soils having a minimum bearing capacity of 1.5 tons per square foot (as verified by the Geotechnical Engineer). Structural fill shall meet the requirements of the Geotechnical Report.
2. All bottom of exterior foundations shall be a minimum of 4'-0" below finished grade, to provide adequate frost protection to footings.
3. No foundations or slabs shall be placed in water or on frozen ground.
4. The contractor should review the Geotechnical Report prepared by the Geotechnical Consultants. Any recommendations made by the Report shall become part of the job specifications.
5. Basement level foundation walls are not designed to be free-standing. Do not place backfill without adequate bracing or until first floor framing is in place and has cured for seven days.
6. Backfill on both sides of foundation and retaining walls at the same time, maintaining equal heights of backfill on each side, until final grade is reached on one side.
7. If rock ledge is encountered during the excavation of the foundations, the ledge shall be overexcavated by a minimum of 12 inches. A 12 inch layer of compacted gravel shall be placed as a cushion between the ledge and the bottom of footing.

REINFORCED CONCRETE:

1. All structural concrete shall be normal weight, stone aggregate concrete, and shall be proportioned, mixed and placed under the supervision of a control engineer in accordance with ACI 315, 318 and 301 standards, latest editions. Concrete shall develop the following 28 day strengths:
   a. Concrete Flatwork exposed to weather: 4500 psi (6% air entrained)
   b. Exterior: walls, footings, piers and slabs: 3000 psi (6% air entrained)
   c. Interior Slabs on Grade: 3000 psi (2% air entrained)
   d. Elevated slabs on metal deck: Light weight 3,500 psi
   e.All other concrete: 3000 psi
2. Reinforcing bars including stirrups shall conform to ASTM A615 with 60,000 psi yield strength with minimum anchorage and splice requirements for reinforcing in accordance with ACI 318, latest edition. Welded wire fabric shall conform to ASTM A185.
3. Concrete walls shall be cast in alternate panels not exceeding 90 ft. in length. The use of pour strips at splices in horizontal reinforcing may be used to extend the length of pours.
4. Slabs on grade shall be placed in accordance with the latest ACI recommendations.
5. Slabs on grade shall be placed on a layer of well graded granular material compacted to 95% of maximum dry density.
6. Provide concrete pads for mechanical equipment according to the requirements of the manufacturer and in accordance with the typical details, and mechanical drawings.
7. Detailing of reinforcement shall be according to the latest edition of ACI 315 "Details and Detailing of Concrete Structures".
8. Not all openings through concrete slabs and walls are shown on structural drawings. Openings indicated on the drawings or any additional openings or inserts required must be verified with respective trades before placement of concrete.
9. See architectural drawings for finishes, depressions, reglets, notches, and other architectural features.
10. Concrete exposed to the exterior shall be air entrained.
11. Unless noted otherwise, provide the following clear cover for reinforcing steel:
    a. Footings: 3"
    b. Foundation Walls: 2"
    c. Interior Slabs: 1"
    d. Exterior Slabs: 2"
    e. Columns, Piers or Pilasters: 1 1/2" to ties.
12. All exposed concrete to be rubbed to a smooth finish.
13. All Anchor Bolts shall be dryset (Set prior to placement) (wet setting is unacceptable).

REINFORCED CONCRETE MASONRY (CMU):

1. All masonry units shall be normal weight and conform to ASTM C90. Masonry compressive strength, f'm=1500psi.
2. All grouting shall be in accordance with ACI 530.1 Specifications, latest edition and develop a minimum compressive strength of 2,000psi at 28 days.
3. All reinforcing in masonry walls shall be fy=60,000 psi.
4. All exterior and interior walls shall be reinforced as noted on plans.
5. Continuous wire reinforcing (horizontal joint reinforcing) shall be galvanized ladder type, and shall be spaced at 16" O.C. vertically in all masonry walls.
6. Contractor shall use low lift grouting procedure for construction of reinforced masonry walls (see Typical Masonry Details). Vertical reinforcing shall be lap spliced a minimum of 48 times the reinforcing bar diameter unless noted otherwise. The consistency of grout should be as required to assure complete filling of the cavities and to produce the required masonry strength.
7. Reinforced bond beams are to be provided where specified on the structural and architectural drawings.
8. Provide additional reinforcement at sides and above and below masonry openings as indicated on typical details.
9. Provide one piece custom blocks at 135° corners.

STRUCTURAL STEEL & METAL DECK:

1. All structural steel work shall conform to the "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction. All joists and joist girders shall conform to the latest Steel Joist Institute Standard Specifications.
2. The structural steel shall conform to the following:
   a. Structural W shapes: ASTM A572 (Grade 50) or A992
   b. Plates, channels and angles: ASTM A36.
   c. Structural tubing HSS: ASTM A500 Grade B or C.
   d. Structural pipe: ASTM A53 Grade B.
3. All floor deck to be composite floor deck (unless noted otherwise), of the size, type and finish indicated on the plans.
4. All deck to be placed continuously over two or more spans except in areas where there is only one span.
5. Provide 16 gage (minimum thickness) metal closures (pour stops) all around periphery and edges of openings
6. All column ends shall be sawed or milled.
7. The contractor shall supply all plates, clips, seat angles, connections, etc. as required for completion of the structure, even if such items are not explicitly called for on the architectural or structural drawings.
8. All connections of non-composite beams where reactions are not given on the plans shall be designed for the Allowable Uniform Loads on Beams divided by two.
9. Provide temporary shoring for metal deck or concrete slabs as required for those areas where they cannot support the weight of wet concrete and construction loads. Shoring shall be kept in place until concrete attains full strength.
10. Design and detail all connections according to the AISC specifications.
11. Design all brace connections to develop the full capacity of the member unless otherwise noted.
12. All connections shall be bolted with ASTM A325 or A490 high-strength bolts or welded in accordance with AWS and AISC requirements.
13. Unless otherwise noted All composite beams connections shall be designed for 2.0 times the reaction from the Allowable Uniform Loads on Beams tables. Unless noted otherwise all girders shall be designed for 1.5 times the reaction from the Allowable Uniform Loads on Beam tables. Girders are defined as horizontal framing members that support other horizontal framing members. Beams are defined as horizontal framing members which do not support other members.
14. The fabricator shall submit job standards for each type of connection to be used on the project. If shop dwgs. are submitted without prior submittal of job standards the shop drawings will be returned without review.

ENGINEERED WOOD TRUSSES:

1. Truss design shall be prepared by the truss manufacturer in accordance with the truss plate institutes specifications and under the supervision of a professional engineer licensed in the Commonwealth of Massachusetts. All truss design drawings and calculations shall be submitted to the architect / engineer for review and shall be signed and sealed by the truss design engineer.
2. The configuration of the truss web members shall be determined by the truss manufacturer.
3. Floor and roof trusses are to be spaced at 24" o.c. unless otherwise noted on plans.
4. The uniform loads indicated in the schedule in combination snow drift loads shall be used to design hip and/or girder trusses as required.
5. The maximum truss live load deflection shall be span/240 for roof trusses and span/360 for floor trusses.
6. Truss bridging shall be installed as required by the truss manufacturer's design in accordance with the Truss Plate Institute Specifications & Reccomendations.
7. All roof trusses shall be designed to withstand all applied wind loads at site in combination with loads indicated above and in accordance with the Massachusetts Building Code "CMR 780 6th edition" windward, leeward and suction wind pressures shall be considered in the design.
8. All roof truss shop drawings shall be submitted to the Architect/Engineer for approval prior to fabrication.
9. Trusses shall be stored in accordance with the manufacturer's requirements.
10. Roof trusses with spans greater than 5'-0" shall be connected at the bearing locations at each end as noted below:
    a. Where the roof truss bears on a double 2x plate, the truss shall be connected with a minimum 2-12d toenails and a Simpson H2.5 hurricane anchor at each end of truss. The double 2x plate shall be anchored at 4'-0" o.c. max. to the studs with a Simpson H2.5 hurricaine anchor.
    b. Where the roof truss connects to another truss or beam, it shall be connected with a galvanized metal truss anchor or hanger capable of resisting gravity and wind loads.

WOOD CONSTRUCTION:

1. All lumber used shall conform to the following species:
   a. All lumber for trusses shall be as required by the truss supplier.
   b. Laminated Strand Lumber (LSL) shall be Grade 2500 Fb-1.75E and have an allowable bending stress of Fb=2,500 psi an allowable shear stress of Fv=410 psi and a modulus of elasticity E=1,750,00 psi
   c. Parallams (LAM) shall have an allowable bending stress of 2900 psi, an allowable compression stress parallel to grain of 2900 psi, and a modulus of elasticity of 2,000,000 psi.
   d. Laminated Veneer Lumber (LVL) shall have an allowable bending stress of 2800 psi, an allowable shear stress of 285 psi, and a modulus of elasticity of 1,900,000 psi.
   e. All other lumber shall be spruce-pine-fir as follows:
      Fb=875psi Fv=135psi E=1,400,000psi
      1. Studs - No.1 / No.2 or better
      2. Joists and Rafters - No.1 / No.2 or better
      3. Beams and Girders - No.1 or better
   f. Versa Lam Studs:
      $F_{c\perp}$=3,000Psi, E=1,700,000psi, Fb=2,650psi
   g. Versa Lam Columns:
      $F_{c\perp}$=3,000psi, E=1,800,000psi, Fb=2,500psi
   h. Glulam Beams:
      24F-V10 w/Fb=2,400psi, E=1,800,000psi
   j. All pressure treated wood shall be SYP #2 or better and treated with ACQ-C or ACQ-D Carbonate preservative.
2. Wood I-joists shall be designed for loads shown. supplier to submit stamped calculations and shop drawings for approval.
3. All metal straps shall conform to the Truss Plate Institute.
4. All wood in contact with concrete shall be pressure treated.
5. All exterior walls shall be sheathed in 7/16" APA exterior grade, Exposure 1 (24/16) plywood or OSB (unless noted otherwise).
6. All floor sheathing shall be 23/32" STURD-I-FLOOR (24") plywood or OSB glued and nailed to floor members.
7. All roof sheathing shall be 19/32" APA Exposure 1 (40/20) plywood or OSB (unless noted otherwise). Provide plywood edge clips, ridge clips and hip clips.
8. Nailing Pattern for Wood Sheathing:
   Roof... 8d (.131) nails 6" at edges and 12" at interior.
   Wall..... 6d (.113) nails 6" at edges and 12" at interior.
   Floor.. 8d (.131) nails 6" at edges and 12" at interior.
   unless noted otherwise.
9. The truss fabricator shall design all wood trusses for the live and dead loads shown on drawings. The fabricator shall be required to submit shop drawings and stamped calculations for approval to the Engineer. Shop drawings shall include erections drawings, details, bridging and other customary information required to properly construct the roof trusses. The Truss Supplier shall provide all hangers for LVLs and trusses. The hanger marks shall be shown and marked on the Erection plans. The Truss Supplier shall coordinate supports for hanging pipes, mechanical units and other equipment.
10. The contractor shall adequately brace the wood trusses during erection. Installation of permanent bracing shall be in accordance with the truss designer's requirements.
11. At all interior load bearing walls and all non-load bearing walls over 8' in height, provide one row of wood blocking at mid-height of studs.
12. All floor trusses to align with wall stud below. Vertical allignmet tollerances shall be within 5" left or right of of wall stud below.
13. All mechanical fasteners in contact with pressure treated wood shall be hot-dip galvanized or mechanically deposited zinc coated fasteners. Hot-dip galvanized fasteners should meet ASTM A153, with 2-ounces of zinc coating per square foot minimum. Mechanically deposited zinc coated fasteners shall meet ASTM B695 Class 55 or greater.
14. All mechanical connectors in contact with pressure treated wood shall be hot-dip galvanized connectors. All hot-dip galvanized connectors shall meet ASTM A653, Class G185 with 1.85-ounces of zinc coating per square foot minimum or Type 304 and 316 stainless steel products.
15. Fasteners and connectors used together should be of the same type (e.g. hot-dip nails with hot-dip joist hangers).
16. All mechanical connectors in contact with pressure treated wood and not meeting the above corrosion protection requirements shall be isolated from contact with the pressure treated wood by means of three layers of 15-lbs felt paper.
17. For Fire Retardant treated wood requirements, see UL designations shown on the Architectural Drawings and as outlined in the Specifications.

INTENT OF THE STRUCTURAL DRAWINGS:

1. The intent of the structural drawings is to show the main structural features and structural design for the project. Architectural details are shown incidentally only and not completely. Therefore, architectural drawings must be used in conjunction with the structural drawings.

SHOP DRAWINGS:

1. All shop drawings submitted to the Engineer should indicate the date, revision number and issue description of the reference drawings (the structural contract drawings used to prepare the shop drawings). If shop drawings are not prepared according to the latest structural drawings, or if shop drawings are submitted without indicating reference drawings, the shop drawings will be returned without review.
2. All shop drawings shall be checked by the Subcontractor and reviewed by the General Contractor prior to submission. Shop drawings which have not been checked by the Subcontractor or reviewed by the General Contractor will be returned without review.
3. Review of shop drawings by the Engineer does not relieve the Contractor from full conformance to the contract documents.

DESIGN LOADS:

The building has been designed to conform to the 2009 IBC Building Code and to resist the following loads:

Roof:.....LL = 20 psf
Rooms:.....LL = 40 psf
Corridor Serving Rooms:...LL = 40 psf
Lobby:.....LL = 100 psf
Lobby Corridors:...LL = 100 psf
Public Rooms.....LL = 100 psf

Wind:
1. Wind Speed (3 Second Gust) V = 100 mph
2. Wind Importance Factor: I = 1.00
   Building Category II
3. Wind Exposure: "B"

Snow
Ground Snow:.....Pg = 60 psf
Flat Roof Snow.....Pf = 42 psf
Snow Exposure Factor.....Ce = 1.0
Snow Load Importance Factor.....I = 1.0
Thermal Factor.....Ct = 1.0

SEISMIC DESIGN:
1. Seismic Importance Factor.....I = 1.0
2. Occupancy Category II
3. Mapped Spectral Response Accelerations:
   SS = xx
   S1 = xx
4. Site Class "C"
5. Spectral Response Coefficients:
   SDS = xx
   SD1 = xx
6. Seismic Design Category: "x"
7a. Basic Seismic Force Resisting System of Wood Superstructure:
   OSB Shear Walls in Load Bearing Wall System.
8a. Seismic Response Coefficient.....Cs = xx
9a. Response Modification Coefficient: R = xx

10a. Design Procedure: V = Cs*(w)

11a. Design Base Shear: V = xxk

7b. Basic Seismic Force Resisting System of Steel Structure:
   Steel Concentrically Braced Frames in Building Frame System.
8b. Seismic Response Coefficient.....Cs = xx
9b. Response Modification Coefficient: R = xx

10b. Design Procedure: V = Cs*(w)

11b. Design Base Shear: V = xxk

ABBREVIATIONS OF STRUCTURAL DRAWINGS:

A.B.	Anchor Bolt	L.P.	Low Point
A.R.	Anchor Rod	LVL	Laminated Veneer Lumber
ARCH.	Architectural/Architect	MC	Moment Connection
BOF	Bottom of Footing	MIN.	Minimum
CJ	Control Joint	N.S.	Near Side
CL.	Center line	O.C.	On Center
CONC.	Concrete	PL	Plate
CMU	Concrete Masonry Unit	P.T.	Pressure Treated
DIA.	Diameter	RD	Roof Drain
DWGS.	Drawings	REINF.	Reinforced / Reinforcing
EF	Each Face	REQD.	Required
EL.	Elevation	RTU	Roof Top Unit
EOD	Edge of Deck	T&B	Top & Bottom
EW B.	Each Way Bottom	TOC	Top of Concrete
EXIST.	Existing	TOS	Top of Steel
FDN.	Foundation	TOW	Top of Wall
F.S.	Far Side	TYP.	Typical
FTG.	Footing	UNO.	Unless Noted Otherwise
H.P.	High Point	VERT.	Vertical
HSS	Hollow Structural Steel	V.I.F.	Verify in Field
HORZ.	Horizontal	W/	With
LAM	Parallam		
LLH	Long Leg Horizontal		
LLV	Long Leg Vertical		

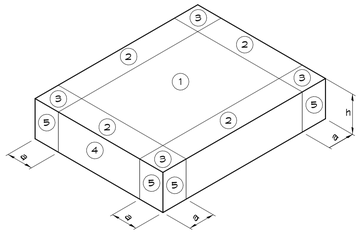
Refer to project specifications for additional requirements.

WALL WIND LOAD PRESSURES EXPOSURE B WIND SPEED = 100 mph (ACSE 7-05) EFFECTIVE AREA = 20FT ^{2}			
HEIGHT	ZONE	PRESSURE (PSF)	
90'	4	+22.58	-22.68
	5	+22.58	-41.59
80'	4	+21.99	-22.68
	5	+21.99	-41.59
70'	4	+21.21	-22.68
	5	+21.21	-41.59
60'	4	+20.43	-22.68
	5	+20.43	-41.59
50'	4	+19.64	-22.68
	5	+19.64	-41.59
40'	4	+18.66	-22.68
	5	+18.66	-41.59
UP TO 30'	4	+18.66	-22.68
	5	+18.66	-41.59

MEAN ROOF HEIGHT = 42FT

WALL WIND LOAD PRESSURES EXPOSURE B WIND SPEED = 100 mph (ACSE 7-05) EFFECTIVE AREA = 50FT ^{2}			
HEIGHT	ZONE	PRESSURE (PSF)	
90'	4	+20.80"	-23.31
	5	+20.80"	-36.80
80'	4	+20.27	-23.31
	5	+20.27	-36.80
70'	4	+19.56	-23.31
	5	+19.56	-36.80
60'	4	+18.85	-23.31
	5	+18.85	-36.80
50'	4	+18.14	-23.31
	5	+18.14	-36.80
40'	4	+17.25	-23.31
	5	+17.25	-36.80
UP TO 30'	4	+16.19	-23.31
	5	+16.19	-36.80

MEAN ROOF HEIGHT = 42FT



a=.4h

STATE OF MAINE
RIMANTAS M. VEITAS
No. 9577
LICENSED
PROFESSIONAL ENGINEER

Prepared For:
NewHeight Group
118 Congress Street, Unit 401
Portland, Maine

Consulting Engineer:
VEITAS and VEITAS engineers
638 Granite Street, Suite 101
Braintree, Massachusetts 02184
TEL (781)849-2063 FAX (781)849-2065

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
LUMINATO
Newbury Street Portland, Maine

Revisions:
5/16/16 FOUNDATION PERMIT

Scale: 1/8" = 1'-0"

Date: 04/19/16

GENERAL NOTES

S201