GENERAL NOTES

(TYPICAL UNLESS OTHERWISE NOTED)

ABBREVIATIONS

@	At
A.B.	Anchor Bolt
AESS	Architecturally Exposed Structural Steel
ARCH.	Architect or Architectural
BLDG.	Building
BLKG.	Blocking
B.O.F.	Bottom of Footing
B.O.S.	Bottom of Steel
BOTT.	Bottom
BRG.	Bearing
CANT.	Cantilever
C.F.M.F.	Cold Formed Metal Framing
C.J.	Control Joint
CLR.	Clear
CMU	Concrete Masonry Unit
COL.	Column
CONC.	Concrete
CONN.	Connection
CONST.	Construction
CONT.	Continuous
CONTR.	Contractor
COORD.	Coordinate
C.W.	Curtain Wall
DET.	Detail
DIA. or ø	Diameter
DIAG.	Diagonal or Diagram
DWG.	Drawing
DWL.	Dowel
E.F.	Each Face
E.J.	Expansion Joint
EL.	Elevation
ELEV.	Elevator
EMBED.	Embedment
E.O.S.	Edge of Slab
E.W.	Each Way
EX.	Existing
EXT.	Exterior
F.F.S.	Frost-Free Slab
F.S.	Far Side
FTG.	Footing
F.V.	Field Verify
GA.	Gauge or Gage
GALV.	Galvanized
H.P.	High Point
HORIZ.	Horizontal
I.F.	Inside Face
INT.	Interior
JT.	Joint
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LOC.	Location
L.P.	Low Point
LT. WT.	Lightweight
MASY.	Masonry
MAX.	Maximum
MECH.	Mechanical
MIN.	Minimum
N.F.	Near Face
N.I.C.	Not In Contract
N.T.S.	Not To Scale
O.C.	On Center
O.F.	Outside Face
OPNG.	Opening
OPP.	Opposite
P.C.	Precast
PEMB	Pre-Engineered Metal Building
R.	Radius
REF.	Reference
REINF.	Reinforcing or Reinforcement
REQD.	Required
SECT.	Section
SIM.	Similar
S.O.G.	Slab On Ground
S.S.	Stainless Steel
STIFF.	Stiffener or Stiffened
T&B	Top And Bottom
T.B.D.	To Be Determined
T.O.C.	Top of Concrete
T.O.F.	Top of Footing
T.O.S.	Top of Steel
T.O.W.	Top of Wall
TYP.	Typical
U.O.N.	Unless Otherwise Noted
VERT.	Vertical
W/	With
WWR	Welded Wire Reinforcement
W.P.	Work Point

CODES AND STANDARDS

1. Building has been designed to, and shall be constructed in accordance with the following building codes and standards:
   - A. 2011 Ohio Building Code (OBC 2011)
   - B. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures
2. Unless explicitly modified in the Contract Drawings and Specifications, the Contractor shall comply with provisions of:
   - A. ACI 301-10, Specifications for Structural Concrete
   - B. ACI 318-08, Building Code Requirements for Structural Concrete
   - C. AISC 341-05, Seismic Provisions for Structural Steel Buildings
   - D. AISC 360-05, Specification for Structural Steel Buildings
   - E. AWS D1.1-10, Structural Welding Code - Steel

DESIGN LOADS

Foundation Load ----------
Design of the foundations (Auger Cast Piles and Pile Caps) shall be based on the design loads included on drawing S402. The design loads on drawing S402 are based on the Pre-Engineered Metal Building reactions provided by USA - Steel, dated 5/24/2013

Floor live load (unless otherwise noted)
- Slab on Grade (Storage Areas) ---------- 125 psf
- Slab on Grade (All other Areas) ---------- 100 psf

Roof live load ----------
- Awnings and Canopies (OBC 1607.11.2.4) ---------- 20 psf

Roof snow load ---------- 20 psf min.
- Ground snow load (OBC 1608.2, ASCE 7, 7.2) ---------- P_g = 25 psf
- Flat-roof snow load (ASCE 7, 7.3) ---------- P_f = 22 psf (7)
- Snow exposure factor (ASCE 7, Table 7-2) ---------- C_e = 1.0
- Snow importance factor (ASCE 7, Table 7-4) ---------- I_s = 1.1
- Thermal factor (ASCE 7, Table 7-3) ---------- C_t = 1.0

(7) Increased for snow buildup / unbalanced per ASCE 7, 7.6 to 7.9

Wind design data ---------- per ASCE 7
- Basic wind speed (3-second gust) (OBC 1609.3) ---------- V = 90 mph
- Wind importance factor (ASCE 7, Table 6-1) ---------- I_w = 1.15
- Occupancy category (OBC Table 1604.5) ---------- III
- Wind exposure category (OBC 1609.4.3) ---------- C
- Internal pressure coefficient (ASCE 7, Fig. 6-5) Encl. ---------- GC_{pi} = ± 0.18
- Components and cladding ---------- per ASCE 7
- Uplift on canopies and overhangs ---------- 25 psf min

Earthquake design data
- Seismic importance factor (ASCE 7, Table 11.5-1) ---------- I_e = 1.25
- Occupancy category (OBC Table 1604.5) ---------- III
- Site class (per Geotechnical Report) ---------- D
- Spectral response coefficients
  - Short period ---------- S_{DS} = 0.157 g
  - 1-second period ---------- S_{D1} = 0.096 g
- Seismic design category ---------- B

See Pre-Engineered Metal Building designers drawings & calculations for additional information.

Flood design data
Building is in a flood hazard area (OBC 1612.3)
The Building is designed to allow interior of the building to flood in a major flood event. See Architects drawings for additional information.

Special Loads
- Handrails and Guardrails (OBC 1607.7) ---------- per OBC

DESIGN STRESSES

Concrete (strength design) minimum compressive strength in 28 days:
- Interior slabs on grade, grade beams, pile caps and curbs ---------- f'_c = 4,000 psi
- Concrete subject to freezing and thawing ---------- f'_c = 5,000 psi
- Lean concrete, for use with overexcavations ---------- f'_c = 1,500 psi

Reinforcing bars (ASTM A615, Grade 60) ---------- F_y = 60,000 psi
Welded wire reinforcement (ASTM A185) ---------- f_s = 30,000 psi
Anchor rods (F1554, Grade 36) unless otherwise noted on PEMB drawing-- F_y = 36,000 psi
(See PEMB designers drawings and calculations for additional information)

Deep Foundations: Auger Cast Piles
Design parameters - per Geotechnical report prepared by PSI Inc., dated February 6, 2013

- Allowable end bearing capacity
  - @ approximately 55'-0" below ground surface ---------- 20,000 psf
- Allowable unit side resistance ---------- 1,000 psf (Ignore top 10 feet of pile)

GENERAL

1. All new construction shall comply with the Contract Documents and the Building Code.
2. Typical details and general notes apply to all parts of the work except where specifically detailed or unless otherwise noted.
3. The structural drawings illustrate structural members. Refer to architectural, mechanical, and electrical drawings for non-structural items which require special provisions during the construction of the structural members.
4. Drawings are not to be scaled.
5. Refer to architectural plans for floor depressions, openings, slopes, drains, curbs, pads, embedded items, non-bearing partitions, etc. Refer to mechanical and electrical plans for sleeves, openings, and hangers for pipes, ducts, and equipment.
6. The Contractor shall verify and be responsible for all dimensions and conditions which impact the work. Field verify sizes, elevations, hole locations, etc., prior to fabrication.
7. The Contractor shall carefully review the drawings to identify the scope of work required, visit the site to relate the scope of work to existing conditions and determine the extent to which those conditions and physical surroundings will impact the work.
8. The Contractor shall resolve any conflicts on the drawings or in the specifications with the Architect/Engineer before proceeding with the work.
9. Any deviation, modification, or substitution from the approved set of structural drawings shall be submitted to the Owner, Architect, and Engineer for review/approval prior to its use or inclusion on the shop drawings.
10. The Contractor shall provide all necessary shores, braces, and guys required to support all loads to which the building structure and components, soils, other structures, and utilities may be subjected during construction. Shoring systems shall be designed, signed, and sealed by a professional engineer licensed in the jurisdiction where the project is located.
11. The Contractor shall provide means, method, techniques, sequence, and procedure of construction as required.
12. The Contractor shall protect all work, materials, and equipment from damage and shall provide proper storage facilities for materials and equipment during construction.
13. Site visits performed by the Architect/Engineer do not constitute inspections of means and methods of construction performed by the Contractor.
14. Structural observations performed by the Architect/Engineer during construction are not the continuous and special inspection services and do not waive the responsibility for the inspections required of the Building Department Inspector or the testing agency. Observations also do not guarantee the Contractor's performance and shall not be considered as supervision of construction.
15. The Contractor shall review shop drawings for completeness and compliance with contract documents. The Contractor shall stamp shop drawings prior to submission to the Architect and Engineer.
16. Review of the shop drawings by the Architect's Engineers shall not be construed as an authorization to deviate from the Contract Documents.
17. Shop drawings will not be processed if they are incomplete, lack coordination with relevant portion of contract documents, lack calculations if required, or if deviations, modifications, and substitutions are indicated without prior written approval from the Architect/Engineer.

STRUCTURAL TESTING AND SPECIAL INSPECTIONS

Special structural testing and inspections are required. The University shall hire an approved independent testing agency. The agency shall be designated as the special inspector and shall provide structural testing and special inspections as required by the building code and as noted in the Contract Documents. Reports of inspection and testing shall be sent to the Architect, Engineer, University, Contractor, and Building Department. Structural testing and special inspection shall include:

1. Concrete: See specifications for all testing and inspection requirements.
2. Reinforcement: See specifications for all testing and inspection requirements.
3. Foundations:
   - a. Inspect and test bearing surfaces, soil compactions, fill and backfill materials.
   - b. Inspect all excavations and shoring installations and review backfilling procedures.
4. Earth Fill: certification of all fill material and in-place density tests. See specifications for all testing and inspection requirements.
5. Auger Cast Piles: see specifications for all testing and inspection requirements.

FOUNDATIONS AND SLABS ON GROUND

1. Foundations for this project are designed in accordance with the recommendations made by PSI Inc., Geotechnical Engineers. All the work regarding site preparation, earth fill construction, backfill requirements, foundation preparations, etc., shall be in strict conformance to the requirements and recommendations of the Geotechnical Engineer's report. The report is part of the Contract Documents.
2. Slab on ground: Slab elevations given are to top of structural slab. See Architect's drawings for additional information.
3. Unless otherwise noted in the geotechnical report or specifications, compact all fill under slabs on ground to 98% of optimum laboratory density in accordance with ASTM D698 Standard Proctor Method. Place fill in 6" to 8" layers and compact with vibratory tamping equipment.
4. Unless otherwise noted in the geotechnical report or specifications, compact all engineered fills under foundations to 95% of the maximum dry density per ASTM D1557 Modified Proctor Method.
5. In granular soils (sands and gravel) the soil shall be mechanically tamped to a hard surface immediately prior to placing footing.
6. Locate existing underground utilities in areas of construction. Coordinate with utility companies for any shut-off requirements of still active lines. Call the Ohio Utilities Protection Service at 800-362-2764.
7. When excavations approach the ground water level, the water level shall be lowered by an acceptable dewatering system so that the water level is maintained continuously a minimum of 2'-0" below the excavation.The bottom of foundations shall be protected against freezing until backfill or other permanent protective cover is in place.

AUGERCAST PILES

1. Augercast piles are to be bored in place, pressure injected concrete mortar piles (4,000 psi min.) and shall be installed by a contractor experienced in this type of work. Piles to be designed and furnished by the Pile Contractor. See structural drawings, specifications and geotechnical report for additional requirements.
2. See specifications for load test requirements.
3. All piles shall be reinforced. Non-reinforced piles will not be accepted.
4. The bottom of all piles shall extend a minimum of 55'-0" below the top of ground surface, unless required otherwise per Pile Designers, design calculations and drawings.

EARTHWORK SHORING

1. Temporary shoring for foundations, full-depth trench footings, and grade beams shall be provided when required by local, state, or OSHA officials or codes at no additional cost to the University.
2. Where forces from existing structures, roadways, walks, utility lines, or other encumbrances required for construction come onto shoulders of foundations, footing, or grade beam excavations, the Contractor shall provide shoring of adequate size and strength to resist the combined earth and adjacent surcharge pressures.
3. The Contractor shall be responsible for design and placement of shoring and bracing of temporary earth retaining structures required for foundation and footing construction.
4. Local, state, and OSHA safety requirements for personnel working in trenches shall be enforced by the Contractor. The Contractor shall hold the University, Architect, and Engineers harmless from claims due to injury from violation of safety requirements resulting from work persons or others working in foundations, trench, or grade beam excavations.

CONCRETE CONSTRUCTION

1. All concrete construction shall be in accordance with the latest Building Code Requirements for Structural Concrete ACI 318 and ACI Detailing Manual, except that construction and removal of forms and reshoring shall be inspected by the Contractor's engineer.
2. Reinforcing steel shall have the following minimum coverage. Place bars as near to the concrete surface as these minima permit wherever possible, unless noted otherwise:
   - A. Concrete poured against earth: 3"
   - B. Formed concrete in contact with earth: 2"
   - C. Exterior face of walls: 2"
   - D. All other wall faces 3/4" (#11 and smaller), 1 1/2" (#14 and #18)
3. Furnish bar supports where necessary during construction.
4. Provide pipe sleeves and inserts in concrete work where required. See architectural and mechanical drawings.
5. Obtain approval of Engineer before locating sleeves, holes, or inserts in slabs within 2'-0" of face of columns.
6. Unless noted otherwise, provide the following minimum reinforcing:
   - A. Toppings (2" minimum): 6x6-W1.4xW1.4 welded wire reinforcement in flat sheets.
   - B. Grade beams: (2) #6 top and bottom continuous.
7. Fiber reinforced Concrete Slab on Grade:
   All Slabs on Grade shall have uniformly dispersed (macro) fiber reinforcing. Manufacturer shall develop minimum dosage requirements based on provision of equivalent bending moment and tensile capacity, that would be provided by welded wire mesh reinforcing for the specified thickness of the concrete slab. The minimum dosage requirements shall conform to the following welded wire mesh reinforcing equivalency requirements:
   The contractor shall provide equivalent reinforcing to a 6"x6" - W2.9xW2.9 welded wire mesh reinforcing in both direct tension and bending capacity in the specified 5" thickness of the slab on grade.
   Information and dosage recommendations shall be provided by the fiber manufacturer and shall include testing data along with material technical and safety information. Fibers shall comply with ASTM C1116 Type III synthetic fiber reinforcement for concrete. Manufacturer must provide demonstration of sustainability for use in regards to: thorough distribution in mixing, proper placement, and finishing.
8. Construction joints shall be positioned so as not to change the structural design requirements. The location and size of all construction joints shall be approved by the Engineer. Submit proposed pour layout for Engineer's review and approval two weeks prior to placing concrete.
9. Welding of reinforcing bars (including tack welding) is not permitted without permission of Engineer in writing. Where and when permitted, welded rebars shall comply with ASTM A706 (Fy=60 ksi) and welding shall conform to AWS D1.4. Welding shall be performed by certified welders.
10. Unless noted otherwise in project specifications or drawings, all exposed concrete subjected to freezing and thawing shall have a minimum cement content of 610 pounds per yard, a maximum water/cement ratio of 0.40, and 6%±1% of entrained air.
11. At footing corners, innermost reinforcing shall have 1'-0" long hook at far face. For outer reinforcing, provide corner bars with lap length of 36 bar diameters (2'-0" minimum).
12. Drawings show typical reinforcing conditions. Contractor shall prepare detailed placement drawings of all conditions showing quantity, spacing, sizes, clearances, laps, intersections, and coverage required by the structural details, applicable code, and trade standards. Contractor shall notify reinforcing inspector of any adjustments from typical conditions which are proposed in placement drawings to facilitate field placement of reinforcing steel and concrete.
13. Bar bends shall be made cold. Bars shall not be bent after any portion of the bar is encased in concrete.
14. Splices (grade 60 deformed bars):
    - A. Lap all compression splices 30 bar diameters of the larger bar.
    - B. Lap all tension splices in accordance with the following tables. Provide Class B Tension Lap Splices unless otherwise noted.
    - C. Top bars are defined as horizontal bars with more than 12" of fresh concrete below.

Bar Size	Class B Tension Lap Splice					
	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi	
	Top	Other	Top	Other	Top	Other
#3	28"	22"	24"	19"	22"	17"
#4	37"	29"	33"	25"	29"	23"
#5	47"	36"	41"	31"	36"	28"
#6	56"	43"	49"	37"	43"	34"
#7	81"	63"	71"	54"	63"	49"
#8	93"	72"	81"	62"	72"	56"
#9	105"	81"	91"	70"	81"	63"
#10	118"	91"	102"	79"	92"	70"
#11	131"	101"	113"	87"	102"	78"

Bar Size	Class A Development Length, ld					
	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi	
	Top	Other	Top	Other	Top	Other
#3	22"	17"	19"	15"	17"	13"
#4	29"	22"	25"	19"	23"	17"
#5	36"	28"	31"	24"	28"	22"
#6	43"	33"	37"	29"	34"	26"
#7	63"	48"	54"	42"	49"	38"
#8	72"	55"	62"	48"	56"	43"
#9	81"	62"	70"	54"	63"	48"
#10	91"	70"	79"	61"	70"	54"
#11	101"	78"	87"	67"	78"	60"

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GENERAL NOTES

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