1 - GENERAL NOTES

A. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, HVAC, PLUMBING AND CIVIL DRAWINGS AND SPECIFICATIONS.

B. CONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, ETC., IN FIELD AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION OR SHOP DRAWINGS.

C. THE DRAWINGS ARE INTENDED TO REQUIRE AND TO INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT PROPER FOR THE WORK.

D. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES AND REQUIREMENTS.

E. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND SAFETY PROCEDURES. THE ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS OR THEIR AGENTS OR EMPLOYEES OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK.

F. OBSERVE ALL OSHA AND OTHER APPLICABLE SAFETY REQUIREMENTS INCLUDING THE USE OF SAFETY GLASSES, HARD HATS, AND PROTECTION OF AREA WHEN WORKING OVERHEAD. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR CONSTRUCTION SAFETY AT ALL TIMES.

G. COORDINATE WORK OF ALL DISCIPLINES (ARCH., STRUCT., ELECT., ETC.) WITH EXISTING CONDITIONS, SPECIAL REQUIREMENTS, CONSTRUCTION SCHEDULE AND OTHER CONTRACTORS PERFORMING WORK AT THE SITE.

H. THE CONTRACTOR SHALL DESIGN AND PROVIDE ANY TEMPORARY SHORING, BRACING, ETC., AS NEEDED FOR THE WORK SO AS NOT TO ENDANGER THE STRUCTURAL INTEGRITY OF ANY EXISTING FEATURE.

I. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE DONE TO EXISTING FEATURES AS A RESULT OF THIS WORK. DAMAGED ITEMS SHALL BE REPLACED IN KIND AND AT NO ADDITIONAL COST TO THE OWNER.

J. SEE SPECIFICATIONS FOR FULL SCOPE OF REQUIREMENTS APPLICABLE TO THIS PROJECT.

K. SHOP DRAWINGS: REPRODUCTION OF DESIGN DRAWINGS SHALL NOT BE PERMITTED FOR SHOP DRAWING SUBMISSIONS. THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER SHALL REVIEW AND PROVIDE REVIEW STAMP ON SHOP DRAWING SUBMISSIONS PRIOR TO SUBMITTAL TO ARCHITECT/ENGINEER INDICATING UNDERSTANDING AND ACCEPTANCE OF SUBMITTAL AND CONFIRMING CONFORMANCE TO PROJECT PLANS/SPECIFICATIONS.

2 - DESIGN CRITERIA

A. ROOF LOADS

LIVE LOAD	- 20 PSF
GROUND SNOW	- 60 PSF
SNOW EXPOSURE FACTOR (Ce)	- 0.9
SNOW LOAD IMPORTANCE FACTOR (I)	- 1.0
FLAT ROOF SNOW	- 37.8 PSF

SNOW DRIFTING LOAD EFFECTS CONSIDERED PER ASCE 7.

B. WIND LOADS

BASIC WIND SPEED	- 118 MPH
WIND EXPOSURE	- C
WIND LOAD IMPORTANCE FACTOR (I)	- 1.0
RISK CATEGORY	- II

C. SEISMIC

SEISMIC DESIGN CATEGORY	- C
SEISMIC SITE CLASS	- E
SPECTRAL RESPONSE COEFFICIENT SDS	- .407
SPECTRAL RESPONSE COEFFICIENT SDI	- .184
SEISMIC IMPORTANCE FACTOR (I)	- 1.0
SEISMIC FORCE RESISTING SYSTEM	- STRUCTURAL STEEL SYSTEMS
ANALYSIS PROCEDURE	- EQUIVALENT LATERAL FORCE ANALYSIS

D. FLOOR LOADS

SLAB-ON-GRADE	- 250 PSF
SECOND FLOOR	- 250 PSF
STAIRS	- 100 PSF INCLUDES STORAGE @ ROOF
PLATFORMS	- 100 PSF

E. DEFLAGRATION LOADS - ROOM #116

INTERIOR WALLS & ROOF	- 215 PSF
EXTERIOR WALL RELEASE PRESSURE	- 40 PSF

3 - FOUNDATIONS

A. MAXIMUM ALLOWABLE BEARING PRESSURE=2,000psf

B. ALL COLUMN AND WALL FOOTINGS SHALL BEAR ON APPROVED, UNDISTURBED NATIVE SOILS.

C. THE CONTRACTORS ATTENTION IS DIRECTED TOWARDS THE EARTHWORK REQUIREMENTS OF THE PROJECT GEOTECHNICAL REPORT PREPARED BY S.W.COLE ENGINEERING, DATED MARCH 31, 2016 (PROJECT NO. 16-0136). ALL EARTHWORK AND SATISFACTION OF THE SITE GEOTECHNICAL ENGINEER.

4 - CONCRETE WORK

A. SUBMITTALS

1. SUBMIT SHOP DRAWINGS SHOWING FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT. DETAILING SHALL COMPLY WITH THE ACI DETAILING MANUAL.

2. SUBMIT CONCRETE MIX PROPORTIONS WITH SUPPORTING TEST DATA, MATERIAL CERTIFICATIONS AND PRODUCT DATA, TO DEMONSTRATE COMPLIANCE WITH THE REQUIREMENTS BELOW AND THE PROJECT SPECIFICATIONS.

B. COMPLY WITH THE FOLLOWING CODES AND STANDARDS:

1. ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
2. ACI 305, ACI 306, ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
3. ACI DETAILING MANUAL, LATEST EDITION.
4. ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORM WORK".
5. CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE".
6. ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE".

C. MATERIALS:

1. REINFORCING BARS - ASTM A615, GRADE 60, DEFORMED.
2. WELDED WIRE FABRIC (WWF) - ASTM A185, FLAT SHEETS.
3. SUPPORTS FOR REINFORCEMENT:
   (A) FOR SLABS-ON-GRADE USE CONCRETE BRICKS OR CHAIRS TO SUPPORT AND MAINTAIN PROPER LOCATION OF WWF AND REINFORCING BARS.

   (B) BOLSTERS, CHAIRS, SPACERS, ETC. SHALL BE WIRE BAR TYPE SUPPORTS COMPLYING WITH CRSI SPECS. FOR EXPOSED TO VIEW SURFACES WHERE SUPPORTS ARE IN CONTACT WITH FORMS, PROVIDE SUPPORTS WITH LEGS WHICH ARE PROTECTED BY PLASTIC OR STAINLESS STEEL.
4. PORTLAND CEMENT-ASTM C150, TYPE II.
5. AGGREGATES-ASTM C33.
6. AIR ENTRAINING ADMIXTURE-ASTM C260, CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES.
7. PROHIBITED ADMIXTURES-CALCIUM CHLORIDE THYOCYANATES OR ADMIXTURES CONTAINING MORE THAN 0.1% CHLORIDE IONS ARE NOT PERMITTED.

D. PROPORTIONING AND DESIGN OF MIXES:

1. PREPARE DESIGN MIXES FOR EACH TYPE, AND STRENGTH OF CONCRETE BY EITHER LABORATORY TRIAL BATCH OR FIELD EXPERIENCE METHODS AS SPECIFIED IN ACI 318.
2. NORMAL WEIGHT CONCRETE-MINIMUM 28 COMPRESSIVE STRENGTH - 4,000 PSI (TYPICAL), 4,500 PSI FOR RETAINING WALL & LOADING DOCK.

E. FORM WORK:

1. PROVIDE OPENINGS IN CONCRETE FORM WORK TO ACCOMMODATE WORK OF OTHER TRADES.

F. CONCRETE SHALL BE READY MIXED PER ASTM C94. JOB SITE MIXING SHALL NOT BE PERMITTED.

G. CONCRETE PLACEMENT:

1. THE ADDITION OF WATER TO THE CONCRETE MIX AT THE JOB SITE IS NOT PERMITTED UNLESS SPECIFICALLY ALLOWED BY THE OWNER'S REPRESENTATIVE.
2. PROTECT CONCRETE WORK FROM THE DETRIMENTAL EFFECTS OF COLD TEMPERATURES IN COMPLIANCE WITH ACI 306.
3. PROTECT CONCRETE WORK FROM THE DETRIMENTAL EFFECTS OF HOT WEATHER OR WINDY CONDITIONS IN COMPLIANCE WITH ACI 305.
4. PLACE FLOOR SLABS TO SURFACE LEVEL TOLERANCES OF FF20-FL17.

H. CONCRETE FINISHES:

1. FORMED SURFACES EXPOSED TO VIEW - SMOOTH RUBBED FINISH.
2. SLAB FINISH - PROVIDE TROWEL FINISH.

I. PROVIDE MOISTURE CURE TO SLAB SURFACES FOR 7 DAYS BY EITHER COVERING THE CONCRETE WITH WATER, APPLYING A CONTINUOUS WATER-FOG SPRAY, OR COVERING WITH AN ABSORPTIVE COVER. CHEMICAL CURING COMPOUNDS WILL NOT BE ALLOWED ON FLOOR SLABS.

J. THE OWNER WILL EMPLOY A TESTING AGENCY TO PERFORM SAMPLING AND TESTING AND SUBMIT TEST REPORTS.

K. SAMPLING AND TESTING OF CONCRETE SHALL INCLUDE:

1. SLUMP-ASTM C143-ONE TEST AT POINT OF PLACEMENT FOR EACH TRUCK LOAD OF EACH TYPE OF CONCRETE UNTIL CONCRETE CONSISTENCY IS UNIFORM, AND AT LEAST EVERY THIRD TRUCK THEREAFTER; ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY SEEMS TO HAVE CHANGED.
2. AIR ENTRAINMENT-ASTM C173 VOLUMETRIC METHOD, OR ASTM C231 PRESSURE METHOD, ONE FOR EACH DAY'S PLACEMENT OF EACH TYPE OF AIR ENTRAINED CONCRETE.
3. CONCRETE TEMPERATURE-TEST HOURLY WHEN AIR TEMPERATURE IS 41°F AND BELOW OR WHEN 80°F AND ABOVE, AND EACH TIME A SET OF COMPRESSION TEST CYLINDERS IS MADE.
4. COMPRESSION TEST SPECIMENS-ASTM C31-ONE SET OF 6 CYLINDERS FOR EACH COMPRESSIVE STRENGTH TEST. MOLD AND STORE CYLINDERS FOR LABORATORY CURED TEST SPECIMENS.
5. COMPRESSIVE STRENGTH TESTS-ASTM C39-ONE SET FOR EACH DAY'S PLACEMENT EXCEEDING 5 CUBIC YARDS PLUS ADDITIONAL SETS FOR EACH 50 CUBIC YARDS OVER AND ABOVE THE FIRST 25 CUBIC YARDS OF EACH CONCRETE CLASS PLACED IN ONE DAY. TWO SPECIMENS TESTED AT 7 DAYS, TWO SPECIMENS TESTED AT 28 DAYS, AND TWO SPECIMENS RETAINED IN RESERVE FOR LATER TESTING IF REQUIRED.

5 - EARTHWORK

A. MATERIALS

1. ENGINEERED FILL, BACK FILL AND SUBBASE MATERIAL SHALL BE A SOIL GRANULAR MATERIAL CONFORMING TO THE GRADATION CRITERIA REFERENCED ON THE DRAWINGS.

2. SAND SHALL CONSIST OF CLEAN SAND HAVING HARD, DURABLE, UNCOATED GRAINS, FREE FROM DELETERIOUS MATTER. FINENESS MODULUS SHALL BE 2.65+/- 0.20.

B. SUBMIT TEST RESULTS VERIFYING MATERIALS TO BE USED MEET THE ABOVE REQUIREMENTS.

C. STRIP TOPSOIL, ORGANIC MATERIAL, AND LOOSE SOILS INSIDE THE PROJECT AREA. REMOVE EXISTING ASPHALT AND CONCRETE STRUCTURES WITHIN 24 INCHES OF THE FINISHED FLOOR ELEVATION UNLESS NOTED OTHERWISE ON THE DRAWINGS. REMOVE THESE EXISTING MATERIALS COMPLETELY AT FOUNDATION LOCATIONS.

E. MATERIALS EXCAVATED BELOW INDICATED SUBGRADE ELEVATIONS, UNDER FOOTINGS, FOUNDATION BASES OR RETAINING WALLS SHALL BE REPLACED WITH LEAN CONCRETE FILL. BACK FILL OTHER AREAS WITH AUTHORIZED MATERIALS.

F. EXCAVATIONS SHALL BE KEPT FREE OF WATER AND ANY UNDESIRABLE MATERIALS WHILE WORK IS IN PROGRESS. NOTIFY OWNER'S REPRESENTATIVE WHEN EXCAVATION HAS BEEN RECOMPACTED AND REINFORCING PLACED. DO NOT PLACE CONCRETE UNTIL DIRECTED TO DO SO.

G. NO BACK FILLING OF FOUNDATION WALLS (EXCEPT RETAINING WALLS) SHALL BE DONE UNLESS WALLS ARE ADEQUATELY BRACED OR BACK FILL IS PLACED EQUALLY ON BOTH SIDES OF WALL.

H. PLACE ENGINEERED FILL IN LIFTS NOT EXCEEDING 6 INCHES TO WITHIN 8 INCHES OF THE BOTTOM OF SLAB. COMPACT EACH LIFT TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST (ASTM D698).

I. COMPACT BACKFILL AFTER PLACING BELOW GRADE COMPONENTS TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST (ASTM D698).

J. PROTECT BOTTOM OF EXCAVATIONS AGAINST FREEZING WHEN TEMPERATURE IS LESS THAN 35°

K. COMPACTION TESTING TO BE PERFORMED AS FOLLOWS:

1. FILL UNDER BUILDING SLAB: A MINIMUM OF ONE TEST PER LAYER FOR EVERY 1000 SQUARE FEET OF ENGINEERED FILL. EACH 8" LIFT SHALL BE TESTED.

2. FOOTING AND TRENCH BACK FILL: A MINIMUM OF ONE TEST FOR EVERY TWO FEET OF FILL DEPTH FOR FOOTINGS AND ONE TEST FOR EVERY 50 LINEAR FEET OF TRENCH (MINIMUM ONE TEST PER TRENCH IF LESS THAN 50 FEET).

L. WRITTEN TEST RESULTS SHALL BE RECEIVED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE PRIOR TO THE COMMENCEMENT OF ANY CONCRETE PLACEMENT.

RECOMMENDATIONS (REFER TO GEOTECHNICAL REPORT FOR MORE INFORMATION):

i. THE BUILDING PAD IS UNDERLAIN WITH 2 TO 5 FEET OF UNCONTROLLED FILL AND RELIC ORGANICS THAT MUST BE REMOVED BENEATH THE ENTIRE BUILDING FOOTPRINT TO EXPOSE UNDISTURBED NATIVE NON-ORGANIC SOILS. THE LATERAL LIMITS OF UNCONTROLLED FILL REMOVAL BENEATH THE ENTIRE BUILDING FOOTPRINT SHOULD EXTEND 1 FOOT HORIZONTALLY OUTWARD FROM PERIMETER FOOTINGS FROM EACH FOOT OF OVEREXCAVATION DEPTH. THE OVEREXCAVATION SHOULD BE BACKFILLED WITH COMPACTED GRANULAR BORROW.

ii. PERIMETER FOOTINGS SHOULD BEAR ON AT LEAST 6-INCHES OF COMPACTED CRUSHED STONE WRAPPED IN GEOTEXTILE FABRIC OVERLYING PROPERLY PREPARED SUBGRADES. INTERIOR FOOTINGS SHOULD BEAR ON COMPACTED GRANULAR BORROW. ON-GRADE FLOOR SLABS SHOULD BEAR ON AT LEAST 12-INCHES OF PROPERLY COMPACTED STRUCTURAL FILL OVERLYING PROPERLY PREPARED SUBGRADES.

iii. FILLS NEEDED TO RAISE SITE GRADE SHOULD BE PLACED TO WITHIN 2 FEET OF FFE PRIOR TO EXCAVATING FOR FOOTINGS TO HELP REDUCE POST-CONSTRUCTION SETTLEMENT.

iv. EXISTING PAVEMENT, UNCONTROLLED FILL, ORGANICS, STRUCTURES, AND UTILITIES MUST BE COMPLETELY REMOVED FROM BENEATH THE PROPOSED BUILDING FOOTPRINT AND ENTRANCE SLABS AND REPLACED WITH COMPACTED GRANULAR BORROW OR STRUCTURAL FILL, AS DISCUSSED. AS MUCH AS 5 FEET OF UNCONTROLLED FILL WAS ENCOUNTERED AT THE EXPLORATION LOCATIONS.

v. EARTHWORK AND GRADING ACTIVITIES SHOULD IDEALLY OCCUR DURING DRIER, NON-FREEZING MONTHS OF SPRING, SUMMER, AND FALL. CARE MUST BE TAKEN TO MINIMIZE DISTURBANCE TO BUILDING AND PAVEMENT SUBGRADE SOILS.

6 - STRUCTURAL STEEL

A. STRUCTURAL STEEL WORK INCLUDES ALL STRUCTURAL STEEL TO BE FURNISHED AND ERECTED, BEAMS, COLUMNS, CHANNELS, ANGLES, JOISTS, LINTELS, BEARING PLATES, ETC., AS INDICATED ON THE DRAWINGS.

B. COMPLY WITH THE FOLLOWING CODES AND STANDARDS:

1. AISC STEEL CONSTRUCTION MANUAL, ASD, 9TH EDITION
2. AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE STEEL", 2000.
3. CURRENT OSHA ERECTION AND FABRICATION REQUIREMENTS.

C. MATERIALS:

1. BEAMS, GIRDERS AND COLUMNS: ASTM A992
2. ANGLES, BARS AND PLATES: ASTM A-36.
3. TUBE STEEL: ASTM A500, GRADE B Fy=46 KSI
4. PIPE: SCHEDULE 40 CONFORMING TO ASTM A53, GRADE B. U.N.O.
5. HIGH STRENGTH BOLTS: ASTM A 325.
6. WELDS: E70XX ELECTRODES.

D. ALL STRUCTURAL STEEL SHOP CONNECTIONS SHALL BE WELDED AND ALL FIELD CONNECTIONS SHALL BE HIGH-STRENGTH BOLTED UNLESS SHOWN OTHERWISE.

E. ALL BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE. SLIP CRITICAL BOLTS SHALL BE USED AT ALL MOMENT CONNECTIONS.

F. PROVIDE ANCHORS AND OTHER DEVICES TO BE BUILT INTO CONCRETE WORK.

G. STEEL SHALL RECEIVE ONE COAT OF PRIMER PAINT, UNLESS NOTED OTHERWISE.

H. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS INCLUDING COMPLETE DETAILS AND SCHEDULES FOR FABRICATION AND ASSEMBLY OF STRUCTURAL STEEL MEMBERS, PROCEDURES AND DIAGRAMS.

I. ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPGALVANIZED.

K. PROVIDE MINIMUM OF L3X3X3/16 CLIP ANGLES WELDED TO COLUMNS FOR SUPPORT OF METAL ROOF OR FLOOR DECK WHERE REQUIRED.

L. PROVIDE A WELDED ANGLE FRAME PER DETAIL 7/S-501 FOR ALL ROOF OPENINGS GREATER THAN 13". SEE DETAIL 8/S-501 FOR ROOF DECK REINFORCEMENT OF OPENINGS 13" AND SMALLER.

M. PROVIDE A WELDED CHANNEL FRAME PER DETAIL 6/S-501 FOR ALL FLOOR OPENINGS GREATER THAN 13".

N. CONNECTIONS:

A. USE CONNECTIONS AS DETAILED ON PLANS OR STANDARD BEAM DETAILS ON SHEET S-600-B WHERE NOT SPECIFICALLY NOTED.
B. WHENEVER CONNECTIONS ARE NOT COVERED BY NOTE "A" ABOVE, FABRICATOR SHALL REQUEST ENGINEER TO SUPPLY CONNECTION DETAIL.

O. TURNBUCKLES SHALL CONFORM TO AISC MANUAL DATA.

P. COLUMN CAP PLATES ARE ½" THICK UNLESS NOTED. SLOPE TO MATCH BEAM SLOPE.

Q. REMOVE ALL SLACK FROM DIAGONAL BRACING BEFORE WELDING.

R. WHERE NOT SHOWN OTHERWISE, PROVIDE 3/8" STIFFENER PLATE EACH SIDE OF BEAM OVER COLUMNS OR COLUMNS OVER BEAMS.

S. PRIOR TO GROUTING, COLUMNS SHALL BE ERECTED AND ALIGNED AS TO PLUMBNESS AND ELEVATION BY MEANS OF STEEL SHIMS OR LEVELING NUTS UNDER THE BASE PLATES. SETTING PLATES SHALL ONLY BE USED AS TEMPLATES TO LOCATE ANCHOR BOLTS DURING CONCRETE PLACEMENT.

7 - MASONRY

A. SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR LOCATION, SIZE AND SPACING OF REINFORCED MASONRY.

B. SUBMITTALS

1. SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF MASONRY REINFORCEMENT COMPLYING WITH ACI DETAILING MANUAL.
2. SUBMIT DESIGN MIXES FOR EACH TYPE GROUT AT LEAST 15 DAYS PRIOR TO START OF WORK.

C. MATERIALS

1. CONCRETE MASONRY UNITS: HOLLOW OR SOLID UNITS ASTM C90. ALL UNITS SHALL BE TYPE I,NORMAL WEIGHT AUTOCLAVED CURED. MOISTURE CONTENT SHALL NOT EXCEED 30% OF MAXIMUM ABSORPTION, AND SHRINKAGE SHALL BE LESS THAN 0.35% AS PER ASTM C426.
2. MORTAR: ASTM C270, TYPE S. NO MASONRY CEMENT WILL BE ALLOWED.
3. f'm=1,500 psi
4. REINFORCEMENT BARS: ASTM A615 GRADE 60.
5. JOINT REINFORCEMENT: TRUSS TYPE WITH 0.148 INCH DIAMETER
6. FINE GROUT: ASTM C476.

D. TESTING PROCEDURE:

1. BLOCKS SHALL BE TESTED PER ASTM C-140 FOR STRENGTH, ABSORPTION AND SIZE.

2. STRENGTH OF MASONRY CONSTRUCTION SHALL BE DETERMINED BY UNIT STRENGTH METHOD IN ACCORDANCE WITH ACI 530.1, SPECIFICATION FOR MASONRY STRUCTURES, SECTION 1.4.

3. GROUT COMPRESSIVE STRENGTH SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C-1019. GROUT SLUMP SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C-143. ONE SET OR MORTAR CUBES (3 EACH) SHALL BE PREPARED EVERY 5000 SQ. FT. OF WALL CONSTRUCTED.

E. PROTECT MASONRY WORK FROM DAMAGE DUE TO OTHER WORK AND THE WEATHER AS RECOMMENDED BY NCMA. ALL UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS. SOLID UNITS SHALL BE LAID WITH FULL HEAD AND BED JOINTS, 3/8" THICK. LAY IN FULL RUNNING BOND UNLESS INDICATED OTHERWISE.

F. PLACE HORIZONTAL REINFORCING ON FULL MORTAR BED AT 16" O.C. MIN. OR AS INDICATED ON DRAWINGS. VERTICAL REINFORCING IN MASONRY WHERE SHOWN SHALL BE PLACED IN GROUT FILLED CORES AND PROPERLY LOCATED AS INDICATED. SPLICES SHALL BE MINIMUM 36 X BAR DIAMETER.

G. USE LOW-LIFT GROUTING TECHNIQUES TO FILL CORES, UNLESS HIGH-LIFT GROUTING (VERTICAL PLACEMENT >4'0") IS APPROVED BY THE OWNER'S REPRESENTATIVE IN WRITING.

H. USE UNIT TEST METHOD, ACCORDING TO ASTM C-140, TO VERIFY MATERIALS PROPERTIES.

I. ALL EXPOSED MORTAR JOINTS SHALL BE TOOLED.

TABLE 1704.4
B) REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.		X	ACI 318: 3.5, 7.1-7.7	1913.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, ITEM 5B.			AWS D1.4 ACI 318: 3.5.2	
3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE AVAILABLE LOADS HAVE BEEN INCREASED.	X			1911.5
4. VERIFYING USE OF REQUIRED DESIGN MIX.		X	ACI 318: Ch. 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3
5. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1913.10
6. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X		ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8
7. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.			ACI 318: 5.11-5.13	1913.9
8. INSPECTION OF PRESTRESSED CONCRETE: A. APPLICATION OF PRESTRESSING FORCES. B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM.	 X X		ACI 318: 18.20 ACI 318: 18.18.4	
9. ERECTION OF PRECAST CONCRETE MEMBERS.		X	ACI 318: Ch. 16	
10. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POSTTENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.		X	ACI 318: 6.2	
11. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X	ACI 318: 6.1.1	

TABLE 1704.3
A) REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS: a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS. b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		X	Applicable ASTM material specifications; AISC ASD, Section A3.4; AISC LRFD, Section A3.3	
2. INSPECTION OF HIGH-STRENGTH BOLTING: a. BEARING-TYPE CONNECTIONS. b. SLIP-CRITICAL CONNECTIONS	 X	X	AISC LRFD Section M2.5	1704.3.3
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL: a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS. b. MANUFACTURER'S CERTIFIED MILL TEST REPORTS.		X	ASTM A 6 or ASTM A 568 ASTM A 6 or ASTM A 568	1708.4
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS: a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS. b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		X	AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	
5. INSPECTION OF WELDING: a. STRUCTURAL STEEL: 1. COMPLETE AND PARTIAL PENETRATION GROOVE WELDS. 2. MULTI-PASS FILLET WELDS. 3. SINGLE-PASS FILLET WELDS > 5/16 4. SINGLE-PASS FILLET WELDS < 5/16 5. FLOOR AND DECK WELDS b. REINFORCING STEEL: 1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706. 2. REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS AND SHEAR REINFORCEMENT. 3. SHEAR REINFORCEMENT. 4. OTHER REINFORCING STEEL.	X X X X	 X X X X	AWS D1.1 AWS D1.3	1704.3.1
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS: a. DETAILS SUCH AS BRACING AND STIFFENING. b. MEMBER LOCATIONS c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	X	X	AWS D1.4 ACI 318: 3.5.2	1704.3.2

TABLE 1704.3
A) REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION

INSPECTION TASK	FREQUENCY OF INSPECTION: CONTINUOUS DURING TASK LISTED	FREQUENCY OF INSPECTION: PERIODICALLY DURING TASK LISTED	REFERENCE FOR CRITERIA: IBC SECTION	REFERENCE FOR CRITERIA: ACI 530/ ASCE 5/ TMS 402*	REFERENCE FOR CRITERIA: ACI 530.1/ ASCE 6/ TMS 602*
1. From the beginning of masonry construction, the following shall be verified to ensure compliance:					
a. Proportions of site-mixed mortar, grout.		X			Art. 2.6A
b. Placement of masonry units and construction of mortar joints.		X			Art. 3.3B
c. Placement of reinforcement and connectors.		X		Sec. 1.12.3	Art. 3.4
d. Grout space prior to grouting.	X				Art. 3.2D
e. Placement of grout.	X				Art. 3.5
2. The inspection program shall verify:					
a. Size and location of structural elements.		X			Art. 3.3G
b. Type, size and location of anchors including other details of anchorage of masonry to structural members, frames or other construction.	X			Sec. 1.15.4, 2.1.2	
c. Specified size, grade and type of reinforcement.		X		Sec. 1.12	Art. 2.4, 3.4
d. Welding of reinforcing bars.	X		Sec. 2108.9.2.11 Item 2	Sec. 2.1.8.6, 2.1.8.6.2	
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).		X	Sec. 2104.3, 2104.4		Art. 1.8
3. Preparation of any required grout specimens, Mortar specimens and/or prisms shall be observed.	X		Sec. 2105.3, 2105.4, 2105.5		Art. 1.4
4. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.		X			Art. 1.5

STRUCTURAL TESTS AND SPECIAL INSPECTIONS

AN INSPECTION, TESTING AND QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE IMPLEMENTED AS OUTLINED ON THIS DRAWING. THE OWNER WILL ENGAGE AN APPROVED TESTING/INSPECTION AGENCY TO PROVIDE SPECIAL INSPECTION AND TESTING AS REQUIRED. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE SCHEDULE WITH THE TESTING/INSPECTION AGENCY. DEFINITIONS AND REQUIREMENTS SHALL BE IN ACCORDANCE WITH MAINE STATE BUILDING CODE. FAILURE TO COMPLY WILL RESULT IN REMOVAL AND RECONSTRUCTION OF ANY STRUCTURAL ELEMENTS NOT VERIFIED, TESTED, OR INSPECTED.

Stantec

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Client

ImmuCell

Lot 11 - Second Tee Business Park
1039 Riverside Street
Portland, Maine 04103

Consultants

Revision	By	Appd	DD.MM.YYYY
0 INTERIOR FIT OUT - ISSUED FOR CONSTRUCTION	TJW	EH	08/19/2016

Issued	By	Appd	DD.MM.YYYY
PACKAGE C - INTERIOR FIT-OUT			**08.19.2016**
PACKAGE B - SUPERSTRUCTURE & SHELL			08.05.2016
PACKAGE A - FOUNDATIONS & BELOW SLAB			07.22.2016

Permit-Seal

STATE OF MAINE
ERIC HILLIARD
12821
LICENSED
PROFESSIONAL ENGINEER

08/19/2016

Client/Project

IMMUCELL

Lot 11 - Second Tee Business Park
1039 Riverside Street
Portland, Maine 04103

Title

STRUCTURAL NOTES AND SPECIFICATIONS

Project No. 191504176

Scale 12" = 1'-0"

Revision 0

Drawing No. S-000-C

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ORIGINAL SHEET - ANSI E (34"x44")