

GENERAL NOTES:

GENERAL REQUIREMENTS:

1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS SPECIFICATIONS AND THE STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
2. THE STRUCTURES ARE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE, TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION, AND TO PROVIDE TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
3. FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
4. ALL CONDITIONS AND DIMENSIONS PERTAINING TO EXISTING UTILITIES AND CONSTRUCTION, AT THE SITE, SHALL BE VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK. THIS ASSESSMENT SHALL BE CONDUCTED SUFFICIENTLY IN ADVANCE OF ANY PHASE OF CONSTRUCTION, TO THE MAXIMUM EXTENT POSSIBLE, TO AVOID DELAYS IN THE WORK.
5. EQUIPMENT WEIGHTS AND STRUCTURAL ITEMS IN ANY WAY RELATED TO THE SUPPORT OF EQUIPMENT OR OPENINGS ARE INDICATED FOR INFORMATIONAL PURPOSES ONLY. VERIFY AND COORDINATE SIZE, LOCATION AND QUANTITY OF OPENINGS AND EQUIPMENT WEIGHTS REQUIRED FOR ARCHITECTURAL, MECHANICAL AND ELECTRICAL TRADES. OBTAIN APPROVAL OF AFFECTED TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. CHANGES REQUIRED BY EQUIPMENT IN EXCESS OF THE WEIGHT OR GEOMETRIC ALLOWANCES ARE THE CONTRACTOR'S RESPONSIBILITY.
6. ALL LOADS AND REACTIONS ON DRAWINGS AND IN THESE GENERAL STRUCTURAL NOTES ARE UNFACTORED SERVICE LOADS UNLESS OTHERWISE NOTED. LOAD CASES WHICH INCLUDE COMBINED LOADS SHALL BE CALCULATED IN ACCORDANCE WITH THE MUNICIPAL CODE OF CHICAGO.
7. IN GENERAL, ALL SECTIONS AND DETAILS SHOWN ON THE PLANS ARE INTENDED TO APPLY TO SIMILAR CONDITIONS, UNLESS SPECIFICALLY NOTED.
8. SEE ARCHITECTURAL AND MECHANICAL REQUIREMENTS FOR EMBEDDED ITEMS NOT SHOWN HEREIN AND TO VERIFY SIZE AND LOCATION OF ALL OPENINGS.
9. NO CORE DRILLING SHALL BE ALLOWED WITHOUT APPROVAL BY THE ENGINEER. BEFORE CORE DRILLING ANY HOLES, LOCATE THE REINFORCING STEEL IN EXISTING CONCRETE WITH R-METER. RELOCATE THE HOLE TO AVOID CUTTING ANY REBARS OR POST-TENSIONING TENDONS. DO NOT DRILL HOLES THROUGH EXISTING REBARS UNLESS ACCEPTABLE TO THE STRUCTURAL ENGINEER. DO NOT OVERCUT ANY HOLES.

FOUNDATION NOTES:

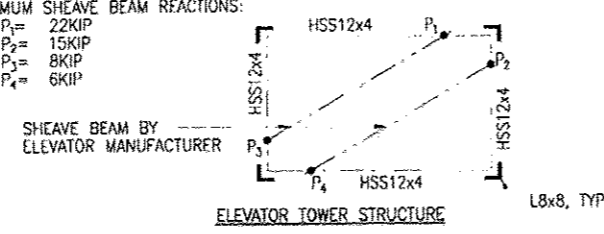
1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE PROJECT SPECIFIC GEOTECHNICAL REPORT PERFORMED BY WANG ENGINEERING, REPORT NUMBER 1100-04-01 INCLUDING THE TECHNICAL MEMORANDUM DATED AUGUST 23, 2013.
2. DRILLED SHAFTS HAVE BEEN DESIGNED FOR AN ALLOWABLE END-BEARING CAPACITY OF 13, 500 PSF IN ACCORDANCE WITH THE GEOTECHNICAL CRITERIA INDICATED IN NOTE 1.
3. CONTRACTOR SHALL FOLLOW RECOMMENDATIONS CONTAINED WITHIN THE GEOTECHNICAL REPORT IN PREPARATION OF THE SITE AND BUILDING FOUNDATIONS.
4. PRIOR TO ANY EXCAVATION OPERATIONS, THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES OR OTHER SUBSURFACE STRUCTURES WITHIN THE AREA TO BE EXCAVATED.
5. ALL EXCAVATIONS WITHIN 2 FEET OF EXISTING STRUCTURES TO REMAIN SHALL BE REMOVED BY HAND. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR TAKING ADEQUATE PRECAUTIONS NOT TO DAMAGE THE EXISTING INFRASTRUCTURE DURING ALL EXCAVATION, FILL AND COMPACTION OPERATIONS.

DEMOLITION:

1. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE MEANS AND METHODS OF DEMOLITION AND THE INTEGRITY AND STABILITY OF THE EXISTING STRUCTURE DURING DEMOLITION UNTIL THE WORK IS COMPLETED. THE CONTRACTOR SHALL PROVIDE SHORING IN REQUIRED LOCATIONS WHERE EXISTING CONSTRUCTION IS TO REMAIN WILL BE AFFECTED BY DEMOLITION.
2. THE EXISTING STRUCTURE IS INDICATED FOR REFERENCE ONLY AND IS TO BE FIELD VERIFIED BY THE CONTRACTOR. THE EXACT EXTENT OF DEMOLITION SHALL BE VERIFIED AT THE SITE. DETERMINE THE NATURE AND EXTENT OF DEMOLITION THAT WILL BE NECESSARY BY COMPARING THE DRAWINGS WITH THE EXISTING CONSTRUCTION. THE CONTRACTOR SHALL USE THESE DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DEMOLITION DRAWINGS. IN THE EVENT OF CONFLICTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE AUTHORITY.
3. THE CONTRACTOR SHALL USE QUALIFIED, EXPERIENCED PERSONNEL FOR DEMOLITION AND REMOVAL OPERATIONS. DEMOLITION AND REMOVAL OPERATIONS SHALL BE PERFORMED IN A CAREFUL AND ORDERLY MANNER TO PREVENT HAZARDS TO PERSONS, DAMAGE TO PROPERTY AND THE SPREADING OF DUST AND/OR DEBRIS USING A VACUUM SYSTEM AND/OR WET METHODS.
4. NO PORTIONS OF THE STRUCTURE SHALL BE PERMITTED TO FALL NOR SHALL ANY DEBRIS BE DROPPED EXCEPT BY METHODS WHICH WILL ENSURE INTEGRITY OF THE STRUCTURE.
5. PRIOR TO THE START OF WORK, VERIFY THAT THE SCOPE OF DEMOLITION INDICATED ON THE DRAWINGS SHALL NOT DAMAGE, CUT OR DISRUPT SERVICE TO ANY MECHANICAL SYSTEM, COMMUNICATION SYSTEM, ELECTRICAL SYSTEM OR UTILITY EMBEDDED IN THE EXISTING STRUCTURE.
6. DO NOT REMOVE MORE OF THE EXISTING STRUCTURE THAN IS INDICATED ON THE DRAWINGS. DO NOT DAMAGE, MAR, CUT OR DEFACE THE REMAINING STRUCTURE TO REMAIN, OR MATERIALS TO BE REUSED.
7. THE CONTRACTOR SHALL INCLUDE IN THEIR BID THE COST OF REMOVING AND LEGALLY DISPOSING OF DEMOLISHED MATERIALS FROM THE SITE IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS.
8. WHERE NEW OPENINGS IN EXISTING CONCRETE SLABS ARE TO BE CREATED, THE DEMOLITION CONTRACTOR SHALL CORE HOLES AT THE OUTSIDE CORNERS OF THE NEW OPENING PRIOR TO DEMOLITION. SAW-CUTTING SHALL BE STRAIGHT AND SHALL NOT EXTEND INTO THE EXISTING REMAINING SLAB OR BEYOND THE HOLES CORED AT THE CORNERS OF THE NEW OPENING.
9. A DEMOLITION PLAN IS TO BE SUBMITTED TO THE AUTHORITY FOR APPROVAL. DEMOLITION SHALL NOT COMMENCE UNTIL THE CONTRACTOR HAS RECEIVED WRITTEN APPROVAL FROM THE AUTHORITY.

DESIGN CRITERIA:

1. REFERENCE STANDARDS:
MUNICIPAL CODE OF CHICAGO,
ASCE 7-05, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
2. BUILDING IMPORTANCE CATEGORY II
3. LOADS:
LIVE LOADS:
PLATFORM LEVEL LIVE LOADS: 100 PSF
STATION LEVEL LIVE LOADS: 100 PSF
ROOF LIVE LOAD: 20 PSF (NON-REDUCIBLE)
4. FUTURE STATION LOADS (GRIDS A.5/12 TO B/16.8)
STATION DEAD LOADS (SELFWEIGHT + SDL) 125 PSF
STATION LIVE LOADS (SLL) 100 PSF
STATION ROOF DEAD LOADS (RDL) 25 PSF
STATION ROOF LIVE LOADS (RL) 20 PSF
STATION ROOF SNOW LOADS (RSL) 25 PSF
5. WIND DESIGN CRITERIA:
BASIC WIND SPEED, V: 90 MPH
MWFRS PRESSURE: 20 PSF
COMPONENTS AND CLADDING PRESSURE: 25 PSF (30 PSF @ CORNERS)
CORNER DIMENSION: 3.6 FT
6. SNOW LOADS:
FLAT ROOF SNOW LOAD: 25 PSF
DRIFT SNOW LOAD:
7. ELEVATOR DESIGN CRITERIA:
ELEVATOR TOWER DESIGN IS BASED ON THE LOAD CRITERIA BELOW. ALL LOADS ARE UNFACTORED AND INCLUDE AN 100% IMPACT ADJUSTMENT. IF THE FINAL DESIGN LOADS ARE GREATER THAN 5% OF THE LOADS INDICATED, THEN THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO FABRICATION.
TYPE: TRACTION
CAPACITY: 2,500 LB
IMPACT: 100%
MAXIMUM SHEAVE BEAM REACTIONS:
P₁= 22KIP
P₂= 15KIP
P₃= 8KIP
P₄= 6KIP



CAST-IN-PLACE CONCRETE NOTES:

1. REFERENCE STANDARDS:
EXCEPT AS INDICATED, ALL CONCRETE WORK AND DETAILING, FABRICATION AND PLACING OF REINFORCING SHALL BE GOVERNED BY:
ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, 2005.
ACI 305.1, HOT WEATHER CONCRETING, 2006.
ACI 306, COLD WEATHER CONCRETING, 2002.
ACI 315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT, 1999.
ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2008.
 2. MATERIALS:
ALL FOOTINGS, RETAINING WALLS, CAST-IN-PLACE WALLS AND SLABS ON GRADE: f_c = 4,000 PSI, AE, UNO
ALL OTHER BEAMS AND COLUMNS: f_c = 6,000 PSI, AE, UNO
 3. CONCRETE COVER REQUIREMENTS:
CONCRETE CAST DIRECTLY AGAINST EARTH: 3 IN
CONCRETE EXPOSED TO EARTH OR WEATHER, BUT CAST AGAINST FORMS:
(BARS > #5): 2 IN
(BARS <= #5): 1-1/2 IN
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
SLABS, WALLS, JOISTS: 3/4 IN
BEAMS, COLUMNS: 1-1/2 IN
 4. CONCRETE COVER REQUIREMENTS:
CONCRETE CAST DIRECTLY AGAINST EARTH: 3 IN
CONCRETE EXPOSED TO EARTH OR WEATHER, BUT CAST AGAINST FORMS:
(BARS > #5): 1 IN
(BARS <= #5): 1-1/2 IN
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
SLABS, WALLS, JOISTS: 3/4 IN
BEAMS, COLUMNS: 1-1/2 IN
 5. DURING PLACEMENT OF THE CONCRETE SLABS, TAKE ALL NECESSARY STEPS TO AVOID PLASTIC CRACKS DUE TO WEATHER CHANGES. CURE ALL CONCRETE ACCORDING TO ACI 308.1 AND SPECIFICATIONS.
 6. CORNER BEND DIAMETERS: #5 AND SMALLER: 4D
#6 AND LARGER: 6D
 7. WHERE NO REINFORCING IS INDICATED IN SLABS ON GRADE, PROVIDE WWR 4x4-W2.9xW2.9.
 8. WHERE ANY OPENING REQUIRED FOR THE WORK IS NOT INDICATED, OBTAIN APPROVAL FROM THE ENGINEER OF RECORD BEFORE PROCEEDING WITH THE WORK.
 9. PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES OF CONCRETE EXCEPT AS INDICATED.
 10. ALL REINFORCING SHALL BE HELD SECURELY IN POSITION WITH STANDARD ACCESSORIES DURING CONCRETE PLACEMENT. REINFORCING SHALL NOT BE SUPPORTED ON BOOSTERS MADE OF CMU OR CONCRETE NOT SPECIFICALLY DESIGNED TO SUPPORT REINFORCING STEEL.
 11. WALLS AND PILASTERS SHALL BE CAST MONOLITHICALLY. CONTRACTOR SHALL LIMIT LENGTH OF CONTINUOUS WALL PLACEMENT TO 60 FEET.
 12. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE. SPLICE ONLY AS SHOWN OR APPROVED. STAGGER ALL SPLICES. USE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH SIZE AND SPACING OF THE SPECIFIED REINFORCEMENT AND SHALL BE LAPPED WITH TENSION SPLICES, UNLESS NOTED OTHERWISE. TENSION SPLICE LENGTHS SHALL BE AS FOLLOWS:
- | BAR SIZE | CONCRETE STRENGTH, F _c (PSI) | CONCRETE STRENGTH, F _c (PSI) | | | BAR SIZE | CONCRETE STRENGTH, F _c (PSI) | CONCRETE STRENGTH, F _c (PSI) | | |
|----------|---|---|-------|-------|----------|---|---|-------|-------|
| | | 3,000 | 4,000 | 5,000 | | | 3,000 | 4,000 | 5,000 |
| #4 | A | 22 | 19 | 17 | #7 | A | 48 | 41 | 37 |
| | B | 29 | 25 | 22 | | B | 63 | 53 | 48 |
| #5 | A | 28 | 24 | 21 | #8 | A | 55 | 47 | 42 |
| | B | 36 | 31 | 28 | | B | 72 | 61 | 55 |
| #6 | A | 33 | 29 | 26 | #9 | A | 62 | 53 | 47 |
| | B | 43 | 37 | 33 | | B | 80 | 69 | 61 |
13. FOR HORIZONTAL REINFORCING WITH MORE THAN 12" OF CONCRETE BELOW, OR FOR VERTICAL REINFORCING, MULTIPLY THE SPLICE LENGTH INDICATED IN THE TABLE BY 1.3.
 14. THE TENSION SPLICES INDICATED ABOVE ARE FOR UNCOATED AND GALVANIZED REINFORCING.

STRUCTURAL ALUMINUM NOTES:

1. REFERENCE STANDARDS:
EXCEPT AS INDICATED, ALL DESIGN, FABRICATION AND ERECTION OF STRUCTURAL ALUMINUM SHALL BE GOVERNED BY:
ALUMINUM ASSOC'S SPECIFICATION FOR ALUMINUM STRUCTURES, 2010.
AWS D1.2, STRUCTURAL WELDING CODE - ALUMINUM.
2. MATERIALS:
ALUMINUM STRUCTURAL SECTIONS: 6061-T6; F_u= 42KSI, F_y= 36KSI
STAINLESS STEEL BOLTS: ASTM A193, TYPE 316
STAINLESS STEEL NUTS: ASTM A194, TYPE 316
STAINLESS STEEL WASHERS: TYPE 316
STAINLESS STEEL ANCHOR RODS: ASTM A320, TYPE 316
WELD FILLER MATERIAL: 4043
3. ALL WELDED JOINTS SHALL BE IN ACCORDANCE WITH AWS D1.2. USE ONLY WELDERS CERTIFIED TO WELD ALUMINUM.
4. WHERE THE CONTACT OF DISSIMILAR METALS MAY CAUSE ELECTROLYSIS OR WHERE ALUMINUM WILL COME IN CONTACT WITH CONCRETE, MORTAR OR PLASTER, THE ALUMINUM CONTACT SURFACE SHALL BE COATED WITH 1 COAT OF ZINC CHROMATE PRIMER AND ONE HEAVY COAT OF ALUMINUM PIGMENTED ASPHALT PAINT.

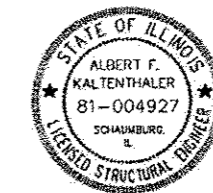
POST-INSTALLED ANCHORS:

1. REFERENCE STANDARD: ACI 318-05, APPENDIX D.
2. INSTALL ONLY WHERE SPECIFICALLY SHOWN IN THE PROJECT DETAILS.
3. ALL POST-INSTALLED ANCHOR TYPES SHALL BE APPROVED BY THE ENGINEER OF RECORD AND SHALL HAVE A CURRENT ICC-ESR THAT PROVIDES RELEVANT DESIGN VALUES TO VALIDATE THE AVAILABLE STRENGTH.
4. INSTALL ALL ANCHORS IN STRICT ACCORDANCE TO THE ICC-ESR AND MANUFACTURER'S INSTRUCTIONS.
5. SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS INDICATED IN THE SCHEDULE OF SPECIAL INSPECTIONS UNDER 1704.4 CONCRETE CONSTRUCTION.
6. USE COMPRESSED AIR TO THOROUGHLY CLEAN THE ANCHOR HOLES.
7. PROVIDE EPOXY ADHESIVE TYPE ANCHORS WITH THE FOLLOWING MINIMUM ALLOWABLE CAPACITIES AND MINIMUM EMBEDMENTS.

ANCHOR DIA (IN)	EMB (IN)	CONCRETE		CMU	
		TENSION (KIP)	SHEAR (KIP)	TENSION (KIP)	SHEAR (KIP)
0.375	3.375	3.06	4.46	0.880	1.13
0.500	4.500	4.98	7.93	1.06	1.74
0.625	5.625	8.41	12.4	1.37	2.12
0.750	6.750	9.98	17.8	1.58	2.20
1.000	9.000	14.8	24.3	-	-

NOTES:
1. ANCHOR DIAMETERS AND EMBEDMENTS ARE IN INCHES.
2. ALLOWABLE CAPACITIES ARE IN KIPS.
3. ALLOWABLE CAPACITIES ARE BASED ON MINIMUM ALLOWABLE EDGE DISTANCES AND SPACINGS AND F_c = 4,000 PSI AND F_m = 1,500 PSI.

8. ALL ANCHORS EMBEDDED IN CONCRETE OR MASONRY SHALL BE PROPORTIONED TO EXCEED THE STRENGTH OF THE CONNECTED HARDWARE. ALL ANCHORS SHALL BE SHOWN TO BE IN COMPLIANCE WITH ACI 318 APPENDIX D. MECHANICAL EXPANSION FASTENERS SHALL NOT BE USED IN CONDITIONS WHERE THEY WILL SEE TENSILE LOADS. POWDER DRIVEN ANCHORS SHALL NOT BE USED IN CONCRETE OR MASONRY.



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