

ABBREVIATIONS

A	@ AND A.B. ANCHOR BOLT A.F.F. ABOVE FINISHED FLOOR A.H.U. AIR HANDLING UNIT ALT. ALTERNATE APPROX. APPROXIMATE ARCH. ARCHITECTURAL ASO. ALLOWABLE STRESS DESIGN	G	GA. GAGE G.A.B. GRADED AGGREGATE BASE GALV. GALVANIZED G.C. GENERAL CONTRACTOR GR. GRADE GY. GYPSUM	O	O.F. OUTSIDE FACE O/C ON CENTER O.D. OUTSIDE DIAMETER O.H. OPPOSITE HAND OPNG. OPENING OPP. OPPOSITE
B	BLDG. BUILDING BLKG. BLOCKING BM. BEAM BOT. BOTTOM BRG. BEARING BSMT. BASEMENT	H	H.C.A. HEADED CONCRETE ANCHOR H.C. HOLLOW CORE HDR. HEADER HDW. HARDWARE HK. HOOK(S) HORIZ. HORIZONTAL H.P. HIGH POINT HR. HOUR HT. HEIGHT HVAC HEATING VENTILATING AIR CONDITIONING HI. HIGH	P	P.C. PRECAST PL. PLATE PLMB. PLUMBING PLF. POUNDS PER LINEAR FOOT PSF. POUNDS PER SQUARE FOOT PSI. POUNDS PER SQUARE INCH P.T. POST TENSIONED PTN. PARTITION P.T.F.E. POLY TETRA FLOUROE THYLENE (TEFLON) PEJ. PREMOLDED EXPANSION JOINT PVC. POLYVINYL CHLORIDE P.WD. PLYWOOD P.W.R. PARTIALLY WEATHERED ROCK
C	CFMF. COLD-FORMED METAL FRAMING C.J. CONSTRUCTION JOINT OR CONTROL JOINT CL. CENTERLINE C/C. CENTER TO CENTER cm. CENTIMETER C.M.U. CONCRETE MASONRY UNIT C.O. CLEAR OPENING COL. COLUMN CONC. CONCRETE CONSTR. CONSTRUCTION CONT. CONTINUOUS CLR. CLEAR C.Y. CUBIC YARD	I	I.D. INSIDE DIAMETER I.F. INSIDE FACE IN. INCH(ES) INT. INTERIOR INV. INVERT	R	R. RADIUS R.D. ROOF DECK REF. REFERENCE REINF. REINFORCED, REINFORCING REQD. REQUIRED REV. REVISION RM. ROOM RTU. ROOFTOP UNIT
D	D. DEEP DEP. DEPRESSION D.B.A. DEFORMED BAR ANCHOR DBL. DOUBLE DET. DETAIL DIA. DIAMETER DIAG. DIAGONAL DIM. DIMENSION DN. DOWN DR. DOOR D. DITTO DWG(S) DRAWING(S)	K	K. KIPS kg. KILOGRAM KIT. KITCHEN K.O. KNOCKOUT	S	S. SOUTH SE. SOUTHEAST SCHED. SCHEDULE SECT. SECTION S.F. SQUARE FOOT SIM. SIMILAR SPECS. SPECIFICATIONS S.S. STAINLESS STEEL STD. STANDARD STL. STEEL SL. SLAB STRUCT. STRUCTURAL SQ. SQUARE SW. SOUTHWEST S.W. SHORT WAY SYM. SYMMETRICAL SYS. SYSTEM
E	E. EAST EA. EACH E.F. EACH FACE E.J. EXPANSION JOINT ELEC. ELECTRICAL EL. ELEVATION ELEV. ELEVATOR EQUIP. EQUIPMENT EQ. EQUAL E.S. EACH SIDE E.W. EACH WAY EW. EASTWEST EXIST. EXISTING EXP. EXPANSION EXT. EXTERIOR E.O.S. EDGE OF SLAB E.O.D. EDGE OF DECK E.O.P. EDGE OF PLATE	L	L.G. LONG LBS. POUNDS LLH. LONG LEG HORIZONTAL LLV. LONG LEG VERTICAL L.P. LOW POINT LT. LIGHT L.W. LONG WAY LO. LOW LONG. LONGITUDINAL	T	T. TREAD OR TOP T&B. TOP AND BOTTOM TEMP. TEMPERATURE THK. THICK TRANS. TRANSVERSE T/CONC. TOP OF CONCRETE T/STL. TOP OF STEEL T/W. TOP OF WALL T/SL. TOP OF SLAB TYP. TYPICAL
F	F.D. FLOOR DRAIN FDN. FOUNDATION FIN. FL. FINISHED FLOOR F.F. FAR FACE FIN. FINISH FL. FLOOR F.S. FAR SIDE FT. FOOT, FEET FTG. FOOTING FUT. FUTURE F.V. FIELD VERIFY	M	m. METER MAX. MAXIMUM MECH. MECHANICAL MET. METAL MEZZ. MEZZANINE MFRG. MANUFACTURER M.H. MANHOLE MIN. MINIMUM MISC. MISCELLANEOUS mm. MILLIMETER M.O. MASONRY OPENING MTL. MATERIAL MAS. MASONRY MPa. MEGA PASCHAL	U	U.N.O. UNLESS NOTED OTHERWISE
		N	N. NORTH NE. NORTHEAST N.I.C. NOT IN CONTRACT NO. NUMBER NOM. NOMINAL N.T.S. NOT TO SCALE NW. NORTHWEST N/S. NORTH/SOUTH N.F. NEAR FACE N.S. NEAR SIDE	V	VERT. VERTICAL
				W	W. WEST OR WIDE W/ WITH W/O. WITHOUT WD. WOOD W.P.J. WEAKEND PLANE JOINT WT. WEIGHT W.W.F. WELDED WIRE FABRIC

GENERAL NOTES

- GENERAL:**
 - The Scope of Work includes adding the 4th and 5th floors to the existing 4-story clinic building, extending the stair/elevator tower structure from the existing 4th floor level up to serve the new 4th floor.
 - The purpose of these general notes is to inform the Contractor of the structural design criteria including design load values and material strengths, minimum information required on shop drawings and miscellaneous items not shown or specified elsewhere.
 - The Contractor shall coordinate structural work with all other disciplines involved in this project. Coordination includes locating thickened slabs, drains, slopes, anchor bolt settings, embedded steel plates, sleeves for piping, conduit, and etc. before construction begins. The location and sizes of openings and sleeves in structural members shall be submitted for review and approval by the A/E.
 - These contract drawings shall not be scaled for the purpose of establishing correct dimensions.
 - Where new and existing structural features interface, the Contractor shall verify all dimensions of existing structures that are relevant to this project. These dimensions shall be shown on the shop drawings at the time of submittal to the A/E.
- STRUCTURAL DESIGN INFORMATION:**
 - This project is designed in accordance with the following building codes:
International Building Code - 2006 Edition
ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
 - The following gravity design loads for this structure are in addition to the self-weight of concrete beams and slabs:
Floor/Roof Dead loads:
Lightweight Concrete Floor Slabs on Composite Steel Deck 45 psf
Roof level over elevator machine room (ballasted membrane) 23 psf
Floor/Roof Live loads:
4th and 5th Floor 100 psf
4th and 5th Floor Office Loading where indicated 50 psf + 20 psf Partitions
4th Floor Elevator and Stair Lobby 100 psf
Elevator Machine Room Floor Slab 150 psf + Machine reactions
Elevator Hoist Beam Load (hoist load at center of each hoistway) 8.4 kips
Typical Roof 20 psf
 - The wind load design criteria for this project is as follows:
6-Story Clinic Addition:
Wind velocity 90 mph
Building Occupancy Category (match existing 1st and 2nd floors) II
Exposure Category C
Wind Importance Factor 6-story Outpatient Clinic 1.0
Wind Internal Pressure Coefficient (enclosed) +/- 0.18
Lateral Wind Force - Building North-South wind force 91 kips
Lateral Wind Force - Building East-West wind force 185 kips
Wind Pressure Wall Components and Cladding +20.1 psf typical all walls
(max pressure at top of tower) -20.9 psf all walls except corners
(Wall Corner distance = 7'-0") -34.7 psf at corners
Stair and Elevator Tower:
Wind velocity 90 mph
Building Occupancy Category IV
Exposure Category C
Wind Importance Factor 1.15
Wind Internal Pressure Coefficient (enclosed) +/- 0.18
Lateral Wind Force - Building North-South wind force 143 kips
Lateral Wind Force - Building East-West wind force 108 kips
Wind Pressure Wall Components and Cladding +27.7 psf typical all walls
(max pressure at top of tower) -28.35 psf all walls except corners
(Wall Corner zone width = 3'-2") -48.97 psf at corners
Note: Positive (+) wind pressure acts towards wall and roof surfaces
Negative (-) wind pressure acts away from wall and roof surfaces
 - Lateral Wind Force on Rooftop Air Handling Units:
North/South wind force to AHU-3 = 20.85k
East/West wind force to AHU-3 = 15.30k
North/South wind force to AHU-4 & AHU-5 = 5.2k each
East/West wind force to AHU-4 & AHU-5 = 12.5k each
 - The seismic design criteria for the 6-Story Outpatient Clinic is as follows:
Seismic Importance Factor - Outpatient Addition 1.0
Spectral Response, SDS 0.163
Spectral Response, SDI 0.069
Soil Site Class D
Seismic Design Category, SDC B
Seismic Response Modification Coefficient, R 3.25
Seismic Force Resisting System (B-4) Ordinary Concentric Steel Braced Frame East-West
Seismic Force Resisting System (C-4) Ordinary Steel Moment Frame
Design Base Shear Plan north/south direction 91 kips
Design Base Shear Plan east/west direction 170 kips
Analysis procedure Equivalent Lateral Force
 - The seismic design criteria for the Stair & Elevator Lobby Expansion is as follows:
Seismic Importance Factor - Stair and Elevator Lobby 1.5
Spectral Response, SDS 0.153
Spectral Response, SDI 0.069
Soil Site Class D
Seismic Design Category, SDC B
Seismic Response Modification Coefficient, R 4.0
Seismic Force Resisting System (A-2) Ordinary Reinforced Concrete Shear Wall
Design Base Shear North-South Direction 136 kips
Design Base Shear North-South Direction 110 kips
Analysis procedure Equivalent Lateral Force
 - The building structure has been designed to support gravity and lateral loads through the connection and interaction of all of the component parts of the structure with no provision made for the temporary and partially completed conditions that occur during construction. The Contractor shall be responsible for the integrity and stability of the structure until all components are constructed, connected and completed as indicated.
- CONCRETE:**
 - Concrete used for all floor slabs have natural sand fine aggregate and lightweight, uniformly graded coarse aggregate conforming to ASTM C330, Type I or Type III Portland Cement conforming to ASTM C 150, class-F fly ash and Grade 100-120 ground granulated blast furnace slag. Lightweight concrete shall have a maximum dry density of 120 pcf. Concrete mixes shall have the following compressive strength (f'c) at 28 days:
Elevated Concrete Floor Slabs & Topping Slabs 4,000 psi
Concrete used for walls shall have natural sand fine aggregate and normal weight, uniformly graded coarse aggregate conforming to ASTM C33, Type I or Type III Portland Cement conforming to ASTM C 150, class-F fly ash and Grade 100-120 ground granulated blast furnace slag. Concrete mixes shall have the following compressive strength (f'c) at 28 days:
Concrete Walls 4,000 psi

- LEED: All concrete mixes shall be proportioned to replace 40% of Portland cement for each strength class using class-F fly ash and grade 100 or 120 ground granulated blast furnace slag.
 - Detailing of concrete reinforcement bars and accessories shall conform to the recommendations of the A.C.I. Detailing Manual (A.C.I. SP-68).
 - Bending Reinforcing Bars: Steel reinforcing bars shall only be bent in one place at one time. Never bend reinforcing steel twice in the same place. Reinforcing bars shall not be heated for any purpose.
 - Mixing, transporting and placing of concrete shall conform to A.C.I. 301.
 - Concrete reinforcing bars shall conform to ASTM A 615, Grade 60. Bars noted as continuous shall lap as indicated in the lap schedule shown on the drawings, corner bars shall be provided at all turns and intersections. All lap splices shall be contact splices, unless noted otherwise, where a reinforcing bar is wire-tied directly to the bar it is spliced with.
 - Welded wire fabric shall conform to ASTM A 185. Welded wire fabric shall be supplied in flat sheets. Welded wire fabric shall lap one full mesh plus 2-inches at splices.
 - Reinforcing bars and welded wire fabric shall be supported with standard bar chairs, bolsters or spacers as required to maintain the concrete protection indicated. For LEED requirements steel reinforcing shall be fabricated from steel having a 90% combined recycled content.
 - Concrete cover protection for reinforcing is indicated on the drawings and shall conform to A.C.I. 318.
 - Concrete walls shall be cast monolithic with adjoining columns, column piers or pilasters. No more than 50 percent of horizontal wall reinforcing shall lap in a single vertical plane. Bulkheads at construction joints in footings and walls shall have linear keys one-third of the wall thickness, nominal 2-inches deep. Provide steel sleeves at least 1 inch larger in diameter than actual pipe diameter including insulation through walls at pipe and conduit penetrations.
 - Electrical Conduit: Conduits may pass vertically through elevated floor and roof slabs, however lateral runs of conduit shall not be embedded in elevated concrete slabs.
- CONCRETE MASONRY:**
 - Concrete masonry units, CMU, shall conform with ASTM C 90, weight class: "lightweight". CMU has been designed for a minimum compressive prism strength, f'm, equal to 1,500 psi at 28 days.
 - Mortar for CMU shall conform with ASTM C 270, Type-S unless noted otherwise.
 - Grout for CMU shall conform with ASTM C 476 with aggregates conforming with ASTM C 404. Slump shall not be less than 8 inches nor more than 11 inches. Grout for CMU shall attain a compressive strength of at least 2,500 psi at 28 days. Grout type, coarse or fine, shall be determined by the grout space requirements in accordance with ACI 530.
 - Vertical reinforcing, where shown, shall be positioned and secured in the center of the CMU cell unless noted otherwise. Vertical reinforcing shall lap as indicated on the drawings, but not less than 48 bar diameters. All laps shall be contact laps and shall be secured by wire ties. Patented threaded rebar with male and female threaded couplings, capable of developing the yield strength of the reinforcing, may be used in lieu of lapping the reinforcing steel at splices.
 - Vertical reinforcing shall be positioned and secured with "Rebar Positioners" specifically fabricated to position reinforcing bars in the center of reinforced cells. For cells reinforced with 2 vertical reinforcing bars use "Twin Rebar Positioners". Locate positioners' 40-inches on center vertically.
 - Horizontal joint reinforcing shall consist of standard 9-gage galvanized steel deformed side rods and welded 9-gage galvanized steel smooth or deformed cross rods, truss- type unless noted. Joint reinforcement shall be spaced 16-inches on center vertically. Prefabricated corners and Tees shall be used at corners and intersecting wall locations. Splices shall consist of lapping side rods a minimum of 6-inches.
 - Lintel Beam (U-blocks) units shall be used over wall openings. Bond Beam units shall be used in the walls or at the top of the walls as indicated on the drawings.
 - Vertical control joints shall be constructed using Sash Block units with prefabricated PVC control joint filler. If control joint locations are not specifically shown and located on the drawings, exterior control joints shall be spaced a maximum of 30-feet on center; interior control joints shall be spaced a maximum of 40-feet on center. Control joints shall also be provided where a change in wall mass occurs.
 - STRUCTURAL STEEL:**
 - Structural steel detailing, fabrication and erection shall conform to the A.I.S.C. 'Specification for Structural Steel Buildings' adopted March 9, 2005 and A.I.S.C. 'Code of Standard Practice for Steel Buildings and Bridges' adopted March 18, 2005.
 - Structural steel shall conform to the following ASTM specifications:
Wide Flange shapes A 992, Grade 50.
Angles, channels, plates & bars A 36
Anchor bolts and rods A 307 or F 1554, Grade 36
Steel pipe sections A 53, Type E or S, Grade B
Steel tube sections A 500, Grade B (48 ksi)
High Strength Bolts A 325
Hex nuts for bolts A 563
Washers for bolts F 436
Headed Concrete Anchors (HCA) A 108
 - LEED: Structural steel shapes shall be fabricated from steel having a 90% recycled content.
 - Bolts for structural steel connections shall be installed in accordance with the A.I.S.C. 'Specification for Structural Joints Using ASTM A 325 or A 490 Bolts'. Bolts shall be tightened to the 'Snug-Tight' condition defined by ASTM A 325.
 - The fabricator is responsible for the selection, design and detailing of all connections not fully detailed on the contract documents.
 - Grout for base plates shall be non-shrink, non-metallic and shall have a specified compressive strength of 5,500 psi at 28 days. Pre-grouting of column base plates or the use of leveling plates at column bases is prohibited.
 - Welding shall conform to American Welding Society standard AWS D1.1. Electrodes for shop and field use shall be class E70xx, low hydrogen. Slag shall be removed from all welds in accordance with AWS D1.1. Welding thru galvanized coatings is prohibited except for steel decking. Prior to welding galvanized base metal, remove galvanizing from base metal at area of weld.
 - Headed concrete anchors (HCA) shall conform to ASTM A 108, Grades 1010 thru 1020 headed stud type, cold finished carbon steel, AWS D1.1, Type B, with arc shields. Anchors for composite steel beams shall have an overall length of 4 7/8-inches and a net installed length of 4 1/2-inches. The diameter and length of studs for embedded connection plates shall be as indicated. Studs shall be automatically end welded with suitable stud welding equipment in the shop or the field. For LEED requirements HCA's shall be fabricated from steel having a 30% combined recycled content.
 - STEEL FLOOR DECK:**
 - Steel floor and end floor deck used for temporary roofs shall conform to the Load Tables and Specifications of the Steel Deck Institute.
 - Deck type and properties of steel deck are shown on the drawings. Steel floor and roof decks have been designed to resist diaphragm shear forces, special attention shall be given by the steel deck installer to assure compliance with the steel deck attachment details and requirements.
 - Steel roof deck fastening patterns are noted and diagrammed on the drawings. Steel floor deck fastening is specified in the specifications.
 - LEED: Steel deck shall be fabricated from steel having a 75% combined recycled content.
 - POST-INSTALLED ANCHORS:**
 - Expansion anchors for fastening to concrete shall be one of the following or A/E accepted equivalent:
 - Strong Bolt-2; Simpson Strong-Tie Company
 - Wick Bolt-2; HILTI
 - Power Stud + SD2; Powers Fasteners.
 - Epoxy Adhesive anchors for setting dowels and threaded rods in concrete shall be one of the following or A/E accepted equivalent:
 - SET High Strength Epoxy; Simpson Strong-Tie
 - HIT RE 500 Injection Adhesive; HILTI.
 - PE 1000 + ; Powers Fasteners
 - Holes drilled into concrete for post-installed anchors shall be of the diameter specified by the anchor manufacturer and shall be the depth indicated. Drilled holes shall be installed in strict accordance with the written instructions and recommendations of the anchor manufacturer.

FINAL SUBMITTAL

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