GENERAL NOTES

APPLICABLE TO ALL DRAWINGS UNLESS NOTED OR SHOWN OTHERWISE

GENERAL NOTES

100SN01-1

1. Interpretation of Drawings & Specifications
   a) For convenience, specifications have been prepared for this project and are arranged in several sections, but such separation shall not be considered as the limits of the work required of any separate trade. The terms and conditions of such limitations are wholly between the contractor and his subcontractors.
   b) In general, the working details will indicate dimensions, position and kind of construction, and the specifications, qualities and methods. Any work indicated on the working details and not mentioned in the specifications, or vice versa, shall be furnished as though fully set forth in both. Work not particularly detailed, marked or specified, shall be the same as similar parts that are detailed, marked or specified. If conflicts occur on drawings and/or specifications, the most expensive materials or methods will prevail.
   c) Should an error appear in the working details or specifications or in work done by others affecting this work, the Contractor shall notify the Architect at once and in writing. If the Contractor proceeds with the work so affected without having given such written notice and without receiving the necessary approval, decision or instructions in writing from the Owner, then he shall have no valid claim against the Owner, for the cost of so proceeding and shall make good any resulting damage or defect. No verbal approval, decision, or instruction shall be valid or be the basis for any claim against the Owner, its officers, employees or agents. The foregoing includes typical errors in the specifications or notational errors in the working details where the interpretation is doubtful or where the error is sufficiently apparent as to place a reasonably prudent contractor on notice that, should he elect to proceed, he is doing so at his own risk.
2. Construction shall conform to all applicable codes and regulations.
3. Shop Drawing Note:
   a) Shop Drawings shall be submitted in the form of one sepia transparency and two blue line prints of each sheet.
   b) The purpose of Shop Drawings submittals by the Contractor is to demonstrate to the Structural Engineer that he understands the design concept by indicating which material he intends to furnish and install, and by detailing the fabrication and installation methods he intends to use.
   c) Prior to fabrication, Shop Drawings shall be submitted for review by the Structural Engineer. Shop Drawing submittals shall include, but are not necessarily limited to, structural steel, reinforcing steel, & glued laminated beams.
   d) Prior to submission the Contractor shall review all submittals for conformance with the Contract Documents and shall stamp submittals as being "Reviewed for Conformance".
   e) Shop Drawings submittals processed by the Structural Engineer are not Change Orders.
   f) Any detail on the Shop Drawing that deviates from the Contract Documents shall clearly be marked with the note "This a change".
   g) Shop drawings or calculations submitted for review that require resubmittal for re-review shall be billed hourly for such time to the General Contractor. Re-review will not proceed without written approval from the General Contractor for additional engineering review services.
4. Safety Note:
   a) It is the Contractors responsibility to comply with the pertinent sections, as they apply to this project, of the "Construction Safety Orders" issued by the State of California latest edition, and all OSHA requirements.
   b) The Owner and the Structural Engineer do not accept any responsibility for the Contractor's failure to comply with these requirements.
   c) The Contractor shall be responsible for adequate design and construction of all forms and shoring required.
5. The contractor shall notify the Architect and Structural Engineer where a conflict or discrepancy occurs between the Structural drawings and any other portion of the Contract Documents or existing field conditions. Such notification shall be given in due time so as not to affect the construction schedule. In case of a conflict between Structural drawings and specifications the more restrictive condition shall take precedence unless written approval has been given for the least restrictive. Contractor shall verify all dimensions with Architectural prior to commencing any work.
6. Where no specific detail is shown, the construction shall be identical or similar to that indicated for like cases of construction on this project. Should there be any question, contact the Architect and Structural Engineer prior to proceeding.
7. When construction attaches to an existing building, a complete set of drawings of the existing building shall be kept on the job site. Contractor to obtain these drawings from the Owner.
8. Contractor shall provide an allowance equal to 2% of the bid for structural steel, misc. iron and reinforcing steel to be used at the discretion of the Structural Engineer. Unused amount to revert to the Owner upon completion of the job.
9. Any substitutions for structural members, hardware or details shall be reviewed by the Architect and Structural Engineer. Such review will be billed on a time and materials basis to the General Contractor with no guarantee that the substitution will be allowed.
10. Do not scale drawings. Contact the Architect or Structural Engineer for any dimensions not shown.
11. These drawings are not complete until reviewed and accepted by local Building Officials and signed by the Owner and the Structural Engineer.

TESTS AND INSPECTIONS

100SN04-1

1. Tests and Inspections shall be provided by a qualified testing agency as required below and shall conform to the requirements of the 1997 UBC Section 1701. Testing and inspection records shall be kept for all structural concrete

Tests:

- ■ Fill Compaction
- ■ Reinforcing Steel **
- ■ Concrete
- ■ Structural Steel **
- □ Masonry
- □ Grout and Mortar
- ■ Epoxy & Expansion Anchors
- □ Shotcrete

** Submit mill certificates to verify material properties

Inspections:

- □ Footing Excavation
- □ Pile/Pier Installation
- ■ Reinforcement Placement
- ■ Concrete Placement
- ■ Shop Welding *
- ■ Field Welding
- ■ High Strength Bolting
- □ Masonry Placement & Grouting
- □ Shear Stud Installation
- ■ Epoxy & Expansion Anchors
- □ Shotcrete

* Welding must be performed in a shop approved by the building official and structural engineer

ABBREVIATIONS

100SN03-1

AB	Anchor Bolt
abv	Above
blw	Below
bof	Bottom of Footing
btwn	Between
cc	Center to Center
CJ	Control Joint
clr	Clear
CMU	Concrete Masonry Unit
CNJ	Construction Joint
cont	Continuous
contr	Contractor
cp	Complete Joint Penetration
csk	Countersink
DF	Douglas Fir
DL	Dead Load
do	Ditto
dwg	Drawing
(e)	Existing
EF	Each Face
EJ	Expansion Joint
El	Elevation
EN	Edge Nailing
eos	Edge of Slab
eq	Equal
EW	Each Way
EWEF	Each Way Each Face
FB	Face of Block(or Brick) or Flat Bar
FC	Face of Concrete or Framing Clip(Simpson A35)
FF	Finish Floor
FS	Face of Stud or Far Side
ga	Gauge or gage
glb	Glued Laminated Beam
hdr	Header
HSB	High Strength Bolt
ht	Height
jh	Joist Hanger
LL	Live Load
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LS	Lag Screw
LW	Light Weight
LWIC	Light Weight Insulating Conc
MB	Machine Bolt
mfr	Manufacturer
MI	Malleable Iron
(n)	New
NIC	Not in Contract
NS	Near Side
nts	Not to Scale
NW	Normal Weight
OH	Opposite Hand
OSB	Oriented Strand Board
pc	Piece
pp	Partial Joint Penetration
PT	Pressure Treated
rwd	Redwood
SC	Slip Critical
shtg	Sheathing
sim	Similar
SMS	Sheet Metal Screw
stfnr	Stiffener
stgrd	Staggered
t&b	Top & Bottom
t&g	Tongue & Groove
thrd	Threaded
tn	Toe Nail
to	Top of
toc	Top of Concrete (slab uno)
tof	Top of Footing or Top of Framing
tos	Top of Steel
tow	Top of Wall
TS	Tube Steel
uno	Unless Noted Otherwise
w/	with
w/o	without
wp	Work Point
WS	Wood Screw
WWF	Welded Wire Fabric
℄	Centerline
℘	Plate
WF	Wide Flange
#	Number or Pounds
sq	Square
ø	Round
(symbol)	Cont Wood in Section
(symbol)	Wood Blocking in Section
(symbol)	End of Wood Piece
(a)	"member" above
(b)	"member" below

DESIGN CRITERIA

100SN02-1

1. Codes and Standards
   1998 California Building Code (CBC) VA Seismic Design Req'mts H-18-8
   1995 ACI
   1989 AISC
2. Vertical loads
   Roof Live Load = 20 psf
   Live loads are reduced where permitted by code.
3. Lateral loads
   Seismic:
   Zone 3 ; Z = 0.3
   R = 6.4; I = 1.5
   Soil Profile Type: S_d

   Wind:
   75 mph - Exposure C
   I_w = 1.15
4. Soils Values
   Allowable soils pressure
   1) DL 1500 psf
   2) DL + LL 2300 psf
   3) DL + LL + Seismic 3000 psf
   Footing
   Minimum depth = 12"
   Minimum width = 12"

CONCRETE

300SN001-1

1. Structural concrete shall attain 28 day compressive strength as required in note #29. Maximum slump shall not exceed 4 inches.
2. Concrete mix designs shall be prepared by registered Civil Engineer, reviewed by Owner's testing laboratory and submitted to the Structural Engineer for review.
3. Cementitious materials:
   Cement shall conform to ASTM C-150 type I or II.
   Fly ash shall conform to ASTM C-618 and shall not exceed 15% of the total cementitious material.
4. Concrete aggregates shall conform to ASTM C-33 for normal weight concrete and ASTM C-330 for light weight concrete.
5. Non-shrink grout or drypack shall consist of a premixed nonmetallic formula.
6. Reinforcing steel shall conform to ASTM A-615 Grade 60 for #4 and larger, and ASTM A-615 Grade 40 for #3 and smaller, except reinforcing steel to be welded shall conform to ASTM A-706. Contractor shall submit rebar mill certificates.
7. All preheating and welding of reinforcing bars shall be done in accordance with AWS D1.4 latest edition and shall be continuously inspected by a qualified laboratory. Contractor shall furnish WPS for all rebar welding to the laboratory.
8. Reinforcing steel shall be fabricated according to "Manual of Standard Practice for Reinforced Concrete Construction".
9. Wire fabric shall conform to ASTM A-185.
10. Dimensions shown for location of reinforcing are to the face of bars listed and denote clear coverage. Non-prestressed cast-in-place concrete coverage shall be as follows, uno:
    - Concrete deposited directly against ground (except slabs) — 3"
    - Concrete exposed to ground or weather but placed in forms:
      - #5 and smaller — 1-1/2"
      - #6 and larger — 2"
    - Beams & Columns (ties) — 1-1/2"
    - Beams & Columns (main reinforcing) — 2"
    - Cast-In-Place Walls (exterior face & soil side) — see above
    - Cast-In-Place Walls (interior face-#11 & smaller) — 3/4"
    - Tilt-Up Walls — see details
    - Slabs (on forms) — 3/4"
    - Slabs (on ground) — 2" clear from top uno
11. Splices in continuous reinforcement shall be lapped uno, see schedule this sheet. Splices in adjacent bars shall be greater than 5'-0" apart. Splice continuous bars in soil-bearing grade beams, structural slab on grade and mat foundations as follows uno: top bars at centerline of support; bottom bars at mid-span. Splice continuous bars in elevated slabs and beams, etc. as follows uno: top bars at mid-span; bottom bars at centerline of support. All bars size #14 and larger shall be continuous for full length shown or spliced with mechanical couplers as noted in details. Splices in WWF shall be 1-1/2 meshes wide.
12. The minimum clear spacing between parallel bars in a layer shall not be less than the larger bar diameter, 1", or 33% greater than the maximum aggregate size (nominal), whichever is greatest. This requirement also applies to the clear spacing between different layers of parallel bars and to the clear distance between a contact lap splice and adjacent splices or bars.
13. All hooks shall be standard hooks unless otherwise shown or noted. At walls, provide hooks at ends of all reinforcing at ends, corners and intersections, uno.
14. Construction joints shall be made rough and all laitance removed from the surface. Concrete may be roughened by chipping the entire surface, sand blasting, or raking the surface to provide 1/4" deep deformations.
15. Remove all debris from forms before casting any concrete.
16. Reinforcing, dowels, bolts, anchors, sleeves, etc., to be embedded in concrete shall be securely positioned before placing concrete.
17. Anchor bolts (AB's) cast in concrete or masonry for wall sill and ledger applications shall be headed bolts with cut threads conforming to ASTM A307, uno. Refer to "Wood" notes for additional requirements for bolts in contact with pressure treated or fire retardant material. Refer to "Structural Steel" notes for requirements for anchor rods (AR's) cast in concrete for column base plate and steel embed applications.
18. Walls shall be cast in horizontal layers of 2'-0" maximum depth.
19. Concrete in walls, piers or columns shall set at least 2 hours before placing concrete in beams, spandrels, or slabs supported thereon.
20. Horizontal wall bars in multi-curtain cast-in-place walls shall be staggered.
21. Dowel all vertical reinforcing in walls and columns from foundation with same size bar.
22. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309 to suit the type of concrete and project conditions. Concrete shall not be dropped through reinforcing steel (as in walls) so as to cause segregation of aggregates. In such cases hoppers and chutes or trunks of variable lengths shall be used so that the free unconfined fall of concrete shall not exceed 6 feet.
23. Drill through steel columns, beams and plates to pass continuous reinforcing.
24. No wood spreaders allowed. No wood stakes allowed in areas to be concreted.
25. Additional reinforcing in precast or tilt-up panels required for lifting stresses shall be supplied by Contractor.
26. Provide #5 x 4'-0" diagonal reinforcing at top and bottom of slab at all re-entrant corners typical. This applies to slab on grade, concrete over metal deck, and elevated structural slab conditions.
27. All saw cutting shall be done after initial set has occurred to avoid tearing or damage by the saw blade, but before initial shrinkage has occurred.
28. Notify Structural Engineer a minimum of 48 hours before placing any concrete.
29. CONCRETE STRENGTHS & MIX PROPERTIES:

Item	f'c at 28 days	Max Aggr. Size	Weight	Max w/c Ratio
A. Foundations	3000 psi	1-1/2"	NW	0.58

STRUCTURAL STEEL

510SN01-1

1. Fabrication, erection and materials shall conform with the AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings and the Uniform Building Code, latest editions.
2. Structural Steel wide flange shapes shall conform with ASTM A-992. All other Structural Steel rolled shapes (channels, angles, etc) and plates shall conform with ASTM A-36, uno.
3. Steel Pipe shall conform to ASTM A-53, Types E or S, Grade B.
4. Structural Tubing shall conform to ASTM A-500, Grade B.
5. All structural steel shall receive minimum of one shop coat of red primer paint. Do not paint areas to be field welded, to receive slip-critical high strength bolts, or to be embedded in concrete. Provide additional painting as noted in the specifications.
6. All structural steel shall be erected plumb and true to line. Temporary bracing shall be installed and shall be left in place until other means are provided to adequately brace the structure.
7. Place non-shrink grout under all base plates before adding vertical load.
8. Structural steel below grade shall have 3 inches minimum of concrete cover.
9. Bolted connections shall consist of unfinished bolts conforming to ASTM A-307 unless noted otherwise. Where high strength bolts are indicated, bolts conforming to ASTM A-325 or ASTM A-490 as needed shall be provided. Anchor bolts cast in concrete or masonry shall be headed bolts with cut threads conforming to ASTM A307, ASTM A36, or ASTM A572.50 as indicated on drawings.
10. "Slip-critical" bolted connections:
    a) "Slip-critical" connections (A325SC design values with special inspection) are required at all braced frame connections, at all connections along chord lines and drag lines (as noted on plans), and at all bolts in oversized or slotted holes.
    b) The special inspector must be present during installation and tightening operation of "slip-critical" connections.
11. Provide 1/2" diameter stitch bolts and ring fills, spaced at not more than 2'-0" on center for all double angle members.
12. At wood to steel parallel contact, bolt with 1/2" diameter bolts at maximum 24"cc.
13. Holes for unfinished bolts shall be of the same nominal diameter of the bolt plus 1/16". Use standard AISC gage and pitch for bolts except as noted otherwise.
14. Holes for anchor bolts embedded in concrete shall be of the same nominal bolt diameter plus 3/16" unless noted otherwise.
15. Welding shall be done by the electric arc process in accordance with American Welding Society Standards, using only certified welders. All groove welds shall have complete penetration unless noted otherwise. All exposed welds shall be ground smooth. All electrodes for welding shall comply with AWS code, E70 series minimum.
16. Weld lengths called for on plans are the net effective lengths required.
17. Minimum fillet welds: 3/16" @ t < 1/2"
    1/4" @ t < 3/4"
    5/16" @ t > 3/4"
18. Welding Procedure Specifications (WPS) for shop and field prequalified weld joints and weld joints qualified by test shall be prepared for review prior to fabrication. All welding procedure items such as base metals, welding processes, filler metals and joint details that meet the requirements of AWS D1.1 Section 5.1 shall be considered as prequalified. Any change or substitution that is beyond the range or tolerance or requirements for prequalification shall be qualified by test per AWS D1.1 Section 5 part B. Welds at base metals over 2 inches in thickness are not allowed as prequalified joint welds.
19. For nondestructive testing of welded connections excluding primary members of moment resisting frames:
    a) Welded connections shall be tested by nondestructive methods for compliance with AISC J2, and job specifications. Ultrasonic Testing shall be in accordance with AWS D1.1 ASTM E164 and ASME Section V. Radiography shall be in accordance twith AWS D1.1, ASTM E94 and E99, and ASME Section V. This testing shall be part of the special inspection requirements of UBC Section 1701 performed by an approved independent testing laboratory as follows:
       1. Base metal thicker than 1 inch when subject to through thickness weld shrinkage strains.
       2. All complete penetration groove or butt welds.
       3. All partial penetration groove welds when used in column splices.
    b) Any material discontinuities shall be accepted or rejected on the basis of defect rating in accordance with the (larger reflector) criteria of AISC J2.

EXPANSION ANCHOR AND ADHESIVE ANCHOR NOTES

330SN20-1

1. Anchors shall be installed in accordance with the recommendations given in the ICBO report.
2. Special Inspection is required for ICBO Allowable Tension values listed in table. Unless noted otherwise anchors have been designed for special inspection.
3. Design loads on anchors are not to exceed 80% of the tension and shear values listed in table.
4. Tension Test Load values are based on 80% of twice the tension values listed.
5. Allowable loads may not be increased for duration of loads such as wind or seismic forces.
6. Each anchor type (loaded in either pullout or shear) shall have 50 percent of the anchors (alternate anchors in each group arrangement) tested in tension to the tension test loads shown in the table. If any anchor fails testing, all anchors of the same type not previously tested shall be tested until 20 consecutive anchors pass, then resume the initial testing frequency.
7. When installing drilled in anchors in existing concrete or masonry, use care and caution to avoid cutting or damaging existing reinforcing bars.
8. The testing of the anchors shall be done by the Testing Laboratory and a report of the test results shall be submitted to the governing agency and Architect/ Structural Engineer. Testing shall occur 24 hours minimum after the installation of the anchors.
9. All anchors shall be installed to the maximum depth listed in the table. Use of other embedment depths must be approved by the Structural Engineer. For anchors with embedments not listed, interpolate between the values given.
10. Where the number of anchors of a specific size and type exceed 100, the following testing procedure may be used. The first 40 anchors shall be tested as specified in note 6 above. 10 percent of all additional anchors shall be tested. Any failure shall be handled in the same manner as specified in note 6 above.
11. Anchors installed in metal deck with concrete shall be installed in the center of the low flute of the decking. The decking shall have a minimum thickness of 20 gauge. The minimum depth of embedment above the top of the deck shall be 1 1/2". The effective depth of embedment is considered to be 1/3 of the metal deck height plus the depth of embedment above the top of the deck.

NORMAL WEIGHT CONCRETE ANCHORS 330SN27-1

F'c = 3000 PSI

ADHESIVE ANCHORS HILTI HIT HY-150 — ASTM A36 OR A193 GR B STEEL THREADED ROD ICBO NO. 5193

ANCHOR DIAMETER	BIT DIAMETER	EMBED. DEPTH	ICBO ALLOWABLE SHEAR	ICBO ALLOWABLE TENSION	TENSION TEST LOAD
3/8"	7/16"	3-1/2"	1110	1560	2500
3/8"	7/16"	5-1/4"	1110	2010	3220
1/2"	9/16"	4-1/4"	2160	2610	4180
1/2"	9/16"	6-5/8"	2160	3700	5920
5/8"	11/16"	5"	3050	3410	5460
5/8"	11/16"	7-1/2"	3050	5010	8020
3/4"	13/16"	6-5/8"	4410	5220	8350
3/4"	13/16"	10"	4410	7620	12190
7/8"	15/16"	7-1/2"	7110	6010	9620
7/8"	15/16"	11-1/4"	7110	10540	16860
1"	1-1/16"	8-1/2"	8090	6870	10990
1"	1-1/16"	12-3/8"	8090	12330	19730

NORMAL WEIGHT CONCRETE ANCHORS 330SN28-1

F'c = 3000 PSI

ADHESIVE ANCHORS HILTI HIT HY-150 — ASTM A615 OR A706 GR 60 REBAR ICBO NO. 5193

ANCHOR DIAMETER	BIT DIAMETER	EMBED. DEPTH		ICBO ALLOWABLE TENSION	TENSION TEST LOAD
#3	1/2"	3-1/2"		1410	2260
#3	1/2"	7"		2900	4640
#4	5/8"	4-1/4"		1875	3000
#4	5/8"	6-5/8"		2945	4710
#5	3/4"	5"		2625	4200
#5	3/4"	7-1/2"		4125	6600
#6	7/8"	6-5/8"		3190	5100
#6	7/8"	10"		4875	7800
#7	1"	6-5/8"		5000	8000
#7	1"	11"		10275	16440
#8	1-1/8"	8-1/4"		6565	10500
#8	1-1/8"	12"		9635	15420
#9	1-5/16"	10"		8440	13500
#9	1-5/16"	12"		12750	20400
#10	1-3/8"	12"		11250	18000
#10	1-3/8"	18"		16875	27000

Sheet Index:

S1.01 Typical Notes

S2.01 Partial Foundation Plan
S2.02 Partial Roof Framing Plan
S2.03 Partial Penthouse Framing Plan

S3.01 Elevations and Sections

S5.01 Details
S5.02 Details

SCALE: 3/4"=1'-0" 0 2 4 8 12
SCALE: 1/2"=1'-0" 0 2 4 8 12
SCALE: 1/4"=1'-0" 0 2 4 8 12
SCALE: 1/8"=1'-0" 0 2 4 8 12

REGISTERED PROFESSIONAL ENGINEER DREW A. OHALSTROM No. 4670 Exp. 12/31/08 STRUCTURAL STATE OF CALIFORNIA

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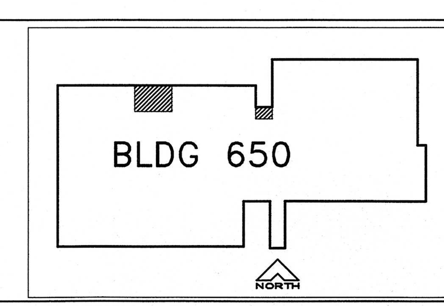

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Revisions:	Drawing Title: TYPICAL NOTES		Project Title: BLDG 650 REPLACE AIR HANDLERS 1 THRU 4, 7 AND 9 - 15	Date: 08/25/08
				Project No.: 612A4-07-342
Approved:	Approved: Medical Center Director	Drawn: KYM	Building Number:	DRAWING No. S1.01
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Department of Veterans Affairs

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