

# OLD MAIN BUILDING RENOVATION

**SOUTHERN UTAH UNIVERSITY**  
351 WEST CENTER STREET  
CEDAR CITY, UTAH 84720



FOR  
**STATE OF UTAH  
DIVISION OF FACILITIES  
AND CONSTRUCTION MANAGEMENT**

4110 STATE OFFICE BUILDING  
SALT LAKE CITY, UTAH 84114

**DFCM PROJECT NO. 03234730**

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STATE OF UTAH  
DFCM

4110 STATE OFFICE BUILDING  
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4/11/04  
BY: [Signature]

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CD 100% 7/21/04  
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ARCHITECT PROJECT NO.: B04-012  
DFCM PROJECT NO.: 03234730

COVER SHEET &  
SHEET INDEX

**G1001**

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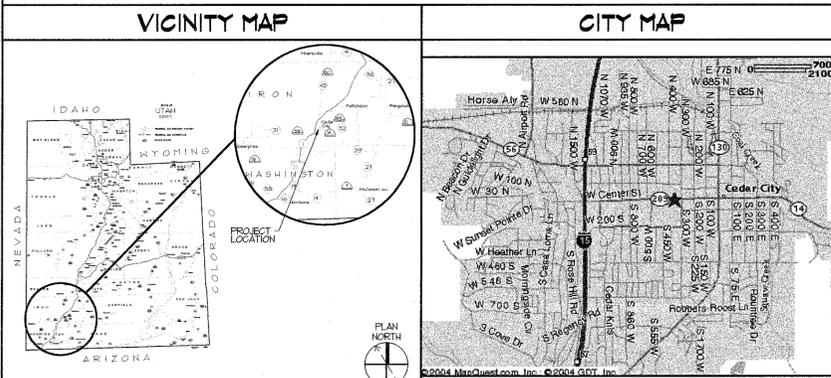
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**SYMBOLS LEGEND**

DETAIL NUMBER - C5 SHEET NUMBER - AE202	DETAIL REFERENCE	REFERENCE NOTE	CONCRETE
A1 AE202	EXTERIOR ELEVATION REFERENCE	HALL TYPE	CONCRETE BLOCK
A4 AE301	SECTION REFERENCE	WINDOW TYPE	MASONRY
B2 AE401	INTERIOR ELEVATION REFERENCE (SINGLE)	ROOM NOTE	STEEL
B3 AE401	INTERIOR ELEVATION REFERENCE (MULTIPLE)	DOOR TYPE	BATT INSULATION
		FURNITURE NOTE	RIGID INSULATION
		REVISION NOTE	FINISH GRADE HOOD
		ELEVATION MARKER	PLYWOOD
			DEMOLITION

NOTE: ALL MATERIALS REFERENCED ARE NEW UNLESS NOTED OTHERWISE



**ABBREVIATIONS**

COH - CENTER OF WINDOW/DOOR
COHL - CENTER OF HALL
FOF - FACE OF FOUNDATION
COFC - CENTER OF COLUMN
EOC - EDGE OF CARPET
EOGA - EDGE OF SOFFIT ABOVE
COORD - COORDINATE
EO1 - END OF MASONRY
EIPS - EXTERIOR INSULATED FINISH SYSTEM
LAFI - LAPFATE
ADJ - ADJUSTABLE
TYP - TYPICAL
OC - ON CENTER
MFG - MANUFACTURER
ALUM - ALUMINUM

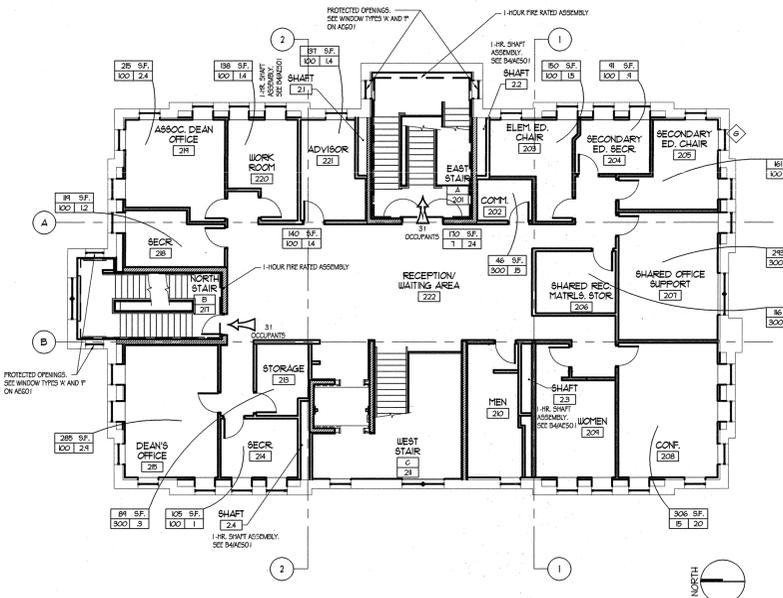
**APPROVALS:**

BU	DATE
DFCM	DATE
CRSA	DATE

**HATCH LEGEND**

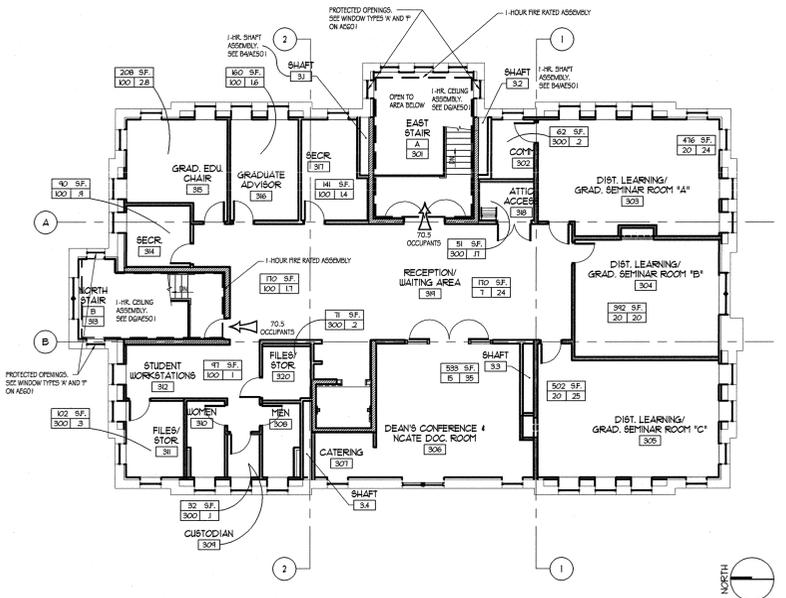
- 1-HOUR FIRE RATED WALL ASSEMBLY
- ▨▨▨▨▨▨ CMU WALL
- ▬▬▬▬▬▬ SHOTCRETE SHEAR WALL
- ▬▬▬▬▬▬ SOUND INSULATION (IN SPECIFIED WALL TYPE)

MAIN LEVEL OCCUPANT LOAD: 62



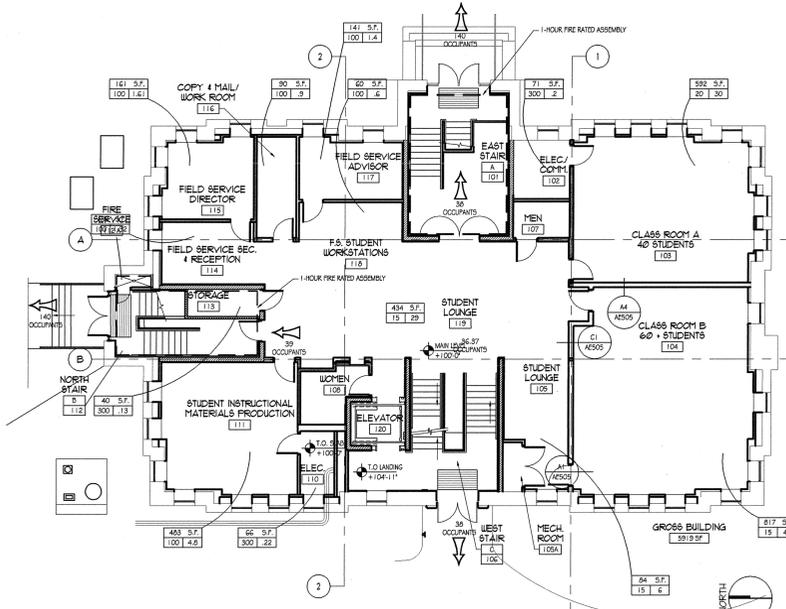
**C1 SECOND LEVEL FLOOR PLAN**  
1/8" = 1'-0"

MAIN LEVEL OCCUPANT LOAD: 141

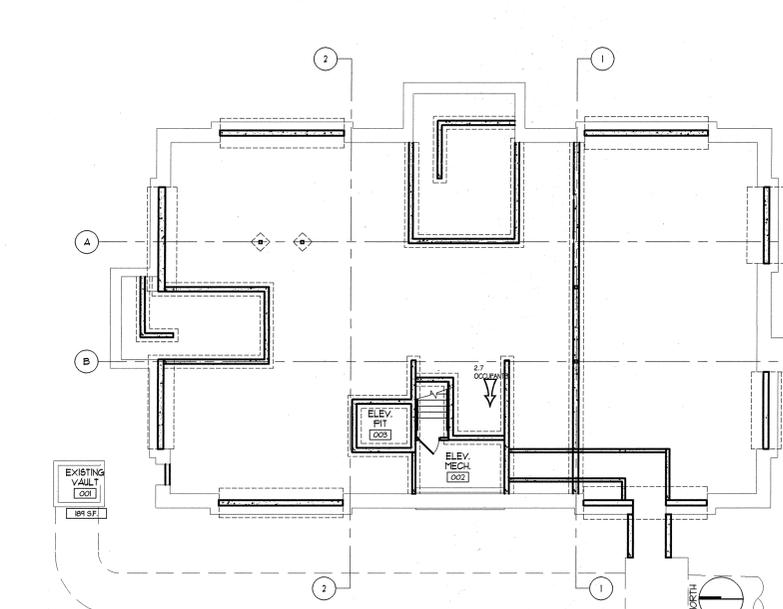


**C3 THIRD LEVEL FLOOR PLAN**  
1/8" = 1'-0"

MAIN LEVEL OCCUPANT LOAD: 116



**A3 MAIN LEVEL FLOOR PLAN**  
1/8" = 1'-0"



**A1 BASEMENT LEVEL FLOOR PLAN**  
1/8" = 1'-0"

**CODE ANALYSIS**

**APPLICABLE CODES**

Code	Year	Code	Year
International Building Code	2003	National Electrical Code	2002
International Mechanical Code	2003	Uniform Code for Building Conservation	2003 & 2003 A
International Plumbing Code	2003	ADA Accessibility Guidelines	ANSI 117.1
International Fire Code	2003	ANSI	1998
International Energy Conservation Code	2003		

- A. Occupancy and Group: **A-3**
- Change in Use: Yes  No  Mixed Occupancy: Yes  No   
 Special Use and Occupancy (e.g. High Rise, Covered Mall):
- B. Seismic Design Category: **C** Design Wind Speed: **90** mph
- C. Type of Construction (circle one):  
 I A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
- D. Fire Resistance Rating Requirements for the Exterior Walls based on the fire separation distance (in hours): Table 602  
 North: **0** South: **0** East: **0** West: **0**
- E. Mixed Occupancies: **No** Nonseparated Uses: **Yes**
- F. Sprinklers:  
 Required: **Yes** Provided: **Yes** Type of Sprinkler System: **Wet Pipe**
- G. Number of Stories: **3** Building Height: **60'-8"**
- H. Actual Area per Floor (square feet): **5,329**
- I. Tabular Area: **15,987**
- J. Area Modifications:  
 a)  $A = A_1 + A_2 + A_3 + A_4 + A_5 + A_6 + A_7 + A_8 + A_9 + A_{10} + A_{11} + A_{12} + A_{13} + A_{14} + A_{15} + A_{16} + A_{17} + A_{18} + A_{19} + A_{20} + A_{21} + A_{22} + A_{23} + A_{24} + A_{25} + A_{26} + A_{27} + A_{28} + A_{29} + A_{30} + A_{31} + A_{32} + A_{33} + A_{34} + A_{35} + A_{36} + A_{37} + A_{38} + A_{39} + A_{40} + A_{41} + A_{42} + A_{43} + A_{44} + A_{45} + A_{46} + A_{47} + A_{48} + A_{49} + A_{50} + A_{51} + A_{52} + A_{53} + A_{54} + A_{55} + A_{56} + A_{57} + A_{58} + A_{59} + A_{60} + A_{61} + A_{62} + A_{63} + A_{64} + A_{65} + A_{66} + A_{67} + A_{68} + A_{69} + A_{70} + A_{71} + A_{72} + A_{73} + A_{74} + A_{75} + A_{76} + A_{77} + A_{78} + A_{79} + A_{80} + A_{81} + A_{82} + A_{83} + A_{84} + A_{85} + A_{86} + A_{87} + A_{88} + A_{89} + A_{90} + A_{91} + A_{92} + A_{93} + A_{94} + A_{95} + A_{96} + A_{97} + A_{98} + A_{99} + A_{100} + A_{101} + A_{102} + A_{103} + A_{104} + A_{105} + A_{106} + A_{107} + A_{108} + A_{109} + A_{110} + A_{111} + 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K. Fire Resistance Rating Requirements for Building Elements (hours)

Element	Hours	Assembly Listing	Element	Hours	Assembly Listing
Exterior Bearing Walls	2	Table 720.1(2), 1-1.1	Floors - Ceiling Floors	0	
Interior Bearing Walls	0		Roofs - Ceiling Roofs	0	
Exterior Non-Bearing Walls	0		Exterior Doors and Windows	0	
Structural Frame	0		Shaft Enclosures (707.4)	1	U417
Partitions - Permanent	0		Fire Walls	3	Not Used
Fire Barriers (Exit Enclosure 1019.1)	1	U814	Fire Partitions (Conditions Table 1016.1)	0	
			Smoke Partitions	0	

L. Design Occupant Load: **319**  
 Exit Width Required: **63.8** Exit Width Provided: **108**

M. Minimum Number of Required Plumbing Facilities:  
 a) Water Closets - Required (m) **3.7** (f) **3.9** Provided (m) **5** (f) **5**  
 b) Lavatories - Required (m) **4.1** (f) **4.1** Provided (m) **4** (f) **4**  
 c) Bath Tubs or Showers: **0**  
 d) Drinking Fountains: **4** Service Sinks: **1**

- FOOTNOTES:
- In case of conflict with the U.S. Department of Justice Federal Registers Parts I through V - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.
  - Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
    - High Rise Requirements.
    - Adiums.
    - Performance Based Criteria.
    - Means of Egress Analysis.
    - Fire Assembly Local Sheet.
    - Exterior and Interior Accessibility Route.
    - Fire Stopping, Including Tested Design Number.

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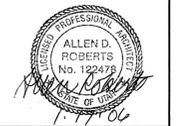
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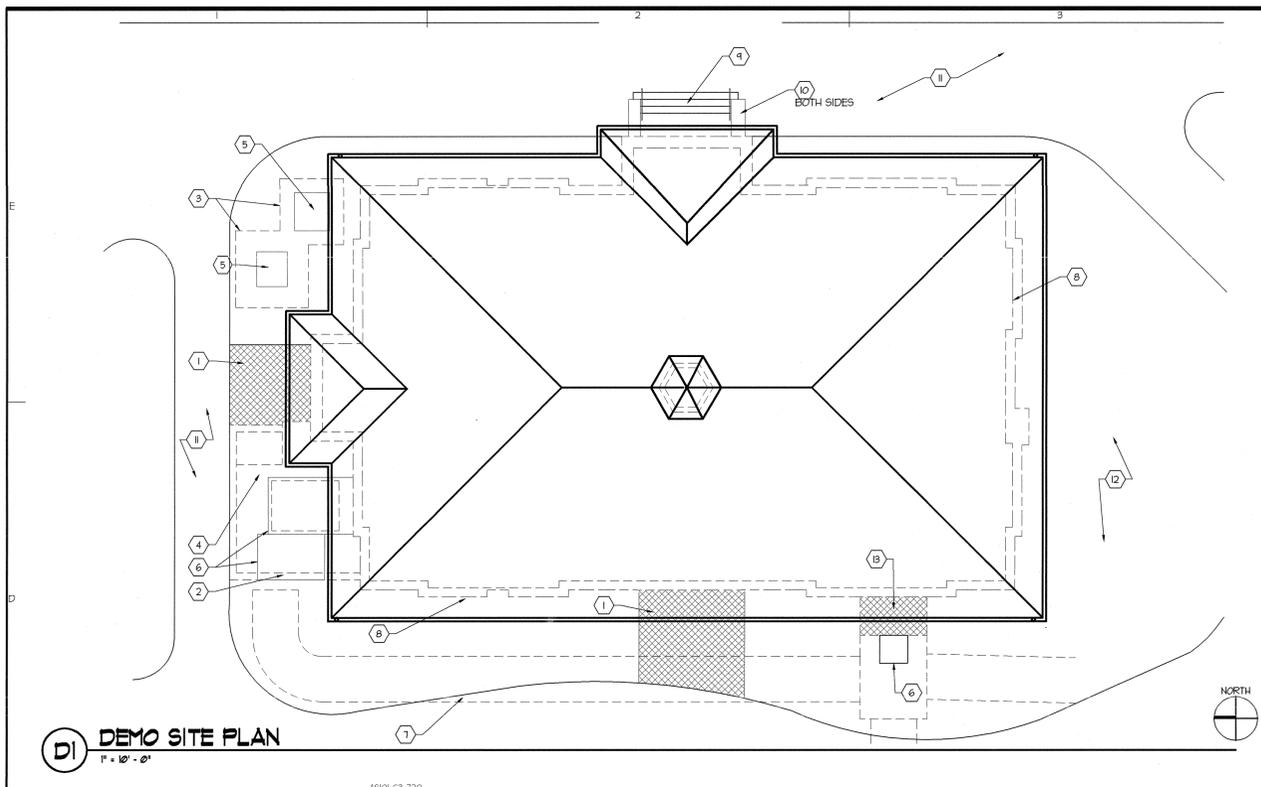
STATE OF UTAH  
DFCM  
4110 STATE OFFICE BUILDING  
SALT LAKE CITY, UTAH

PRINTED  
JAN 23 2006

BID DOCUMENT	1/16/06
CD 100%	7/21/04
DD Submittal	7/12/04
ARCHITECT PROJECT NO.:	B04-012
DFCM PROJECT NO.:	03234730
	DTN

CODE ANALYSIS

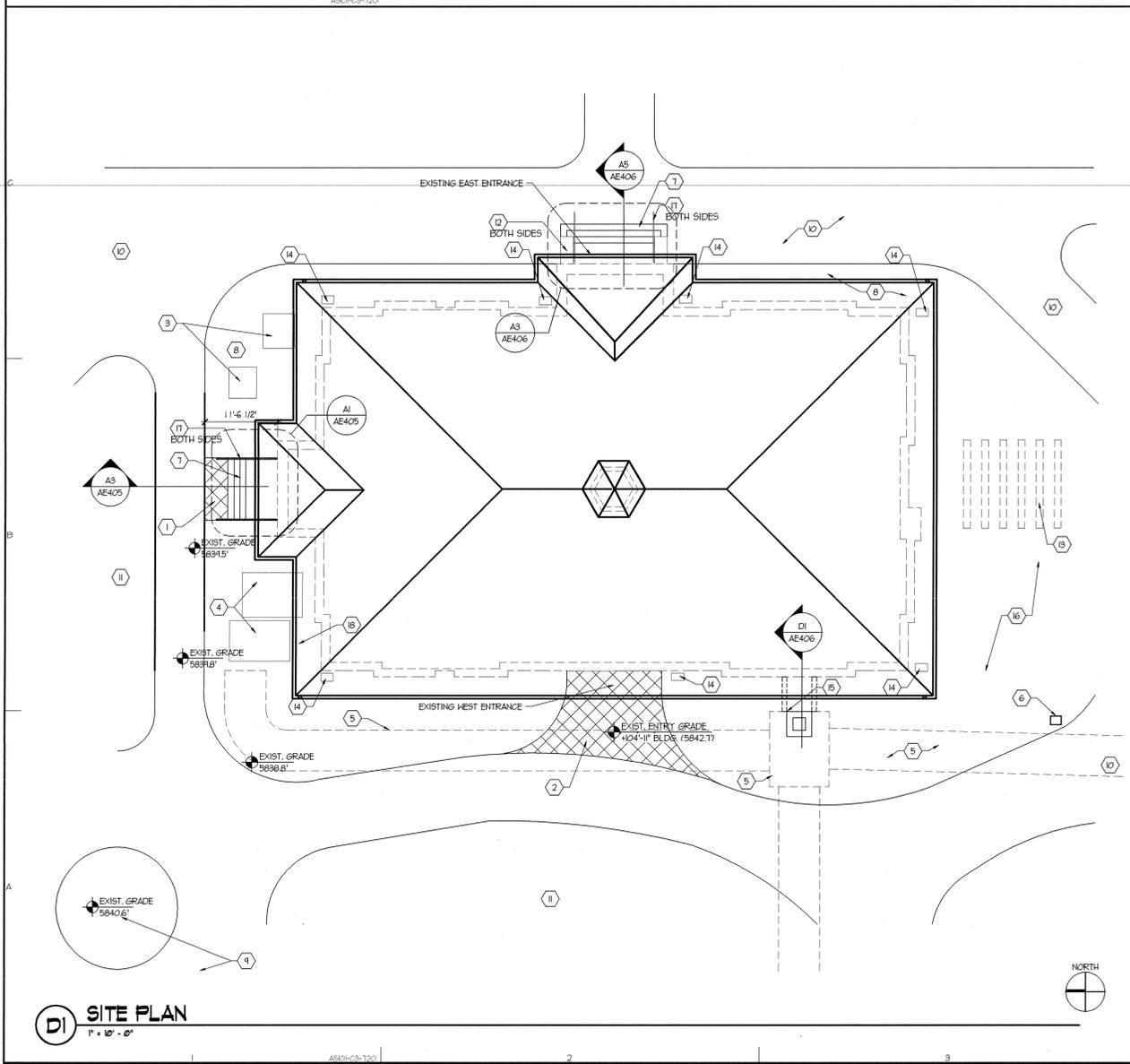
**G1002**



**D1 DEMO SITE PLAN**  
1" = 10' - 0"

- ### SITE DEMO REFERENCE NOTES
1. REMOVE EXISTING BRICK AND CONCRETE PATIO FROM BUILDING TO EXISTING SIDEWALK.
  2. REMOVE EXISTING MECHANICAL ENCLOSURE INCLUDING FOOTINGS, FOUNDATION WALLS, SLABS AND MASONRY WALLS. DO NOT DAMAGE TUNNEL BELOW. SALVAGE ALL BRICK AND RETURN TO OWNER.
  3. REMOVE EXISTING HOOD FENCE.
  4. REMOVE EXISTING CONCRETE PAD AND EQUIPMENT.
  5. EXISTING EQUIPMENT TO REMAIN - PROTECT DURING CONSTRUCTION.
  6. EXISTING CONCRETE CAP FOR TUNNEL/UTILITY VAULT AND MAN HOLE TO REMAIN. PROTECT DURING CONSTRUCTION. CONFIRM EXTENT/LOCATION.
  7. APPROXIMATE LOCATION OF UTILITY TUNNEL TO THE BIRATHWAITE BUILDING.
  8. EXISTING HISTORIC MASONRY STRUCTURE TO REMAIN.
  9. REMOVE EXISTING CONCRETE STAIRS.
  10. EXISTING STONE TO REMAIN.
  11. EXISTING SIDEWALKS TO REMAIN.
  12. EXISTING TREES TO REMAIN.
  13. EXCAVATION FOR INSTALLATION OF NEW UTILITY CONNECTION TO BUILDING.

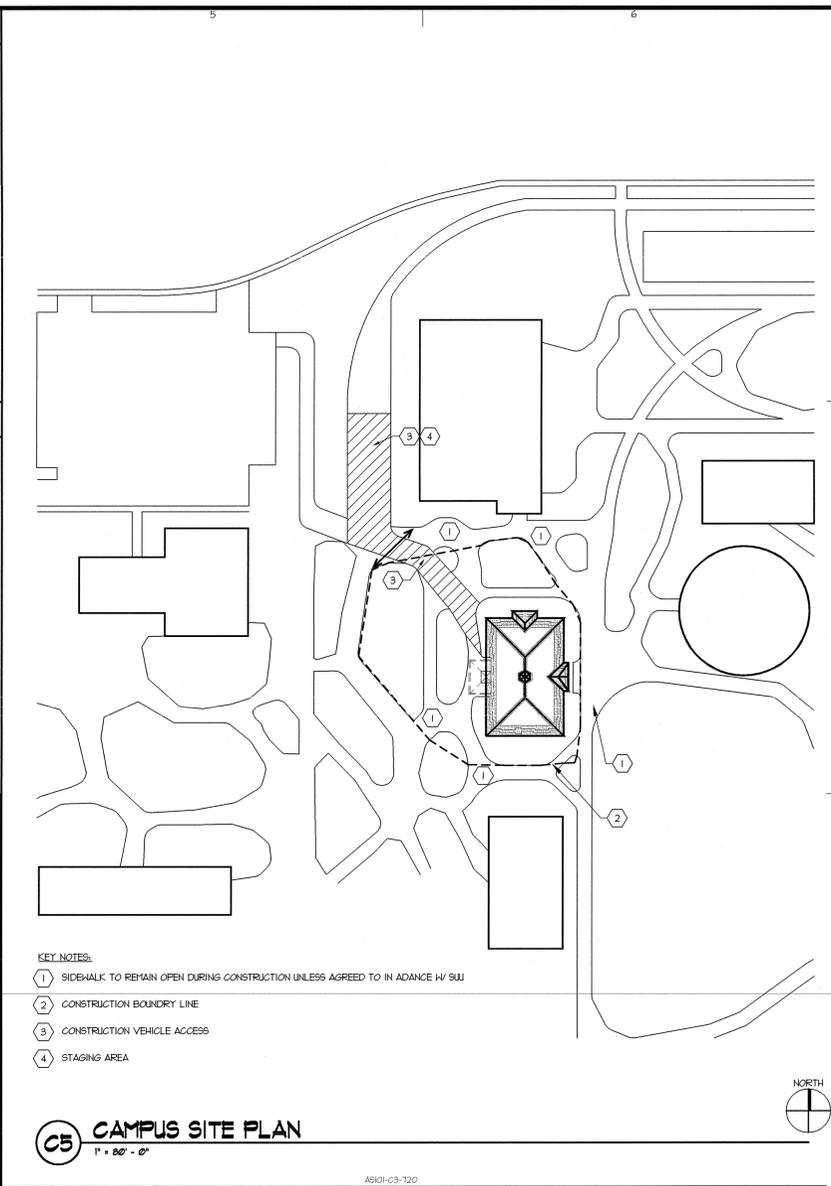
- ### GENERAL NOTES
- A. PROTECT ALL TREES AROUND THE BUILDING DURING CONSTRUCTION. DO NOT DAMAGE THEM.
  - B. ALL SIDEWALKS AROUND THE BUILDING ARE TO BE LEFT OPEN TO THE PUBLIC EXCEPT AS NEEDED TO TEMPORARILY MOVE EQUIPMENT & MATERIALS TO THE PROJECT.
  - C. SALVAGE ALL EXISTING BRICK & RETURN TO OWNER.
  - D. PROTECT HISTORIC MASONRY (STONE AND BRICK) SURFACE AND OPENINGS DURING DEMOLITION AND CONSTRUCTION.



**D1 SITE PLAN**  
1" = 10' - 0"

- ### SITE REFERENCE NOTES
1. NEW CONCRETE SIDEWALK AND LANDING FOR NEW BUILDING ENTRANCE.
  2. NEW RAMP & STAIR FOR NEW ACCESSIBLE BLDG. ENTRANCE.
  3. EXISTING TRANSFORMERS
  4. EXISTING CONCRETE CAP FOR TUNNEL/UTILITY VAULT. PROTECT DURING CONSTRUCTION.
  5. APPROXIMATE LOCATION OF UTILITY TUNNEL TO THE BIRATHWAITE BUILDING.
  6. LOCATIONS FOR EMERGENCY BLUE LIGHT. CONTRACTOR TO SUPPLY CONDUIT FOR POWER & PHONE ONLY. REMAINDER BY SUJ.
  7. NEW CONCRETE STAIRS.
  8. NEW LANDSCAPING. SEE LANDSCAPING PLANS.
  9. REMOVE & REPLACE CONCRETE SIDEWALK WHERE USED FOR CONSTRUCTION ACCESS OR DAMAGED BY CONSTRUCTION ACTIVITIES.
  10. PROTECT EXISTING SIDEWALK DURING CONSTRUCTION.
  11. REPLACE EXISTING LANDSCAPING LOCATED IN THE CONSTRUCTION BOUNDARY LINE.
  12. EXISTING STONE TO REMAIN. PROTECT DURING CONSTRUCTION.
  13. EXISTING TRELLIS TO REMAIN. PROTECT DURING CONSTRUCTION.
  14. EXISTING STORMWATER DRAIN INLET TO BE PROTECTED DURING CONSTRUCTION.
  15. MECHANICAL TUNNEL CONNECTION.
  16. PROTECT EXISTING TREES.
  17. NEW STAIR HANDRAIL.
  18. FILL IN OR ABANDON CONNECTION INTO OLD MAIN.

- ### GENERAL NOTES
- A. ALL SIDEWALKS AROUND THE BUILDING TO THE EAST AND SOUTH ARE TO BE LEFT OPEN TO THE PUBLIC EXCEPT AS NEEDED TO TEMPORARILY MOVE EQUIPMENT & MATERIALS TO THE PROJECT.
  - B. COORD. W/ LANDSCAPING PLANS FOR NEW IRRIGATION SYSTEM & PLANTINGS.
  - C. COORD. WITH PLUMBING PLANS FOR UTILITIES LEAVING THE BUILDING.
  - D. PROTECT & MAINTAIN ALL TREES WITHIN THE CONSTRUCTION BOUNDARY LINE EXCEPT THOSE NOTED FOR DEMOLITION BY THE LANDSCAPE ARCHITECT.
  - E. COORD. WITH ELECTRICAL FOR POWER AND COMMUNICATION LINE LEAVING THE BUILDING.



**G5 CAMPUS SITE PLAN**  
1" = 80' - 0"

- ### KEY NOTES:
1. SIDEWALK TO REMAIN OPEN DURING CONSTRUCTION UNLESS AGREED TO IN ADVANCE W/ SUJ
  2. CONSTRUCTION BOUNDARY LINE
  3. CONSTRUCTION VEHICLE ACCESS
  4. STAGING AREA

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12/17/06

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STATE OF UTAH  
DFCM

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SALT LAKE CITY, UTAH

PROPOSED  
JAN 23 2006  
BY MISS ARCHITECTURE

BID DOCUMENT	1/16/06
CD 100%	7/21/04
DD Submittal	7/12/04

ARCHITECT PROJECT NO.: 804-012  
DFCM PROJECT NO.: 03234730  
DTN

**EXISTING  
SITE PLAN**

**AS101**

**IRRIGATION LEGEND**

**SYM DESCRIPTION**

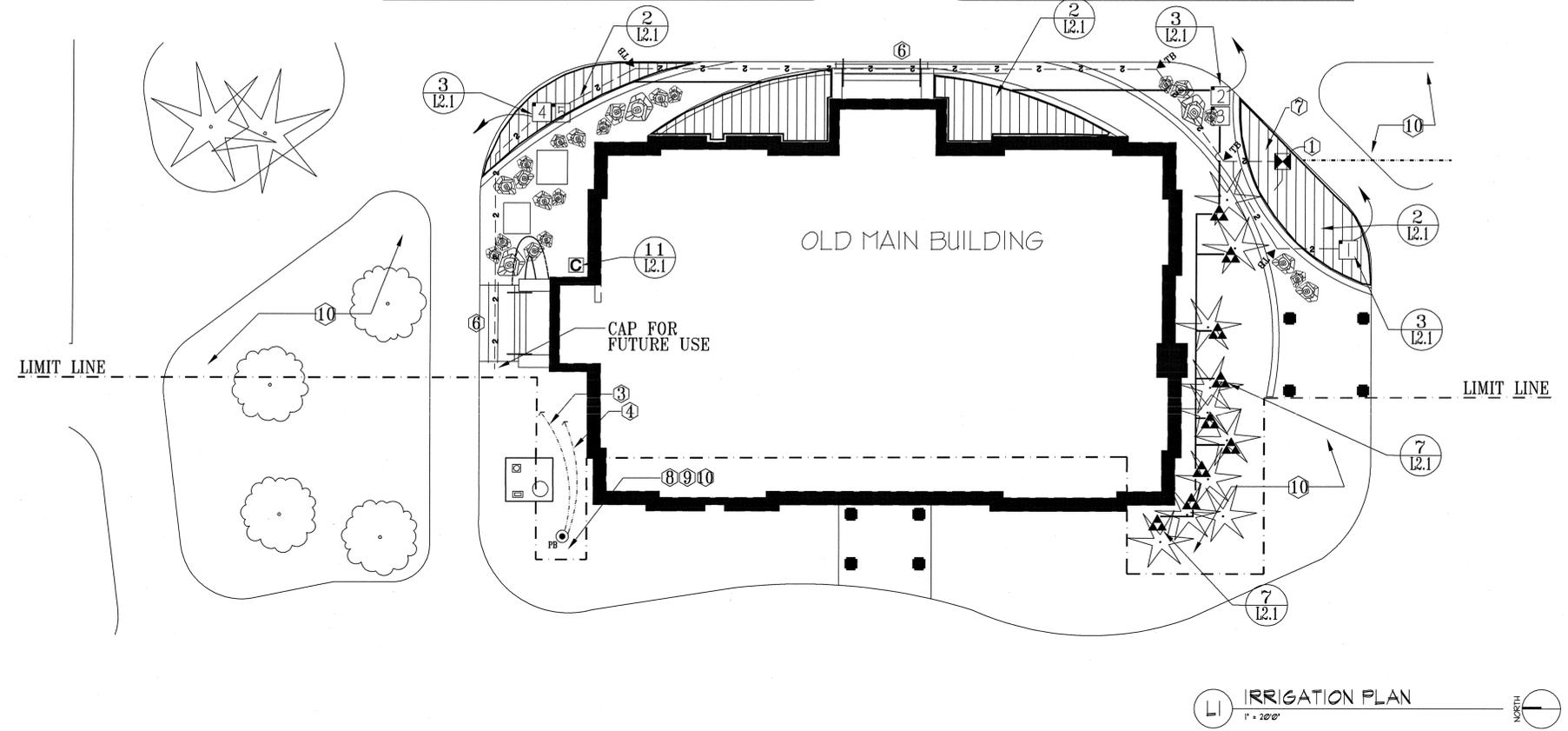
- ☐ RAINBIRD 100-PESB SERIES ELEC. REMOTE CONTROL VALVE (1")
- ☐ RAINBIRD 200-PESB SERIES ELEC. REMOTE CONTROL VALVE (2")
- LATERAL LINE - PVC SCH 40, S.A.S. 12" BURY. — 1 1/4", — 1 1/2", — 2"
- 2 — MAINLINE - 2" SCH 40 PVC - SIZED AS SHOWN  
NOTE: ALL NEW FITTINGS ON MAINLINE SHALL BE PVC SCH 80, NO EXCEPTIONS.
- ONE 14 GAGE U.F. DIRECT BURIAL WHITE GROUND WIRE. ONE 14 GAGE U.F. DIRECT BURIAL BLUE GROUND WIRE (SPARE).
- ⓐ CONTROLLER--RAINBIRD ESP-32MC
- SLEEVES - 4" PVC SCH 40 PIPE. GLUE JOINTS AS REQUIRED.
- ▲ DRIP LOOP
- EX. 2" PVC MAINLINE

**NOTES:**

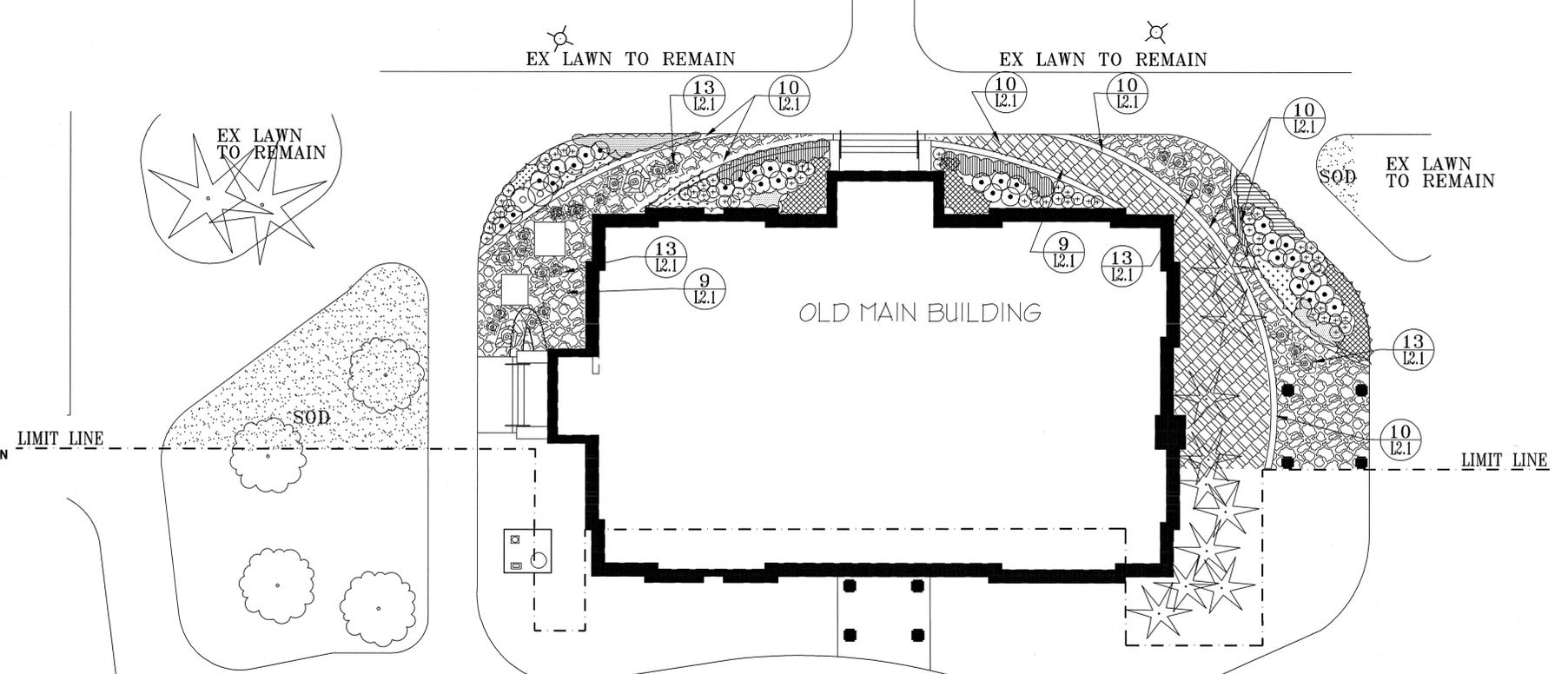
- ① POINT OF CONNECTION, EX. 2" PVC PIPE.
- ② BURY 4" DIA PVC SCH 40 SLEEVE @ 12" DEPTH TO FLOW LINE.
- ③ EXTEND TELEPHONE LINE FROM THIS LOCATION TO NEW CONTROLLER.
- ④ EXTEND MAXI-WIRE FROM THIS LOCATION TO NEW CONTROLLER.
- ⑤ CONNECT TO EXISTING LATERAL @ THIS APPROX. LOCATION
- ⑥ PUSH UNDER EXISTING HARDSURFACE
- ⑦ EX. VALVE TO BE REMOVED DELIVER TO GROUND DEPARTMENT
- ⑧ EX. CONTROLLER TO BE REMOVED & DELIVERED TO GROUND DEPARTMENT. TERMINATE ALL CONTROL WIRES IN A NEW PULL BOX DURING CONSTRUCTION. AT COMPLETION, EXTEND ALL EX. CONTROL WIRES & NEW CONTROL WIRES TO NEW CONTROLLER LOC.
- ⑨ LANDSCAPE CONTRACTOR MUST FURNISH 11 NEW UNIQUE BATTERY OPERATED CONTROLLERS TO THE GROUND DEPARTMENT. GROUND DEPARTMENT WILL INSTALL THESE 11 NEW CONTROLLERS ON THE 11 EXISTING VALVES THAT MUST REMAIN OPERATIONAL DURING CONSTRUCTION.
- ⑩ EXISTING IRRIGATION SYSTEM IN THIS AREA. CONTRACTOR MUST REPAIR, REPLACE ANY DAMAGED HEADS OR LATERAL LINES & INSURE 100% COVERAGE AND AUTOMATIC OPERATION OF THIS CIRCUIT A CONCLUSION OF WORK.
- ⑪ THIS SPRINKLER IRRIGATION PLAN IS DRAWN FOR GRAPHIC CLARITY. WHERE PIPING AND VALVES ARE SHOWN IN CONCRETE AREAS, EXCEPT WHERE CROSSING, THE INTENT IS FOR THE PIPING AND VALVES TO BE PLACED IN THE ADJACENT PLANTING AREAS.

**LEGEND of SYMBOLS**

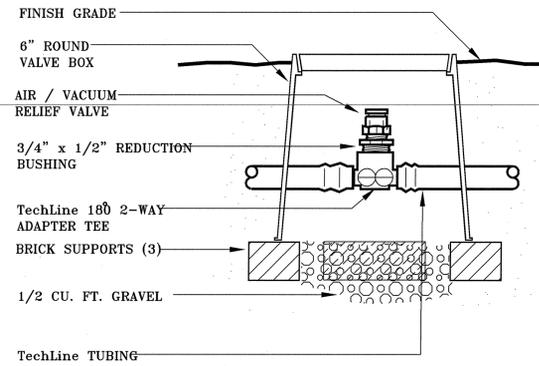
- ☐ 4" to 6" DIA. ROCKS (MOENKOPI - RED SANDSTONE)
- ☐ 6" - 12" DIA. COBBLE ROCK - MATCH EXSITING TYPE ON CAMPUS
- ☐ 4" LAYER - Bark Mulch
- ☐ HYPERICUM REPTANS - ST JONSWORT 1 GAL CAN
- ☐ FESTUCA OVINA GLAUCA - BLUE FESCUE 1 GAL CAN
- ☐ ACHILLEA TOMENTOSA 'NANA' - DWARF WOOLY YARROW 1 GAL CAN
- ☐ GOLD MOSS SEDUM 1 GAL CAN
- ☐ RED CARPET SEDUM 1 GAL CAN
- ☐ EXISTING TREES TO REMAIN
- ☐ MISCANTHUS ZEBRINUS - ZEBRA GRASS 1 GAL CAN
- ☐ HEMEROCALLIS - STELLA DE ORE DAYLILIES 1 GAL CAN
- ☐ PEROVSKIA ATRIPLICIFOLIA - RUSSSIAN SAGE 1 GAL CAN
- ☐ NEW SOD - KEWNTUCKY BLUEGRASS



L1 IRRIGATION PLAN  
1" = 20'

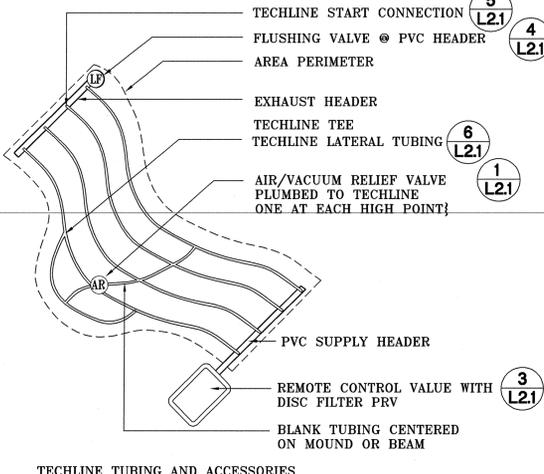


L2 PLANTING PLAN  
1" = 20'



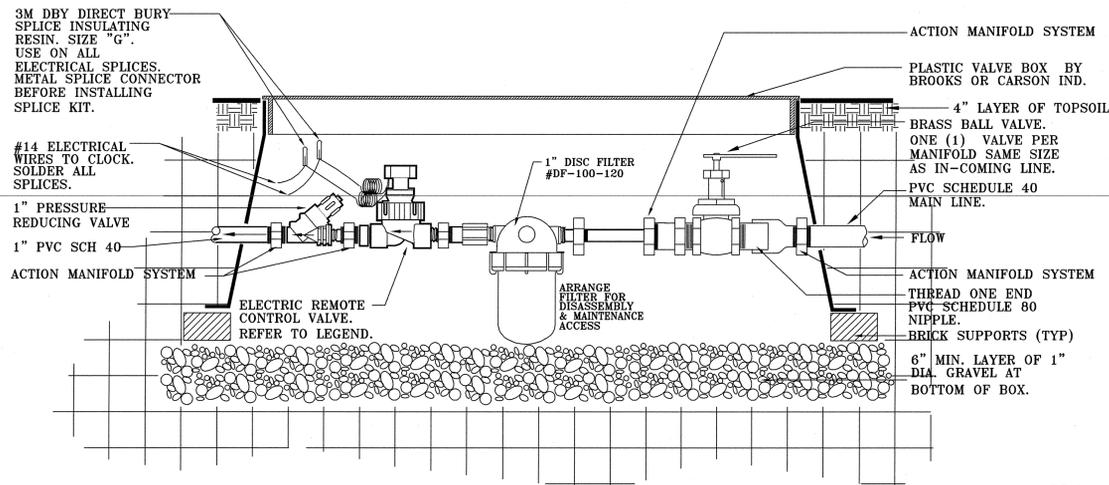
**AIR/VACUUM RELIEF VALVE**  
Not to Scale

1  
L2.1



**DRIP CIRCUIT SCHEMATIC**  
Not to Scale

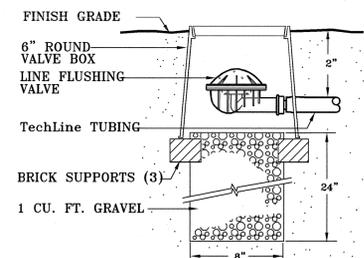
2  
L2.1



**DRIP VALVE MANIFOLD - SECTION**  
Not to Scale

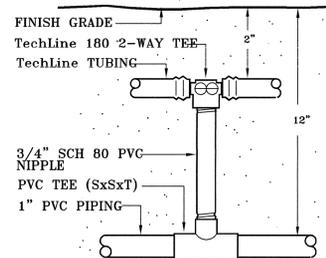
3  
L2.1

12  
L2.1



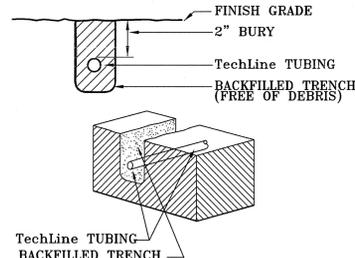
**FLUSHING/DRAIN VALVE**  
Not to Scale

4  
L2.1



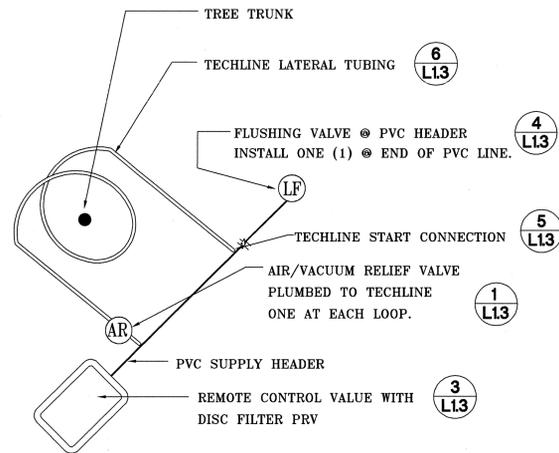
**CONNECTION - PVC to TECHLINE**  
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L2.1



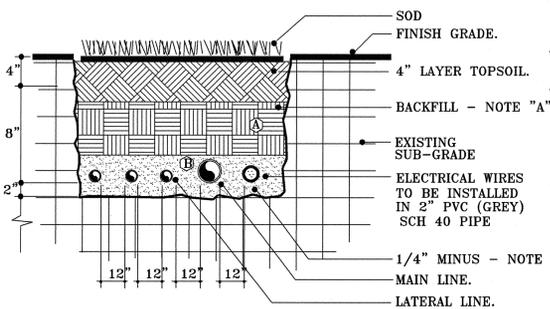
**TRENCHING DETAIL**  
Not to Scale

6  
L2.1



**DRIP LOOP SCHEMATIC**  
Not to Scale

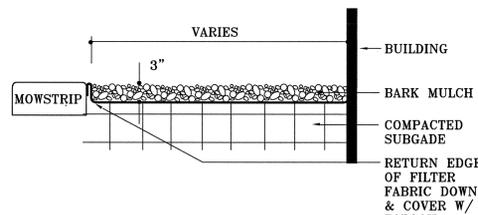
7  
L2.1



**TRENCHING DETAIL**  
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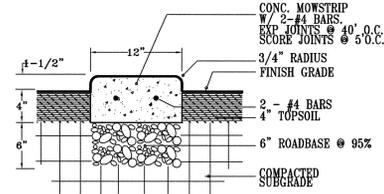
8  
L2.1

**NOTES:**  
 (A) EX. TRENCH M'TRL @ 2" MINUS  
 (B) USE 2" LAYER OF 1/4" MINUS MATERIAL TO BED ALL PIPES & WIRES.  
**GENERAL NOTE:**  
 • TRENCHES MUST BE 12" FROM BLDGS, WALKS, HRDRSPCES.  
 • SETTLE TRENCHES W/ WATER PRIOR TO PLACING TOPSOIL.  
 • ALL PIPES MUST BE SEPARATED A MIN. OF 12" FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE IN ALL TRENCHES.



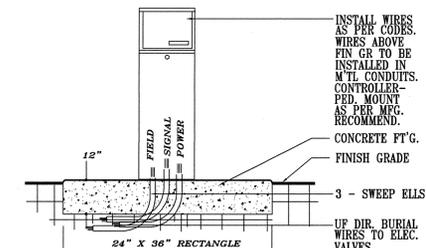
**BARK MULCH**  
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L2.1



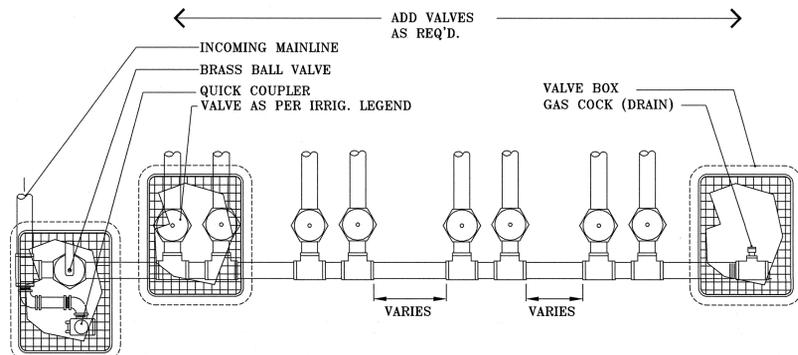
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L2.1



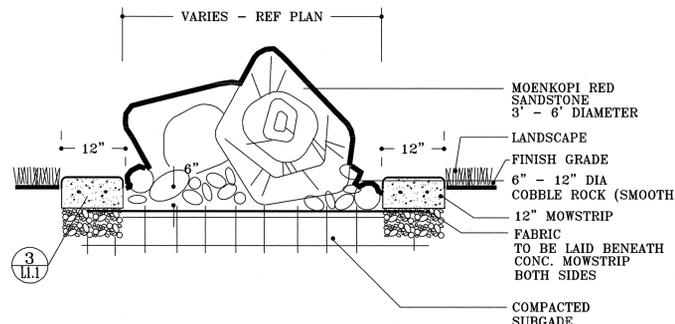
**PEDESTAL MOUNTED CONTROLLER**  
Not to Scale

11  
L2.1



**VALVE MANIFOLD - PLANVIEW**  
Not to Scale

12  
L2.1



**COBBLE WAY**  
Not to Scale

13  
L2.1

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ARCHITECT PROJECT NO.: B04-012  
DFCM PROJECT NO.: 03234730  
DRAWN BY: BRENT  
CHECKED BY: BRENT

LANDSCAPE  
DETAILS

L2.1

GENERAL STRUCTURAL NOTES

I. Design Criteria

- A. Governing Building Code: 2000 International Building Code (IBC)  
 Seismic Rehabilitation per: Federal Emergency Management Agency document number 356 (FEMA 356).

- B. Floor Live Loading:  
 1. Office: . . . . . 50 psf Live Load + 20 psf Partition Load  
 2. Exit Facilities & Corridors: . . . . . 100 psf Live Load  
 3. Mechanical Rooms: . . . . . 125 psf Live Load or actual weights, if larger

- C. Roof Live Loading:  
 1. Roof Live Load: . . . . . 20 psf  
 2. Roof Snow Load: . . . . . 30 psf + Drift per IBC  
 a. Ground Snow Load, Pg: . . . . . 43 psf  
 b. Snow Exposure Factor, Ce: . . . . . 1.0  
 c. Importance Factor, Is: . . . . . 1.0  
 d. Thermal Factor, Ct: . . . . . 1.0

D. Earthquake Loading: (per the Basic Safety Objective of FEMA 356)

1. Seismic Use Group: . . . . . I  
 2. Seismic Design Category: . . . . . C  
 3. Spectral Response Accelerations:  
 BSE-1  
 Ss = 0.30 g Sxs = 0.36 g  
 S1 = 0.09 g Sx1 = 0.15 g  
 BSE-2  
 Ss = 0.64 g Sxs = 0.73 g  
 S1 = 0.20 g Sx1 = 0.32 g  
 4. Soil Site Class: . . . . . C  
 BSE-1Fa = 1.20 Fv = 1.7  
 BSE-2Fa = 1.14 Fv = 1.6

5. Rehabilitation Measures:  
 a. Pneumatically applied concrete shear walls  
 b. CMU shear walls  
 c. Wood structural panel diaphragm sheathing  
 6. Importance Factor, Ie: . . . . . 1.0  
 7. Design Base Shear: . . . . . 346 kips (BSE-1)  
 738 kips (BSE-2)  
 8. Analysis Procedure: . . . . . Linear Static Procedure

E. Wind:

1. Basic Wind Speed (3-second gust): . . . . . 90 mph  
 2. Importance Factor, Iw: . . . . . 1.0  
 3. Exposure: . . . . . C  
 4. Internal Pressure Coefficient, Gcpi: . . . . . 0.18

F. Foundation:

1. Subsurface Conditions:  
 Soils report and log of borings was obtained by the Owner for the Engineer's use in the design of the foundation, and is not a part of the Contract Documents. This report and log of borings is available for the Contractor's information, but is not a warranty of the subsurface conditions. The Contractor may use the report at his own risk.  
 2. Soils Report by Applied Geotechnical Engineering Consultants, dated April 16th 2004.  
 3. Soil Bearing Pressure: . . . . . 5000 psf, on Compacted Fill,  
 4. Lateral Soil Pressure Fluid Equivalent Density.  
 a. Active: . . . . . 40 pcf (retaining walls)  
 b. At Rest: . . . . . 55 pcf (rigid foundation walls)  
 c. Passive: . . . . . 300 pcf  
 5. Coefficient of Friction: . . . . . 0.5
- G. Classification for Fire Rated Construction:  
 1. For the purpose of determining fire-resistive assemblies, the steel roof framing members shall be considered unrestrained and the steel floor framing members shall be considered restrained.  
 2. All members in vertical braced frames shall be considered as primary members for fire proofing protection.

II. Earthwork

- A. See Specifications for earthwork requirements.  
 d. Lightweight concrete over wood deck. . . . . 3000 psi

III. Concrete

- A. Materials shall comply with the Standards specified in the latest edition of ACI 318, "Building Code Requirements for Structural Concrete".  
 1. Compressive strengths of concrete at 28 days shall be as follows:  
 a. Footings: . . . . . 3000 psi  
 b. Slabs on Grade: . . . . . 4000 psi  
 c. Lightweight concrete over wood deck: . . . . . 3000 psi  
 d. Walls: . . . . . 4000 psi  
 e. Columns: . . . . . 4000 psi  
 f. All other Site Cast Concrete: . . . . . 4000 psi  
 2. Concrete Density (Maximum Air Dry Weight):  
 a. Normal weight concrete shall be approximately 145 to 155 pounds per cubic foot.  
 b. Lightweight concrete shall not exceed 110 pounds per cubic foot and shall be made of lightweight coarse aggregates and a blend of lightweight and normal weight fines.  
 3. Reinforcement steel:  
 a. ASTM A615 Grade 60, fy = 60,000 psi min. unless noted otherwise.  
 b. Reinforcement at concrete moment frames and shear wall jombs shall be ASTM A706 or ASTM A615 Grade 60, with the following properties:  
 (1) Actual yield strength based on mill tests shall not exceed 78,000 psi.  
 (2) Retest shall not exceed 81,000 psi.  
 (3) Ratio of actual ultimate tensile stress to the actual yield strength shall not be less than 1.25.  
 (4) Mill tests shall be submitted to the Engineer.  
 4. Admixtures:  
 a. Air-entraining admixtures, comply with ASTM C 260 (when used).  
 b. Calcium chloride shall not be added to the concrete mix.  
 5. Only one grade or type of concrete shall be poured on the site at any given time.  
 6. Concrete slump shall be 4" max.  
 B. Formwork shall comply with ACI Standards Publication 347 and the project specifications. The contractor shall be responsible for the design, detailing, care, placement and removal of the formwork and shores.  
 C. Concrete cover requirements for deformed bar reinforcing steel shall comply with ACI 318, "Building Code Requirements for Structural Concrete".  
 1. Cast-in-place Concrete: Clear Cover  
 a. Cast against and permanently exposed to earth: . . . . . 3"  
 b. Formed concrete exposed to earth or weather:  
 #6 thru #18 bars: . . . . . 2"  
 #5 and smaller bars: . . . . . 1.1/2"  
 c. Concrete not exposed to weather or in contact with ground:  
 Slabs, Walls, Joists: #11 bars and smaller: . . . . . 3/4"  
 Beams, Columns: Primary Reinf., Ties, Stirrups, Spirals: . . . . . 1.1/2"  
 D. Construction Joints and Control Joints:  
 1. Provide a continuous 2 X 4 keyway in all wall footings, unless noted otherwise. See details. Adjust the keyway as necessary to provide for proper bar placements.  
 2. All horizontal and vertical construction joints shall have a continuous 2 X 4 keyway along the joint, unless noted otherwise. See details. In addition, all joints shall be intentionally roughened to a full amplitude of approximately 1/4".  
 3. Provide reinforcing dowels to match the member reinforcing at the joint, unless noted otherwise.  
 4. Slabs on grade shall have construction or control joints spaced not to exceed 30 times the slab thickness in any direction. All discontinuous control or construction joints shall be reinforced with 2 - #4 x 48". See structural details. Construction joints shall not exceed a distance of 125'-0" o.c. in any direction.  
 5. Control joints shall be installed in slabs on grade so the length to width ratio of the slab is no more than 1.25:1. Control joints shall be completed within 12 hours of concrete placement. Control joints may be installed by:  
 a. Saw cut a depth of 1/4 the thickness of the slab  
 b. Tooled joints a depth of 1/4 the thickness of the slab

- E. Detailing: All reinforcing, including WWF, shall be detailed, bolstered & supported to comply with ACI 315, "Details and Detailing of Concrete Reinforcement" and the Concrete Reinforcing Steel Institute (CRSI) recommendations. Reinforcing bars shall not be welded unless specifically shown on drawings.  
 1. Lap splice lengths shall be detailed to comply with the "Reinforcing Bar Lap Splice Schedule" within the contract drawings. Splices may be made with mechanical splices capable of 125% tension contained capacity of the bar being spliced. Mechanical splices shall be the positive connecting type coupler. They shall be covered by a current ICBO Evaluation Report. Use "CadeWeld" splice sleeves with ferrous filler, "Lenton" taper threaded rebar splices, "Bar-Lock" lockshear bolt coupling sleeves, or approved equivalent. If mechanical splices are used, splices or couplers on adjacent bars shall be staggered a minimum of 24" apart along the longitudinal axis of the reinforcing bars.  
 2. All embedments and dowels shall be securely tied to formwork or to adjacent reinforcing prior to the placement of concrete.  
 3. Use chairs or other support devices recommended by the CRSI to support and tie reinforcement bars and WWF prior to placing concrete. WWF shall be continuously supported at 36" o.c. maximum.  
 4. Provide corner bars at intersecting wall corners using the same bar size and spacing as the horizontal wall reinforcing. Unless noted otherwise, corner bar lap lengths shall conform with reinforcing bar lap splice lengths as noted above.  
 5. All vertical reinforcing shall be doweled to footings, or to the structure below. Dowels shall be the same size and at the same spacing as the vertical reinforcing scheduled (or detailed) for the element above. Lap splice lengths shall comply as noted above or as shown in the drawings. Dowels extending into footings shall terminate with a 90 degree standard ACI hook and shall extend to within 4" of the bottom of the footing. Footing dowels (#8 bars and smaller) with hooks need not extend more than 20" into footings.  
 6. Horizontal wall reinforcing shall terminate at ends of walls and openings into the far end of the jamb column with a 90 degree standard ACI hook, unless shown otherwise. Lap horizontal bar splices as noted above or as shown in the drawings. Horizontal wall reinforcing shall be continuous through construction and control joints. Splices in horizontal reinforcing shall be staggered, so the splice laps will not overlap. Splices in two curtains where used shall not occur in the same location, splice laps shall not overlap.  
 7. Wall Openings 8" to 36" wide: Place 2 - #5 bars (or 1 - #7 bar in 10" walls and thinner) around all openings 8" or larger in any direction, and extend the reinforcing bars a minimum of 24" beyond the corner of the openings, unless noted otherwise. Where 24" is not available, extend bars as far beyond the opening as possible and terminate them with a 90 degree standard ACI hook.  
 8. Wall Openings 36" wide and wider: Provide reinforced concrete lintels per Concrete Lintel Schedule over the top of, and 2 - #5 bars (or 1 - #7 bar in 10" walls and thinner) and on all sides and below every unscheduled opening, unless noted otherwise. Bars for all openings shall extend a minimum of 24" beyond the corners of the opening. Vertical bars shall extend from floor level below to the floor, or roof, level above. Where 24" extension is not possible, extend bars as far beyond the opening as possible and terminate them with a 90 degree standard ACI hook.  
 9. Provide 2 - #5 X 4'-0" diagonal bars (or 1 - #7 X 4'-0" bar in 10" walls and thinner) at the corners of all openings. Diagonal bars shall be centered on the corner of the opening. All recesses in concrete walls that interrupt reinforcing steel shall be reinforced the same as on opening.  
 10. Contractor shall coordinate placement of all openings, curbs, dowels, sleeves, conduits, bolts, inserts and other embedded items prior to concrete placement.  
 11. Splices in vertical column reinforcing will be permitted at floor levels only, unless shown otherwise. Where changes in the cross section of the column occur, the longitudinal bars shall be offset in a region where lateral support is afforded. Where offset, the slope of the inclined portion of the bar shall not exceed 1 to 6 (horizontal to vertical). In the case of tied columns, the ties shall be spaced not over three inches on center for a distance of one foot above and one foot below the point of offset.  
 12. All reinforcement shall be bent cold, and shall be bent only once at the same location. All reinforcement shall be shop bent, unless otherwise permitted by the engineer.

F. Minimum Reinforcing: Wall reinforcing shall be as follows, unless noted otherwise:

Wall Thickness	Horizontal Reinf.	Vertical Reinf.
6"	#4 @ 15" o.c.	#4 @ 18" o.c.
8"	#5 @ 15" o.c.	#4 @ 16" o.c.
10"	#5 @ 12" o.c.	#4 @ 13" o.c.
12"	#4 @ 15" o.c. Each Face	#4 @ 18" o.c. Each Face
Others	0.25% of Wall Area	0.15% of Wall Area

Place steel in the center of the wall (except in walls thicker than 10" and where shown otherwise). Walls thicker than 10" shall have two curtains of reinforcing (placed near each face of the wall), unless otherwise shown on the structural drawings. Spacing shall not exceed three times the wall thickness nor 18". In addition to the above reinforcing, 2 - #5 (or 1 - #7 in 10" walls and thinner) x continuous horizontal bars shall be placed at the bottom of the wall (near the footing) and at each floor level, at the roof level and at the top of wall.

- G. No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.  
 H. Unless otherwise noted, all slabs on grade shall be 4" thick.

IV. Masonry

- A. Materials, unless noted otherwise:  
 1. Concrete Masonry Units: Lightweight Grade N, Type 1 (minimum unit strength of 1900 psi) or better. (fm = 1500 psi)  
 2. Mortar: Use Type "S" according to IBC Section 2103.7, and tested every 5,000 square feet according to ASTM C 270. Admixtures shall not be added to the mortar mix. (1800 psi minimum compressive strength for field specimens). Material testing shall be contracted by the owner.  
 3. Grout: shall be proportioned according to IBC section 2103.10 and tested every 5,000 square feet according to IBC Table 2103.10 or ASTM C 476, and shall attain a minimum compressive strength of 2000 psi at 28 days. Testing shall be contracted by the owner. Slump per manufacturers recommendations.  
 4. Reinforcing: Grade 60 reinforcing steel shall comply with ASTM A615. Wire joint reinforcing shall comply with ASTM A 951.  
 5. Deformed Bar Anchors (DBA): All DBAs shall comply with ASTM A496.  
 6. Anchor Bolts (AB): ASTM A307 with ASTM A563 heavy hex nuts and hardened washers, Grade A, unless noted otherwise.  
 7. Headed Stud Anchors (HSA): Manufacture all HSAs in conformance with ASTM A-108 with dimensions complying with AISC specifications.  
 B. Construction Requirements:  
 1. Mortar Joints: Joints shall be "concave", "V-joint" or "weathered raked" for structural members unless noted otherwise on architectural drawings.  
 2. Masonry walls, beams and columns shall be constructed with running bond, unless noted otherwise.  
 3. Reinforcing Bars shall not be welded unless specifically shown on drawings. In such cases, use only AWS standards. Do not substitute reinforcing bars for DBAs or HSAs.  
 4. Control Joints: Spacing shall not exceed 40'-0". See architectural drawings for locations.  
 5. Masonry Veneer Attachment and Reinforcing:  
 a. To concrete walls: 22 gauge galvanized dovetail slots shall be installed vertically in concrete at 16" o.c. Attach the veneer to dovetail slots with Dur-O-Wal 16 gage seismic dovetail anchor ties or Hohnmann & Barnard 3/16" Byna-Tie with Seismiclips (or equal) spaced at a maximum of 16" o.c. in both vertical and horizontal directions. Anchor ties shall engage to a galvanized No. 9 gauge horizontal joint reinforcement wire in the veneer which shall be continuous and shall be placed at 16" o.c. maximum at the center of the veneer. Dovetail slots and anchor ties shall be galvanized.  
 b. Other methods of attachment may be used after written acceptance by the architect and structural engineer.  
 c. Steel Lintels: See Section V-G.

V. Structural Steel

- A. Material:  
 1. Shapes: ASTM A992 (Fy = 50 ksi), except as noted otherwise.  
 2. Deformed Bar Anchor (DBA): ASTM A496.  
 3. Headed Stud Anchors (HSA): ASTM A108, with dimensions complying with AISC specifications.  
 4. Anchor Rods: ASTM F1554, Grade 36 with ASTM A563 heavy hex nuts and ASTM F436 hardened washers, unless noted otherwise.  
 5. Plates, & angles: ASTM A36 (Fy = 36 ksi)

- B. Fabrication and construction shall comply with the following Codes and Standards:  
 1. American Institute of Steel Construction (AISC) 1989, "Specification for Structural Steel Buildings - Allowable Stress Design", with "Commentary".  
 2. AISC 1992, "Code of Standard Practice," excluding the following: Section 1.5.1, Section 3.3 (first and last sentence), Section 3.4, Section 4.2, Section 4.2.1, Section 4.2.2, Section 6.3.2, Section 7.5.4, and Section 7.11.5.  
 a. The architectural drawings are the prime contract drawings. Consultants' drawings by other disciplines are supplementary to the architectural drawings. The structural drawings shall be used in conjunction with the architectural drawings. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in architectural, structural, and/or other consultants' drawings. Refer to VII. Special Instructions, notes WLB and WLC on sheet SG002.  
 C. Detailing: All reinforcing, including WWF, shall be detailed, bolstered & supported to comply with ACI 315, "Details and Detailing of Concrete Reinforcement" and the Concrete Reinforcing Steel Institute (CRSI) recommendations.  
 Reinforcing bars shall not be welded unless specifically shown on drawings.  
 1. Lap splice lengths shall be detailed to comply with the "Reinforcing Bar Lap Splice Schedule" contained within the contract drawings. Splices may be made with mechanical splices capable of 125% tension capacity of the bar being spliced. Mechanical splices shall be the positive connecting type coupler. They shall be covered by a current ICBO Evaluation Report. Use "CadeWeld" splice sleeves with ferrous filler, "Lenton" taper threaded rebar splices, "Bar-Lock" lockshear bolt coupling sleeves, or approved equivalent. If mechanical splices are used, splices or couplers on adjacent bars shall be staggered a minimum of 24" apart along the longitudinal axis of the reinforcing bars.  
 2. AISC/RCSA 2000, "Specification for Structural Joints Using ASTM A325 or A490 Bolts"  
 4. American Welding Society (AWS) D1.1-98, "Structural Welding Code - Steel" (specific items do not apply when they conflict with the AISC requirements).

- D. Structural shapes and plates shall be fabricated from newly rolled (milled) one piece sections without splices, unless specifically noted otherwise on the structural drawings. Connections for structural steel shall comply with the structural drawings, unless written approval is given by the structural engineer.

E. Welding:

1. Certification of Welders: All shop and field welding shall be executed by AWS certified welders who have been specifically certified for the type of work to be performed. Certification shall be considered current if dated within the past 12 months. Welders will be considered certified if they have been certified under AWS and their work records are current within every six month period thereafter as required by AWS. Certification and records must comply with AWS Standards. Certification and appropriate records must be provided to the architect prior to beginning work.  
 2. Electrodes: E-70 XX or as noted otherwise. E60 XX may be used for welding steel floor and roof decks.  
 3. Minimum Welds: All intersecting steel shapes that are not bolted shall be connected by a fillet weld all around, unless noted otherwise. Fillet weld sizes that are not shown shall be 1/16" less than the thinnest of the connected parts for thicknesses 1/4" and larger. Fillet welds on plates less than 1/4" shall be of the same size as the thinnest of the connected parts.  
 4. Reinforcing Bars: Do not weld rebar except as specifically detailed in the drawings. In such cases, use only AWS standards. Do not substitute reinforcing bars for deformed bar anchors (DBAs), machine bolts, or headed stud anchors (HSAs).  
 5. Bolts: Do not apply any welds, including "tack" welds to bolts, including anchor bolts, except as specifically detailed in the drawings.  
 6. Quality Assurance: The owner may test all welds by means of x-ray, ultra-sonic or any other appropriate non-destructive procedure. Deficient welds shall be corrected and tested at no additional cost to the owner. Testing shall comply with IBC Table 1704.3.  
 7. A copy of all weld testing reports shall be provided to the structural engineer.  
 8. It is recommended the steel erection contractor and steel fabricator contact the approved testing lab of the owner's choice prior to beginning any of the above welds. A program of joint preparation and welding procedures should be worked out between the two parties before the welding is started so that correct welds will be made from the beginning.  
 9. Headed Stud Anchor (HSA) welding and Deformed Bar Anchor (DBA) welding shall conform to the manufacturer's specifications. Welding shall be tested to comply with AWS D1.1 Section 7.6 through 7.8 and Annex IX.

F. Bolted Connections:

1. Use ASTM A325N bolts for steel to steel connections, as noted herein or as noted on the drawings. A325N bolts shall be used in connections for simple span framing and beam (or girder) to bearing plate connections. Tighten bolts to a snug tight condition. A snug tight condition is usually attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. Bolts shall be tightened until all piles of the joint are in firm contact. All connections shall be inspected to insure connection piles are in firm contact. Bolts may be tested at random.  
 2. Provide hardened washers beneath the turned element of all bolts or nuts. Provide hardened beveled washers, to compensate for the lack of parallelism, where the outer face of the bolted parts has a slope greater than one in twenty with respect to the plane normal to the bolt axis. Hardened washers or plates installed over oversized holes or slotted holes shall be at least 5/16" thick and shall conform to ASTM F436. Plates or bars installed at slotted holes shall have a size sufficient to completely cover the slot after installation.  
 3. Where a steel to steel beam connection is not detailed in the drawings, provide a standard AISC framed connection with the capacity to support one half of the total uniform load capacity of the given shape for the span and for the steel specified.  
 4. Bolts, nuts and washers shall not be reused.  
 G. Steel Lintels:  
 Provide steel angle lintels at all openings through the masonry veneer. Provide one inch of bearing for each foot of width of opening, with a minimum bearing of six inches. See the Steel Angle Lintel Schedule for size.

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Professional Engineer Seal for Arthur Perry Brown, License No. 154201, State of Utah, expires 1/6/06.

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MK

GENERAL  
STRUCTURAL  
NOTES

SG001

GENERAL STRUCTURAL NOTES - CONT

VI. Wood

- A. Materials:
- Framing Lumber: Number 2 Douglas Fir-Larch or better or as noted otherwise.
  - Glued Laminated Timber (Glulam): Visually graded Western Species DF/DF combination symbol 24F-V4 for simple span beams, 24F-V8 for continuous and/or cantilever beams, and DF combination symbol #9 for columns, unless noted otherwise.
  - Laminated Veneer Lumber (LVL): All LVL members shall have the following minimum properties: Fb = 2600 psi, Fv = 285 psi, E = 1900 psi.
  - Wood Structural Panel Sheathing: All panels shall be rated by the American Plywood Association (APA). Panels shall be interior grade with exterior glue with the following panel span rating, unless noted otherwise:
 

48/24	Roof
32/16	Floors
24/0	Walls
  - Nails: Standard Common with the following properties:
 

Nail Size	Shank Diameter	Min. Penetration into Support Member
6d	0.113"	1.25"
8d	0.131"	1.50"
10d	0.148"	1.63"
12d	0.165"	1.63"
16d	0.182"	1.75"
  - Bolts for connections: ASTM A307 with ASTM A563 heavy hex nuts and hardened washers, Grade A, unless noted otherwise.
- B. Special Treatments (American Wood Preservers Institute Standards):
- All wood in contact with concrete, masonry or soil: Pressure treat with Wolman CCA preservative or equal as approved by the Architect.
  - Fire Retardant: Pressure treat with Dricon or equal as approved by the Architect.
- C. Minimum Nailing Requirements (See drawings for areas with greater requirements):
- Roof: Nail all sheathing panels with 8d common nails at 6" o.c. at all supported edges and at 12" o.c. at all intermediate supports. Use two pyclips between each support for spans of 48" o.c. and one pycclip between each support for lesser spans at all unsupported plywood panel edges.
  - Floor: Nail all sheathing panels with 8d common nails at 6" o.c. at all supported edges and 8d at 10" o.c. at all intermediate supports.
  - Walls: Nail all sheathing panels with 8d common nails at 6" o.c. at all edges and at 12" o.c. at all intermediate supports (3/8" or 7/16" panels on studs spaced at 24" o.c. requires 6" spacing at all intermediate supports). Solid block all panel edges.
  - General Framing and Carpentry: Connect all items as per IBC Table 2304.9.1, "Fastening Schedule", unless noted otherwise.
- D. Framing Connections
- All framing connections not shown or otherwise indicated on the drawings shall be connected in a manner similar to the connections shown in the drawings or with approved Simpson Strong-Tie Connectors or ICBO Equal. (The following notations refer to Simpson Strong-Tie Connectors):
- Joist and Rafter: "U" or "F" hangers as required.
  - Beams: "EG" Hangers and "HGLB" Beam Seats
  - Hinge connectors: "HCCT"
  - Columns: "CC" Caps and "CB" Column Bases
  - Hold Down Anchors: "HDA" and "FTA"
- E. Blocking, Bridging, and Bracing:
- Provide solid shaped blocking at least 2 in. (nominal) thick and full depth of joist at ends and at each support of joist. Provide approved bridging at a 8'-0" o.c. maximum between joist end supports. Solid blocking between joists shall be nailed to the wood plate at the top of the wall with one Simpson "A35" framing anchor per each piece of blocking. Fill all holes in the framing anchors with 8-d short nails.
- F. Laminated built-up beams of 2X member 12 in. or less in depth shall be spiked together with not less than 16-d spikes at twelve-inch (12 in.) centers, staggered. Unless so spiked, or if the depth of beam is more than twelve inches (12 in.), the laminations shall be connected together with 1/2" diameter bolts at 24 in. o.c. staggered. Bolts shall be placed 1/4 the depth of the member from the top and bottom of the member.
- G. All pre-fabricated wood joists shall be TJI as manufactured by Trus Joist MacMillan Corp. or BCI as manufactured by Boise Cascade Corp. All required blocking, bridging and bracing shall be provided by joist manufacturer and installed by contractor. All penetrations through the joists shall be done per manufacturers' recommendations and requirements.

VII. Special Instructions

- The project specifications are not superseded by the General Structural Notes but are intended to be complementary to them. Consult the specifications for additional requirements in each section. Notes and specific details on the drawings shall take precedence over General Structural Notes and typical details.
- The architectural drawings are the prime contract drawings. Consultant drawings by other disciplines are supplementary to the architectural drawings. All omissions or conflicts, including dimensions, between the various elements of the consultants' drawings and/or specifications shall be brought to the attention of the Architect before proceeding with any work involved. In case of conflict, follow the most stringent requirement as directed by the Architect without additional cost to the owner. Any work done by the contractor after discovery of such discrepancy shall be done at the contractor's risk.
- The structural drawings shall be used in conjunction with the architectural drawings. Primary structural elements and overall structural layout are indicated within the structural plans and details. Some secondary elements, architectural layouts, alcoves, elevations, slopes, depressions, curbs, mechanical equipment and electrical equipment, are not indicated within the structural drawings. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in the architectural, structural and/or other consultants' drawings.
- Notification of Engineer: The Engineer shall be notified twenty-four hours prior to:
  - Placing concrete in any footing.
  - Placing shotcrete on any wall.
  - Completing the nailing of any plywood wall or deck.
- Shoring and Bracing Requirements:
  - Floor and Roof Structures -- The General Contractor is responsible for the method and sequence of all structural erection. He shall provide temporary shoring and bracing as his method of erection requires to provide adequate vertical and lateral support. Shoring and bracing shall remain in place as the chosen method requires until all permanent members are in place and all final connections are completed, including all roof and floor attachments. The building shall not be considered stable until all connections are complete.
  - Foundation walls must be braced until the complete floor or roof systems is completed. Do not backfill until floor or roof systems are in place.
  - Walls above grade shall be braced until the structural system is complete. Walls shall not be considered to be self supporting.
- Submittals: A copy of all shop drawings that have been submitted for review must be kept at the construction site for reference. These drawings must bear the appropriate review stamps. The shop drawing review shall not relieve the contractor of the responsibility of completing the project according to the contract documents. The general contractor shall review and mark all shop drawings prior to submitting them to the Architect for his review. Shop Drawings made from reproductions of (these) contract drawings will be rejected.
- Project Coordination: It shall be the responsibility of the general contractor to coordinate with all trades any and all items that are to be integrated into the structural system. Openings or penetrations through, or attachments to the structural system that are not indicated on these drawings shall be the responsibility of the general contractor and shall be coordinated with the Architect/Engineers. The order of construction is the responsibility of the general contractor. It is the contractor's obligation to provide all items necessary for his chosen procedure.
- Observation visits to the site by the Engineer's field representatives shall not be construed as inspection or approval of construction.
- Contractor shall field verify all dimensions, and conditions. If the contract drawings do not represent actual conditions, contractor shall notify architect/engineer prior to fabrication or construction within that area.
- Notice of Copyright: The structural drawings, plans, schedules, notes and details are hereby copyrighted by Reaveley Engineers and Associates, Inc., All Rights reserved. Submission or distribution of documents to meet official regulatory requirements or for similar purposes in connection with the project is not to be construed as publication in derogation of Reaveley Engineers & Associates, Inc.'s reserved rights. The documents defining the structure are instruments of service prepared by Reaveley Engineers and Associates, Inc. for one use only. Furthermore, these documents shall not be reproduced, or copied, in whole or in part by the contractor or his subcontractors for preparation of shop drawings or other submittals.

VIII. Special Inspections

- Special inspection shall be provided by the owner according to IBC Section 1704. The special inspector shall observe the work for conformance with the contract documents. The special inspector shall send reports to the owner, the building official, the architect, the engineer and to the contractor. All discrepancies shall be brought to the attention of the contractor for correction. The special inspector shall submit a final signed report stating that the special inspection work was, to the best of his knowledge, in conformance with the plans, specifications and applicable workmanship provisions of the IBC. Special inspection is required for the following work:
- Concrete placement.
  - Bolts installed in concrete.
  - Concrete reinforcing steel.
  - Structural welding.
  - High Strength bolted connections.

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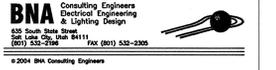
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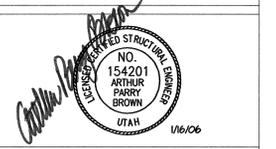
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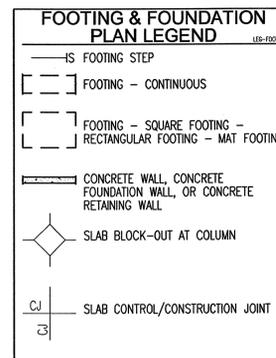
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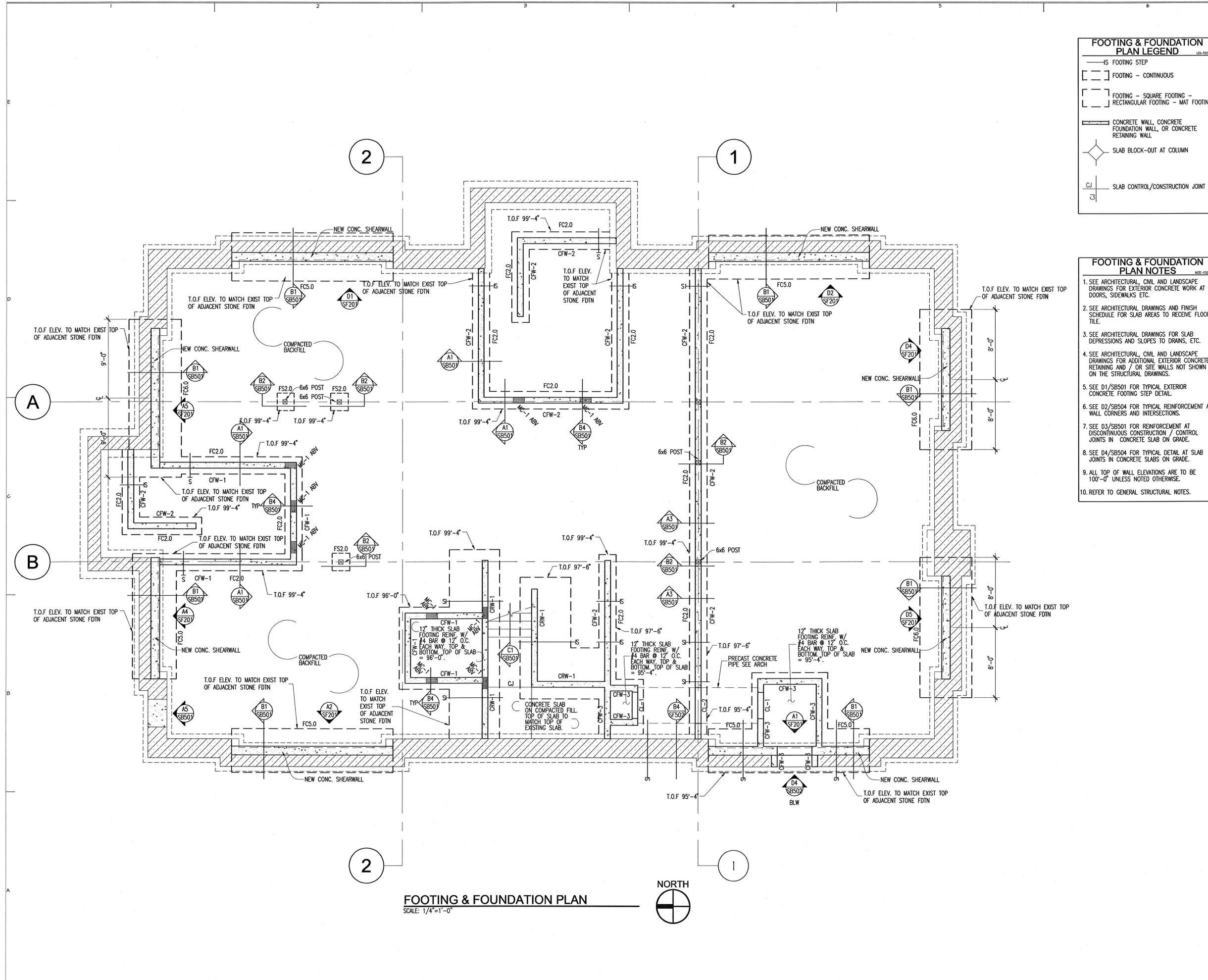
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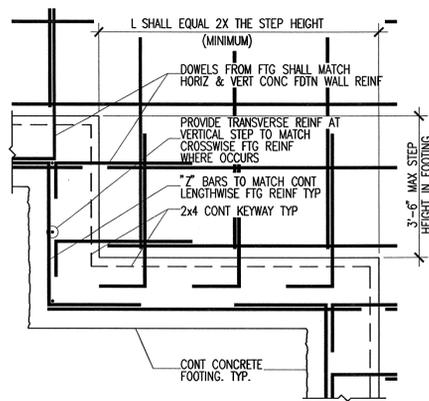
GENERAL  
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NOTES

SG002

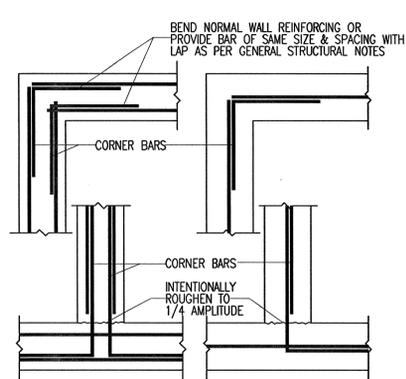


- FOOTING & FOUNDATION  
PLAN NOTES**
1. SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS ETC.
  2. SEE ARCHITECTURAL DRAWINGS AND FINISH SCHEDULE FOR SLAB AREAS TO RECEIVE FLOOR TILE.
  3. SEE ARCHITECTURAL DRAWINGS FOR SLAB DEPRESSIONS AND SLOPES TO DRAINS, ETC.
  4. SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR ADDITIONAL EXTERIOR CONCRETE RETAINING AND / OR SITE WALLS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
  5. SEE D1/SB501 FOR TYPICAL EXTERIOR CONCRETE FOOTING STEP DETAIL.
  6. SEE D2/SB504 FOR TYPICAL REINFORCEMENT AT WALL CORNERS AND INTERSECTIONS.
  7. SEE D3/SB501 FOR REINFORCEMENT AT DISCONTINUOUS CONSTRUCTION / CONTROL JOINTS IN CONCRETE SLAB ON GRADE.
  8. SEE D4/SB504 FOR TYPICAL DETAIL AT SLAB JOINTS IN CONCRETE SLABS ON GRADE.
  9. ALL TOP OF WALL ELEVATIONS ARE TO BE 100'-0" UNLESS NOTED OTHERWISE.
  10. REFER TO GENERAL STRUCTURAL NOTES.

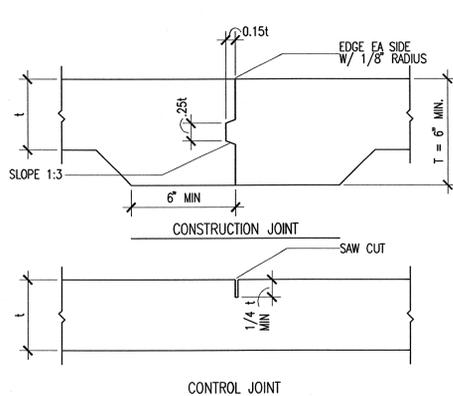




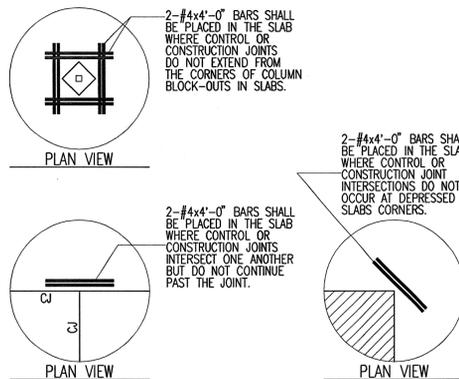
D1 TYPICAL STEP FOOTING DETAIL  
SB501 NO SCALE  
02-11901



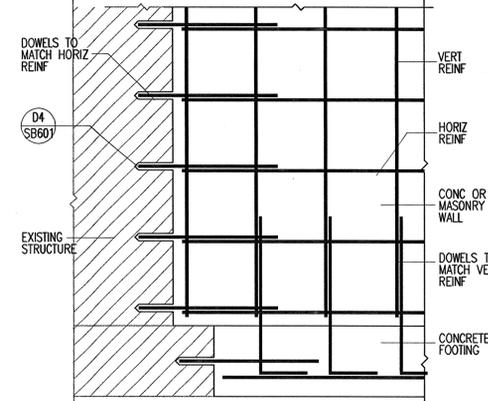
D2 PLAN VIEW - TYPICAL WALL CORNERS & INTERSECTION  
SB501 NO SCALE  
02-11902



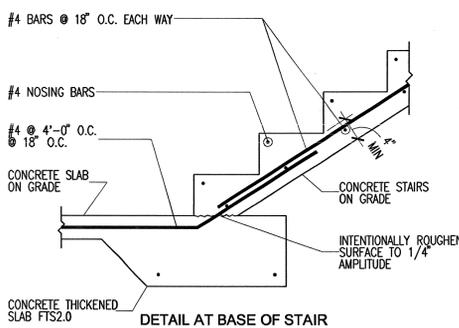
D3 TYPICAL SLAB JOINTS  
SB501 NO SCALE  
02-11904



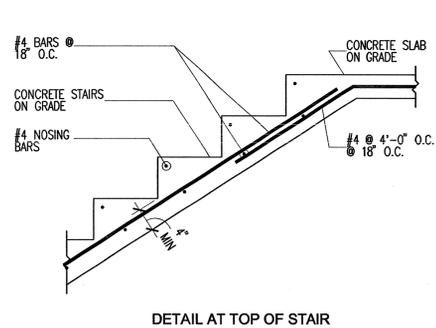
D4 TYPICAL SLAB REINFORCING AT DISCONTINUOUS SLAB JOINTS  
SB501 NO SCALE  
02-11910



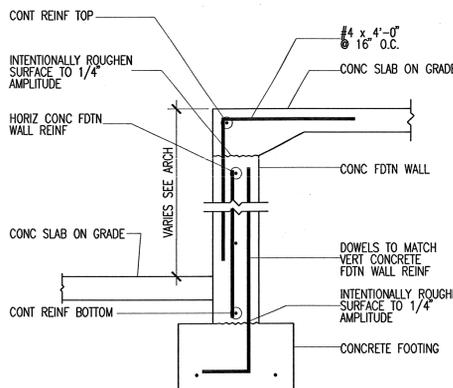
D5 NEW WALL & FOOTING TO EXISTING STRUCTURE  
SB501 NO SCALE  
02-11914



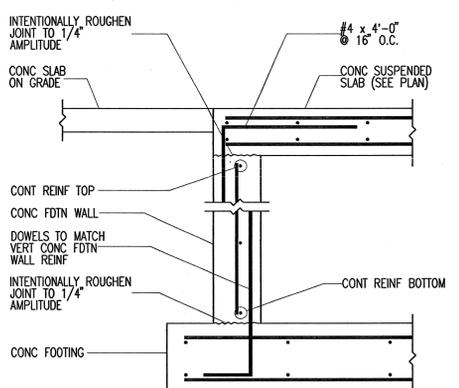
C1 TYPICAL DETAIL AT CONCRETE STAIRS ON GRADE  
SB501 NO SCALE



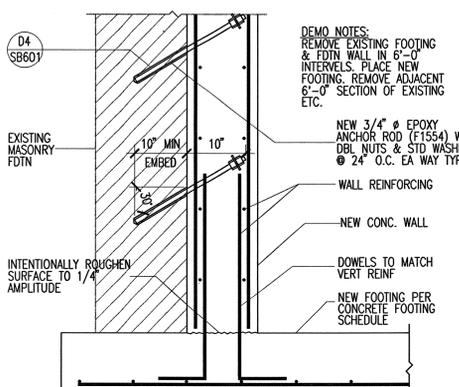
DETAIL AT TOP OF STAIR



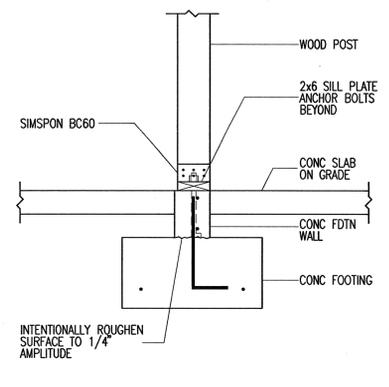
C3 TYPICAL CONCRETE SLAB TO FOUNDATION WALL  
SB501 NO SCALE



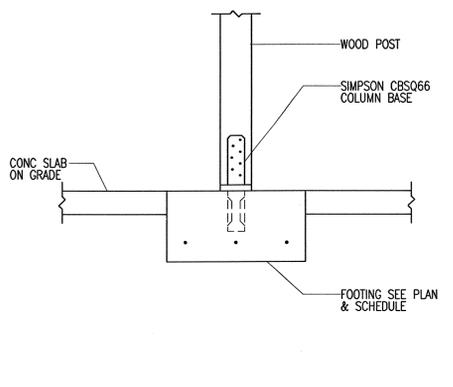
C4 TYPICAL CONCRETE SUSPENDED SLAB TO FOUNDATION WALL  
SB501 NO SCALE



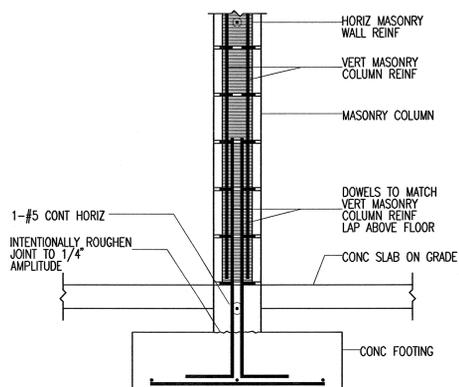
B1 TYPICAL EXTERIOR CONC. SHEAR WALL / FOOTING DETAIL  
SB501 NO SCALE



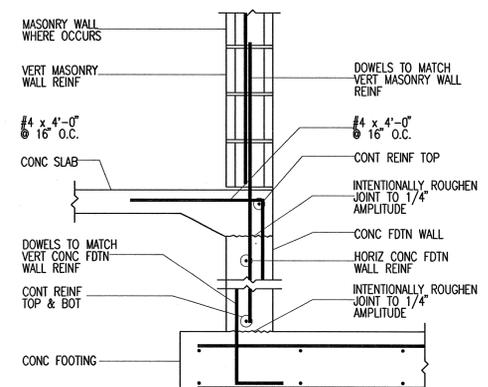
B2 TYPICAL INTERIOR POST CONNECTION TO CONCRETE FOUNDATION WALL  
SB501 NO SCALE  
W071019



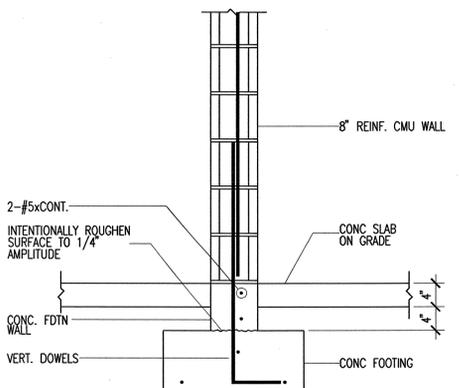
B3 TYPICAL WOOD POST CONNECTION TO NEW FOOTING  
SB501 NO SCALE  
W071019



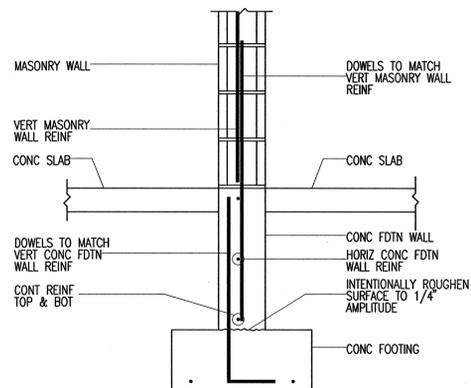
B4 TYPICAL INTERIOR MASONRY COLUMN ON CONCRETE CURB  
SB501 NO SCALE  
W071017



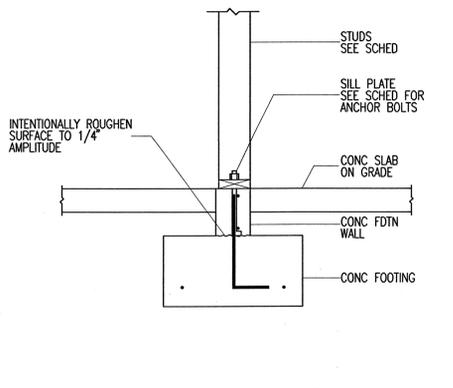
B5 TYPICAL MASONRY WALL ON FOUNDATION WALL CFW-2  
SB501 NO SCALE



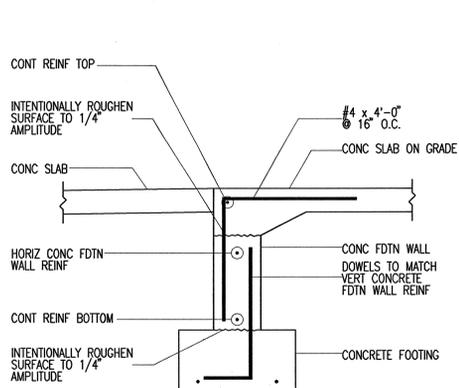
A1 TYPICAL MASONRY WALL ON CONCRETE FOUNDATION WALL CFW-1  
SB501 NO SCALE



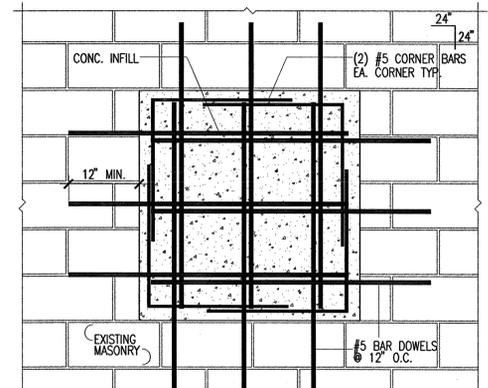
A2 TYPICAL MASONRY WALL ON FOUNDATION WALL CFW-2  
SB501 NO SCALE



A3 TYPICAL INTERIOR WOOD WALL TO CONCRETE FOUNDATION WALL CFW-2  
SB501 NO SCALE



A4 TYPICAL CONCRETE SLAB TO FOUNDATION WALL AT DOOR OPENING  
SB501 NO SCALE



A5 REINFORCED OPENING DETAIL  
SB501 NO SCALE

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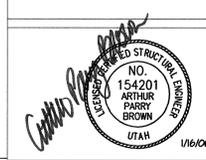
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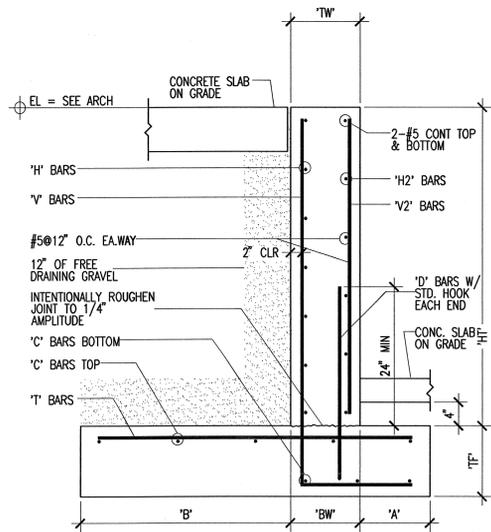
FOOTING &  
FOUNDATION  
DETAILS

SB501



CONCRETE FOOTING SCHEDULE											CF-1000	
MARK	WIDTH	LENGTH	THICK	CROSSWISE REINFORCING				LENGTHWISE REINFORCING				REMARKS
				NO.	SIZE	LENGTH	SPACE	NO.	SIZE	LENGTH	SPACE	
FTS2.0	2'-0"	CONT.	12"	---	NONE	REQ'D	---	3	#4	CONT.	9"	
FC1.5	1'-6"	CONT.	12"	---	NONE	REQ'D	---	3	#4	CONT.	6"	
FC2.0	2'-0"	CONT.	12"	---	NONE	REQ'D	---	3	#4	CONT.	9"	
FC2.5	2'-6"	CONT.	12"	---	#5	2'-0"	14"	3	#5	CONT.	12"	
FC3.0	3'-0"	CONT.	12"	---	#5	2'-6"	14"	3	#5	CONT.	15"	
FC3.5	3'-6"	CONT.	12"	---	#5	3'-0"	14"	3	#5	CONT.	18"	
FC4.0	4'-0"	CONT.	12"	---	#5	3'-6"	14"	4	#5	CONT.	14"	
FC4.5	4'-6"	CONT.	12"	---	#5	4'-0"	14"	4	#5	CONT.	16"	
FC5.0	5'-0"	CONT.	12"	---	#5	4'-6"	14"	5	#5	CONT.	13.5"	
FC5.5	5'-6"	CONT.	12"	---	#5	5'-0"	14"	5	#5	CONT.	15"	
FC6.0	6'-0"	CONT.	12"	---	#5	5'-6"	18"	6	#5	CONT.	9.5"	
FS3.0	3'-0"	3'-0"	12"	3	#5	2'-6"	15"	3	#5	2'-6"	15"	
FS3.5	3'-6"	3'-6"	12"	3	#5	3'-0"	18"	3	#5	3'-0"	18"	
FS4.0	4'-0"	4'-0"	12"	4	#5	3'-6"	14"	4	#5	3'-6"	14"	
FS4.5	4'-6"	4'-6"	12"	4	#5	4'-0"	16"	4	#5	4'-0"	16"	
FS5.0	5'-0"	5'-0"	12"	5	#5	4'-6"	13.5"	5	#5	4'-6"	13.5"	
FS5.5	5'-6"	5'-6"	12"	5	#5	5'-0"	15"	5	#5	5'-0"	15"	
FS6.0	6'-0"	6'-0"	12"	6	#5	5'-6"	13.2"	6	#5	5'-6"	13.2"	
FS6.5	6'-6"	6'-6"	12"	6	#5	6'-0"	14.4"	6	#5	6'-0"	14.4"	
FS7.0	7'-0"	7'-0"	12"	7	#5	6'-6"	13"	7	#5	6'-6"	13"	
FS7.5	7'-6"	7'-6"	12"	7	#5	7'-0"	12"	7	#5	7'-0"	12"	
FS8.0	8'-0"	8'-0"	13"	8	#5	7'-6"	12.8"	8	#5	7'-6"	12.8"	
FS8.5	8'-6"	8'-6"	14"	8	#6	8'-0"	16"	7	#6	8'-0"	16"	
FS9.0	9'-0"	9'-0"	14"	7	#6	8'-6"	17"	7	#6	8'-6"	17"	

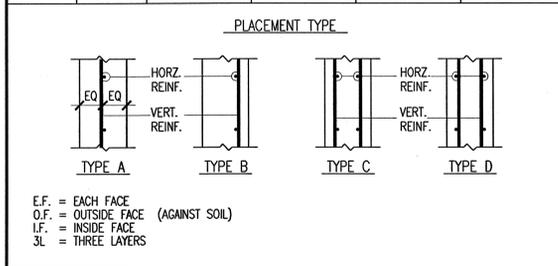
NOTES:  
 1. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER UNLESS NOTED OTHERWISE.  
 2. TOP REINFORCING, WHERE SPECIFIED, SHALL BE PLACED IN THE TOP OF THE FOOTING WITH 2" CLEAR CONCRETE COVER.  
 3. SPOT FOOTINGS SHALL BE CENTERED UNDER COLUMNS AND CONTINUOUS FOOTINGS SHALL BE CENTERED UNDER WALLS, UNLESS NOTED OTHERWISE.  
 4. ALL FOOTINGS SHALL BE FORMED. FOOTINGS SHALL NOT BE EARTH FORMED OR OVERSIZED WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER.



CONCRETE RETAINING WALL SCHEDULE																						
MARK	'HT'	'A'	'B'	'TW'	'BW'	'TF'	'V' BARS		'H' BARS		'H2' BARS		'T' BARS		'C' TOP BARS		'C' BOT BARS		'D' BARS			
							SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE	SIZE	SPACE
CRW-1	8'-6"	1'-4"	3'-10"	8"	8"	18"	#8	12"	#4	12"	-	-	-	-	#6	12"	#6	12"	#5	18"	-	-

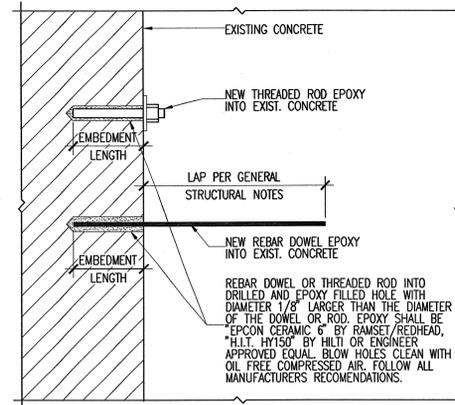
NOTES:  
 1. 'V' BARS SHALL NOT BE SPLICED BELOW MID-HEIGHT OF WALL.  
 2. FOR WALLS WITH 'HT' OF 9'-0" & GREATER, 'V' BARS MAY BE REDUCED TO 1/2 OF SPECIFIED AMOUNT OR #4'S @ 18" O.C. WHICHEVER IS GREATER.

CONCRETE FOUNDATION WALL SCHEDULE						CFW-
MARK	THICK	HORIZONTAL REINFORCING	VERTICAL REINFORCING	TOP & BOTTOM HORIZONTAL BARS	PLACEMENT	
CFW-1	8"	---	#4@18" O.C.	(1) #4	A	
CFW-2	8"	#4@12" O.C.	#4@18" O.C.	(2) #4	A	
CFW-3	8"	#5@12" O.C.	#5@12" O.C.	(1) #7	A	



CONCRETE REINFORCING BAR LAP SPLICE SCHEDULE													RBS-												
BAR SIZE Fy = 60 KSI	TENSION BARS												COMP. BARS												
	f'c = 3000 PSI						f'c = 4000 PSI						f'c = 5000 PSI						f'c = 6000 PSI						f'c = ALL
	REGULAR		TOP		REGULAR		TOP		REGULAR		TOP		REGULAR		TOP		REGULAR		TOP						
	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS				
#3	17"	22"	22"	28"	15"	19"	19"	25"	13"	17"	17"	22"	12"	16"	16"	20"	12"								
#4	22"	29"	29"	38"	19"	25"	25"	33"	17"	23"	23"	29"	16"	21"	21"	27"	15"								
#5	28"	36"	36"	47"	24"	31"	31"	41"	22"	28"	28"	36"	20"	26"	26"	33"	19"								
#6	33"	43"	43"	56"	29"	37"	37"	49"	26"	34"	34"	44"	24"	31"	31"	40"	23"								
#7	48"	63"	63"	81"	42"	54"	54"	71"	38"	49"	49"	63"	34"	45"	45"	58"	27"								
#8	55"	72"	72"	93"	48"	62"	62"	81"	43"	56"	56"	72"	39"	51"	51"	66"	30"								
#9	62"	81"	81"	105"	54"	70"	70"	91"	48"	63"	63"	81"	44"	57"	57"	74"	34"								
#10	70"	91"	91"	118"	61"	79"	79"	102"	54"	71"	71"	92"	50"	64"	64"	84"	39"								
#11	78"	101"	101"	131"	67"	87"	87"	114"	60"	78"	78"	102"	55"	71"	71"	93"	43"								

NOTES: THESE NOTES SHALL BE USED FOR ALL SPLICES, UNLESS NOTED OTHERWISE ON DRAWINGS.  
 1. TOP BARS ARE HORIZONTAL BARS, SPLICED SO THAT 12" OR MORE OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCING BAR.  
 2. CLASS A SPLICES MAY BE USED ONLY WHEN 50% OR LESS OF THE BARS ARE SPLICED WITHIN THE LAP SPLICE LENGTH.  
 3. CLASS B SPLICES SHALL BE USED FOR ALL SPLICES IN SLABS, BEAMS, JOISTS, WALLS, MOMENT RESISTING COLUMNS, AND JAMB COLUMNS, UNLESS THEY MEET THE REQUIREMENTS OF NOTE #2 ABOVE.  
 4. TIES AND STIRRUPS SHALL NOT BE SPLICED.  
 5. A. FOR BUNDLED BARS OF THREE OR LESS, LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.2.  
 B. FOR BUNDLED BARS OF FOUR OR MORE, LAP LENGTHS SHALL BE MULTIPLIED BY 1.33.  
 C. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.  
 6. FOR ALL LIGHTWEIGHT CONCRETE, LAP LENGTHS SHALL BE MULTIPLIED BY 1.3.  
 7. FOR ALL EPOXY COATED BARS WITH COVER LESS THAN 3 BAR DIAMETERS OF CLEAR SPACING LESS THAN 6 BAR DIAMETERS THE LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.5. FOR ALL OTHER EPOXY BARS THE SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.2.  
 8. THE BAR LAP SPLICE LENGTHS SHALL BE MULTIPLIED BY 1.5 WHEN EITHER OF THE FOLLOWING IS TRUE:  
 A. CLEAR SPACING OF BARS BEING DEVELOPED IS LESS THAN ONE BAR DIAMETER. CLEAR COVER IS LESS THAN ONE BAR DIAMETER AND STIRRUPS OR TIES ALONG THE LENGTH OF THE SPLICE ARE LESS THAN THE CODE MINIMUM.  
 B. CLEAR SPACING OF BARS BEING DEVELOPED IS LESS THAN 2 BAR DIAMETERS AND CLEAR COVER IS LESS THAN ONE BAR DIAMETER.



D4 EPOXY ANCHORING SCHEDULE WITH DETAIL  
 SB601 NO SCALE  
 EP-D4EL

EPOXY ANCHORING SCHEDULE		
REBAR DOWEL SIZE	THREADED ROD DIAMETER	EMBEDMENT LENGTH
#3	3/8"	4.1/2"
#4	1/2"	6.1/2"
#5	5/8"	7.1/2"
#6	3/4"	10"
#7	7/8"	12"
#8	1"	13"
#9	1.1/8"	14"
#10	1.1/4"	15"
#11	1.3/8"	16"

NOTES:  
 1. EMBEDMENT LENGTHS SPECIFIED ON PLANS OR DETAILS TAKE PRECEDENCE OVER EMBEDMENT LENGTHS IN THIS SCHEDULE.  
 2. EMBEDMENT LENGTHS SHALL BE ADJUSTED WHEN EXISTING CONCRETE IS OF EQUAL OR LESS THICKNESS THAN SCHEDULE REQUIRES. IN THESE CASES THE EMBEDMENT LENGTH SHALL BE THE CONCRETE THICKNESS MINUS THE CLEAR COVER REQUIREMENTS, SEE GSN.  
 3. CONTINUOUS SPECIAL INSPECTION REQUIRED DURING INSTALLATION FOR ALL DOWELS AND THREADED RODS.

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SCHEDULES  
 SB601

A1 TYPICAL CONCRETE RETAINING WALL SCHEDULE AND DETAIL  
 SB601 NO SCALE



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**PLAN LEGEND** 105-01008

- CONCRETE WALL
- CONCRETE FOUNDATION WALL - RECESSED
- MASONRY WALL
- MASONRY LINTEL IN MASONRY WALL
- MASONRY COLUMN IN MASONRY WALL
- WOOD POST OR COLUMN
- GLU-LAM, MICRO-LAM OR WOOD BEAM
- JOIST OR TRUSS
- CROSS BRIDGING
- BRIDGING
- SPECIAL DECK AREA- GLUE SHEATHING IN ADDITION TO NAILING
- RECESSED/DEPRESSED SLAB
- OPENING
- SLAB BLOCK-OUT AT COLUMN
- SLAB CONTROL/CONSTRUCTION JOINT
- ELEVATION CHANGE. SEE ARCH FOR ACTUAL ELEVATION.

**FOOTING & FOUNDATION PLAN NOTES** 105-01008

1. SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS ETC.
2. SEE ARCHITECTURAL DRAWINGS AND FINISH SCHEDULE FOR SLAB AREAS TO RECEIVE FLOOR TILE.
3. SEE ARCHITECTURAL DRAWINGS FOR SLAB DEPRESSIONS AND SLOPES TO DRAINS, ETC.
4. SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR ADDITIONAL EXTERIOR CONCRETE RETAINING AND / OR SITE WALLS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
5. SEE D1/SB501 FOR TYPICAL EXTERIOR CONCRETE FOOTING STEP DETAIL.
6. SEE D2/SB504 FOR TYPICAL REINFORCEMENT AT WALL CORNERS AND INTERSECTIONS.
7. SEE D4/SB504 FOR TYPICAL DETAIL AT SLAB JOINTS IN CONCRETE SLABS ON GRADE.
8. SEE D3/SB501 FOR REINFORCEMENT AT DISCONTINUOUS CONSTRUCTION / CONTROL JOINTS IN CONCRETE SLAB ON GRADE.
9. SEE A4/SB502 FOR TYPICAL EXTERIOR CONCRETE STAIR DETAIL.
10. ALL TOP OF WALL ELEVATIONS ARE TO BE 100'-0" UNLESS NOTED OTHERWISE.
11. REFER TO GENERAL STRUCTURAL NOTES.



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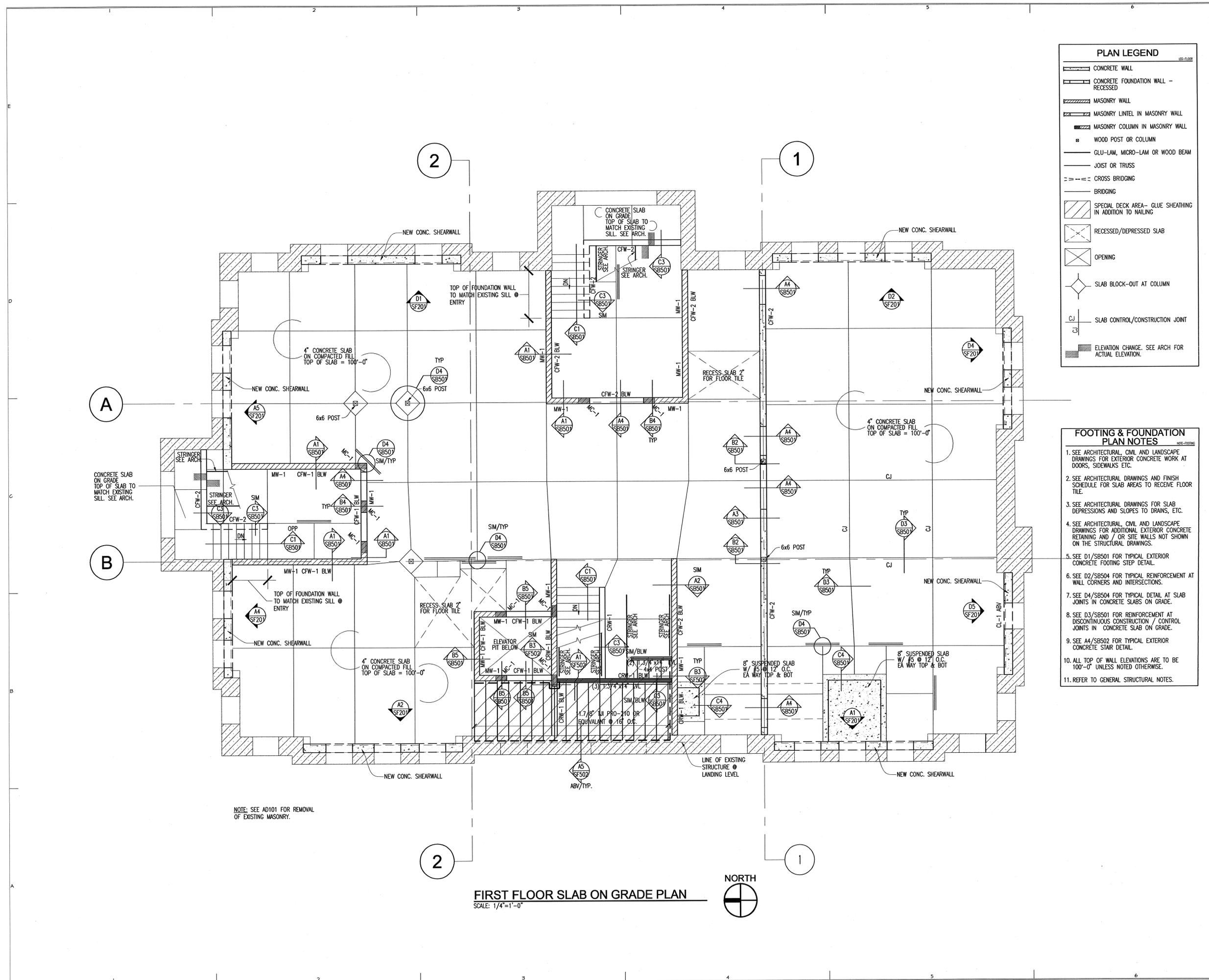
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FIRST FLOOR  
SLAB ON GRADE  
PLAN

**SF101**



NOTE: SEE AD101 FOR REMOVAL OF EXISTING MASONRY.

FIRST FLOOR SLAB ON GRADE PLAN  
SCALE: 1/4"=1'-0"

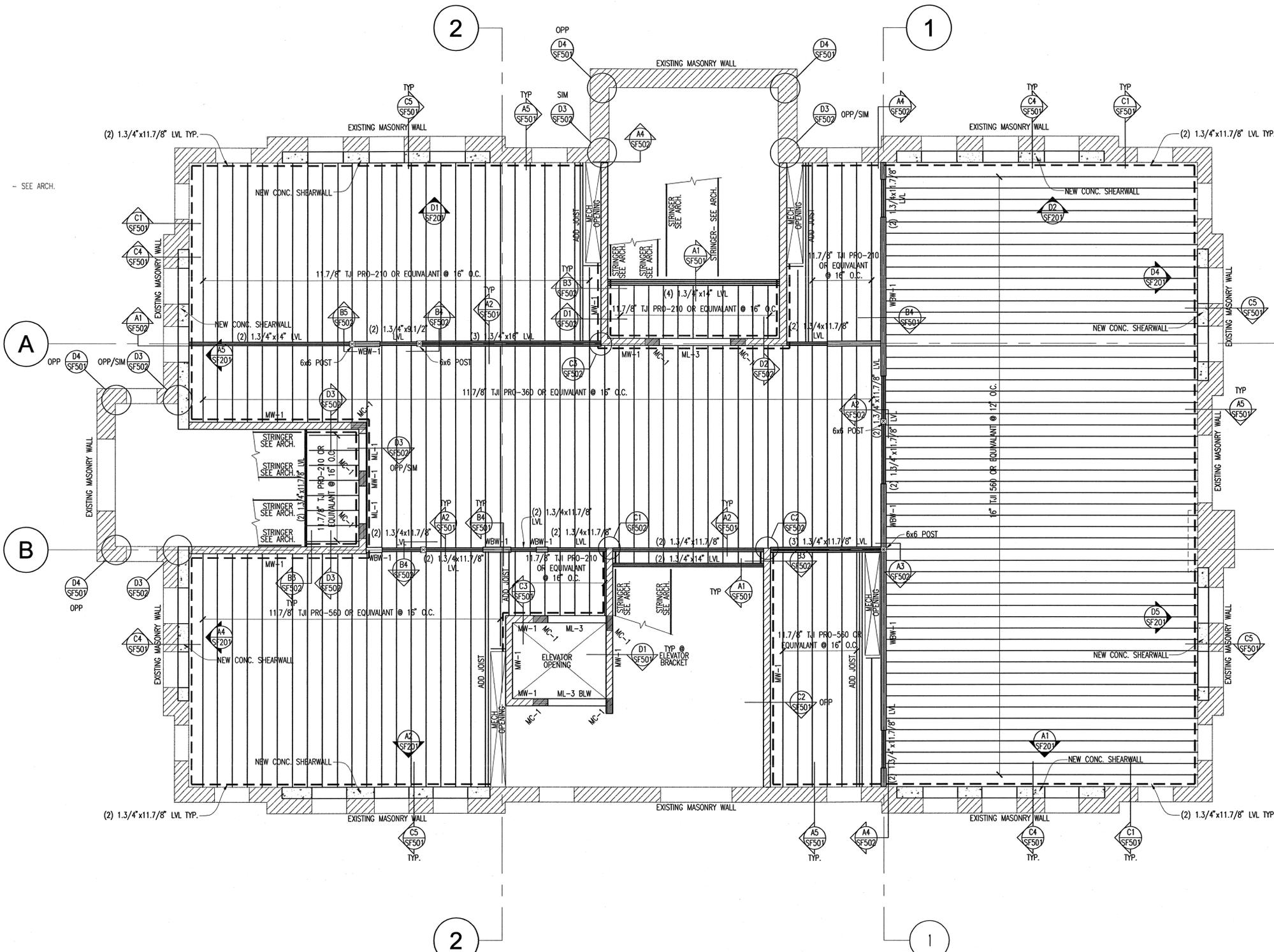


**WOOD FRAMING PLAN LEGEND**

- MASONRY WALL
- MASONRY LINTEL IN MASONRY WALL
- MASONRY COLUMN IN MASONRY WALL
- WOOD POST OR COLUMN
- GLU-LAM, MICRO-LAM OR WOOD BEAM
- JOIST OR TRUSS
- CROSS BRIDGING
- BRIDGING
- WOOD LEDGER
- WOOD STUD WALL - BEARING OR SHEAR WALL
- WOOD HEADER IN WOOD STUD WALL
- OPENING

**FLOOR FRAMING PLAN NOTES**

1. SEE WOOD DIAPHRAGM SCHEDULE ON SF601.
2. SEE A1/SF501 FOR WOOD BEAM LINTEL FRAMING.
3. SEE SF501 FOR MINIMUM NAILING SCHEDULE.



**SECOND FLOOR FRAMING PLAN**

SCALE: 1/4"=1'-0"

NORTH





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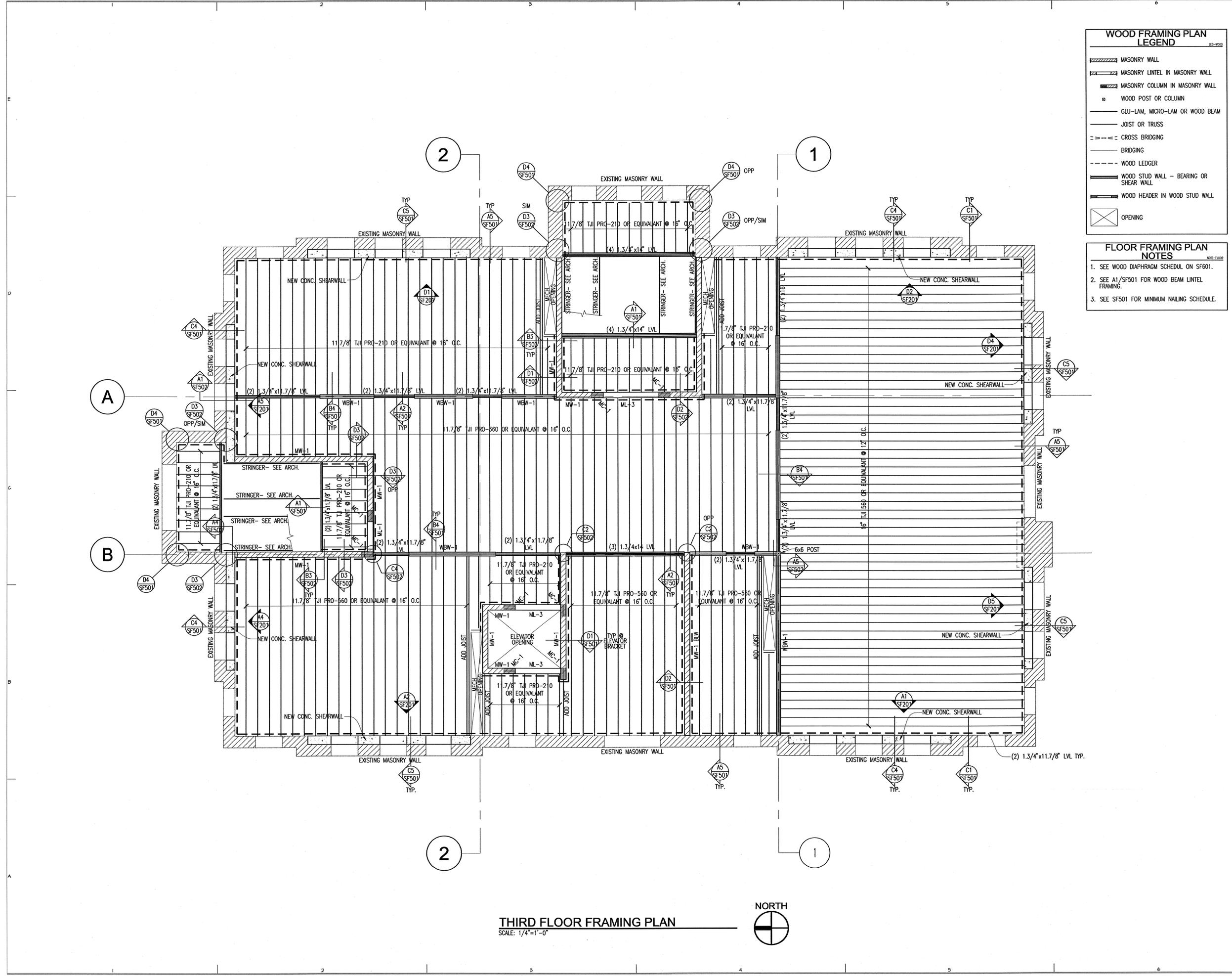
THIRD FLOOR  
FRAMING  
PLAN

**SF103**

**WOOD FRAMING PLAN  
LEGEND** 110-W000

- MASONRY WALL
- MASONRY LINTEL IN MASONRY WALL
- MASONRY COLUMN IN MASONRY WALL
- WOOD POST OR COLUMN
- GLU-LAM, MICRO-LAM OR WOOD BEAM
- JOIST OR TRUSS
- CROSS BRIDGING
- BRIDGING
- WOOD LEDGER
- WOOD STUD WALL - BEARING OR SHEAR WALL
- WOOD HEADER IN WOOD STUD WALL
- OPENING

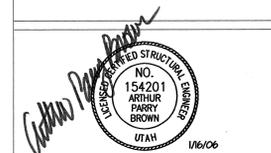
- FLOOR FRAMING PLAN  
NOTES** 1001-F1008
- SEE WOOD DIAPHRAGM SCHEDULE ON SF601.
  - SEE A1/SF501 FOR WOOD BEAM LINTEL FRAMING.
  - SEE SF501 FOR MINIMUM NAILING SCHEDULE.



**THIRD FLOOR FRAMING PLAN**  
SCALE: 1/4"=1'-0"







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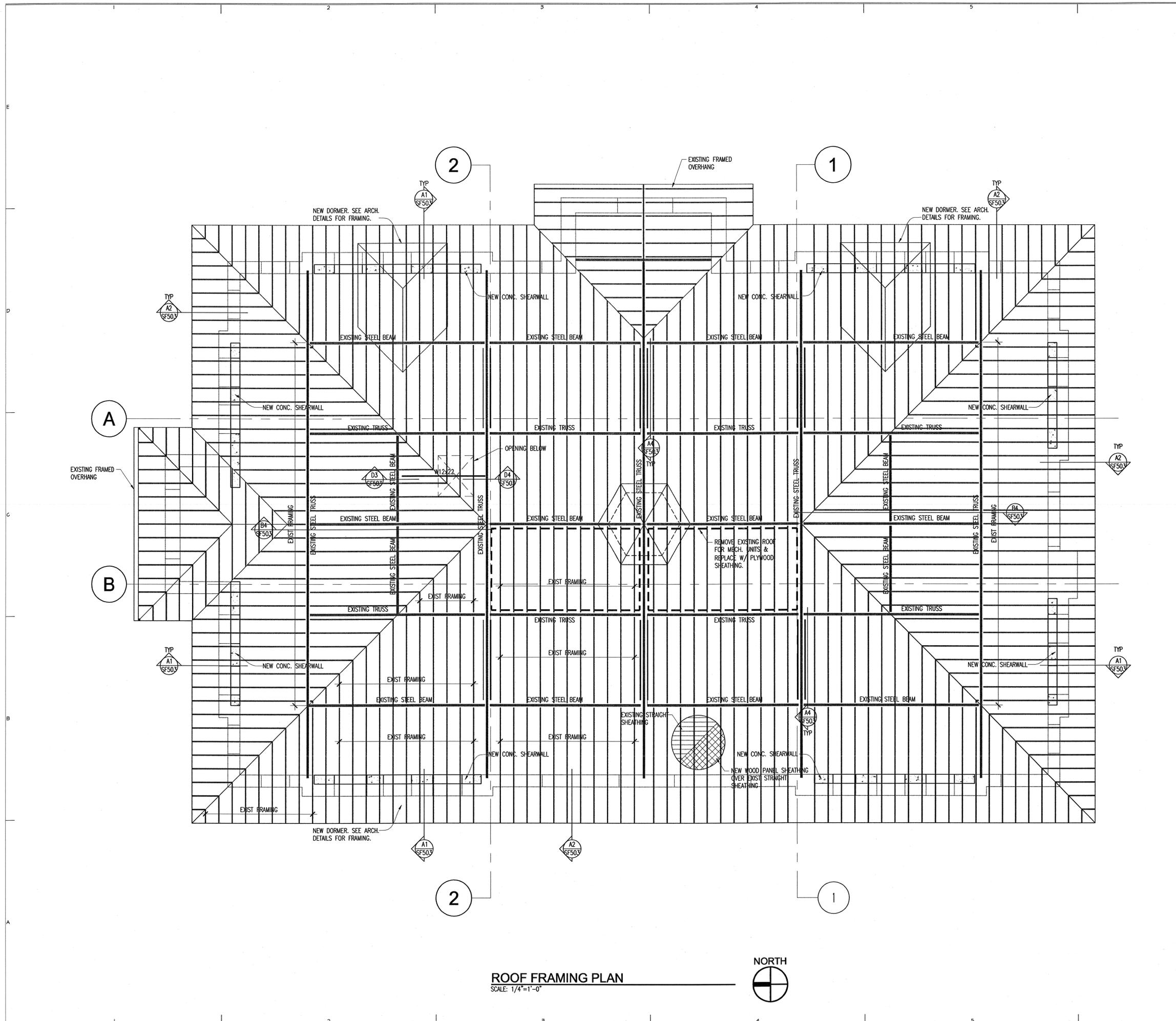
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MK

ROOF  
FRAMING  
PLAN

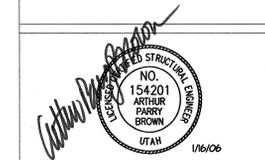
**SF105**



ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"





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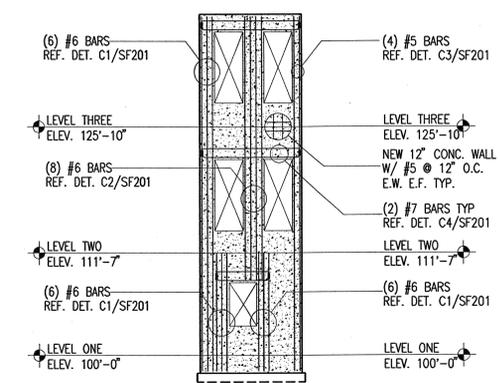
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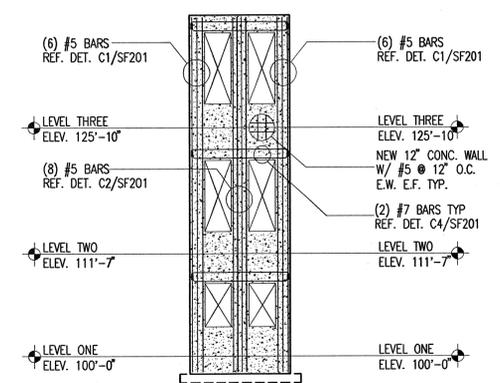
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**CONCRETE  
SHEAR WALL  
ELEVATIONS**

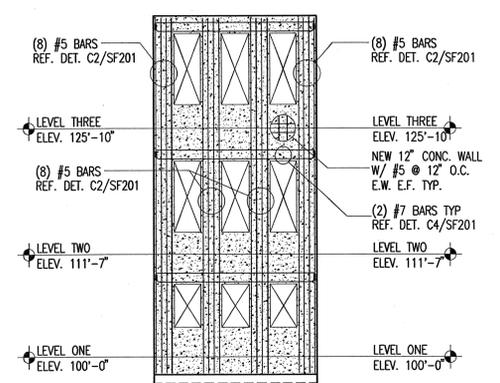
**SF201**



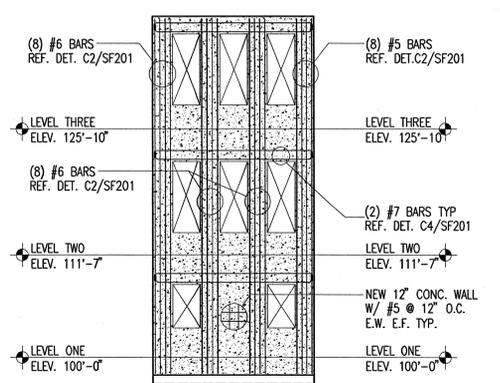
**D5**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



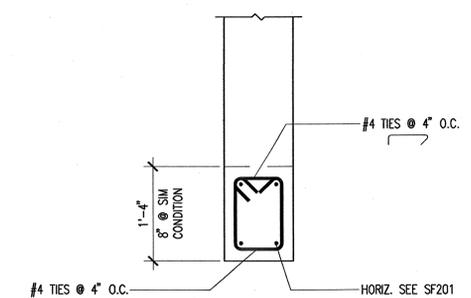
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CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



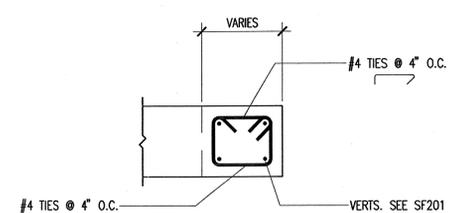
**D2**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



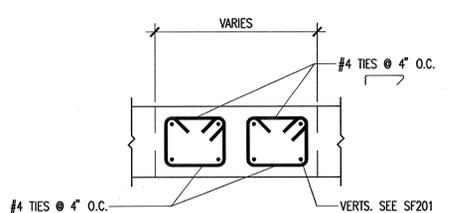
**D1**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



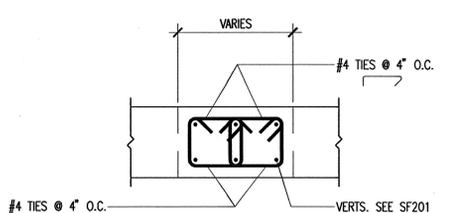
**C4**  
TYPICAL SPANDRAL BEAM  
NO SCALE



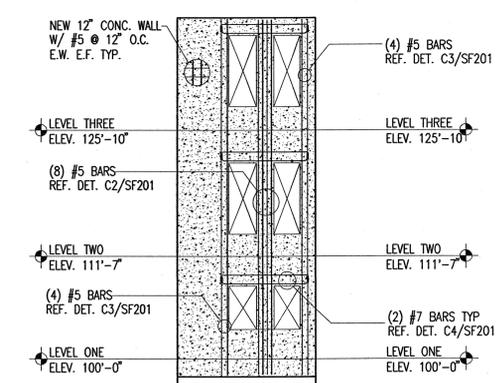
**C3**  
JAMB DETAIL  
NO SCALE



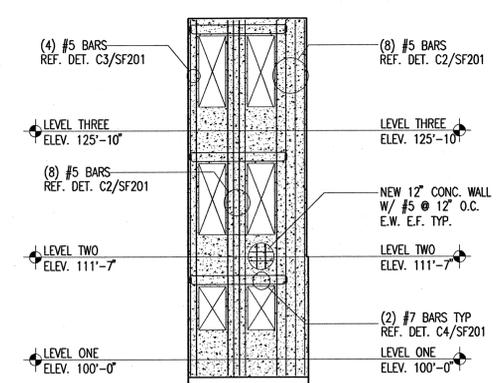
**C2**  
JAMB DETAIL  
NO SCALE



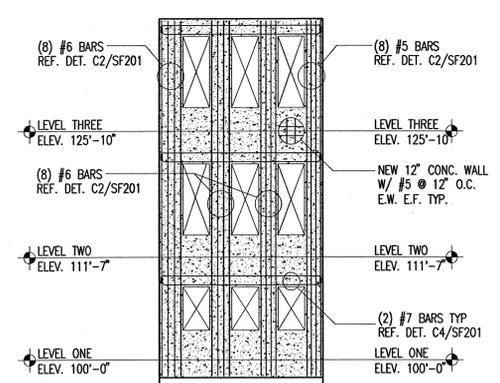
**C1**  
JAMB DETAIL  
NO SCALE



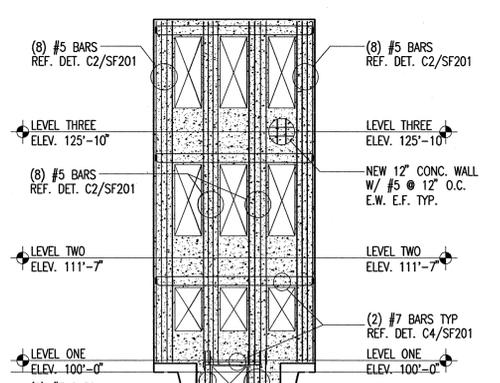
**A5**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



**A4**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



**A2**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"



**A1**  
CONCRETE SHEAR WALL  
ELEVATION  
SCALE: 1/8"=1'-0"

