

NOTE:  
 S = STEEL BEAM OR COLUMN  
 W = WOOD BEAM OR COLUMN  
 C = CONCRETE BEAM  
 ? = UNDETERMINABLE BEAM OR COLUMN  
 T ROD = TENSION ROD SUPPORTING BEAM

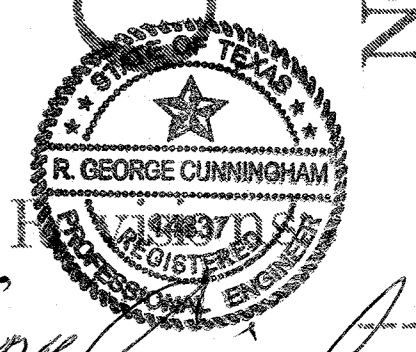
- NOTES**
- 1) THE EXISTING STRUCTURAL MEMBERS HAVE BEEN CALCULATED TO SUPPORT THE FOLLOWING LOADS  
 DL=15PSF OFFICE LL=50 PARTITION LOAD=20PSF  
 TOTAL LOAD = 85PSF.
  - 2) REINFORCEMENT OR REPLACEMENT OF MEMBERS THAT DID NOT CALCULATE IS SHOWN ON THIS DRAWING.

**1** EXISTING SECOND FLOOR STRUCTURAL FRAMING PLAN  
 SCALE 1/8"=1'-0"

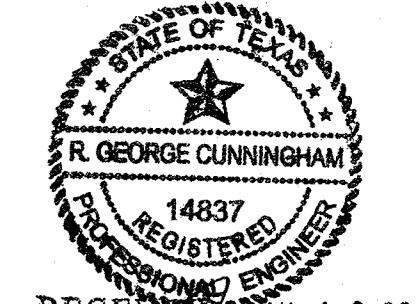
STRUCTURAL CONSULTING CO., INC.  
 1608 W. MAIN  
 HOUSTON, TEXAS 77006  
 (713) 520-8528 FAX 520-8533  
 611 W. 22nd  
 JOB # 120221A SHEET NO.  
 DATE 10/17/13 S2.1  
 DR JRM DD JPM  
 Registration #F-004016

**CLOCK TOWER PHASE 4**

NONYA GREINER ARCHITECT, FAIA



*R. George Cunningham*  
 5/11/12



*R. George Cunningham*  
 RECEIVED JUL 16 2012  
 Date: 3.21.12

Drawn by: AD  
 Check by: NG

611 W 22ND ST  
 HOUSTON TX  
 77008

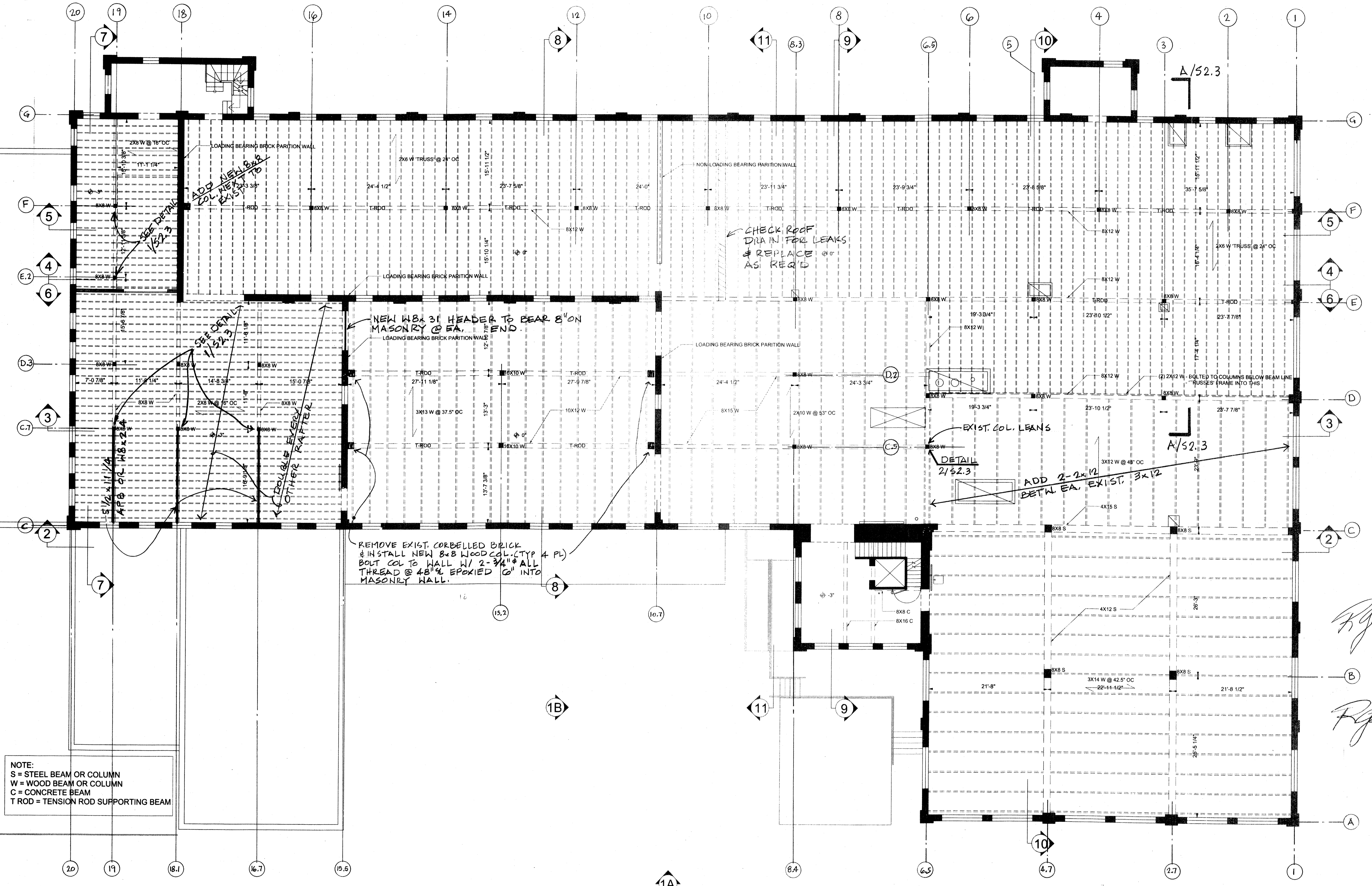
120221A  
 Scale: 1/16"=1'-0"

2ND FLOOR FRAMING  
 1ST FLOOR RCP PLAN

**S2.1**

# CLOCK TOWER PHASE 4

NONYA GRENADE ARCHITECT, FAIA



NOTE:  
 S = STEEL BEAM OR COLUMN  
 W = WOOD BEAM OR COLUMN  
 C = CONCRETE BEAM  
 T ROD = TENSION ROD SUPPORTING BEAM

1 EXISTING ROOF STRUCTURAL FRAMING PLAN  
 SCALE: 1/8"=1'-0"

### NOTES

- 1) THE EXISTING STRUCTURAL MEMBERS HAVE BEEN CALCULATED TO SUPPORT ROOF DL = 15PSF LL = 20 PSF TOTAL LOADS = 35 PSF
- 2) REINFORCEMENT OR REPLACEMENT OF MEMBERS THAT DID NOT CALCULATE IS SHOWN ON THIS DRAWING.
- 3) ALL ROTTED MATERIAL SHALL BE REPLACED.
- 4) RAFTERS & CEILING JOISTS BETW. COL. ROWS E & F AND F & G FROM COL. ROWS 1-B AND BETW. D & E FROM COL. ROWS 1-G, B. MUST BE REINFORCED AS DETAILED IN SECT. A/52.3.

STRUCTURAL CONSULTING CO., INC.  
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 611 W 22nd

DR. JRM DATE: 10/1/13  
 REGISTRATION #F-004016

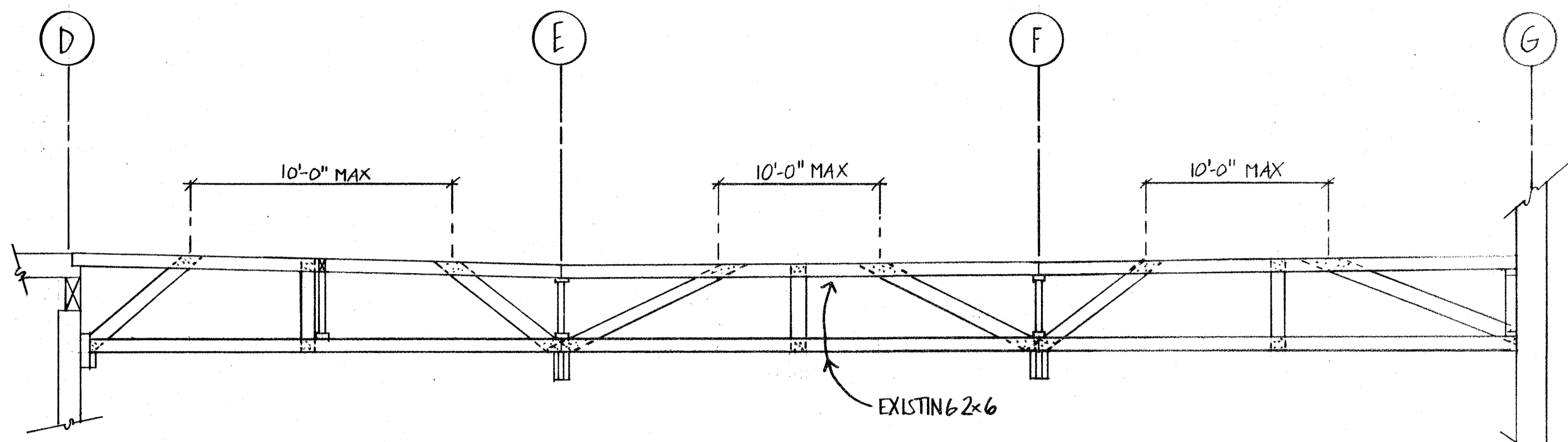
R. George Cunningham  
 9/11/12  
 STATE OF TEXAS  
 R. GEORGE CUNNINGHAM  
 14837  
 REGISTERED PROFESSIONAL ENGINEER

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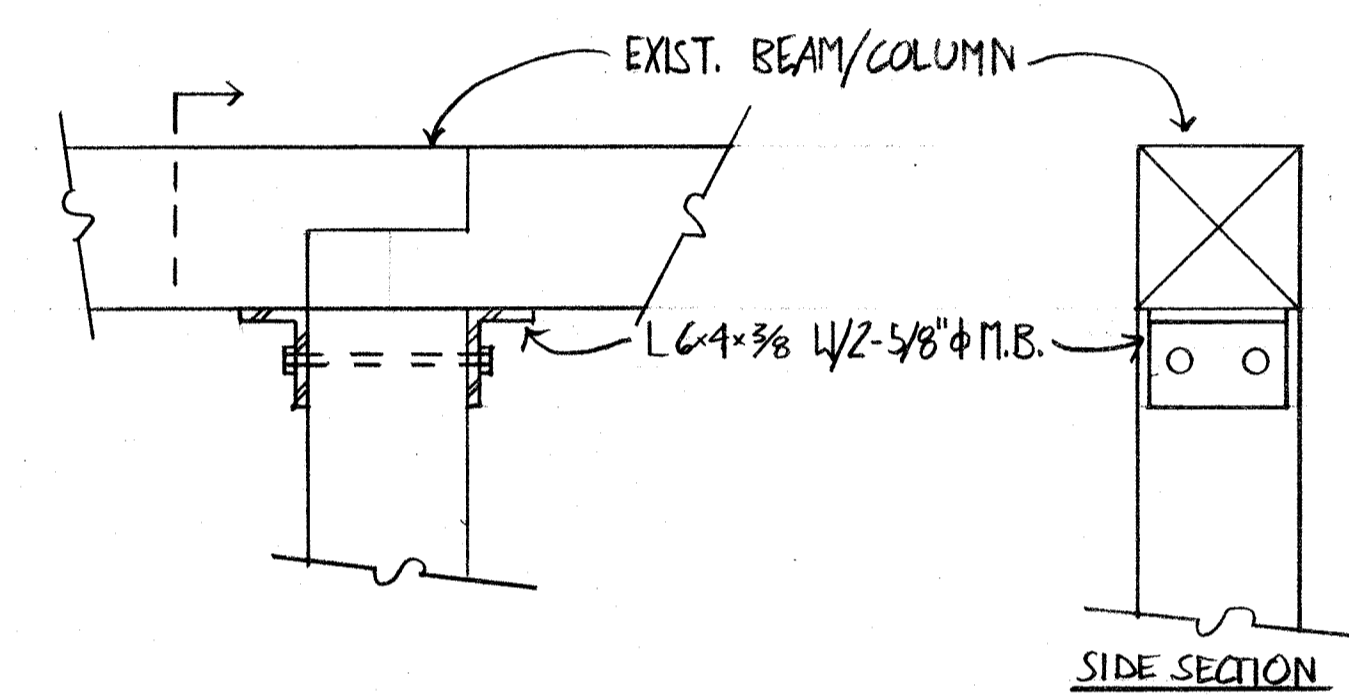
Scale: 1/16"=1'-0"  
 ROOF FRAMING  
 2ND FLR RCP PLAN

S2.2

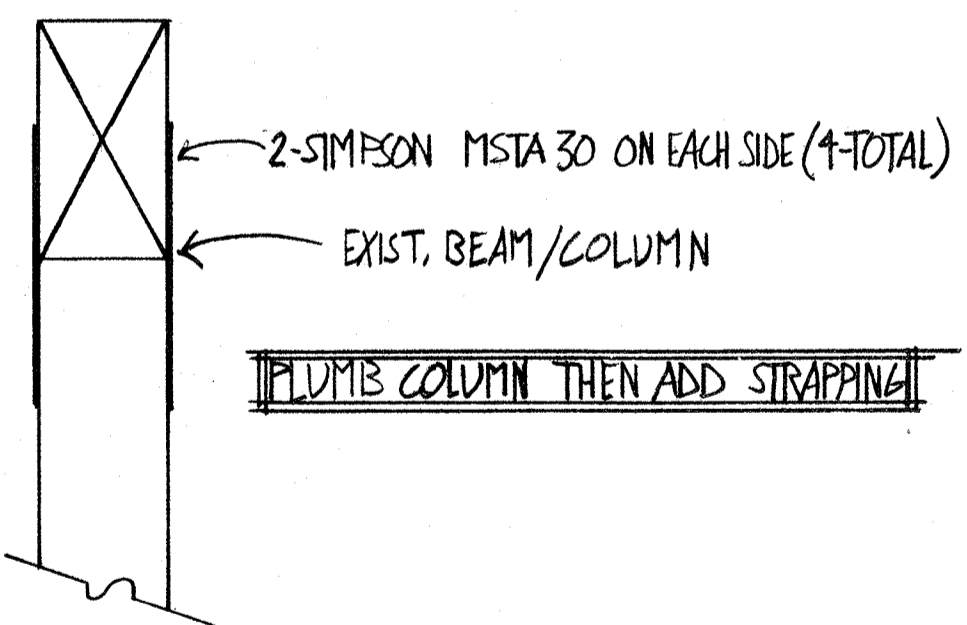


TYPICAL ROOF SECTION @ REAR TWO & THREE BAYS  
1/4"=1'-0" (S2.3)

Add 2x6 bracing as shown to reduce the rafter span between supports to no more than 10'-0" and to hang the ceiling joists from rafters @ midspan. All connections shall overlap at least 5" and be nailed w/6-10d nails. Note: where 2x6 bracing exists and is sound, no additional bracing is required but contractor shall insure that at least 6-10d nails are installed at each connection. All rotted material shall be replaced.



TYPICAL DETAIL @ SAWTOOTHED BEAMS OVER COLUMNS  
1"=1'-0" (S2.3)



DETAIL @ COLUMN C.5 x 6.5  
1"=1'-0" (S2.3)

**CORROSION INFORMATION**

Metal connections, anchors, and fasteners will corrode and lose load carrying capacity when installed in corrosive environments or exposed to corrosive materials or abstract changes, unless approved in writing by Structural Consulting Co., Inc. Due to the uncertainties in regard to the chemicals used in pressure treated wood, which are out of the specifier's control, Structural Consulting Co., Inc. recommends the use of Stainless Steel fasteners, anchors and connectors with treated wood when possible. At a minimum contractors should use Hot-Dip Galvanized per ASTM A188 for exposures and ASTM A183 for fasteners, or mechanically galvanized fasteners per ASTM B695, Class III or greater, product with the lowest alternative treated woods. Due to the many variables involved, many of which are controlled by the chemical supplier and the wood manufacturer, Structural Consulting Co., Inc. cannot make an unqualified corrosion or other galvanized or other coating for use with treated wood. We suggest that all users obtain recommendations for mechanically galvanized, or other coatings from their treated wood suppliers.

Uncoated and painted products should not be used with treated woods. When using Stainless Steel or Hot-Dip Galvanized connectors, the connectors and fasteners should be made of the same material.

**GENERAL NOTES-FRAMING**

- Structural Consulting Co., Inc. is not responsible for any variations in the framing plans due to owner/contractor or architect changes, unless approved in writing by Structural Consulting Co., Inc.
- All construction shall conform to current city building code.
- Design live loads:
  - Roof slope > 12/12—12psf Residential floor—40psf
  - Roof slope > 4/12—16psf Attic non-storage—10psf
  - Roof slope < 4/12—20psf Attic storage—20psf
- Handrails and guards by others shall be designed to resist 80psf applied in any direction at the top or a single concentrated load of 200lb applied in any direction at any point along the top. Attachments & supporting elements must transfer these loads to the appropriate structure.
- SPF (spruce, pine, fir) lumber is not acceptable for floor joists, headers or beams. Utility grade studs are not acceptable for exterior walls or top plates.
- Multiple within 18" of grade shall be pressure treated lumber.
- Minimum design stresses for fabricated wood members are as follows:
 

	F <sub>u</sub> (psi)	F <sub>y</sub> (psi)	E <sub>min</sub> (ksi)
Parallel	2900	2400	2000000
Perpendicular	2400	185	1800000
"Powerbeam"	3000	280	2100000
- Contractor must verify with supplier that these criteria are met and report to engineer any deficiencies in writing, for approval.
- WALL FRAMING**
  - Exterior stud walls over 10'-0" tall shall be double 2 x 4 or single 2 x 6 studs at 16" on center. Exterior stud wall over 12'-0" tall shall be at least 2 x 6 studs at 16" on center. Stud framing for taller walls shall be noted on plan. Interior stud walls up to 14'-0" tall can be 2 x 4 studs at 16" on center, unless otherwise noted.
  - Load bearing partitions and columns shall not bear on plywood deck alone. Floor joists or blocking must be placed under floor deck to transfer loads to foundations or other supports. All connections must be shimmed tight.
  - Multiple stud columns shall be nailed using two 10d nails at 16" centers.
  - Trimmers to be doubled under all headers spanning more than 8'-0".
  - All stud walls shall be diagonally braced with a 1 x 4 let in brace at each corner or within eight feet of the corner and at 24'-0" maximum spacing along the wall. The brace shall be securely fastened to both the top and bottom plates and each stud it crosses with 3-10d nails. Diagonal bracing is not required for walls with 1/2" plywood shear panel sheathing, refer to plans. See current city code.
  - Sheathing for shear walls shall be 1/2" plywood (grade CI or weatherboard), with exterior glue. Install 2 x 4 or 2 x 6 blocking at panel edges where framing does not occur. Attach plywood directly to framing with 10d common nails at 4" centers at panel edges and 12" centers at intermediate supports, unless noted otherwise on plans (see plan). Panels shall be 4 x 8 shears and shall extend from top of concrete to second floor top plate or plate just below rafters, in all walls where indicated.
- FLOOR FRAMING**
  - Joists shall be doubled under non load-bearing stud walls, u.n.o.
  - Provide solid blocking between floor joists for all spans greater than 8'-0".
  - Beams made of multiple 2 x joists shall be supported at each end by multiple stud columns. Columns shall be made of one more studs than there are joists in the beam (i.e. A 3-2"x12" beam shall be supported by 4 studs at each end). Truss girders shall be supported by four studs minimum.
  - Floor deck shall consist of 3/4" APA 48/24 CD exterior plywood or 1 1/8" tongue and groove plywood applied with face grain perpendicular to trusses or joists or 2 x 6 tongue and groove deck as indicated by the Architect. End joints shall occur over joists and shall be staggered. Attach floor deck to framing with 8d or 10d common nails at 8" centers at plywood edges (10" in the field) at intermediate supports. Install 8d or 10d nails at 4" centers at plywood to top plates at exterior wall connections, unless noted otherwise. Leave 1/8" space at all edge joints and 1/16" space at all end joints of subflooring. However, if wet or humid conditions are expected, double these spacings.

11. All nails are smooth-common, box or deformed shanks except where otherwise stated.
- Nails spaced at not more than 8" at all supports where spans are 48" or greater.
- Four-foot-by-8-foot or 4-foot-by-8-foot panels shall be applied vertically.
- Spacing of fasteners not included in this table shall be based on I.R.C. Table R602.3(6) (current edition).
- For regions having basic wind speed of 120 mph or less, 8d common or ring-shank nails shall be used for attaching plywood roof sheathing to framing.
- Gypsum sheathing shall conform to ASTM C 79 and shall be installed in accordance with GA 263. Fiberboard sheathing shall conform to either AIA 184.1 or ASTM C 208.
- Spacing of fasteners on floor sheathing panel edges supported by framing members and at all floor perimeters shall be as follows:
  - 1/2" galv. Roofing nail or 6d common nail (3" edges, 8" field)
  - 1 1/2" galv. Roofing nail or 8d common nail (3" edges, 8" field)
  - 1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)
  - 1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)
- Nail spacing within 48" of ridge and exterior walls shall be at 6" edges, 4" field. Overhangs shall be the same and will be in addition to the 48" distance. All other roof panels shall be nailed at 8" edges, 2" field.
- WOOD CONNECTIONS**
  - Provide a continuous tie across building with strongbacks made from one 2 x 6 laid flat and one 2 x 8 vertical, running perpendicular to joists and nailed to each joist.
  - Install 2 x 6 collar ties 1/3 of the span down from ridge beam, spaced at 48" on center.
  - Install 2 x 8 rafter ties 1/3 of the span down from ridge beam, spaced at 48" on center.
  - For clay tile roof provide 2 x 8 rafters w/5/8" thick min. CD exterior grade plywood, unless otherwise noted. Some manufacturers' specification may require 5/8" thick CDX plywood. Contractor shall verify with roof manufacturer.
  - Install Simpson H2.5A hurricane clips at 16" o.c. (every rafter), connecting the rafter to top plate, u.n.o. For roof trusses, provide Simpson H10 at every roof truss to top plate, u.n.o.
  - For clay tile roof provide 2 x 8 rafters w/5/8" thick min. CD exterior grade plywood, unless otherwise noted. Some manufacturers' specification may require 5/8" thick CDX plywood. Contractor shall verify with roof manufacturer.
  - Bolt holes through wood shall be drilled 1/16" maximum larger than the diameter of the bolts to be installed.
  - Bolts (A307) through wood shall be fitted with standard washers at head and nut ends.
  - The number and size of nails connecting wood members together shall be in accordance with Table 2304.9.1 Fastening Schedule of the I. B. C. (current edition), unless otherwise noted or detailed.
  - SR plates for exterior walls and stud walls on curbs shall be attached to concrete with 1/2" diameter by 10" anchor bolts for single plates and 1/2" diameter by 12" anchor bolts for double plates at 6'-0" on center for one story structures or at 4'-0" on center for two story structures and within 6" of the ends of all members. Minimum two bolts per length of all members.
  - Install Simpson Standard U Joist Hangers at flush joint connections and Simpson 1/8" B/B Beam Hangers at flush beam connections, unless otherwise noted. Provide Simpson "PC" caps at post-beam connection, except as detailed differently. Provide Simpson "LCC Column Base" at post-concrete connections, except as noted. Install all hardware per manufacturer's instructions.
  - All timber fastening items shall be equal to those manufactured by Simpson Strong-Tie. Designated fastening items shown are found in the current Simpson catalog. When fastening items other than what is shown, technical data shall be submitted for approval.
  - Double joists, headers or beams shall be nailed as follows:
    - 3-16d nails at 12" centers for 2 x 6 and 2 x 8 members
    - 4-16d nails at 12" centers for 2 x 10 and 2 x 12 members
  - Multiple member beams shall be installed centered under uniform or concentrated loads above, unless detailed otherwise.
- SHEETROCK**
  - Gypsum wallboard shall be attached to all studs and to the top and bottom plates per schedule.
- MASONRY TIES**
  - Install 22 ga. x 1" corrugated brick ties 3" on masonry at spacing no greater than 16" horizontal and 16" vertical, unless otherwise noted.
- MISCELLANEOUS STEEL**
  - Fitch beams (wood/steel plate composite beams) shall be constructed with 5/8" diameter bolts at 16" centers. Bolts shall be located 2 1/2" from beam ends and staggered top and bottom so that there is at least one bolt every 12". All holes shall be drilled 1/16" diameter larger than the bolt. Burning holes in the steel flitch is not permitted.
  - Steel columns shall have a 3/8" minimum steel cap plate unless noted otherwise on plans.
  - Phillips wedge anchors (kwik bolts) with 4 1/2" embedment top solid concrete, unless noted otherwise on plans.
  - Paint all steel with one shop coat zinc chromate or red oxide primer, u.n.o.
  - All bolts to bear on a minimum of eight threads (8T) of masonry on each side of opening.
  - Provide holes in steel beams at 16" on center, staggered, for securing wood to steel, typical, u.n.o. Alternatively, wood may be attached to steel using two (2) powder driven fasteners at 16" on center. This note does not apply to fitch beams as noted above.

**NAILING SCHEDULE**

CONNECTION	NAILING <sup>1,2,3,4</sup>
1. Joist to sill or girder, toenail	3-8d
2. 1" x 6" subfloor or less to each joist, face nail	2-8d
3. 2" subfloor to joist or girder, blind and face nail	2-16d
4. Sole plate to joist or blocking, face nail	16d @ 16" o.c.
5. Top plate to stud, end nail	2-16d
6. Stud to sole plate, toe nail	4-8d or 2-16d (end nailed)
7. Double studs, face nail	16d @ 24" o.c.
8. Double top plates, face nail	16d @ 16" o.c.
9. Sole plate to joist or blocking at brood wall panels	3-16d @ 16" o.c.
10. Double top plates, minimum 48" offset of end joints, face nail in lapped area	8-16d
11. Blocking between joists or rafters to top plate, toenail	3-8d
12. Rim joist to top plate, toenail	8d @ 6" o.c.
13. Top plates, laps at corners and intersections, face nail	2-16d
14. Built-up header, two pieces with 1/2" spacer	16d @ 16" o.c. ea. edge
15. Continued header, two pieces	16d @ 16" o.c. ea. edge
16. Ceiling joist to plate, toe nail	3-8d
17. Continuous header to stud, toenail	4-8d
18. Ceiling joist, laps over partitions, face nail	3-16d
19. Ceiling joists to parallel rafters, face nail	3-16d
20. Rafter to plate, toe nail	3-8d
21. 1" brace to each stud and plate, face nail	2-8d
22. 1" x 6" sheathing or less to each bearing, face nail	3-8d
23. 1" x 8" sheathing or less to each bearing, face nail	3-8d
24. Wider than 1" x 8" sheathing to each bearing, face nail	3-8d
25. Built-up corner studs	10d @ 24" o.c.
26. Built-up girders and beams, 2 inch layers	Nail each layer with 20d @ 32" oc at top and bottom and staggered. Two nails at ends and at each splice.
27. 2" planks	16d at each bearing
28. Roof rafters to ridge, valley or hip rafters - toe nail	2-16d (toe)
29. Rafter ties to rafters, face nail	2-16d (face)
30. Wood structural panels and particleboard:	3-10d
Subfloor, roof and wall sheathing (no framing):	
1/2" - 1 1/2"	8d common; 8d common (roof)
1 1/2" - 1"	8d common
1 1/2" - 1 1/4"	10d common or 8d deformed
Exterior wall sheathing:	
1/2"	10d common (4" oc edges, 12" oc field)
3/4"	1 1/2" galv. Roofing nail or 6d common nail (3" edges, 8" field)
1"	1 1/2" galv. Roofing nail or 8d common nail (3" edges, 8" field)
1 1/4"	1 1/2" galv. Roofing nail or 8d common nail (3" edges, 8" field)
1 1/2"	1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)
1 3/4"	1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)
2"	1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)

*R. George Cunningham*  
9/1/12

*R. George Cunningham*  
9/1/12

STATE OF TEXAS  
REGISTERED ENGINEER  
14837  
R. GEORGE CUNNINGHAM

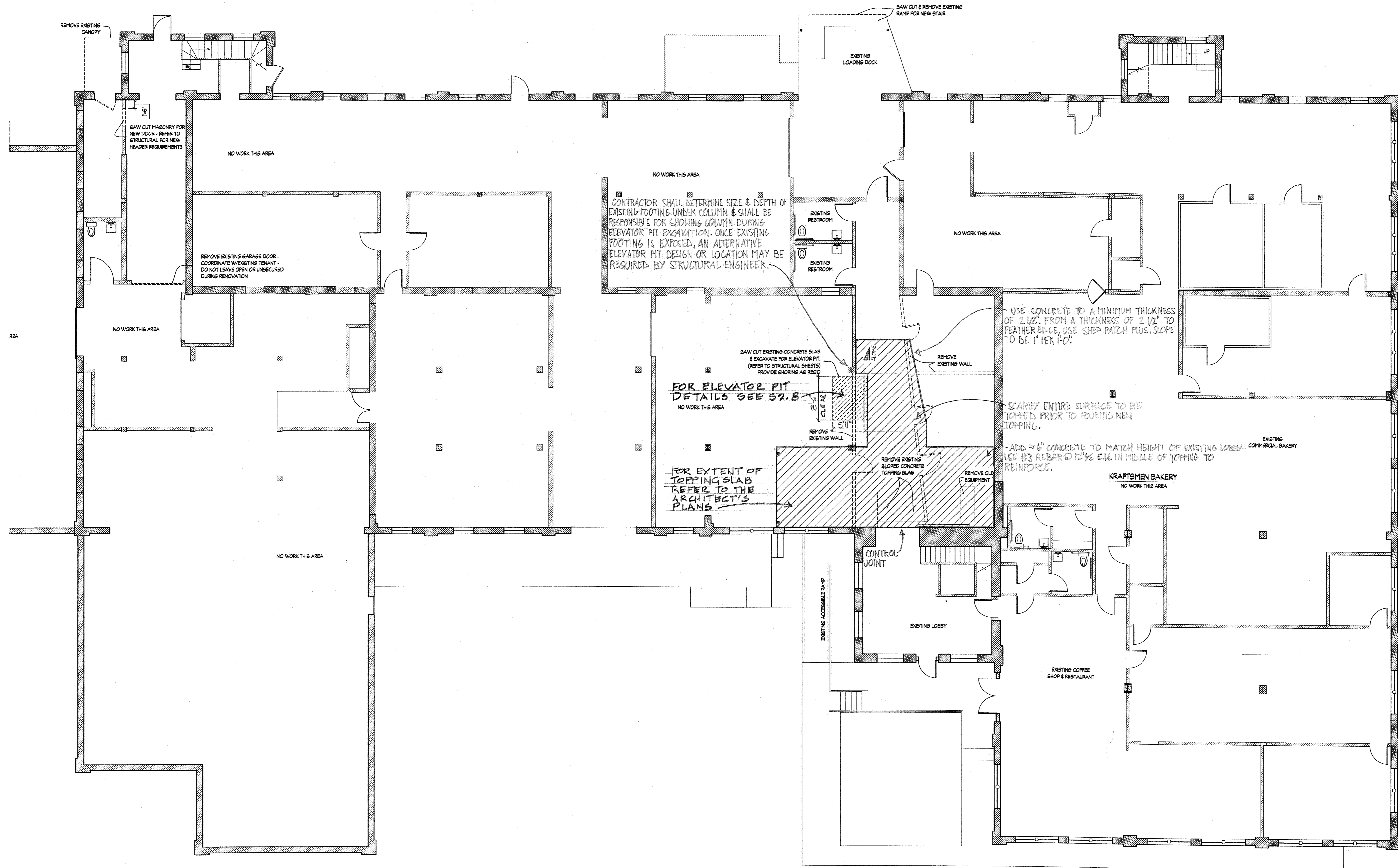
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DO NOT SCALE DRAWINGS

NOTE -  
\* All existing conditions will require field verification.  
\* Any discrepancies between engineer's drawings and field conditions shall be brought to the attention of the engineer, in writing, for corrective action.  
\* Any discrepancies between the final architectural drawings and the provided structural drawings shall not be the responsibility of Structural Consulting Co., Inc.

The observers are required for all pier work, foundation make-up and completed framing. STRUCTURAL CONSULTING CO., INC. should be retained to provide the service. The use of these drawings signifies the owner/contractor's agreement that STRUCTURAL CONSULTING CO., INC. shall not be liable for any construction that has not been observed and approved. In writing, by STRUCTURAL CONSULTING CO., INC. in the absence of such the observer and approval, STRUCTURAL CONSULTING CO., INC. makes no representation of suitability, express or implied, with reference to these drawings. Owner/contractor agrees to indemnify and hold harmless STRUCTURAL CONSULTING CO., INC. for all damages, costs and attorney's fees that STRUCTURAL CONSULTING CO., INC. may incur as a result of any litigation arising out of this project if STRUCTURAL CONSULTING CO., INC. has not reviewed the construction work and approved it. In choosing to build without the site observation and approval, owner/contractor agrees that they are solely responsible for all expenses and that they have made an informed business decision to be solely responsible for said construction. Here "approval/approved," as used in this note, shall not be construed as a warranty of any sort but is defined as "to be in general conformity with STRUCTURAL CONSULTING CO., INC. plans and specifications."

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GRENADE  
JOB # 12021A SHEET NO. S2.3  
DATE: 10/1/12  
DR: JWB CC: JRM  
Registration # 004016



**FOUNDATION PLAN**  
 1/8" = 1'-0"

**STRUCTURAL CONSULTING CO., INC.**  
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 611 W. 22nd

JOB # 120221A SHEET NO. 52.4  
 DATE 10/1/13 DR. JEM  
 Registration #F-004016

Nonya Grenader FAIA  
 ARCHITECT

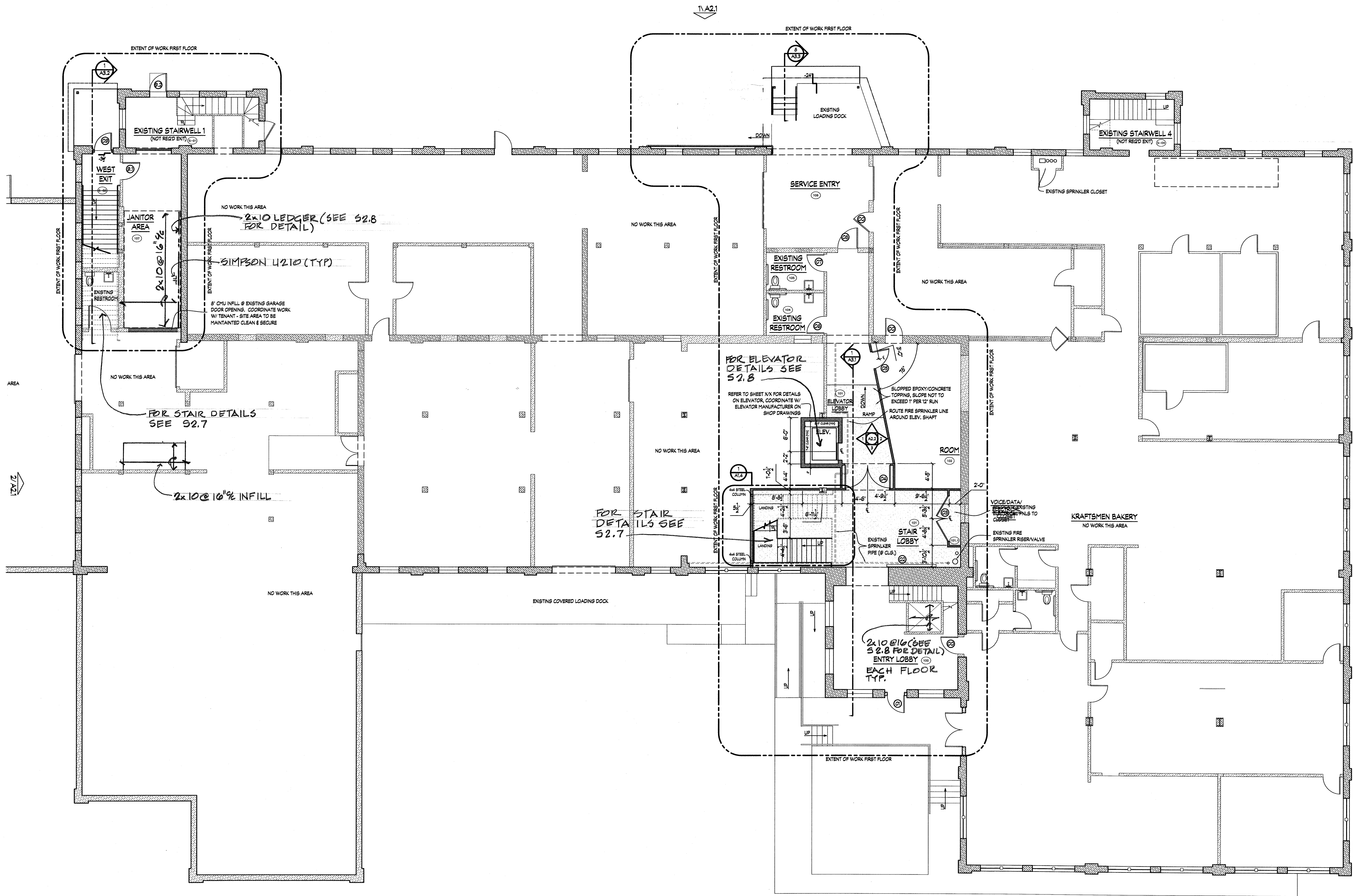
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 Galveston, Texas 77550  
 409-762-8000 (Voice)  
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 Architecture, Renovation/Restoration, and Space Planning  
 Member of the American Institute of Architects

**Clock Tower Building**  
 Phase 4 Renovation  
 Houston, Texas 77008  
 Architect's Project No.: 130104

Progress Set

Demolition Plan 1st Flr  
 SCALE: 1/8" = 1'-0"

3  
 2  
 1  
 Date: 6/3/13



**SECOND FLOOR FRAMING PLAN**

CO-ORDINATE W/ S-2.1  
FOR FRAMING ONLY

STRUCTURAL CONSULTING CO., INC.  
1608 W. MAIN  
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(713) 520-8528  
611 W. 22nd  
JOB #: 120221A SHEET NO.  
DATE: 10/1/13 S2.5  
DR: JEM  
Registration #F-004016

Nonya Grenader FAIA  
ARCHITECT

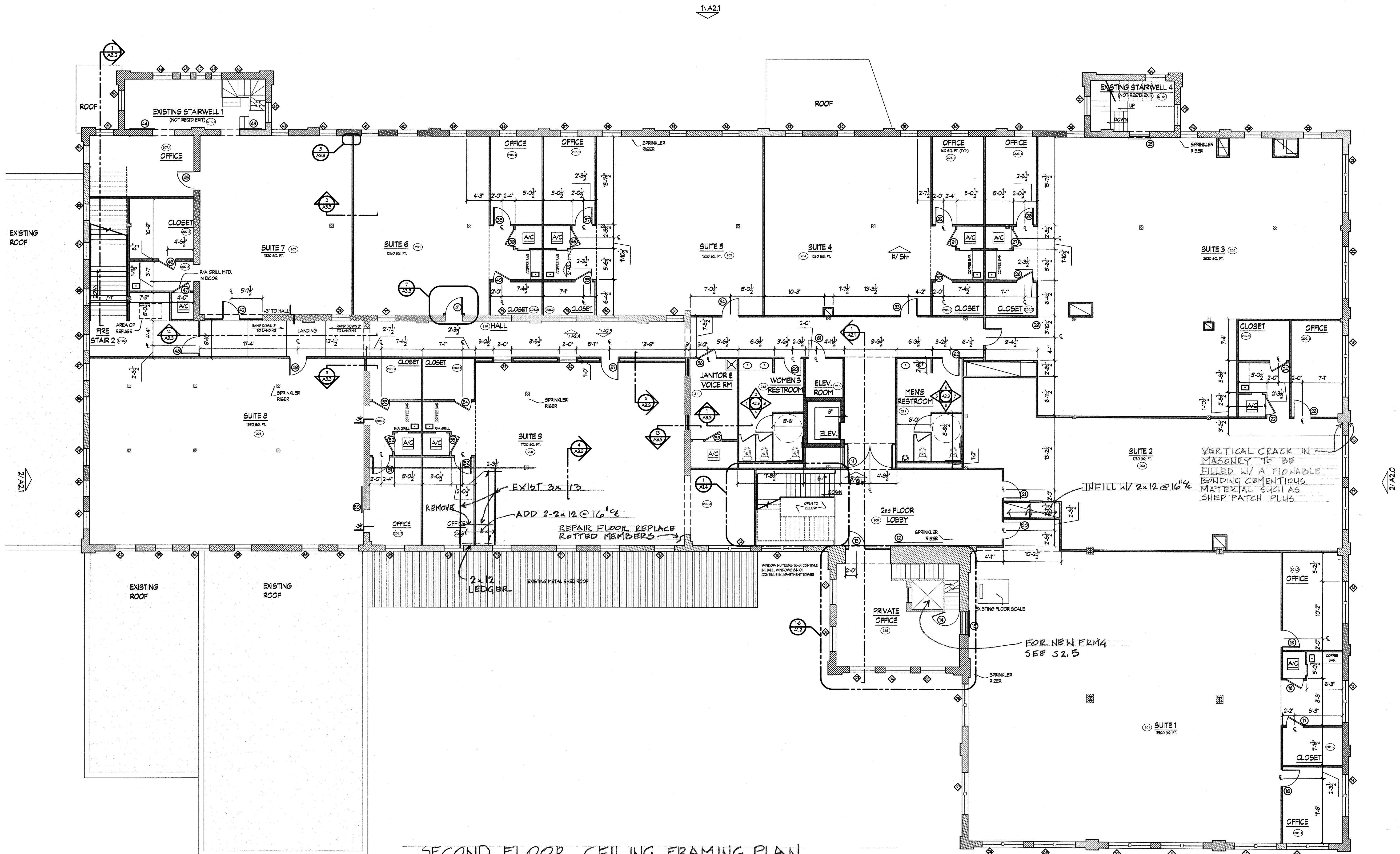
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Clock Tower Building  
Phase 4 Renovation

Progress Set

First Floor Plan  
SCALE: 1/8" = 1'-0"

▲  
▲  
▲  
Date: 6/13/13



SECOND FLOOR CEILING FRAMING PLAN  
 COORDINATE WITH 52.2.  
 FOR FRAMING ONLY

VERTICAL CRACK IN MASONRY TO BE FILLED W/ A FLOWABLE BONDING CEMENTIOUS MATERIAL SUCH AS SHEP PATCH PLUS

FOR NEW FRM 5 EF 52.5

STRUCTURAL CONSULTING CO., INC.  
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 HOUSTON, TEXAS 77006  
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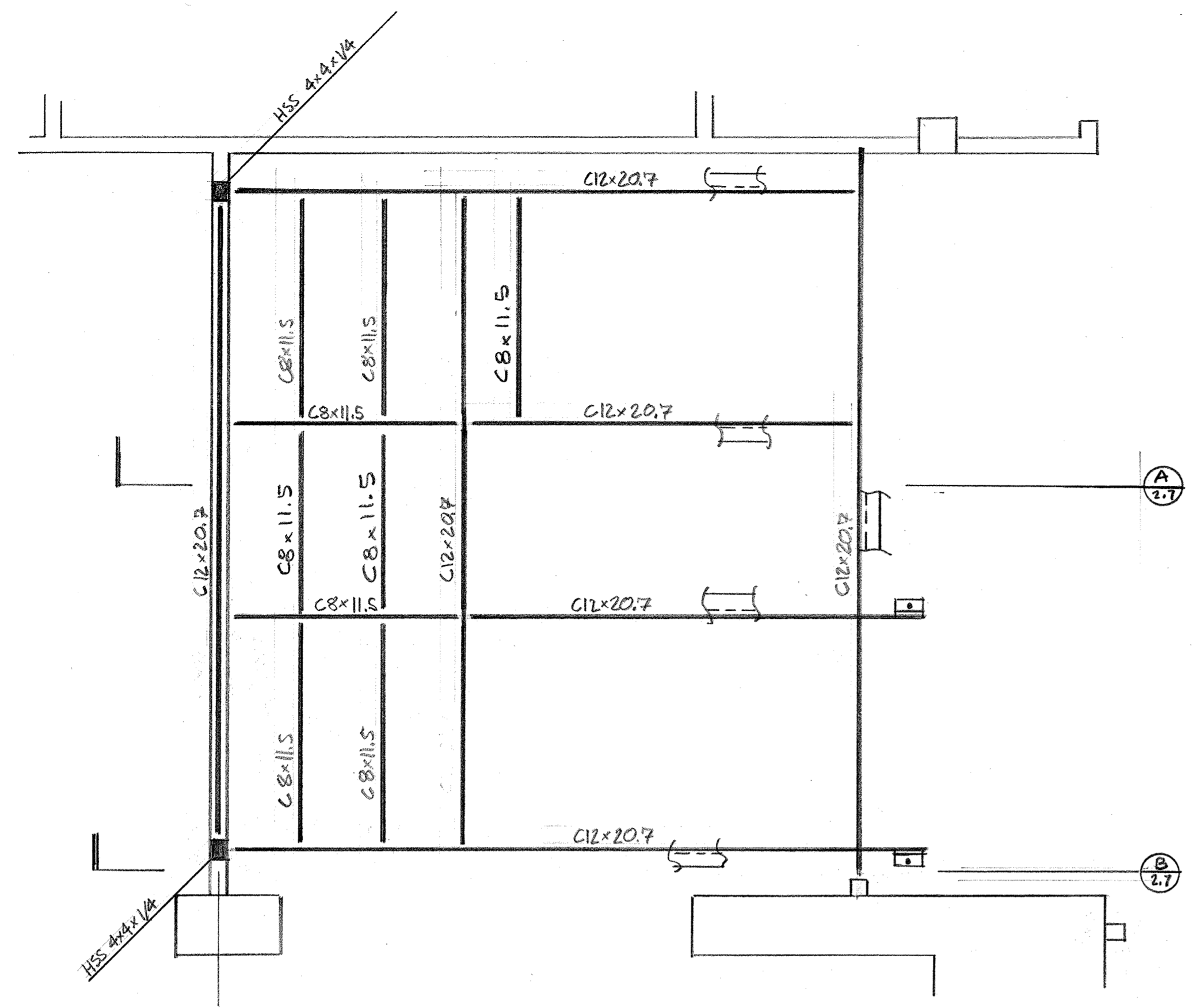
Clock Tower Building  
 Phase 4 Renovation

Progress Set

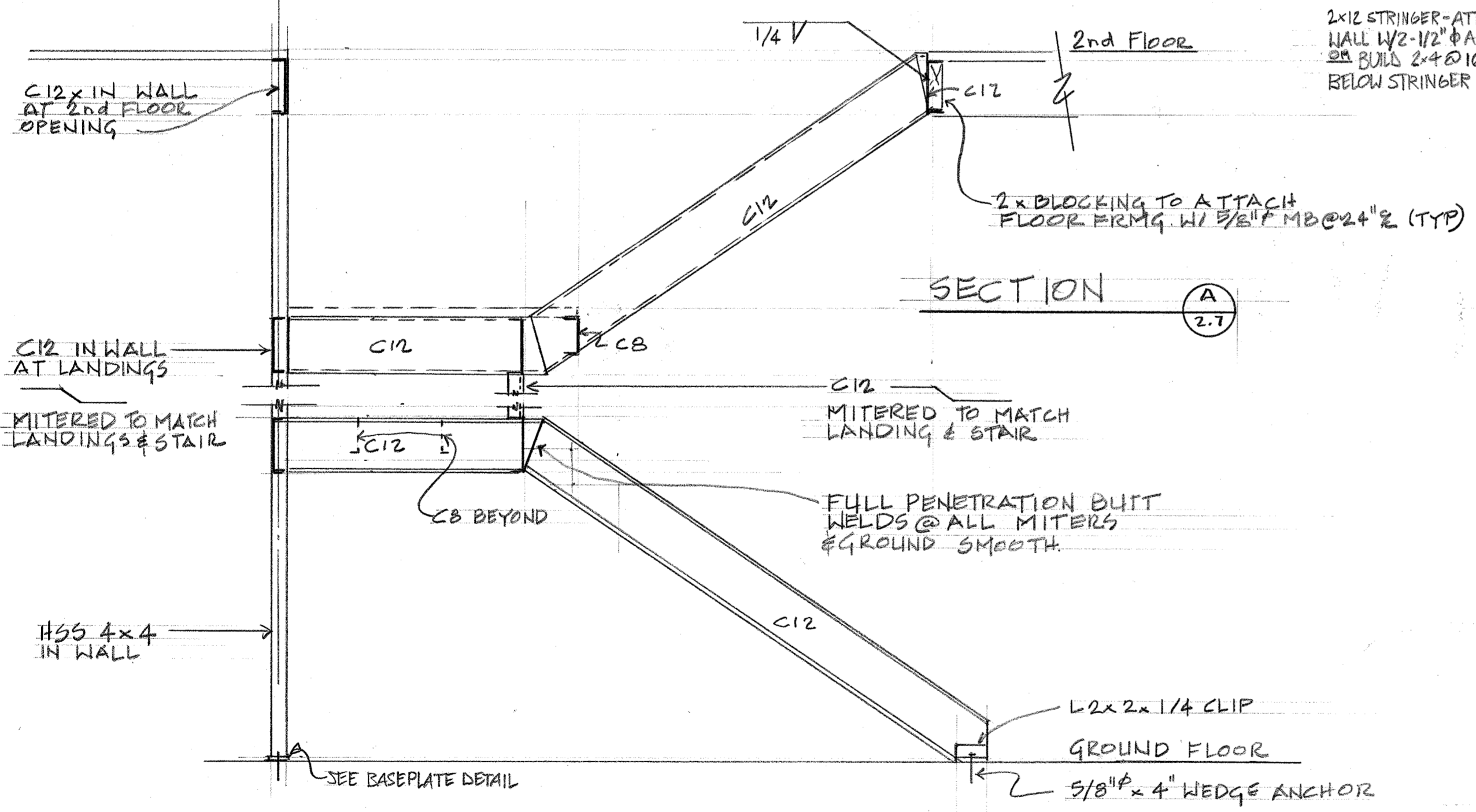
Second Floor Plan  
 SCALE: 1/8" = 1'-0"

Date: 6/13/13

Houston, Texas 77008  
 Architect's Project No.: 130104



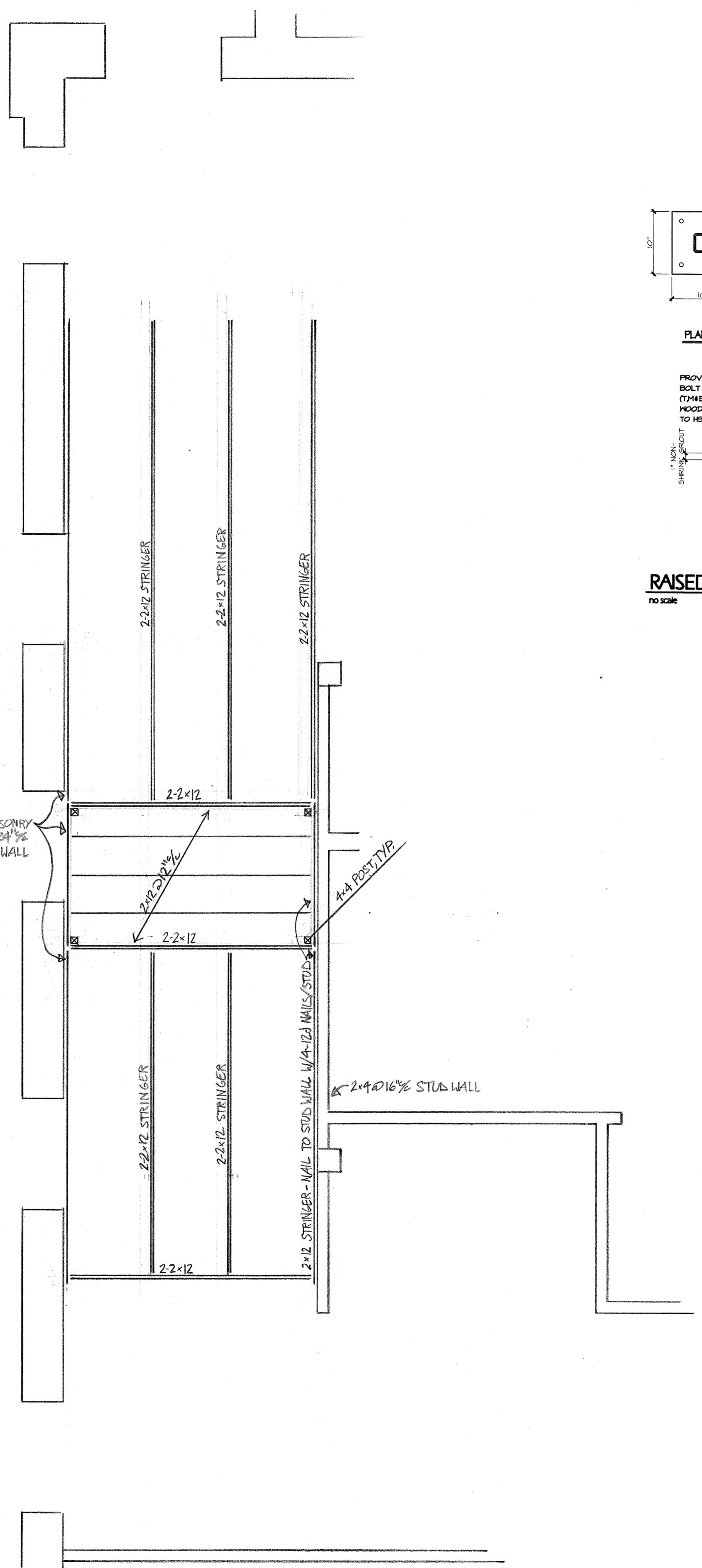
MAIN STAIR PLAN  
1/2" = 1'-0"



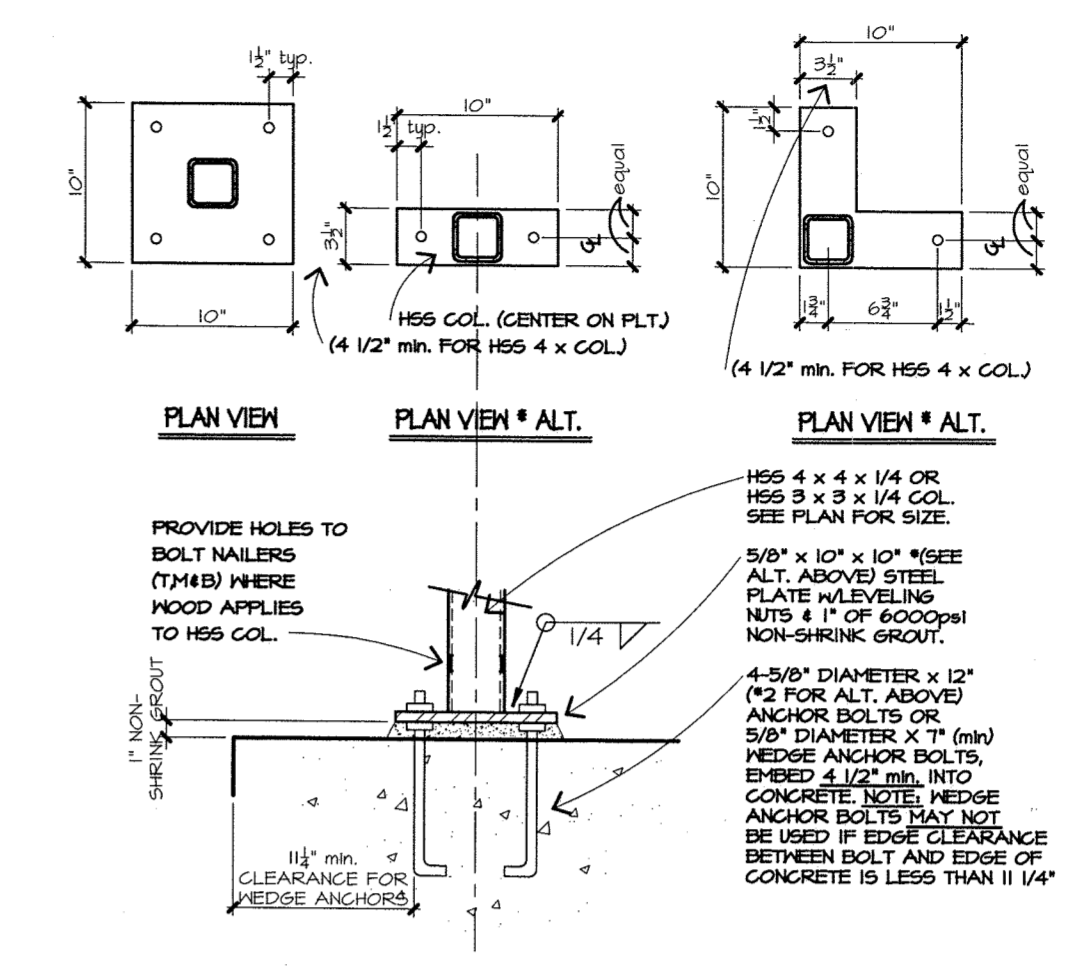
SECTION A  
2.7  
1/2" = 1'-0"

FOR DIMENSIONS RE: ARCH'T  
A.1.6, 3.0 & 3.1

SECTION B  
2.7  
1/2" = 1'-0"



FIRE STAIR PLAN (NORTH-WEST CORNER)  
1/2" = 1'-0"



RAISED BASEPLATE DETAIL  
NO SCALE

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THE ADDITION OF THIS PROJECT HAS BEEN DESIGNED TO MEET 110mph BASIC WIND SPEED CODE REQUIREMENTS

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\* Any discrepancies between the final architectural drawings and the provided structural drawings shall not be the responsibility of Structural Consulting Co., Inc.

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Owner/contractor agrees to indemnify and hold harmless STRUCTURAL CONSULTING CO., INC. for all damages, costs and attorney's fees that STRUCTURAL CONSULTING CO., INC. may incur as a result of any litigation arising out of this project. STRUCTURAL CONSULTING CO., INC. has not reviewed the construction work and approved it. In choosing to build without the site observation and approval, owner/contractor agrees that he/she/they desire to limit expenses and he/she/they have made an informed business decision to be totally responsible for said construction. Note that "approval/approved" as used in this note, shall not be construed as a warranty of any sort but is defined as "to be in general conformity with STRUCTURAL CONSULTING CO., INC. plans and specifications."

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JOB # 120221A SHEET NO. 52.7  
DATE 10/1/13  
DR: JCS DD: JRM  
Registration #F-004016





**NAILING SCHEDULE**

**CONNECTION**

1. Joist to sill or girder, toenail
2. 1" x 6" subfloor or less to each joist, face nail
3. 2" subfloor to joist or girder, blind and face nail
4. Sole plate to joist or blocking, face nail
5. Top plate to stud, end nail
6. Stud to sole plate, toe nail
7. Double studs, face nail
8. Double top plates, face nail
9. Sole plate to joist or blocking at braced wall panels
10. Double top plates, minimum 48" offset of end joints, face nail in lapped area
11. Blocking between joists or rafters to top plate, toenail
12. Rim joist to top plate, toenail
13. Top plates, laps at corners and intersections, facenail
14. Built-up header, two pieces with 1/2" spacer
15. Continued header, two pieces
16. Ceiling joist to plate, toe nail
17. Continuous header to stud, toenail
18. Ceiling joist, laps over partitions, face nail
19. Ceiling joists to parallel rafters, face nail
20. Rafter to plate, toe nail
21. 1" brace to each stud and plate, face nail
22. 1" x 6" sheathing or less to each bearing, face nail
23. 1" x 8" sheathing or less to each bearing, face nail
24. Wider than 1" x 8" sheathing to each bearing, face nail
25. Built-up corner studs
26. Built-up girders and beams, 2 inch layers

**WOOD CONNECTIONS**

27. 2" planks
28. Roof rafters to ridge, valley or hip rafters - toe nail face nail
29. Rafter ties to rafters, face nail
30. Wood structural panels and partitionboard:  
Subfloor, roof and wall sheathing (to framing):  
1 1/2", 1 3/4"  
1 1/2", 1 3/4"
31. Exterior wall sheathing:  
1/2"
32. 1/2" regular cellululosic fiberboard sheathing
33. 1/2" structural cellululosic fiberboard sheathing
34. 3/4" structural cellululosic fiberboard sheathing
35. 1/2" gypsum sheathing

**SHEET PILING**

1. All nails are smooth-common, box or deformed shanks except where otherwise stated.
2. Nails spaced at not more than 6" at all supports where spans are 48" or greater.
3. Four-foot-by-eight-foot or four-foot-by-nine-foot panels shall be applied vertically.
4. Spacing of fasteners not included in this table shall be based on I.R.C. Table R602.3(1) (current edition)
5. For regions having basic wind speed of 120 mph or less, 8d common or ring-shank nails shall be used for attaching plywood and wood structural panel roof sheathing to framing.
6. Gypsum sheathing shall conform to ASTM C 79 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to either AIA 194.1 or ASTM C 208.

Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members at all roof plane perimeters. Blocking of roof or floor sheathing panel edges perpendicular to the framing members shall not be required except at intersection of adjacent roof planes. Floor and roof perimeter shall be supported by framing members or solid blocking.

Roof spacing within 48" of edges and exterior walls shall be at 6" (edge), 4" (field). Overhangs shall be the same and will be in addition to the 48" distance. All other roof panels shall be nailed at 6" (edge), 12" (field).

**NAILING**

- 3-6d
- 2-8d
- 2-16d or 3-12d
- 16d at 16" oc
- 2-16d or 3-12d
- 4-8d or 2-16d (end nailed)
- 16d at 24" oc or 2-12d @ 24" oc
- 16d at 16" oc or 2-12d @ 16" oc
- 3-16d at 16" oc
- 8-16d
- 3-8d
- 8d @ 6" oc
- 2-16d or 3-12d
- 16d @ 16" oc or 3-12d @ 12" oc ea. edge
- 16d @ 16" oc or 3-12d @ 12" oc ea. edge
- 3-8d
- 4-8d
- 3-16d or 4-12d
- 3-16d or 4-12d
- 3-8d
- 2-8d
- 3-8d
- 3-8d
- 3-8d
- 10d @ 24" oc
- Nail each layer with 20d @ 32" oc at top and bottom and staggered. Two nails at ends and at each splice.
- 16d at each bearing
- 2-16d or 4-10d (2 ea side) toe
- 1-16d or 4-10d (2 ea side) face
- 3-8d

- 6d common, 8d common (roof)<sup>1</sup>
- 8d common
- 10d common or 8d deformed
- 10d common (4" oc edges, 12" oc field)<sup>2</sup>
- 1 1/2" galv. Roofing nail or 6d common nail (3" edges, 6" field)<sup>3,4</sup>
- 1 1/2" galv. Roofing nail or 8d common nail (3" edges, 6" field)<sup>3,4</sup>
- 1 1/2" galv. Roofing nail or 6d common nail (4" edges, 8" field)<sup>3,4</sup>
- 1 1/2" galv. Roofing nail or 8d common nail (4" edges, 8" field)<sup>3,4</sup>

**GENERAL NOTES-FRAMING**

1. Structural Consulting Co., Inc. is not responsible for any variations in the framing plans due to owner/contractor or architect changes, unless approved in writing by Structural Consulting Co., Inc.
2. All construction shall conform to current city building code. All shoring of existing structures shall be by others.
3. Design live loads:  
Roof slope > 12/12 - 12psf Residential floor - 40psf  
Roof slope > 4/12 - 16psf Attic non-storage - 10psf  
Roof slope < 4/12 - 20psf Attic storage - 20psf  
1. Handrails and guards by others shall be designed in any direction at the top or a single concentrated load of 200lb applied in any direction at any point along the top. Attachments & supporting elements must transfer these loads to the appropriate structure.

**LUMBER**

4. All members, connections, spacing and other structural notes are superseded by plans, when different. All lumber 2" to 4" thick and 5" and wider shall be #2 KD Southern Yellow Pine (S.Y.P.) with 19% maximum moisture content, unless noted otherwise on plans. The modulus of elasticity must be greater than 1,400,000 psi. The shear stress shall be a minimum of 175psi. Allowable bending stress shall be as follows:  
2 x 12 - 750psi single member  
2 x 10 - 800psi single member  
2 x 8 - 925psi single member  
2 x 6 - 1000psi single member
5. All studs less than 10'-0" long shall be stud grade or better surface dry S.Y.P. or mixed southern pine with 19% maximum moisture content or #2 or better Douglas Fir Larch with 19% maximum moisture content. Longer lengths shall be #2 S.Y.P. as described in note #4 or as stated on the plans.
6. SPF (spruce, pine, fir) lumber is not acceptable for floor joists, headers or beams. Utility grade studs are not acceptable for exterior walls or top plates.
7. Mutts within 18" of grade shall be pressure treated lumber.
8. Minimum design stresses for fabricated wood members are as follows:  
Fiberglass E (psi) E (psi)  
Parallam 2900 290 200000  
GluLam 2400 185 180000  
"Powerbeam" 3000 290 210000

**WALL FRAMING**

9. Exterior stud walls over 10'-0" tall shall be double 2 x 4 or single 2 x 6 studs at 16" on center. Exterior stud wall over 12'-0" tall shall be at least 2 x 6 studs at 16" on center. Stud framing for taller walls should be noted on plan. Interior stud walls up to 14'-0" tall can be 2 x 4 studs at 16" on center, unless otherwise noted.
10. Load bearing partitions and columns shall not bear on plywood deck alone. Floor joists or blocking must be placed under floor deck to transfer loads to foundations or other supports. All connections must be shimmed tight.
11. Multiple stud columns shall be nailed using two 10d nails at 16" centers.
12. Trimmers to be doubled under all headers spanning more than 8'-0".
13. All stud walls shall be diagonally braced with a 1 x 4 let in brace at each corner or within eight feet of the corner and at 24'-0" maximum spacing along the wall. The brace shall be secured to both the top and bottom plates and each stud it crosses with 3-10d nails. Diagonal bracing is not required for walls with 1/2" plywood shear panel sheathing, refer to plan. See current city code.
14. Sheathing for shear walls shall be 15/32" plywood (grade C) or waferboard with exterior glue. Install 2 x 4 or 2 x 6 blocking at panel edges where framing does not occur. Attach plywood directly to framing with 10d common nails at 4" centers at panel edges and 12" centers at intermediate supports, unless noted otherwise on plans (see plan). Panels shall be 4 x 8 sheets and shall extend from top of concrete to second floor top plate or plate just below rafters, in all walls where indicated.
15. Joists shall be doubled under non load-bearing stud walls, u.o.
16. Provide solid blocking between floor joists for all spans greater than 8'-0".
17. Beams made of multiple 2" joists shall be supported at each end by multiple stud columns. Columns shall be made of one more studs than there are joists in the beam (i.e. A 3-2x12" beam shall be supported by 4 studs at each end). Truss girders shall be supported by four studs minimum.
18. Floor deck shall consist of 3/4" APA 4824 CD exterior plywood gr 1 1/8" tongue and groove plywood applied with face grain perpendicular to trusses or joists gr 2 x 6 tongue and groove deck as

- indicated by the Architect. End joints shall occur over joists and shall be staggered. Attach floor deck to framing with 8d or 10d common nails at 6" centers at plywood edges (10" in the field) at intermediate supports. Install 8d or 10d nails at 4" centers at plywood to top plate at exterior wall connections, unless noted otherwise. Leave 1/8" space at all edge joints and 1/16" space at all end joints of subflooring. However, if wet or humid conditions are expected, double these spacings.
19. Provide a continuous tie across building with strongbacks made from one 2 x 6 laid flat and one 2 x 8 vertical, running perpendicular to joists and nailed to each joist.
20. Install 2 x 6 center line 1/3 of the span down from edge beam, spaced at 48" on center.
21. Install 2 x 8 purlins under 2 x 8 braces, minimum.
22. Provide 2 x 8 min. rafters at all spaced ceiling conditions.
23. Roof deck shall be 1/2" APA 240 or 5/8" APA 3216 CD exterior grade plywood as per architectural plans. Deck shall be fastened to support members with 8d nails at 12" centers. Install 8d nails at 6" centers at all plywood panel edges, unless noted otherwise. Install 8d nails at 4" centers at rafter to top plate at wall connections, unless noted otherwise. Refer to floor deck for plywood placement.
24. Install Simpson H2.5A hurricane clips at 16" o.c. (every rafter), connecting the rafter to top plate, u.o. For roof trusses, provide Simpson H10 at every roof truss to top plate, u.o.
25. For clay tile roof provide 2 x 8 rafters w/5/8" thick min. CD exterior grade plywood, unless otherwise noted. Some manufacturers' specification may require 3/4" thick CDX plywood. Contractor shall verify with roof manufacturer.

**WOOD CONNECTIONS**

26. Both holes through wood shall be drilled 1/16" maximum larger than the diameter of the bolts to be installed.
27. Bolts (A307) through wood shall be filled with standard washers at head and nut ends.
28. The number and size of nails connecting wood members together shall be in accordance with Table 2304.9.1 Fastening Schedule of the I. B. C. (current edition), unless otherwise noted or detailed.
29. Sill plates for exterior walls and stud walls on curbs shall be attached to concrete with 1/2" diameter by 10" anchor bolts for single plate and 1/2" diameter x 12" anchor bolts for double plates at 6'-0" on center for one story structures or at 4'-0" on center for two story structures and within 6" of the ends of sill members. Minimum two bolts per length of sill members.
30. Install Simpson "Standard U-Joint Hangers" at flush joint connections and Simpson "BMB Beam Hangers" at flush beam connections, unless otherwise noted. Provide Simpson "PC" caps at post-beam connection, except as detailed differently. Provide Simpson "LBC Column Bases" at post-concrete connections, except as noted. Install all hardware per manufacturer's instructions.
31. All timber fastening items shall be equal to those manufactured by Simpson Strong-Tie. Designated fastening items shown are found in the current Simpson catalog. When fastening items other than what is shown, technical data shall be submitted for approval.
32. Double joists, headers or beams shall be nailed as follows:  
3-10d nails at 12" centers for 2 x 6 and 2 x 8 members  
4-10d nails at 12" centers for 2 x 10 and 2 x 12 members

**MASONRY TIES**

34. Install 22 ga. x 1" corrugated brick ties 3" into masonry at spacing no greater than 16" horizontal and 16" vertical, unless otherwise noted.

**MISCELLANEOUS STEEL**

35. Fitch beams (wood/steel plate composite beams) shall be constructed with 5/8" diameter bolts at 16" centers. Bolts shall be located 2 1/2" from beam edges and staggered top and bottom so that there is at least one bolt every 12". All holes shall be drilled 1/16" diameter larger than the bolt. Burning holes in the steel flitch is not permitted.
36. Steel columns shall have a 3/8" minimum steel cap plate unless noted otherwise on plans.
37. Steel columns shall have a 5/8" minimum steel base plate with a minimum of two 5/8" diameter Phillips wedge anchors (w/6 bolts) with a 1/2" embedment into solid concrete, unless noted otherwise on plans.
38. Paint all steel with one shop coat zinc chromate or red oxide primer, u.o.
39. All inlets to bear on a minimum of eight inches (8") of masonry on each side of opening.
40. Provide holes in steel beams at 16" on center, staggered-for-securing wood to steel, typical, u.o. Alternatively, wood may be attached to steel using two (2) powder driven fasteners at 16" on center. This note does not apply to flitch beams as noted above.

**CORROSION INFORMATION**

Metal connectors, anchors, and fasteners will corrode and lose load carrying capacity when installed in corrosive environments or exposed to corrosive materials. Changes in the preservative-treated treated wood industry transitioned from Chromated Copper Arsenate (CCA-C) used in residential applications to alternative replacement treatments that are generally more corrosive than CCA-C.

Due to the uncertainties in regard to the chemicals used in pressure treated wood, which are out of the specifier's control, Structural Consulting Co., Inc. recommends the use of Stainless Steel fasteners, anchors and connectors with treated wood when possible. At a minimum contractors should use Hot-Dip Galvanized (per ASTM A123 for connectors and ASTM A153 for fasteners), or mechanically galvanized fasteners (per ASTM B965, Class 55 or greater), product with the newer alternative treated woods. Due to the many variables involved, many of which are controlled by the chemical supplier and the wood treater, Structural Consulting Co., Inc. cannot make an unqualified recommendation for mechanically galvanized, or other coatings for use with treated wood. We suggest that all users obtain recommendations for mechanically galvanized, or other coatings from their treated wood suppliers.

Uncoated and painted products should not be used with treated woods. When using Stainless Steel or Hot-Dip Galvanized connectors, the connectors and fasteners should be made of the same material.

**STRAPPING SCHEDULE**

**TABLE B ROOF & FLOOR ANCHORAGE AT EXTERIOR WALLS**

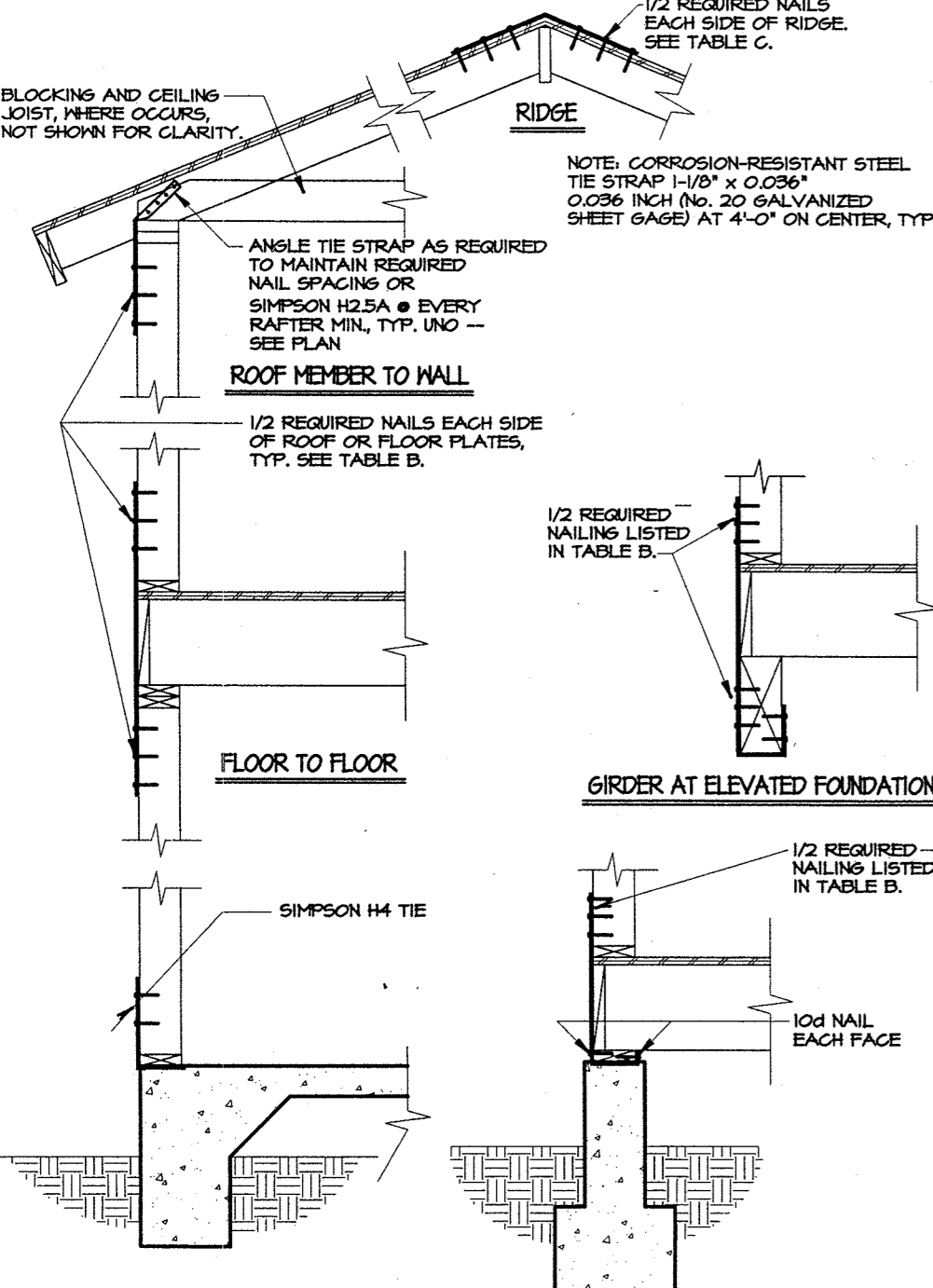
BASIC WIND SPEED (mph)	LOCATION (1)	NUMBER OF NAILS (2)		
		B	C	D
100	Roof to Wall	6-8d	8-8d	8-10d
	Floor to Foundation	4-10d	4-10d	4-10d
110	Roof to Wall	8-8d	8-10d	10-10d
	Floor to Foundation	6-10d	6-10d	8-10d
120	Roof to Wall	8-10d	10-10d	12-10d
	Floor to Foundation	6-10d	8-10d	10-10d
130	Roof to Wall	10-10d	12-10d	12-10d
	Floor to Foundation	8-10d	10-10d	10-10d

(1) For Floor-to-Foundation anchorage, see General Foundation Notes.  
(2) Number of common nails listed is total required for each strap. The tie straps shall be spaced at 48" on center along the length of the wall. The number of nails on each side of the roof or floor plate joints shall be equal. Nails shall be spaced to avoid splitting the wood. See Figure A for illustration of these tie straps.

**TABLE C RIDGE TIE STRAP NAILING (1)**

BASIC WIND SPEED (mph)	EXPOSURE	NUMBER OF NAILS (1)		
		B	C	D
100	B	6-10d	8-10d	10-10d
110	B	8-10d	10-10d	12-10d
120	B	10-10d	12-10d	14-10d
130	B	12-10d	14-10d	16-10d

(1) Number of common nails listed is total required for each strap. The tie straps shall be spaced at 48" on center along the length of the roof. The number of nails on each side of the rafter/ridge joint shall be equal. Nails shall be spaced to avoid splitting the wood. See Figure A for illustration of these tie straps.



**FIGURE A - Complete Load Path Details**

IF PLYWOOD IS INSTALLED AS INDICATED ON THE TYPICAL SHEAR WALL DETAIL, THE SPECIFIED STRAPS FROM FLOOR TO FLOOR & FROM FLOOR TO FOUNDATION ARE NOT REQUIRED AS INDICATED IN THE STRAPPING SCHEDULE.

**GENERAL NOTES - STRUCTURAL STEEL (RESIDENTIAL)**

1. Fabricator shall have an AISC quality certification in category 1.
2. All construction shall conform to the current city building code.
3. Structural Consulting Co., Inc. is not responsible for any variations in the framing plans due to contractor or architectural changes, unless approved in writing by Structural Consulting Co., Inc.
4. Structural steel shall conform with ASTM-A992 (wide flange) & ASTM-A36 and shall be detailed, fabricated, and erected in accordance to AISC "Manual of Steel Construction", thirteenth edition and supplements.
5. Pipe shall conform to ASTM-A53, grade B. Hollow Structural Section (HSS) shall conform to ASTM-A500, grade B.
6. Anchor bolt material shall conform to ASTM-A36. Threads and hex nuts per ASTM-A307. Fabricator to furnish anchor bolts and setting plan. Field to set anchor bolts according to fabricator's bolt setting plan.
7. Field connections are fastened with 3/4" diameter ASTM-A325N bolts, unless noted. All A-325 bolts are to be fastened by "turn of nut" method.
8. Beam connection capacity shall be determined by AISC-M, part 2 "Uniform Load Constants for Beams Laterally Supported", unless noted.
9. Frame beam connections shall be determined by AISC-M, part 4, Table III (Weld A), unless otherwise noted.
10. Beams framing to pipe or HSS columns, use shop welded connection plate to columns and 2 vertical rows of holes for beam web connections, unless noted. Shop welds shall be determined by AISC-M, part 4, Table XIX, unless noted. Holes for bolts in beams shall be determined by AISC-M, part 4, Table XI, unless noted.
11. Length of beam connection angles or plates shall be at least 1/2 the beam "I" dimension.
12. Standard drilled holes for field connections, unless noted. Burned holes are not allowed.
13. Connections shall have a minimum of 3 bolts.
14. Connection plates to be a minimum of 3/8" thick, unless noted.
15. All re-entrant bolts to have a minimum of 1 1/2" radius.

**SHOP DRAWINGS**

16. Structural Consulting Co., Inc.'s approval of shop drawings does not constitute this company's acceptance or responsibility for the design adequacy of any connections unless specifically noted on shop drawings to verify a particular connection. It is the fabricator's responsibility to assure all connections are made according to AISC specifications.
17. Submit 3 copies of checked shop drawings for Structural Consulting Co., Inc.'s approval before fabrication. Unchecked shop drawings are subject to be returned for approval resubmittal.

**MISCELLANEOUS**

18. All welding shall conform to AWS code. Welding electrodes to be E70.
19. Paint steel with 1 shop coat zinc chromate or red oxide primer, unless noted.
20. All galvanized areas affected by field burning, welding, drilling, etc., shall be cleaned and painted with carboc zinc #1 primer or equal.
21. See architect's drawings for location and size of loose lites, sill angles, and partition header angles.
22. Splicing of members prohibited without prior approval in writing by Structural Consulting Co., Inc.
23. Provide holes for attaching wood nailers and/or blocking at 16" on center, staggered, where applicable.
24. All well & high strength bolting approval (if required) shall be performed by a certified third party inspector.

THIS CONSTRUCTION DOCUMENT IS VALID FOR ONE YEAR FROM THE DATE SHOWN ON THE ENGINEERS SEAL

DO NOT SCALE DRAWINGS

THE ADDITION OF THIS PROJECT HAS BEEN DESIGNED TO MEET 110mph BASIC WIND SPEED CODE REQUIREMENTS

NOTE -  
\* All existing conditions will require field verification. Any discrepancies between engineer's drawings and field conditions shall be brought to the attention of the engineer, in writing, for corrective action.  
\* Any discrepancies between the final architectural drawings and the provided structural drawings shall not be the responsibility of Structural Consulting Co., Inc.

Site observations are required for all pier work, foundation make-up and completed framing. STRUCTURAL CONSULTING CO., INC. should be retained to provide this service. The use of these drawings signifies the owner/contractor's agreement that STRUCTURAL CONSULTING CO., INC. shall not be liable for any construction that has not been observed and approved in writing by STRUCTURAL CONSULTING CO., INC. In the absence of such site observation and approval, STRUCTURAL CONSULTING CO., INC. makes no representation of suitability, express or implied, with reference to this drawing. Owner/contractor agrees to indemnify and hold harmless STRUCTURAL CONSULTING CO., INC. for all damages, costs and attorney's fees that STRUCTURAL CONSULTING CO., INC. may incur as a result of any litigation arising out of this project if STRUCTURAL CONSULTING CO., INC. has not reviewed the construction work and approved it, in choosing to build without this site observation and approval, owner/contractor agrees that he/she/they desire to limit expenses and liability have made an informed business decision to be totally responsible for said construction. Note that "approval/approves" as used in the note, shall not be construed as a warranty of any sort but is defined as "to be in general conformity with STRUCTURAL CONSULTING CO., INC. plans and specifications."

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