

FOUNDATION FOOTING AND WALL DESIGN - REMEDIATION

This concrete foundation design is prepared for a single-owner occupied, detached, inhabited, private residence in San Jose, CA. The foundation design is to specify materials and methods for replacement of 4 existing foundation sections, or segments, of the following physical configurations and vertical lengths approximately: 2 straight lengths of 4' and 12', both running to corners; 2 corner sections with legs of 3' and 8' and of 5'-6" and 6'. These designs assume: that the overlying structure is not taller than two stories and is of a sound and suitable wood frame; that the site is level; that the foundation wall replacement segments are neither arched nor stepped nor sloped; that no foundation wall section replaced will intersect with existing or new grade beams or other, herewith unspecified existing or new foundation structures; that the exterior clad is not masonry brick or stone; that interior to the foundation is a crawlspace; that foundation replacement does not involve any perimeter to a garage; that a related demolition plan is the work of others; that workmanlike bracing and truing relative to remediation is the work of others.

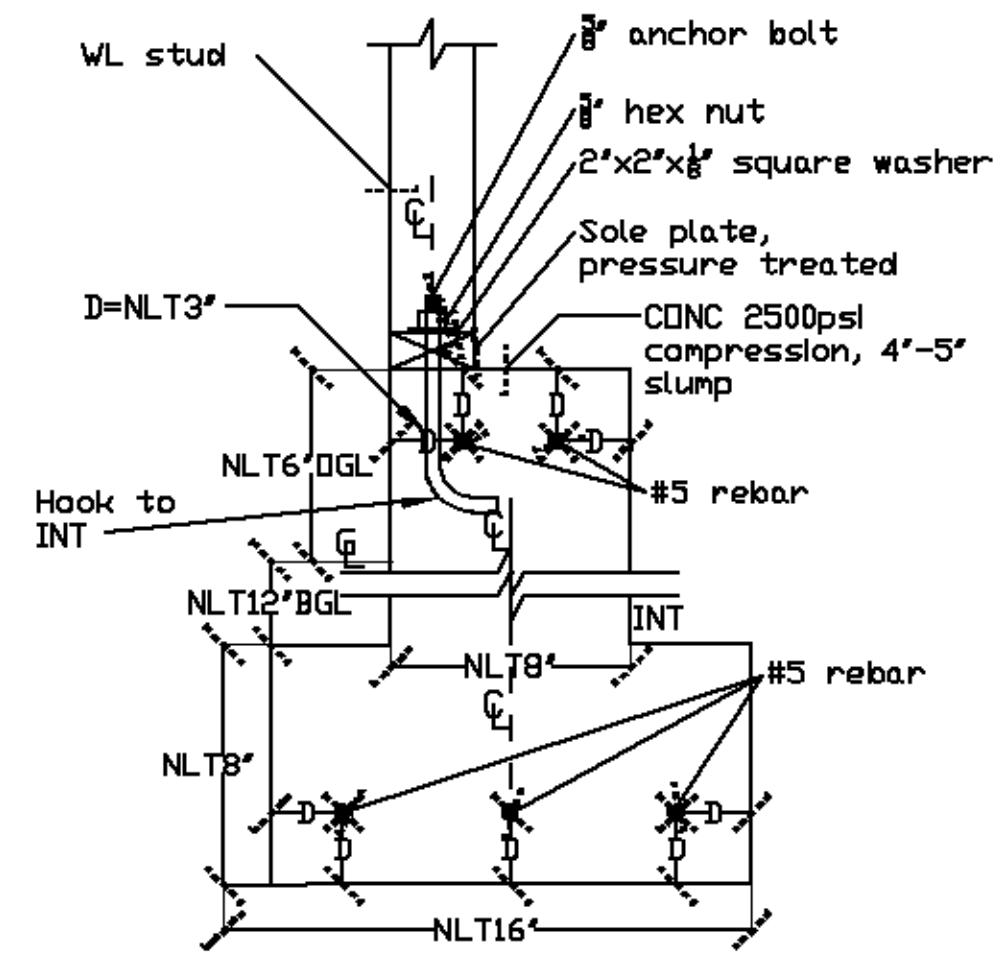
FDN NOTES

General notes: 1. The FDN design specified hereinafter shall identify minimums; 2. Other design conditions, such as, soil conditions and surface drainage shall not be within the scope of this design plan; 3. All permanent fasteners shall be corrosion resistant; 4. See Drawings 1-3, 2-3 and 1-5 for FDN STRC, subgrade, and RENF, respectively; 5. Rebar RENF shall be #5 overall; 6. Rebar or other metal part or piece within the FDN FTG and WL shall be not physically exposed to earth, air, or water upon completion of construction; 7. Rebar or other metal part or piece within the FDN FTG and WL shall be covered by NLT 3" of CONC; 8. CONC shall be rated at 2500# psi compression and may be amended with fiber at NGT 1 1/2#s/cy, with air entrainment at 3%-6% for FTGs and 5%-8% for WLS, and otherwise and in all cases only w/ mutual agreement of the GC and the mixer or dispatcher.

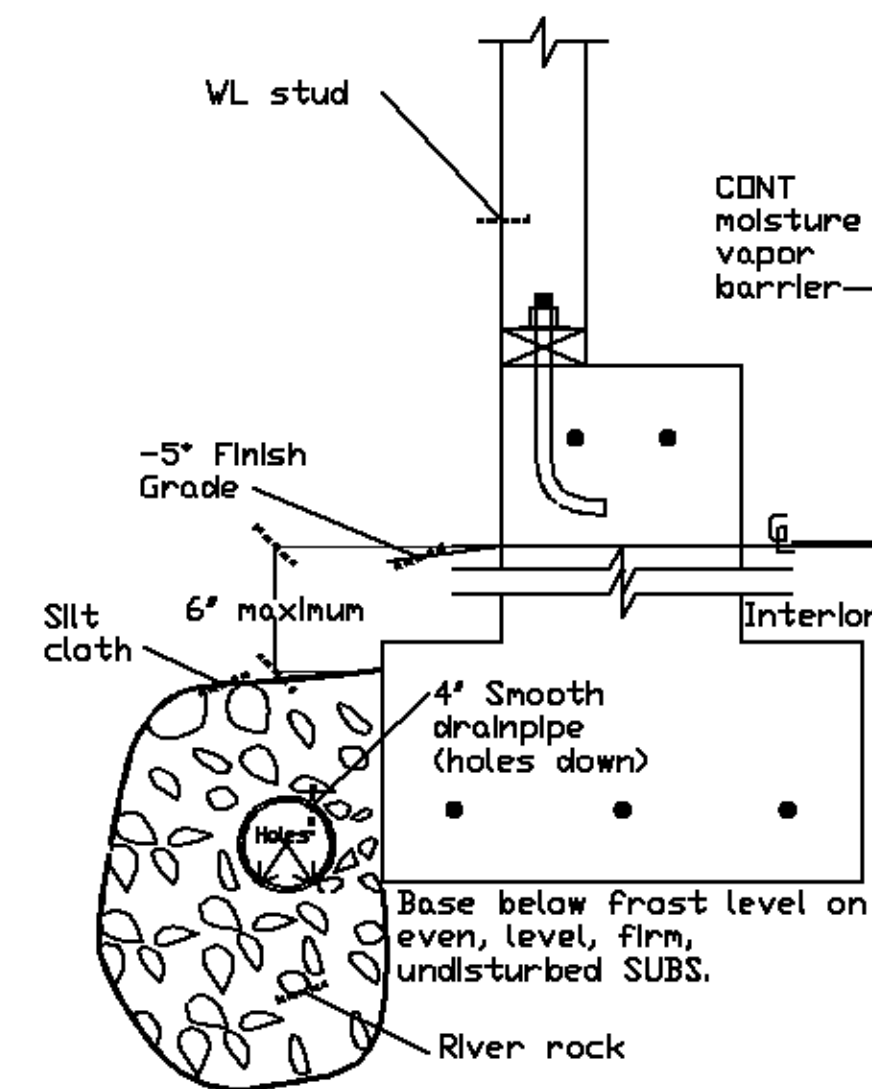
Minimum FDN Requirements:

1. FTGs and WLS and all other CONC FDN elements shall be applied in the field in a single, or monolithic, pour per replacement segment.
2. FTGs shall bear on even, level, firm, undisturbed SUBS.
3. FTGs shall be set below the frost line.
4. A moisture impermeable and vapor impermeable CNT barrier of 6+ mil polyethylene or copolymer or equivalent shall be applied to the INT of the crawl space overall tight to the INT WLS and properly sealed at the laps.
5. All rebar shall be covered in any direction by NLT 3" of CONC.
6. As CNT VERT pins on NGT 4' centers, rebar shall extend to within 3" of EXT WL TDF and FTG BDF.
7. Rebar in FTGs shall number NLT 3 CNT, HDR runs evenly spaced.
8. Rebar in WLS shall number NLT 2 CNT, HDR runs evenly spaced.
9. Rebar as tie bars, or dowels, to counteract shear (not tension) shall be applied at NGT 12" centers on the VERT CL of the new FDN WL and FTG; at 8" from new FDN segment WL TDF and FTG BDF; with meticulously cleared and cleaned bores in EXG of 3/4" DIA; with embed in EXG and extension into new of 4 1/2" APX each way; with Simpson Adhesive Anchor-ET10 or -ET22 Epoxy or equivalent to adhere in EXG; with adhesive applied strictly to manufacturer's specifications and instructions. No expansion, wedge or other driven or thrusting ties shall be applied into EXG FDN WL or FTG.
10. For wood stud (or cripple) WL anchorage, anchor bolts shall be placed in WLS TDF with hooks pointed to the INT.
11. Anchor bolts shall be a minimum of 3/8" DIA and shall be embedded 6"-7" on the VERT.
12. Anchor bolts shall be spaced at NGT 4' OC and NGT 9' from the ends of each replacement segment or match EXG work.
13. A 2"x2"x1/8" (square) washer and suitable hex nut shall be provided for each anchor bolt.
14. Where holddown connectors are required at the EXT sides of all EXT and INT CNRs, anchor bolts may be omitted if connector's holddown capacity is NLT 4800#s.
15. Pipe and other conduits through CONC shall be insulated with appropriate material at NLT 1" CNT thickness.
16. CONC shall cure wet NLT 7 days CNT.
17. Closed-cell rigid insulation may be applied.
18. Termite or other shield may be required to cap FDN WL.
19. A CNT sill sealer shall be applied to WLS TDF.
20. FTG drainage shall be by 4" smooth, perforated pipe - holes down - at EXT perimeter of FTG base, covered by 3/4" river rock to 12" above, outside, and below pipe which rock shall be wrapped in silt cloth. Above pipe, soil coverage over silt cloth shall be NGT 6" on the VERT.
21. Additional FTG drainage may be required by local code or local conditions.
22. FTG drain shall slope at NLT 1/8"1' to light, storm drain, or drywell.
23. EXT grading shall be down and away, evenly and without physical interruption from FDN at 1"12" for NLT 10' in all directions straight out from FDN.
24. FTG drain shall be connected only to FTG drain and not to sanitary or runoff drainage systems.
25. Rebar laps along WL lengths (i.e., not at CNRs and intersections) shall be staggered, and shall be lapped 24".

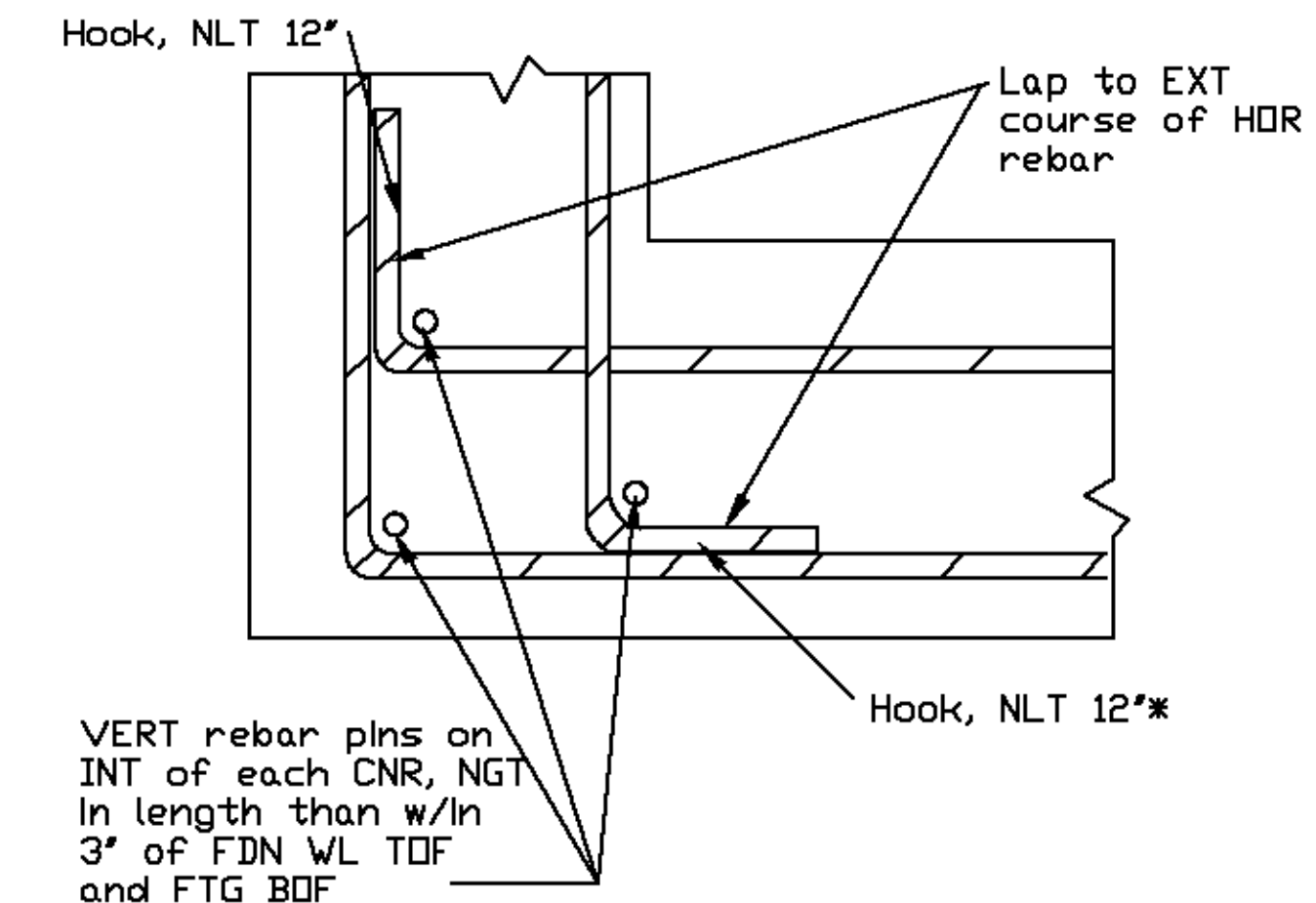
Drawing 1. CONC CONT STEM WL FDN, SECTION - MINIMUM STRUCTURE. NTS.



Drawing 2. CONC CONT STEM WL FDN, SECTION - MINIMUM SUBGRADE. NTS.



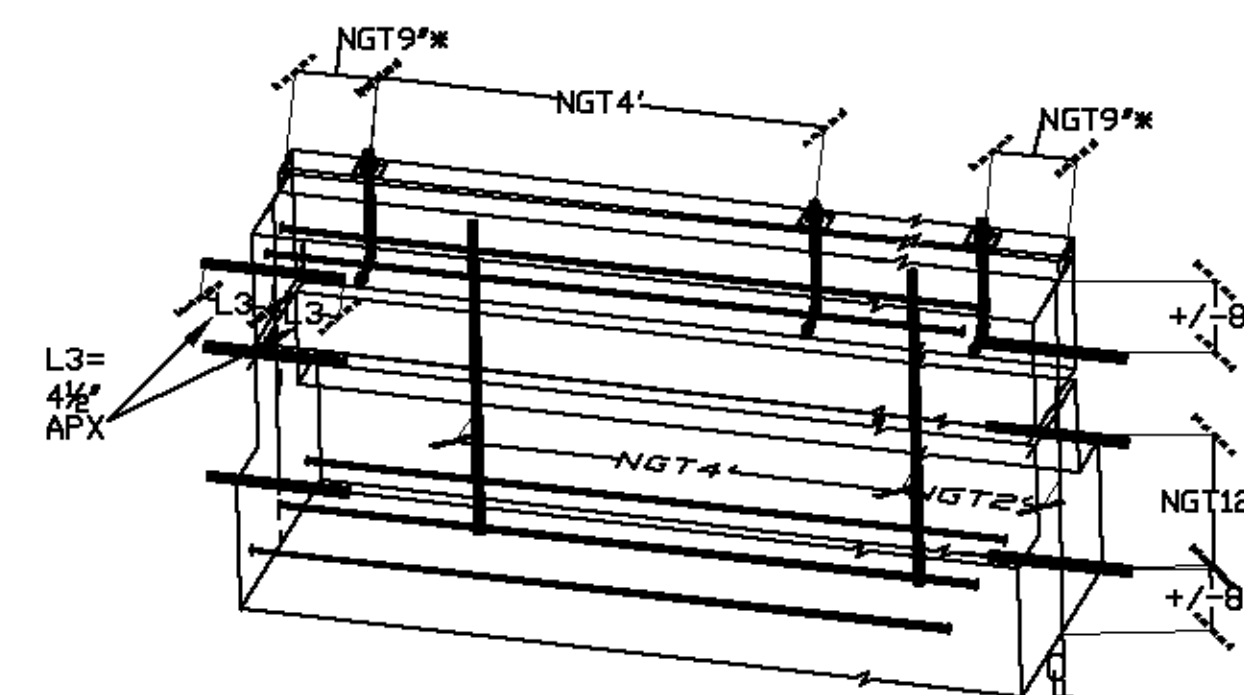
Drawing 3. REBAR LAPS AND PINS AT CNRS, PLAN VIEW. NTS.



VERT rebar pins on INT of each CNR, NGT in length than w/in 3" of FDN WL TDF and FTG BDF

* This spec is for new CNRs. For EXG CNRs RENF replacement, hook shall be set in EXG as specified in Drawing 4 herein under in respect to rebar size, spacing, CONC coverage, boring DIA, D, adhesive, and application.

Drawing 4. FDN WL SEGMENT REPLACEMENT, ISOMETRIC PERSPECTIVE. NTS.



* Or match EXG work.

Note: VERT RENF shall be NLT #5 rebar spaced at NGT 2' from butts to EXG and CNRs and NGT 4' otherwise, as in NOTE 6.
Note: Boring for dowels into EXG shall be at 3/4" DIA and adhesive shall be Simpson Strong-Tie Adhesive Anchor-ET10 or -ET22 Epoxy applied as per manufacturer's instructions, as in NOTE 9.
Note: RENF shall be CNT covered by NLT 3" of CONC.

PASSIVE VENTING - CRAWL SPACE

1. Venting shall be NLT 1 sf 'net free' vent surface area to 150 sf of vented surface area.
2. Net free vent area shall be the cumulative surface area of vent openings adjusted by these multiplicative factors: 1/2"-3/8" screen alone or louvers alone=1.25; 1/2" screen=2.00; louvers & 1/2"-3/8" screen=2.25; louvers and 1/2" screen=3.00.
3. All reasonable effort shall be made to cross-ventilate each vented area.
4. Ventilation shall not be a substitute for mitigations of appropriate CNT moisture, vapor, and thermal insulation and radiant barriers; EXT covering color; inadequate drainage for runoff, FTGs, or sanitation; poorly graded site; unusual, pervasive, or recurring moisture, vapor, or thermal conditions.
5. Special consideration shall be made for FDN ventilation:
 - a) there shall be a CNT, INT moisture and vapor barrier at grade;
 - b) each FDN face greater than 3' in length shall have a FDN vent;
 - c) each vent shall be as high on the FDN as possible;
 - d) each vent shall be within 3' of a CNR.
6. It shall be understood that enclosing any water feature bigger than a soap tureen or tabletop water fountain requires the predicate direction of an INT air and moisture control professional organization, for example, Dectran, Inc.

Key:
BGL = Below grade level
BDF = Bottom DF Face
CONC = Concrete
CNT = Continuous
CL = Centerline
CNR = CNR
D = Depth
EQ = Equal
EXG = Existing
EXT = Exterior
FDN = FDN
FTG = Footing
GL = Grade Level
HDR = Horizontal
INT = Interior
NGT = Not Greater Than
NLT = Not Less Than
NTS = Not To Scale
DC = On Center
DGL = Over Grade Level
Level
RENF = Reinforcement
STRC = Structure
SUBS = Substrate
TDF = Top DF Face
VERT = Vertical
Wall = WL

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FOUNDATION FOOTING AND WALL DESIGN

On: November 22, 2002
For: A client in San Jose, CA
By: Before The Architect,
http://www.beforethearchitect.com

SHEET 1

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