

HOUSE PLAN DESIGN CO./K. T. PANNELL
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REAR ELEVATION
 SCALE : 1/4" = 1'-0"

CRAWL SPACE VENTS/ACCESS DOOR TO BE DETERMINED IN SIZE AND LOCATION ON SITE PER BUILDING CODE REQUIREMENTS

CRAWL SPACE ACCESS DOOR



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

Homes Michael Ryan
 P.O. Box 481452
 Charlotte, NC 28262
 843-274-8800

MICHAEL RYAN HOMES
THE HAMPTON ELEVATIONS

Drawn By: K. PANNELL
 Date: 12-16-2017
 REV: 2-17-2019
 SHEET SIZE: 24 X 36
 Sheet

A-1

DESIGN LOADS:

- Design loads are all dead loads plus:
 - Sleeping Rooms.....30 PSF
 - All other floors.....40 PSF
 - Balconies.....60 PSF
 - Attic floor live loading with the following:
 - Area accessible by stairs.....30 PSF
 - Roof slopes > 3:12.....20 PSF
 - Roof slopes < 3:12.....10 PSF
 - Roof live load.....20 PSF or as required by code
 - Wind load.....90 MPH or as required by code
 - Snow load.....20 PSF or as required by code
- All designs are in accordance with North Carolina State Building Code 2012 Edition. Refer to the relevant Code for any additional information not covered in these notes or the design.
- Engineering design is for structural information only. Engineer of Record does not accept responsibility for dimensional errors, architectural errors, detailing of the waterproofing, plumbing, electrical or mechanical information or any part of the plan not relevant to the structural information.

RESIDENTIAL FOUNDATIONS:

- All perimeter Slab foundations to be minimum 16" wide.
- Interior thickened slabs which occur in basements and "slab on grade" floors are 10" deep by 16" wide unless noted otherwise. Thickened footings are required under all bearing walls.
- Shallow foundations are designed for an assumed soil bearing capacity of 2000 psf. The contractor is responsible for notifying the Engineer of Record if any soils are found to be unsuitable for this bearing capacity. The contractor is responsible for obtaining soil testing to ensure that the bearing capacity of the soil meets or exceeds this value. All fill is to be compacted to 95% density as measured by the Standard Proctor Test (ASTM D-1557)
- All soil and fill under floors and/or within or under buildings shall have pre-construction soil treatment for protection against termites. Certification of Compliance shall be issued to the Building Department by a licensed pest control company.
- All foundation excavations shall be neat, straight, and level in the proper elevations to receive the concrete. Excessive variations in the dimensions of footings of slabs will not be permitted. Reinforcing steel and mesh shall be accurately placed and supported to maintain their position during the concrete pouring. Edge forms shall be used for concrete that will be exposed.
- All slab penetration are to be the responsibility of the contractor. Penetration interfering with reinforcing shall be approved by the Engineer of Record prior to the placement of concrete.
- Elevation difference between the bottom of adjacent footings shall be less than their horizontal distance less on foot. Differential heights between footings can become excessive usually where a pier footing in a crawlspace or garage footing is next to a basement wall footing.
- Termite shield required at the top of all piers.

FRAMING CONSTRUCTION — OTHER THAN ROOF:

- See Table R602.3(1) of the Code for a fastener schedule for structural members.
- Wood beams shall be supported by metal hangers of adequate capacity when framing into beams or ledgers. The allowable load capacity of the hanger shall be equal to or greater than the load specified on the plan. Where no load is specified, the lightest available hanger suitable to transfer live and dead loads for the span of the member is acceptable.
- Crawl girders and band with 4" curtain wall and pier construction wall to be (2) 2x10 Southern Yellow Pine #2 unless noted otherwise. Maximum clear spans are to be 4'-8" (6'-0" o.c. spacing of piers)

*To avoid objectionable cracking in finished hardwood floors over any girders, use the following procedure:

- Nailing
 - All floor joists must be toenailed to their support girders with a minimum of (3) 8d nails at each end. Larger nails will split and render the toenail ineffective. No end nailing through the girder or band is permitted.
 - If dropped girders are used, end lap all joints and side nail each with minimum of (3) 16d nails at each end of each joist. Ledger strips should be spaced 3' apart and nailed with (3) 16d nails at each brace point.
 - Nail multiple member built-up girders with two rows of 16d nails staggered at 32" o.c. 2" down from the top and 2" up from the bottom with (3) 16d nails at each end of each piece in the joist through the members making up the multiple girder.
 - This nailing pattern will ensure a tight brace so that when the framing shrinks during the first heating season, the shrinkage will be uniformly distributed over the entire floor. If the girder nailing pattern is omitted, then the shrinkage will accumulate over the girders and an objectionable crack will develop in the finished hardwood floor over the girder line.
- At all girders where the joints change direction, install bridging at 16" o.c. for a minimum of six joists spacings beyond any joint direction change. This will insure shrinkage distribution over the floor and not let it accumulate at the girder.

- All other lumber may be Spruce #2 unless noted otherwise.
- Steel beams must have (5) 2x4 stud jacks under each end support unless noted otherwise.
- Lam beams must have (3) 2x4 stud jacks under each end support unless noted otherwise.
- Masonry lintels:
 - For spans up to 6': Use 3 1/2"x 3 1/2"x 1/4" steel angle
 - For spans up to 6' to 10': Use 5"x 3 1/2"x 5/16" steel angle
 - For spans up to 9' to 18': Use pair of 9 gauge wires in each of the first 3 courses of brick on a 5"x 3 1/2"x 5/16" steel angle. Lap of 9 gauge wire splices a minimum of 12" and extend wires a minimum of 12" into jambs. Temporarily support the steel angles before laying masonry. The shoring may be removed five days following the installation of masonry.
- When structural steel beams with bottom plates are used to support masonry the bottom plate must extend the full length of the steel beam. This provides support to the ends of the plate by bearing on the adjacent masonry jambs. The beam should be temporarily shored prior to laying the masonry. The shoring may be removed five days following the installation of masonry.
- All brick veneer over lower roofs (brick chimneys) must have structural angle lag screwed to an adjacent stud wall in accordance with detail, with steel brick stops to prevent sliding of brick.
- All rafter braces must have (two) studs from plate through all floors to the foundation or supporting beam below. No braces shall be attached to top plate without studs directly under them.
- Where partitions fall between floor joist or trusses, 2x4 ladders at 16" o.c. must be placed perpendicular to the trusses to support the plywood decking. The ladders shall be supported with a Simpson "C" clip or similar device.
- All wood I-joist and open joist must be braced in accordance with the manufacturers directions plus details shown on plans. Load-bearing partitions, jacks, beams and column supports must be solid blocked through floor. Trusses and plywood shall not carry concentrated point loads. I-joist material should not be used as blocking under concentrated point loads. All point loads must be carried to foundations with adequate blocking and/or beams. Joist to be "Squash blocked" or "Filler Blocking" per WFO recommendation over interior bearing points, at ends and at walls above.
- All steel columns shall bear on concrete, masonry, or steel only. Beams that bear on top of steel columns shall be welded to the column. Where steel columns bear on concrete or masonry unless otherwise noted, a 5/8" x 6 1/2" x 6 1/2" base plate shall be used to spread the column load across the bearing surface. Base plates shall be bolted with (4) 1/2" dia bolts or expansion bolts to concrete or masonry.

- Unless noted otherwise on the plans, all exterior facing stud walls taller than 10' shall be constructed as follows:
 - Walls 10' to 12' high: Balloon frame 2x4 studs at 12" o.c. with 1/2" OSB sheathing and (3) king studs on each side of each opening nailed securely to the header.
 - Walls 12' to 20' high: Balloon frame 2x4 studs at 16" o.c. with 1/2" OSB sheathing required for wall heights > 17'. Provide (2) 1 3/4" x 5 1/4" LVL king studs on each side of opening 3' to 6' wide and (2) 2x6 king studs for openings less than 3' wide. Fasten king studs securely to all headers with a minimum of (12) 16d nails or (4) 3/8" dia lag screws embedded a minimum of 4" into the header.
 - Gable end walls of rooms with vaulted ceiling joists: Balloon frame wall and provide triple king studs on each side of openings, nailed securely to the header.
 - Two-story four walls less than 9' wide: Extend 3 1/2" x 9 1/4" Parallon PSL member with (3) 2x4 flat plates across the entire wall. Locate the beam near mid-height of the wall or at near first floor top plate.

NOTE: SEE SPECIAL DESIGN OR ENGINEER FOR WALLS TALLER THAN 20' WHEN OPENINGS IN HIGH WALLS EXCEED IN WIDTH OR IF THE WALL CANNOT BE CONSTRUCTED USING ANY OF THE METHODS MENTIONED.

- Continuous 2x6 bridging shall be nailed to diagonal or vertical web members of all open-web floors trusses over 10' long. They shall be installed near mid-span as a load distribution member. If the 2x6 bridging is not continuous, lap ends of bridging on truss space.
- Lower stud walls for bridging over two stories, but not more than three stories:
 - Interior walls
 - Load bearing.....2x4 @ 12" O.C.
 - Non load bearing.....2x4 @ 16" O.C.
 - Exterior walls
 - Use 2x6 @ 16" O.C. with 1/2" x 4' x 8' plywood sheathing at all corners and every 25'; or use 2x4 @ 12" O.C. w/ 1/2" plywood sheathing solid on walls.
 - Provide purlins at all walls at wall mid-height (min)

- Headers shall be as shown unless noted differently on plans:
 - Interior & Exterior
 - Spans up to 2'-6".....(2) 2x6's
 - Spans up to 2'-7" to 3'-5".....(2) 2x8's
 - Spans up to 3'-6" to 6'-6".....(2) 2x10's
 - Spans 6'-6" to or more.....See Plan
 - Headers less than 5' wide shall have a minimum of (2) king studs on each side unless noted otherwise. Windows 3'-0" or less to have (1) king stud on each side unless noted otherwise. Headers wider than 5' shall have a minimum of (3) king studs on each side unless noted otherwise.
- When ceiling joist are parallel to an exterior wall, tie the rafters near the top plate to the ceiling joists with a 2x6 strongback a minimum of 6' long at 4' o.c. across the top of the ceiling joists. 2x4 rafter ties shall be fastened to the side of the rafter and the strongback.
- At all exterior diagonal wall panels, each panel shall be nailed to each adjacent panel with (5) 16d nails or tied together with metal strapping nailed at four locations between floors with a minimum of (2) 16d nails into each panel at each strap. This will avoid vertical cracking in panel joints due to horizontal oscillating panels.
- At all stairs, every stud at each stringer must be nailed to each stringer with a minimum of (2) 16d nails. This will avoid cracking between wallboard and top of base moldings due to vertical oscillation of stair stringers.
- Roof trusses that have non-bearing partitions passing under them should be nailed to the partition plates to avoid ceiling-wall cracking.
- Roof trusses close to the side walls framing and used as dead wood for sheetrock should be nailed to the wall framing to prevent ceiling-wall cracking
- All structural framing lumber exposed directly to the weather or bearing directly on exterior masonry or concrete shall be treated, wood in contact with the ground is to be ground contact approved. All wood exposed directly to the weather shall be protected to prevent the occurrence of rot.
- NOTE: ALL POINT LOADS FROM ROOF BRACES, JACK STUDS, BEAM SUPPORTS—WHETHER WOOD OR STEEL—SHALL BEAR ON SHEATHING ALONE. BLOCKING EQUAL TO OR BETTER THAN THE POINT LOAD SUPPORT ABOVE MUST BE CARRIED THROUGH ALL CONSTRUCTION TO THE FOUNDATION.
- Unless otherwise detailed, all stick-built "false chimneys" shall be constructed with 2x4 studs at 12" o.c. balloon framed from attic ceiling or floor. Fasten 15/32" CDX plywood on all sides of the chimney along the full length of the studs. Fasten each stud to the supporting beam or ceiling joist with a 1 1/2" x 24", 18 gauge metal strap, or a similar connector.

ROOF CONSTRUCTION

- Rafters shall be 2x6 @ 16" o.c. Spruce pine fir #2 for shingles except as noted. They are to be cut into hips, ridges, etc., unless noted otherwise.
 - Color ties shall be 2x6 @ 48" o.c. at all ridges unless noted otherwise and located a nominal 3'-0" below the ridge. Vaulted ceilings require special collar tie or ridge beam details. See the end of Table R602.5 in the Code unless otherwise noted detailed on the plan.
 - A minimum of three color ties shall be used at all ridges even if two ties must be put on one set of rafters.
 - All hips and ridges are a size larger than rafters unless noted otherwise.
 - All hogs on ceiling joists or rafters are 12" long 2x6 unless noted otherwise. Rafters may be spaced over hogs. Splice rafter hogs only at a roof brace.
 - Gable end framing must be braced parallel to ridges with a minimum of 2x6 diag. brace at 6' o.c. along the gable wall to interior ceiling joists. Braces to be on 2x6 hogs and to the gable wall at approximately 45 degrees. Other bracing may be used with the approval of the Engineer of Record.
 - Ceiling joist when erected parallel to rafters must be staggered to rafters and nailed with (3) 16d nails at each rafter. If a kneewall is used and ceiling joists cannot touch rafters, then rafters must be tied to the ceiling joists using 2x4 or 1x6 rafter tie spaced no more than 4' o.c.
- Roof Plan Legend**
- Indicates location of roof brace point at rafter level.
 - Arrow away from the brace point indicates direction of roof brace to partition, beam, or other brace point below.
 - Arrow into the brace point indicates a vertical or almost vertical roof brace to partition, beam, or other brace point below.
- All roof braces are 2-2x4 nailed w/ 16 penny nail at 9' o.c. vertically from top to bottom. Braces longer than 10' must be braced horizontally in two directions at mid-height.
- Maximum spacing of roof braces is to be as follows:
- For 2x6 Hog.....6'-0" o.c.
 - For 2x8 Hog.....7'-6" o.c.

CONCRETE GENERAL NOTES:

- Except where otherwise noted, for all concrete, the proportions of cement, aggregate, and water to attain adequate plasticity and compressive strength shall be in accordance with ACI 318 and ASTM C94 requirements. Pumping of concrete will be permitted only with the Engineer of Records approval of proposed concrete mix and method of pumping. Concrete shall be rapidly mixed from the mixer to forms and deposited as neatly as possible to its final position to avoid segregation due to rehandling. Concrete to be spaded and worked by hand and vibrated to assure close contact with all surfaces of forms and reinforcing steel and leveled off at proper grade to receive finish. All concrete shall be placed upon clean, damp surfaces. Vibrators shall be applied directly to the concrete and shall be sufficient to cause flow of settlement but not long enough to cause segregation of the mix.
- Construction joints shall be located in accordance with ACI 301. All reinforcing steel shall be continuous across joints. In slabs on grade, sawn construction joints shall not be over 20' center to center each way. Joints shall be sawn a depth of (1/3) one-third of the slab thickness. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling. Fill the saw cuts with approved joint filler after the concrete is cured.
- Concrete, when deposited, shall have a temperature not below 50 degrees F and not above 90 degrees F. The methods and recommended practices as described in ACI 306 shall be followed for cold weather concreting and ACI 305 for hot weather concreting.
- Freshly placed concrete shall be protected from premature drying by one of the following:
 - Fonding or continuous sprinkling.
 - Absorbent mat or fabric kept continuously wet.
 - Waterproof paper conforming to ASTM C171.
 - Application of an approved chemical curing compound.

The curing shall continue until the cumulative number of days when the ambient temperature above 50 degrees F has totaled seven. During curing the concrete shall be protected from any mechanical injury, load stresses shock, vibration, or damage to finished surfaces.

Reinforcing steel bars shall be deformed in accordance with ASTM A305 and or A408 and the following ASTM A615-78 grade 60 steel. Welded wire fabric reinforcing to be ASTM A185 steel wire. Lap welded wire fabric. Accessories shall conform to the CRSI "Manual of Standard Practice." The following minimum concrete cover shall be provided over reinforcing bars:

- Exposed to Earth.....3"
- Exposed to Weather.....1 1/2"
- Slabs not Exposed to Weather.....3/4"
- Beams and Columns.....1 1/2"

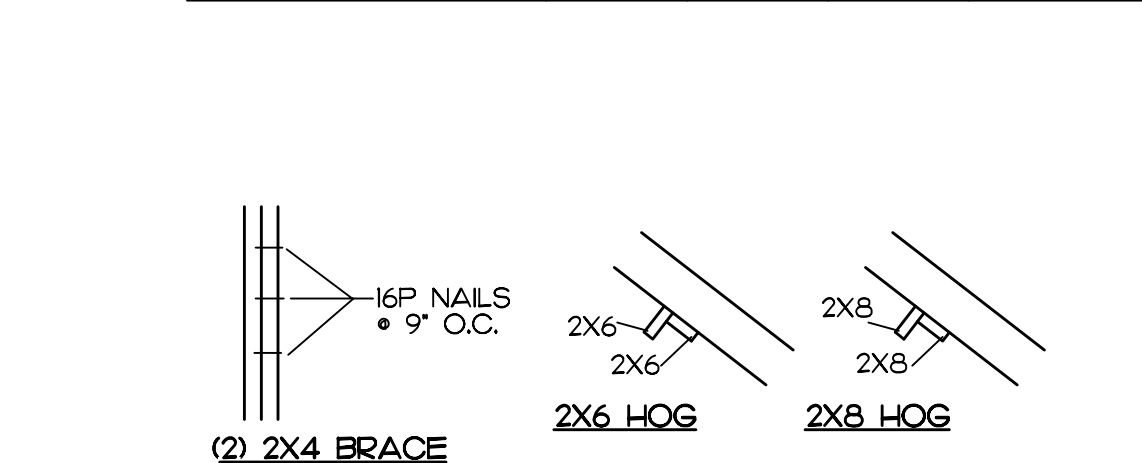
LUMBER GENERAL NOTES:

- All common framing lumber is to meet the following minimum specs at 19% moisture content.

MATERIAL	Fb (psi)	Ft (psi)	Fc (psi) (Perp.)	E (psi)
#2 Spruce Pine Fir	775	350	335	1,100,000
Southern Yellow Pine	1150	600	480	1,600,000

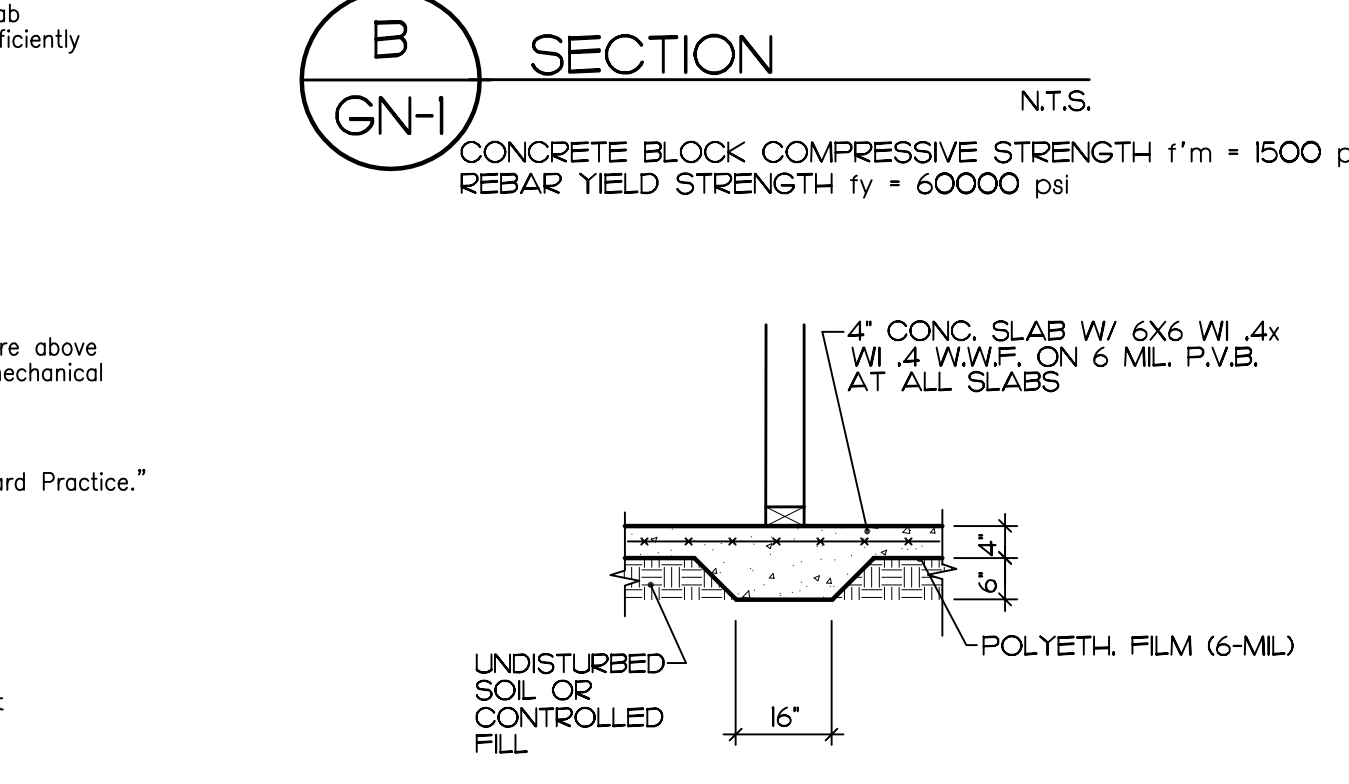
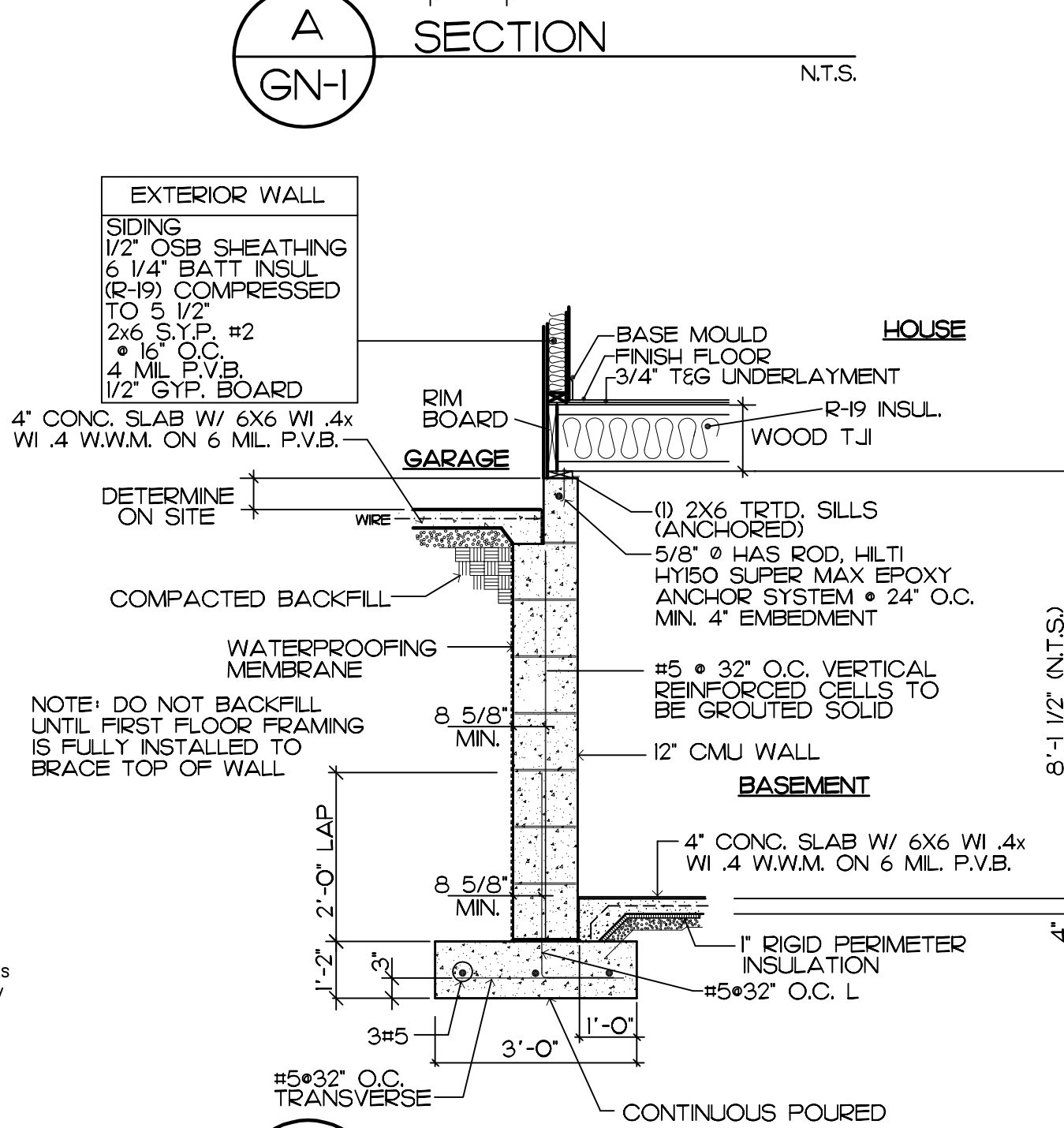
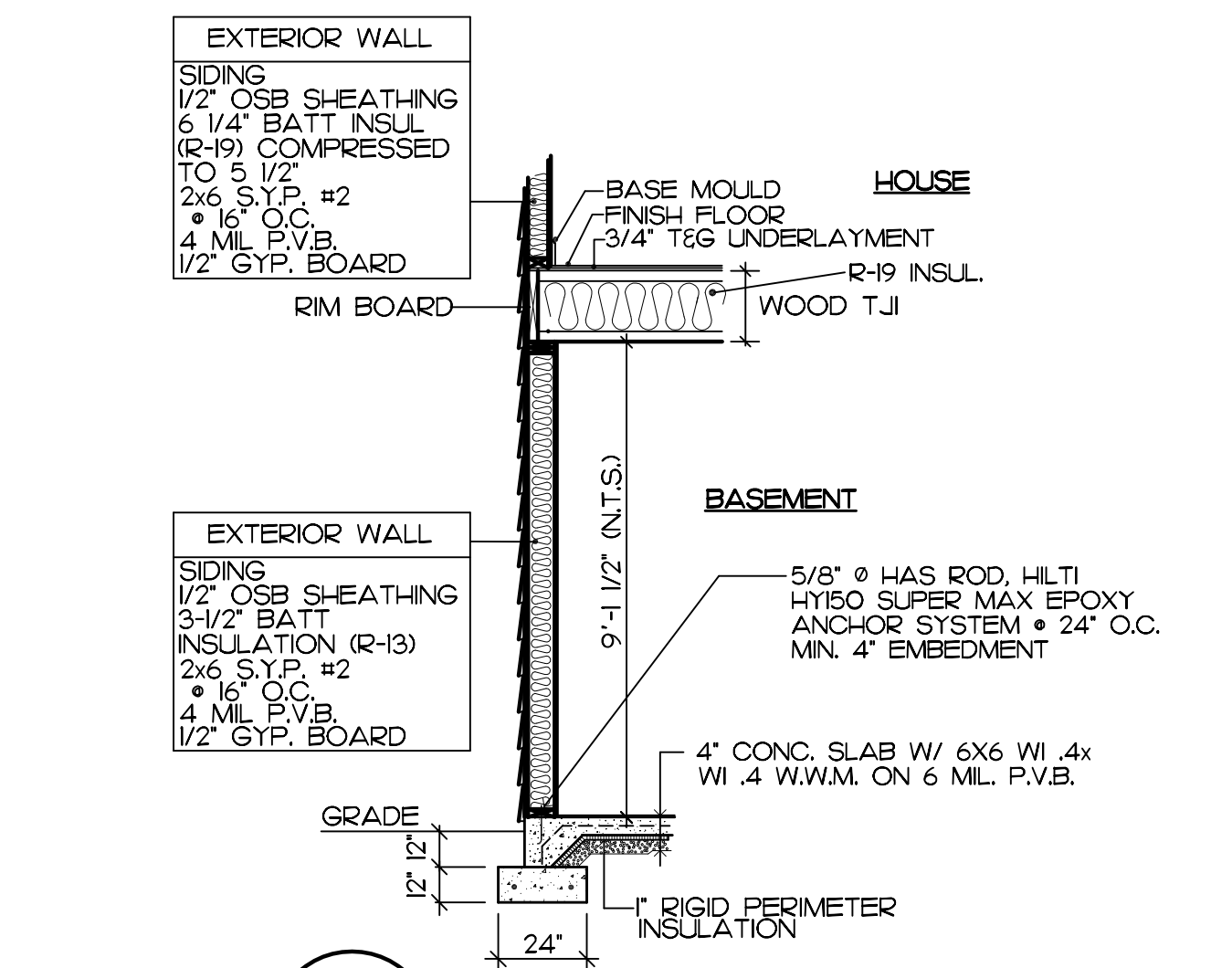
- All Structural Composite Lumber (LVL) to meet the follow minimum specs.

MATERIAL	Fb (psi)	Ft (psi)	Fc (psi) (Perp.)	E (psi)
Microclaim LVL (Weyerhaeuser)	2600	1555	750	2,000,000

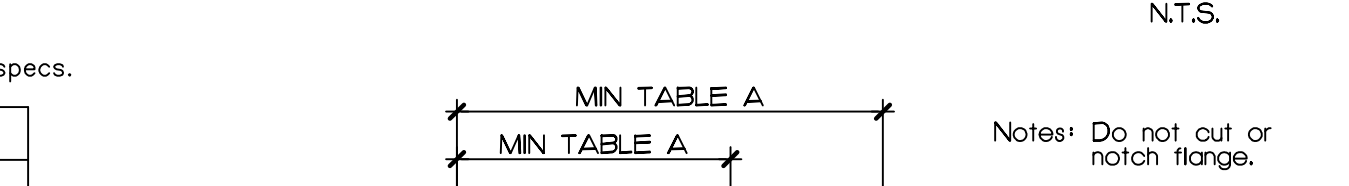


DETAILS

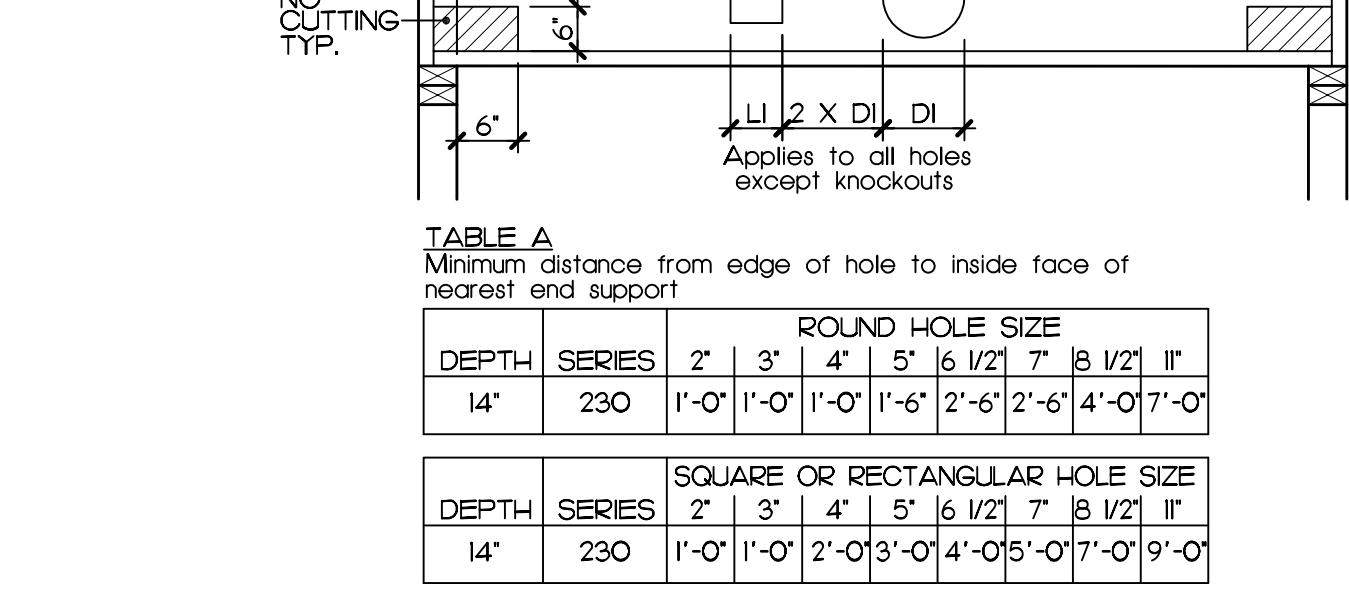
- Interior walls
 - Load bearing.....2x4 @ 12" O.C.
 - Non load bearing.....2x4 @ 16" O.C.
- Exterior walls
 - Use 2x6 @ 16" O.C. with 1/2" x 4' x 8' plywood sheathing at all corners and every 25'; or use 2x4 @ 12" O.C. w/ 1/2" plywood sheathing solid on walls.
 - Provide purlins at all walls at wall mid-height (min)



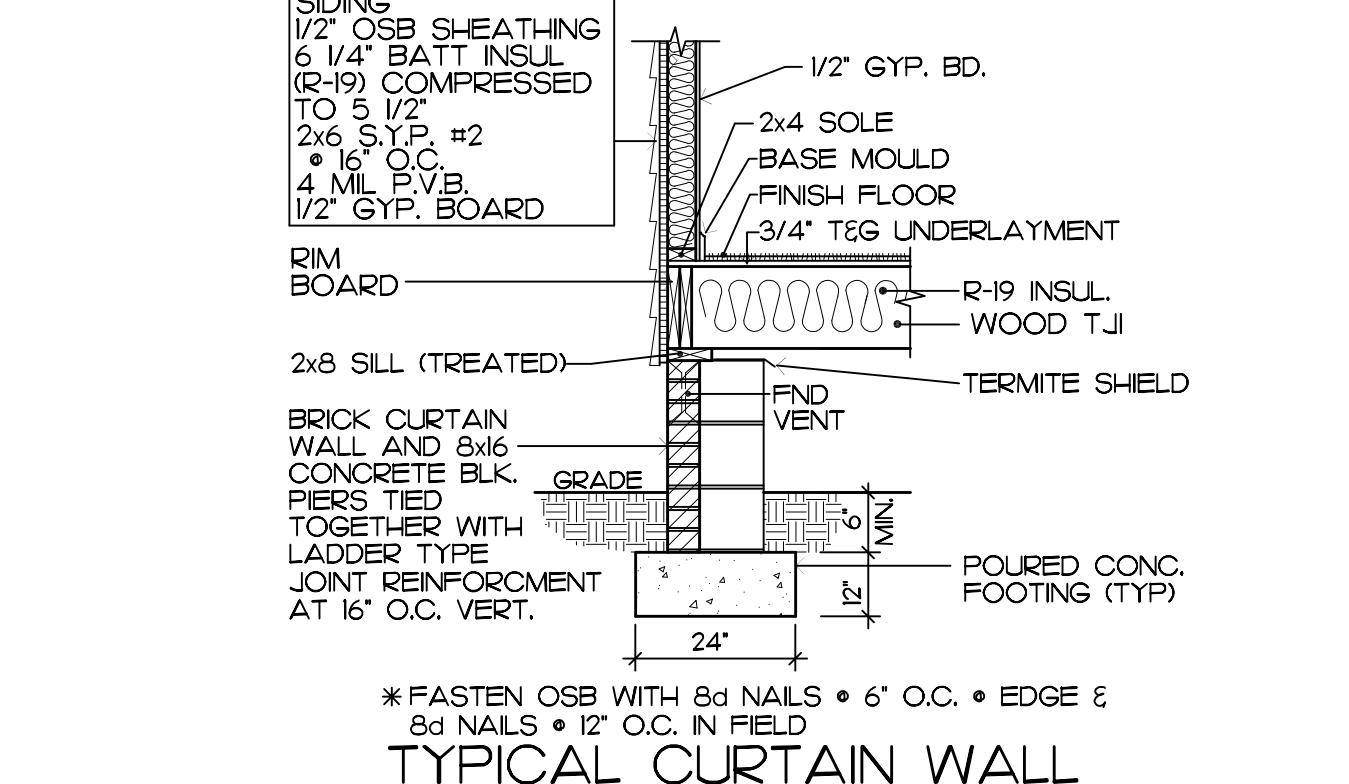
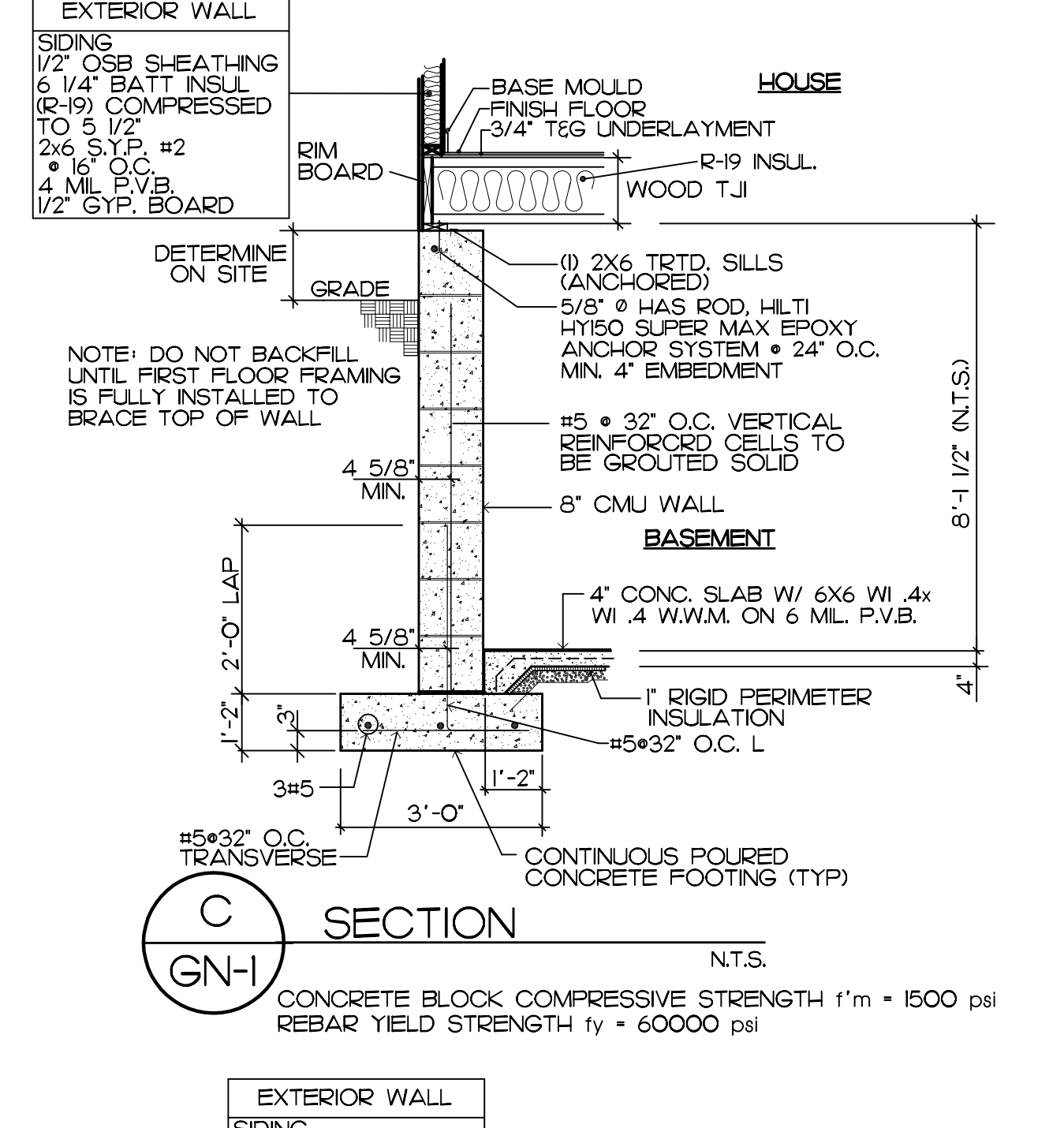
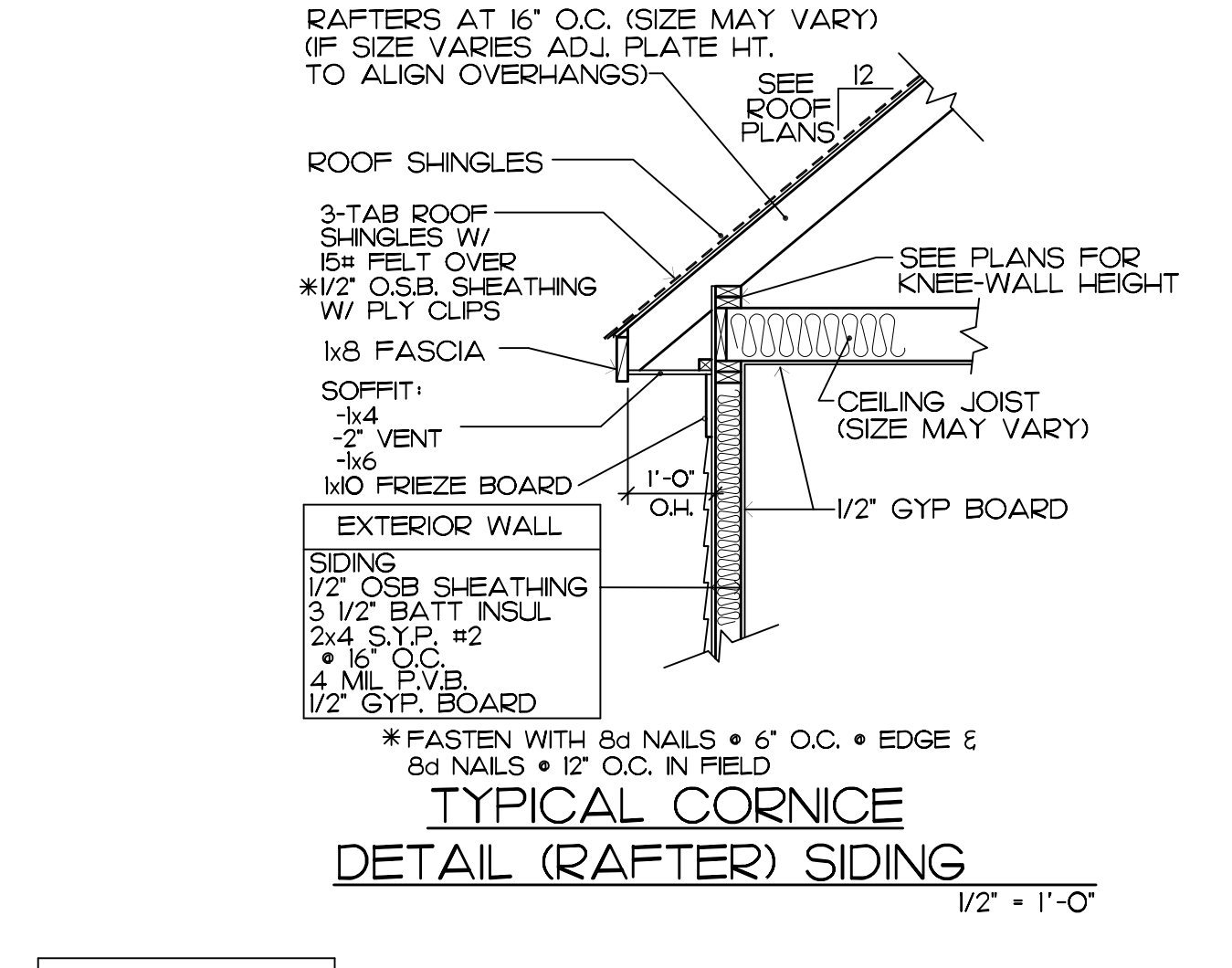
TYPICAL THICKENED SLAB



I-JOIST HOLE CUTTING DETAIL



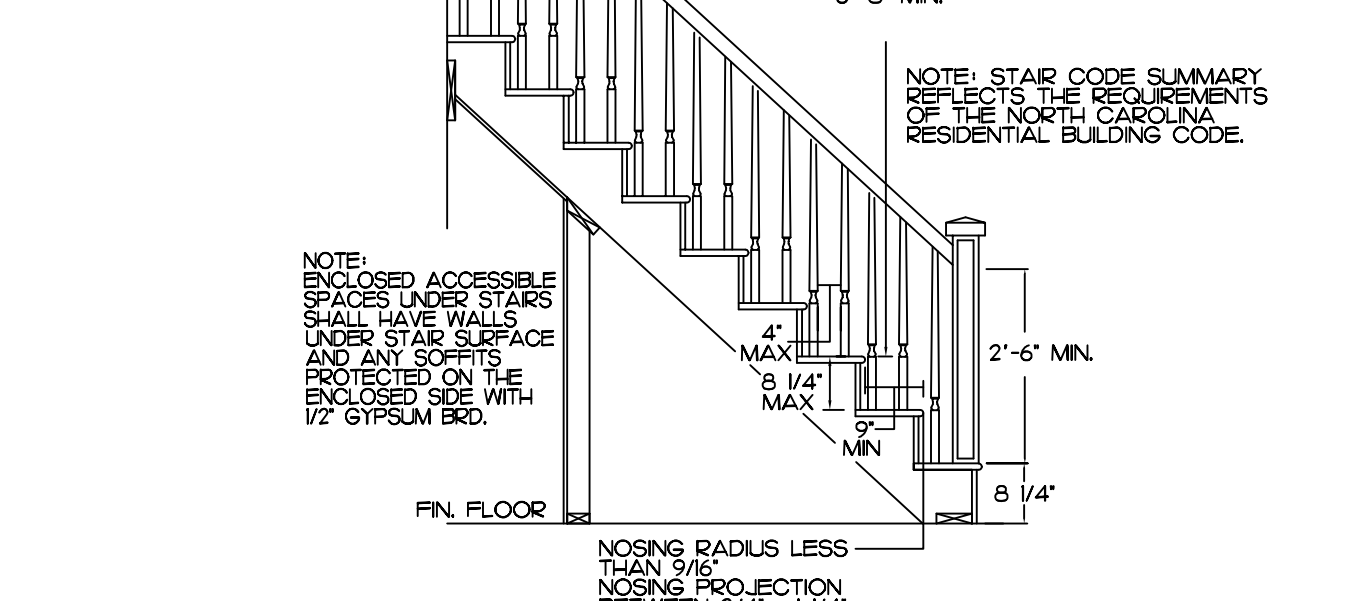
STAIR CODE DETAIL



TYPICAL THICKENED SLAB



STAIR CODE DETAIL



STAIR CODE DETAIL



House Plan Design Co.
Waxhaw, NC
704-996-8947

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Homes Michaelryan
P.O. Box 481452
Charlotte, NC 28262
843-574-9800

MICHAEL RYAN HOMES THE HAMPTON GENERAL NOTES
Project: _____
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