

Specifications & Details for:
Residential Construction



CITY OF
LANCASTER

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Purpose and Scope

PURPOSE:

This handbook is primarily intended to aid homeowners and contractors in design and construction techniques for home building and improvements.

The specifications and details are designed to be in compliance with the 2018 IECC, 2018 IRC and the 2017 NEC. These drawings and specifications represent the MINIMUM code requirements for typical residential construction and for conventional wood framing.

They **DO NOT** address every situation that may be encountered during standard construction activities.

Any questions or situations that differ from the information contained herein, should be brought to the immediate attention of a Lancaster City Building Official or to a Registered Architect or Engineer for clarification and direction.

The following documents should be referenced for additional information:

- Code of the City of Lancaster
- PA Uniform Construction Code
- 2018 International Residential Code
- 2018 International Swimming Pool and Spa Code
- 2018 Pennsylvania Alternative Residential Energy Provisions

HELPFUL LINKS:

<https://ecode360.com/LA1674?needHash=true>

https://www.dli.pa.gov/ucc/Pages/default.aspx#.Vz9ci6PD_L8

<https://codes.iccsafe.org/>

<https://www.phrc.psu.edu/assets/docs/Publications/2021-PA-Alternative-Residential-Energy-Provisions.pdf>

<https://awc.org/>

www.aci-int.org

www.strongtie.com/

Abbreviation Key

ABBREVIATIONS:

The specifications and details may use various abbreviations to describe certain site, building or system components. The following is a list of these abbreviations. Not all abbreviations may be applicable to all situations. The abbreviations most often utilized are defined below.

ACT	Acoustic Ceiling Tile	GFCI	Ground Fault Circuit Interrupter
ABS	Acrylonitrile Butadiene Styrene	GWB	Gypsum Wall Board
ADA	Americans with Disabilities Act	HCA	Handicapped-accessible
ADAAG	Americans with Disabilities Act Accessibility Guidelines	HID	High-intensity Discharge (lighting)
AHU	Air Handling Unit	HVAC	Heating, Ventilating, and Air Conditioning
APA	American Plywood Association	kVA	Kilovolt Ampere
BTU	British Thermal Unit (a measurement of heat)	kW	Kilowatt
BTUH	British Thermal Units per Hour	MAP	Multifamily Accelerated Processing
CFM	Cubic Feet per Minute	MBH	Thousand BTUs per Hour
CMU	Concrete Masonry Unit	MME	Major Moveable Equipment
CONT	Continuous		
CPVC	Chlorinated Poly Vinyl Chloride	MDP	Main Distribution Panel
DHW	Domestic Hot Water	OSB	Oriented Strand Board
		PSI	Pounds per Square Inch
DWH	Domestic Water Heater	PTAC	Packaged Terminal Air Conditioning (Unit)
DWV	Drain Wastewater Vent	PT	Pressure Treated
EIFS	Exterior Insulating Finishing System	PVC	Poly Vinyl Chloride
		R-	R-Value
EPDM	Ethylene Propylene Diene Monomer Expected	RFI	Request for Information Roof
EUL	Useful Life or Effective Useful Life	RTU	Top Unit
FF&E	Fixtures, Furnishings & Equipment	RUL	Remaining Useful Life
FCU	Fan Coil Unit	TPO	Thermoplastic Poly Olefin
FEMA	Federal Emergency Management Agency	UBC	Uniform Building Code Uniform
FHA	Forced Hot Air or Federal Housing Administration Forced	UFAS	Federal Accessibility Standards Variable Air
FHW	Hot Water	VAV	Volume
FIRM	Flood Insurance Rate Map	VCT	Vinyl Composition Tile
FOIA	Freedom Of Information Act	VWC	Vinyl Wall Covering
FRC	Fiber Reinforced Concrete		
FRT	Fire Retardant-treated Plywood		

Definitions:

ACCESSORY STRUCTURE: A structure that is accessory to and incidental to that of the dwelling(s) and that is located on the same lot.

ADDITION: An extension or increase in floor area, number of stories or height of a building or structure.

AIR ENTRAINED (CONCRETE): Concrete used for increased resistance against the alternating freezing and thawing cycles of water, which can occur during those periods when the surrounding air temperature drops below 32 degrees.

APPROVED. Acceptable to the building official.

ARCH FAULT CIRCUIT INTERRUPTER. or AFCI, is a circuit breaker that trips the circuit when it detects electric arcs, typical of loose connections in home wiring.

BARRIER. Fence or obstacle to prevent access.

BATT INSULATION. Also known as blanket insulation, comes in flat pieces. It is made of fiberglass or mineral wool which is pre-cut into standard widths.

BEARING. Supporting loads (supporting building structure / weights above)

BITUMINOUS COATING. A coating made principally of bituminous material and used as a water-repellent barrier for foundations in buildings.

BUILDING OFFICIAL: The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

CARBON MONOXIDE DETECTOR. A device with an integral sensor to detect carbon monoxide gas intended to detect carbon monoxide gas and alert occupants by a distinct audible signal. It incorporates a sensor, and can stand alone or be connected to multiple units.

CAVITY INSULATION. Insulation installed between structural members such as wood studs & framing. Cavity insulation is used within the wood.

CHAIR: See "REINFORCING BAR CHAIR"

COLD JOINT. The face of a concrete pour, which could not be covered by fresh concrete before concrete has begun to set due to stoppage, delay or low rate of pour placement.

CONCRETE BLOCK UNIT (CMU). See "MASONRY UNIT"

COUNTER FLASHING. Top piece of flashing (turned down over the lower flashing) used to prevent water from entering the lower piece of flashing. See flashing definition.

CRAWL SPACE. An underfloor space that is not a basement.

CRICKET FLASHING. Top piece of flashing at chimney to divert water around chimney. See flashing definition.

DEAD LOADS. The weight of the materials of construction incorporated into the building, including but not limited to walls, floors, roofs, ceilings, stairways, built-in partitions, finishes, cladding, and other similarly incorporated architectural and structural items, and fixed service equipment.

EMBEDMENT, LENGTH. The distance the rebar or anchor is inserted into the concrete

EMERGENCY CUT OFF. Also known as a kill switch, emergency stop (E-stop), emergency off (EMO) or as an emergency power off (EPO), is a safety mechanism used to shut off equipment in an emergency, when it cannot be shut down in the usual manner.

EMERGENCY ESCAPE AND RESCUE OPENING. An operable exterior window, door or similar device that provides for a means of escape and access for rescue in the event of an emergency.

ENGINEERED LUMBER. A full-depth structural composite lumber, wood structural panel, structural glued laminated timber or prefabricated wood I-joist member designed to transfer horizontal (shear) and vertical (compression) loads, provide attachment for diaphragm sheathing, siding and exterior deck ledgers and provide lateral support at the ends of floor or roof joists or rafters.

FIBER REINFORCED CONCRETE. Composite material (with uniformly dispersed fibers) that acts as reinforcing for the slab.

FIREBLOCKING. Building materials installed to resist the free passage of flame to other areas of the building through concealed spaces. (Coordinate locations w/ building official)

GEOTECH REPORT. A written analysis of site conditions, prepared by a Geotech Engineer to convey construction recommendations to the design professional or construction personnel.

GROUND FAULT CIRCUIT INTERRUPTER, GFCI. A fast-acting circuit breaker designed to shut off electric power in the event of a ground-fault

GUARD. A building component or a system of building components located near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to the lower level.

HABITABLE SPACE. A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls. Storage or utility spaces and similar areas are not considered habitable spaces, but called Uninhabitable spaces.

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

JOIST HANGERS. See "Supports."

HEADER. Also known as a "Lintel." is a horizontal beam over an opening that disperses the structural load to either side of the opening to maintain the walls structural integrity.

HEMMED EDGE. Found along metal edges, it is a folded sharp edge over onto itself. 180-degree fold.

HOLD-DOWN ANCHOR. Manufactured metal device and its fasteners are designed to hold down building structure.

ICE & WATER SHIELD. Roofing Underlayment - an added layer of protection, to help prevent against water infiltration.

JOIST HANGAR. A metal U-shaped item used to support the end of a floor joist and attached with hardened nails to another bearing joist or beam.

LIGHT-FRAME CONSTRUCTION, CONVENTIONAL. Construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood framing members.

LIVE LOADS. Those loads produced by the use and occupancy of the building or other structure and do not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.

LIVING AREA. Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

MANUFACTURED WOOD BEAMS. Structural composite lumber manufactured using wood elements bonded together with exterior adhesives.

Examples of manufactured wood beams include:

Laminated strand lumber (LSL). A composite of wood strand elements with wood fibers primarily oriented along the length of the member, where the least dimension of the wood strand elements is 0.10 inch (2.54 mm) or less and their average lengths are not less than 150 times the least dimension of the wood strand elements.

Laminated veneer lumber (LVL). A composite of wood veneer elements with wood fibers primarily oriented along the length of the member, where the veneer element thicknesses are 0.25 inch or less.

Oriented strand lumber (OSL). A composite of wood strand elements with wood fibers primarily oriented along the length of the member, where the least dimension of the wood strand elements is 0.10 inch or less and their average lengths are not less than 75 times and less than 150 times the least dimension of the wood strand elements.

Parallel strand lumber (PSL). A composite of wood strand elements with wood fibers primarily oriented along the length of the member, where the least dimension of the wood strand elements is 0.25 inch or less and their average lengths are not less than 300 times the least dimension of the wood strand elements.

MANUFACTURER'S INSTALLATION INSTRUCTIONS. Printed instructions included with equipment as part of the conditions of their listing and labeling.

MASONRY CHIMNEY. A field-constructed chimney composed of solid masonry units, bricks, stones or concrete.

MASONRY, SOLID. Masonry consisting of solid masonry units laid contiguously with the joints between the units filled with mortar.

MASONRY UNIT. Brick, tile, stone, architectural cast stone, glass block or concrete block.

CONCRETE BLOCK. A building unit or block larger in size than 12 inches by 4 inches by 4 inches (305 mm by 102 mm by 102 mm) made of cement and suitable aggregates. Standard Core Type

MASONRY VENEER. Walls consisting of a single non-structural external layer of masonry, typically made of brick, stone or manufactured stone.

AVAILABLE SUBSTRATE. A product or material such as framing, sheathing or furring, composed of wood or wood-based materials, or other materials and fasteners providing equivalent fastener withdrawal resistance.

NOSING. The leading edge of treads of stairs and of landings at the top of stairway flights.

PRE-FLASHED PLUMBING VENT FLASHING. Manufactured roof pipe flashing.

PRESSURE TREATED, LUMBER. A wood treatment process that uses high pressure to inject a preservative into the wood. It's a process that extends the longevity of the wood considerably.

PUBLIC WAY. Any street, alley or other parcel of land open to the outside air leading to a public street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and that has a clear width and height of not less than 10 feet.

RAFTER VENTS. Rafter vents, also known as baffles, ensures a clear soffit vent which enables the channel for the outside air to be traversed into the attic and flow out through the roof vents.

RECEPTICAL. Types of sockets or outlets that provide a location in an electrical system where the wire can be inserted to provide electrical current. The most common type is the electrical outlet found in most homes, also known as wall plugs or electrical outlets, the electrical receptacle is most useful to provide power to operate electrical devices.

REINFORCING BAR, "REBAR". A steel bar or mesh of steel wires used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and aid the concrete under tension.

REINFORCING BAR CHAIR, "REBAR CHAIR". A product used to prop up the rebar, separating it from the concrete form or subbase, so that the rebar is embedded in the concrete to the specified cover depth.

REPAIR. The reconstruction, replacement or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

REROOFING. The process of recovering or replacing an existing roof covering. See "Roof recover."

RIGID INSULATION. A polystyrene, polyisocyanurate or other type of foam product, available in sheet form, that has a high R-value per unit thickness

RISER (STAIR). The vertical component of a step or stair.

ROOF DECK. The flat or sloped surface not including its supporting members or vertical supports.

R-VALUE, R-, (THERMAL RESISTANCE). The capacity of an insulating material to resist heat flow. The higher the R-value, the greater the insulating power.

SILL PLATE. Also known as a *sole plate* is the bottom horizontal member of a wall to which vertical members are attached.

SILL SEALER. A material placed between the top of the foundation wall and the sill plate. Usually a type of foam, the sill sealer helps make a better fit and eliminate water problems and air infiltration.

SINGLE-PLY MEMBRANE. A roofing membrane that is field applied using one layer of membrane material (either homogeneous or composite) rather than multiple layers.

SKYLIGHT, UNIT. A factory assembled, glazed fenestration unit, containing one panel of glazing material, that allows for natural daylighting through an opening in the roof assembly while preserving the weather-resistant barrier of the roof.

SLAB ON GRADE. A construction practice, in which the concrete slab that will serve as the foundation for a building or other structure is formed from a mold that is set into the ground.

SLOPE. The fall (pitch) of a line in reference to a horizontal plane.

SMOKE DETECTOR. Single- or multiple-station alarm intended to detect smoke and alert occupants by a distinct audible signal. It incorporates a sensor, control components and an alarm notification appliance in a single unit.

SOIL BEARING. The capacity of soil to support the loads applied to the ground

SOILS TEST. See Geotech Report

SOLAR HEAT GAIN COEFFICIENT (SHGC). The fraction of solar radiation admitted through a window, door, or skylight. The lower the SHGC, the less solar heat it transmits and the greater its shading ability.

SOLID MASONRY. Load-bearing or non-load-bearing construction using masonry units where the net cross-sectional area of each unit in any plane parallel to the bearing surface is not less than 75 percent of its gross cross-sectional area. Solid masonry units shall conform to ASTM C55, C62, C73, C145 or C216.

STAIR. A change in elevation, consisting of one or more risers.

STAIRWAY. One or more flights of stairs, either interior or exterior, with the necessary landings and connecting platforms to form a continuous and uninterrupted passage from one level to another within or attached to a building, porch or deck.

STORM SEWER. A pipe used for conveying rainwater, surface water, subsurface water and similar liquid waste.

STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above.

STEP FLASHING. Bottom piece of flashing (L shaped) used to prevent water from entering at wall junctions. Top edge needs to be covered with either wall materials or counter flashing. See also flashing definition.

SUITABLE SOILS. Ground type suitable for construction and for supporting a foundation. Ground should generally not shift, expand, or shrink drastically and handle the presence of water.

THERMAL RESISTANCE, R-VALUE. See "R-value."

THERMAL TRANSMITTANCE, U-FACTOR. See "U-factor."

THROUGH WALL FLASHING. Aluminum, Copper or Stainless-Steel flashing that extends completely through a masonry wall, designed and applied in combination with counter-flashings to prevent water that may enter the wall from reaching the wood framing.

U-FACTOR, (THERMAL TRANSMITTANCE). The rate of heat loss through a window assembly. The lower the U-factor, the greater a window's resistance to heat flow and the better its insulating value. A low U-factor is useful during cold weather to keep the heat inside.

UNDERLAYMENT. One or more layers of felt, sheathing paper, non-bituminous saturated felt, or other approved material over which a roof covering, with a slope of 2 to 12 (17-percent slope) or greater, is applied.

VAPOR BARRIER. A thin layer of impermeable material, typically 6mil polyethylene sheeting, included in building construction to prevent moisture from damaging the fabric of the building.

VIRGIN SOIL. Soil that has never been cultivated.

WALL(S). Walls shall be defined as follows:

LOAD-BEARING WALL. A wall supporting any vertical load in addition to it

NONBEARING WALL. A wall which does not support vertical loads other than its own weight.

WATER-RESISTIVE BARRIER. A material behind an exterior wall covering that is intended to resist liquid water that has penetrated behind the exterior covering from further intruding into the exterior wall assembly.

WET SERVICE FACTOR. (or CM for short) is used to signify wood that will not be used in a dry condition (e.g. covered structures).

WOOD STRUCTURAL PANEL. A panel manufactured from veneers; or wood strands or wafers; bonded together with waterproof synthetic resins or other suitable bonding systems. Examples of wood structural panels are plywood, orientated strand board (OSB) or composite panels.

YARD OR COURT. An open space, other than a court, unobstructed from the ground to the sky, except where specifically provided by this code, on the lot on which a building is situated.

Details and Specifications:

See Table of Contents for drawings and details that apply to your project.

CONVENTIONAL LIGHT FRAMING:

FOOTING: 1-STORY - SLAB ON GRADE OR CRAWL SPACE

1. IF NO *GEOTECH* REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1500 POUNDS PER SQUARE FOOT. *BUILDING OFFICIAL* SHALL DETERMINE IF A *SOILS TEST* IS REQUIRED.
3. *CONCRETE COMPRESSIVE STRENGTH* - 3000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY *COLD JOINTS*.
5. *REINFORCING BAR* MINIMUM LAP AND *BETWEEN-LENGHTH* TO BE 30 BAR DIAMETERS MINIMUM.
6. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE *AIR ENTRAINED* BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
8. *SLOPE* GRADE AWAY FROM STRUCTURE. TOWARD *STORY SEWER* WHEN POSSIBLE.
9. *BUILDINGS* CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) *SLOPE*, TO CHECK WITH THE *BUILDING OFFICIAL* AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL *SUITABLE SOILS* ARE ENCOUNTERED OR CONTACT A *GEOTECH ENGINEER*.
EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:
High Water Level Areas
Mammade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....
- B. CONSULT A *GEOTECH ENGINEER* FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

LOCAL *GEOTECH ENGINEERS* INCLUDE: (BUT NOT LIMITED TO):

American Testing Labs Inc. - Lancaster, PA
Stegman Engineering - Red Lion, PA
Psi - Harrisburg, PA
Applied Geoscience & Engineering - Reading, PA
American Geotech Inc. - Reading, PA
FT Kilinski & Assoc. Inc. - Harrisburg, PA

REQUIRED INSPECTIONS:

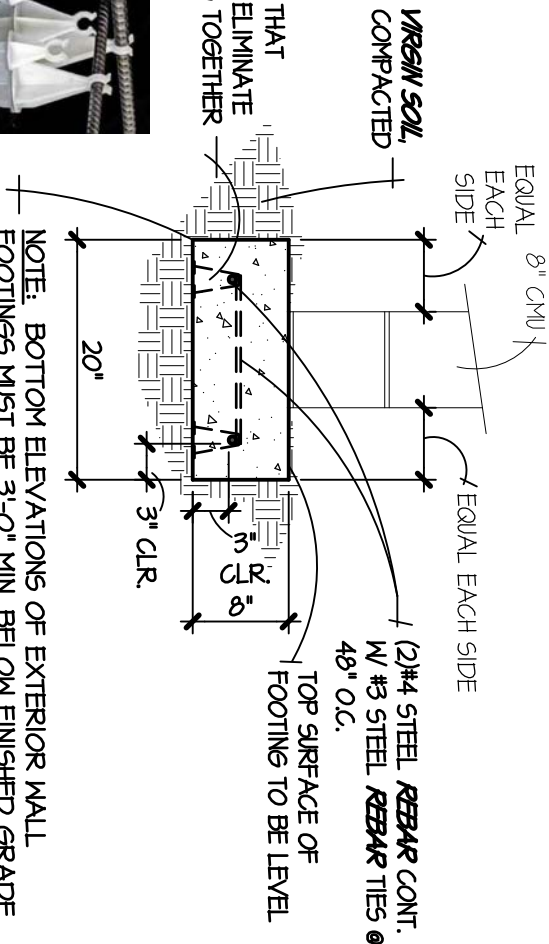
1. EXCAVATION COMPLETE & READY FOR CONC. FOOTING
2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF FOUNDATION WALLS



EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS



EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



NOTE: BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO *VIRGIN SOIL*

CONVENTIONAL LIGHT FRAMING:

FOOTING: 1-STORY - SLAB ON GRADE OR CRAWL SPACE WITH MASONRY VENEER

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
3. **CONCRETE COMPRESSIVE STRENGTH** - 3000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
5. **REINFORCING BAR** MINIMUM LAP AND **EMBEDMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM.
6. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
8. **SLOPE** GRADE AWAY FROM STRUCTURE. TOWARD **STORY SEWER** WHEN POSSIBLE.
9. BUILDINGS CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) **SLOPE**, TO CHECK WITH THE **BUILDING OFFICIAL** AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL **SUITABLE SOILS** ARE ENCOUNTERED OR CONTACT A **GEOTECH ENGINEER**.
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High Water Level Areas
Mudmade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....
- B. CONSULT A **GEOTECH ENGINEER** FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

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FT Kiliński & Assoc. Inc. - Harrisburg, PA

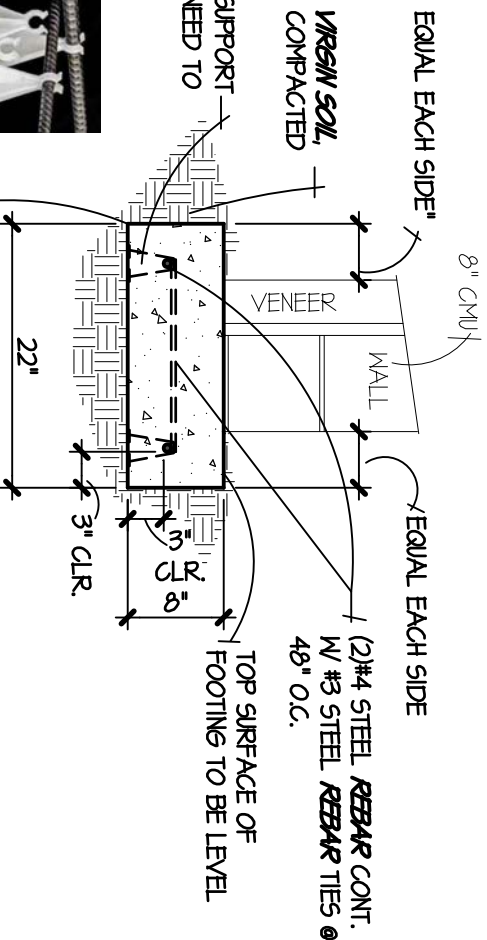
REQUIRED INSPECTIONS:

1. EXCAVATION COMPLETE & READY FOR CONC. FOOTING
2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF FOUNDATION WALLS



EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS

EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



NOTE: BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO **VIRGIN SOIL**

CONVENTIONAL LIGHT FRAMING:

FOOTING: 2-STORY - SLAB ON GRADE OR CRAWL SPACE

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
3. **CONCRETE COMPRESSIVE STRENGTH** - 3,000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
5. **REINFORCING BAR** MINIMUM LAP AND **EMBEDMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM.
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7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
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FT Kilinski & Assoc. Inc. - Harrisburg, PA

REQUIRED INSPECTIONS:

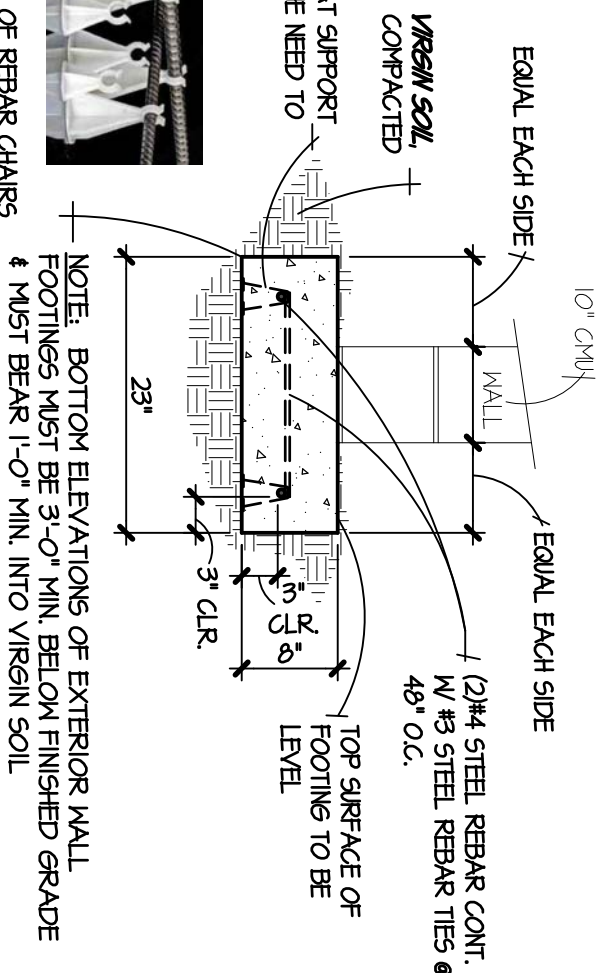
1. EXCAVATION COMPLETE & READY FOR CONC. FOOTING
2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF FOUNDATION WALLS



EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS



EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



CONVENTIONAL LIGHT FRAMING:

FOOTING: 2-STORY - SLAB ON GRADE OR CRAWL SPACE WITH MASONRY VENEER

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
3. **CONCRETE COMPRESSIVE STRENGTH** - 3,000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
5. **REINFORCING BAR** MINIMUM LAP AND **EMBEDMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM.
6. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
8. **SLOPE** GRADE AWAY FROM STRUCTURE. TOWARD **STORY SEWER** WHEN POSSIBLE.
9. BUILDINGS CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) **SLOPE**, TO CHECK WITH THE **BUILDING OFFICIAL** AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL **SUITABLE SOILS** ARE ENCOUNTERED OR CONTACT A **GEOTECH ENGINEER**
EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:
High Water Level Areas
Mannade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....
- B. CONSULT A **GEOTECH ENGINEER** FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

LOCAL **GEOTECH ENGINEERS** INCLUDE: (BUT NOT LIMITED TO):

American Testing Labs Inc. - Lancaster, PA
Stegman Engineering - Red Lion, PA
PSI - Harrisburg, PA
Applied Geoscience & Engineering - Reading, PA
American Geotech Inc. - Reading, PA
FT Kilinski & Assoc. Inc. - Harrisburg, PA

REQUIRED INSPECTIONS:

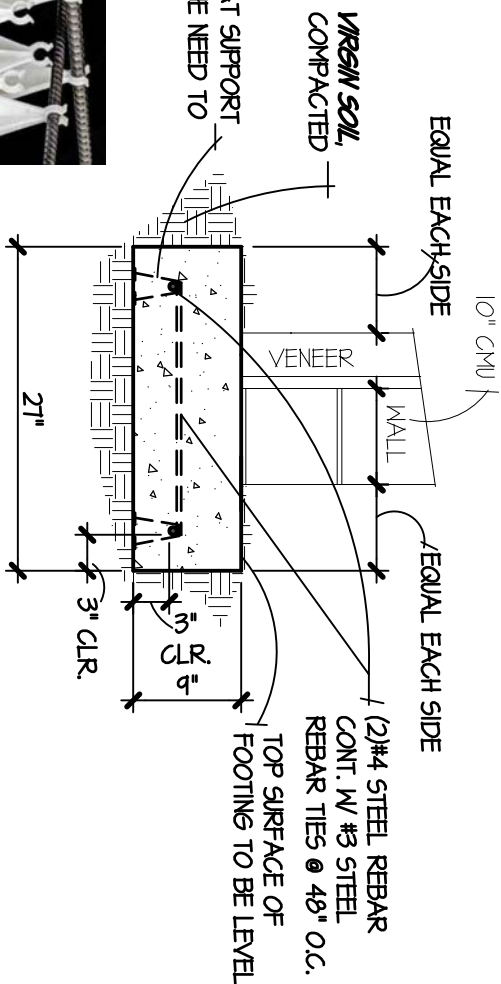
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2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF FOUNDATION WALLS



EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS



EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



NOTE: BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO VIRGIN SOIL

CONVENTIONAL LIGHT FRAMING:

FOOTING: 3-STORY - SLAB ON GRADE OR CRAWL SPACE

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
2. **CONCRETE COMPRESSIVE STRENGTH** - 3,000 POUNDS PER SQUARE INCH OR GREATER.
3. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
4. **REINFORCING BAR** MINIMUM LAP AND **EMBEDMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM.
5. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
6. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
7. **SLOPE** GRADE AWAY FROM STRUCTURE. TOWARD **STORY SEWER** WHEN POSSIBLE.
8. BUILDINGS CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) **SLOPE**, TO CHECK WITH THE **BUILDING OFFICIAL** AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL **SUITABLE SOILS** ARE ENCOUNTERED OR CONTACT A **GEOTECH ENGINEER**
EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:
High Water Level Areas
Mannade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....
- B. CONSULT A **GEOTECH ENGINEER** FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

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REQUIRED INSPECTIONS:

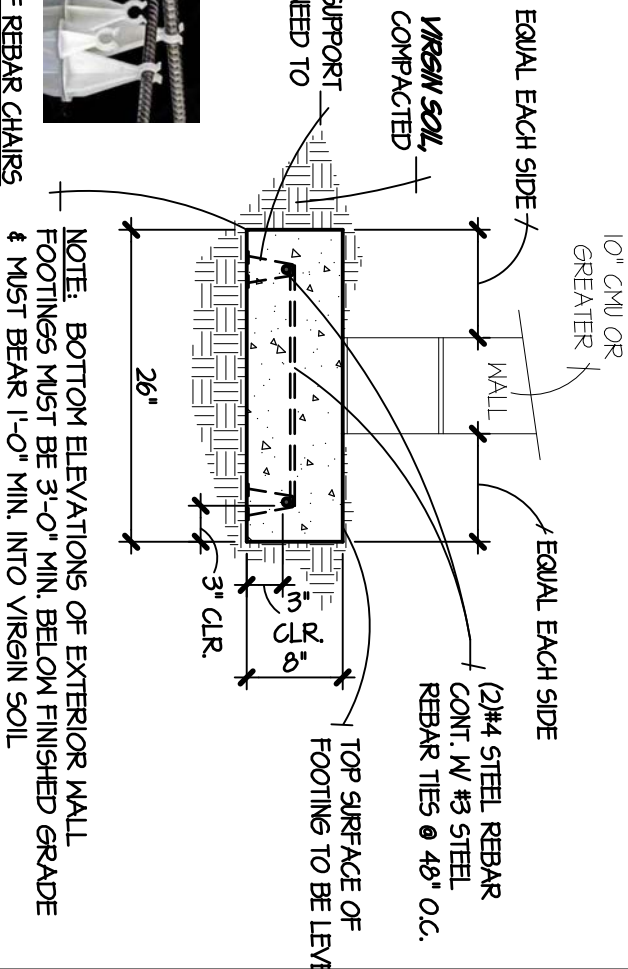
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EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS



EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



NOTE: BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO VIRGIN SOIL

CONVENTIONAL LIGHT FRAMING:

FOOTING: 3-STORY - SLAB ON GRADE OR CRAWL SPACE WITH MASONRY VENEER

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1,500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
3. **CONCRETE COMPRESSIVE STRENGTH** - 3,000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
5. **REINFORCING BAR** MINIMUM LAP AND **EMBEDMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM.
6. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
8. **SLOPE** GRADE AWAY FROM STRUCTURE. TOWARD **STORM SEWER** WHEN POSSIBLE.
9. BUILDINGS CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) **SLOPE**, TO CHECK WITH THE **BUILDING OFFICIAL** AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL **SUITABLE SOILS** ARE ENCOUNTERED OR CONTACT A **GEOTECH ENGINEER**
EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:
High Water Level Areas
Mormade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....
- B. CONSULT A **GEOTECH ENGINEER** FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

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REQUIRED INSPECTIONS:

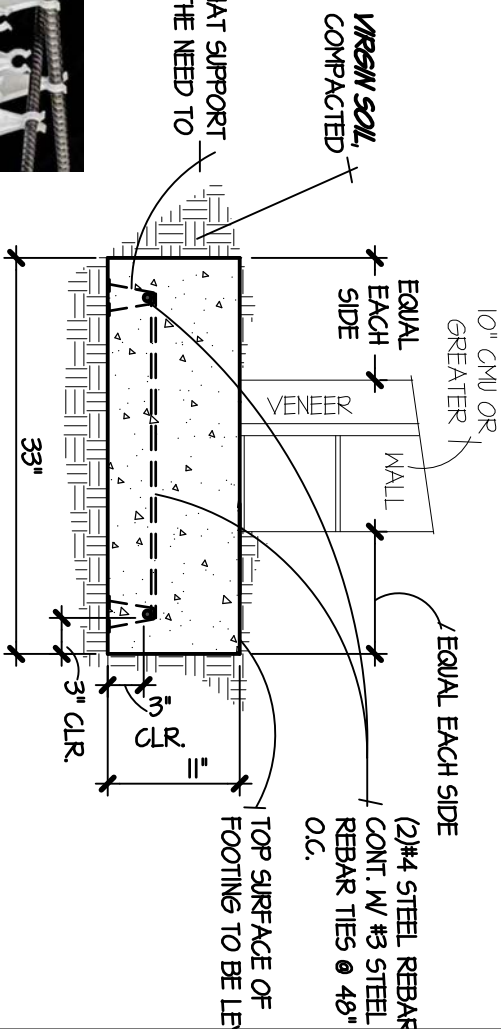
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EXAMPLE OF REBAR CHAIR SUPPORTING TWO REBARS



EXAMPLE OF REBAR CHAIRS SUPPORTING ONE REBAR



NOTE: BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO VIRGIN SOIL

FOOTING: THICKEND SLAB ON GRADE - INTERIOR BEARING WALLS

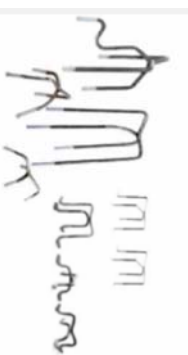
- NOTES:

EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:

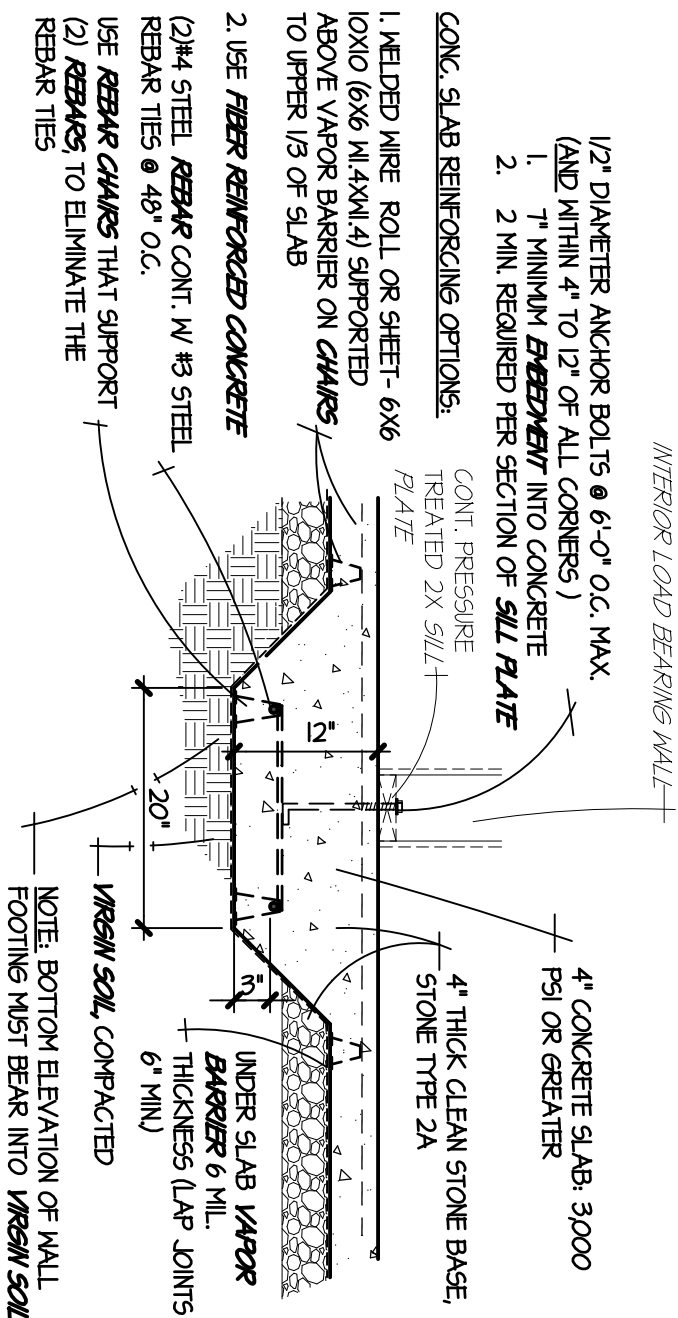
Mannmade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....

1. EXCAVATION COMPLETE
& READY FOR CONC.
FOOTING

2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF FOUNDATION WALLS



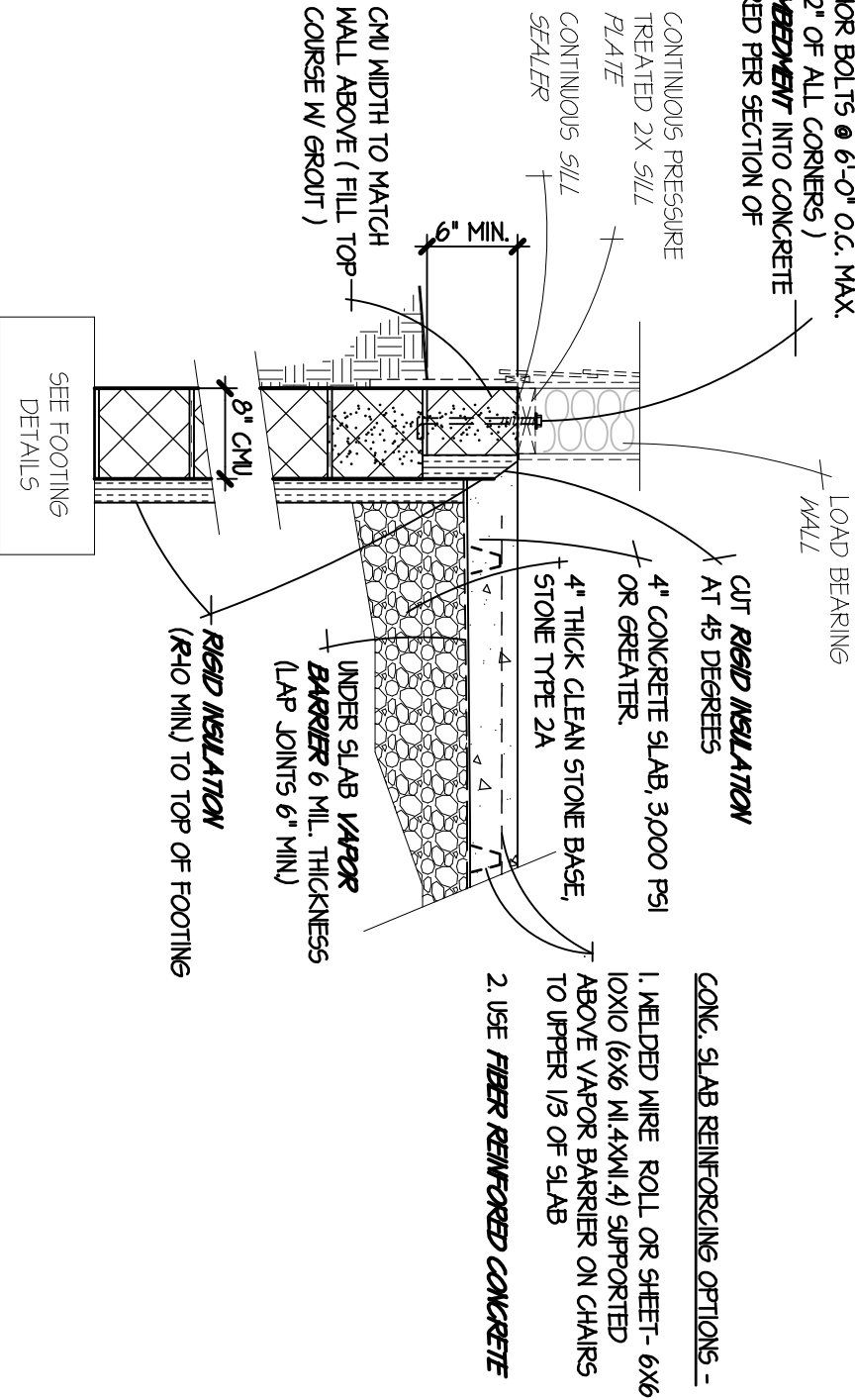
EXAMPLES OF CHAIR TYPES FOR SUPPORTING SLAB REINFORCING



CONVENTIONAL LIGHT FRAMING:
FOUNDATION WALL: SLAB ON GRADE

1. CMU TO BE STANDARD CORE TYPE
2. FINISHED GRADE SHALL BE 6" MIN. BELOW TOP OF CMU
3. RIGID INSULATION TO BE MIN. R-10 AND SUITABLE FOR BELOW GRADE INSTALLATION.

- 1/2" DIAMETER ANCHOR BOLTS @ 6'-0" O.C. MAX.
 (AND WITHIN 4" TO 12" OF ALL CORNERS)
1. 7" MINIMUM **EMBEDMENT** INTO CONCRETE
 2. 2 MIN. REQUIRED PER SECTION OF **SILL PLATE**



FOUNDATION WALL: SLAB ON GRADE WITH MASONRY VENEER

- 1/2" DIAMETER ANCHOR BOLTS @ 6'-0" O.C. MAX.
(AND WITHIN 4" TO 12" OF ALL CORNERS)

- CONTINUOUS PRESSURE TREATED 2X 4
SILL PLATE

CONTINUOUS SILL SEALER :

CMU CAP WIDTH TO MATCH WALL
ABOVE (FILL TOP COURSE W/ GROUT)



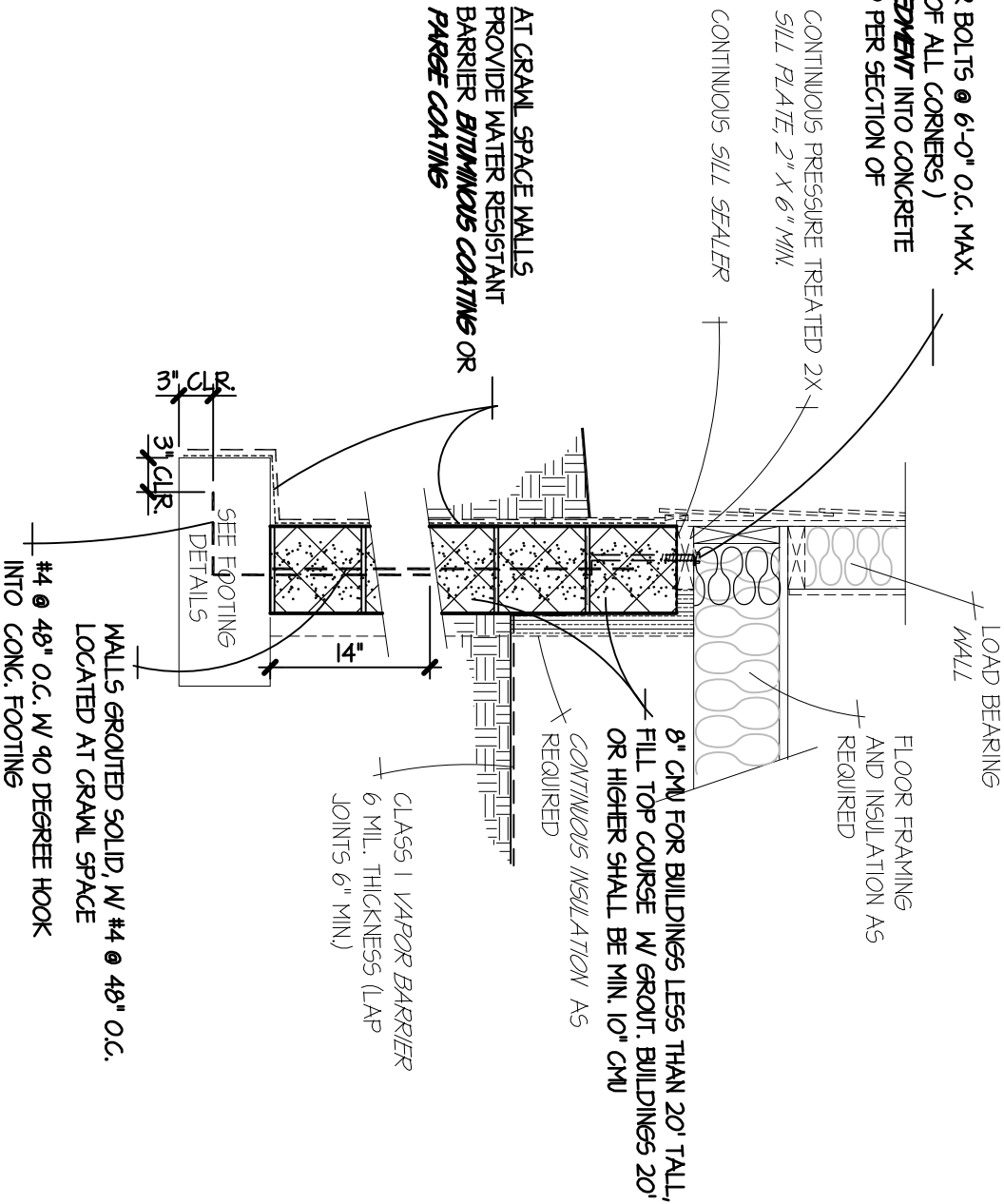
1. WELDED WIRE ROLL OR SHEET- 6X6
10X10 (6X6 W/ 4XW/ 4) SUPPORTED
ABOVE ~~WAPOR BARRIER~~ ON CHAIRS
TO UPPER 1/3 OF SLAB

- ## 2. USE FIBER REINFORCED CONCRETE

CONVENTIONAL LIGHT FRAMING: FOUNDATION WALL: CRAWL SPACE

1. CMU TO BE STANDARD CORE TYPE
2. FINISHED GRADE SHALL BE 6" MIN. BELOW TOP OF CMU.
3. CRAWL SPACE LOCATIONS - INSTALL IN CMU WALL - #4 STEEL REBAR VERTICAL @ 48" O.C. ‡ PROVIDE 90 DEGREE HOOK INTO FOOTING. GROUT CMU CORES SOLID.

- 1/2" DIAMETER ANCHOR BOLTS @ 6'-0" O.C. MAX.
(AND WITHIN 4" TO 12" OF ALL CORNERS)
1. 7" MINIMUM ~~EMBEDMENT~~ INTO CONCRETE
 2. 2 MIN. REQUIRED PER SECTION OF
SILL PLATE



CONVENTIONAL LIGHT FRAMING:

FOUNDATION WALL: CRAWL SPACE WITH MASONRY VENEER

1. CMU TO BE STANDARD CORE TYPE
2. FINISHED GRADE SHALL BE 4" MIN. BELOW TOP OF CMU IF MASONRY VENEER IS USED.
3. VENEER ANCHORS OR TIES TO HAVE MAX. SPACING OF 32" HORIZONTAL & 24" VERTICAL.
4. CRAWL SPACE LOCATIONS - INSTALL IN CMU WALL - #4 STEEL REBAR VERTICAL @ 48" O.C. & PROVIDE 90 DEGREE HOOK INTO FOOTING. GROUT CMU CORES AT REBAR LOCATIONS.

1. 1/2" DIAMETER ANCHOR BOLTS @ 6'-0" O.C. MAX. (AND WITHIN 4" TO 12" OF ALL CORNERS)
2. 7" MINIMUM **EMBEDMENT** INTO CONCRETE
1. 2 MIN. REQUIRED PER SECTION OF **SILL PLATE**

CONTINUOUS PRESSURE TREATED 2X
SILL PLATE, 2" X 6" MIN.

THROUGH WALL FLASHING, TYPICAL
AT BASE OF MASONRY VENEER

CONTINUOUS SILL SEALER

CMU CAP WIDTH TO MATCH WALL
ABOVE (FILL TOP COURSE W/ GROUT)

AT CRAWL SPACE WALLS
PROVIDE WATER RESISTANT
BARRIER **BITUMINOUS COATING** OR
PARGE COATING

LOAD BEARING
WALL

FLOOR FRAMING
AND INSULATION AS
REQUIRED

8" CMU FOR BUILDINGS LESS THAN 20'
FILL TOP COURSE W/ GROUT. BUILDINGS
OR HIGHER SHALL BE MIN. 10" CMU

CONTINUOUS INSULATION AS
REQUIRED

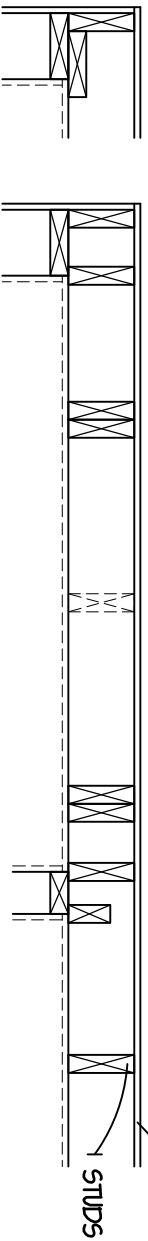
CLASS I VAPOR BARRIER
6 MIL. THICKNESS (LAP
JOINTS 6" MIN.)

3" CLR.
3" CLR.
SEE FOOTING DETAILS

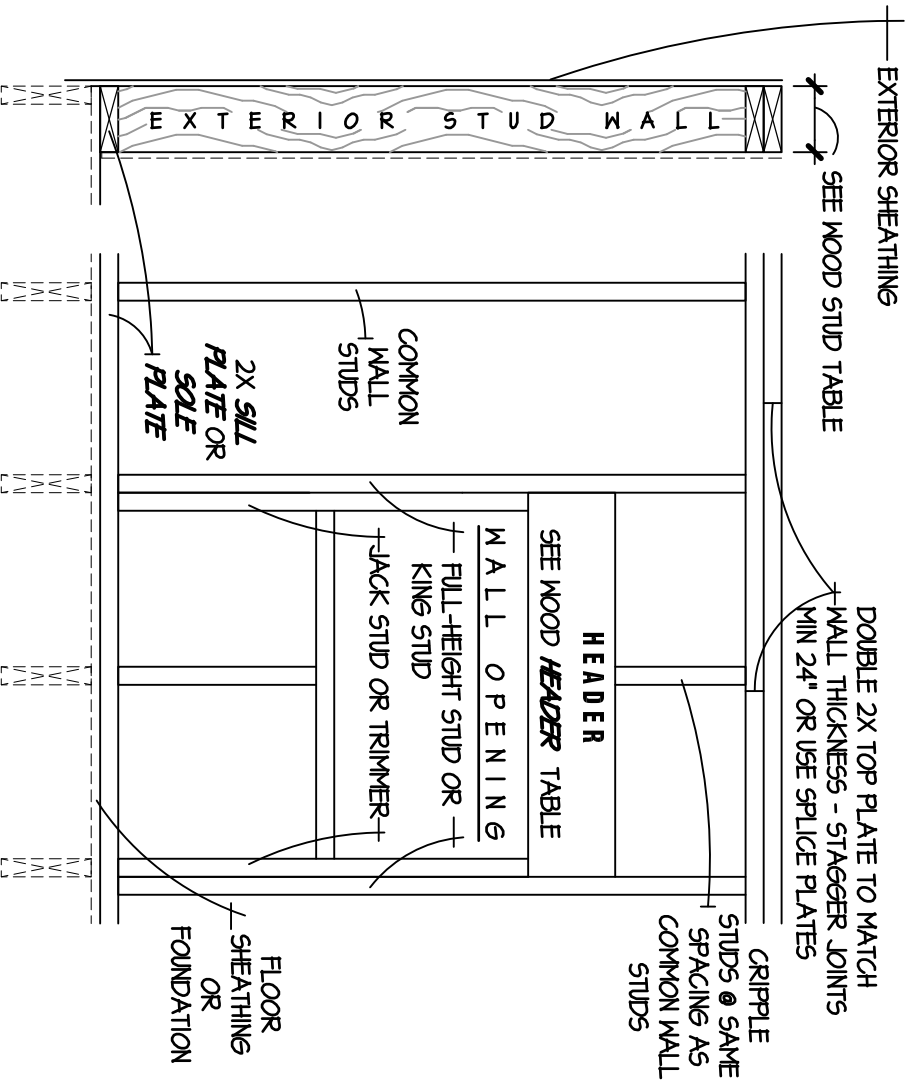
WALLS GROUTED SOLID, W/ #4 @ 48" O.C.
LOCATED AT CRAWL SPACE
#4 @ 48" O.C. W/ 90 DEGREE HOOK

CONVENTIONAL LIGHT FRAMING: WALLS: EXTERIOR LOAD BEARING

1. EXTERIOR LOAD **BEARING** WOOD STUD WALLS
2. USE **PRESSURE TREATED LUMBER** IF WOOD IS LESS THAN 6" FROM GRADE.



PLAN - (BIRDS EYE VIEW)



SECTION ELEVATION

WOOD STUD GRADES:

1. NO. 2 OR BETTER FOR ALL EXTERIOR & BEARING WALLS.
2. SEE WOOD STUD WALL TABLE FOR SIZE AND SPACING

SHEATHING REQUIREMENTS:

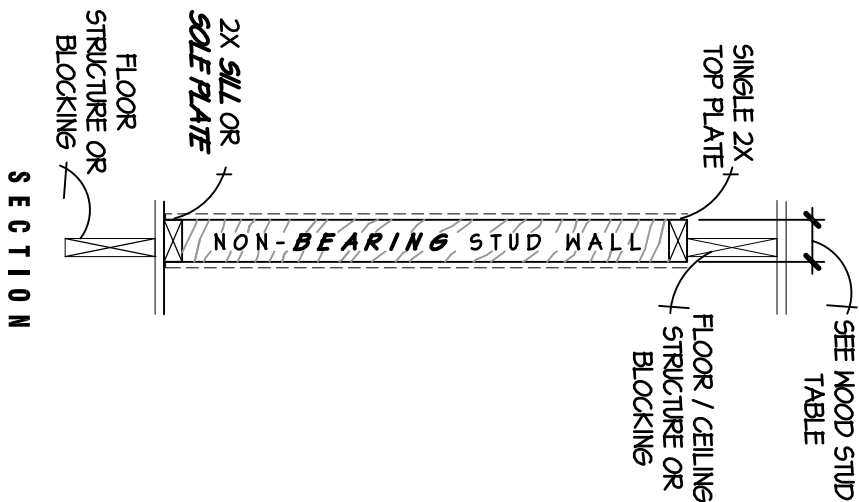
1. DISTANCE BETWEEN TOP DOUBLE PLATES & SILL PLATE SHALL BE SHEATHED W/ A **STRUCTURAL SHEATHING** ON ONE SIDE OF WALL. MINIMUM 1/2"

STRUCTURAL SHEATHING EXAMPLES:

1. **WOOD STRUCTURAL PANEL**
2. **OSB**
3. **PLYWOOD**

FIRE BLOCKING: 2X LUMBER, SECURED BATT INSULATION OR 1/2" GYPSUM WALL BOARD, CONSULT WITH THE LANCASTER CITY **BUILDING CODE OFFICIAL** FOR LOCATIONS

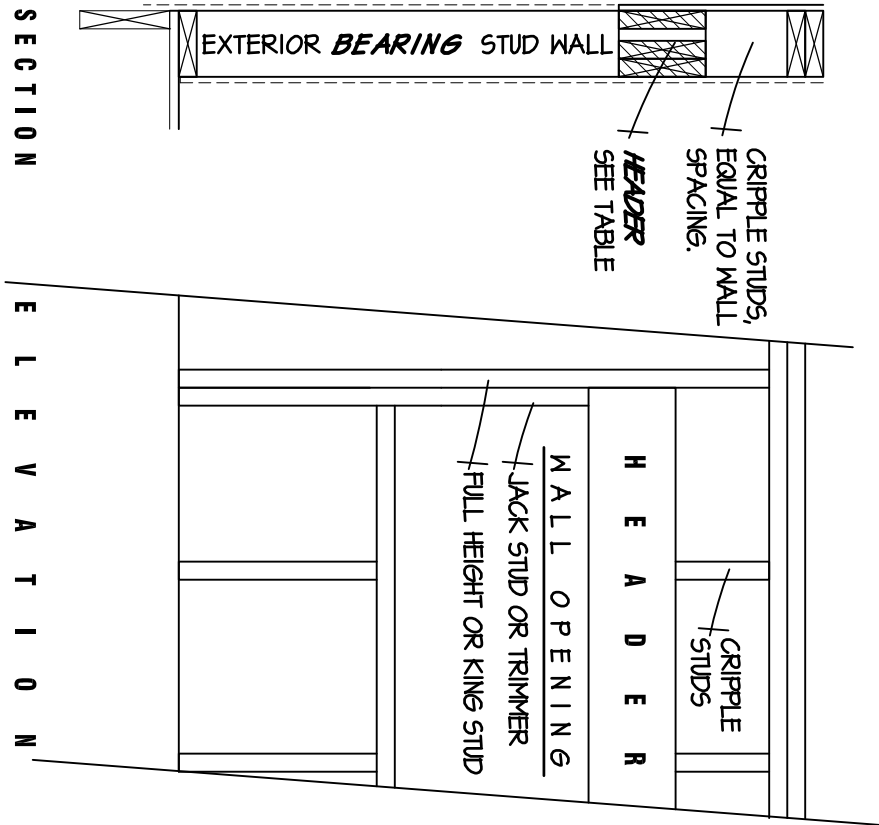
B E A R I N G W A L L S *						N O N - B E A R I N G W A L L S	
WALL STUD SIZES	LATERALLY UNSUPPORTED STUD MAX HEIGHT	MAX SPACING SUPPORTING ROOF-CEILING OR HABITABLE ATTIC	MAX SPACING SUPPORTING ONE FLOOR + ROOF-CEILING OR HABITABLE ATTIC	MAX SPACING SUPPORTING TWO FLOOR + ROOF-CEILING OR HABITABLE ATTIC	MAX SPACING SUPPORTING ONE FLOOR HEIGHT	LATERALLY UNSUPPORTED STUD MAX HEIGHT	MAXIMUM STUD SPACING
4x4						14'-0"	24"
6x6							
2x4	10'-0"	24"	16"	-	24"	3#4	14'-0"
2x6	10'-0"	24"	24"	16"	24"	3#4	20'-0"





CONVENTIONAL LIGHT FRAMING: HEADERS: EXTERIOR LOAD BEARING WALL

WOOD HEADER TABLE

HEADER LOCATION* (SEE BELOW)	HEADER SIZE	GRADE	BUILDING WIDTH					
			12 FEET OR LESS		24 FEET OR LESS		36 FEET**	
			SPAN (OPENING)	# OF JACK STUDS	SPAN (OPENING)	# OF JACK STUDS	SPAN (OPENING)	# OF JACK STUDS
ROOF & CEILING	(2) 2 X 4	2	4'-0"	1	3'-11"	1	2'-7"	1
	(2) 2 X 6	2	6'-0"	1	4'-7"	1	3'-10"	1
	(2) 2 X 8	2	7'-7"	1	5'-4"	1	4'-10"	2
	(2) 2 X 10	2	9'-0"	1	6'-10"	2	5'-8"	2
	(2) 2 X 12	2	10'-7"	2	8'-1"	2	6'-10"	2
	(3) 2 X 8	2	9'-5"	1	7'-3"	1	6'-1"	1
ROOF & CEILING & ONE CENTER-BEARING FLOOR	(3) 2 X 10	2	11'-3"	1	8'-7"	1	7'-3"	2
	(3) 2 X 12	2	13'-2"	1	10'-1"	2	8'-6"	2
	(2) 2 X 4	2	3'-3"	1	2'-6"	1	2'-2"	1
	(2) 2 X 6	2	4'-10"	1	3'-4"	1	3'-3"	2
	(2) 2 X 8	2	6'-1"	1	4'-10"	2	4'-1"	2
	(2) 2 X 10	2	7'-3"	2	5'-8"	2	4'-10"	2
ROOF & CEILING & ONE CLEAR SPAN BEARING FLOOR	(2) 2 X 12	2	8'-6"	2	6'-8"	2	5'-8"	2
	(3) 2 X 8	2	7'-8"	1	6'-0"	1	5'-1"	2
	(3) 2 X 10	2	9'-1"	1	7'-2"	2	6'-1"	2
	(3) 2 X 12	2	10'-8"	2	8'-5"	2	7'-2"	2
	(2) 2 X 4	2	2'-11"	1	2'-3"	1	1'-10"	1
	(2) 2 X 6	2	4'-4"	1	3'-4"	2	2'-10"	2
* ASSUMES 30 PSF GROUND SNOW LOAD	(2) 2 X 8	2	5'-6"	2	4'-3"	2	3'-7"	2
	(2) 2 X 10	2	6'-7"	2	5'-0"	2	4'-2"	2
	(2) 2 X 12	2	7'-4"	2	5'-11"	2	4'-11"	3
	(3) 2 X 8	2	6'-11"	1	5'-3"	2	4'-5"	2
	(3) 2 X 10	2	8'-3"	2	6'-3"	2	5'-3"	2
	(3) 2 X 12	2	9'-8"	2	7'-5"	2	6'-2"	2
** BUILDING WIDTHS GREATER THAN 36'-0", SEE LANCASTER CITY BUILDING CODE OFFICIAL BEFORE PROCEEDING								



INTERIOR LOAD-BEARING WOOD HEADER TABLE

HEADER SUPPORTING (SEE BELOW)	HEADER DESCRIPTION S I Z E	B U I L D I N G					
		12 FEET		24 FEET		36 FEET	
		SPAN (OPENING) STUDS	# OF JACK STUDS	SPAN (OPENING) STUDS	# OF JACK STUDS	SPAN (OPENING) STUDS	# OF JACK STUDS
ONE FLOOR ONLY 	(2) 2 X 4	4'-1"	1	2'-10"	1	2'-4"	1
	(2) 2 X 6	6'-1"	1	4'-4"	1	3'-6"	1
	(2) 2 X 8	7'-4"	1	5'-5"	1	4'-5"	2
	(2) 2 X 10	9'-2"	1	6'-6"	2	5'-3"	2
	(2) 2 X 12	10'-4"	1	7'-7"	2	6'-3"	2
	(3) 2 X 8	9'-0"	1	6'-10"	1	5'-7"	1
	(3) 2 X 10	11'-5"	1	8'-1"	1	6'-7"	2
TWO FLOORS 	(3) 2 X 12	13'-6"	1	9'-6"	2	7'-4"	2
	(2) 2 X 4	2'-7"	1	1'-11"	1	1'-7"	1
	(2) 2 X 6	3'-11"	1	2'-11"	2	2'-5"	2
	(2) 2 X 8	5'-0"	1	3'-8"	2	3'-1"	2
	(2) 2 X 10	5'-11"	2	4'-4"	2	3'-7"	2
	(2) 2 X 12	6'-11"	2	5'-2"	2	4'-3"	3
	(3) 2 X 8	6'-3"	1	4'-7"	2	3'-10"	2
	(3) 2 X 10	7'-5"	1	5'-6"	2	4'-6"	2
	(3) 2 X 12	8'-0"	2	6'-5"	2	5'-4"	2

BEARING WALL REQUIREMENTS -

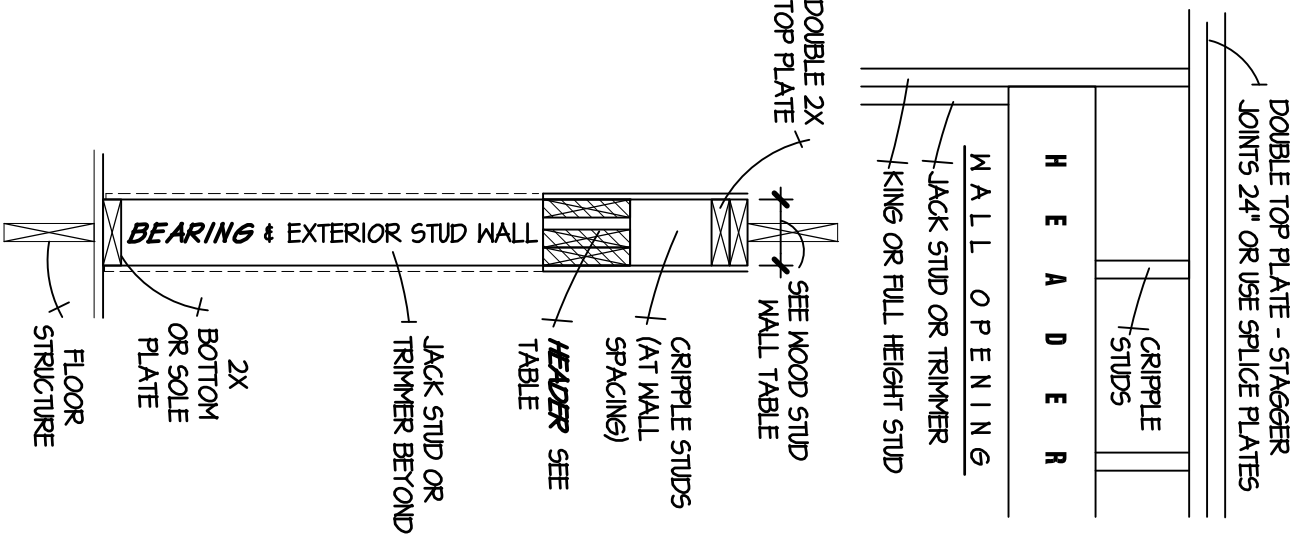
1. DISTANCE BETWEEN TOP DOUBLE PLATES & BOTTOM PLATE SHALL BE SHEATHED W/ **STRUCTURAL SHEATHING**, MINIMALLY ON ONE SIDE OF STUD WALL.

OR

2. BRIDGING THE LENGTH OF WALL NO GREATER THAN 4'-0" APART MEASURED VERTICALLY.

WOOD **HEADER** GRADE REQUIREMENTS -

1. MINIMUM NO.2 GRADE LUMBER OF DOUGLAS FIR LARCH, HEM-FIR, SOUTHERN PINE, SPRUCE-PINE FIR
- 2.

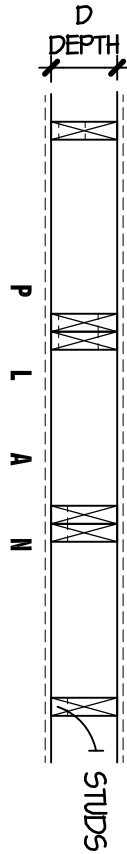


CONVENTIONAL LIGHT FRAMING :

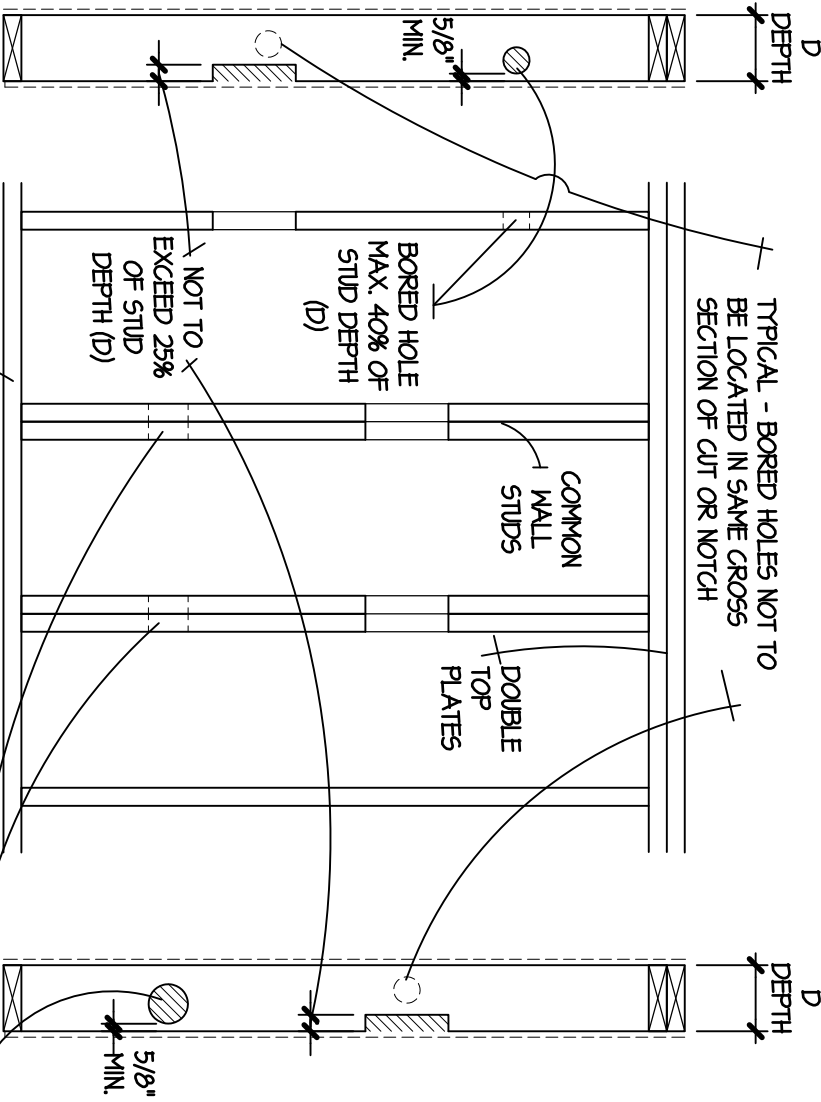
INFORMATION INDICATES MINIMUM REQUIREMENTS

1. LOAD - BEARING WOOD STUD WALL

CONVENTIONAL LIGHT FRAMING: CONVENTIONAL LUMBER: CUTTING, DRILLING & NOTCHING - BEARING WALLS



TYPICAL - BORED HOLES NOT TO BE LOCATED IN SAME CROSS SECTION OF CUT OR NOTCH

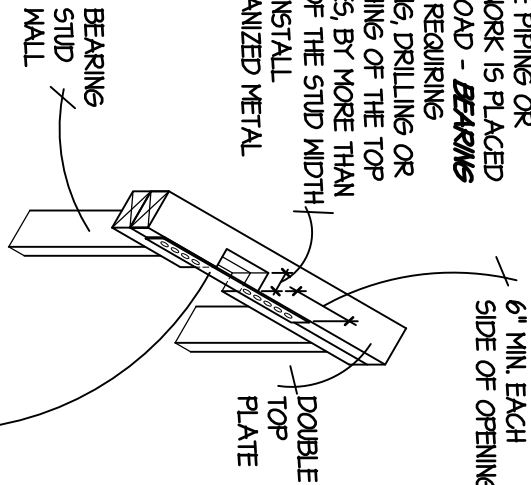


SECTION SINGLE STUD WALL

2X BOTTOM OR SOLE PLATE ELEVATION

SECTION DOUBLE STUD WALL

WHERE PIPING OR DUCTWORK IS PLACED IN A LOAD - **BEARING** WALL, REQUIRING CUTTING, DRILLING OR NOTCHING OF THE TOP PLATES, BY MORE THAN 50% OF THE STUD WIDTH (D), INSTALL GALVANIZED METAL TIES.

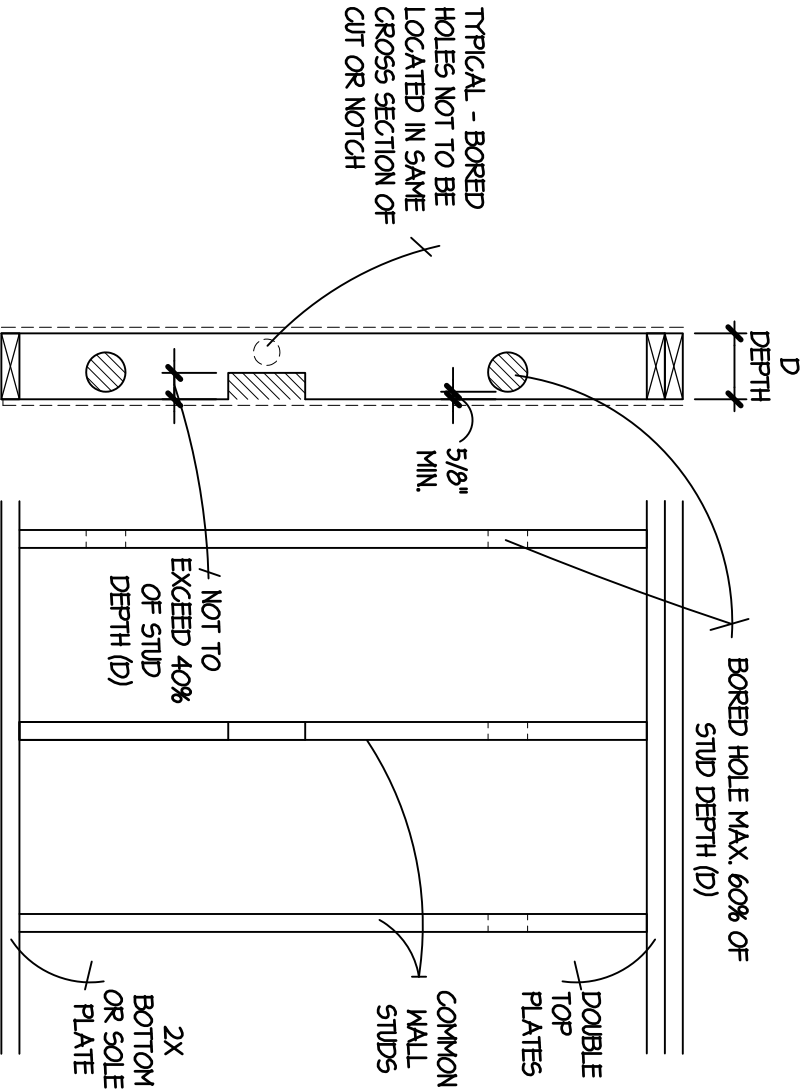
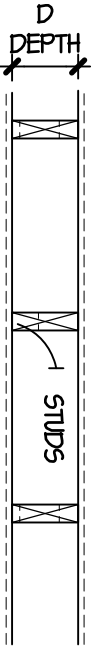


GALVANIZED METAL TIE NOT LESS THAN 0.054" (16 GA.) THICKNESS & 1 1/2" WIDE, FASTENED WITH EIGHT 10d NAILS EACH SIDE.

EXCEPTION - GALVANIZED METAL TIES ARE NOT REQUIRED, WHERE ENTIRE SIDE OF THE WALL, WITH THE NOTCH OR CUT, IS COVERED BY **STRUCTURAL SHEATHING**.

IF HOLE IS BETWEEN 40% & 60% OF STUD DEPTH (D), STUDS MUST BE DOUBLED & NOT MORE THAN TWO SUCCESSIVE STUDS AND BORED (EXCEPTION - STUD SHOES ARE PERMITTED WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION)

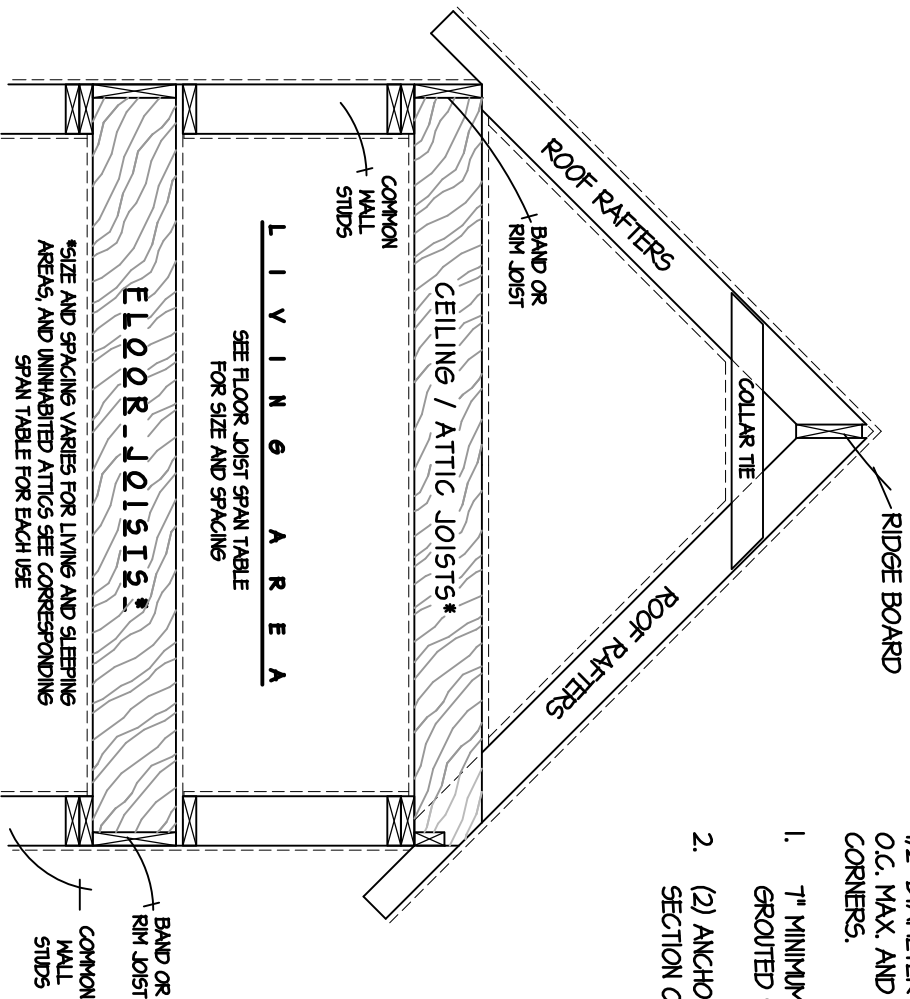
CONVENTIONAL LIGHT FRAMING:
CONVENTIONAL LUMBER: CUTTING, DRILLING & NOTCHING - NON-BEARING WALLS



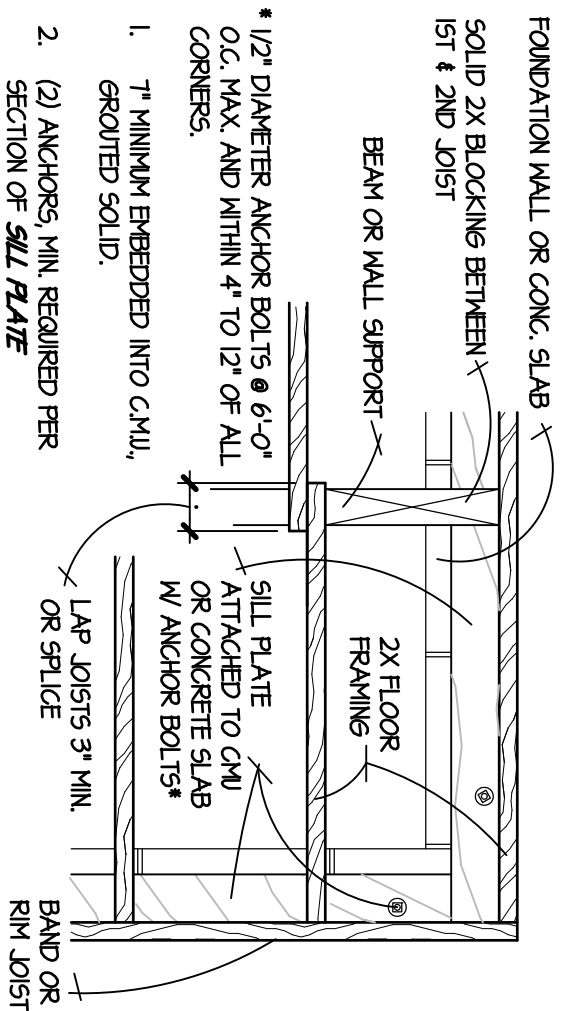
SECTION
SINGLE STUD
W A L L

E L E V A T I O N

CONVENTIONAL LIGHT FRAMING: RESIDENTIAL: LIVING AREA FLOOR JOISTS



TYPICAL BUILDING SECTION



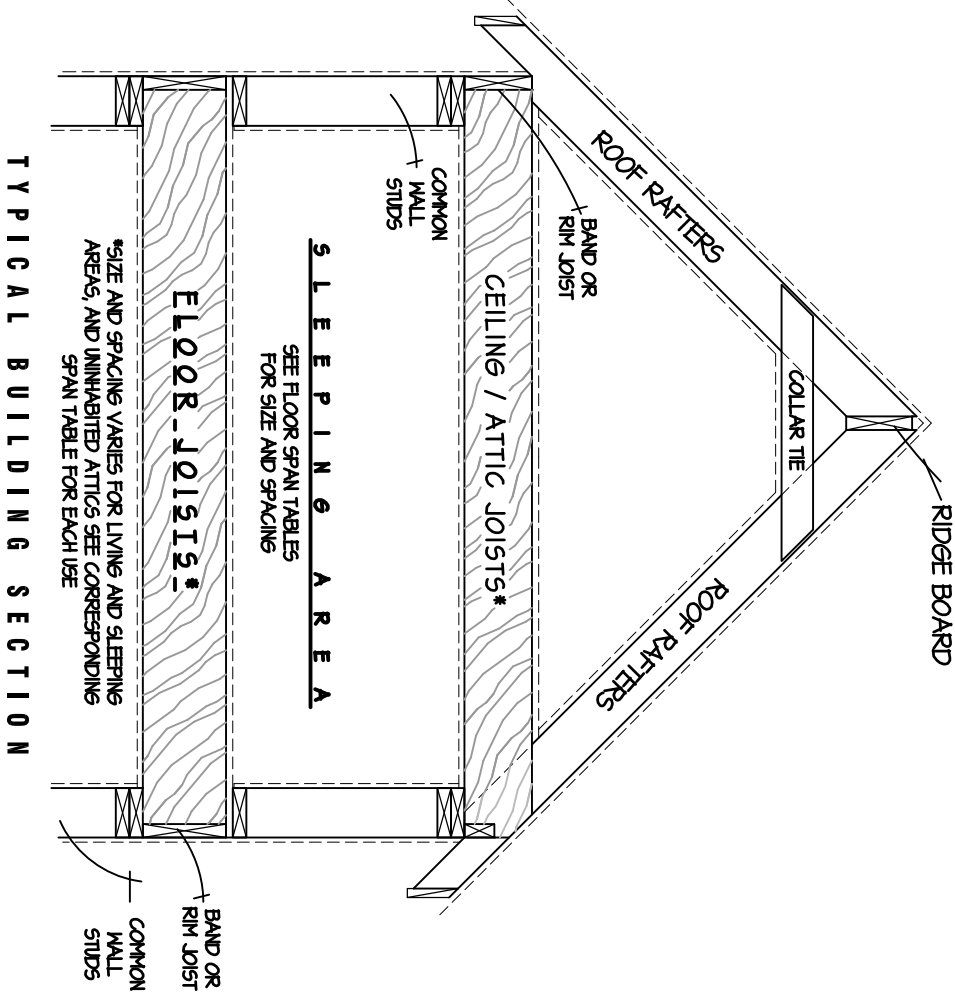
BIRDS EYE VIEW: FIRST FLOOR FRAMING

FLOOR JOIST SPAN TABLE

JOIST SPACING	S P E C I E S	GRADE	DEAD LOAD = 10 PSF**			
			LIVE LOAD = 40 PSF**	2 X 6	2 X 8	2 X 10
12 INCHES ON CENTER	S P R U C E - P I N E - F I R # 2	# 2	10'-3"	13'-6"	17'-3"	20'-7"
16 INCHES ON CENTER	S P R U C E - P I N E - F I R # 2	# 2	9'-4"	12'-3"	15'-5"	17'-10"
24 INCHES ON CENTER	S P R U C E - P I N E - F I R # 2	# 2	8'-1"	10'-3"	12'-7"	14'-7"

** CODE MINIMUM LOADING REQUIREMENTS

CONVENTIONAL LIGHT FRAMING: **RESIDENTIAL: SLEEPING AREA FLOOR JOISTS**

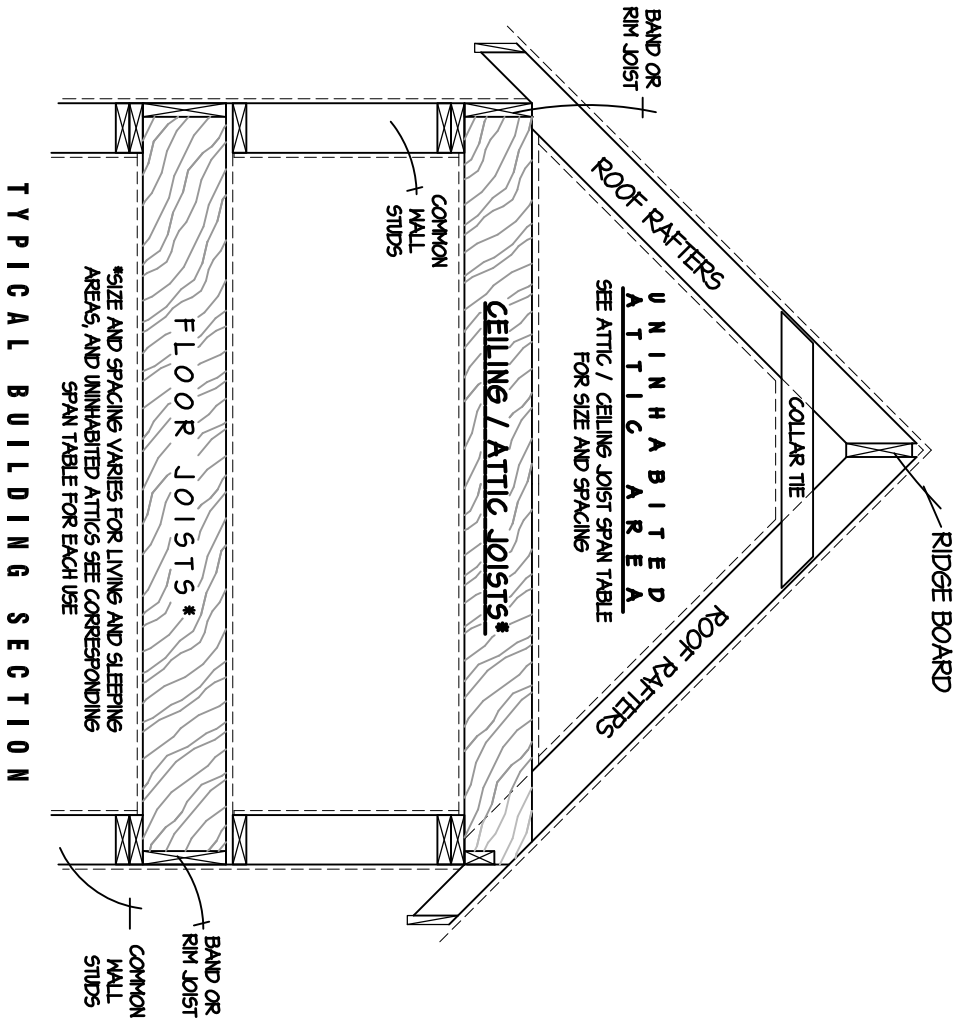


FLOOR JOIST SPAN TABLE									
JOIST SPACING	WOOD SPECIES	GRADE	DEAD LOAD = 10 PSF** LIVE LOAD = 30 PSF**						
			2 X 6	2 X 8	2 X 10	2 X 12	MAXIMUM FLOOR JOIST SPAN		
12 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2	11'-3"	14'-11"	19'-0"	23'-0"			
16 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2	10'-3"	13'-6"	17'-2"	19'-11"			
24 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2	8'-11"	11'-6"	14'-1"	16'-3"			

CODE MINIMUM LOADING REQUIREMENTS

** CODE MINIMUM LOADING REQUIREMENTS

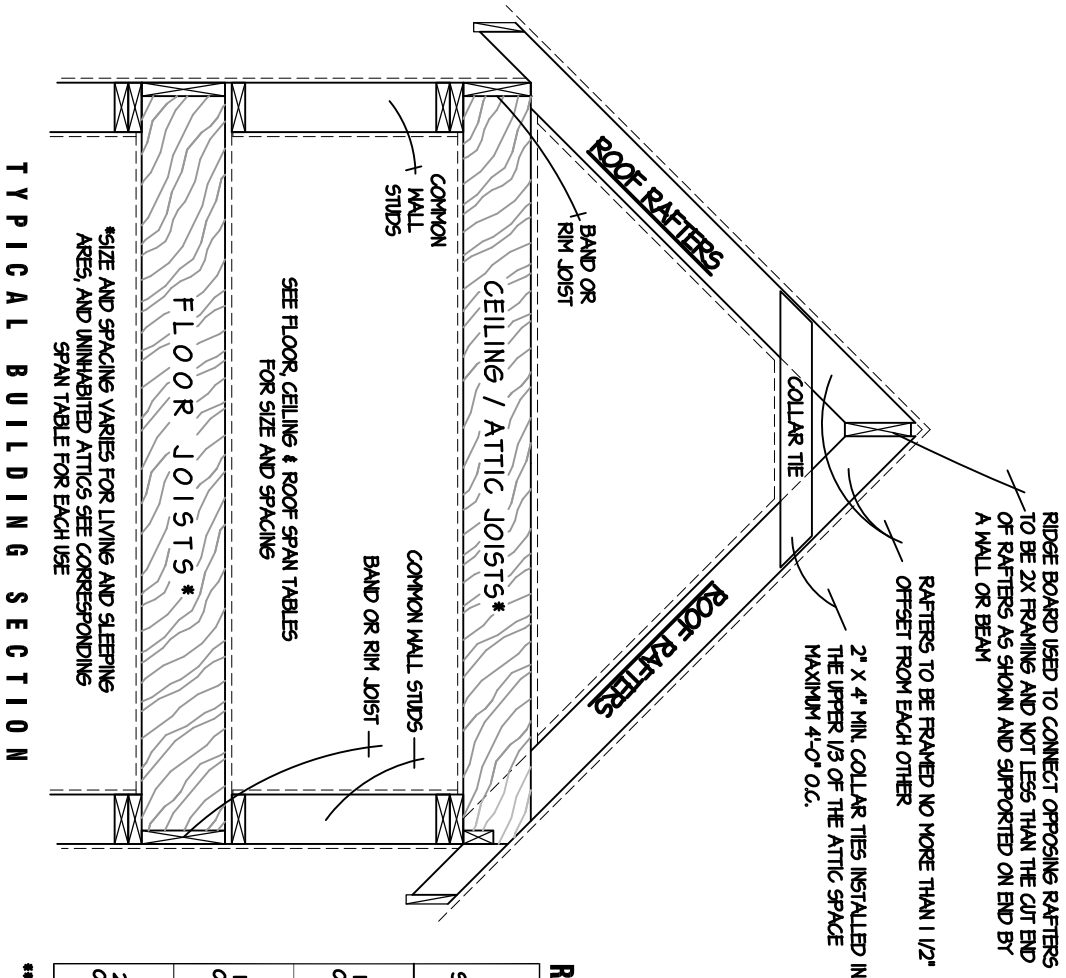
CONVENTIONAL LIGHT FRAMING: **RESIDENTIAL: UNINHABITED ATTIC AREA FLOOR / CEILING JOISTS**



ATTIC / CEILING JOIST SPAN TABLE														
JOIST SPACING	WOOD SPECIES	GRADE	DEAD LOAD = 10 PSF** LIVE LOAD = 20 PSF**											
			MAXIMUM FLOOR JOIST SPAN											
			2 X 4	2 X 6	2 X 8	2 X 10								
12 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2			9'-5"			14'-0"			19'-4"			22'-11"
16 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2			8'-7"			12'-10"			16'-3"			19'-10"
24 INCHES ON CENTER	SPRUCE-PINE-FIR	# 2			7'-2"			10'-6"			13'-3"			16'-3"

** CODE MINIMUM LOADING REQUIREMENTS

CONVENTIONAL LIGHT FRAMING: RESIDENTIAL: ROOF RAFTERS



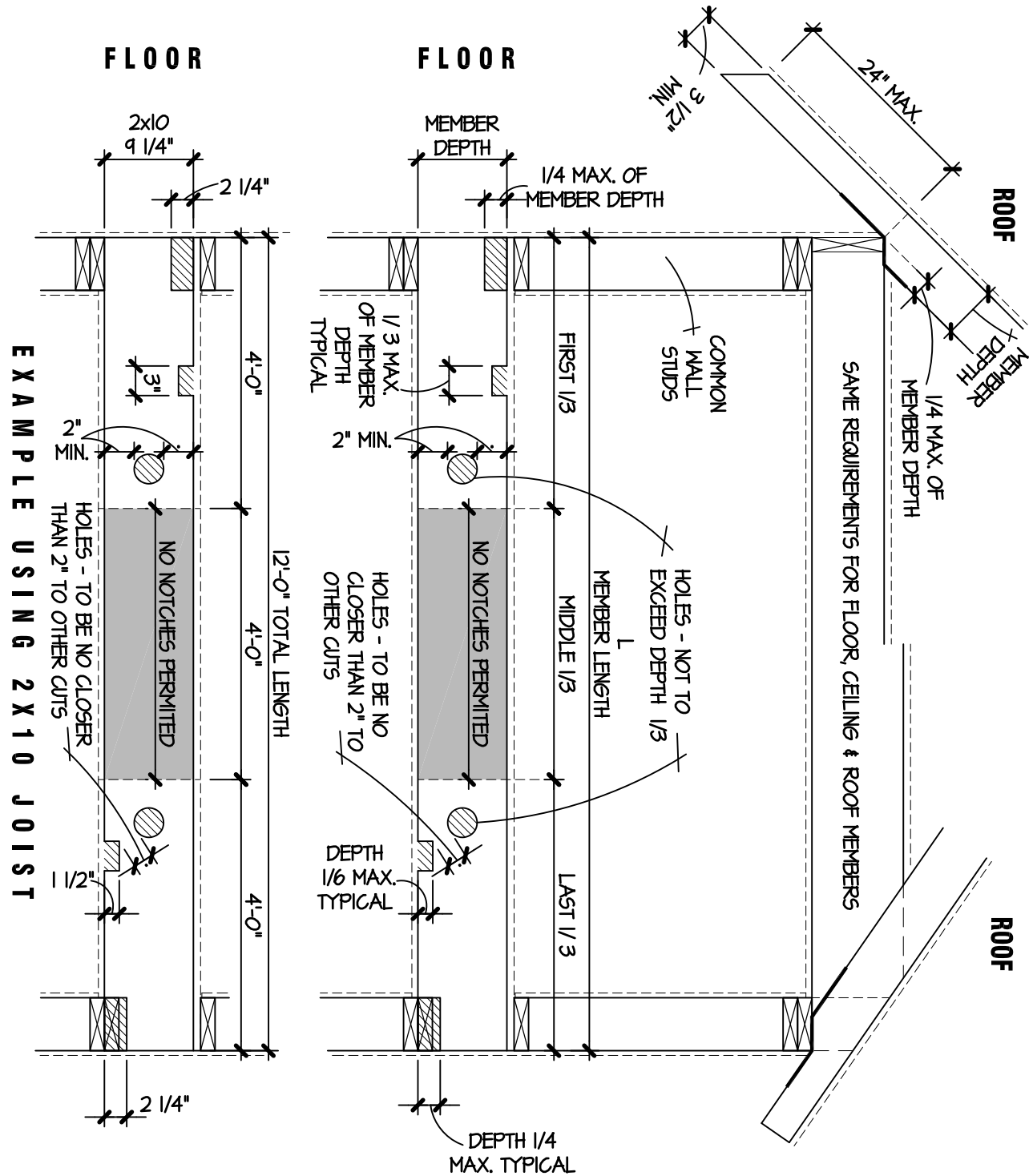
R O O F R A F T E R S P A N T A B L E																	
JOIST SPACING	WOOD SPECIES	GRADE	DEAD LOAD = 20 PSF** SNOW LOAD = 30 PSF**														
			2	X	4	2	X	6	2	X	8	2	X	10	2	X	12
			MAXIMUM ROOF RAFTER SPAN MINIMUM SLOPE: 1/4" PER FOOT														
12 INCHES ON CENTER																	
	SPRUCE-PINE-FIR	# 2	8'-3"					12'-4"				15'-7"			14'-1"	22'-1"	
16 INCHES ON CENTER																	
	SPRUCE-PINE-FIR	# 2	7'-3"					10'-8"				13'-6"			16'-6"	14'-2"	
24 INCHES ON CENTER																	
	SPRUCE-PINE-FIR	# 2	5'-11"					8'-8"				11'-0"			13'-6"	15'-7"	

** CODE MINIMUM LOADING REQUIREMENTS

CONVENTIONAL LIGHT FRAMING:

CONVENTIONAL LUMBER: CUTTING, DRILLING & NOTCHING - JOISTS & RAFTERS

- NOTE: NO CUTTING, DRILLING OR NOTCHING TO BE DONE IN MIDDLE 1/3 OF ANY MEMBER.
- NO NOTCHING OF **ENGINEERED LUMBER**, TRUSSES, TJI, OR **MANUFACTURED WOOD BEAMS**.



EXAMPLE USING 2X10 JOIST

INSULATION: THERMAL ENVELOPE

-
- SECTION
1. CONTINUOUS SILL SEALER
2. CONCRETE SLAB
3. OCCUPIED SPACE
4. CEILING / ATTIC FRAMING
5. RAFTER VENTS
6. ROOF RAFTERS
7. RAFTER VENT (CONTINUOUS FROM EAVE TO RIDGE)
8. COLLAR
9. RIDGE BOARD
10. ROOF RAFTERS
11. RAFTER VENTS
12. CONTINUOUS SILL SEALER

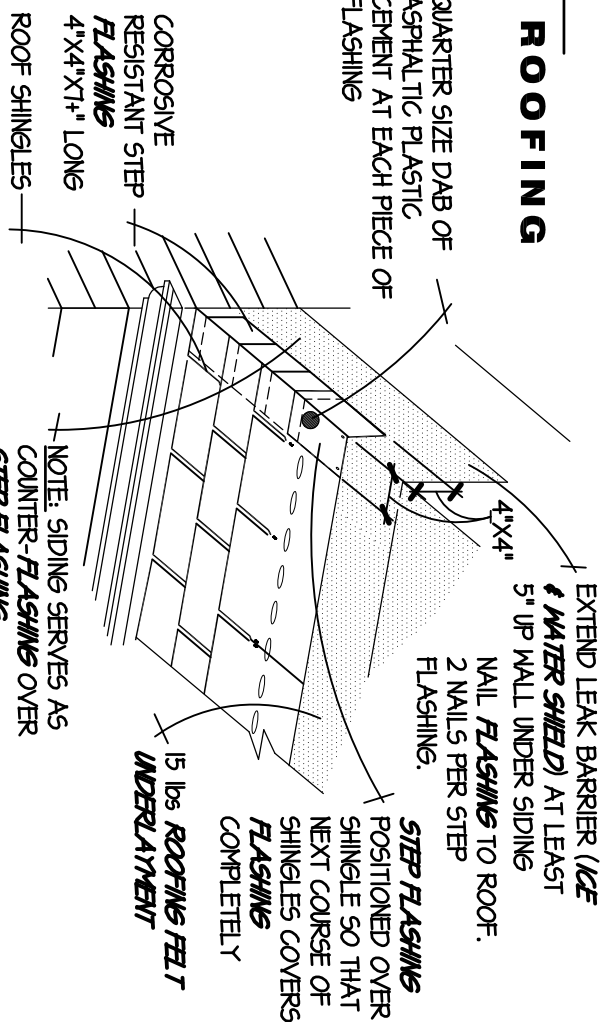
SEE SECTION FOR MARK

INSULATION MARK (#)	INSULATION TYPE & LOCATION	INSULATION DESCRIPTION & (MINIMUM REQUIREMENT)
1	ROOF INSULATION - CONCRETE SLAB	R-10 CONTINUOUS - 2'-0" VERTICAL FROM TOP OF CONCRETE SLAB
1a	ROOF INSULATION - BASEMENT OR CRAWL SPACE	R-15 CONTINUOUS - ON INTERIOR OR EXTERIOR OF WALL OR (R-14 CAVITY INSULATION ON INTERIOR)
2	CAVITY (BATT TYPE) - FLOOR FRAMING	R-30 CONTINUOUS - OR FILL FRAMING DEPTH (R-14 MIN)
3	CAVITY (BATT TYPE) - WALL FRAMING	R-20 CONTINUOUS - OR R-15 CAVITY INSULATION + R-5 CONTINUOUS
4	CAVITY (BATT TYPE) - CEILING / ATTIC FRAMING	R-14 BETWEEN JOISTS OR R-30 IF UNCOMPRESSED ABOVE JOISTS CEILING WITHOUT ATTIC SPACE
5	CAVITY (BATT TYPE) - CEILING FRAMING	R-30 CONTINUOUS - CEILING WITHOUT ATTIC SPACES OR CATHEDRAL TYPE CEILING (LIMITED TO 500 SQUARE FEET AREA OR 20% OF TOTAL INSULATED CEILING)
PENETRATION (RANDOM & DOOR)		U-FACTOR - 0.30
SKYLIGHT		U-FACTOR - 0.55

CONVENTIONAL LIGHT FRAMING:

FLASHING DETAILS: SHINGLE ROOFING

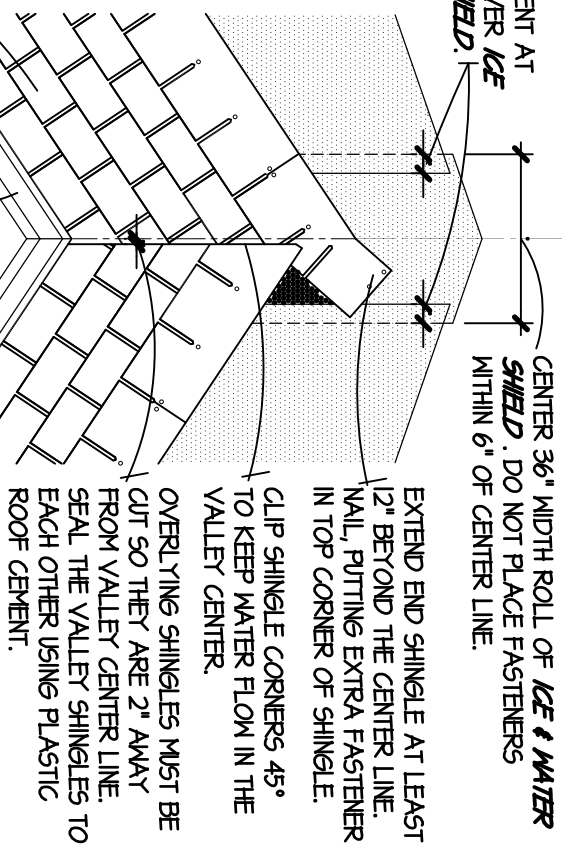
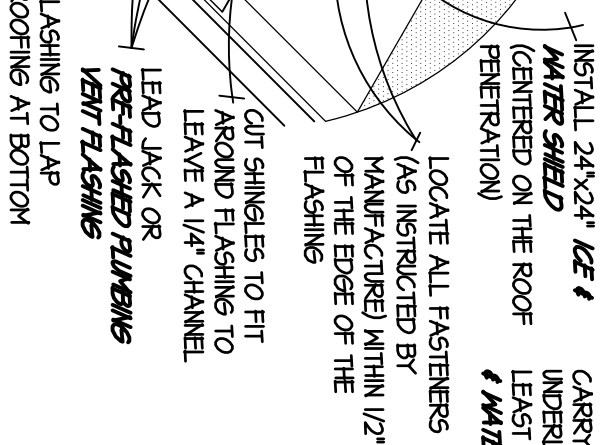
1. INSTALL **ICE & WATER SHIELD** FROM THE LOWEST LEVEL OF ROOF NOT LESS THAN 24" INSIDE THE EXTERIOR WALL.
2. **UNDERLAYMENT** (1) LAYER (15-lb **ROOFING FELT**)
(2) LAYERS WHEN ROOF SLOPE IS LESS THAN 4":12".



SLOPED WALL FLASHING

at roof to wall location

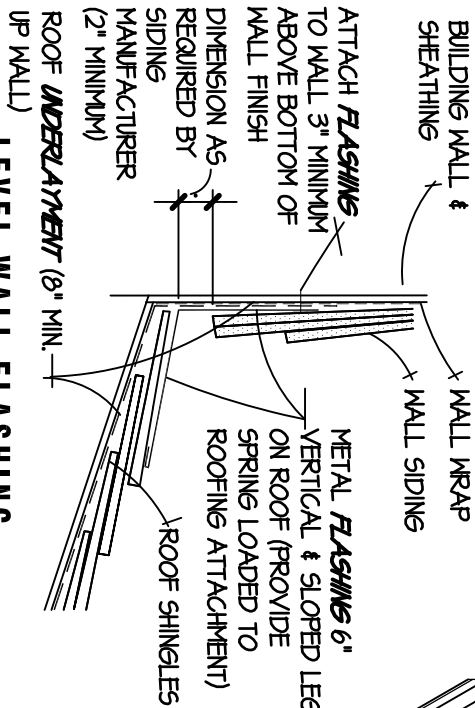
OVER ROOF SHEATHING - INSTALL **UNDERLAYMENT** 15-lb **ROOFING FELT** ATTACH W/ NON-CORROSIVE FASTENERS (MADE FOR THIS PURPOSE) AT GRID PATTERN OR 12" SIDE LAPS WITH 6" SPACING AT SIDE & END LAPS. NAILS TO PENETRATE THE ROOF SHEATHING (NOT LESS THAN 3/4").



CONVENTIONAL LIGHT FRAMING:

FLASHING DETAILS: SHINGLE ROOFING

1. INSTALL **ICE & WATER SHIELD** FROM THE LOWEST LEVEL OF ROOF NOT LESS THAN 24" INSIDE THE EXTERIOR WALL.
2. **UNDERLAYMENT** (1) LAYER (15-lb **ROOFING FELT**)
(2) LAYERS WHEN ROOF SLOPE IS LESS THAN 4":12".

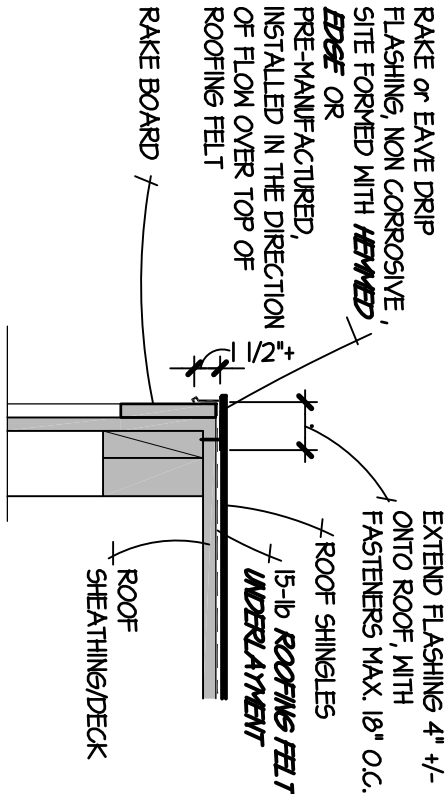


LEVEL WALL FLASHING

at roof to wall location

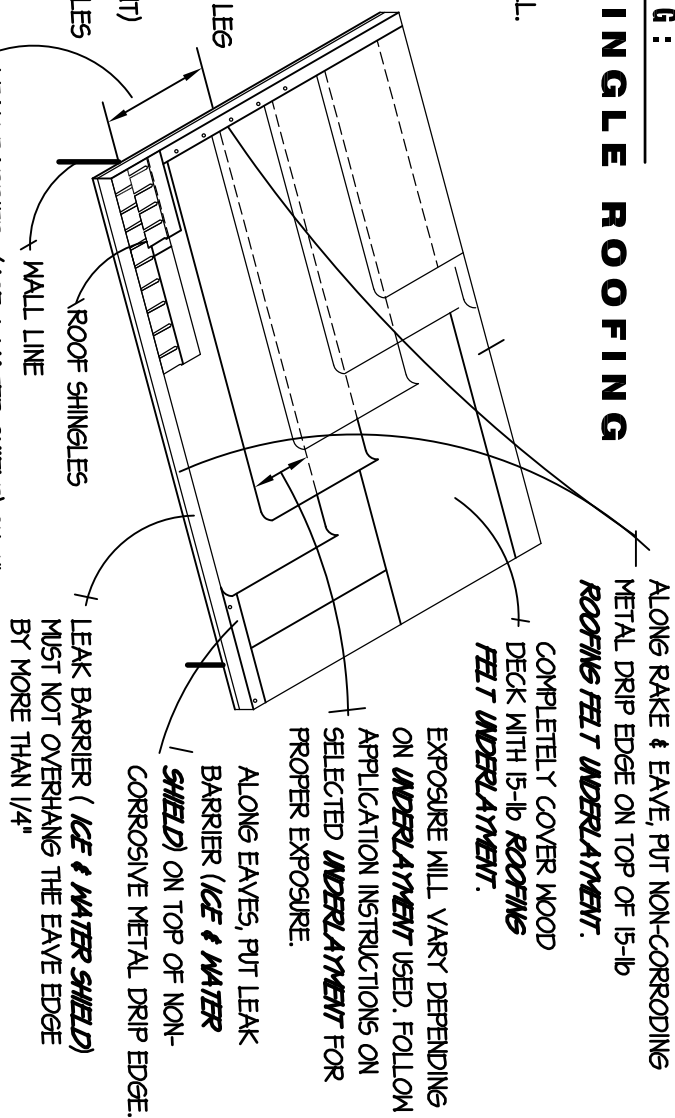
RAKE & EAVE FLASHING

at roof edge location



RAKE FLASHING

at roof edge location

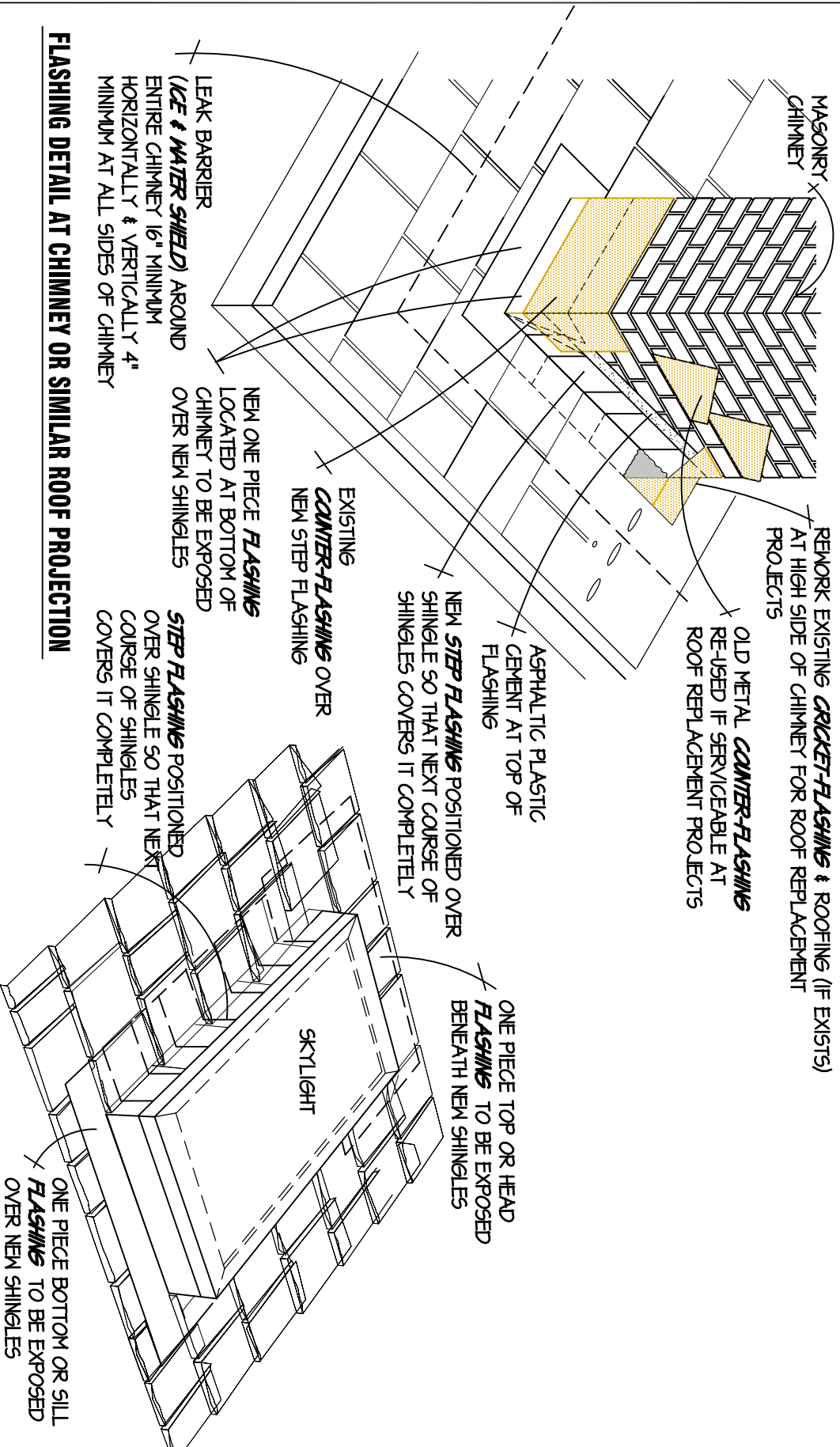


EXTERIOR ELEVATION

CONVENTIONAL LIGHT FRAMING:

FLASHING DETAILS: SHINGLE ROOFING

1. INSTALL **ICE & WATER SHIELD** FROM THE LOWEST LEVEL OF ROOF NOT LESS THAN 24" INSIDE THE EXTERIOR WALL.
2. **UNDERLAYMENT** (1) LAYER (15-lb **ROOFING FELT**) (2) LAYERS WHEN ROOF SLOPE IS LESS THAN 4":12".



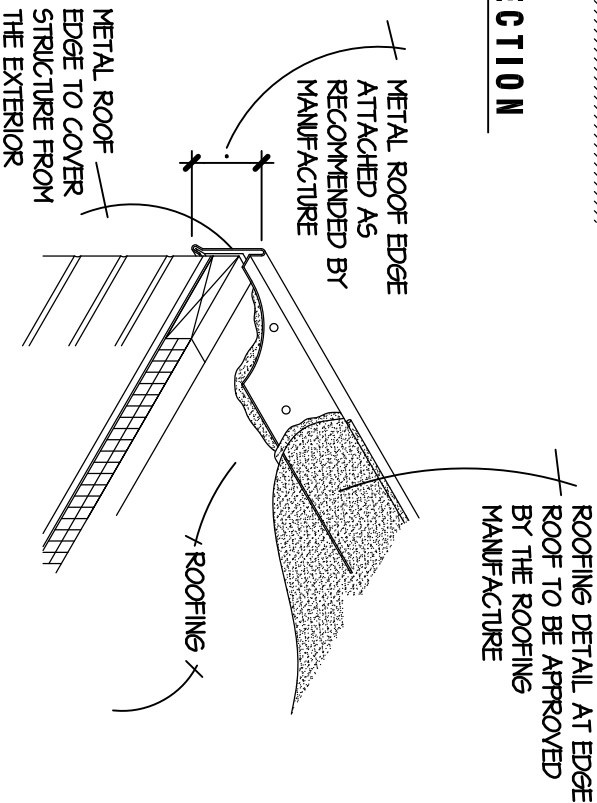
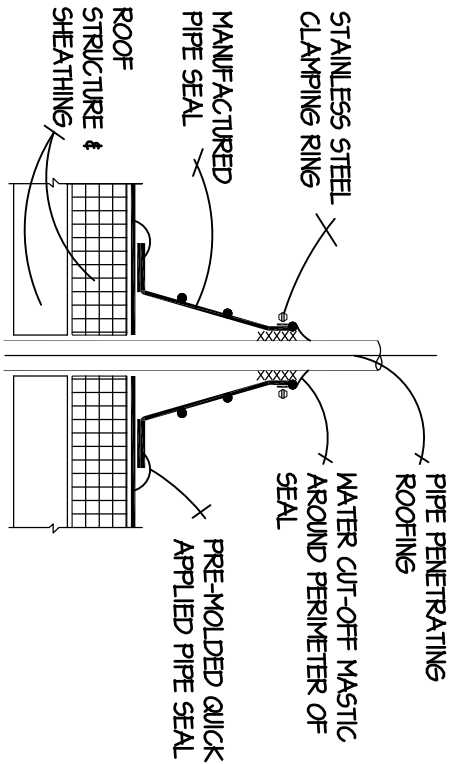
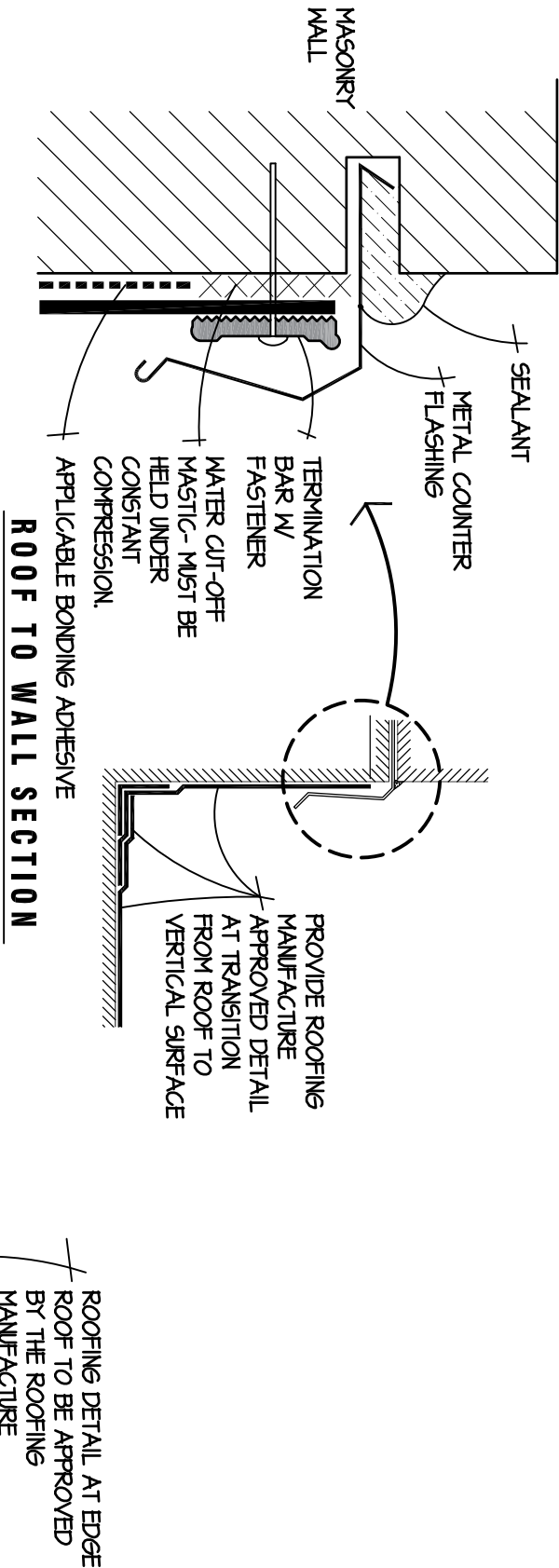
FLASHING DETAIL AT CHIMNEY OR SIMILAR ROOF PROJECTION

FLASHING DETAIL AT SKYLIGHT OR SIMILAR ROOF PROJECTION

CONVENTIONAL LIGHT FRAMING:

FLASHING DETAILS: SINGLE PLY ROOFING

1. ALL MATERIALS & DETAILS USED TO BE COMPATIBLE & APPROVED BY ROOFING MANUFACTURER.
2. MANUFACTURED PIPE SEAL INFORMATION:
 - A. TEMPERATURE OF PIPE PENETRATION MUST NOT EXCEED 180°F (82°C).
 - B. PRE-MOLDED PIPE SEAL MUST HAVE INTACT RIB AT THE TOP EDGE REGARDLESS OF PIPE DIAMETER.



EMERGENCY ESCAPE OPENING INFORMATION:

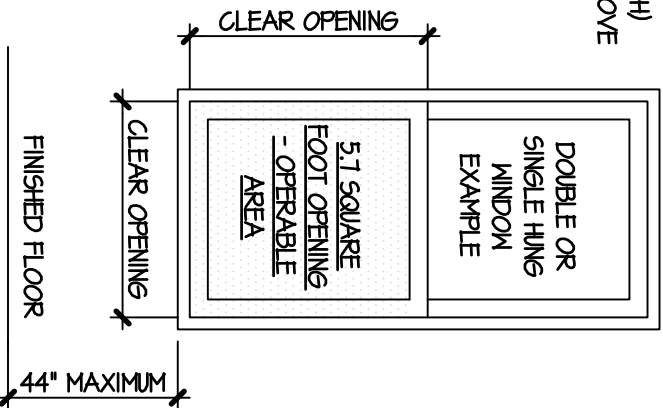
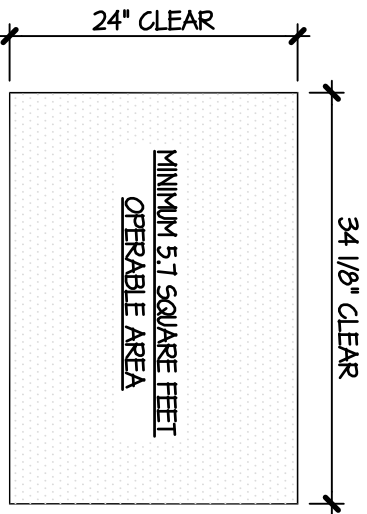
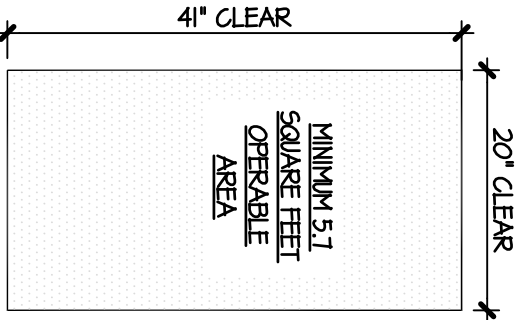
1. EMERGENCY ESCAPE & RESCUE OPENINGS (I) REQUIRED AT THE FOLLOWING LOCATIONS. (OPENING MUST OPEN ONTO A PUBLIC WAY, OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY).
 - A. HABITABLE ATTICS
 - B. EVERY SLEEPING ROOM
 - C. BASEMENTS - NOTE IF BASEMENTS HAVE MULTIPLE SLEEPING ROOMS, EACH ROOM REQUIRED TO HAVE ITS OWN OPENING. FOR POSSIBLE EXCEPTIONS TO THE ABOVE, CONTACT THE BUILDING OFFICIAL AT THE CITY OF LANCASTER.
2. A. STORM SHELTERS & BASEMENTS USED ONLY FOR MECHANICAL EQUIPMENT NOT EXCEEDING A TOTAL FLOOR AREA OF 200 SQUARE FEET. B. DWELLING & TOWNHOUSES EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM - WITH ONE OF THE FOLLOWING:
 1. ONE (1) MEANS OF EGRESS & ONE EMERGENCY ESCAPE AND RESCUE OPENING AT BASEMENTS WITH SLEEPING ROOMS.
 2. TWO (2) MEANS OF EGRESS AT BASEMENTS WITH SLEEPING ROOM.
3. MUST BE OPERABLE FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS, TOOLS OR SPECIAL KNOWLEDGE.
4. IF A SECURITY GRILL IS USED ON THE OPENING IT MUST BE ABLE TO BE REMOVED WITHOUT SPECIAL TOOLS OR KNOWLEDGE.
5. IF WINDOW OR DOOR OPENINGS ARE BELOW FINISHED GRADE, A WELL SPACE MUST BE USED IN ADDITION TO THE INFORMATION ABOVE (BELOW GRADE EMERGENCY ESCAPES TO BE CONFIRMED WITH THE BUILDING OFFICIAL AT THE CITY OF LANCASTER). THE WINDOW WELL MINIMUM DIMENSION SHALL NOT BE LESS THAN 9 SQUARE FEET WITH A HORIZONTAL PROJECTION & WIDTH OF NOT LESS THAN 36". THE AREA OF THE WINDOW WELL SHALL ALLOW THE EMERGENCY ESCAPE OPENING TO BE FULLY OPENED.

INSPECTIONS REQUIRED:

1. ROUGH-IN WORK
2. WHEN COMPLETE.

NOTE:

1. MINIMUM OPERABLE AREA CANNOT BE ACHIEVED BY USING BOTH THE MINIMUM WIDTH & MINIMUM HEIGHT DIMENSIONS. IT MUST BE ACHIEVED BY THE PRODUCT OF WIDTH X THE HEIGHT AND MUST EQUAL 5.7 SQUARE FEET OR (620 SQUARE INCHES).
- (MINIMUM OPENING DIMENSIONS - 20 INCHES WIDE & 24 INCHES HIGH)
2. FINISHED SILL HEIGHT SHALL NOT BE MORE THAN 44 INCHES ABOVE THE FINISHED FLOOR.



EXAMPLES OF MINIMUM OPENING AREAS

NOTE: FIRST FLOOR OR BELOW GRADE AREAS CAN BE 5 SQUARE FEET

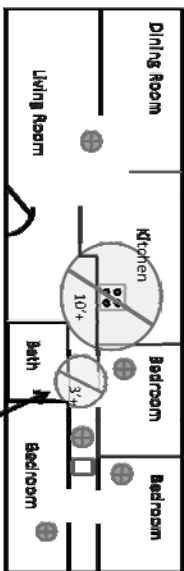
INFORMATION INDICATES MINIMUM REQUIREMENTS

1. **GF - GROUND-FALT CIRCUIT-INTERRUPTER** - ALL TO BE 125V, SINGLE PHASE, 15- AND 20- AMPERE RECEPTACLES INSTALLED AT FOLLOWING LOCATIONS:
 - A. BATHROOMS, GARAGES & SIMILAR BUILDINGS WITH FLOOR LEVEL AT OR BELOW GRADE LEVEL.
 - B. OUTDOORS
 - C. CRAWL SPACES & UNFINISHED BASEMENTS
 - D. KITCHENS - WHERE THE RECEPTACLES ARE INSTALLED TO SERVE THE COUNTER TOP SURFACES.
 - E. SINK AREAS THAT ARE WITHIN 6 FEET OF THE OUTSIDE EDGE OF SINKS.
 - F. BATHUB OR SHOWER STALLS - WHERE INSTALLED WITHIN 6 FEET OF THE OUTSIDE EDGES OF UNIT.
 - G. LAUNDRY AREAS
2. **ARC-FALT CIRCUIT INTERRUPTER PROTECTION** TO BE INSTALLED IN A READILY ACCESSIBLE LOCATION - ALL TO BE 120V, SINGLE PHASE, 15- AND 20- AMPERE RECEPTACLES INSTALLED IN ALL DWELLING LOCATIONS - INSTALLED AS REQUIRED:
 - a. LISTED COMBINATION-TYPE ARC-FALT CIRCUIT INTERRUPTER INSTALLED TO PROVIDE PROTECTION OF THE ENTIRE BRANCH CIRCUIT.
3. **PANEL AND EQUIPMENT CLEARANCE** - 36" DEPTH X 30" WIDE X 6'-6" HEIGHT
4. **SMOKE & CARBON MONOXIDE DETECTOR** - SEE DIAGRAM BELOW

Are there Smoke Detectors in EACH bedroom, in the hallway(s) outside the bedrooms and on each level, including the basement?

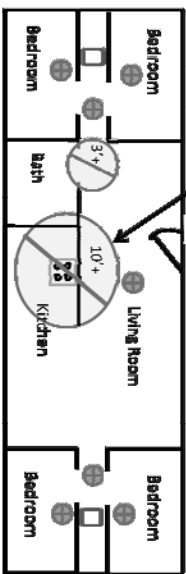
⊕ = Smoke Detector □ = CO (Carbon Monoxide) Detector*

Single-Story Layout



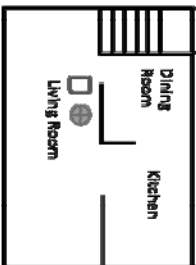
Detectors should be placed more than 10 feet from a cooktop/stove

Detectors should also be placed at least 3 feet from the bathroom, unless specially designed to prevent nuisance alarms from steam exposure

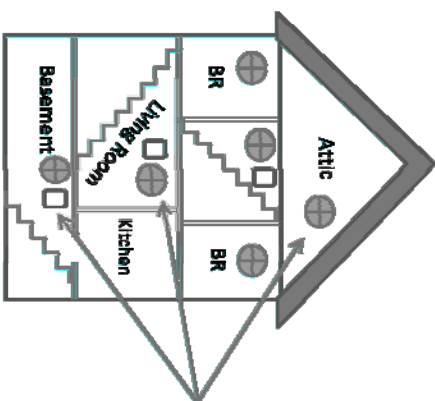
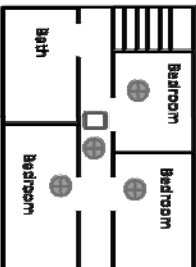


Multi-Story Layout

First Floor



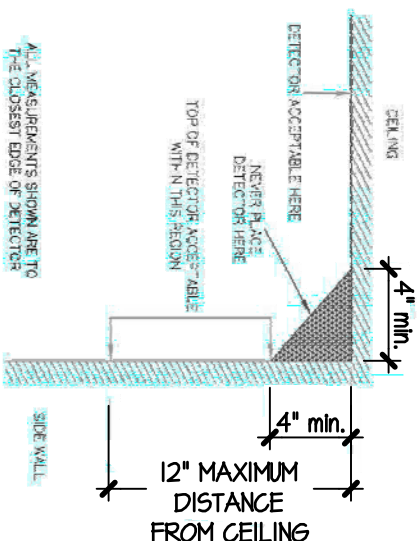
Second Floor



Smoke detectors are required on each level of a dwelling unit (NOT including crawl spaces or uninhabitable attics)

Carbon Monoxide (CO) Detectors are also required on each level of if a fuel burning appliance is in operation

Smoke Detectors *may* be placed on walls, but must be higher than any opening into the room (e.g. doors, windows) and are placed between 4" and 12" from the ceiling. Carbon Monoxide detectors may be battery operated or plug in to an electrical outlet.



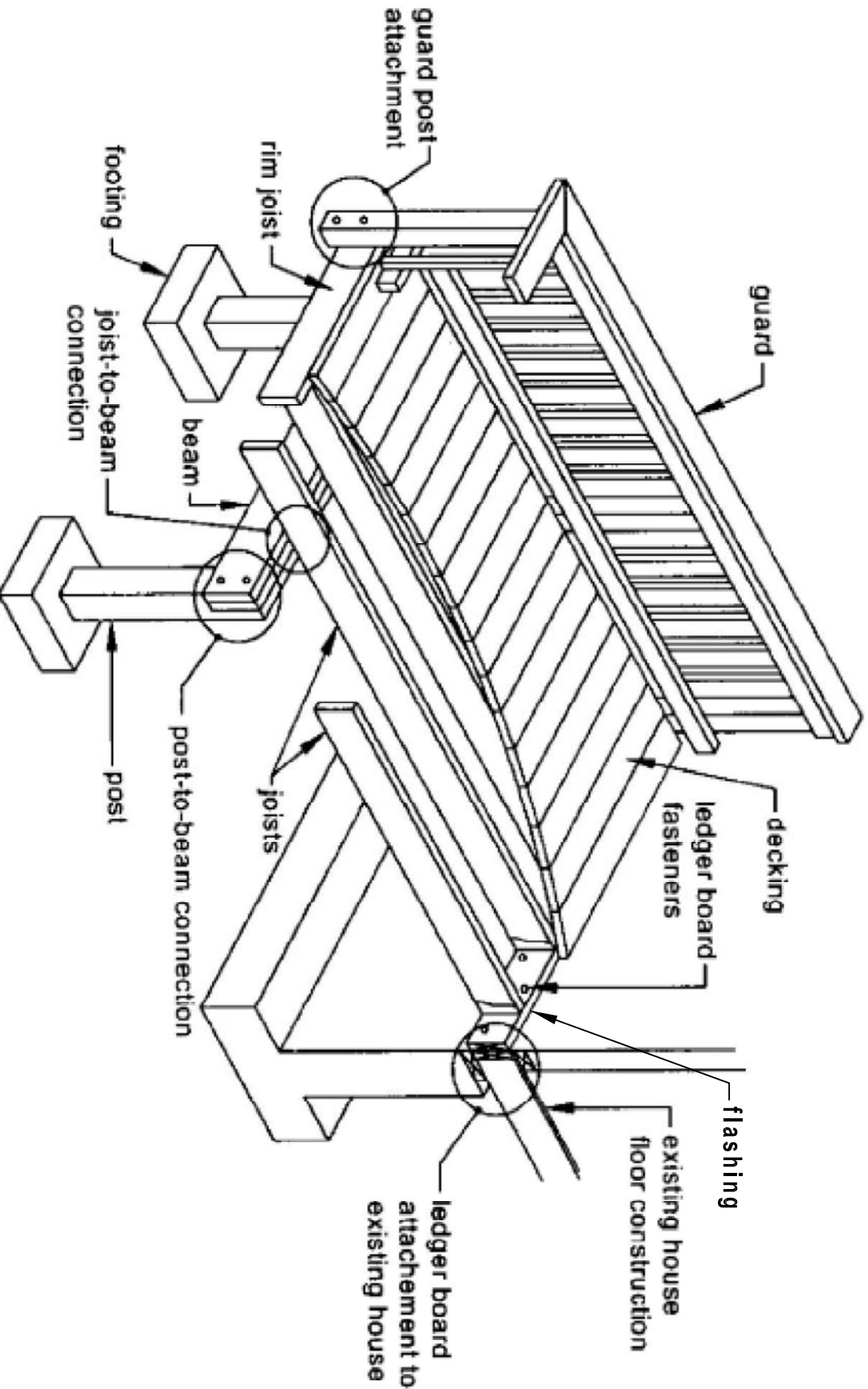
*Required in ALL dwellings with a fuel burning appliance or attached garage by State Law AND the IPMC. May be combination Smoke & CO

NOTE: NEVER ATTACH A DECK TO AN OVERHANG OR MASONRY VENEER. TO A LEDGER BOARD DECK SUPPORT WITH OUT BUILDING INSPECTOR OR STRUCTURAL ENGINEER'S REVIEW

2018 Typical Deck Details

Based on the 2018 International Residential Codes

NOTE: LEDGER SUPPORTS ARE PROHIBITED TO BE ATTACHED TO MASONRY VENEER WALLS OR FLOOR FRAMED OVERHANGS



CONVENTIONAL LIGHT FRAMING:

FOOTING: 1-LEVEL - EXTERIOR DECK

1. IF NO **GEOTECH** REPORT OF PROJECT SITE IS PROVIDED.
2. MINIMUM FOUNDATION SOIL BEARING SHALL BE - 1,500 POUNDS PER SQUARE FOOT. **BUILDING OFFICIAL** SHALL DETERMINE IF A **SOILS TEST** IS REQUIRED.
3. **CONCRETE COMPRESSIVE STRENGTH** - 3,000 POUNDS PER SQUARE INCH OR GREATER.
4. PROVIDE A ROUGH-FINISH AT ANY **COLD JOINTS**.
5. **REINFORCING BAR** MINIMUM LAP AND **EMBLEMENT LENGTH** TO BE 30 BAR DIAMETERS MINIMUM (IF USED).
6. REMOVE ALL UNSUITABLE MATERIAL - ORGANIC MATERIAL, EXCESSIVELY SOFT OR LOOSE SOIL, ASPHALT, CONCRETE, OR OTHER DEBRIS WITHIN THE LIMITS OF THE FOUNDATIONS.
7. FOOTINGS SHALL NOT BE POURED ONTO FROZEN SOIL. DURING FREEZING TEMPERATURE CONCRETE TO BE **AIR ENTRAINED** BETWEEN 5 & 7 % & PROTECT FROM FREEZING TILL ITS BACKFILLED (PROTECT W/ STRAW, BLANKETS OR HEAT).
8. **SLOPE** GRADE AWAY FROM STRUCTURE. TOWARD **STORM SEWER** WHEN POSSIBLE.
9. BUILDINGS CONSTRUCTED ON A SLOPED SITE OF GREATER THAN 33.3% OR (1 vertical:3 horizontal) **SLOPE**, TO CHECK WITH THE **BUILDING OFFICIAL** AT CITY OF LANCASTER FOR SPECIAL REQUIREMENTS.

NOTES:

- A. IF SOIL IS UNSUITABLE, OVER EXCAVATE UNTIL **SUITABLE SOILS** ARE ENCOUNTERED OR CONTACT A **GEOTECH ENGINEER** EXAMPLES OF UNSUITABLE SOIL CONDITIONS, TO BE REMOVED FROM THE NEW BUILDING AREA INCLUDE:
High Water Level Areas
Marmade - dumped / waste , coal ash / slag, old backfill, organic material, vegetation etc.....

- B. CONSULT A **GEOTECH ENGINEER** FOR RECOMMENDATIONS IF DESIRING A POSSIBLE REDUCTION IN SIZE OF FOUNDATION OR ENCOUNTER UNSUITABLE CONDITIONS:

LOCAL **GEOTECH ENGINEERS** INCLUDE: (BUT NOT LIMITED TO):

American Testing Labs Inc. - Lancaster, PA
Siegman Engineering - Red Lion, PA
PSI - Harrisburg, PA
Applied Geoscience & Engineering - Reading, PA
American Geotech Inc. - Reading, PA
FT Kitlinski & Assoc. Inc. - Harrisburg, PA

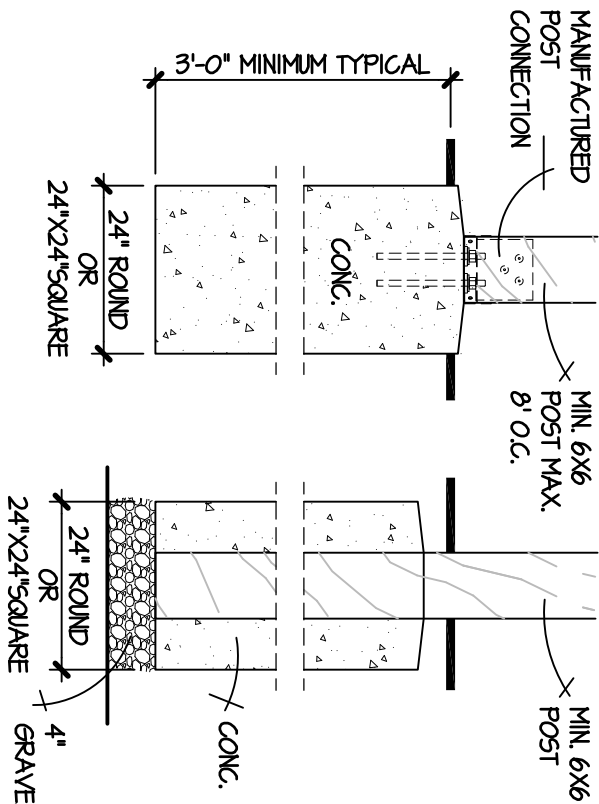
REQUIRED INSPECTIONS:

1. EXCAVATION COMPLETE & READY FOR CONC. FOOTING
2. AFTER FOOTINGS ARE COMPLETE & BEFORE INSTALLATION OF POSTS (IF THAT OPTION IS USED)

FOUNDATION NOTES:

1. DECK FOOTING/FOUNDATIONS CLOSER THAN 5'-0" FROM THE EXISTING EXTERIOR FOUNDATION NEED TO BE AT THE SAME ELEVATION AS THE EXISTING BUILDING FOUNDATION.
2. POSTS TO BE CENTERED ON FOOTINGS.
3. BOTTOM ELEVATIONS OF EXTERIOR WALL FOOTINGS MUST BE 3'-0" MIN. BELOW FINISHED GRADE & MUST BEAR 1'-0" MIN. INTO **UNSATURATED SOIL**.

NOTE: LUMBER FOR POSTS SHALL BE PRESSURE TREATED.

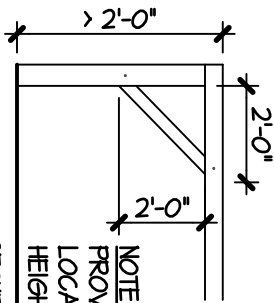


MECHANICAL FA
HURRICANE CLIP

(2)-8d THREADED TOENAIL
(1) ON ONE SIDE & 1 ON OTHER

BASED ON 40 POUNDS PER SQUARE FOOT	
DECK POST SIZE	MAXIMUM HEIGHT
6 X 6 OR 8X6	14'-0"

1. POST HEIGHT MEASURED FROM FINISHED GRADE OR TOP OF FOOTING/FOUNDATION, TO UNDERSIDE OF SUPPORTED BEAMS. WHERE POSTS BEAR ON CONCRETE FOUNDATION, LATERAL RESTRAINT SHALL BE PROVIDED BY MANUFACTURER'S CONNECTORS OR A MIN. OF POST EMBEDMENT A MIN. OF 12" SURROUNDED SOILS AND CONCRETE AS SHOWN IN DETAILS.
2. POSTS TO BE CENTERED ON FOOTINGS.
- 3.



NOTE:
PROVIDE 2" X 4" DIAGONAL BRACING AT CORNER POST LOCATIONS ONLY, WHERE POST ARE MORE THAN 2'-0" IN HEIGHT.

SECURE TO BEAM AND POST WITH 1/2" DIAMETER LAG SCREW

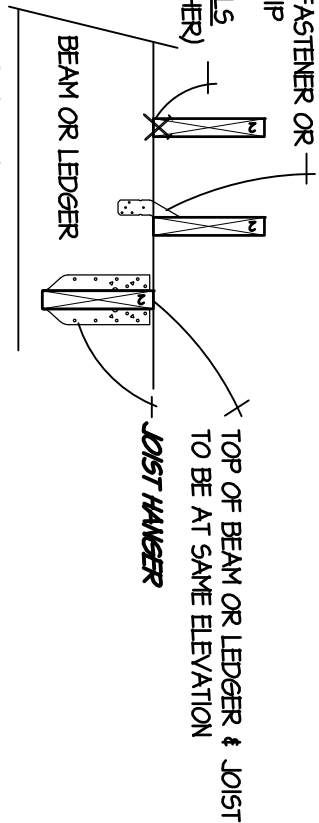
BEAM OVER POST CAP BEAM OVER POST

DECK BEAM TO DECK POST

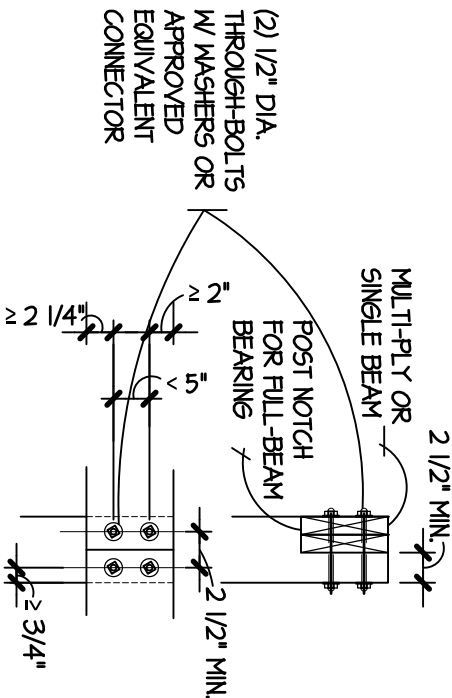
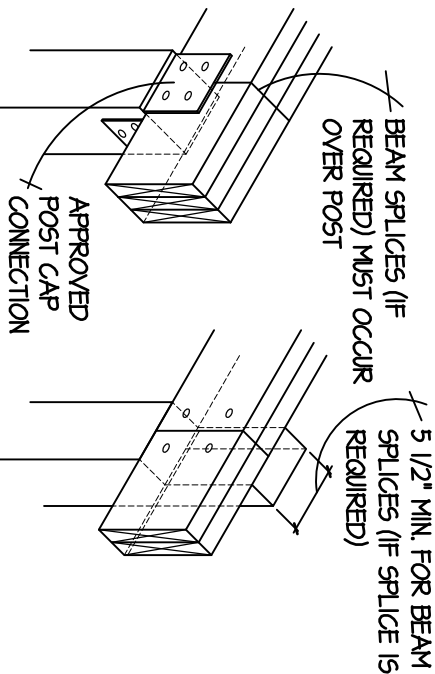
SOUTHERN PINE PRESSURE TREATED	BEAM SIZE	P R O P O S E D J O I S T S P A N							
		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	
		MAX ALLOWABLE BEAM SPAN (distance between posts)							
1-2X6	4-11"	4-0"	3-7"	3-3"	3-0"	2-10"	2-8"		
1-2X8	5-11"	5-1"	4-7"	4-2"	2-10"	3-7"	3-5"		
1-2X10	7-10"	6-0"	5-5"	4-11"	4-7"	4-3"	4-0"		
1-2X12	8-3"	7-1"	6-4"	5-10"	5-5"	5-0"	4-4"		
2-2X6	6-11"	5-11"	5-4"	4-10"	4-6"	4-3"	4-0"		
2-2X8	8-4"	7-7"	6-4"	6-2"	5-4"	5-4"	5-0"		
2-2X10	10-4"	9'-0"	8'-0"	7'-4"	6'-4"	6'-4"	6'-0"		
2-2X12	12'-2"	10'-7"	9'-5"	8'-7"	8'-0"	7'-6"	7'-0"		
3-2X6	8'-2"	7'-5"	6'-8"	6'-1"	5'-8"	5'-3"	5'-0"		
3-2X8	10'-10"	9'-6"	8'-6"	7'-4"	7'-2"	6'-8"	6'-4"		
3-2X10	13'-0"	11'-3"	10'-0"	9'-2"	8'-6"	7'-11"	7'-6"		
3-2X12	15'-3"	13'-3"	11'-10"	10'-4"	10'-0"	9'-4"	8'-10"		

WOOD BEAM REQUIREMENTS -

1. MINIMUM NO.2 WITH ~~AESTHETIC~~ **FACTOR**.
2. ANY STRUCTURE WITHOUT A ROOF - SHALL BE ~~PROTECTED~~ **RESISTED LAMBER**.
3. BEAM CANTILEVER AT EACH END NOT TO EXCEED 1/4 OF ALLOWABLE BEAM SPAN.
4. BEAM ENDS SHALL BEAR 1 1/2" MIN. ON WOOD OR METAL, OR 3" MIN. ON CONC. AND/OR MASONRY.
5. FASTEN EACH MULTIPLE BEAM MEMBER TOGETHER W/ TWO ROWS OF 10d NAILS OR #10 WOOD SCREWS
6. (3" OR LONGER) MINIMUM AT 16" ON CENTER ALONG BOTH EDGES.

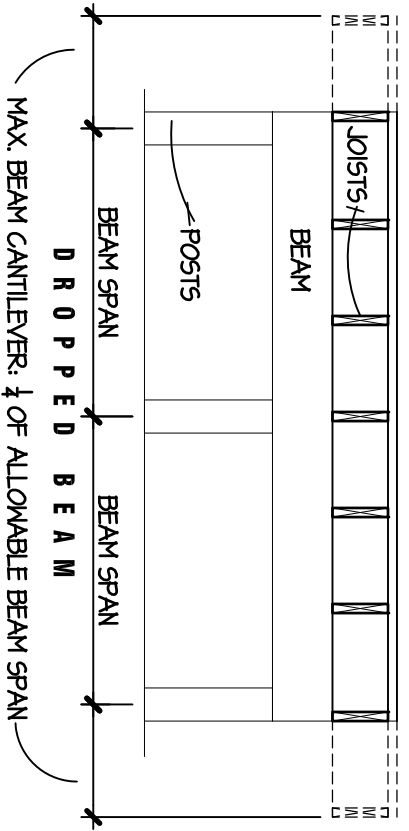


JOIST TO BEAM DETAIL



NOTCHED POST TO BEAM CONNECTION

CONVENTIONAL LIGHT FRAMING: EXTERIOR DECKS: JOIST SPANS



JOIST SPACING FOR DECK BOARDS

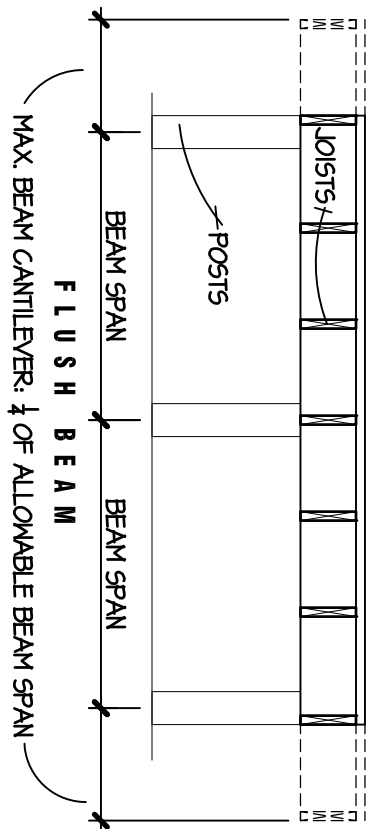
DECKING MATERIAL AND THICKNESS	MAXIMUM ON-CENTER (O.C.) JOIST SPACING	INSTALLED PERPENDICULAR TO JOIST (90 DEGREE)	INSTALLED DIAGONAL TO JOIST (MAX. 45 DEGREE)
1" THICK WOOD (1 1/4" NOMINAL)	16" ON CENTER	12" ON CENTER	16" ON CENTER
1 1/2" THICK WOOD (2" NOMINAL)	24" ON CENTER	16" ON CENTER	SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS
PLASTIC COMPOSITE	SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS		

EXTERIOR DECK JOIST: SPAN TABLE

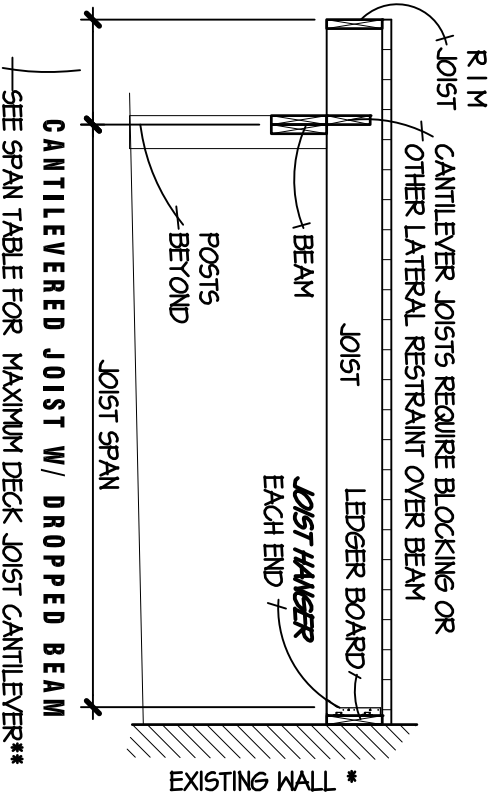
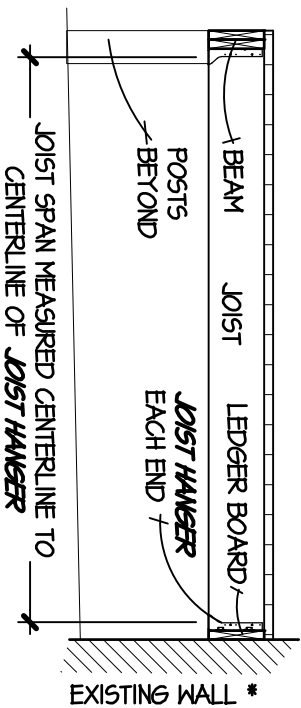
SOUTHERN PINE PRESSURE TREATED LUMBER SIZE	ALLOWABLE JOIST SPAN		** MAXIMUM CANTILEVER			
	SPACING OF DECK JOISTS		SPACING OF DECK JOISTS		SPACING OF DECK JOISTS	
	12 INCHES O.C.	16 INCHES O.C.	24 INCHES O.C.	12 INCHES O.C.	16 INCHES O.C.	24 INCHES O.C.
2 X 6	9'-11"	9'-0"	7'-4"	1'-3"	1'-4"	1'-6"
2 X 8	13'-1"	11'-0"	9'-8"	2'-1"	2'-3"	2'-5"
2 X 10	16'-2"	14'-0"	11'-5"	3'-4"	3'-6"	2'-10"
2 X 12	19'-0"	16'-6"	13'-6"	4'-6"	4'-2"	3'-4"

- WOOD POST AND JOIST REQUIREMENTS -**
- JOISTS MINIMUM NO.2, WITH **NET SERVICE FACTOR**.
 - POST & JOISTS WITHOUT A ROOF - SHALL BE **PRESSURE TREATED LUMBER**.
 - CUTTING & NOTCHING OF STRUCTURAL SOLID SAWN LUMBER TO FOLLOW REQUIREMENTS OF 502 - INTERIOR JOISTS

*LEDGER SUPPORTS PROHIBITED TO BE ATTACHED TO **MASONRY VENEER** WALLS OR CANTILEVERED FLOOR FRAMING



JOIST W/ FLUSH BEAM



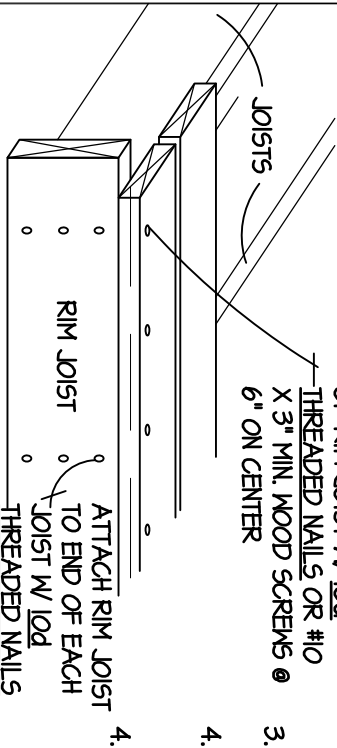
SEE SPAN TABLE FOR MAXIMUM DECK JOIST CANTILEVER**

CONVENTIONAL LIGHT FRAMING: EXTERIOR DECKS: DECKING BOARDS

MATERIAL INFORMATION

DECKING SHALL BE MINIMUM No.2, WITH A **NET SERVICE FACTOR**.
ANY DECKING WITHOUT A ROOF ABOVE - SHALL BE PRESSURE TREATED LUMBER, OR WITH APPROVAL OF THE LANCASTER CITY **BUILDING OFFICIAL** - NATURAL WEATHER RESISTANT WOOD DECKING MAY BE USED.
COMPOSITE DECKING SHALL BE IN COMPLIANCE W/ LOCAL JURISDICTION REQUIREMENTS AND INSTALLED PER CODE & PRODUCT MANUFACTURER INSTRUCTIONS)
LABELING: DECK BOARDS SHALL BEAR LABEL INDICATING COMPLIANCE W/ ASTM D7032 AND INCLUDES THE ALLOWABLE LOAD & MAXIMUM ALLOWABLE SPAN DETERMINED IN ACCORDANCE W/ ASTM D7032.
FASTENER & CONNECTION MATERIAL INFORMATION:
NAIL5 & SCREWS- HOT-DIPPED GALVANIZED OR STAINLESS STEEL.
BOLT5, LAG SCREWS, NUTS & WASHERS - HOT DIPPED GALVANIZED OR STAINLESS STEEL.
METAL CONNECTORS - ZINC COATED GALVANIZED STEEL, HOT DIPPED GALVANIZED OR STAINLESS STEEL.
FLASHING REQUIRED AT DECK AND BUILDING CONNECTIONS (SEE DETAILS BELOW) - CODE ACCEPTABLE FLASHING MATERIALS - COPPER, STAINLESS STEEL, SELF ADHERED OR ANY LISTED PRODUCT APPROVED FOR CONTACT WITH **PRESSURE TREATED LUMBER**.

RIM JOIST CONNECTION DETAIL



1/2" DIA. GALVANIZED LAG SCREWS OR BOLTS & NUTS W/ WASHERS

2X LEDGER

20" ON CENTER TYPICAL

LEDGER BOLT PATTERN

2" MAX.

3/4" MIN.

2X12 LEDGER - 7.5" MIN.

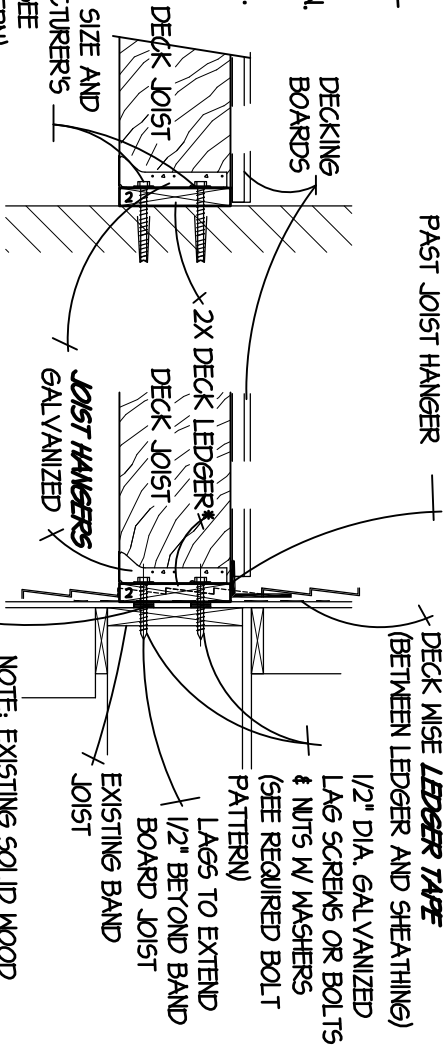
2X10 LEDGER - 6.5" MIN.

2X8 LEDGER - 5.5" MIN. UNLESS EXISTING BAND JOIST REQUIRES A SMALL DISTANCE (CAN BE 4.5")

EMBEDDED ANCHORS, SIZE AND INSTALL PER MANUFACTURERS (SEE RECOMMENDATIONS (SEE REQUIRED BOLT PATTERN))

*LEDGER SUPPORTS PROHIBITED TO BE ATTACHED TO **MASONRY** WALLS OR CANTILEVERED FLOOR FRAMING

CONTINUOUS FLASHING: START BENEATH SIDING AND EXTEND PAST JOIST HANGER



*DECK LEDGER SHALL BE EQUAL TO OR GREATER THAN THE PROPOSED DECK JOISTS

DECK ATTACHMENT @ SOLID MASONRY WALLS

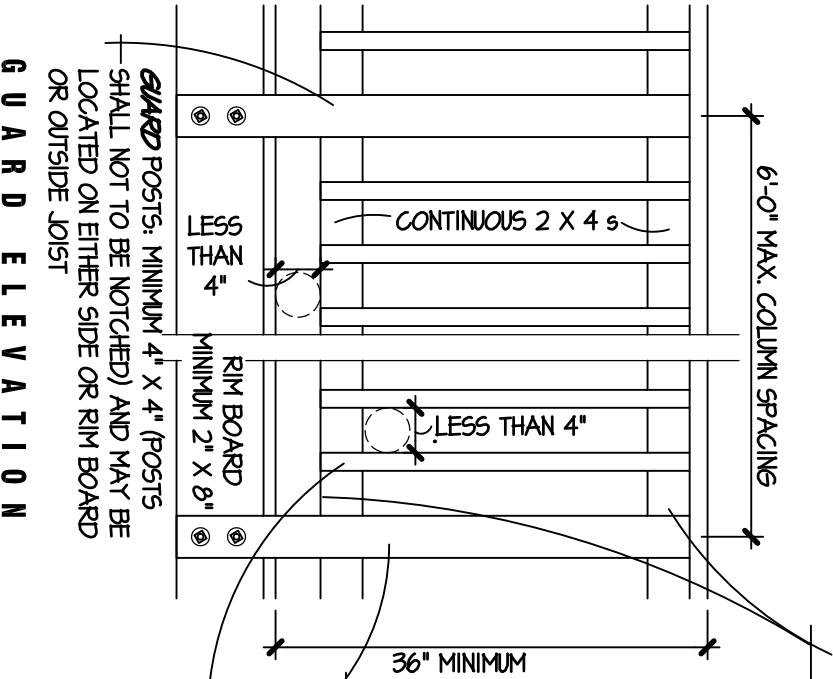
DECK ATTACHMENT @ WOOD FRAMED WALLS

NOTE: EXISTING SOLID WOOD SHEATHING OR PROVIDE WASHERS ON BOLTS / SCREWS TO SPAN THE SHEATHING DEPTH

CONVENTIONAL LIGHT FRAMING:

GUARDS : EXTERIOR DECKS

1. POST & HORIZONTAL STRUCTURES WITHOUT A ROOF - SHALL BE **PRESSURE TREATED LUMBER** COMPOSITE DECKING AND RAILING/**GUARD** MATERIALS TO BE IN COMPLIANCE W/ LOCAL JURISDICTION REQUIREMENTS. (INSTALLED PER CODE & PRODUCT MANUFACTURERS INSTRUCTIONS)
2. FASTER & CONNECTION MATERIAL INFORMATION:
NAILS & SCREWS- HOT-DIPPED GALVANIZED (ASTM A153) OR STAINLESS STEEL, SILICON BRONZE OR COPPER.
BOLTS, LAG SCREWS, NUTS & WASHERS- HOT DIPPED GALVANIZED OR STAINLESS STEEL, BRONZE OR COPPER
METAL CONNECTORS- ZINC COATED GALVANIZED STEEL OR POSTS HOT DIPPED GALVANIZED OR STAINLESS STEEL.
3. **GUARD** RAILING IS REQUIRED WHERE DECK AREAS ARE HIGHER THAN 30" ABOVE FINISH GRADE.



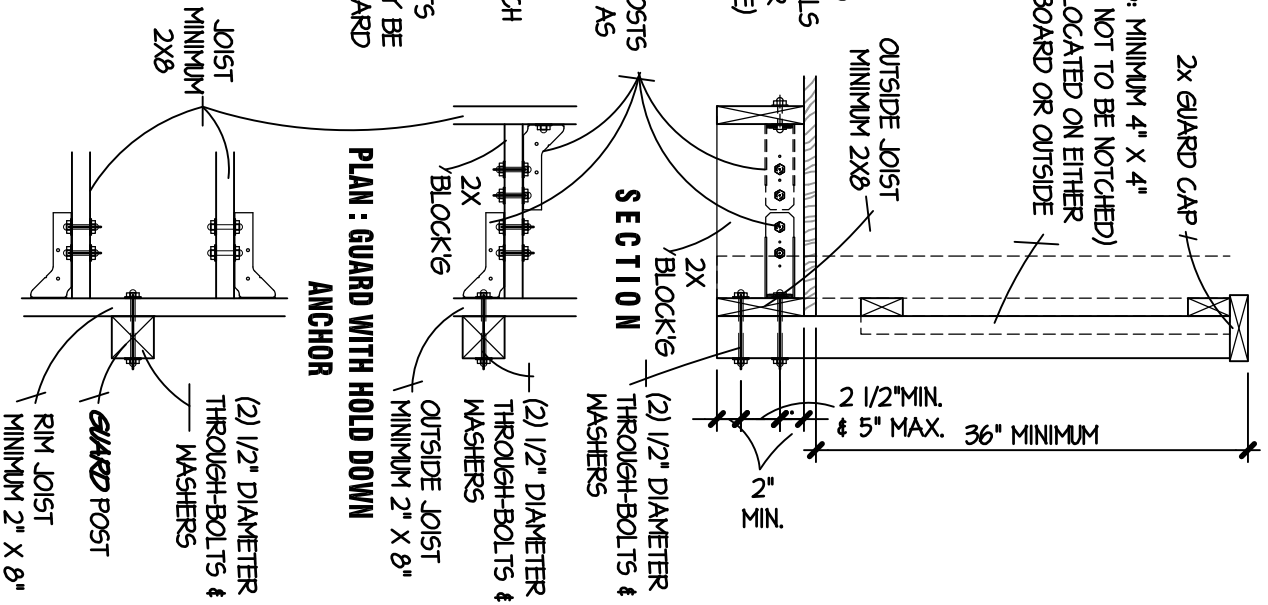
2" X 4" TOP & BOTTOM: ATTACHED TO **GUARD** POST W/ (2) 8d THREADED NAILS OR (2)#8 WOOD SCREWS (GREATER OR EQUAL TO 2 1/2" LONG ON INSIDE FACE)

AT FIRST INTERIOR BAY OF DECK, PROVIDE 2X BLOCKING AT **GUARD** POSTS W/ **HOLD-DOWN ANCHORS** (INSTALLED AS REQUIRED BY HOLD DOWN MANUFACTURER): ATTACH W/ 10d THREADED NAILS TOP & BOTTOM, EACH SIDE

GUARD POSTS: MINIMUM 4" X 4" (POSTS SHALL NOT TO BE NOTCHED) AND MAY BE LOCATED ON EITHER SIDE OR RIM BOARD OR OUTSIDE JOIST

2 X 2 (1 1/2" X 1 1/2" BALUSTERS (ATTACH BALASTERS AT TOP & BOTTOM W/ (1)#8 WOOD SCREW OR (2)8d POST-FRAME THREADED NAILS W/ 0.135")

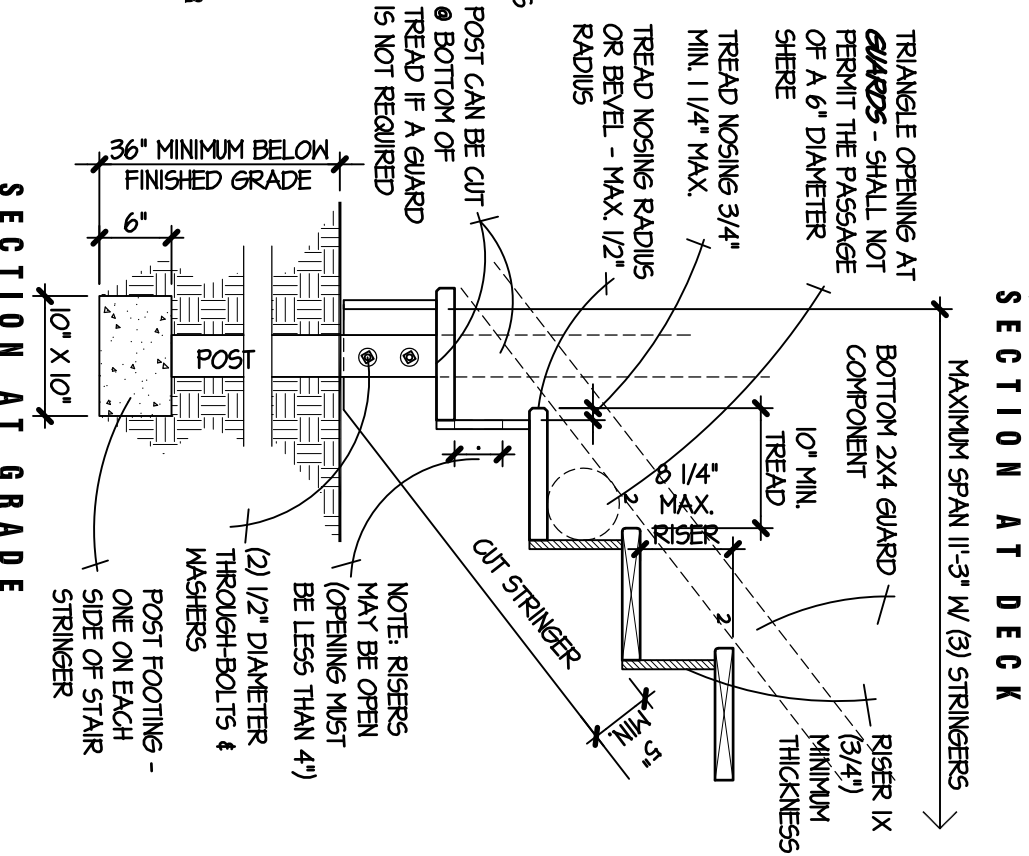
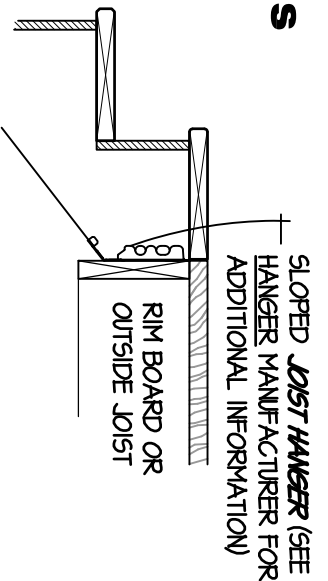
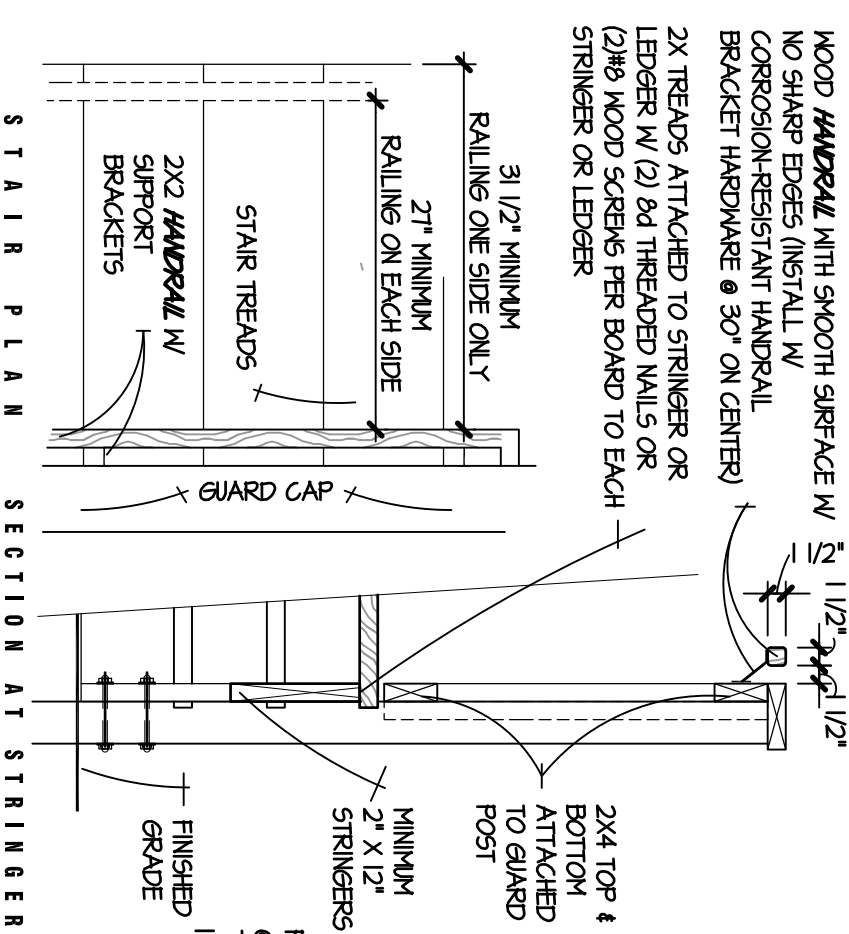
GUARD POSTS: MINIMUM 4" X 4" (POSTS SHALL NOT TO BE NOTCHED) AND MAY BE LOCATED ON EITHER SIDE OR RIM BOARD OR OUTSIDE JOIST



CONVENTIONAL LIGHT FRAMING:

STAIRS: EXTERIOR DECKS

1. RAILING IS REQUIRED WHERE DECK AND STAIR AREAS ARE GREATER THAN 30" ABOVE FINISH GRADE (34" MIN. **GUARD** HEIGHT)
2. **GUARD** POSTS TO BE MINIMUM 4X4 (3 1/2 X 3 1/2") ATTACHED TO MINIMAL 2X8 JOIST (1 1/2 X 1 1/4"). (SEE DETAILS)
3. IF TOTAL VERTICAL HEIGHT OF STAIR EXCEEDS 12'-0" STAIR LANDING IS REQUIRED
4. A HANDRAIL ON ONE SIDE IS REQUIRED IF THERE ARE (4) OR MORE RISERS
5. EXTERIOR STAIRS TO HAVE ARTIFICIAL LIGHT SOURCE LOCATED AT THE TOP LANDING.
6. HANDRAIL TO BE CONTINUOUS FROM TOP TO BOTTOM OF STAIR & RETURNED (SEE STAIR PLAN)



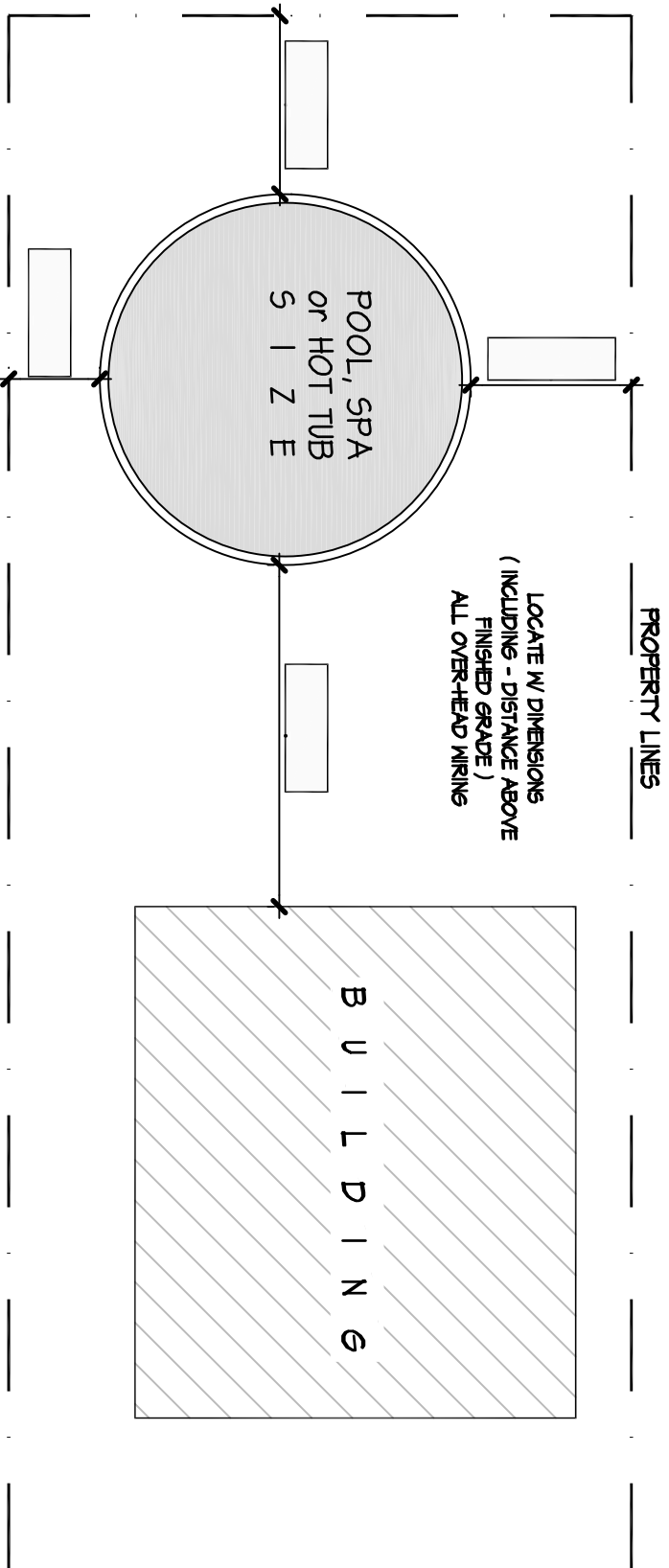
EXTERIOR - POOL, SPA & HOT TUB INFORMATION:

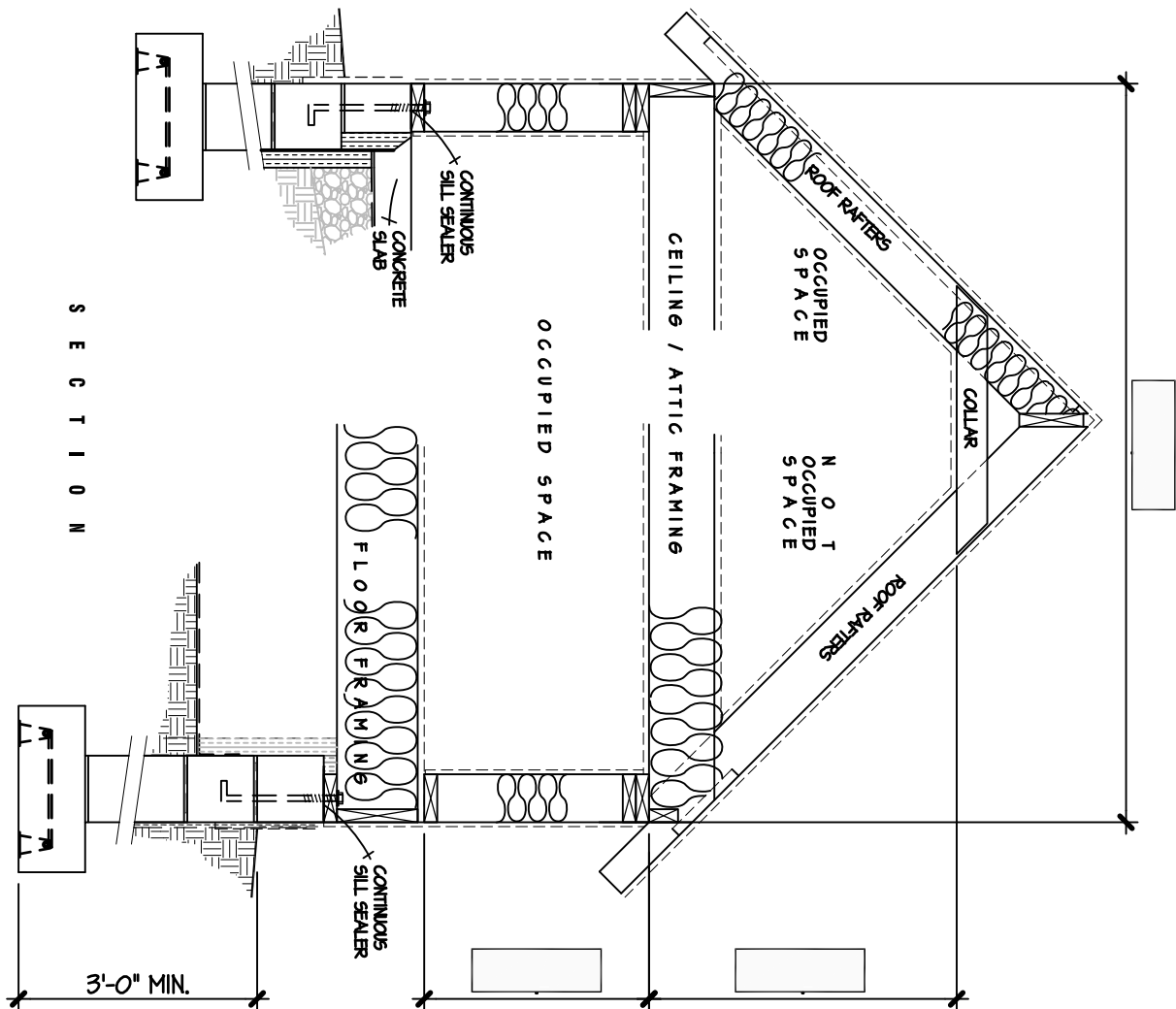
INFORMATION INDICATES MINIMUM REQUIREMENTS

1. REFER TO LANCASTER CITY ZONING - WHEN LOCATING POOL, SPA OR HOT TUB, ON PROPERTY.
2. PORTABLE UNITS - 24" MAX. WATER DEPTH, ALL ELECTRICAL EQUIPMENT CONNECTED WITHIN 12 INCHES OF EQUIPMENT, TO GET RECEPTACLE. ALL RECEPTACLES WITHIN 20 FEET OF THE INSIDE WALL OF WATER ELEMENT.
3. HOT TUB - ~~EMERGENCY SHUTOFF~~ OR CONTROL SWITCH NOT LESS THAN 5 FEET AWAY ADJACENT TO AND WITHIN SITE OF UNIT.
4. ~~BARRIERS~~ - 4'-0" MIN. HEIGHT ABOVE THE OUTSIDE OF THE UNIT, SELF LATCHING GATE THAT IS LOCKED WHEN UNOCCUPIED, FOR IN-GROUND WATER ELEMENTS. PRIOR TO INSTALLATION OF BARRIERS RECEIVE APPROVAL FORM LANCASTER CITY BUILDING OFFICIAL - AS A RESULT OF THE MANY BARRIER VARIATIONS.

NOTE:

- A. INSTALLATION OF WATER ELEMENT TO FOLLOW ALL MANUFACTURER SPECIFICATIONS.
- B. WATER ELEMENTS NOT TO BE INSTALLED UNDER OVERHEAD WIRES (CONDUCTORS). THE FOLLOWING ARE ACCEPTABLE CLEARANCES TO OVERHEAD WIRING - MORE THAN 10 FEET HORIZONTALLY FROM INSIDE THE UNIT WALLS, ALONG WITH PLATFORMS, TOWERS DIVING STRUCTURES AND GRATER THEN 22'-6" ABOVE THE WATER LEVEL AT THE WATER SURFACE.





WORK SHEET :

1. FILL IN CONSTRUCTION ELEMENT TO BE USED
2. PROVIDE DIMENSIONS