

City of Gillette



Guide for Residential Detached Garage Construction on Mono Slab



Building Inspection Division

Office (307) 686-5260
Inspection Line (307) 686-5256

City of Gillette
 Building Inspection Division
 Guideline to 2021 IRC Residential Construction

This booklet is provided to help answer questions you may have regarding building codes within the City of Gillette. It is **not** intended to answer all questions that may arise on any given project within the community, but to serve as a general guideline. Feel free to contact the Building Inspection Division at (307) 686-5260 if you have any questions.

Licensing: If you hire a contractor for your project, you need to make sure they are licensed with the City of Gillette.

Permits: Permits are required for any building, electrical, plumbing, or heating.

BUILDING SQUARE FOOTAGE	PERMIT FEES
0 – 500	\$30
500 – 1,000	\$60
1,000 – 2,000	\$100
2,000 – 5,000	\$150
Over 5,000	\$150+ \$.04 per square foot
Storage Building/Garage	Fee is calculated according to the Building Square Footage

PLUMBING	PERMIT FEES
Minimum permit fee	\$10
For each plumbing fixture, trap or set of fixtures on one trap (including water, drainage piping and backflow protection)	\$2

MECHANICAL	PERMIT FEES
Residential – New HVAC (Includes up to 2 heating units, A/C unit, vents, ducts, bath fans, dryer vents)	\$30
Each additional unit	\$15

GAS	PERMIT FEES
For each gas piping system of one (1) to four (4) outlets	\$10
For each gas piping system of five (5) or more per outlet	\$15

ELECTRICAL

The fee for an electrical permit shall be computed in accordance with the following schedule. Fees are payable at the time of issuance of the electrical permit. The minimum fee for the issuance of an electrical permit is \$10.

Electrical repair, temporary construction electrical service, MH and RV hook-up, (not on a privately owned lot), services, change services, basement finish, additions, alterations, or repairs, on either primary or secondary services, are computed separately.

	PERMIT FEES
0 – 60 amp capacity	\$10
61 – 100 amp capacity	\$12
101 – 200 amp capacity	\$13
Each additional 100 amp capacity or fraction	\$4
Each sub-panel	\$5

In addition to the permit fees, there is also Capital Contribution Fee for new or upgrading services.

	PERMIT FEES
100 Amp (or upgrade from 100 to 200 Amp)	\$175
200 Amp	\$350
400 Amp	\$700
600 Amp	\$1,050

REQUIRED INSPECTIONS

The following are required inspections and the order in which they need to be completed for new construction, alterations and additions:

Monolithic Slab When all rebar is tied in place and elevated off of ground.

Foundation Location Certificate A Foundation Location Certificate prepared and signed by a licensed Wyoming surveyor.

Must be submitted to the Building Division before any further inspections are completed.

Rough Framing

After the rough electrical, plumbing, mechanical and gas inspections are completed or ready for inspection at time of framing inspection, approved and after the roofing, all framing, and fire blocking are complete, and the structure is weather tight.

Final

After all building, electrical, plumbing, mechanical and gas are completed and before anything is moved into structure.

If any electric, plumbing, mechanical or gas are installed, they will also require an inspection.

**INSPECTION REQUESTS
(307) 686-5256**

Please call (307) 686-5256 and leave a message on the Inspection Line. You will need to have your permit application number or address and the type of inspection you are scheduling. Please include your name and telephone number for the inspector. **To receive an inspection in the same day, you need to call before 7:00 a.m.** Field inspectors are generally in the office between 8:00 – 9:00 a.m. and 1:00 – 2:00 p.m. if you need to contact them. When a specific time is requested, it will be noted on the request, however all times are approximate. While the Building Inspection Division will attempt to make the inspection at the requested time, conditions in the field may not make this possible all of the time. We would request your understanding and patience if this occurs on your project.

Plans: Plans are required for all construction projects. A set of plans includes a plot plan **page 10**, foundation plan, and construction section details **pages 12**. All grading requires plans or approval and shall not affect the overlot grading for the subdivision or adjacent lots. Relocated buildings shall meet all requirements for a new building.

Plot Plans/Location on Property: A plot plan is required for all new buildings including additions, detached buildings, decks, patios, fences and retaining walls. A plot plan is a drawing that shows the shape and size (dimensions) of the property. It also shows the location of all buildings and their distance from the property lines and each other. **Sample on pages 10-11.**

Setbacks Zoning: Setbacks from property lines vary throughout the City, due to the different land-use zoning areas. To obtain specific setback requirements please contact the City Planning Division (307) 686-5281. Please be aware the setbacks from the property line are often different between those required by the Zoning Ordinance and the Building Code. The Building Code setbacks are for completely different reasons than the Zoning Code setbacks.

Parking and Garages: A minimum of two, 9 foot x 18 foot from easement, paved off-street parking spaces shall be provided for each dwelling unit. The parking spaces shall have a paved access to them. Detached garages shall have a paved access from the street or alley to the structure.

Monolithic Slabs: A one-story, detached, wood framed building not used for human occupancy having a maximum width of 28'0" and a maximum length of 35'6" and not over 1,000 square foot may be constructed on a monolithic slab. **See page 12.**

Post Frame (Pole Barn) Construction and Metal Buildings: These types of structures are required to be prepared and signed by a Wyoming licensed architect or engineer. These types of structures also require a Geo-Technical Report from a licensed Wyoming engineer.

Garages: Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches thick, or have 20-minute fire-rated doors.

- **From the residence and attics** - Not less than 1/2-inch gypsum board or equivalent applied to the garage side.

- **From all habitable rooms above the garage** - Not less than 5/8-inch Type X gypsum board or equivalent applied to garage ceiling.
- **Garages located less than 3 feet from a dwelling unit on the same lot** - Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area.

Garage Floors: Shall be of concrete or asphalt.

Attic Access: Buildings with combustible ceiling or roof construction shall have an attic access opening to attic area that exceeds 30 square feet and have a vertical height of 30 inches or greater. The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members. The rough-framed opening shall not be less than 22 inches by 30 inches and shall be located in a hallway or other readily accessible location. When located in a wall, the opening shall be a minimum of 22 inches wide by 30 inches high. When the access is located in a ceiling, minimum unobstructed headroom in the attic space shall be 30 inches at some point above the access measured vertically from the bottom of ceiling framing members. Attics containing appliances shall be provided with an opening and a clear and unobstructed passageway large enough to allow removal of the largest appliance, but not less than 30 inches high and 22 inches wide, and not more than 20 feet long measured along the centerline of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring in accordance with Chapter 5, not less than 24 inches wide. A level service space at least 30 inches deep and 30 inches wide shall be present along all sides of the appliance where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches, large enough to allow removal of the largest appliance.

Sill plate/Foundation Anchorage: Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates anchored to the foundation. Anchorage of cold-formed steel framing and sill plates supporting cold-formed steel framing shall be in accordance with this section and Section R505.3.1 or R603.3.1.

Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of *braced wall panels* at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with minimum 1/2-inch diameter anchor

bolts spaced a maximum of 6 feet on center or *approved* anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch diameter anchor bolts. Bolts shall extend a minimum of 7 inches into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a *braced wall panel* shall be positively anchored with *approved* fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318.

Exceptions:

- 1.) Walls 24 inches total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
- 2.) Connection of walls 12 inches total length or shorter connecting offset *braced wall panels* to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).

Roof Construction: Many roofs are constructed of engineered pre-built trusses. All trusses have installation requirements which the manufacturer provides. The trusses shall be installed to these specifications. A truss certification stamped and signed by a Wyoming licensed engineer for the specific trusses used shall be submitted to the Building Inspection Division prior to or at the time of framing inspection. A truss layout sheet shall be provided at the time of framing inspection.

Roof Coverings: Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12-gage shank with a minimum 3/8-inch diameter head, ASTM F 1667, of a length to penetrate through the roofing materials and a minimum of 3/4 inch into the roof sheathing. Where the roof sheathing is less than 3/4 inch thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer, but not

less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal, shingles shall be installed as required by the manufacturer.

Underlayment Application: For roof slopes from two units vertical in 12 units horizontal (17-percent slope), up to four units vertical in 12 units horizontal (33-percent slope), underlayment shall be two layers applied in the following manner. Apply a 19-inch strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch wide sheets of underlayment, overlapping successive sheets 19 inches and fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater, underlayment shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be offset by 6 feet.

Ice barrier (If building is heated): An ice barrier that consists of a least two layers of underlayment, cemented together or of a self-adhering polymer modified bitumen sheet, shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point at least 24 inches inside the exterior wall line of the building.

Exception: Detached accessory structures that contain no conditioned floor area

ELECTRICAL

Concrete-Encased Electrode (Ufer): A concrete-encased electrode consisting of at least 20 feet of either of the following shall be considered as a grounding electrode:

- 1.) One or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods not less than 1/2-inch in diameter, installed in one continuous 20-foot length, or if in multiple pieces connected together by the usual steel tie wires, exothermic welding, welding, or other effective means to create a 20-foot or greater length.
- 2.) A bare copper conductor not smaller than 4 AWG.

Metallic components shall be encased by at least 2 inches of concrete and shall be located horizontally within that portion of a concrete foundation or footing that is in direct contact with the earth or within vertical foundations or structural components or members that are in direct contact with the earth.

Where multiple concrete-encased electrodes are present at a building or structure, only one shall be required to be bonded into the grounding electrode system. [250.52(A)(3)] **Service wire size chart on page 14.**

Garage Electrical Service: To run power from existing service on house to garage, see page 15.

Sufficient Access and Work Space for Electrical Equipment, see page 13.

Non-Metallic Sheathed Cable (Romex): Bored holes in framing members for wiring shall be located not less than 1 1/4 inches from the edge of the framing member or shall be protected with a minimum 1/16" steel plate or sleeve, a listed steel plate or other physical protection.

Maximum allowable on center support spacing for the wiring is 4'6". Maximum support distance in inches from box or other terminations is 12 inches.

Neutral Conductor: No. 6 and smaller must have white or natural gray insulation. Conductors larger than No. 6 may be identified where terminating in enclosures with a white color conductor or tape.

Outlet, Junction Box, or Switch: Install properly sized outlet or junction box at each outlet, switch or junction point. A junction box may be installed in an attic here there is at least 30 inches of headroom with access and not covered with insulation.

Number of Conductors in Outlet, Device and Junction Boxes: Each conductor that originates outside the box and terminates or is spliced within the box shall be counted once, and each conductor that passes through the box without splice or termination shall be counted once. Each loop or coil of unbroken conductor having a length equal to or greater than twice that required for free conductors shall be counted twice. The conductor fill, in cubic inches, shall be computed using figures below, no part of which leaves the box, shall not be counted.

Exception: An equipment grounding conductor or not more than four fixture wires smaller than No. 14, or both, shall be permitted to be omitted from the calculations where such conductors enter a box from a domed fixture or similar canopy and terminate within that box.

VOLUME ALLOWANCE REQUIRED PER CONDUCTOR (CUBIC INCHES)

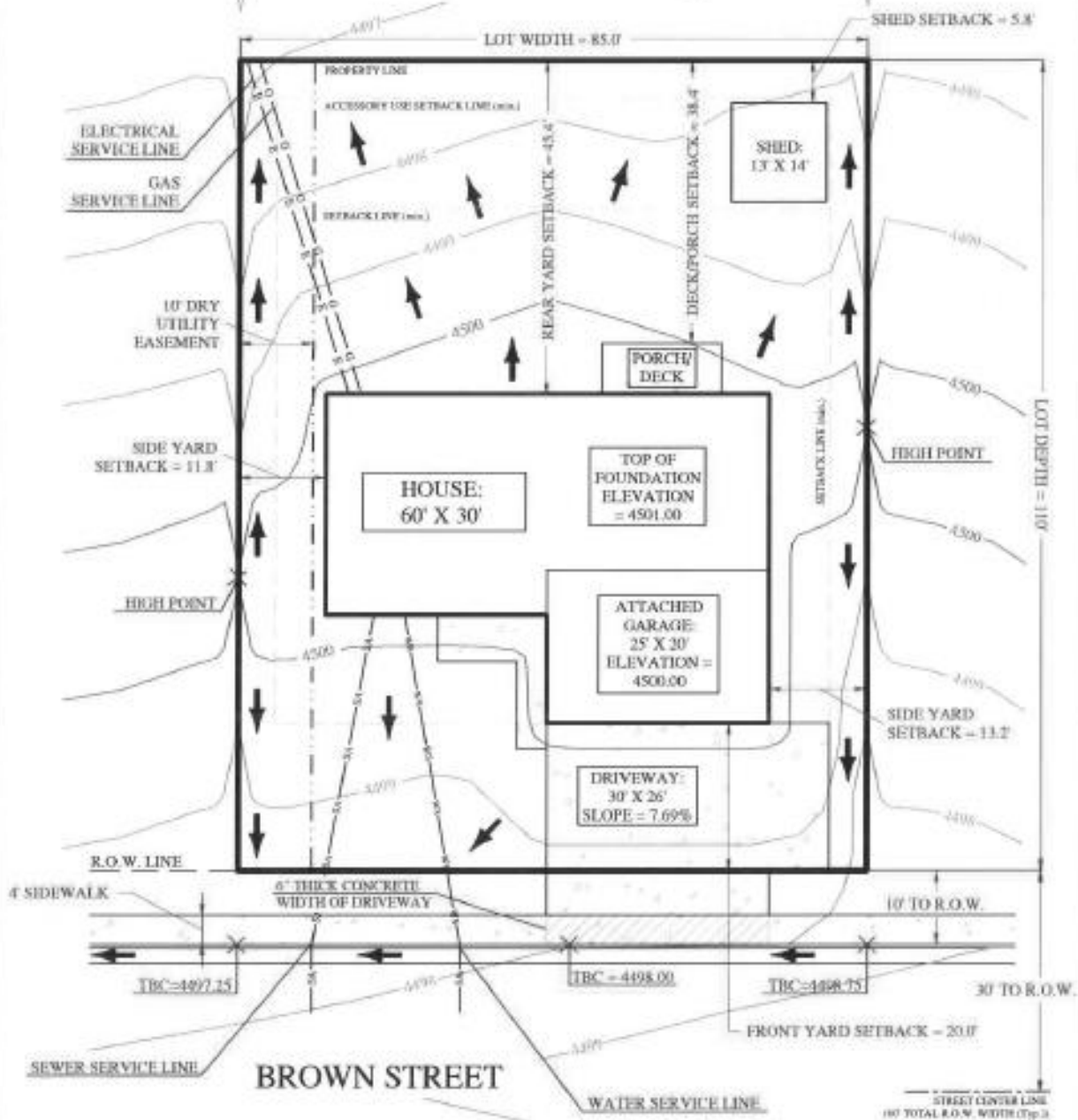
SIZE OF CONDUCTOR	FREE SPACE IN BOX FOR CONDUCTOR
18 AWG	1.50
16 AWG	1.75

14 AWG	2.00
12 AWG	2.25
10 AWG	2.50
8 AWG	3.00
6 AWG	5.00

Make-Up Wire: At least 6 inches of free conductor, measured from the point in the box where it emerges from its raceway or cable sheath, shall be left at each outlet, junction, and switch point for splices or the connection of luminaries or devices. Each conductor needs to be long enough to extend at least 3 inches outside the opening.

GFCI Outlets: All 125-volt through 250-volt receptacles installed in garage, including door opener shall have ground-fault circuit-interrupter protection for personnel. At least one (1) receptacle per car space.

REQUIRED PLOT PLAN INFORMATION
1500 BROWN STREET
LOT SIZE = 9350 SQ. FT.



- NOTES:
- 1) ALL MEASUREMENTS SHOWN ON THIS EXAMPLE ARE REQUIRED TO BE INCLUDED IN ALL PLOT PLAN SUBMITTALS
 - 2) FINISHED FLOOR ELEVATION (F.F.E.) WILL ONLY BE ACCEPTED FOR H.U.D. HOUSING
 - 3) THE SIDEWALK THROUGH THE DRIVEWAY (IN THE R.O.W.) SHALL BE 6" THICK (MINIMUM)
 - 4) THE MAXIMUM CURB DROP (DRIVEWAY CUT) WIDTH SHALL BE 32' WITHIN THE R.O.W.
 - 5) THE MAXIMUM PERMITTED DRIVEWAY SLOPE SHALL BE 13%

LEGEND

- WATER SERVICE LINE
- SANITARY SEWER SERVICE LINE
- ← ARROWS INDICATE DIRECTION OF FLOW
- ▭ CONCRETE

ENGINEER/SURVEYOR: _____
 COMPANY NAME: _____
 ADDRESS, E-MAIL, PHONE NUMBER: _____

PLOT PLAN - 1500 BROWN STREET
 LOT 1.0, BLOCK 1, KIMROCK ESTATES, PHASE 1

DRAWN BY: CITY OF BELLVILLE
 RECORDING DIVISION
 200 E. 6TH STREET, P.O. BOX 2004
 BELLVILLE, MISSOURI 63011
 (636) 622-1004

Minimum Standards for City Acceptance of Residential Plot Plans

Plot Plan Size: 8 ½" X 11" Minimum, 11" X 17" Maximum

❖ **Required Bold Lines:**

- Property Lines
- Lot & Block Number
- Top of Foundation (T.O.F.) (*i.e. top of Concrete, CMU, ICF, etc.*)
- Top of Garage Floor (*usually at least 6" or more below the T.O.F.*)
- Curb & Gutter Linework with Top Back of Curb Elevation (T.B.C.) (*this elevation shall be surveyed to ensure accuracy in determining proper T.O.F. elevations and correct driveway slope calculations*)
- Building Outline (*Including Cantilevers & Garages*) to Include Attached Structures, i.e. Decks, Porches, Retaining Walls, Breezeways, etc
- Show any accessory structures such as a shed or a garage
- Scale Bar. Standard Engineering Scale Only. Architectural / Fractional Scale will not be accepted.
- Scale: 1"=20', 1"=30', 1"=40', 1"=50', or 1"=60', or 1"=100'(max)
- Proposed Water & Sewer Line Locations from the Structure to the City Mains
- Show all easements on the property, and Label Size and Type of Easement
- Drainage Flow Arrows (*sufficient amount to allow reviewer to adequately understand flow patterns*)
- If known, show the locations of the electrical, gas, and telecommunications lines & easements

❖ **Gray Scale Lines:**

- Building Setback Distance → Front, Side & Rear Yards – From Building (*Including Cantilevers & Garages*) to Property Line
- Finished Grade Contour Lines. Extend 20' (*minimum*) Beyond the Property Lines. (*the overall existing subdivision contours shall be modified to more adequately show the intra-lot drainage*)
- One (1) foot or two (2) foot contour intervals (*1 foot preferred*)
- Adjacent Streets (*Provide Street Name(s)*)
- Driveway Location & Slope – Show Width and Depth dimensions (*indicate if a 4' shelf around the front of the garage door will be installed, as this will drastically affect the driveway slope*)
- Sidewalks, walkways, patios, and/or other flatwork

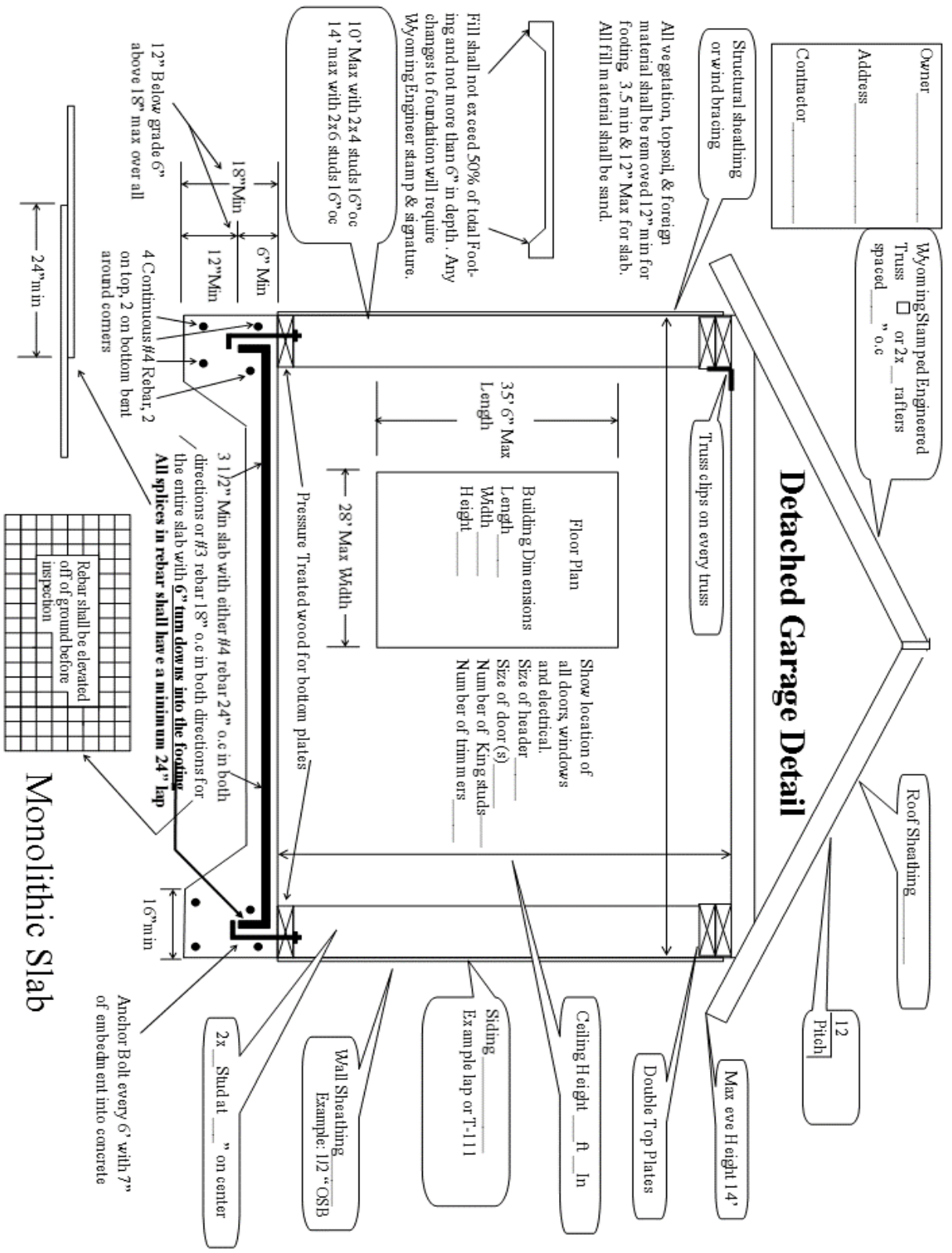
❖ **Bottom Right Corner:**

- Property Address
- Property Legal Description: Lot, Block, and Subdivision

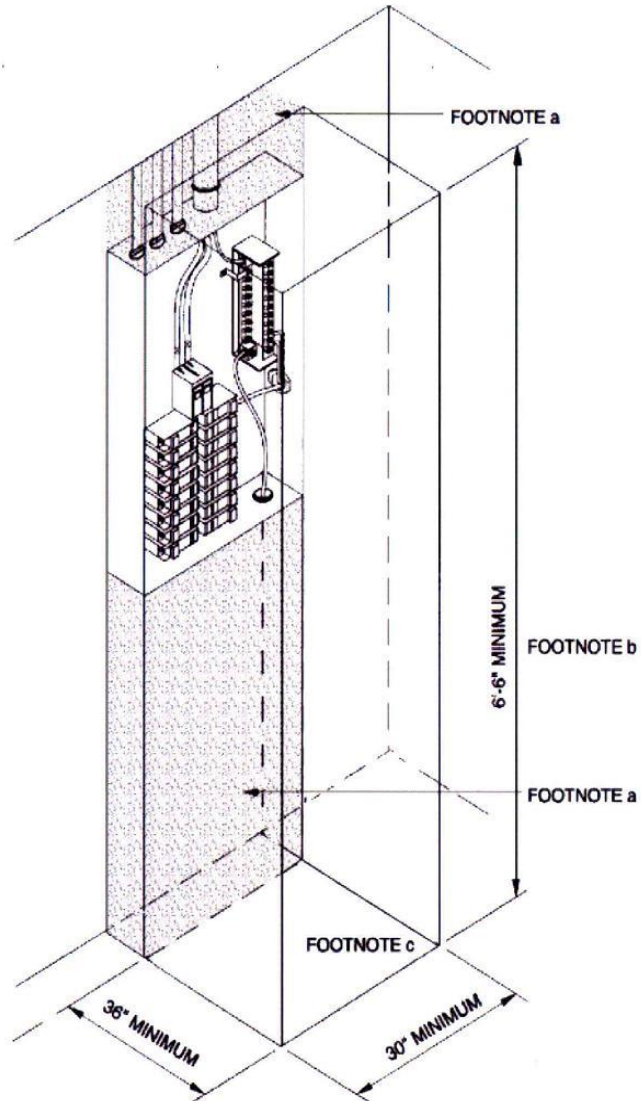
❖ **Bottom Center:**

- Surveyor/Engineer/Architect
- Company Name
- Company Address, Phone Number, and E-mail

Note: A foundation location certification is requested at, or prior to, the sill plate inspection. Vertical construction without the foundation location certification is at the builder's risk. The location certification shall be signed and sealed by a Wyoming Registered Surveyor.



Sufficient access and working space shall be provided and maintained around all electrical equipment to permit ready and safe operation and maintenance of such equipment



WORKING SPACE AND CLEARANCES

- Equipment, piping and ducts foreign to the electrical installation shall not be placed in the shaded areas extending from the floor to a height of 6 feet above the panelboard enclosure, or to the structural ceiling, whichever is lower.
- The working space shall be clear and unobstructed from the floor to a height of 6.5 feet.
- The working space shall not be designated for storage.
- Panelboards, service equipment and similar enclosures shall not be located in bathrooms, toilet rooms, clothes closets or over the steps of a stairway.
- Such work spaces shall be provided with artificial lighting where located indoors.

SERVICE CONDUCTOR AND GROUNDING ELECTRODE CONDUCTOR SIZING

CONDUCTOR TYPES AND SIZES-THHN, THHW, THW, THWN, USE, RHH, RHW, XHHW, RHW-2, THW-2, THWN-2, XHHW-2, SE, USE-2 (Parallel sets of 1/0 and larger conductors are permitted in either a single raceway or in separate raceways)		SERVICE OR FEEDER RATING (AMPERES)	MINIMUM GROUNDING ELECTRODE CONDUCTOR SIZE ^a	
Copper (AWG)	Aluminum and copper-clad aluminum (AWG)		Maximum load (amps)	Copper (AWG)
4	2	100	8 ^b	6 ^c
3	1	110	8 ^b	6 ^c
2	1/0	125	8 ^b	6 ^c
1	2/0	150	6 ^c	4
1/0	3/0	175	6 ^c	4
2/0	4/0 or two sets of 1/0	200	4 ^d	2 ^d
3/0	250 kcmil or two sets of 2/0	225	4 ^d	2 ^d
4/0 or two sets of 1/0	300 kcmil or two sets of 3/0	250	2 ^d	1/0 ^d
250 kcmil or two sets of 2/0	350 kcmil or two sets of 4/0	300	2 ^d	1/0 ^d
350 kcmil or two sets of 3/0	500 kcmil or two sets of 250 kcmil	350	2 ^d	1/0 ^d
400 kcmil or two sets of 4/0	600 kcmil or two sets of 300 kcmil	400	1/0 ^d	3/0 ^d

- An 8 AWG grounding electrode conductor shall be protected with metal conduit, nonmetallic conduit, and electrical metallic tubing or cable armor.
- Where not protected, 6 AWG grounding electrode conductor shall closely follow a structural surface for physical protection. The supports shall be spaced not more than 24 inches on center and shall be within 12 inches of any enclosure or termination.
- Where the sole grounding electrode system is a ground rod as covered in 2008 NEC 250.52(5) – 8’ length, and 250.53(B) – 6’ apart, the grounding electrode conductor shall not be required to be larger than 6 AWG copper. Where the sole grounding electrode system is the footing steel the grounding electrode conductor shall not be required to be larger than 4 AWG copper conductor.

General Electrical Diagram

