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TKJ Development, LLC
P.O. Box 1555
Billings, MT 59103-1555

DECLARATION OF UNIT OWNERSHIP

FOR TRAILRIDGE TOWNHOMES

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TJK DEVELOPMENT, LLC, owner of all the lots described below, does hereby make and submit for filing the following Declaration under the Unit Ownership Act of the State of Montana, Section 70-23-101, et seq., Montana Code Annotated.

1. DEFINITIONS.

In the interpretation of this Declaration and Bylaws of Trailridge Townhomes Homeowners Association, the following Definitions shall apply:

(a) "Association" means the Trailridge Townhomes Homeowners Association, a Montana non-profit corporation, being all the unit owners acting as a group in accordance with this Declaration and duly adopted Bylaws. The Association is a Montana Non Profit Corporation.

(b) "Building" means a single unit building or a two unit building comprising a part of the Ridgeline Subdivision Property.

(c) "Bylaws" means the Bylaws of the Trailridge Townhomes Homeowners Association attached hereto as **Exhibit E**.

(d) "Capital Expense" means the expense of capital improvements to common areas; "capital improvements" are improvements to the common areas not constructed by Developer, e.g., construction of a tennis court or pool on the common elements.

(e) "Common Elements" means the general common elements and the limited common elements.

(f) "Declaration" means this Declaration of Unit Ownership for Trailridge Townhomes.

(g) "Developer" is TKJ Development, LLC, or any person or entity to whom TKJ Development, LLC, transfers or assigns its development rights hereunder. A grant of a deed to a single completed unit by Developer shall not be deemed a transfer of development rights.

(h) "Eligible Mortgage Holder" means the holder of a first mortgage or trust indenture on any unit who has requested, in writing, that the Association notify it of any proposed action requiring the consent of a specified percentage of eligible mortgage holders.

(i) "General Common Elements" are defined in Section 5(a) of this Declaration. Any portion of the project not identified as part of a unit or as a limited common element shall be a general common element.

(j) "Limited Common Elements" means those common elements designated in this Declaration or by agreement of the unit owners as reserved for the use of fewer than all of the unit owners.

(k) "Unit" is defined in Section 4 of this Declaration.

(l) "Unit Owners or Owner" means the person, partnership, LLC or corporation owning

a unit, including a contract purchaser if a Notice of Purchaser's Interest is recorded with the Yellowstone County Clerk and Recorder, and including co-owners and designated representatives of any partnership, LLC or corporation, owning a unit. "Unit Owner" shall also include Developer (or a Builder to whom development rights have been transferred) until completion and occupancy of all units owned by Developer or Builder to whom development rights have been transferred. A lessee of a unit shall not be considered a unit owner, unless as designated by the owner of record, following the procedures set forth in § 70-23-102(18), MCA.

2. SUBMISSION TO UNIT OWNERSHIP.

The purpose of this Declaration is to submit the real property described below and the improvements constructed thereon to the form of ownership and use provided by Chapter 23, Title 70, Montana Code Annotated, hereinafter referred to as the "Montana Unit Ownership Act". The definition of terms in this Declaration and the Bylaws of the Association shall be those definitions used in the Montana Unit Ownership Act, except as otherwise provided above. The real property included within the project, which shall be named "TRAILRIDGE TOWNHOMES", is located in Yellowstone County, Montana, is owned in fee simple by TKJ DEVELOPMENT, LLC, and is more particularly described as follows:

> Being Lot 2, Block 2 of Ridgeline Subdivision, according to the plat on file in the office of the Clerk and Recorder of Yellowstone County, Montana, under Document No. 4050464.

The provisions of this Declaration and the Bylaws of Trailridge Townhomes Homeowners Association shall be covenants running with the land and shall be binding on all owners, their tenants and guests, for so long as the real property described herein is subject to the provisions of the

Montana Unit Ownership Act.

3. DESCRIPTION OF PROJECT.

The project will consist of a maximum of 51 buildings, with 2 townhomes in each of the 51 buildings. The townhome units are available in 5 floor plans, Option A-E. **Option A** consists of 10 building, 20 townhome units with 3 bedrooms, 2 bath; **Option B** consists of 10 building, 20 townhome units with 3 bedrooms, 2 bath; **Option C** consists of currently 0 buildings, and 0 townhome units with 2 bedrooms, 2 bath; **Option D**, is 2-stories, and consists of 11 buildings, 22 townhome units with 3bedrooms, 2.5 bath and **Option E** consists of 20 buildings, 40 townhome units with 3 bedrooms, 2 baths. The planned location of each unit, and the unit number for each unit are shown on the site plan attached here as **"Exhibit A"**. The buildings shall be of wood frame construction with concrete fiberboard siding, concrete foundation, and composite shingle roof. Interior walls are drywall. The 5 primary floor plans, Options A-E, are shown on attached **"Exhibit B"**. All townhomes will be one story with attached two car garage, except floor plan D, which will be 2 story with attached 2 car garage. The approximate square footage of each unit is indicated on attached **"Exhibit C"**. Developer does reserve the right and the power, pursuant to § 70-15-301, MCA, to modify or change the plans shown on **Exhibits "A", "B", and "C"**, and to change the location of individual buildings upon the real property described above, and use the water meter vault for either or both phases of development, without consent of any other owners or any lender. Unit 4636 Talking Tree Drive contains the water meter vault for the project. The unit owner of 4636 Talking Tree Drive, which unit houses the water meter vault, shall grant access to the Association, its agents, the utility company and its agents, for readings, maintenance and repair at all reasonable times.

4. DESCRIPTION OF UNIT.

Each townhome consists of the area bounded by the exterior surfaces of the walls of the building, the soil under the concrete floor, the exterior of the roof, and the common wall between the two townhomes in the building to the center of the common wall separating the two townhomes. The center of the common wall is the middle of that space separating the two walls, subject to the "Party Wall Agreement" attached hereto as "**Exhibit D**". The land beneath a townhome, and the land beneath the garage, private driveway, walkways and patios or decks serving only one townhome shall be a part of the unit. The front entry, plumbing and underground sprinkler system, the HVAC and air conditioning compressor, if any, and the sidewalk serving the townhome is also part of the unit. Utility lines and pipes which serve one townhome shall be a part of the unit from the interior of the unit to the point where they join public utility lines.

5. PLAN OF DEVELOPMENT.

The project may be developed in two phases. Developer may begin construction of phases in any order and may simultaneously make the improvements to other phases. **"Exhibit A"**, attached hereto, is a site map showing all improvements which Developer now plans to construct on the property and showing the boundaries of each phase. Subject to prior review and approval by the City County Planning Division, Developer hereby reserves the right, in its sole discretion and without consent of any other owner or any lender, to combine or divide a phase into two or more phases, to increase or decrease the number of buildings, and to change the design and location of the buildings and units to meet the requirements of the sales market.

Developer may proceed with such construction, without consent of the Association or the unit owners, subject to the following conditions:

(a) Prior to conveyance or occupancy of each home, Developer or its agent shall execute and record an amendment to this Declaration with the Yellowstone County Clerk and Recorder. The amendment shall include a floor plan for the newly constructed home, and a site plan showing the location of said home, if different from the plans attached to this Declaration, or shall identify the floor plan attached to this Declaration used for the new unit.

(b) Upon completion of all buildings and other improvements, Developer or its agent shall record a notice of completion, together with a final as-built site plan for the project.

(c) In the event of termination of the project prior to construction of 102 townhomes, Developer or its agent shall record an amendment to this Declaration, setting forth a reallocation of the percentage of undivided interest of each unit in the common elements. The interest of each unit shall equal one divided by the total number of townhomes constructed.

(d) New buildings shall be similar in materials, colors (earth tone), style and quality to the existing buildings, in accordance with attached **"Exhibit F"**. However, subject to prior approval by the City County Planning Division, Developer reserves the right to modify the design and mixture of buildings and floor plans to meet market requirements.

From and after the recording date of each of the above-described amendments, the following consequences shall ensue:

(e) The owners of each newly constructed home identified in the amendment shall have

nonexclusive rights to use general common elements to the same extent as the owners of all of the other completed homes.

(f) The owners of each newly completed home shall be assessed in accordance with their ownership interest in the common elements. However, no new unit shall be assessed for, nor shall it have any obligation for debts or deficits in existence at the effective date of the unit's first occupancy.

(g) Each home shall be treated as a part of the project developed as a whole from the beginning, except to the extent otherwise provided herein. From and after the date of the amendment, the new homes shall be treated as though they have been developed, held, occupied and used by the owners as part of a single, undivided project.

To facilitate construction and completion of the project, Developer hereby:

(h) Reserves an easement over and upon common elements for the purpose of access for constructing additional homes and common elements.

(i) Reserves solely to Developer the right to grant utility easements reasonably necessary to the ongoing development of the project, without approval of an unit owner.

(j) Reserves the right to use water and electricity provided to the above-described property or any home for construction purposes, provided that Developer shall reimburse the provider for the reasonable cost of such water and electricity.

(k) Subject to prior review and approval by the City County Planning Division, reserves the right to amend this Declaration, without approval of any unit owner or any lender, to create additional general or limited common elements or change the location of

general or limited common elements, to provide that the project has been terminated and no further homes will be constructed, to change the location on the lot of any building, to add a more complete description of newly constructed homes, to record additional plats and plans to supplement or modify those included herein, and to amend the percentage of interest in common elements attached to each home in accordance with the provisions of the Declaration. Each unit owner, and each holder of a mortgage or trust indenture on the home, by acceptance of a deed to the unit or by recording a mortgage or trust indenture on the home, shall be deemed to consent to amendment of this Declaration by Developer in accordance with this plan of development.

Any liens arising as a result of Developer's (or a Builder to whom development rights have been transferred) ownership of and construction of additional units shall not attach to the interests of other unit owners or those of first mortgagors of other units.

6. COMMON ELEMENTS.

(a) The general common elements include the unfenced front yard area between, or adjoining garages and driveways, the vinyl fences installed by Developer, if any, the private streets and sidewalks and street signs within the project, street lighting, fire hydrants, the landscaped and yard areas, sprinkler systems, wells and pumps that provide water for landscaping, handicap parking spaces, if any, the storm water drainage system, the bike/pedestrian paths and, except as otherwise provided herein, the water and sewer lines, utilities lines, cables and pipes which serve more than one unit, the water meter vault, mailbox structure, if any, and all other elements of the

project which serve more than one unit excluding the limited common elements described below, all subject to each unit owner's right to exclusive use of the limited common elements.

(b) Each unit's back and side yards and patio or deck, if any, are limited common elements reserved for the use of the single unit served. The Association shall provide lawn mowing for all unfenced yard areas; unit owners shall provide lawn mowing and lawn care for fenced back yards, and all lawn areas shall be maintained in a consistent uniform manner. Utility lines and pipes which serve one building are limited common elements reserved for the use of the units in the building served. Sewer lines and pipes serving one building shall be maintained and repaired jointly between the respective unit owners from the unit to the public sewer hookup, with the cost shared equally. Sewer lines and pipes serving individual units shall be maintained and repaired by the respective unit owner from the unit to the public sewer hookup.

7. TERMINATION OF THE PROJECT.

Developer may terminate its right to build additional buildings at any time prior to completion of all phases by recording a notice of termination with the Yellowstone County Clerk and Recorder. Upon termination, the land on which a building has not been built shall become a general common element of the project.

If Developer elects to build fewer than 102 units, Developer shall record a notice of termination, Developer's obligation to pay taxes and assessments on the land shall cease and terminate and Developer shall have no further obligation to make any improvements to any portion

of the above-described real property. The notice of termination shall amend this Declaration to reallocate the undivided interest in the common elements in proportion to the undivided interest of completed units and shall include a conveyance of Developer's interest in the common elements from Developer to all existing unit owners. All unit owners, their lenders, mortgagees, successors and assigns, or anyone claiming by or through them, by accepting and recording a deed (or by recording a notice of purchaser's interest in the event of a contract sale) to any unit or a mortgage or trust indenture upon a unit are hereby deemed to consent to inclusion of undeveloped land as a general common element of the project and to the above-described conveyance of Developer's interest in the common elements.

8. MEMBERSHIP IN TRAILRIDGE HOMEOWNERS ASSOCIATION.

Each unit owner shall be a member of Trailridge Homeowners Association. So long as Developer or a Builder to whom development rights have been transferred owns any unit, there shall be three classes of Membership, i.e., Developer Members, Builder Members and Owner Members. Membership shall be appurtenant to and may not be separated from ownership of a unit. Owners shall be entitled to one vote for each unit owned. Developer and each Builder shall have one vote for each completed unoccupied unit and each uncompleted unit owned by it. When more than one person owns an interest in any unit, all such persons shall be members. The vote of such unit shall be exercised as the owners determine, but in no event shall more than one vote be cast with respect to a single unit.

9. OWNERSHIP.

Each unit, an appurtenant undivided interest in the common elements, the use of limited common elements reserved for that unit, and the assessment account for that unit shall be inseparable

and may be conveyed, devised or encumbered only as a whole. Any conveyance, encumbrance, judicial sale or other voluntary or involuntary transfer of an individual unit owner's interest in the common elements shall be void unless the unit to which that interest is attached is also included in the transfer.

Each unit owner shall be a fee simple owner of such unit and of an undivided interest in the common elements, subject to the provisions of this Declaration and the Bylaws of Trailridge Townhomes Homeowners Association.

The undivided interest in the common elements appurtenant to the units shall be 1/102 each. In the event Developer elects to build fewer or more than 102 units, the undivided interest of each unit shall equal one divided by the total number of units in the completed project.

10. USE.

That primary use for which each unit is intended is that of a residential dwelling. Additional restrictions on use are set forth in the Bylaws of the Association.

11. COMMON EXPENSES.

All the following Association expenses shall be charged to the unit owners as a common expense, according to each unit owner's percentage of undivided ownership interest in the common elements:

(a) Routine administration expenses of the Association, including management, accounting and legal fees incurred by the Association;

(b) The Association's costs of enforcing this Declaration and the Bylaws and rules and regulations of the Association to the extent such costs are not paid by the violating member;

(c) The cost of maintenance, repair and replacement of the common elements for which the Association is responsible, including the cost of maintenance and repair of the streets, sidewalks, consistent exterior house lighting, and signage; exterior of the buildings, except windows, screens, garage doors, and doors; the cost of maintenance and repair of the vinyl fences installed by Developer, if any; the cost of snow removal from the driveways and front sidewalks of accumulations of 2" or greater; and the cost of mowing, trimming and fertilizing all lawns, unless the yard is enclosed by fencing.

(d) The storm water detention system for Trailridge Townhomes includes underground pipes with storm inlets and a sump beneath each inlet, and a storm water treatment device. The Association shall be responsible for keeping the inlets free of debris, for periodically cleaning debris and silt out of the sumps beneath the inlet. The finished grade of the land in the project must not be changed after completion without prior review and approval of a civil engineer and, if required, by the City of Billings Engineering Department.

(e) All water bills for units are a common expenses payable by the Association; the cost of keeping the irrigation wells and pumps and storm water vault in good repair are a common expenses payable by the Association;

(f) Insurance premiums for all insurance purchased by the Association, as required or authorized in the Bylaws of Trailridge Townhomes Homeowners Association;

(g) The amount of the insurance deductible, if any, payable by the Association, as provided in the Bylaws of the Association;

(h) Capital expenses for capital improvements approved by 75% of unit owners, and the costs of maintenance and repairs to those improvements;

(i) Income taxes payable by the Association, if any, and corporation fees payable to the Montana Secretary of State;

(j) Any other common expense described in this Declaration or the Bylaws of the Association or agreed to as common by all unit owners; and

(k) All utility bills, if any, for common areas.

Co-owners of a unit shall be jointly and severally liable for payment of common expenses for the unit owned.

Expenses for maintenance or repairs incurred due to a unit owner's misuse or neglect or that of the owner's family members, tenants and guests, shall be charged to such unit owner.

12. SEWER, WATER, AND GARBAGE.

The City of Billings will read only one water meter for water usage within the Association, and one bill for water, sewer and garbage will be sent to the Association. These costs shall be common expenses and shall collected in the same manner as other common expenses of the Association.

13. STORM WATER DRAINAGE FACILITIES.

Trailridge Townhomes are build within the Ridgeline Subdivision. In accordance with the Ridgeline Subdivision Special Improvements Agreement recorded June 29, 2023, under Document No. 4050465, as identified at Paragraph V., - Storm Drainage, this Association, along with any commercial property owners association, shall share the cost of maintenance for community storm water facilities. This cost shall be common expenses and shall collected in the same manner as other

common expenses of the Association.

The Association shall maintain and operate the Storm Water Drainage Facilities in accordance with the stormwater management plan approved by the City of Billings.

14. COVENANT TO PAY MAINTENANCE ASSESSMENTS.

Assessments shall be made by the Association for all common expenses described above or described elsewhere in this Declaration or the Bylaws of the Association. Assessments will begin at the time Developer closes the sale of the first unit in the project. Thereafter, the obligation to pay assessments for a unit shall start upon completion of that unit. The Developer for each completed unit owned by it, and each unit owner, by acceptance of a deed, whether or not it shall be expressed in said deed, are deemed to covenant and agree to pay to the Trailridge Townhomes Homeowners Association all regular and special assessments made by the Association for common expenses and to waive any right said owner may have, under the laws of the United States or the State of Montana, to claim a homestead exemption for said assessments. Assessments shall not include costs attributable to units under construction or units not yet built.

If a mortgage, a beneficiary of a first trust indenture, or other purchaser obtains title to a unit by purchasing at a foreclosure sale on a first mortgage or first trust indenture, such acquirer or title and its successors and assigns, shall not be liable for more than six months of the unit's unpaid regularly budgeted common expense assessments chargeable to such unit which became due prior to the foreclosure sale unless expressly assumed by them. The mortgagee, beneficiary of a first trust indenture, or other purchaser, shall also be liable for any fees and costs incurred by the Association in attempting to collect unpaid assessments.

15. REMEDIES FOR NON-PAYMENT OF ASSESSMENTS.

All unpaid sums assessed by the Association for common expenses chargeable to any unit, and all other monies owed by a unit owner to the Association, together with interest, late payment fees, collection costs, costs of suit or arbitration and reasonable attorney fees, shall constitute a lien on such unit, and if filed of record, may be foreclosed in the same manner as a construction lien. During any such foreclosure, the unit owner shall be required to pay a reasonable rental for the unit, and the plaintiff in such foreclosure action shall be entitled to the appointment of a receiver to collect the rent.

Each assessment, together with interest, late payment fees, collection costs and costs of suit or arbitration, and reasonable attorney fees, shall also be the personal obligation of the owner of the unit against which the assessment was made at the time the assessment fell due, and a suit or arbitration proceeding to recover a money judgment for unpaid assessments or for other monies owed to the Association shall be maintainable by the Association against said owner without foreclosing or waiving the lien securing the same.

In addition to the foregoing remedies, the Association may also shut off the water to the unit of any owner who fails to pay an assessment within 15 days after the due date, and may continue to withhold water to the unit until such time as all assessments, together with accrued interest and the cost of shutting off and turning on the water, if any, are paid by the owner. The Association shall not shut off the water to any unit unless, at least 10 days before shutting off the water, it notifies the unit owner of its intent to shut off the water, by letter sent certified mail to the most recent address provided by the owner to the Association.

All costs of collection of delinquent assessments, including but not limited to court costs, costs of filing liens, and attorney fees, shall be the obligation of the non-paying unit owner and may

be added to the next regular assessment for that unit. Such costs shall be a lien on the unit of the non-paying owner and, if unpaid, the lien may be foreclosed in the same manner as a lien for unpaid common expenses.

16. PROCESS.

Service of process in the cases provided for in § 70-23-901, MCA, shall be made upon Kelly Coleman, 2812 1st Avenue North, Suite 500, Billings, MT 59106. This provision may be amended in the manner provided in § 70-23-902, MCA.

17. RIGHTS AND OBLIGATIONS OF DEVELOPER.

For each completed unit owned by it, Developer shall have all of the rights and duties afforded to any owner under the terms of this Declaration, the Bylaws of the Association, and Montana law.

18. PAYMENTS BY DEVELOPER.

Until all units are built and sold, Developer shall insure, to the extent it deems necessary, all units under construction and pay the cost of such insurance.

19. EASEMENTS.

There shall exist for the benefit of each unit and as a burden on the other units the following easements:

(a) Easement through the general common elements for ingress and egress for all persons making use of such common elements in accordance with the terms of this Declaration. Each unit owner shall have an unrestricted right of ingress and egress across the general common elements to his or her unit.

(b) Easements through the units and common elements for maintenance, repair and

replacement of the units and common elements. Use of these easements, however, for access to the interior of units shall be limited to reasonable hours, except that access may be had at any time in case of emergency.

(c) Every portion of a unit which contributes to the structural support of a building shall be burdened with an easement of structural support for the benefit of the other unit in that building.

(d) Easement through the units and common elements for all facilities necessary to furnish utility services to any building or the common area, which facilities shall include but not be limited to conduits, ducts, plumbing and wiring; provided that the easements for such facilities through a unit shall be only substantially in accordance with the plans of the building.

(e) Easements for encroachments (and maintenance thereof) of any portion of the general common elements or limited common elements upon a unit or units so long as they stand, and easements for encroachments (and maintenance thereof) of any portion of a unit upon the general common elements, limited common elements, and upon an adjoining unit or units, so long as they stand.

Such encroachments and easements shall not be considered or determined to be encumbrances either on the general common elements, the limited common elements, or on the units for purposes of marketability of title.

20. GRANT OF EASEMENTS FOR SERVICES.

The undersigned hereby grants an easement over and across the common elements and the driveways and sidewalks for mail service, solid waste services, fire service, police protection, other

emergency vehicles and other publicly-owned vehicles being used for official federal, state, or local governmental purposes.

21. GRANT OF UTILITY EASEMENTS.

The undersigned hereby grants unto Montana-Dakota Utilities, Co., to Yellowstone Valley Electric Co-Op, to Spectrum, to NorthWestern Energy, and to all other providers of utilities, cable television and internet access, an easement across the above-described real property for the purpose of providing underground utilities, cable television and interest service to each unit, together with the right of ingress and egress for the purpose of installing, maintaining, repairing and replacing all necessary underground pipes, lines and cables. To the extent that they can conveniently do so, all grantees shall use the same trench for placement of pipes, lines and cables serving each of the units. This easement may not be used for providing utilities, cable television and internet service to any real property not described in Section 2 above.

22. UNITS SUBJECT TO DECLARATION, BYLAWS, RULES AND REGULATIONS AND RESTRICTIVE COVENANTS.

All present and future owners of units shall be subject to, and shall comply with the provisions of this Declaration, the Bylaws, and rules and regulations adopted by the Association, as these instruments may be amended from time to time. The execution of a purchase contract by a unit owner or the acceptance of a deed thereto shall constitute acceptance of the provisions of such instruments by such owner. All owners shall be responsible for ensuring compliance by their tenants, family members, other occupants of their unit and their guests. The provisions of this Declaration and Bylaws, restrictive covenants and rules and regulations adopted by the Association, shall be covenants running with the land and shall bind any person having an interest in such unit

as though the provisions were recited and fully stipulated in each deed or conveyance thereto. The invalidity of any provision of this Declaration shall not affect in any manner the validity or enforceability of the remainder of the Declaration. No provision in this Declaration shall be deemed to have been waived by reason of any failure to enforce it, irrespective of the number of violations which may occur.

23. RESTRICTIONS ON LEASING.

No townhome shall be rented or leased for a period of less than 30 days. Any lease or rental agreement shall be in writing and shall subject the tenant to the provisions of this Declaration, the Bylaws for the Association, and all rules and regulations adopted by the Association. Owners shall be responsible for any violation by the tenants of the provisions of this Declaration, the Bylaws of the Association or any rules and regulations adopted by the Association unless the owner has designated the tenant as the unit owner pursuant to the procedure set forth in § 70-23-102(16), MCA.

24. ARBITRATION AND RIGHTS OF ACTION.

The Association and any aggrieved unit owner shall have the right to binding arbitration and the right to maintain an action for specific performance to compel arbitration or enforce a decision of an arbitrator against any unit owner or the Association for failure to comply with the provisions of this Declaration, the Bylaws of the Association, or any rules and regulations adopted by the Association, except for claims of non-payment of assessments, fines or other monies owed the Association by an owner and foreclosure of the lien for unpaid assessments, fines, or other monies owed the Association, which claims shall be enforced by a Court action. The parties to the dispute requiring arbitration shall utilize the Arbitrator appointed by the members or in the manner provided in the Montana Uniform Arbitration Act, or any successor Act, as provided in the Bylaws of the

Association. Judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

The prevailing party in any such action and in binding arbitration shall be entitled to recover its costs and attorney fees actually incurred from the losing party. In addition, the Association shall be entitled to recover from any owner violating the provisions of this Declaration, the Bylaws of the Association, or the rules and regulations duly adopted by the Association, including failure to pay assessments or other monies owed the Association, when due, all costs and attorney fees incurred in compelling compliance or collection, without filing for arbitration or bringing a court action. Owners shall be responsible for non-compliance by their tenants, unless the tenant has been designated as the owner pursuant to § 70-23-102(16), MCA, and for non-compliance by members of the owner's family.

25. EMINENT DOMAIN.

(a) If a portion of the common elements is acquired by eminent domain and if a separate award is not made to each unit owner, the award shall be allocated to each unit owner in proportion to each unit owner's percentage of undivided interest in the common elements.

(b) If a part of the project which includes one or more individual units is acquired by eminent domain, the award shall be allocated to unit owners as follows:

(i) The owner of each individual unit taken shall receive the fair market value of that owner's unit including that owner's interest in the common elements, whether or not any common elements are actually taken. Thereafter, the unit owner shall be divested of his or her entire property interest in the project

attributable to the unit taken and shall have no further property interest in the property, including the common elements. In addition, the owner of each individual unit taken, following compensation, shall have no further voting rights in the project as owner of the unit taken.

(ii) The remainder of the award, if any, shall be divided among the remaining unit owners in proportion to each owner's percentage of undivided interest in the common elements.

(c) If all of the project is acquired by eminent domain and a separate award is not made to each unit owner, each unit owner and any holders of mortgages or liens on the unit shall receive the fair market value of the unit, excluding its appurtenant interest in the common elements; the balance of the award, less any costs incurred by the Association in determining the fair market value of each unit, shall be divided equally among the unit owners.

(d) Payment of any award shall be made jointly to the owners of a unit and the lender(s) having a mortgage on the unit, if any.

(e) The Directors of the Association shall represent the unit owners in any eminent domain negotiations, legal proceedings, settlements or agreements; each unit owner, by acceptance of a deed, irrevocably appoints the Association as that owner's attorney in fact for this purpose.

26. PROTECTION OF LENDERS.

(a) **Eligible Mortgagee Protection.** Except as specifically provided in this Declaration or in the Montana Unit Ownership Act, no provision of this Declaration shall be construed to grant

to any owner or to any other person, any priority over any lien rights of a eligible mortgage holder pursuant to its security interest in the case of distributions of insurance proceeds or condemnation awards.

(b) **Subordination.** Notwithstanding any contrary provision of this Declaration, the lien of any assessment for common expenses upon any unit (and any penalties, interest on assessments, late charges or the like) shall be subordinate to, and shall in no way affect the rights of an eligible mortgage holder; provided, however, that such subordination shall apply only to assessments on a unit which have become due and payable prior to a sale or transfer of such unit pursuant to a decree of foreclosure, or to any deed or other proceeding in lieu of foreclosure, and any such sale or transfer in foreclosure or in lieu of foreclosure shall not relieve the purchaser of the unit from liability for any assessment thereafter becoming due, nor from the lien of any such subsequent assessment.

(c) **Notice of Actions.** The Association shall give prompt written notice to each eligible mortgage holder of:

(i) Any condemnation loss or any casualty loss which affects a material portion of the townhome or any unit in which there is a security interest held by such eligible mortgage holder;

(ii) Any delinquency in the payment of common expenses assessments owed by an owner whose unit is subject to a first security interest held by such eligible mortgage holder, which remains uncured for a period of 60 days.

(iii) Any lapse, cancellation, or material modification of any insurance policy or fidelity bond maintained by the Association.

(iv) Any proposed action which would require the consent of a specified

percentage of eligible mortgage holders; and

(v) Any judgment rendered against the Association.

(d) **Inspection of Books.** The Association shall permit any eligible mortgage holder to inspect the books and records of the Association during normal business hours.

(e) **Financial Statements.** The Association shall provide any eligible mortgage holder, which submits a written request, with a copy of an annual financial statement within 90 days following the end of each fiscal year of the Association. Such financial statement may be audited by an independent certified public accountant if any eligible mortgage holder requests it, in which case the eligible mortgage holder shall bear the cost of the audit.

(f) **Enforcement.** The provisions of this article are for the benefit of any eligible mortgage holder and their successors, and may be enforced by any of them by any available means, at law, or in equity.

(g) **Attendance at Meetings.** Any representative of an eligible mortgage holder may attend and address any meeting which an owner may attend.

27. AMENDMENT.

(a) Until sale of all of the units by Developer, or occupancy of all of the units, this Declaration, may be amended by Developer without consent of any other unit owner or any lender.

(b) After sale or occupancy of all of the units, this Declaration, except Section 17 may be amended by affirmative vote of 75% of the unit owners; if a unit has more than one owner only one owner of that unit need consent. Amendments of a material adverse nature to Eligible Mortgage Holders must also be approved by Eligible Mortgage Holders that represent at least 51% of the votes of units that are subject to mortgages. Approval shall be assumed when an Eligible Mortgage Holder

fails to submit a response to any written proposal for an amendment within 60 days after it receives proper notice of the proposal, provided the notice was delivered by certified mail or registered mail, with a "return receipt" requested. No other amendment need be approved by Eligible Mortgage Holders and no amendment shall require the approval of any holder of a mortgage or trust indenture other than Eligible Mortgage Holders.

(c) All amendments to the Declaration shall be recorded in the office of the Yellowstone County Clerk and Recorder, Billings, Montana, and no amendment will be effective until it is recorded.

28. CONFLICTS.

In the event of any conflict between this Declaration and the provisions of the Bylaws of Trailridge Townhomes Homeowners Association, the provisions of this Declaration shall govern and apply.

30. WARRANTY.

Developer gives no warrant, express or implied, on any of the units or common area improvements, but will transfer to the initial owners and the Association all manufacturers and dealers warranties received from the general contractor on appliances, materials, fixtures and equipment, and any warranty given by the general contractor or subcontractors who constructed the buildings and common area improvements.

The warranty from the general contractor will not cover cracks in the concrete foundation or floor, or in the concrete driveway or sidewalks, normal maintenance items or conditions resulting from wear and tear or misuse or negligence, including failure to provide reasonable and necessary maintenance, or any defect resulting from damage for which any third person is responsible.

Contractor shall not be responsible for any damage to the townhome, including water damage or damage to the foundation resulting from changes to the finished grade of the land by the homeowner, landscaping contractors, or any other third party, from altered rain gutter extenders, from leaking underground sprinklers, or from any landscaping which disrupts drainage away from the building. Contractor warranties may also have additional exclusions.

DEVELOPER SPECIFICALLY DISCLAIMS ANY LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGE TO ANY PERSON, THE UNITS AND COMMON ELEMENTS, OTHER COMPONENTS, OR ANY OTHER REAL OR PERSONAL PROPERTY RESULTING FROM A CONSTRUCTION DEFECT. ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF WORKMANSHIP, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND HABITABILITY, ARE EXPRESSLY DISCLAIMED AND DO NOT APPLY

DATED this 29th day of January, 2024.

TKJ DEVELOPMENT, LLC

By: Kelly Coleman
Kelly Coleman, Authorized Signatory

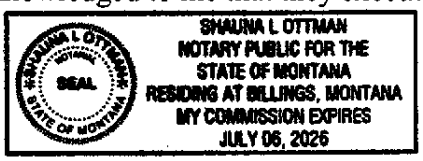
TKJ DEVELOPMENT, LLC

By: Todd Brown
Todd Brown, Authorized Signatory

STATE OF MONTANA)
: ss
County of Yellowstone)

On this 29th day of January, 2024, before me, a Notary Public for the State of

Montana, personally appeared KELLY COLEMAN and TODD BROWN, known to me to be the Authorized Signatories of TKJ DEVELOPMENT, LLC, who executed the foregoing instrument and acknowledged to me that they executed the same.



(NOTARY SEAL)

Shauna L Ottman

PLANNING DEPARTMENT'S CERTIFICATE

THIS UNDERSIGNED, being the duly authorized agent of the Planning Department for the City of Billings, Yellowstone, County, Montana, herewith executes the following Certificate relating to TRAILRIDGE TOWNHOMES located in the City of Billings, Yellowstone County, Montana and situated on the following real property:

> Being Lot 2, Block 2 of Ridgeline Subdivision, according to the plat on file in the office of the Clerk and Recorder of Yellowstone County, Montana, under Document No. 4050464.

The undersigned herewith certifies that:

1. The Trailridge Townhomes constructed on the land above written are exempt from the provisions of §§ 76-3-101, et seq., MCA, pursuant to § 76-3-203(2), MCA.

   Specifically:

   The townhome proposal for Trailridge Townhomes conforms with applicable local zoning regulations where local zoning regulations are in effect.

2. The Trailridge Townhomes comply with zoning based on plans submitted for Zoning Compliance Review. Trailridge Townhomes understands that if changes are made to the plans submitted, such changes must be reviewed by this department.

DATED this 29th day of January, 2024.

By: Tara Johnson
City County Planning Department for the City of Billings and Yellowstone County

THIS CERTIFICATE VERIFIES CONFORMANCE WITH ZONING REGULATIONS AS STATED ABOVE AND IN NO WAY INDICATES CONFORMANCE WITH ANY OTHER CODE, INCLUDING BUT NOT LIMITED TO, THE INTERNATIONAL UNIFORM BUILDING CODE REGULATIONS.

CERTIFICATE

THE UNDERSIGNED, being the duly authorized agent of the Department of Revenue of the State of Montana, within the County of Yellowstone, herewith executes the following certificate relating to TRAILRIDGE TOWNHOMES situated on the following described real property:

> Being Lot 2, Block 2 of Ridgeline Subdivision, according to the plat on file in the office of the Clerk and Recorder of Yellowstone County, Montana, under Document No. 4050464.

The undersigned herewith certifies that:

1. The name "TRAILRIDGE TOWNHOMES" is in compliance with § 70-23-303, MCA, and

2. All taxes and assessments due and payable for the said property have been paid to date.

DATED this 31st day of January, 2024.

MONTANA DEPARTMENT OF REVENUE

By: Crystal MacFarlane

CONSENT OF LENDER

The undersigned Beneficiary of a Trust Indenture on the above-described real property hereby consents to conversion of said property and the improvements therein to townhomes and to the recordation of this Declaration of Unit Ownership for Trailridge Townhomes.

YELLOWSTONE BANK ("LENDER")

By: _____
Its: President

STATE OF MONTANA)
: ss
County of Yellowstone)

On this 29th day of January, 2024, before me, a Notary Public for the State of Montana, personally appeared Zachary Dunn, known to me to be the President of YELLOWSTONE BANK, the corporation that executed the within instrument, and acknowledged to me to be the person who executed the within instrument on behalf of the corporation therein named and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal on the date in this Certificate first above written.

(NOTARY SEAL)

Shaurna L Ottman

SHAURNA L OTTMAN
NOTARY PUBLIC FOR THE
STATE OF MONTANA
RESIDING AT BILLINGS, MONTANA
MY COMMISSION EXPIRES
JULY 08, 2026

List of Exhibits for Declaration of Unit Ownership for Trailridge Townhomes

1. **Exhibit A. Trailridge Site Plan**
2. **Exhibit B. Duplex Options**
   - **B-1 Duplex Option A**
   - **B-2 Duplex Option B**
   - **B-3 Duplex Option C**
   - **B-4 Duplex Option D**
   - **B-5 Duplex Option E**
3. **Exhibit C. Duplex Option Locations, Options Square Footage, Address and Number**
4. **Exhibit D. Party Wall Agreement**
5. **Exhibit E. Bylaws of Trailridge Townhomes Homeowners Association**
6. **Exhibit F. Color and Design Specs**

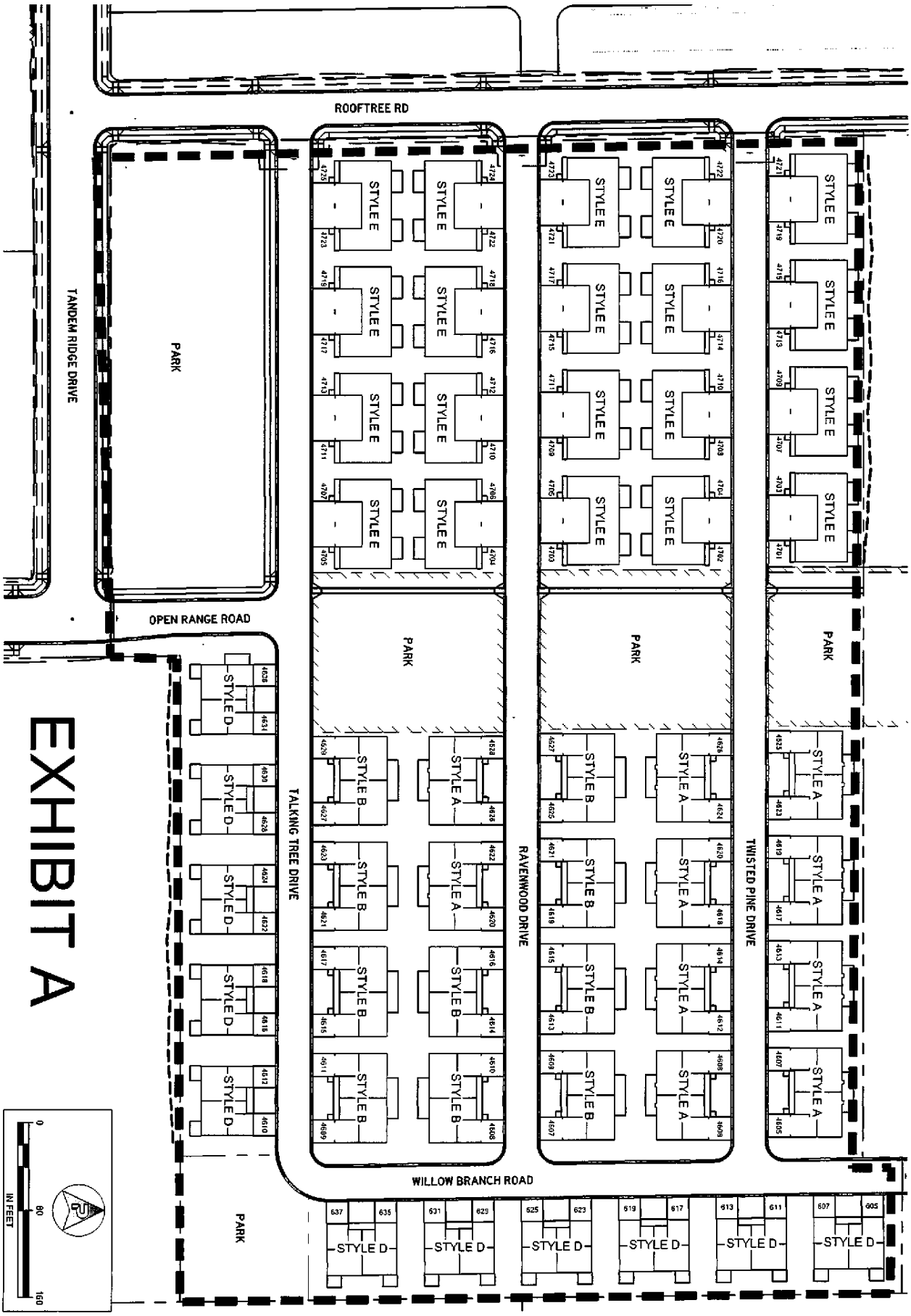

ROOFTREE RD
TANDEM RIDGE DRIVE
PARK
OPEN RANGE ROAD
TALKING TREE DRIVE
RAVENWOOD DRIVE
TWISTED PINE DRIVE
WILLOW BRANCH ROAD
STYLE A
STYLE B
STYLE D
STYLE E
0
80
160
IN FEET

EXHIBIT A

DUPLEX OPTION "A"

TRAIL RIDGE TOWNHOMES

BILLINGS MONTANA

CONTACT

OWNER

INDEX OF DRAWINGS

T1.0	TITLE
S1.0	SITE PLAN
A1.1	MAIN LEVEL PLAN
A2.0	ELEVATIONS
A2.1	ELEVATIONS
A3.0	BUILDING SECTIONS
A3.1	WALL SECTIONS
ST0.0	GENERAL STRUCTURAL NOTES
ST1.0	FOUNDATION PLAN
ST2.0	ROOF FRAMING PLAN

SPECIAL INSPECTION

SOILS TO BE INSPECTED BY "GEOSCIENCE" PRIOR TO PLACEMENT OF FOOTINGS

CODE ANALYSIS

-OCCUPANCY: R-3 (BUILDINGS THAT DO NOT CONTAIN MORE THAN TWO DWELLING UNITS)
-TYPE OF CONSTRUCTION: V-B
-2HR RATED SEPARATION REQUIRED BETWEEN UNITS
-EACH UNIT TO HAVE ITS OWN ELECTRICAL SERVICE

STORM WATER DRAINAGE NOTE:

PER SECTION 3111, DOWNSPOUTS AND DRAINAGE FLOW PATHS AS SHOWN ON PLAN PER SECTION 2303.2 FOR A MINIMUM OF 10' FROM HARD SURFACES AT 5% OR LESS SLOPE FOR LAWN AND 2% ON ASPHALT OR OTHER PAVED AREAS UNDA TO REACH 10' THE PROPERTY LINE

DUE TO THE EXISTING TOPOGRAPHY AND NATURAL DRAINAGE PATTERNS PRESENT ON THIS SITE, ALL EFFORTS SHOULD BE MADE TO KEEP SITE DRAINAGE AS NATURAL AS POSSIBLE. NO ATTEMPTS SHOULD BE MADE TO DIRECT WATER TOWARDS ANY NEW OR UNNATURAL DRAINAGE AREAS OR ADJACENT PROPERTIES

ALL DOWNSPOUTS AND STORM WATER RUNOFF FROM THE CONSTRUCTED AREAS SHALL BE CONTROLLED AND DIRECTED TO OPEN TO THEIR NATURAL DRAINAGE AREAS. ALL REMAINING AREAS TO BE UNALTERED IN EFFORTS TO MAINTAIN THE NATURAL DRAINAGE PATTERNS

FINISHED GRADE TO SLOPE AWAY FROM FOUNDATION WALLS A MIN OF 6"

DRAFTSTOPS

R302.12 DRAFTSTOPPING

IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR-CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1,000 SQUARE FEET. DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR MEMBRANE ABOVE AND A CEILING MEMBRANE BELOW. DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:
CEILING IS SUSPENDED UNDER THE FLOOR FRAMING
FLOOR FRAMING IS CONSTRUCTED OF TRUSSES WITH OPEN WEB OR PERFORATED MEMBERS

CONTRACTOR NOTES

1. CONTRACTOR SHALL VERIFY ALL SITE DIMENSIONS & LOCATION PRIOR TO CONSTRUCTION
2. VERIFY THAT ALL INFORMATION WITHIN THIS PLAN SET IS CONSISTENT WITH OBSERVED EXISTING CONDITIONS
3. ENSURE COMPLIANCE WITH LOCAL CODES & ORDINANCES AS IT RELATES TO THE SITE LOCATION
4. CONTRACTOR TO VERIFY THAT EXISTING WATER SIZE (MUST BE ADEQUATELY SIZED) EXISTS FOR THE LOAD TO SUPPLY THE AREA WHERE THIS STRUCTURE IS TO BE BUILT
5. REFER TO ENGINEERED ROOF TRUSS LAYOUT FOR INFORMATION REGARDING STRUCTURAL LOADING DATA USED TO DESIGN THE STRUCTURE. (DATA TO BE PROVIDED BY THE FABRICATORS OF THE RESPECTIVE TRUSS ROOF/FLOOR SYSTEMS)
6. CONTRACTOR TO VERIFY WITH ARCHITECT ANY QUESTIONS OR REQUIREMENTS OVER UNDERSTRUCTURED SOILS
7. CONTRACTOR TO VERIFY LOCATION OF ALL FOOTING SIZES, LOAD REQUIREMENTS, SOIL BEARING DATA, & REQUIREMENTS
8. CONTRACTOR SHALL PROVIDE SUBSETS TO OWNER AND ARCHITECT PRIOR TO CONSTRUCTION OF ALL LATEST OR PATTERNS, COLORS & TYPES
9. CONTRACTOR TO VERIFY LOCATION OF ALL NON-DISTURBED SURFACES THAT REQUIRE FOUNDATION ADJUSTMENTS
10. CONTRACTOR TO PROVIDE VENTILATION IN ALL ATTIC AREAS PER 2018 IRC CODES & WITH SAFETY FEATURES
11. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL DETAILS REGARDING PRODUCTS SPECIFICATIONS, INSTALLATION, AND BUILDING NOTING DATA THAT MAY BE REQUIRED BY OWNER OR BUILDING DEPARTMENT WHERE APPLICABLE
12. BUILDING SHALL HAVE APPROVED ADDRESS NUMBERS. THE NUMBERS SHALL BE CONTRASTED WITH THE BACKGROUND. NUMBERS SHALL BE 6" HIGH MINIMUM & WIDTH OF THE ARABIC OR ALPHABETICAL LETTERS AS A WHOLE APPLY

GENERAL NOTES

1. ALL CONSTRUCTION TO COMPLY WITH IRC, IBC, ADA & FAIR HOUSING AS WELL AS ALL OTHER LOCAL & NATIONAL CODES THAT MAY APPLY INCLUDING AMENDMENTS
2. CODE PURSUANT BY CASE DISCRETION
3. ENGINEERING AND SPECIFICATIONS SHOWN TO BE DISCONTINUED BY CONTRACTOR
4. FOR ALL CLOTHES DRYER EXHAUST DUCT TO BE 35'-0" MAXIMUM BY 3'-0" FOR EACH 45 ELBOW & 5'-0" FOR EACH 90 ELBOW PER MANUFACTURER INSTRUCTIONS
5. CONTRACTOR SHALL LOCATE & FIELD VERIFY ATTIC ACCESS PRIOR TO FRAMING
6. SLOPE GRADE AWAY FROM FOUNDATION WALLS AT A MINIMUM OF 6" WITHIN THE FIRST 10 FEET (R401.3)
7. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALL AND ROOF THROUGH JOINTS IN COPINGS, THROUGH MOISTURE PERMEABLE MATERIALS AND OTHER LOCATIONS THROUGHOUT THE BODY PLANES
8. NET FREE ATTIC VENTILATION TO BE 1/150 OF THE AREA TO BE VENTED WITH 50% TO BE LOCATED IN THE UPPER ATTIC PORTION (IRC R806.2)
9. A FREE BARRIER CONSISTING OF AT LEAST TWO LAYERS OF GRADE D PAPER OVERLAPPED TOGETHER OR A SELF ADHERING POLYMER MODIFIED BITUMEN SHEET, SHALL BE USED INSTEAD OF ROOFING UNDERLAYMENT AND LAPPED OVER THE ROOF DECKING AT ALL ROOF REPLACE TO A POINT AT LEAST 24" INSIDE THE EXTERIOR WALL LINE OF THE BUILDING (R905.1.1)
10. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGE SEPARATION REQUIRED BY THIS SECTION SHALL NOT BE PENETRATED BY DUCTS OR REGISTERS THAT ARE INSTALLED FOR THE PURPOSE OF TRANSFERRING AIR FROM THE GARAGE TO OTHER ROOMS OF THE HOUSE. WHERE DUCTS PENETRATE THE WALL OR CEILING SEPARATING THE GARAGE FROM THE HOUSE, THE OPENING AROUND THE DUCT SHALL BE TIGHTLY FITTED OR SEALED WITH SHEET METAL OR OTHER NONCOMBUSTIBLE MATERIAL. (R302.5.2)
11. WHERE CERAMIC TILE IS USED CEMENT, FIBER CEMENT OR GLASS MAT GYPSUM BACKER IN COMPLIANCE WITH CODE AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SHALL BE USED AS BACKER FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL AREAS ADJACENT TO TUB AND SHOWER AREAS. (R702.4.2)
12. INFORMATION FOUND ON THE ADOPTED CODES SHALL OVERRIDE PLAN NOTES & SPECIFICATIONS WHERE DISCREPANCIES OR CONFLICTS OCCUR

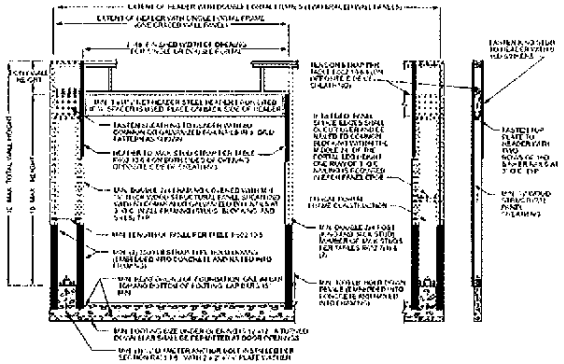
HEATING & VENTILLATION (M1505)

HEATING
ELECTRIC CEILING UNITS TO PROVIDE HEAT

VENTILATION
- BATHROOM EXHAUST FAN TO BE A ENERGY STAR RATED, 50 DECIBEL OR LESS, WATER PROOF FINISH, ELECTRICAL SUB CONTRACTOR TO PROVIDE HUMIDISTAT CONTROL OR APPROVED EQUAL FOR BATHROOM EXHAUST FAN & PROGRAM TO MEET CODE REQUIRED INTERMITTENT OPERATION (M1505.4.3)
- 50 CFM TO DRAW OUTDOOR AIR AT 15 CFM CONTINUOUS OR 50 CFM INTERMITTENT IF 1 TIMES PER 1 HOUR PERIOD
- PUNT-UP AIR TO BE SUPPLIED VIA 2 PVC DUCT PENETRATIONS ROOF ON EAST OR SIDEWALL INSTALL PVC FLOW REGUTER IN WALL AT HVAC 21" AFF
- ALL AIR INTAKE VENTS & PIPES TO BE 3'-0" IN FROM NEAREST SOURCES
- AUTO DAMPER AT KITCHEN EXHAUST TO BE SUPPLIED BY CONTRACTOR OR APPLIANCE MFG (MODEL #)

PORTAL FRAME

PORTAL FRAME PER R602.10.4.2



WALLS AND INTERIOR PARTITIONS, WOOD-FRAMED

GA FILE NO. WP 3620	GENERIC	2 HOUR FIRE	55 to 59 STC SOUND

GYPSUM WALLBOARD, WOOD STUDS

(LOAD-BEARING)

FIREBLOCKING

R302.11 FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS
1.2 HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).
2. AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCURS AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO PREVENT THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E136 REQUIREMENTS.
(FOR THE EXCEPTIONS OF FIREBLOCKING AND DRAFTSTOPS SEE SECTION R302.12)

A-LINE DRAFTING AND DESIGN
JEFF WOLLSCHLAGER
(406) 321-2280
725 GRAND AVE
BILLINGS MT, 59101

PAGE:

DUPLEX OPTION A

TITLE

SET:

PRELIMINARY

SHEET
T1.0

4067789 DCL
02/09/2024 03:01 PM Page 32 of 84
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SITE INFO

SITE

NOTE: GRADE TO SLOPE AWAY FROM BUILDING PER GEOTECHNICAL

1 SITE PLAN
SCALE: 1/16"=1'-0"

PRELIMINARY

SHEET
S1.0

DUPLEX
OPTION A

SITE PLAN

PAGE 2

A-LINE
DRAFTING AND DESIGN

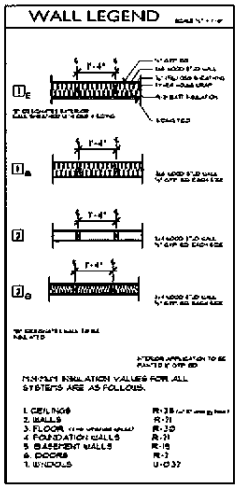
NOTES

ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING. WINDOWS AND DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS NOT DIMENSIONED TO BE CENTERED IN SPACE PROVIDED.

ALL MAIN LEVEL INTERIOR DOOR HEIGHTS TO BE 6'-8"

EXTERIOR DOOR & WINDOW HEIGHTS TO BE 6'-8" A.F.F.

WALL LEGEND



MINIMUM INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS:

1. CEILINGS	R-38
2. WALLS	R-21
3. FLOOR	R-30
4. FOUNDATION WALLS	R-21
5. BASEMENT WALLS	R-15
6. DOORS	R-3
7. WINDOWS	U-0.32

(F) EXHAUST FAN, 100CFM INTERMITTENT (KITCHENS, 50 CFM BATHROOMS) TO LET ROOMS INTERMITTENT

(SD) SMOKE DETECTOR (SMOKE DETECTORS WITHIN 20' OF A COOKING APPLIANCE MUST BE THE ALARM SILENCING TYPE)

(HB) HOSE BIB (VERIFY EXTERIOR LOCATIONS)

(C) CARBON MONOXIDE DETECTOR

SG SAFETY GLAZING

F.D. FLOOR DRAIN

AREA

AREA
1315 SQ FT. MAIN LEVEL LIVING
483 SQ FT. GARAGE
168 SQ FT. FRONT COVERED ENTRY
168 SQ FT. REAR PATIO

NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

UFER GROUND

A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED IN THE FOOTING

SMOKE DETECTORS

SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS IN BASEMENTS, AND ON EACH STORY

BEDROOM ESCAPE WINDOW

- EGRESS
MAIN LEVEL WINDOWS TO HAVE A MIN NET CLEAR OPENING OF 5.0 SQ. FT. (OR PER SEC. R310.1) WITH A MIN HEIGHT OF 24" & A MIN WIDTH OF 20". 44" A.F.F. TO OPENING MAX.

FUEL BURNING APPLIANCES

FUEL BURNING APPLIANCES WHERE OPEN COMBUSTION AIR DUCTS PROVIDE COMBUSTION AIR TO OPEN COMBUSTION FUEL BURNING APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH IECC 2018 R402.4.4

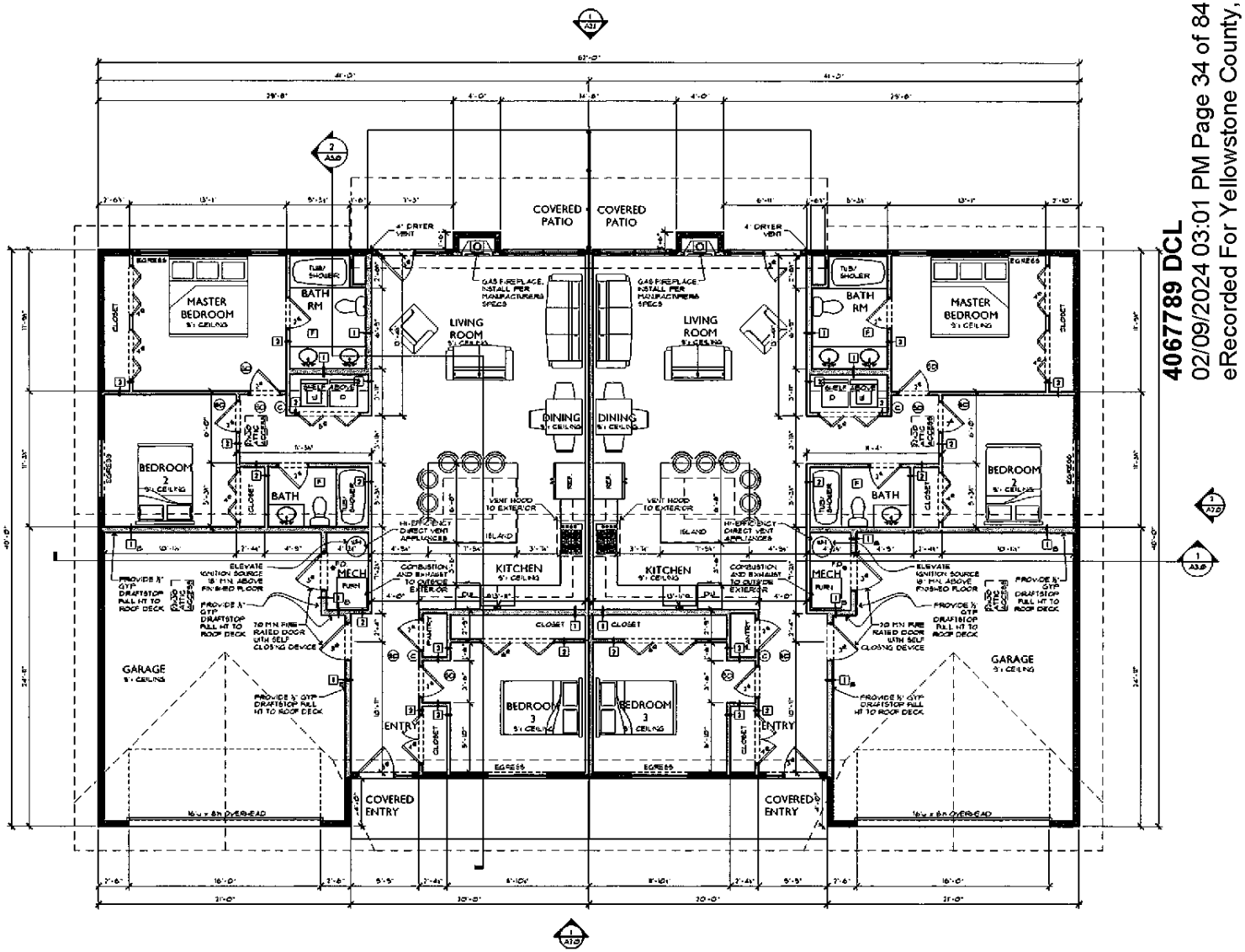
MECH. VENTILATION

- ALL KITCHEN AND BATHROOM EXHAUST FANS
KITCHEN TO BE 100CFM INTERMITTENT
BATHROOMS TO BE 50CFM INTERMITTENT

- IRC 2018 TABLE M1555.4 (3) CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM: AIRFLOW RATE (0.03 × 1003 SF (3) BEDROOM + 45 CFM (INTERMITTENT WHEN 1 HOUR OF VENTILATION SPT FAN (MEANS (3))

- THE WHOLE-HOUSE VENTILATION SYSTEM SHALL CONSIST OF AN OUTDOOR AIR DUCT CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER TO PROVIDE SUPPLY VENTILATION

- R303.4 MECHANICAL VENTILATION
BLOWER DOOR TEST LESS THAN 3 ACH CHANGES AN HOUR WILL REQUIRE WHOLE HOUSE VENTILATION



1 A1.1 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 34 of 84
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PRELIMINARY

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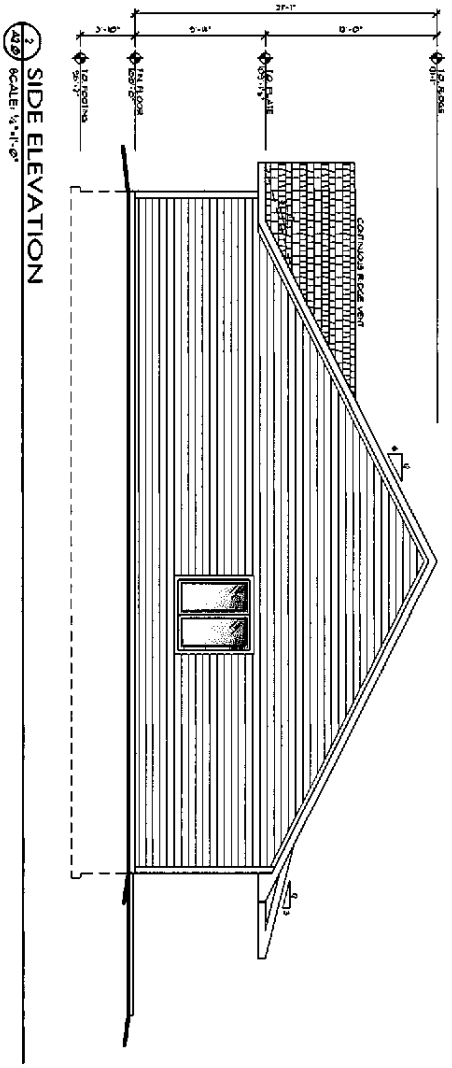
JEFF WOLLSCHLAGER
(406) 321-2280
725 GRAND AVE
BILLINGS MT, 59101

PAGE: 3

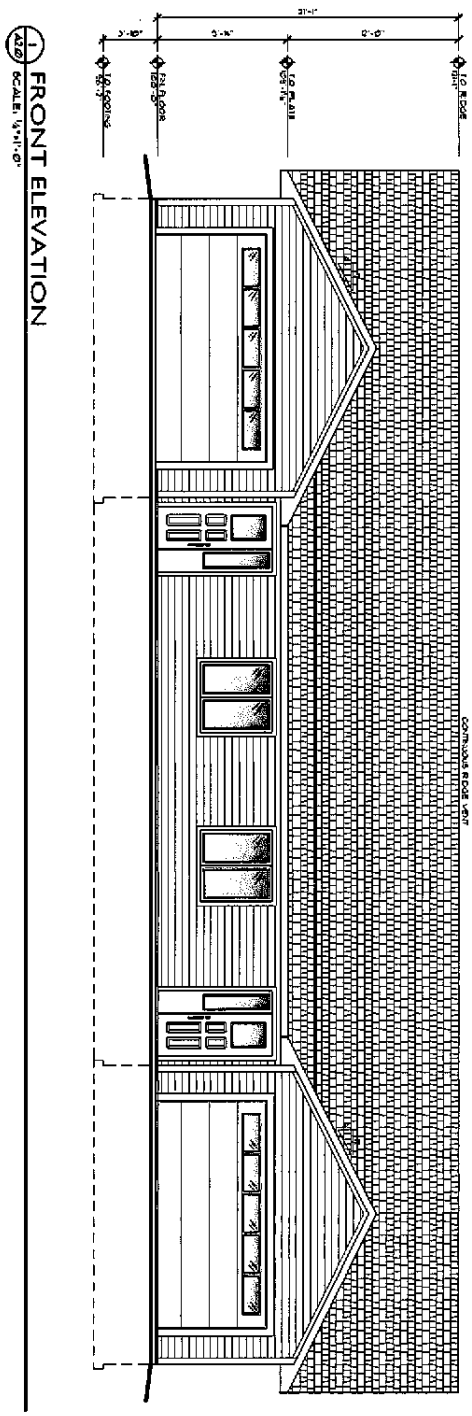
DUPLEX OPTION A

MAIN LEVEL PLAN

SHEET A1.1



2 A2.0 SIDE ELEVATION
SCALE: 1/4"=1'-0"



1 A2.0 FRONT ELEVATION
SCALE: 1/4"=1'-0"

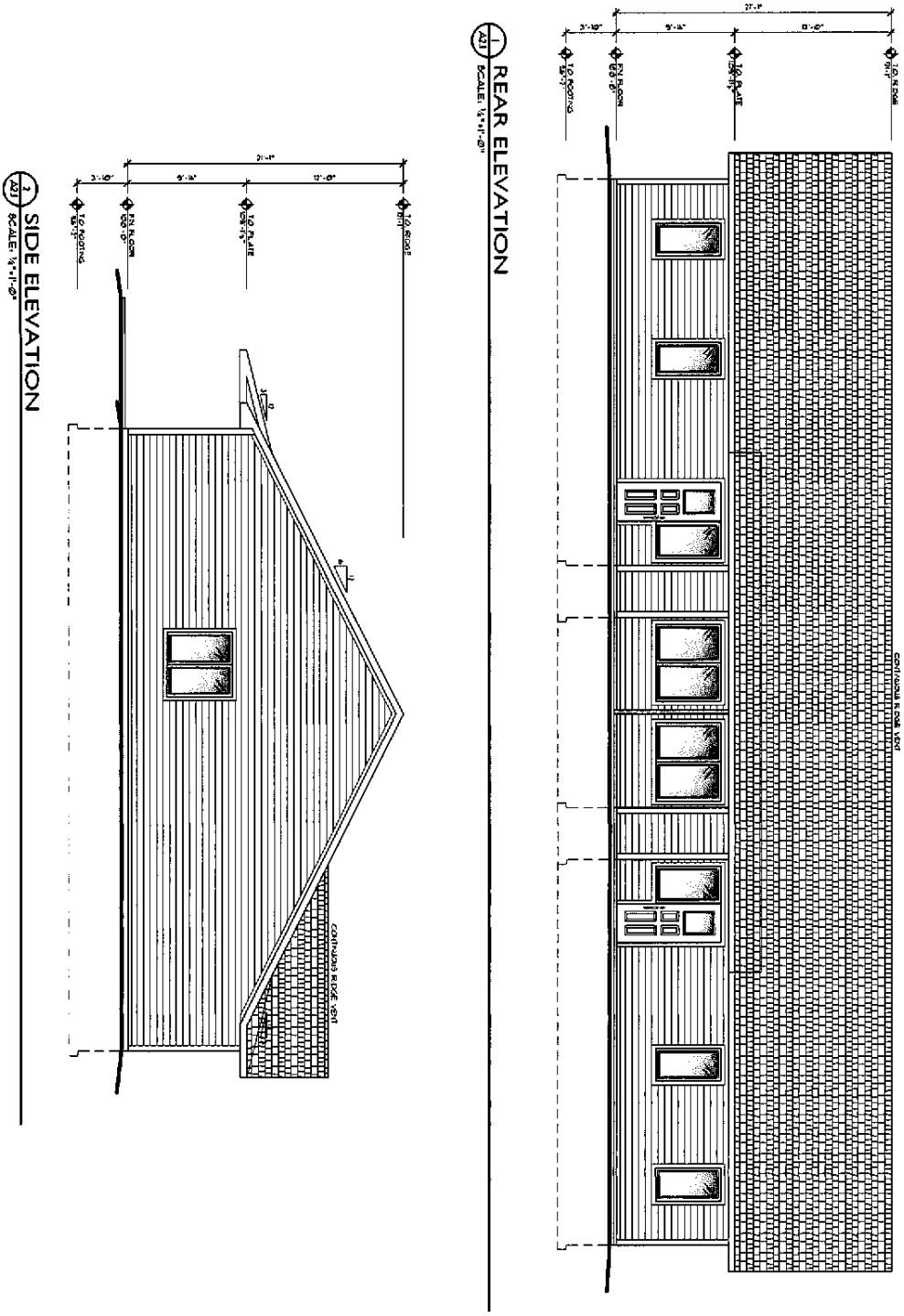
PRELIMINARY

SHEET A2.0

DUPLEX OPTION A

ELEVATIONS

A-LINE DRAFTING AND DESIGN



1 A2.1 REAR ELEVATION
SCALE: 1/4"=1'-0"

1 A2.1 SIDE ELEVATION
SCALE: 1/4"=1'-0"

PRELIMINARY

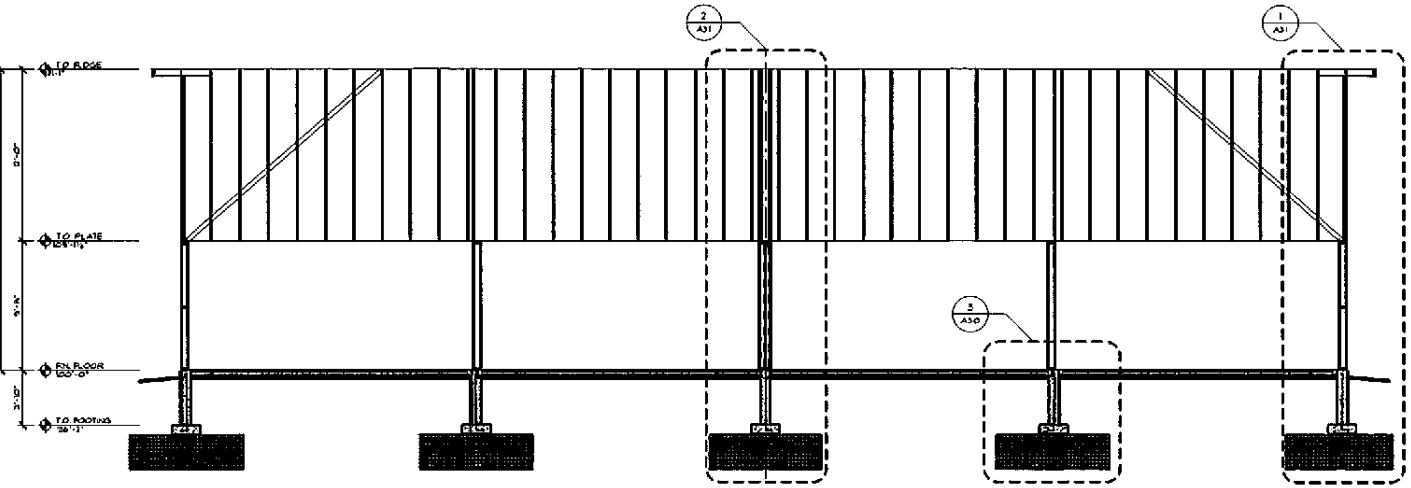
SHEET

DUPLEX
OPTION A

PAGE

A-LINE
DRAFTING AND DESIGN

4067789 DCL
02/09/2024 03:01 PM Page 37 of 84
eRecorded For,,Yellowstone County, MT



1 A3.0 BUILDING SECTION
SCALE: ¼"=1'-0"

FIREBLOCKING

FIRE BLOCKING

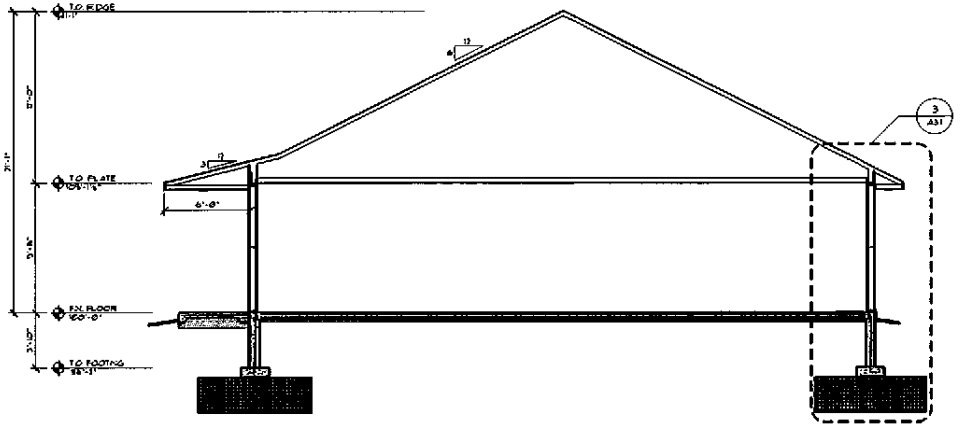
IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:

1. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).

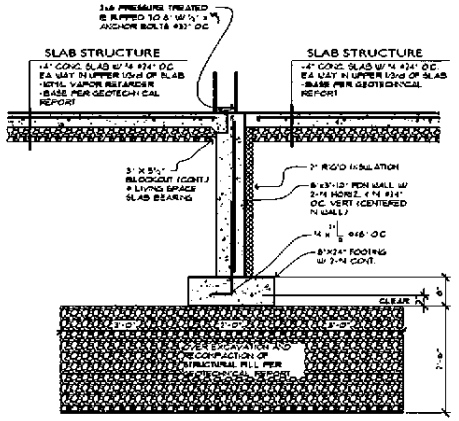
AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.

IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R311.7.

AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THE ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES. SEE SECTION R1003.19.



2 A2.0 SIDE ELEVATION
SCALE: ¼"=1'-0"



3 A3.0 GARAGE WALL DETAIL
SCALE: ¾"=1'-0"

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(406)321-2380
725 GRAND AVE.
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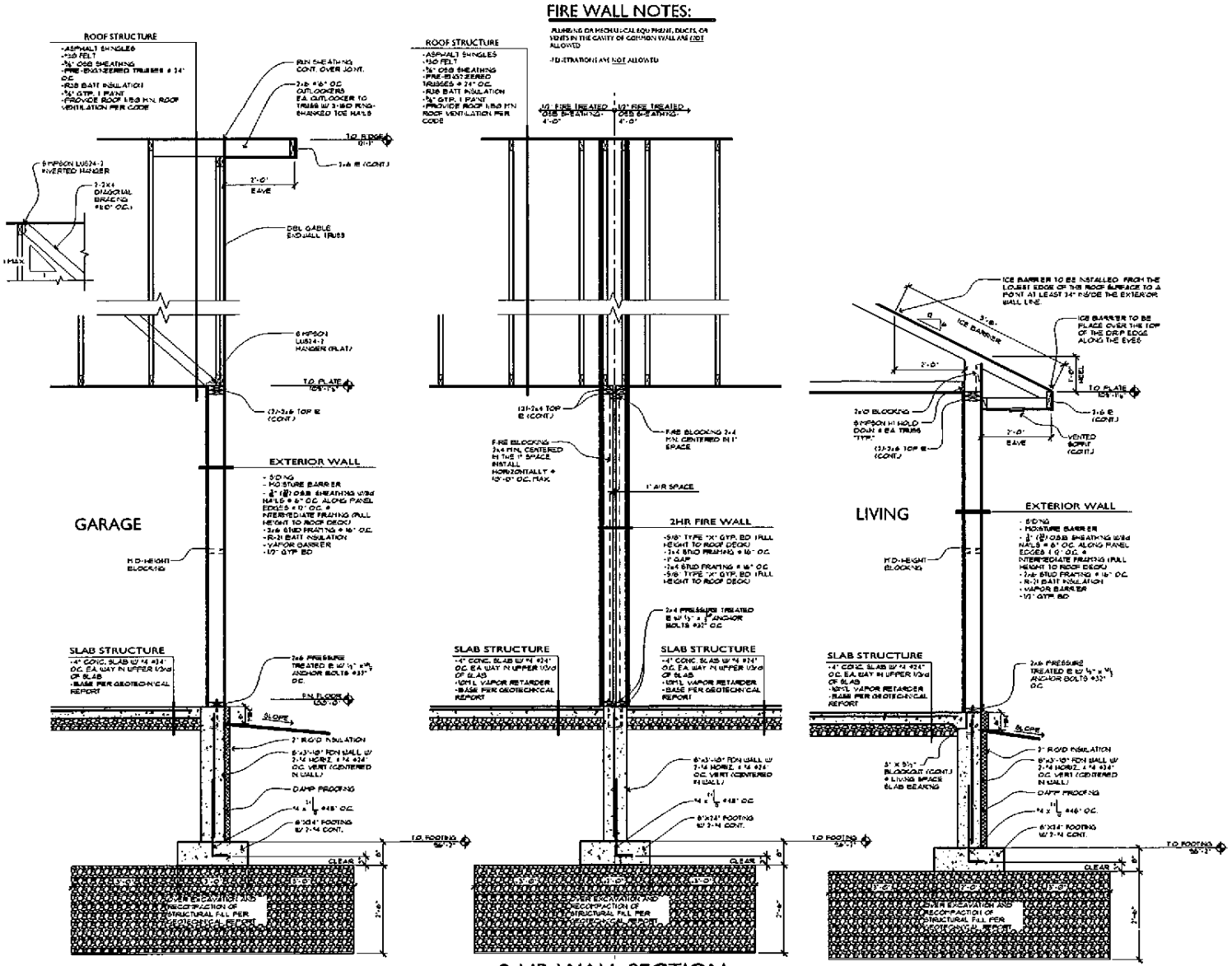
PAGE 6

DUPLEX OPTION A

ELEVATIONS

SHEET A2.0



4067789 DCL
02/09/2024 03:01 PM Page 38 of 84
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A-LINE
DRAFTING AND DESIGN
JEFF WELLS/FHLAGER
(406)327-2280
725 GRAND AVE.
BILLINGS MT. 59101

PAGE 7

DUPLEX OPTION A
SECTIONS

SECTIONS

SHEET
A3.1

STRUCTURAL NOTES

GOVERNING CODES

INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION
AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 15TH EDITION
AMERICAN CONCRETE INSTITUTE, 318-14
AMERICAN SOCIETY OF CIVIL ENGINEERS, 7-16
AMERICAN WELDING SOCIETY D1.1 (LATEST)

DESIGN CRITERIA

SNOW LOAD P_g=33 PSF + DRIFTING, P_f=33 PSF C_e=1.0, I=1.2, C_t=1.0
WIND LOAD V_{ult}=115 MPH, V_{asd}=90 MPH, CAT. = B, EXP. RISK CATEGORY = II, 10PSF UPLIFT
SEISMIC
DESIGN CATEGORY = C I_e=1.0, S_s=0.17, S_1= 0.052
RESISTIVE SYSTEM - WOOD SHEARWALL
SEISMIC DESIGN FACTORS - S_{DS}=0.20, S_{D1}=0.12, S_{MS}=0.23, S_{M1}=0.163, R=6, C_d=4.0
SITE CLASS D (MUST VERIFY WITH GEOTECHNICAL REPORT)
SNOW LOAD 33 PSF (LIVE), 10 PSF (DEAD), 43 PSF (LIVE)
FOUNDATION 2500 PSF PER GEOTECHNICAL

GENERAL NOTES

- CONTRACTOR SHALL COORDINATE OPENINGS & EMBEDDED ITEMS NOTED ON CONSTRUCTION DOCUMENTS WITH APPLICABLE TRADE.
- STRUCTURAL COMPONENTS SHALL BE TEMPORARILY BRACED IN A MANNER TO RESIST EARTHQUAKE, WIND, SNOW, & LATERAL EARTH LOADS UNTIL PERMANENT LATERAL SYSTEMS (PLYWOOD ROOF DIAPHRAGM, PLYWOOD SHEATHED SHEAR WALLS, & FLOOR FRAMING) ARE IN PLACE & SECURED AS SPECIFIED.
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ARCHITECTURAL AND SPECIFICATIONS FROM ALL OTHER TRADES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, RAISED INSERTS, WASHERS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK & CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY, & INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCE OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.
- BRACING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-BEARING CAPACITY OF THE STRUCTURAL MEMBERS. THESE LOADINGS ARE SUPERIMPOSED IN THE "CONSTRUCTION" PORTION OF THESE NOTES. DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND BRACED, ALL TEMPORARY BRACING IS IN PLACE.

CONCRETE

- ALL CONCRETE SHALL BE READY MIXED AND SUPPLIED IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS
- NO WATER SHALL BE ADDED TO MIX AT JOB SITE.
- MINIMUM COVER REQUIREMENTS:
  CAST AGAINST EARTH = 3"
  FORMED WALLS = 1½"
  TOP OF SLAB = 1"
- CHAMFER ALL EXPOSED CORNERS ¾" UNLESS NOTED
- OPENINGS IN CONCRETE WALLS OF 6'-0" OR GREATER IN EITHER DIRECTION SHALL HAVE 2 - #4 BARS ALL SIDES & SHALL EXTEND 24" BEYOND OPENING
- COLD WEATHER CONCRETING GUIDELINES TO BE FOLLOWED IN COLD TEMPERATURES
- FLYASH (TYPE 'F' OR TYPE 'C' MAY BE USED TO REPLACE NO MORE THAN 15% OF THE CEMENT CONTENT.
- 4" SLUMP MAX. & 7% AIR ENTRAINED FOR ALL FOUNDATION & EXTERIOR WORK
- MINIMUM FOOTING SIZE OF 12" UNLESS NOTED OTHERWISE.

MATERIALS

MIX DESIGNS: ASTM C 94 OR C 685
CONCRETE SLABS (INTERIOR): 3500 PSI AT 28 DAYS
CURB, PILE, SLABS (EXTERIOR): 4000 PSI AT 28 DAYS
ELSEWHERE: 3500 PSI AT 28 DAYS

CAST IN PLACE CONCRETE:

- CONCRETE MIXES SHALL BE DESIGNED PER ACI 301
- CONCRETE SHALL CONFORM TO THE FOLLOWING PROPERTIES:

CONCRETE LOCATION	MIN. f'c (28 DAYS)	SLUMP	MAX. W/C RATIO
ELEVATED SLABS	3500 PSI	3" - 4"	0.45
FOUNDATIONS	3500 PSI	3" - 5"	0.5
INTERIOR SLAB ON GRADE	4000 PSI	3" - 4"	0.5

AT CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO PRODUCE FLOWABLE CONCRETE. MAXIMUM SLUMP SHALL NOT EXCEED 8 INCHES. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S RECOMMENDATIONS FOR APPROVAL PRIOR TO POURING CONCRETE.

ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301
HOT WEATHER CONCRETING PER ACI 305
COLD WEATHER CONCRETING PER ACI 306

ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE. EXCEPT THE VERTICAL DOWELS FOR MASONRY WALLS, WHICH MAY BE "FLOATED" IN PLACE. DO NOT TIE TO OR EMBED BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.

REINFORCING STEEL SHALL BE OBTAINED IN ACCORDANCE WITH ACI 315.

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO ENSURE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

REINFORCING SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 80% OF ITS 28 DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORING AND RE-SHORING.

REINFORCING STEEL:

- BAR REQUIREMENTS: 13 BAR DIAMETERS (CONCRETE) + 1 BAR DIAMETERS (MASONRY)
- CORNER BARS REQUIRED AT FOUNDATION WALL LOCATIONS OF SIZE & NUMBER OF HORIZONTAL WALL STEEL AT ALL CORNERS & INTERSECTIONS.
- REBAR NOT TO BE WELDED UNLESS ASTM A706 GRADE REBAR IS PROVIDED
- REBAR SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE.
- CHAIRS SHALL BE USED TO MAINTAIN PROPER PLACEMENT
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185-97, CONTAINED IN SLAB
- REINFORCING STEEL BARS:
  #4 BARS AND SMALL - ASTM A615 - GRADE 60
  #5 & #6 BARS - ASTM A615 - GRADE 40
- WELDED WIRE FABRIC (WWF) - ASTM A185

FOUNDATION NOTES:

- FOUNDATION PREP SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT. GEOTECHNICAL RECOMMENDATIONS SUPERCEDE ALL GENERIC KEED-TYPE ELEVATIONS BELOW. THE FOLLOWING GUIDELINES ARE ONLY TO BE UTILIZED IF A GEOTECHNICAL REPORT IS NOT PROVIDED.
- FROST OR BASE ELEVATION SHALL BE PER GEOTECHNICAL REPORT.

- SOILS BENEATH FOOTINGS SHALL BE PROTECTED FROM FREEZING DURING CONSTRUCTION
- POSITIVE DRAINAGE AWAY FROM THE EXCAVATION SHALL BE SUPPLIED TO PREVENT SURFACE WATER FROM COLLECTING DURING ALL PHASES OF CONSTRUCTION
- PRIOR TO FILL PLACEMENT, REMOVE ALL TOPSOILS, ORGANICS, DEBRIS, OLD CONCRETE & PAVEMENT. EXISTING SLABS IN EXCESS OF 10" BELOW BOTTOM OF FOOTING POSITIVELY FOR REMOVAL
- ANY STRUCTURAL FILL REQUIRED BY FOOTINGS AND/OR SLABS SHOULD BE TO THE SPECIFICATION OF THE GEOTECHNICAL REPORT FOR THE PROJECT. EXCAVATION TO VERIFY BEARING CONDITIONS.

- POTENTIAL STRUCTURAL SETTLEMENT GIVEN IN GEOTECHNICAL REPORT IS ASSUMED TO BE ACCEPTABLE TO OWNER

CEMENTITIOUS (CONT.)

CONCRETE SLAB NOTES:

- MINIMUM CONCRETE SLUMP FOR ALL SLABS SHALL BE 5".
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A 185. LAP ADJOINING SHEETS AT LEAST ONE FULL MESH.
- SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THE SLAB MAY BE SAWN AS LATE AS POSSIBLE, PREFERABLY 4-6 HOURS AFTER THE SLAB HAS BEEN CAST. PRIOR TO FILLING, REMOVE ALL DEBRIS FROM SAW JOINT, THEN FILL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS:
  - 6" OR NEGATIVE SLAB FILL JOINTS WITH CRUSH FINES
  - 4" - 6" SLAB CONTROL JOINTS FILL WITH FIELD POURED OR ELASTOMERIC SEALANT.
- CONTROL JOINTS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWING. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR SLAB LOCATIONS, THICKNESS AND REINFORCING.
- THE USE OF POLYPROPYLENE FIBERS IN LIEU OF REBAR OR WELDED WIRE FABRIC IS PROHIBITED
- SITE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CONCRETE CURBS. SLIGHT SLAB ADJUSTMENT MAY BE REQUIRED

FOUNDATION WALLS:

- ALL CONTINUOUS HORIZONTAL CONTROL JOINT (CJ) ON THE DRAWINGS SHALL BE LAPPED 36 BAR DIAMETERS AT SPLICES.
- UNBALANCED BACKFILL SHALL BE DONE UNLESS WALLS ARE ADEQUATELY BRACED AGAINST OVERTURNING EITHER BY TEMPORARY BRACING OR BY PERMANENT CONSTRUCTION.
- ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL FULL HEIGHT OF WALL. PROVIDE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 25'-0" OR 3 TIMES THE WALL HEIGHT.

WOOD FRAMING

- ALL WOOD FRAMING MATERIALS SHALL BE SURFACE DRIED WITH A MAXIMUM OF 19% MOISTURE CONTENT.
- ALL JOISTER FLOOR OR ROOF FRAMING SHALL BE BRACED AT MIDSPAN AND/OR MORE FREQUENTLY AS NEEDED WITH FULL DEPTH BLOCKING.
- ALL FRAMING EXPOSED TO THE WEATHER OR EXPOSED TO CONCRETE OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS
- INSIDE SHALL BE CAREFULLY DRILLED NOT MORE THAN 1/8" LARGER THAN THE BOLT DIAMETER. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BY NUT TO THE EXTENT OF CRUSHING THE WOOD UNDER WASHERS
- WOOD TO MASONRY SHALL BE BOLTED WITH ANCHORED BOLTS

WOOD TRUSSES

- ROOF TRUSS DESIGN LOADS ARE 33 PSF SNOW + 5 PSF DEAD TOP CHORD & 7 PSF DEAD BOTTOM CHORD. ADDITIONALLY, ROOF TRUSS TO BE DESIGNED FOR 10 PSF ATTIC LIVE LOAD (UNBALANCED LIVE ACCESS SPACING IS EITHER THAN 22"-30")
- FLOOR TRUSS DESIGN LOADS ARE 40 PSF LIVE + 10 PSF DEAD LOAD TOP CHORD & 7 PSF DEAD LOAD BOTTOM CHORD.
- TRUSS SUPPLIER TO PROVIDE CONSTRUCTION WITH SHOP DRAWINGS FEATURED IN THIS SUBMITTAL ARE STRESS DIAGRAMS, CONNECTOR DESIGNATIONS AND BRACING AND/OR GUSSETS REQUIREMENTS
- ADDITIONALLY, TRUSS MANUFACTURER IS TO PROVIDE INSTRUCTIONS TO CONTRACTOR FOR INSTALLATION OF ENGINEERED TRUSS UNITS.
- TRUSS DRAWINGS ARE DIAGRAMMATICAL & ARE THEREFORE INTENDED TO ESTABLISH OUTLINES OF TRUSS CONFIGURATIONS.
- TRUSS DESIGN TO ACCOUNT FOR SECONDARY BENDING STRESSES DUE TO DEAD, LIVE, AND WIND LOADS SHALL BE CONSIDERED BY THE MANUFACTURER.
- TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, OR ALTERED IN ANY WAY WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- WOOD TRUSSES SHALL BE ERECTED IN ACCORDANCE WITH THE TRUSS MANUFACTURER'S REQUIREMENTS BY AN EXPERIENCED CONTRACTOR.

WOOD STUD WALLS

- 4" MINIMUM WALL DEPTH BLOCKING AT MIDHEIGHT ALL EXTERIOR BEARINGS STUD WALLS
- NAILING TO BLOCKING AT SHEATHED PANEL JOINTS IN SHEAR WALLS.
- SEALING WALLS TO HAVE DOUBLE (CONT.) TOP PLATES W/ STAGGERED SPLICES UNLESS NOTED OTHERWISE.
- BOTTOM WALL PLATES OR VERTICAL STUDS IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.
- STUDS AT 24" O.C. VERTICAL FRAMING & ALL BEARING & EXTERIOR WALLS UNLESS NOTED OTHERWISE.

PLYWOOD AND OSB SHEATHING

- ALL PLYWOOD AND OSB CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS.
- INSTALL PLYWOOD OR OSB PANELS WITH THE LONG DIMENSION OF THE PANELS ACROSS THE SUPPORTS AND WITH THE FACE GRAIN PERPENDICULAR TO THE FRAMING BELOW. PANELS SHALL BE CONTINUOUS OVER TWO OR MORE SPANS. STAGGER PANEL END JOINTS. ALLOW ⅛" SPACING BETWEEN PANEL ENDS & EDGES UNLESS OTHER WISE RECOMMENDED BY PANEL MANUFACTURER.
- FASTENER SCHEDULE FOR STRUCTURAL PANEL EDGES AS FOLLOWS
  ROOF AND FLOORS = AT AREAS INDICATED ON PLANS
  WALLS = ALL EXTERIOR WALLS AND INTERIOR WALLS AS SHOWN ON PLANS.

MATERIALS

DOMESTIC SPECIES:
LUMBER - #1 DOUGLAS FIR: F_b = 975 PSI, F_v = 180 PSI, E = 1.5x10⁶ PSI
(ALL FRAMING #1 DOUGLAS FIR (CONSTRUCTION GRADE) F_b = 975 PSI, F_v = 135 PSI, E = 1.5x10⁶ PSI
LVL BEAMS:
1¾" x 9¼" LVL: F_b = 2,325 PSI, F_v = 310 PSI, E = 2.0x10⁶ PSI
3½" x 9¼" LVL: F_b = 2,325 PSI, F_v = 310 PSI, E = 2.0x10⁶ PSI
GLULAM BEAMS (U.O.N.) 24F-V4 DOUGLAS FIR: F_b = 2,400 PSI, F_v = 265 PSI, E = 1.8x10⁶ PSI
POSTS: HEM FIR #1

WOOD FRAMING (CONT.)

NAILING SCHEDULE

CONNECTION	ATTACHMENT
JOIST TO SILL OR GIRDER, TOENAIL	(3) 16d
BRIDGING TO JOIST, FACE NAIL EACH END	(2) 16d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	(3) 16d TOENAILS
TOP PLATE TO STUD, END NAIL	(2) 16d
STUD TO SOLE PLATE	(4) 8d TOENAILS or (2) 16d
DOUBLE STUDS, FACE NAIL	16d @ 24"O.C.
BOXING FOR PLATES, FACE NAIL	16d @ 16"O.C.
BUILT-UP STUD PACKS	2 16d @ 8"O.C.
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(2) 16d
CONTINUOUS HEADER, TWO PIECES	16d @ 16"O.C.
ROOF RAFTERS TO PLATE, TOENAIL	(3) 16d
CONTINUOUS HEADER TO STUD, TOENAIL	(4) 16d
FLOOR JOISTS, LAPS OVER PARTITIONS, FACE NAIL	(3) 16d
ROOF RAFTERS TO CEILING JOISTS, FACE NAIL	(3) 16d
BUILT-UP CORNER STUDS	24"O.C.
BUILT-UP GIRDER BEAMS	24"O.C.
½" (15/32") SHEATHING FOR SHEARWALL (UNBLOCKED) (USE 7/16" OSB) (ONE ROW AT 3" O.C. IF 24" O.C. STUD SPACING)	8d @ 6"O.C. EDGES, 8d @ 12"O.C. FIELD
½" (15/32") SHEATHING FOR ROOF SHEATHING (ONE ROW AT 3" O.C. IF 24" O.C. STUD SPACING)	8d @ 6"O.C. EDGES, 8d @ 12"O.C. FIELD
½" (15/32") SHEATHING FOR FLOOR SHEATHING (GLUED & NAILED) (USE 7/16" OSB) (ONE ROW AT 3" O.C. IF 24" O.C. STUD SPACING)	8d @ 6"O.C. EDGES, 8d @ 12"O.C. FIELD
½" (15/32") SHEATHING FOR ROOF SHEATHING (GLUED & NAILED) (USE 7/16" OSB) (ONE ROW AT 3" O.C. IF 24" O.C. STUD SPACING)	8d @ 6"O.C. EDGES, 8d @ 12"O.C. FIELD
¾" (23/32") T&G OSB SUBFLOOR (GLUED & FASTENED PER SUBFLOOR ADHESIVE MANUFACTURER'S RECOMMENDATIONS)	8d @ 6"O.C. @ EDGES, 8d @ 12"O.C. @ INTERMEDIATE SUPPORTS
20ga PREPAINTED METAL DRIP AS REQUIRED	#10 CORROSION RESISTANT SCREWS W/ WASHER TO SATISFY LOADING REQUIREMENTS @ MAX. 12" O.C. FLAT AT CORNERS & 1 PER PLATE AT INTERSECTIONS & WITH MIN. PENETRATION INTO WOOD FRAMING OF 1¼" O.C. MAXIMUM SPACING. FASTENERS TO BE SUPPORTED BY WOOD.
6" (NOM.) FRAMED PLYWOOD	#10 SMOOTH SHANK SCREWS @ 12"O.C. @ INTERMEDIATE FRAMING OR SOFFITS WHERE MOISTURE MAY ACCUMULATE (GALVANIZED NAILING)

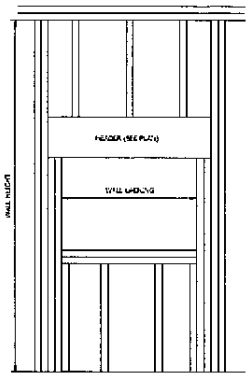
BEARING STUD SCHEDULE

EXTERIOR WALL BEARING CONDITIONS

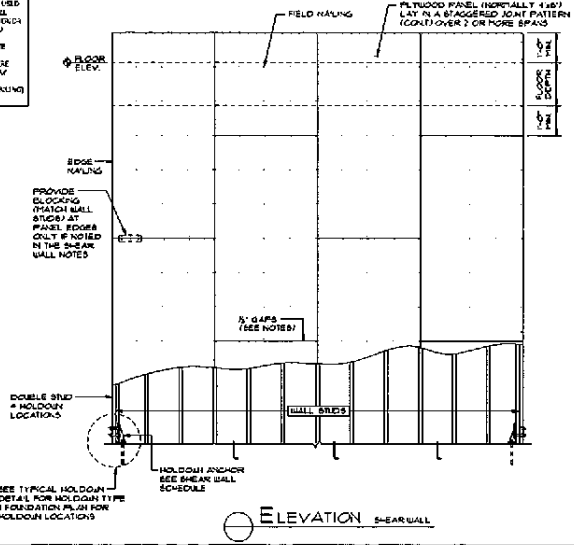
TABLE - # BEARING STUDS MIN. / # OF FULL HEIGHT KING STUDS

WALL HEIGHT	9'-0"		10'-0"		11'-0"		12'-0"	
WALL OPENING								
3'-0"	1	1	1	1	1	1	1	2
4'-0"	1	1	1	1	1	2	1	2
5'-0"	1	1	1	2	1	2	1	2
6'-0"	1	2	2	2	2	2	2	2
7'-0"	1	2	2	2	2	2	2	2
8'-0"	1	2	2	2	2	2	2	3
9'-0"	1	2	2	2	2	3	2	3
10'-0"	1	2	3	2	3	3	3	3
11'-0"	1	2	3	3	3	3	3	4
12'-0"	1	3	3	3	3	3	3	4

TABLE VALUES ASSUME:
- TABLE VALUES ASSUME 33 PSF SNOW LOAD AND 115 MPH ESD "C" ULT. WIND PRESSURE
- ROOFING OF 43 PSF OR BETTER
- WALL BEARING ROOF TRUSSES (ONLY) SPANNING 55'-0" OR LESS WITH 2'-0" EAVES
- FRAMING SPECIFIED IN TABLE ONLY TO BE USED IF INFORMATION IS NOT SHOWN ON PLANS
- USE FRAMING STUDS TO BE STITCHED TOGETHER W/ (2) ROW STUD SCREWS SPACED @ 12"O.C. WITH LENGTH NECESSARY TO ENGAGE ALL PLY'S/STUDS



NOTE: SEE SHEAR WALL SCHEDULE FOR NAILING REQUIREMENTS. THE USE OF STAPLE EQUIVALENTS CAN BE SUBMITTED FOR APPROVAL. TEK SCREWS TO BE SUBSTITUTED FOR NAILS IN WALLS FRAMED W/ LIGHT GAUGE STEEL MATERIAL. SEE SHEAR WALL NOTES FOR SIZES & SPACINGS OF SCREWS.



ELEVATION SHEAR WALL

4067789 DCL
02/09/2024 03:01 PM Page 39 of 84
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JEFF WOLLSCHLAGER
(406)321-2280
225 GRAND AVE.
BILLINGS MT. 59101

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4067789 DCL
02/09/2024 03:01 PM Page 40 of 84
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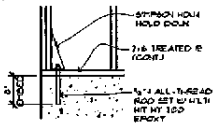
GENERAL NOTES:

- ALL STRUCTURAL INFORMATION TO BE VERIFIED W/ STRUCTURAL ENGINEER
- ALL ELEVATIONS ARE IN REFERENCE TO FINISHED FLOOR ELEVATION OF 100'-0"
- T.O.W. = TOP OF WALL
- T.O.F. = TOP OF FOOTING
- C.J. = 1" DEEP SAWCUT CONTROL JOINT @ 12' O.C. MAX.
- F.D. = FOUNDATION
- F.D. = FLOOR DRAIN

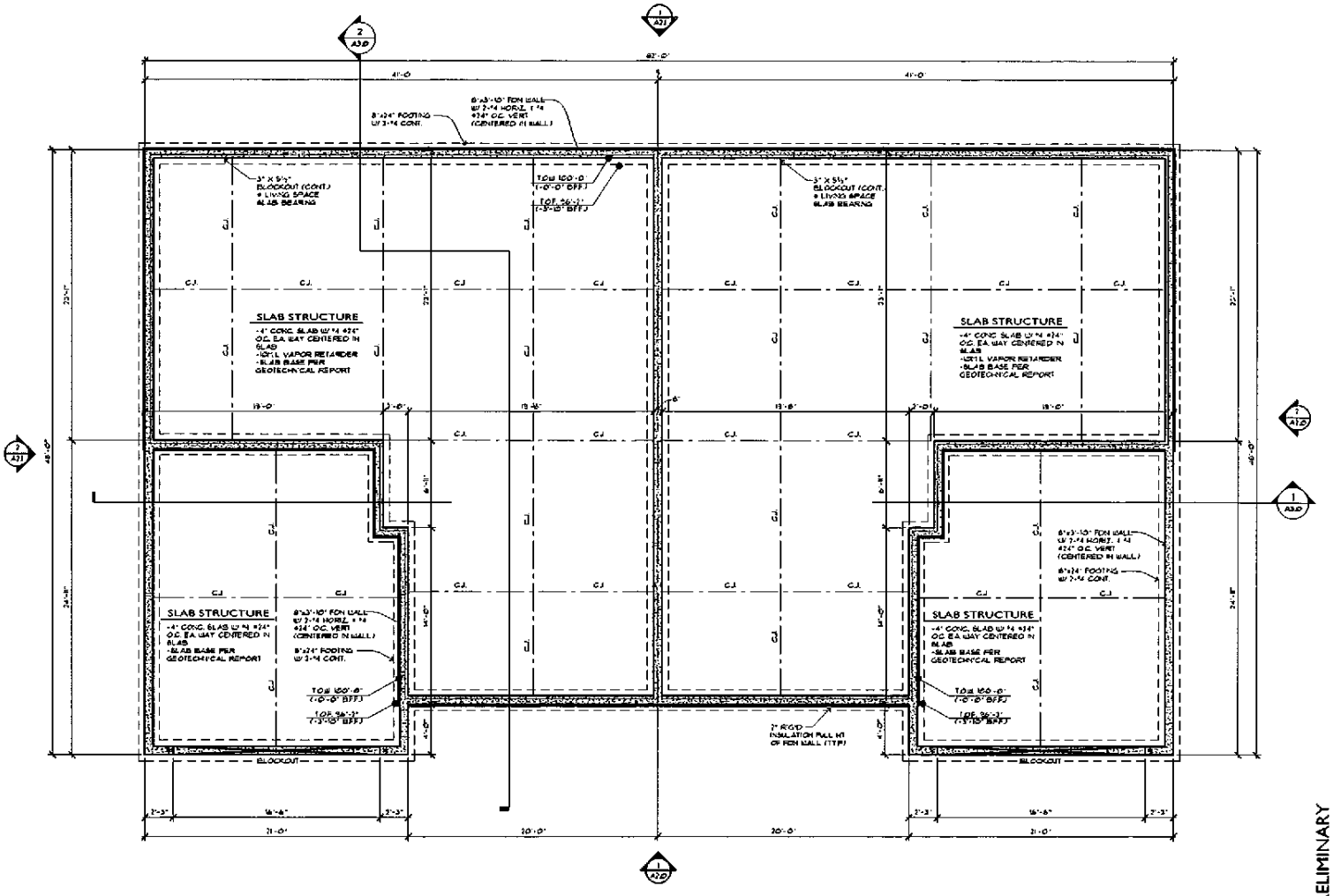
HOLD DOWN DETAIL

* - HOLD DOWN LOCATION



NOTE:

- CONTRACTOR TO VERIFY FOUNDATION BLACKOUTS FOR ELECTRICAL, MECHANICAL, OR PLUMBING EQUIPMENT.



1 FOUNDATION PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

A-LINE DRAFTING AND DESIGN

JEFF WOELLSCHLAGER
(406)321-7280
725 GRAND AVE
BILLINGS MT. 59101

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DUPLEX OPTION A

FOUNDATION PLAN

SHEET
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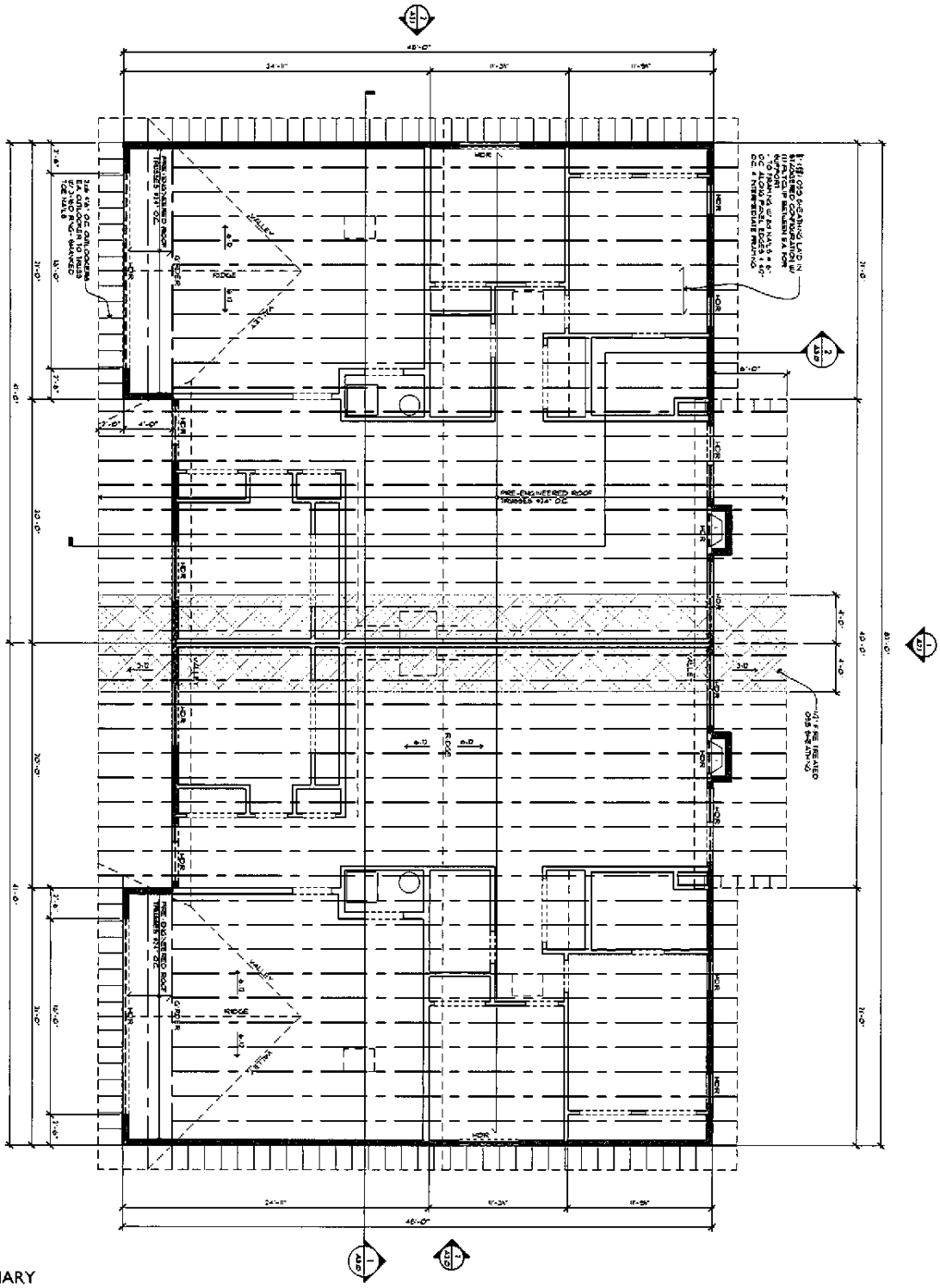
GENERAL NOTES:

- ROOF TRUSS LAYOUT IS FOR DESIGN REFERENCE ONLY
- CONTRACTOR TO VERIFY ROOF TRUSS LAYOUT W/ MANUFACTURER'S ENGINEERED TRUSSES
- BRACED WALLS REPRESENT BEARING WALLS
- ALL HEADERS AND STRUCTURAL COMPONENTS TO BE VERIFIED
- PE PRE-ENGINEERED TRUSS + 24" O.C. PER MANUFACTURER
- SOLID BLOCK STACKED TOGETHER @ 16" O.C. STAGGERED NAILS @ 6" O.C.
- PROVIDE SOLID BLOCK BELOW ALL TRUSSES BEARING ON TRIPLE STUDS TO PATCH TRUSS PLY 3
- ALL LINES TO TRUSS CONNECTION BY PRE-ENGINEERED TRUSS MANUFACTURER
- ALL EXTERIOR WALL OPENINGS WITH DOUBLE 2x6 HDR UNLESS NOTED OTHERWISE
- TYP POST TO BEAM @ 6" POST UNLESS NOTED OTHERWISE

DRAFTSTOPS

AND ID DUCTTOPPING

BUILDING MATERIALS OR INSULATION WHERE THERE IS CONCEALED SPACE OF A FLOOR CEILING ASSEMBLY OR THE CONCEALED SPACE BETWEEN CEILING ASSEMBLY AND THE ROOF ABOVE. DRAFTSTOPPING SHALL DIVIDE CONCEALED SPACES OF FLOOR CEILING ASSEMBLIES SUCH THAT THE AREA WHERE THE ASSEMBLY IS SUPPORTED BY A PRE-ENGINEERED TRUSS DOES NOT EXCEED 1,000 SQUARE FEET. DRAFTSTOPPING SHALL BE PROVIDED SO THAT THE AREA OF THE CONCEALED SPACE BETWEEN FLOOR CEILING ASSEMBLIES DOES NOT EXCEED 1,000 SQUARE FEET. DRAFTSTOPPING SHALL BE INSTALLED PARALLEL TO THE FLOOR JOISTS OR TRUSSES. WHERE THE FLOOR FRAMING IS CONSTRUCTED OF TRUSS TYPE OPEN WEB OR NOMINAL I SHAPE



1 ST2.0 SCALE: 1/4"=1'-0" ROOF FRAMING PLAN

PRELIMINARY

SHEET ST2.0

DUPLEX OPTION A

ROOF FRAMING PLAN

JEFF WOLLSCHLAGER
A-LINE DRAFTING AND DESIGN

DUPLEX OPTION B

TRAIL RIDGE TOWNHOMES

BILLINGS MONTANA

CONTACT

Kelly Coleman

kcoleman@francock-enterprises.com

Todd Brown

tbrownbuilders@yahoo.com

OWNER

INDEX OF DRAWINGS

T1.0	TITLE
S1.0	SITE PLAN
A1.1	MAIN LEVEL PLAN
A2.0	ELEVATIONS
A2.1	ELEVATIONS
A3.0	BUILDING SECTIONS
A3.1	WALL SECTIONS
ST0.0	GENERAL STRUCTURAL NOTES
ST1.0	FOUNDATION PLAN
ST2.0	ROOF FRAMING PLAN

SPECIAL INSPECTION

SOILS TO BE INSPECTED BY "GEOSCIENCE" PRIOR TO PLACEMENT OF FOOTINGS

CODE ANALYSIS

-OCCUPANCY: R-3 (BUILDINGS THAT DO NOT CONTAIN MORE THAN TWO DWELLING UNITS)
-TYPE OF CONSTRUCTION: V B
-1HR RATED SEPARATION REQUIRED BETWEEN UNITS
-EACH UNIT TO HAVE ITS OWN ELECTRICAL SERVICE

STORM WATER DRAINAGE NOTE:

PER SWMM 3.1.1, DOWNSPOUTS AND DRAINAGE FLOW PATHS AS SHOWN ON PLOT
PER SWMM 3.1.2, A MINIMUM LENGTH OF 15' FROM HARD SURFACES AT 5% OR LESS SLOPE FOR LAWN AND 3% OR LESS FOR OTHER PAVED AREAS PRIOR TO REACHING THE PROPERTY LINE

DUE TO THE EXISTING TOPOGRAPHY AND NATURAL DRAINAGE FEATURES PRESENT ON THIS SITE, ALL EFFORTS SHOULD BE MADE KEEP SITE DRAINAGE AS NATURAL AS POSSIBLE. NO ATTEMPTS SHOULD BE MADE TO DIRECT WATER TOWARDS ANY NEW OR UNNATURAL DRAINAGE AREAS OR ADJACENT PROPERTIES.

ALL DOWNSPOUTS AND STORM WATER RUNOFF FROM THE CONSTRUCTED AREAS SHALL BE CONTROLLED AND DIRECTED TO DRAIN TO THESE NATURAL DRAINAGE AREAS. ALL PERIMETER AREAS TO BE UNALTERED VEGETATE TO MAINTAIN THE NATURAL DRAINAGE PATTERNS

FINISHED GRADE TO SLOPE AWAY FROM FOUNDATION WALLS A MIN OF 5-0"

DRAFTSTOPS

R302.12 DRAFTSTOPPING

IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR-CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1000 SQUARE FEET (93.3 M2). DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR ABOVE AND A CEILING BELOW. DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:
CEILING SUSPENDED UNDER THE FLOOR FRAMING
FLOOR FRAMING IS CONSTRUCTED OF TRUSS-TYPE OPEN WEB OR PERFORATED MEMBERS

CONTRACTOR NOTES

1. CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS & LOCATIONS PRIOR TO CONSTRUCTION
2. VERIFY THAT ALL INFORMATION WITHIN THESE PLANS SITE IS CONSISTENT WITH OBSERVED EXISTING CONDITIONS
3. ENSURE COMPLIANCE WITH LOCAL CODES & ORDINANCES ALL PERTAINS TO THE SITE LOCATION
4. CONTRACTOR TO VERIFY THAT LEAH HEADER SIZES MAYS BE EMPIRICALLY DETERMINED FOR THE LOADING IN THE AREA WHERE THIS STRUCTURE IS TO BE BUILT.
5. REFER TO ENGINEERED ROOF TRUSS LAYOUT FOR INFORMATION REGARDING STRUCTURAL LOADING DATA USED TO DESIGN THIS STRUCTURE. (DATA TO BE PROVIDED BY THE DISTRIBUTION OF THE RESPECTIVE TRUSS FLOOR JOIST SUPPLIERS)
6. CONTRACTOR TO VERIFY WITH ALL EXPOSE REQUIREMENTS OVER UNDISTURBED SOIL
7. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION OF ALL ROOFING SIZES, LOAD REQUIREMENT, SOIL BEARING DATA, & REQUIREMENTS
8. CONTRACTOR SHALL PROVIDE SUBMITTALS TO OWNER AND ARCHITECT PRIOR TO CONSTRUCTION FOR ALL EXTERIOR MATERIALS, COLORS & TYPES
9. CONTRACTOR TO VERIFY LOCATION OF SAW SOUD SURFACES THAT REQUIRE FOUNDATION ADJUSTMENTS
10. CONTRACTOR TO PROVIDE INFORMATION ON ALL AREAS REQUIRING GLAZING WITH SAFETY MATERIALS
11. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL DETAILS REGARDING PRODUCTS SPECIFICATIONS, INSTALLATION AND ENGINEERING DATA THAT MAY BE REQUIRED BY OWNER OR BUILDING DEPARTMENT WHEN OBTAINING PERMITS
12. BUILDING SHALL HAVE APPROVED ADDRESS NUMBERS. THE NUMBERS SHALL BE CONTRASTED WITH THE BACKGROUND. NUMBERS SHALL BE 4" H GIVEN STROKE WIDTH OF NOT MORE OR ALPHABETICAL LETTERS IN A VISIBLE AREA

GENERAL NOTES

1. ALL CONSTRUCTION TO COMPLY WITH IBC, IRC, ADA & FHA HOUSING, AS WELL AS ALL OTHER LOCAL & NATIONAL CODES THAT MAY APPLY INCLUDING AMENDMENTS
2. GRADE PLANS ARE BY CIVIL ENGINEER
3. PLUMBING, GAS AND ELECTRICAL SCOPE TO BE DESIGN-BUILD BY CONTRACTOR
4. MAXIMUM CLOTHES DRYER EXHAUST DUCT TO BE 35'-0" REDUCE BY 2.5' FOR EACH 45 BEND, & 5'-0" FOR EVERY 90° BEND OR PER MANUFACTURER INSTRUCTIONS
5. CONTRACTOR SHALL LOCATE A 22" X 30" ATTIC ACCESS POINT U.N.O.
6. SLOPE GRADE AWAY FROM FOUNDATION WALLS AT A MINIMUM OF 6" WITHIN THE FIRST 10 FEET (R401.3)
7. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALL AND ROOF THROUGH JOINTS IN EAVE COPINGS, MOISTURE PERMEABLE MATERIALS, AND OTHER PENETRATIONS THROUGH THE ROOF PLANE
8. NET FREE ATTIC VENTILATION TO BE 1/150 OF THE AREA TO BE VENTED WITH 1/3 - 1/2 LOCATED IN THE UPPER ATTIC PORTION (IRC 1202.1)
9. AN ICE BARRIER CONSISTING OF AT LEAST TWO LAYERS OF UNDERLAYMENT CEMENTED TOGETHER OR A SELF-ADHERING POLYMER MODIFIED BITUMEN SHEET, SHALL BE USED IN LIEU OF UNDERLAYMENT AND EXTEND FROM THE LOWEST EDGES OF ALL ROOF SURFACES TO A POINT AT LEAST 24" (610 MM) INSIDE THE EXTERIOR WALL LINE OF THE BUILDING (R905.2.7.1)
10. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGE BERKATH HABITABLE ROOMS SHALL BE SEPARATED BY NOT LESS THAN 5/8" TYPE 'X' GYPSUM BOARD OR EQUIVALENT. (R302.6)
11. WHERE CERAMIC TILE IS USED CEMENT, FIBER-CEMENT OR GLASS MAT GYPSUM BACKER IN COMPLIANCE WITH CODE AND INSTALLED IN ACCORDANCE WITH MFG RECOMMENDATIONS SHALL BE USED AS BACKER FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL PANEL IN SHOWER AREA. (R702.4.2)
12. INFORMATION FOUND ON THE ADOPTED CODES SHALL OVERRIDE PLAN NOTES & SPECIFICATIONS WHERE DISCREPANCIES OR CONFLICTS OCCUR

HEATING & VENTILLATION (M1505)

HEATING
ELECTRIC CEILING UNITS TO PROVIDE HEAT.

VENTILATION
- BATHROOM EXHAUST FAN TO BE A BROAN A110 OR PANASONIC WHISPERGREEN FV-05VK1
- ELECTRICAL SUBCONTRACTOR TO PROVIDE OCCUPANCY SENSOR CONTROL OR APPROVED EQUAL FOR BATHROOM EXHAUST FANS & PROGRAM TO MEET CODE REQUIREMENT FOR VENTILATION (SEE BELOW)
- FAN TO DRAW OUTDOOR AIR AT 45 CFM CONTINUOUS OR 53 CFM INTERMITTENT @ 3 TIMES PER 4 HOUR PERIOD
- MAKE-UP AIR TO BE SUPPLIED VIA 7"X10" DUCT PENETRATING ROOF OR EXTERIOR SIDEWALL. INSTALL FREE-FLOW REGISTER AT WALL AT MIN. 24" AFF.
- ALL AIR VENTING HOSES & PIPES TO BE MIN. 10' FROM EXHAUST SOURCES
- AUTOVENT AT KITCHEN SINK TO BE JB-PRODUCT AIR ADMITTANCE VALVE (MODEL AV)

PORTAL FRAME

PORTAL FRAME PER R602.10.6.2

WALLS AND INTERIOR PARTITIONS, WOOD-FRAMED

GA FILE NO. WP 4135	GENERIC	2 HOUR FIRE	40 to 44 STC SOUND
GYPSUM WALLBOARD, WOOD STUDS			

(LOAD BEARING)

WALLS AND INTERIOR PARTITIONS, WOOD-FRAMED

GA FILE NO. WP 3820	GENERIC	2 HOUR FIRE	55 to 59 STC SOUND
GYPSUM WALLBOARD, WOOD STUDS			

(LOAD BEARING)

FIREBLOCKING

R302.11 FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2 HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).
AT OFFSET OR BRACED WALLS
2. AT CONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R311.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS AND FIREPLACES, AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ARRANGER SPACE SHALL NOT BE REQUIRED TO PASS THE ASTM E136 REQUIREMENTS.
FOR THE FIRE-STOPPING OF CHIMNEYS AND FIREPLACES SEE SECTION R1003.19

4067789 DCL
02/09/2024 03:01 PM Page 42 of 84
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A-LINE
DRAFTING AND DESIGN
JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT. 59101

PAGE

DUPLEX OPTION B

TITLE

SET

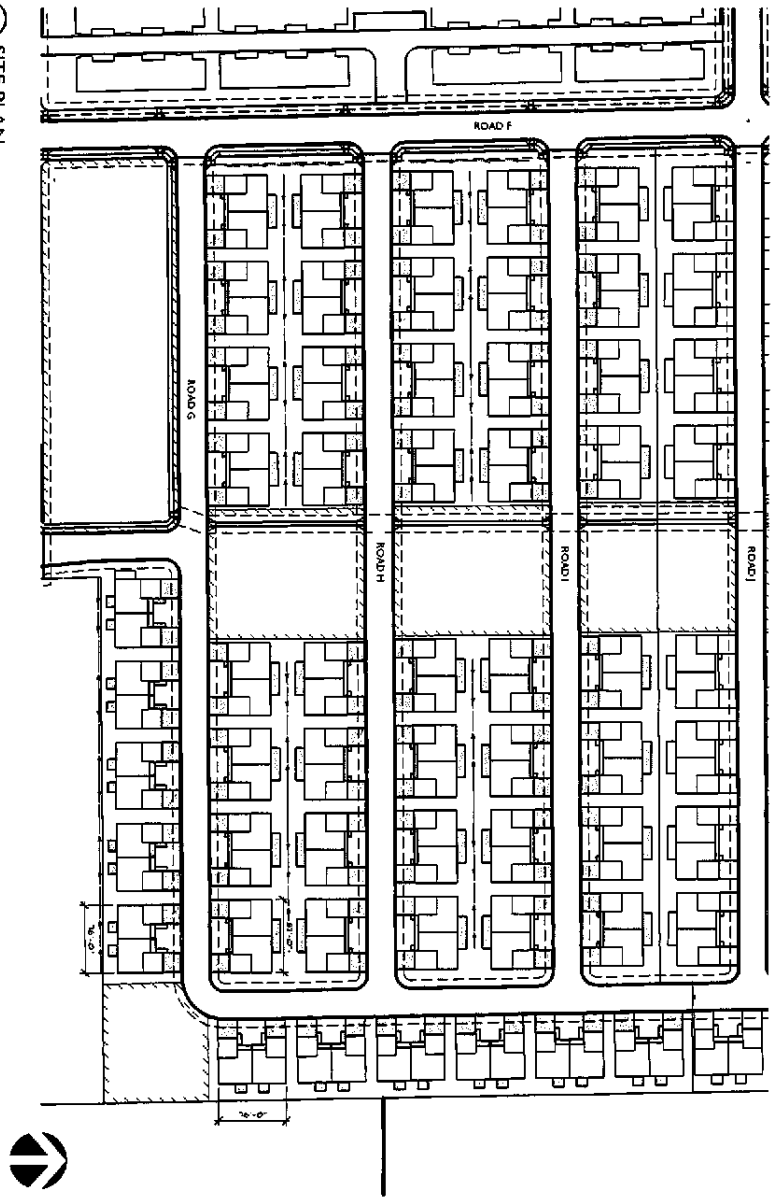
SHEET

T1.0

SITE INFO

SITE: 994 MILLIE LOCK WAY
LOT 1A, HANFORT TYE BOWL 3RD FILING

NOTE: GARAGE TO BE LOCATED AWAY FROM PROPERTY LINE AT LOT 1A PER GEOTECHNICAL



SITE PLAN
SCALE: 1/16"=1'-0"

PRELIMINARY

DUPLEX
OPTION B

SITE PLAN

SHEET
S1.0

JEFF WOLLSCHLAGER
(406)321-2200
BILLINGS, MT 59101

A-LINE
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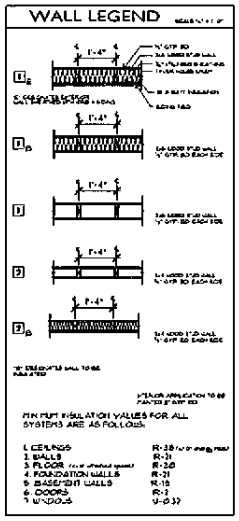
NOTES

ALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING
VERIFY ALL WINDOW SIZES W/ MANUFACTURER SPECS

WALL LEGEND



MIN INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS:

1. CEILINGS	R-38
2. WALLS	R-21
3. FLOOR	R-30
4. FOUNDATION WALLS	R-21
5. BASEMENT WALLS	R-19
6. DOORS	R-2
7. WINDOWS	U-0.33

(F) EXHAUST FAN 100CFM INTERMITTENT KITCHENS, 50 CFM BATHROOMS/ TO LET ROOMS INTERMITTENT

(SD) SMOKE DETECTOR (BEFORE DETECTORS WITHIN 20' OF A COOKING APPLIANCE MUST BE THE ALARM SILENCING TYPE)

HOSE BIB (VERIFY EXTERIOR LOCATIONS)

(C) CARBON MONOXIDE DETECTOR

S.G. SAFETY GLAZING

F.D. FLOOR DRAIN

AREA

AREA
1045 SQ. FT. MAIN LEVEL LIVING/ PER UNIT
418 SQ. FT. GARAGE
119 SQ. FT. FRONT COVERED ENTRY
186 SQ. FT. REAR PATIO

NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

NOTE:
ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING UNLESS OTHERWISE NOTED. DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS NOT DIMENSIONED TO BE CENTERED IN SPACE PROVIDED.

DOORS AND WINDOWS

- ALL MAIN LEVEL WIDTH OR DOOR HEIGHTS TO BE 8'-0" A.F.F.
- EXTERIOR DOORS AND WINDOWS HEIGHTS TO BE 8'-0" A.F.F. UNLESS NOTED OTHERWISE

UFER GROUND

A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED IN THE FOOTING

SMOKE DETECTORS

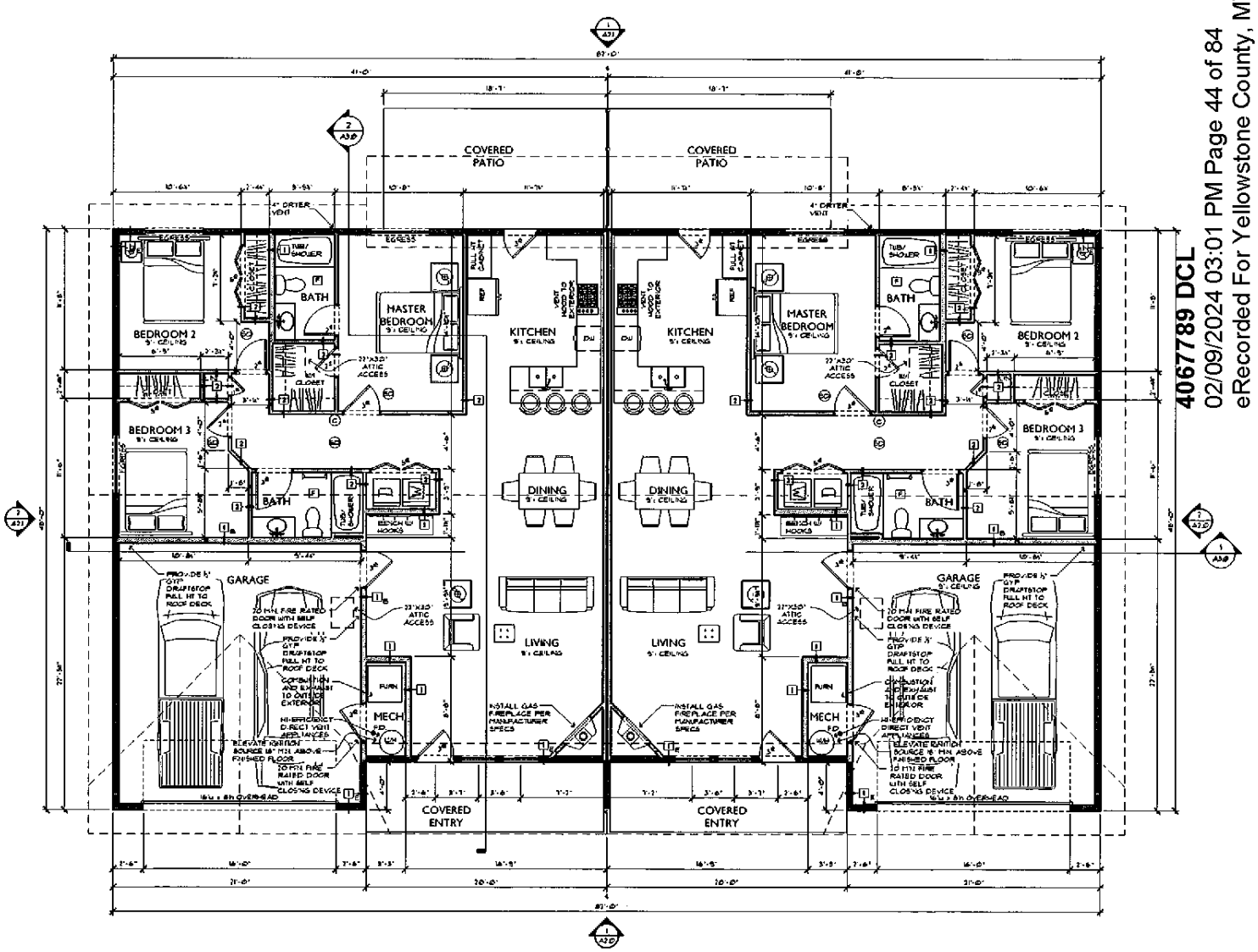
SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS IN EACH UNIT, AND ON EACH STORY

BEDROOM ESCAPE WINDOW

- EGRESS
MAIN LEVEL WINDOWS TO HAVE A MIN. NET CLEAR OPENING OF 5.7 SQ. FT. (OR PER SEC R310) WITH A MIN. HEIGHT OF 24" & A MIN. WIDTH OF 20". 44" A.F.F. TO OPENING MAX.

FUEL BURNING APPLIANCES

FUEL BURNING APPLIANCES WHERE OPEN COMBUSTION AIR DUCTS PROVIDE COMBUSTION AIR TO OPEN COMBUSTION FUEL BURNING APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH IECC 2018 R303.3.1



1 / A1 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 44 of 84
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JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE
BILLINGS MT 59101

PAGE: 9

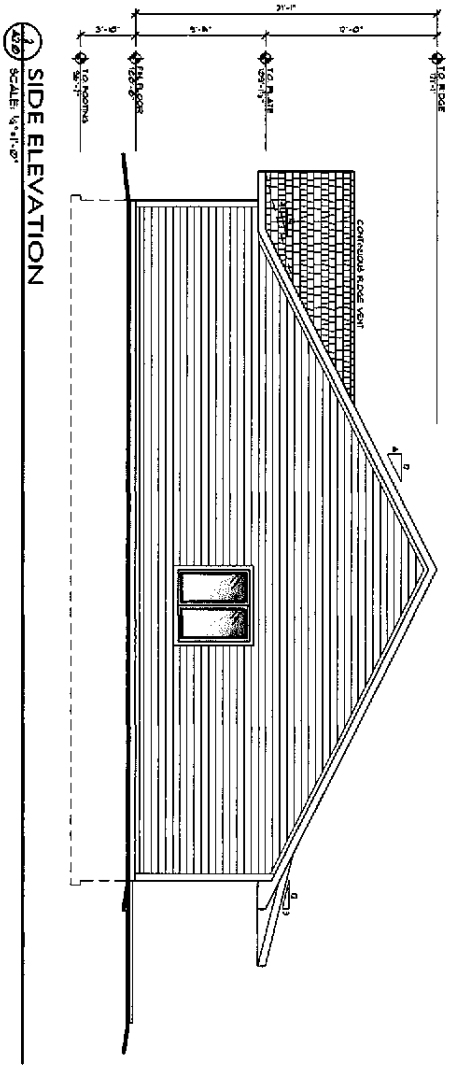
DUPLEX OPTION B

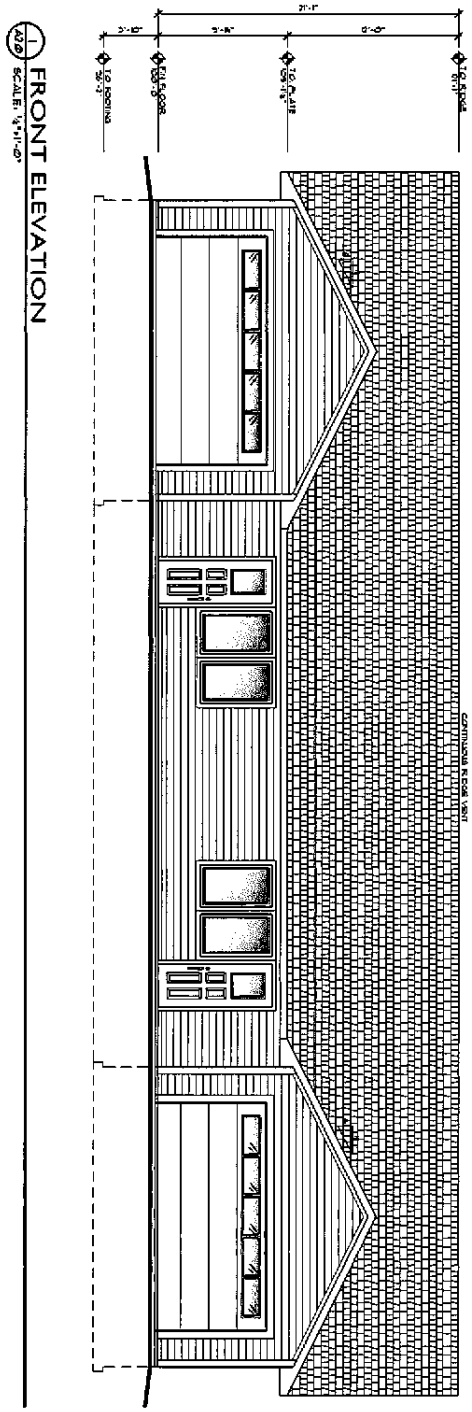
MAIN LEVEL PLAN

SET

MAIN LEVEL PLAN

SHEET
A1.1





PRELIMINARY

SHEET A2.0

DUPLEX OPTION B

ELEVATIONS

PAGE 4

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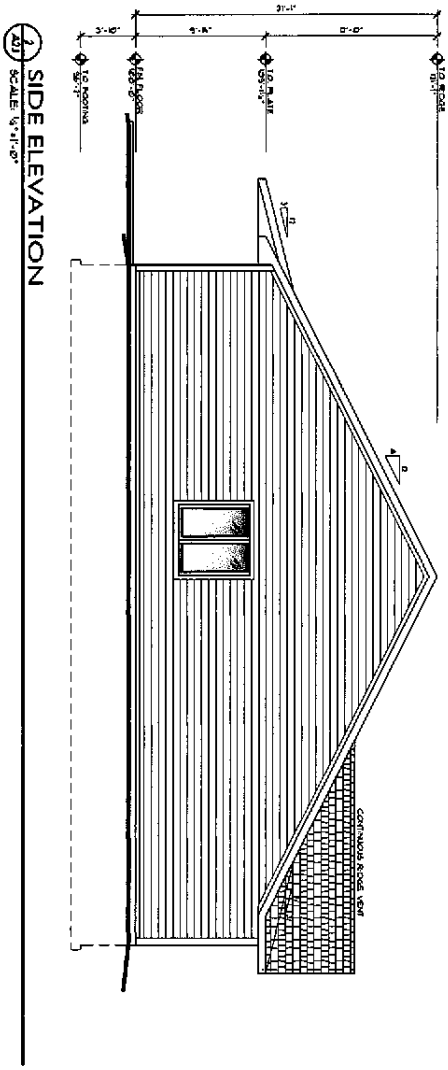
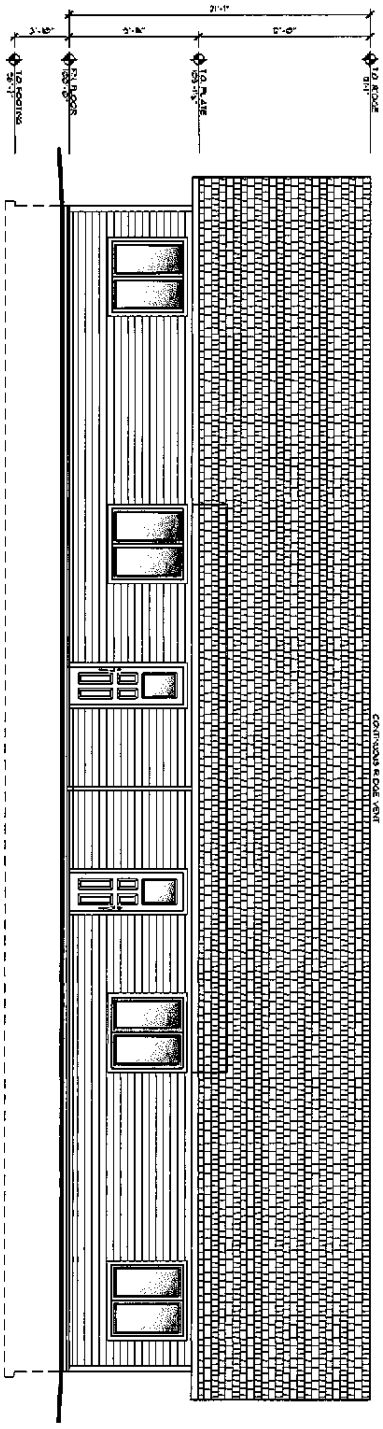


1 A2.1 SIDE ELEVATION
SCALE: 1/4"=1'-0"



1 A2.1 REAR ELEVATION
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX OPTION B

ELEVATIONS

SHEET A2.1

PAGE 5

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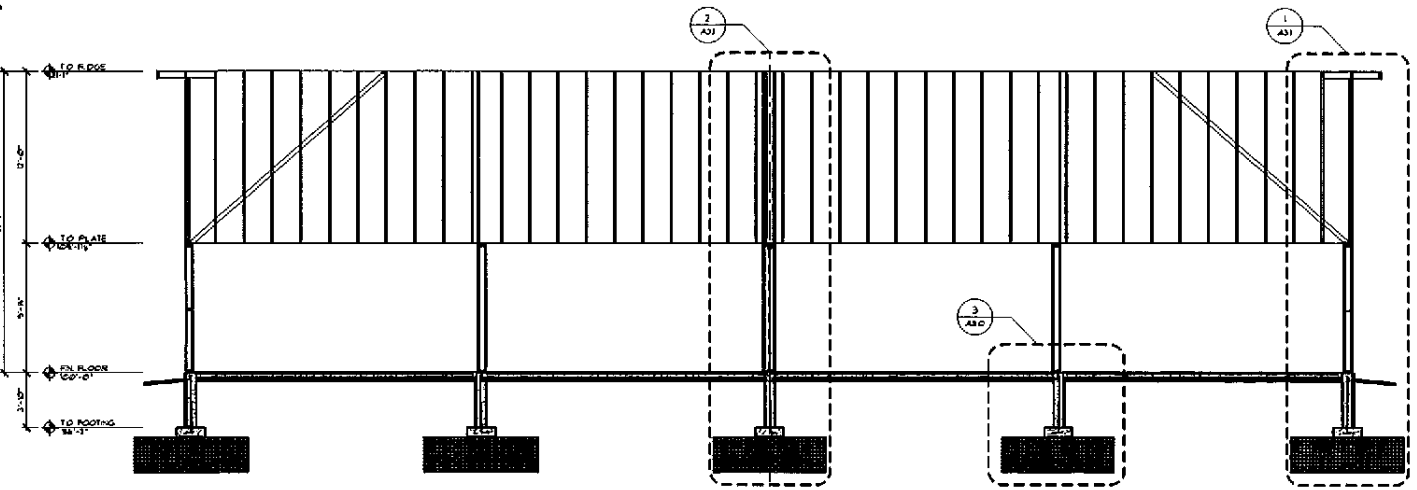
4067789 DCL
02/09/2024 03:01 PM Page 47 of 84
eRecorded For Yellowstone County, MT



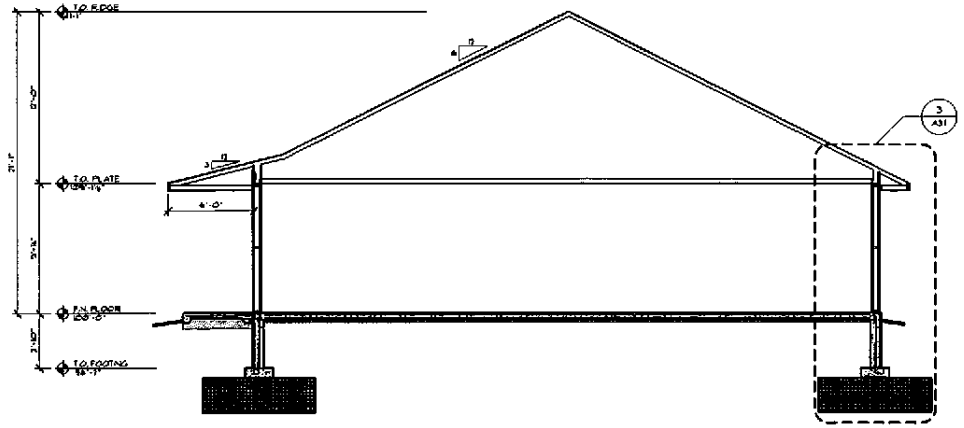
FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

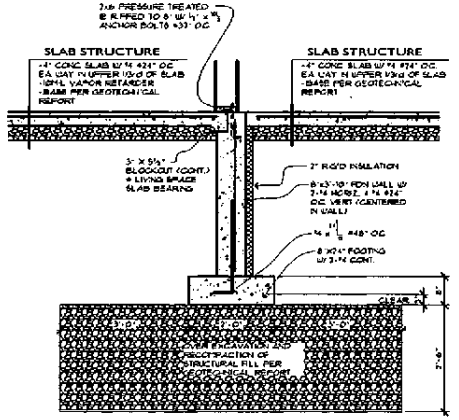
FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
   a. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
   b. HORIZONTALLY AT INTERVALS NOT EXCEED NO. 10 FEET (3048 MM).
2. AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E136 REQUIREMENTS FOR THE ENCLOSURE OF CHIMNEYS AND FIREPLACES. SEE SECTION R1003.19.

1 A3.0 BUILDING SECTION
SCALE: 1/4"=1'-0"



2 A2.0 SIDE ELEVATION
SCALE: 1/4"=1'-0"



3 A3.0 GARAGE WALL DETAIL
SCALE: 3/4"=1'-0"

A-LINE DRAFTING AND DESIGN

JEFF WOLLSCHLAGER
(406)231-2280
735 GRAND AVE.
BILLINGS MT. 59101

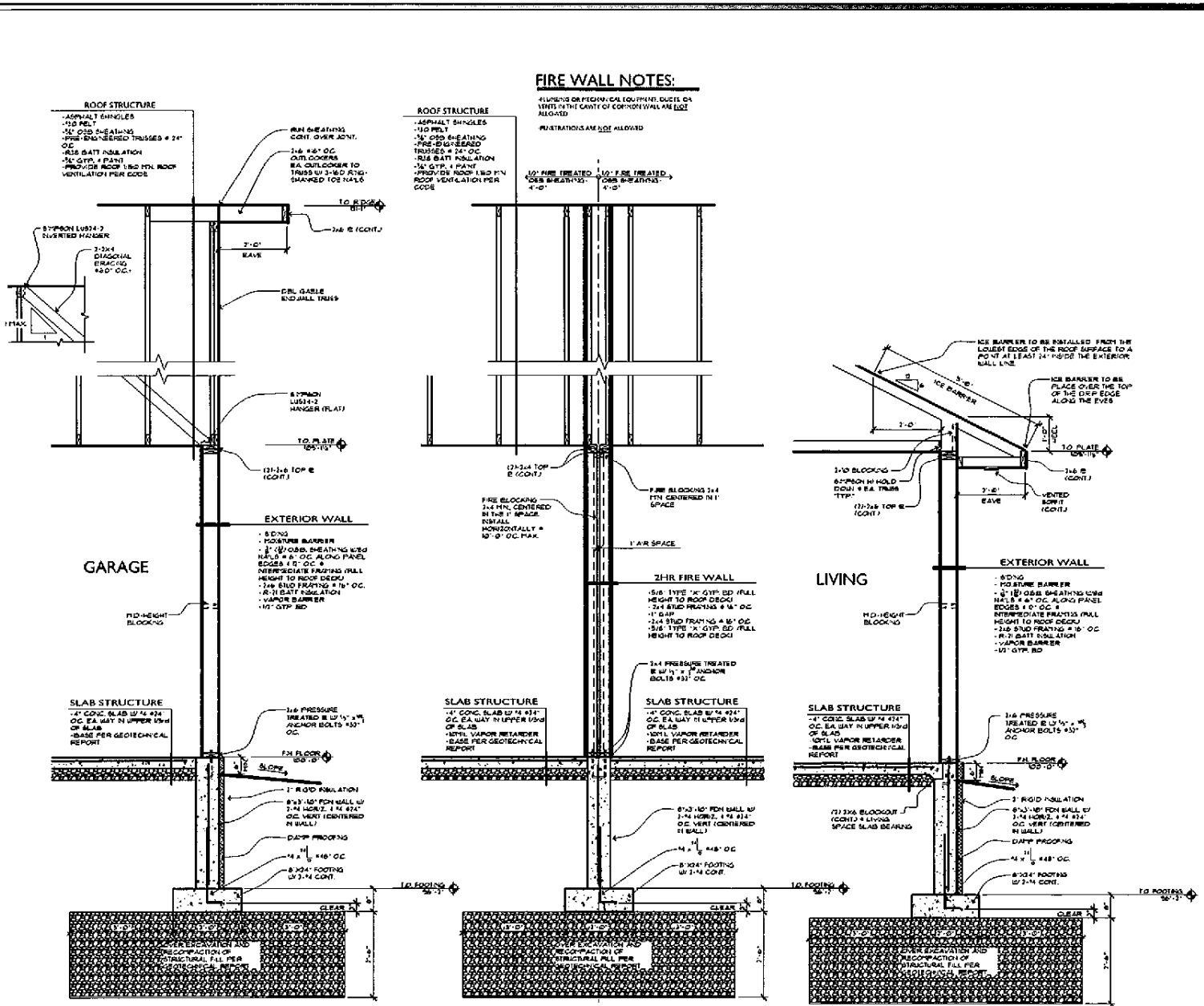
PAGE 6

DUPLEX OPTION B

ELEVATIONS

SHEET
A2.0

PRELIMINARY



4067789 DCL
02/09/2024 03:01 PM Page 48 of 84
eRecorded For Yellowstone County, MT

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DRAFTING AND DESIGN

JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE
BILLINGS MT. 59101

PAGE 7

DUPLEX
OPTION B
SECTIONS

SECTIONS

SHEET
A3.1

STRUCTURAL NOTES

GOVERNING CODES

INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION
AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 14TH EDITION
AMERICAN CONCRETE INSTITUTE, 318-19
AMERICAN SOCIETY OF CIVIL ENGINEERS, 7-16
AMERICAN WELDING SOCIETY D1.1 D1.8M

DESIGN CRITERIA

SNOW LOAD: P_g = 32 PSF + SNOW LOAD P_g = 30 PSF C_e = 1.0, I = 1.0, C_t = 1.0
WIND LOAD: V_{ult} = 115 MPH, V_{asd} = 90 MPH, C&C = 19 PSF, RISK CATEGORY = 2, 1 SET UP/FT = 10 PSF
SEISMIC:
DESIGN CATEGORY "A" I_e = 1.0, S_s = 0.12, S_1 = 0.05
RESISTIVE SYSTEM = WOOD SHEATHING
SEISMIC DESIGN FACTORS: S_{DS} = 0.09, S_{MS} = 0.13, S_{D1} = 0.06, S_{M1} = 0.06, R = 6, C_d = 4
SIMPLIFIED BASE SHEAR METHOD: LIVE LOAD FACTOR = 1
FLOOR LOAD = 15 PSF (LIVE), 10 PSF (DEAD) + 3 PSF (LIVE)
FOUNDATION = 1500 PSF PER GEOTECH LOAD

GENERAL NOTES

- CONTRACTOR SHALL COORDINATE OPENINGS & EMBEDDED ITEMS NOTED ON CONSTRUCTION DOCUMENTS WITH APPROPRIATE TRADE.
- STRUCTURAL COMPONENTS SHALL BE TEMPORARILY BRACED IN A MANNER TO RESIST EARTHQUAKE, WIND, SNOW, & LATERAL EARTH LOADS IF CONSTRUCTION IS DELAYED UNTIL PLYWOOD ROOF SHEATHING, PLYWOOD SHEATHED EXTERIOR WALLS, OR FLOOR FRAMING ARE IN PLACE & ATTACHED PROPERLY.
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH DRAWINGS AND SPECIFICATIONS FROM ALL OTHER DISCIPLINES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, CURBINGS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- THE STRUCTURAL DRAWINGS NOR SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CUTTING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK & CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, MEANS AND & INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCE OF PROCEDURES TO PERFORM THE WORK, THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.
- LOADING IMPOSED TO THE STRUCTURE DURING THE ERECTION OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THESE LOADINGS ARE SPECIFIED IN THE "DESIGN CRITERIA" PORTION OF THESE NOTES. DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND IS LATERALLY BRACED AS REQUIRED.

CONCRETE

- ALL CONCRETE SHALL BE READY MIXED AND SUPPLIED IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS.
- NO WATER SHALL BE ADDED TO MIX AT JOB SITE.
- MINIMUM COVER REQUIREMENTS:
  - CAST AGAINST EARTH = 3"
  - FORMED WALLS = 1½"
  - TOP OF SLAB = 1"
- CHAMFER ALL EXPOSED CORNERS ¾" UNLESS NOTED.
- CONTRACTION CONCRETE WALLS OF 7'-0" OR GREATER IN EITHER DIRECTION SHALL HAVE 2 - #4 BARS ALL SIDES & SHALL EXTEND 24" BEYOND OPENING.
- COLD WEATHER CONCRETING GUIDELINES TO BE FOLLOWED IN COLD TEMPERATURES.
- FLYASH (TYPE 'F' OR TYPE 'C') MAY BE USED TO REPLACE NO MORE THAN 15% OF THE CEMENT CONTENT.
- 4" SLAB MINIMUM & 5% AIR ENTRAINED FOR ALL EXPOSED SLAB & EXTERIOR SLABS.
- MAXIMUM AGGREGATE SIZE OF ¾" UNLESS NOTED OTHERWISE.

MATERIALS:

ANCHOR BOLTS: ASTM A307 BOLTS
CONCRETE SLABS (EXTERIOR): 3000 PSI AT 28 DAYS
CONCRETE SLABS (GARAGE): 4000 PSI AT 28 DAYS
REINFORCING: 3000 PSI AT 28 DAYS

CAST IN PLACE CONCRETE:

- CONCRETE MIXES SHALL BE DESIGNED PER ACI 318
- CONCRETE SHALL CONFORM TO THE FOLLOWING PROPERTIES:

CONCRETE LOCATION	MIX # & (28 DAYS)	SLUMP	W/C RATIO
ELEVATED SLABS	3500 PSI	3" - 4"	0.45
FOOTINGS	3500 PSI	3" - 4"	.55
INTERIOR SLAB ON GRADE	4000 PSI	3" - 4"	0.5

AT CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO PRODUCE FLOWABLE CONCRETE. MAXIMUM SLUMP SHALL NOT EXCEED 10 INCHES. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S TECHNICAL DATA FOR APPROVAL PRIOR TO POURING CONCRETE.

ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318
HOT WEATHER CONCRETING PER ACI 306
COLD WEATHER CONCRETING PER ACI 306

ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE. EXCEPT THE VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "TIGHTLY" IN PLACE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.

REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH ACI 315.

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO PROVIDE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 80% OF ITS 28 DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORING AND RE-SHORING.

REINFORCING STEEL:

- LAP REQUIREMENTS: 33 BAR DIAMETERS (CONCRETE) 40 BAR DIAMETERS (MASONRY)
- CORNER BARS REQUIRED AT FOUNDATION WALL LOCATIONS OF SIZE & NUMBER OF HORIZONTAL WALL STEEL AT ALL CORNERS & INTERSECTIONS.
- REBAR NOT TO BE WELDED UNLESS ASTM A706 GRADE REBAR IS PROVIDED.
- REBAR SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE.
- CHAIRS SHALL BE NOTCHED SLABS FOR PROPER PLACEMENT.
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185 93, CENTERED IN SLAB.
- REINFORCING UNITS MARKS:
  - #4 THROUGH #8 BARS: ASTM A615 - GRADE 60
  - #3 & #9 BARS: ASTM A615 - GRADE 40
- WELDED WIRE FABRIC (WWF): ASTM A185

FOUNDATION BEARING NOTES:

- EXCAVATION PREP SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT. GEOTECHNICAL RECOMMENDATIONS SUPERSEDE ALL GENERIC RECOMMENDATIONS BELOW. THE FOLLOWING GUIDELINES ARE ONLY TO BE UTILIZED IF A GEOTECHNICAL REPORT IS NOT PROVIDED.
- PROVIDE BASE EXPANSION SEALS PER GEOTECHNICAL REPORT.

- FOOTING EXCAVATION FOUNDATIONS SHALL BE PROTECTED FROM FREEZING DURING CONSTRUCTION.
- WORK TO BE DRY WHEN AND OPEN EXCAVATION SHALL BE PUMPED TO PREVENT SURFACE WATER RUNOFF FROM ENTERING DURING ALL PHASES OF CONSTRUCTION.
- FOOTINGS TO REST ON FIRM, UNDISTURBED NATURAL SOILS, GRAVELS, SCREENED, SCRAPED, AND CONCRETE & PLASTERED. EXISTING SOILS IN EXCESS OF 48" BELOW BOTTOM OF EXISTING FOOTINGS MAY REMAIN.
- ANY STRUCTURE FILL REQUIRED BELOW FOOTINGS AND/OR SLABS SHOULD BE TO THE SPECIFICATIONS OF THE GEOTECHNICAL REPORT FOR THE PROJECT. EXCAVATION TO UNDISTURBED CONDITIONS.

- POTENTIAL STRUCTURAL SETTLEMENT GIVEN IN GEOTECHNICAL REPORT IS ASSUMED TO BE ACCEPTABLE TO OWNER.

CONCRETE (CONT.)

CONCRETE SLAB NOTES:

- MAXIMUM CONCRETE SLUMP FOR ALL SLABS SHALL BE 5".
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185. LAP ADJOINING SHEETS AT LEAST ONE FULL MESH SIZE & JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THIS STEEL HAS BEEN AS LATE AS POSSIBLE, PREFERABLY 1 TO 2 WEEKS AFTER THE SLAB HAS BEEN CAST. PRIOR TO PULLING, AND DUE ALL DEBRIS FROM SLAB JOINT, THEN FILL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS:
  - ¼" OR THICKER SLABS: FILL JOINTS WITH EPOXY GROUT
  - 4" - 6" SLAB CONTROL JOINTS SHALL BE FILLED WITH FIELD POURED OR ELASTOMETRIC SEALANT
- EXPANSION SEALS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXPANSION SEAL LOCATIONS, THICKNESS AND REINFORCING.
- THE USE OF POWDER-ACTUATED FASTENERS IN FACE OF SLAB OR WOOD MUST BE APPROVED BY THE ENGINEER.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CONCRETE DRAINS. SLOPE SLAB ACCORDINGLY TO DRAINS.

FOUNDATION NOTES:

- ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL FOR THE FULL HEIGHT OF WALL. PROVIDE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 25'-0" OR 2 TIMES THE WALL HEIGHT.

WOOD FRAMING

- ALL WOOD FRAMING MATERIALS SHALL BE SURFACE DRIED WITH A MAXIMUM OF 19% MOISTURE CONTENT.
- ALL BUTCHER PLATES OR ROOF FRAMING SHALL BE LAGGED AT MIDSPAN AND NO MORE THAN 6'-0" CENTERED WITH FULL DEPTH BLOCKING.
- ALL FRAMING EXPOSED TO THE WEATHER OR EXPOSED TO CONCRETE OR MASONRY SHALL BE PRESERVE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS.
- ALL TRUSS SPANS TO BE CAMBERED PER MANUFACTURER'S RECOMMENDATIONS.
- WOOD MEMBERS SHALL BE BOLTED WITH ASTM A307 BOLTED GALVANIZED BOLTS.

WOOD TRUSSES

- ROOF TRUSS DESIGN LOADS ARE 10 PSF (MIN) + 8 PSF DEAD TOP CHORD & 7 PSF DEAD BOTTOM CHORD. ADDITIONALLY, ROOF OVERHANGS SHALL BE DESIGNED FOR 10 PSF ATTIC LIVE LOAD (EXCEPT ATTIC RAILED SPACES WITH LESS THAN 27"X30").
- ROOF TRUSS DESIGN LOADS ARE 10 PSF LIVE + 15 PSF DEAD TOP CHORD & 7 PSF DEAD BOTTOM CHORD.
- TRUSS SUPPLIER TO REVIEW CONTRACTOR WITH SHOP DRAWINGS, EXCLUDED IN THIS SCOPE ITEM, ARE STRESS CHECKING, CONNECTOR DESIGNATIONS AND BRACING AND/OR BLOCKING REQUIREMENTS.
- MANUFACTURER'S, TRUSS MANUFACTURERS TO PROVIDE INSTRUCTIONS TO CONTRACTOR FOR INSTALLATION OF PREFABRICATED TRUSS UNITS.
- TRUSS DRAWINGS ARE DIAGRAMATICAL & ARE THEREFORE INTENDED TO ESTABLISH OUTLINES OF TRUSS CONFIGURATIONS.
- TRUSS DESIGN TO ACCOUNT FOR SECONDARY BENDING STRESSES DUE TO DEAD LOAD, AND WIND LOADS SHALL BE CONSIDERED BY THE MANUFACTURER.
- TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, OR ALTERED IN ANY WAY WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- WOOD TRUSSES SHALL BE ERECTED IN ACCORDANCE WITH THE TRUSS MANUFACTURER'S REQUIREMENTS BY AN EXPERIENCED CONTRACTOR.

WOOD STUD WALLS

- PROVIDE FULL DEPTH BLOCKING AT INTERSECTION OF EXTERIOR & INTERIOR STUD WALLS.
- PROVIDE BLOCKING AT SHEATHING PANEL JOINTS IN SHEAR WALLS.
- BEARING WALLS TO HAVE DOUBLE (CONT.) 2x6 TOP PLATES W/ STAGGERED SPLICES (UNLESS NOTED OTHERWISE).
- ADDITIONAL WALL PLATES OR VERTICAL STUDS IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.
- PROVIDE 2x6 @ 19'-0" C. VERTICAL FRAMING @ ALL BEARING & EXTERIOR WALLS (UNLESS NOTED OTHERWISE).

PLYWOOD AND OSB SHEATHING:

- ALL PLYWOOD AND OSB CONSTRUCTION SHALL BE PERFORMANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS.
- INSTALL PLYWOOD OR OSB PANELS WITH THE LONG DIMENSION OF THE PANELS ACROSS THE SUPPORTS AND WITH THE FACE GRAIN PERPENDICULAR TO THE JOINTS. STAGGER PANEL END JOINTS ABOVE ½" SPACING BETWEEN PANEL ENDS & EDGES UNLESS EITHER MORE RECOMMENDED BY PANEL MANUFACTURER.
- NAILING TO BLOCKING AT MID-SUPPORTED FLOOR PANELS AS FOLLOWS:
  - FLOOR AND FLOORS = AT EDGES INDICATED OTHERWISE
  - WALLS = ALL EXTERIOR WALLS AND WHERE FLYWALLS AS SHOWN ON PLANS

MATERIALS:

DIMENSIONAL FRAMING:
LSL (1.9E) - at main (TYP): F_b = 975 PSI, F_v = 155 PSI, E = 1.3x10⁶ PSI
2x FRAMING - #1 HEM FIR (CONSTRUCTION GRADE): F_b = 975 PSI, F_v = 135 PSI, E = 1.5x10⁶ PSI
LVL BEAMS:
1.9E - F_b = 2600 PSI, F_b = 1650 PSI, E = 2.0x10⁶ PSI
2.0E or higher - F_b = 3100 PSI, F_b = 2100 PSI, E = 2.0x10⁶ PSI
GLU-LAM BEAMS (or equivalent): F_b = 2400 PSI, F_b = 1750 PSI, E = 1.8x10⁶ PSI
POSTS: HEM FIR #1

WOOD FRAMING (CONT.)

NAILING SCHEDULE:

CONNECTION	ATTACHMENT
JOIST TO SILL OR GIRDER, TOENAIL	(3) 16d
BRIDGING TO JOIST, TOENAIL EACH END	(2) 16d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	(3) 16d TOENAIL
TOP PLATE TO STUD, END NAIL	(2) 16d
STUD TO SOLE PLATE	(4) 8d TOENAIL or (3) 16d
DOUBLE STUDS, FACE NAIL	16d @ 24" O.C.
DOUBLE TOP PLATES, FACE NAIL	16d @ 16" O.C.
BUILT-UP STUD PIECES	20d @ 32" O.C.
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(2) 16d
CONTINUOUS HEADER, TWO PIECES	16d @ 16" O.C.
ROOF JOISTS TO PLATE, TOENAIL	(3) 16d
CEILING JOISTS TO PLATE, TOENAIL	(3) 16d
ROOF JOISTS, LAPS OVER PARTITIONS, FACE NAIL	(3) 16d
ROOF JOISTS TO RIDGE OR PURLIN, RAFTERS, FACE NAIL	(3) 16d
BUILT-UP CORNER STUDS	20d @ 24" O.C.
BUILT-UP GIRDER BEAMS	20d @ 32" O.C.
½" (15/32) OSB ROOF SHEATHING (1" MIN. OF 3 SPANS) TYPICAL FOR PANEL EDGE WITH I - PLYCLIP BETWEEN EACH SUPPORT	8d @ 6" O.C. EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING
½" (15/32) OSB WALL SHEATHING (1" BLOCKING @ ALL PANEL JOINTS)	8d @ 6" O.C. @ EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING OR 16 GA STAPLES @ 4" O.C. @ EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING (STAPLES ONLY PERMITTED @ ALL OVERHANGS AND JOINTS AT ALL BLOCKS)
½" (19/32) OSB SUBFLOOR (NAILING + CONTINUOUS BEAD OF CONSTRUCTION ADHESIVE)	8d @ 6" O.C. @ EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING
7/16" PREFABRICATED PEFIN SHEAR AS REQUIRED	PER CODE WITH 16 GA STAPLES W/ MINIMUM 1/2" CROWN AND 1" LEG LENGTH OR EQUIVALENT NAILING REQUIREMENTS
½" (15/32) HEATED PLYWOOD	8d @ 6" O.C. @ EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING

BEARING STUD SCHEDULE

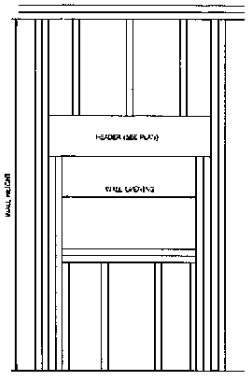
EXTERIOR WALL BEARING LOAD ANALYSIS

VALUE = # BEARING EXTERIOR STUDS / # OF PLIES REQUIRING STUDS

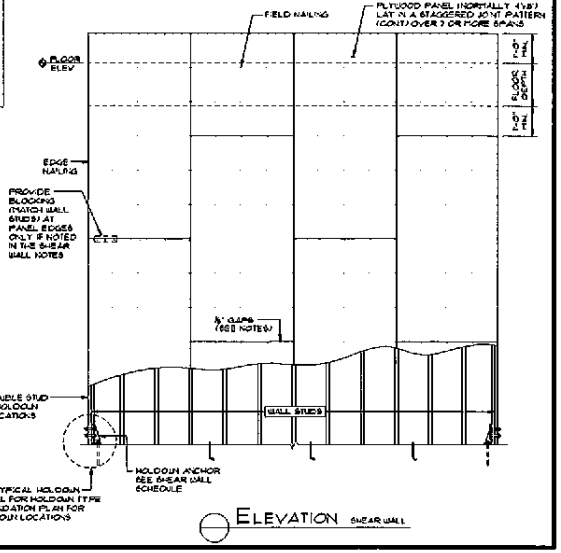
WALL HEIGHT	9'-0"		10'-0"		11'-0"		12'-0"	
WALL OPENING								
3'-0"	1	1	1	1	1	1	1	2
4'-0"	1	1	1	1	1	2	1	2
5'-0"	1	1	1	2	1	2	1	2
6'-0"	2	2	2	2	2	2	2	2
7'-0"	2	2	2	2	2	2	2	3
8'-0"	2	2	2	2	2	3	2	3
9'-0"	2	2	2	2	3	3	3	3
10'-0"	2	2	2	3	3	3	3	3
11'-0"	2	2	3	3	3	3	3	4
12'-0"	3	3	3	3	3	3	3	4

TABLE VALUES ASSUME:

- TABLE VALUES ASSUME 30 PSF SNOW LOAD AND 115 MPH ULT. WIND PRESSURE
- HEIGHTS OF 12'-0" OR BETTER
- WALL BEARING ROOF TRUSSES (ONLY) SPACING 32"-0" OR LESS WITH 2-2" EACH
- BEARING SPECIFIED IN TABLE MAY TO BE USED IF INFORMATION IS NOT SHOWN ON PLANS
- WHERE FRAMING STUDS TO BE STITCHED TOGETHER W/ SIMPSON SDWS SCREWS @ 12" O.C. WITH LENGTH NECESSARY TO ENGAGE ALL MEMBERS.



NOTE: SEE SHEAR WALL SCHEDULE FOR NAILING REQUIREMENTS. THE USE OF STAPLE EQUIVALENTS CAN BE SUBMITTED FOR APPROVAL. TEK SCREWS TO BE SUBSTITUTED FOR NAILS IN WALLS PRAZED W/ LIGHT GAUGE STEEL. MATERIAL SEE SHEAR WALL NOTES FOR SIZE + SPACING OF SCREWS



4067789 DCL
02/09/2024 03:01 PM Page 49 of 84
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A-LINE DRAFTING AND DESIGN
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(406)321-2280
725 GRAND AVE.
BILLINGS MT, 59101

PAGE B

DUPLEX OPTION B

STRUCTURAL

PRELIMINARY

STRUCTURAL

SHEET ST0.0

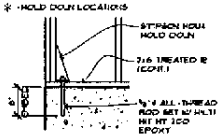
4067789 DCL
02/09/2024 03:01 PM Page 50 of 84
eRecorded For Yellowstone County, MT

GENERAL NOTES:

- ALL STRUCTURAL INFORMATION TO BE VERIFIED W/ STRUCTURAL ENGINEER
- ALL ELEVATIONS ARE REFERENCE TO FINISHED FLOOR ELEVATION OF 100'-0"
- T.O.W. = TOP OF WALL
- T.O.F. = TOP OF FOOTING
- C.J. = KEEP LAYOUT CONTROL JOINTS @ 15' O.C. MAX.
- F.G. = FOUNDATION
- T.O.D. = FLOOR DRAIN

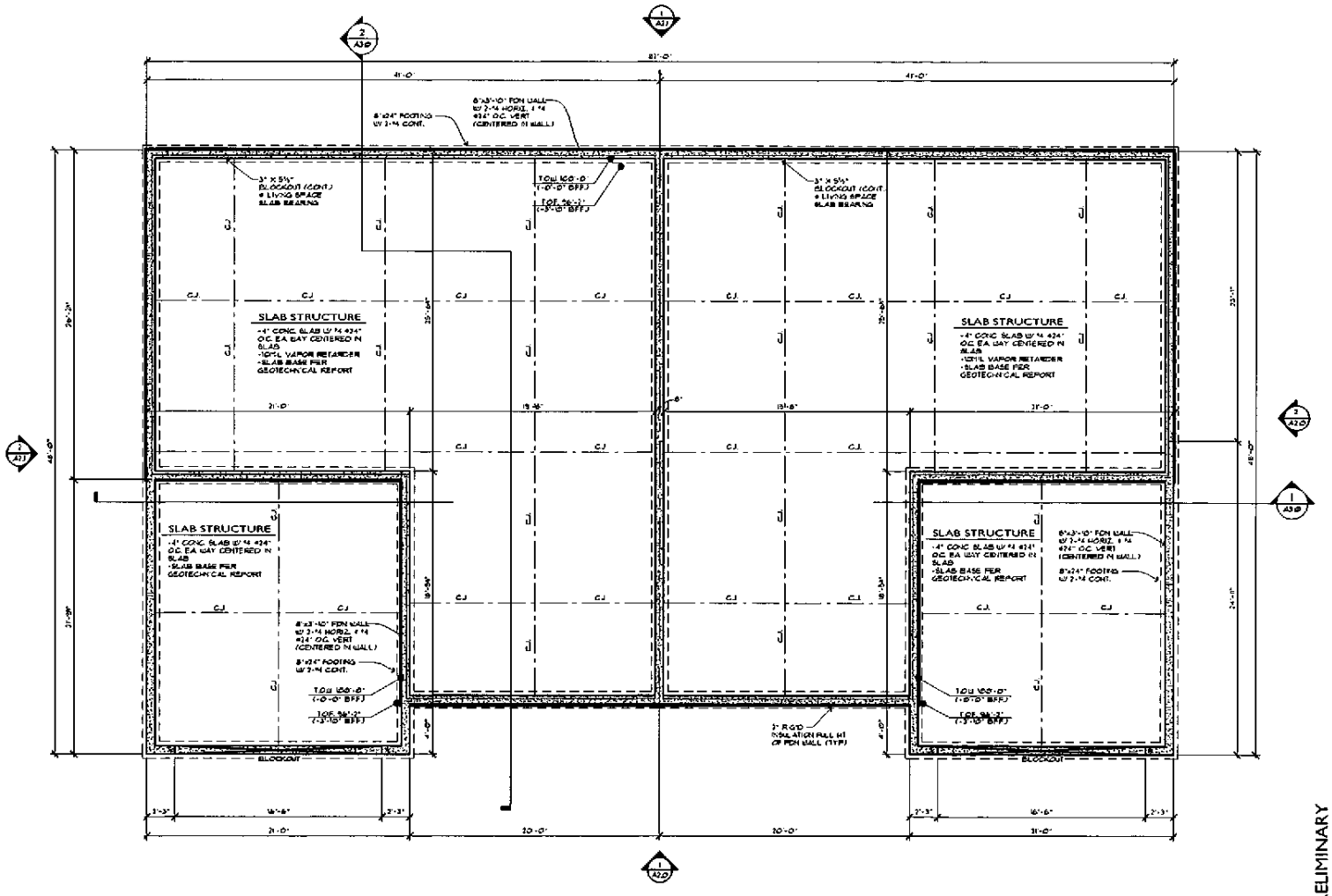
HOLD DOWN DETAIL

* - HOLD DOWN LOCATIONS



NOTE:

-CONTRACTOR TO VERIFY FOUNDATION BLACKOUTS FOR ELECTRICAL, MECHANICAL OR PLUMBING EQUIPMENT.



1 FOUNDATION PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

A-LINE DRAFTING AND DESIGN

JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE
BILLINGS MT. 59101

PAGE: 9

DUPLEX OPTION B

FOUNDATION PLAN

FOUNDATION PLAN

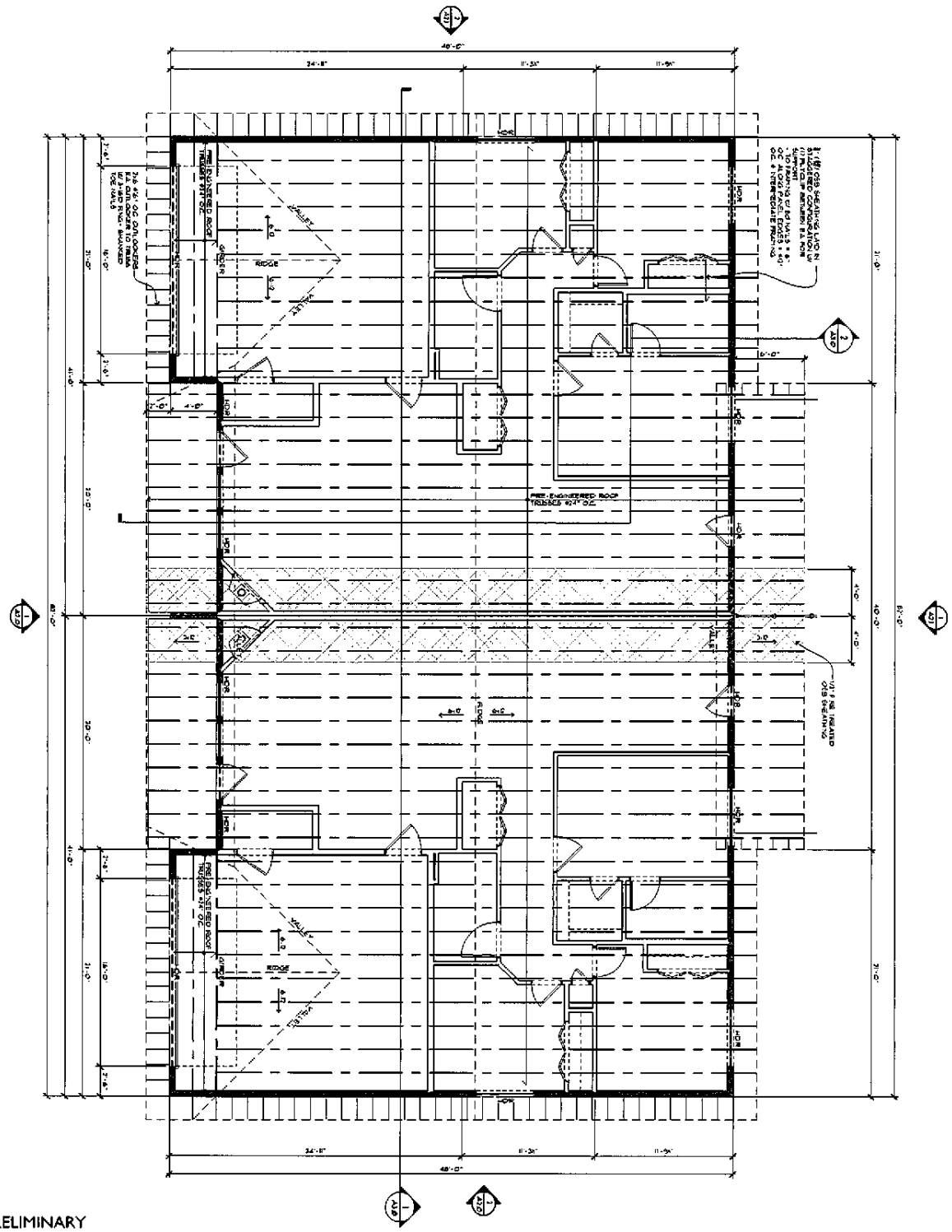
SHEET
ST1.0

GENERAL NOTES:

- ROOF TRUSS LAYOUT IS FOR DESIGN REFERENCE ONLY
- CONTRACTOR TO VERIFY ROOF FRAMING W/ MANUFACTURED ENGINEERED TRUSSES
- ENGINEERED WALLS REPRESENT BEARING WALLS
- ALL HEADERS AND STRUCTURAL COMPONENTS TO BE VERIFIED
- RE-PRE-ENGINEERED TRUSS 4 24" OC PER MANUFACTURER
- BAND BOARDS STACKED TOGETHER W/ 16D FACE NAILED W/ 3-8" 0 OC.
- PROVIDE END RAKE BELOW ENGR TRUSSES BEARING ON TRIPLE STUDS TO MATCH TRUSS PLY'S
- ALL TRUSS TO TRUSS CONNECTIONS BY PRE-ENGINEERED TRUSS MANUFACTURER
- ALL EXTERIOR WALL OPENING HEADERS FOR 2X6 WALLS SHALL BE DOUBLE 2X8 #2 OR BETTER UNLESS NOTED OTHERWISE
- TRUSSES TO BEAR W/ 4" MIN. L.B.O. SUPPORTS

DRAFTSTOPS

ADD DRAFTSTOPPING



1 ST2.0 ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX OPTION B

ROOF FRAMING PLAN

SHEET ST2.0

PAGE 10

A-LINE DRAFTING AND DESIGN

DUPLEX OPTION C

TRAIL RIDGE TOWNHOMES

BILLINGS MONTANA

CONTACT

Kelly Coleman

kcoleman@hancock-enterprises.com

Todd Brown

thrownbuilders@yahoo.com

OWNER

INDEX OF DRAWINGS

T1.0	TITLE
S1.0	SITE PLAN
A1.1	MAIN LEVEL PLAN
A2.0	ELEVATIONS
A3.0	BUILDING SECTIONS
A3.1	WALL SECTIONS
ST0.0	GENERAL STRUCTURAL NOTES
ST1.0	FOUNDATION PLAN
ST2.0	ROOF FRAMING PLAN

SPECIAL INSPECTION

SOILS TO BE INSPECTED BY "GEOSCIENCE" PRIOR TO PLACEMENT OF FOOTINGS

CODE ANALYSIS

-OCCUPANCY: R-3 (BUILDINGS THAT DO NOT CONTAIN MORE THAN TWO DWELLING UNITS)
-TYPE OF CONSTRUCTION: V B
-2HR RATED SEPARATION REQUIRED BETWEEN UNITS
-EACH UNIT TO HAVE ITS OWN ELECTRICAL SERVICE

STORM WATER DRAINAGE NOTE:

PER SWMM 3.1.1, DOWNSPOUTS AND DRAINAGE FLOW PATHS AS SHOWN ON PLAN
PER SWMM 3.1.2, MIN. RUN LENGTH OF 15' FROM HARD SURFACES AT 5% OR LESS SLOPE FOR LAWN AND 2% OR LESS FOR OTHER PERVIOUS AREAS PRIOR TO REACHING THE PROPERTY LINE

DUE TO THE EXISTING TOPOGRAPHY AND NATURAL DRAINAGE FEATURES PRESENT ON THIS SITE, ALL EFFORTS SHOULD BE MADE KEEP SITE DRAINAGE AS NATURAL AS POSSIBLE. NO ATTEMPTS SHOULD BE MADE TO DIRECT WATER TOWARDS ANY NEW OR UNNATURAL DRAINAGE AREAS OR ADJACENT PROPERTIES

ALL DOWNSPOUTS AND STORM WATER RUNOFF FROM THE CONSTRUCTED AREAS SHALL BE CONTROLLED AND DIRECTED TO DRAIN TO THESE NATURAL DRAINAGE AREAS. ALL PERIMETER AREAS TO BE UNALTERED IN EFFORTS TO MAINTAIN THE NATURAL DRAINAGE PATTERNS

FINISHED GRADE TO SLOPE AWAY FROM FOUNDATION WALLS A MIN. OF 6"

DRAFTSTOPS

R302.12 DRAFTSTOPPING

IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR/CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1,000 SQUARE FEET (93.5 M2). DRAFTSTOPS SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS. WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR IMMEDIATELY ABOVE AND A CEILING IMMEDIATELY BELOW, DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES.
CEILING IS SUSPENDED UNDER THE FLOOR FRAMING
FLOOR FRAMING IS CONSTRUCTED OF TABLES-TYPE OPEN WEB OR PERFORATED MEMBERS

CONTRACTOR NOTES

1. CONTRACTOR SHALL VERIFY ALL SITE DIMENSIONS & LOCATION PRIOR TO CONSTRUCTION
A. VERIFY THAT ALL INFORMATION WITHIN THIS PLAN SET IS CONSISTENT WITH OBSERVED EXISTING CONDITIONS
B. ENSURE COMPLIANCE WITH LOCAL CODES & CHD HANDICAP AS IT PERTAINS TO THE SITE LOCATION
2. CONTRACTOR TO VERIFY THAT BEAM HEADER SIZES HAVE BEEN PROPERLY DETERMINED FOR THE LOADING IN THE AREA WHERE THIS STRUCTURE IS TO BE BUILT
3. REFER TO ENGINEERED ROOF TRUSS LAYOUT FOR INFORMATION REGARDING STRUCTURAL LOADING DATA USED TO DESIGN THIS STRUCTURE (DATA TO BE PROVIDED BY THE DISTRIBUTORS OF THE RESPECTIVE TRUSS FLOOR JOIST SUPPLIER.)
4. CONTRACTOR TO VERIFY WITH ARCHITECH REQUIREMENTS OVER UNDISTURBED SOIL
5. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION OF ALL FOOTING SIZES, LOAD REQUIREMENT, SOILS BEARING DATA, & REQUIREMENTS
6. CONTRACTOR SHALL PROVIDE SAMPLE TILES TO OWNER AND ARCHITECT PRIOR TO CONSTRUCTION FOR ALL EXTERIOR MATERIALS, COLORS & TYPES
7. CONTRACTOR TO VERIFY LOCATION OF SAW CUT JOINTS FOR ALL SOLID SURFACES THAT REQUIRE FOUNDATION ADJUSTMENTS
8. CONTRACTOR TO PROVIDE INFORMATION ON ALL AREAS REQUIRING CLASSES WITH SAFETY MATERIALS
9. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL DETAILS REGARDING PRODUCTS SPECIFICATIONS, INSTALLATION AND ENGINEERING DATA THAT MAY BE REQUIRED BY OWNER OR BUILDING DEPARTMENT WHEN OBTAINING PERMITS.
10. BUILDING SHALL HAVE APPROVED ADDRESS NUMBERS. THE NUMBERS SHALL BE CONTRASTED WITH THE BACKGROUND, NUMBERS SHALL BE 4" HIGH WITH A STROKE WIDTH OF 1/2", ARABIC OR ALPHABETICAL LETTERS IN A VISIBLE AREA.

GENERAL NOTES

1. ALL CONSTRUCTION TO COMPLY WITH IBC, IRC, ADA & FAIR HOUSING, AS WELL AS ALL OTHER LOCAL & NATIONAL CODES THAT MAY APPLY INCLUDING AMENDMENTS
2. CIVIL PLANS ARE BY CIVIL ENGINEER
3. MECHANICAL AND ELECTRICAL SCOPE TO BE DESIGN-BUILD BY CONTRACTOR
4. MAXIMUM CLOTHING DRYER EXHAUST DUCT TO BE 35'-0". REDUCE BY 2.5' FOR EACH 45 BEND, & 5'-0" FOR EVERY 90° BEND OR PER MANUFACTURER'S INSTRUCTIONS
5. CONTRACTOR SHALL LOCATE A 22" X 30" ATTIC ACCESS PORT U.N.O.
6. SLOPE GRADE AWAY FROM FOUNDATION WALLS AT A MINIMUM OF 6" WITHIN THE FIRST 10 FEET (R401.3)
7. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALL AND ROOF THROUGH JOINTS IN COPINGS, THROUGH MOISTURE PERMEABLE MATERIALS, AND AT OTHER PENETRATIONS THROUGH THE ROOF PLANE
8. NET FREE ATTIC VENTILATION TO BE 1/150 OF THE AREA TO BE VENTED WITH +/- 50% DEDICATED IN THE UPPER ATTIC PORTION (IRC 1202.2)
9. AN ICE BARRIER CONSISTING OF AT LEAST TWO LAYERS OF UNDERLAYMENT CEMENTED TOGETHER OR 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" INSIDE THE EXTERIOR WALL LINE OF THE BUILDING (R905.2.7.1)
10. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGE BENEATH HABITABLE ROOMS SHALL BE SEPARATED BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. (R302.6)
11. WHERE CERAMIC TILE IS USED CEMENT, FIBER-CEMENT OR GLASS MAT GYPSUM BACKER IN COMPLIANCE WITH CODE AND INSTALLED IN ACCORDANCE WITH MFG RECOMMENDATIONS SHALL BE USED AS BACKER FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL PANEL IN SHOWER AREA. (R702.4.2)
12. INFORMATION FOUND ON THE ADOPTED CODES SHALL OVERRIDE PLAN NOTES & SPECIFICATIONS WHEN DISCREPANCIES OR CONFLICTS OCCUR.

HEATING & VENTILLATION (M1505)

HEATING
ELECTRIC CEILING UNITS TO PROVIDE HEAT

VENTILLATION
- BATHROOM EXHAUST FAN TO BE A BROAN AE110 OR PANASONIC WHISPERCEILING FV-08TVC1
- ELECTRICAL SUBCONTRACTOR TO PROVIDE INTERMATIC ST8 CONTROL OR APPROVED EQUAL FOR BATHROOM EXHAUST FAN & PROGRAM TO MEET CODE REQUIRED MINIMUM THEIR OPERATION (BELOW)
- FAN TO DRAW OUTDOOR AIR AT 15 CFM CONTINUOUS OR 50 CFM INTERMITTENT (1 TIMES PER 1 HOUR PERIOD
- MAKE UP AIR TO BE SUPPLIED VIA 3"DIA" DUCT PENETRATING ROOF OR EXTERIOR SIDEWALL W/ STALL FREE FLOW REGISTER W/ WALL AT MAX. 14" AFF
- ALL AIR INTAKE VENTS 6 FEET TO MINIMUM 10' FROM EXHAUST SOURCES
- AUTOVENT AT KITCHEN SINK TO BE JB-PRODUCT AIR ADMITTANCE VALVE (HOUSE AIR)

PORTAL FRAME

PORTAL FRAME PER R602.10.4.3

WALLS AND INTERIOR PARTITIONS, WOOD-FRAMED

GA FILE NO. WP 3820	GENERIC	2 HOUR FIRE	55 to 59 STC SOUND
GYPSUM WALLBOARD, WOOD STUDS			

(LOAD-BEARING)

FIREBLOCKING

R302.11 FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS.

-IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS
1. VERTICALLY AT THE CEILING AND FLOOR LEVELS
2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM)
AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS
-IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7
AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO PASS THE ASTM E136 REQUIREMENTS
FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19

4067789 DCL
02/09/2024 03:01 PM Page 52 of 84
eRecorded For Yellowstone County, MT

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JEFF WOLLSCHLAGER
(406) 721-2280
725 GRAND AVE.
BILLINGS MT. 59101

PAGE 1

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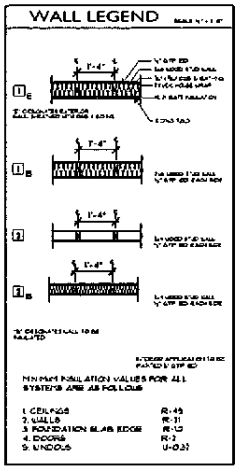
TITLE

SHEET T1.0

NOTES

VERIFY ALL WINDOW SIZES W/ MANUFACTURER SPECS

WALL LEGEND



MIN INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS

1. CEILINGS	R-49
2. WALLS	R-21
3. FOUNDATION SLAB EDGE	R-15
4. DOORS	R-3
5. WINDOWS	U-0.32

(F) EXHAUST FAN. (EXCEPT INTERMITTENT KITCHENS, 50 CFM BATHROOMS) TO LET ROOMS INTERMITTENT

(SD) SMOKE DETECTOR (SMOKE DETECTORS WITHIN 20' OF A COOKING APPLIANCE MUST BE THE ALARM SILENCING TYPE)

HOSE BIB

(C) CARBON MONOXIDE DETECTOR

S.G. SAFETY GLAZING

F.D. FLOOR DRAIN

NOTE:
- ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING. WINDOWS AND DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS ARE DIMENSIONED TO BE CENTERED IN SPACE PROVIDED.
- ALL MAIN LEVEL INTERIOR DOOR HEIGHTS TO BE 6'-0"
- EXTERIOR DOOR & WINDOW HEIGHTS TO BE 6'-0" AFF, UNLESS NOTED OTHERWISE

UFER GROUND

A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED IN THE FOOTING

SMOKE DETECTORS

SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS, IN BASEMENTS AND ON EACH STORY

BEDROOM ESCAPE WINDOW

- EGRESS MAIN LEVEL WINDOWS TO HAVE A MIN. NET CLEAR OPENING OF 5.0 SQ. FT. (CRC R310.1) WITH A MIN. HEIGHT OF 24" & A MIN. WIDTH OF 20" AT 44" A.F.F. TO OPENING PAN

FUEL BURNING APPLIANCES

FUEL BURNING APPLIANCES, WHERE OPEN COMBUSTION AIR DUCTS PROVIDE COMBUSTION AIR TO OPEN-COMBUSTION FUEL BURNING APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH IECC 2018 R303.4.4

MECH. VENTILATION

R303.3 KITCHEN AND BATHROOM EXHAUST FANS
KITCHENS TO BE ASSOCIATED WITH EXHAUST FANS
BATHROOMS TO BE BOTH INTERMITTENT

IRC 2018 TABLE M1555.1(3) CONTINUOUS WHOLE HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE @ (3BR-3000 SF OR BEDROOM + 60 CFM
(IF INTERMITTENT WHOLE HOUSE VENTILATION SEE TABLE M1555.4.3 (2))

THE WHOLE HOUSE VENTILATION SYSTEM SHALL CONSIST OF AN OUTDOOR AIR DUCT CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER TO PROVIDE SUPPLY VENTILATION

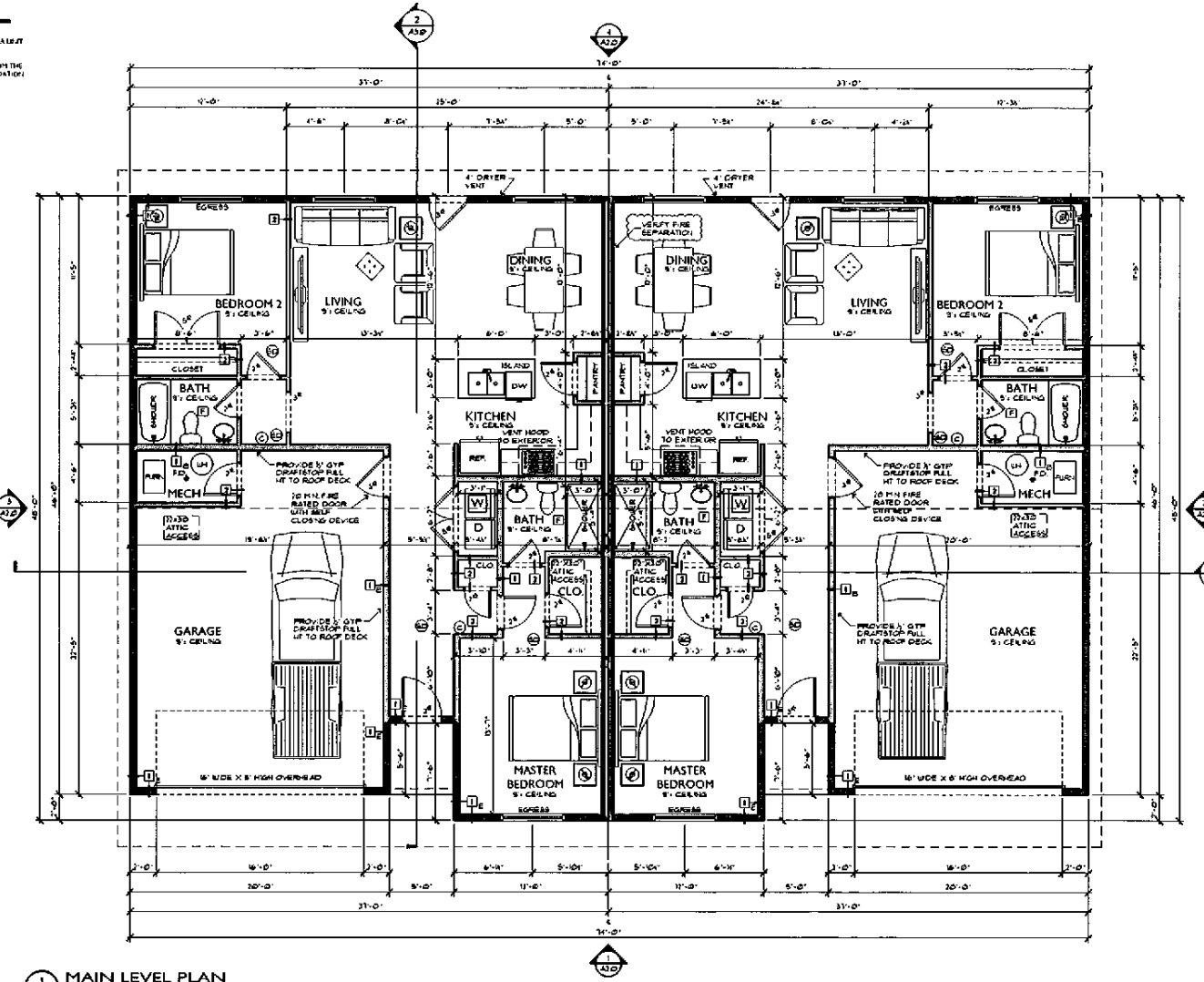
R303.1 HYGROSCOPIC VENTILATION
BLOWER DOOR TEST LESS THAN 5 ACH CHANGES AN HOUR WILL REQUIRE WHOLE HOUSE VENTILATION

AREA

AREA
1178.50 FT MAIN LEVEL LIVING PER UNIT
459.50 FT GARAGE PER UNIT

NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

4067789 DCL
02/09/2024 03:01 PM Page 53 of 84
eRecorded For Yellowstone County, MT



1/A1.0 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

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JEFF WOLLSCHLAGER
(406)321-2280
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PAGE: X OF X

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MAIN LEVEL PLAN

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A1.1

4067789 DCL
02/09/2024 03:01 PM Page 54 of 84
eRecorded For Yellowstone County, MT

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OPTION C (2 BED)

ELEVATIONS

SHEET A2.0

PAGE X OF X

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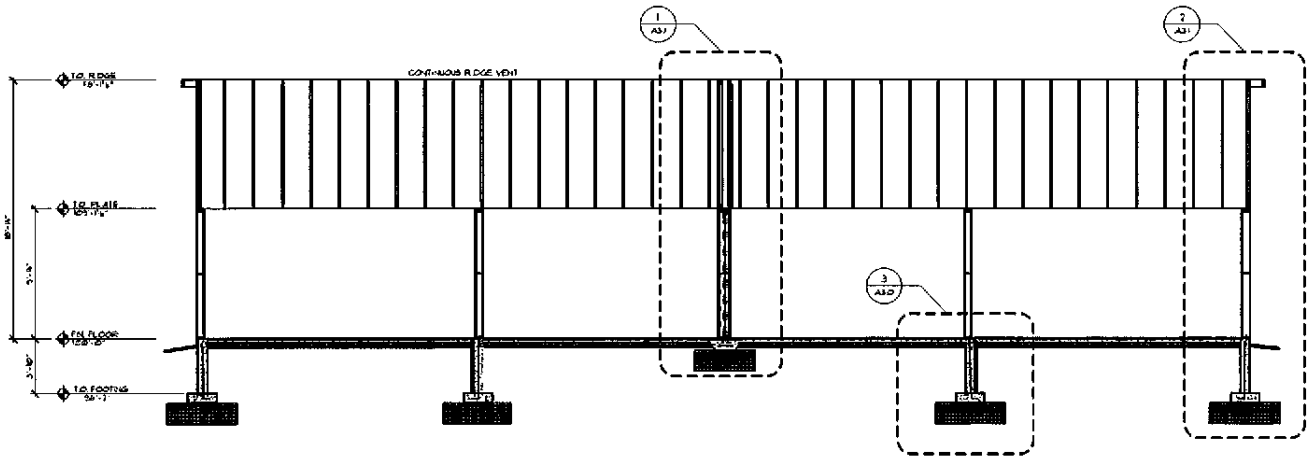
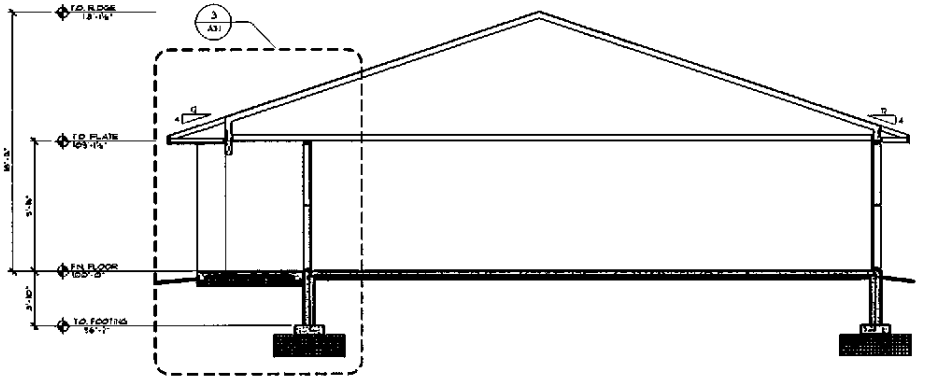
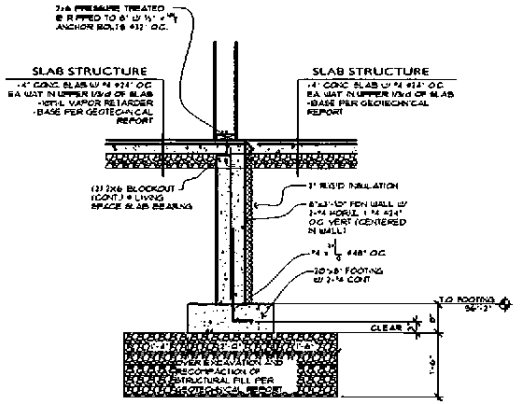


1 A3.0 BUILDING SECTION
SCALE: 1/4"=1'-0"



2 A3.0 BUILDING SECTION
SCALE: 1/4"=1'-0"



3 A3.0 GARAGE WALL DETAIL
SCALE: 3/4"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 55 of 84
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SECTIONS

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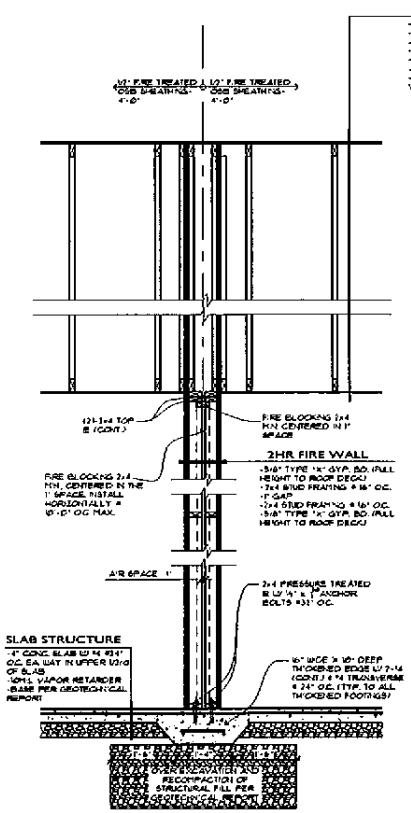
A3.0

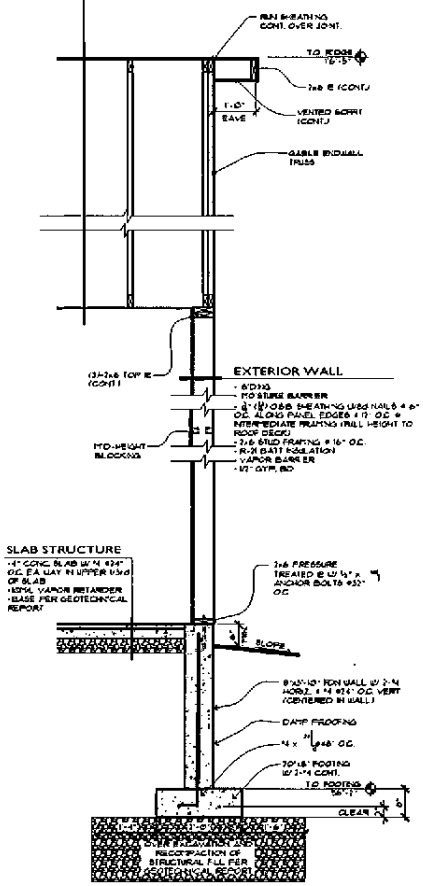
FIRE WALL NOTES:

- HEATING OR MECHANICAL EQUIPMENT, DUCTS OR VENTS IN THE CAVITY OF COMMON WALL ARE NOT ALLOWED
- PENETRATIONS ARE NOT ALLOWED

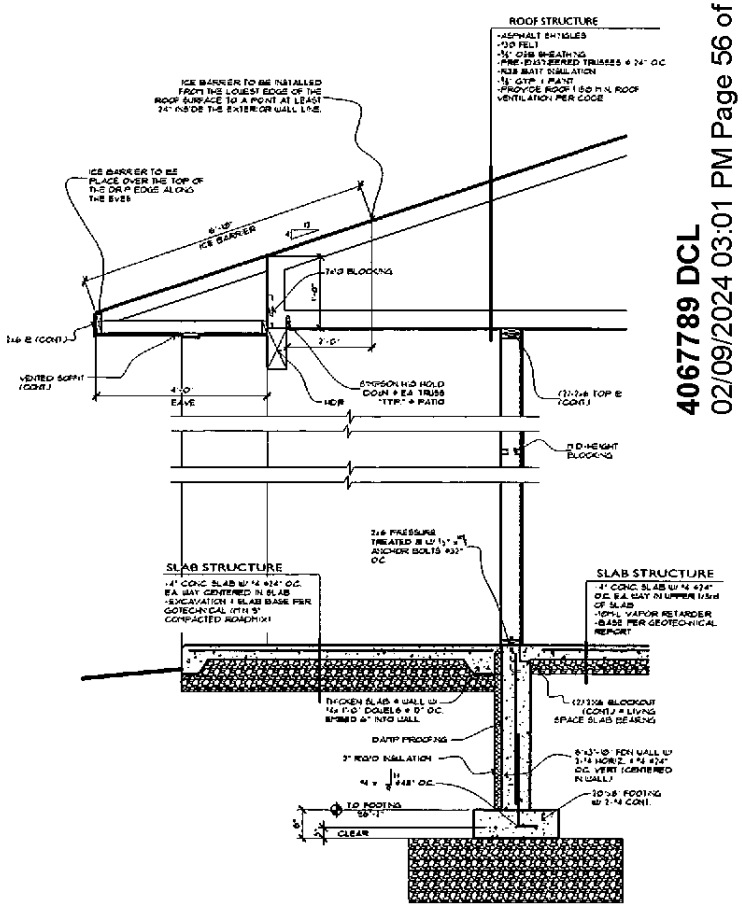


2 HR WALL SECTION
G.A. FILE WP 3820

1 / A3.1 SCALE: 3/4"=1'-0"



2 / A3.1 WALL SECTION
SCALE: 3/4"=1'-0"



3 / A3.1 WALL SECTION
SCALE: 3/4"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 56 of 84
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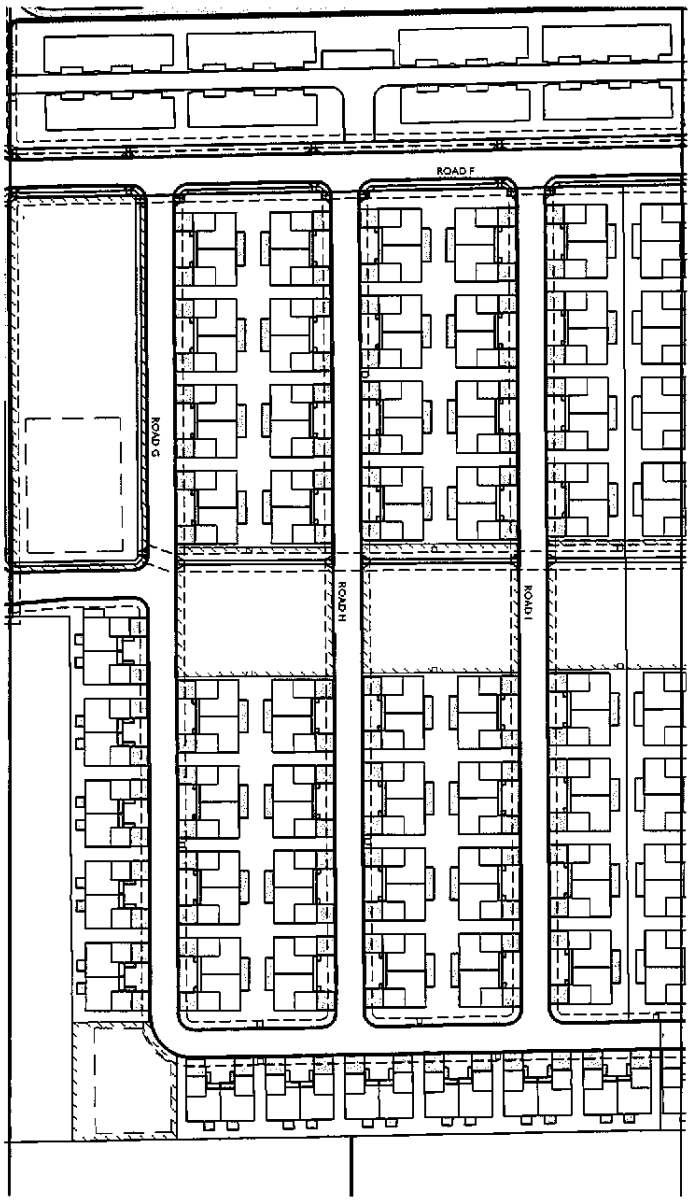
SITE INFO

SITE

NOTE: GRADES TO SLOPE AWAY FROM BUILDING A MIN OF 10' PER GEOTECHNICAL

1 SITE PLAN
SCALE: 1/16"=1'-0"



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A-LINE
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STRUCTURAL NOTES

GOVERNING CODES

INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION
AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 9TH EDITION
AMERICAN CONCRETE INSTITUTE, 318-14
AMERICAN SOCIETY OF CIVIL ENGINEERS, 7-16
AMERICAN WELDING SOCIETY D1.1 (LATEST)

DESIGN CRITERIA

SNOW LOAD: P_g = 30 PSF + 0 PSF DRIFT, P_f = 30 PSF, C_e = 1.0, I = 1.0, C_t = 1.0
WIND LOAD: V_{ult} = 115 MPH, V_{asd} = 89 MPH, EXP. C, RISK CATEGORY = II, K_{zt} = 1.0
SEISMIC:
DESIGN CATEGORY "A": I_e = 1.0, R_I = 1.0, S_s = 0.663
RESISTIVE SYSTEM: WOOD SHEARWALLS
SEISMIC DESIGN FACTORS: S_{DS} = 0.07, S_{D1} = 0.11, I_{DS} = 0.13, S_{M1} = 0.663, R = 6, C_d = 4.0
SIMPLIFIED BASE SHEAR PER CO. LAW LOAD FACTOR = 1
FLOOR LOAD: 40 PSF (LIVE), 10 PSF (DEAD), 65 PSF (SLAB)
FOUNDATION: ASSUMED BEARING CAPACITY PER SPECIFIED VALUE OR ASSOCIATED CAPACITY IN GEOTECHNICAL REPORT

GENERAL NOTES

- CONTRACTOR SHALL COORDINATE OPENINGS & EMBEDDED ITEMS NOTED ON CONSTRUCTION DOCUMENTS WITH APPROPRIATE TRADE.
- STRUCTURAL COMPONENTS SHALL BE TEMPORARILY BRACED IN PLANES TO RESIST EARTHQUAKE, WIND, SNOW, & LATERAL EARTH LOADS OR COMPLETION OF THE ENTIRE PLYWOOD ROOF SHEATHING, PLYWOOD IS DEEMED TO BE IN ROLE, or FLOOR FRAMING ARE IN PLACE & ISOLATED PROPERLY.
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH DRAWINGS AND SPECIFICATIONS FROM ALL OTHER DISCIPLINES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, NAILERS, INSERTS, ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- THE STRUCTURAL DRAWINGS INDICATE THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THIS STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK IS COMPLETED. WORK SEEN OR NOTED ON THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY, & INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DESIGNER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCE OF PROCEDURES TO PERFORM THE WORK, THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.
- LOADINGS APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THESE LOADINGS ARE SPECIFIED IN THE "DESIGN CRITERIA" PORTION OF THESE NOTES. DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.

CONCRETE

- ALL CONCRETE SHALL BE READY MIXED AND SUPPLIED IN ACCEPTANCE WITH SPECIFICATION REQUIREMENTS
- NO WATER SHALL BE ADDED TO MIX AT JOB SITE
- MINIMUM COVER REQUIREMENTS:
  CAST AGAINST EARTH = 3"
  FORMED WALLS = 1½"
  TOP OF SLAB = 1"
- CHAMFER ALL EXPOSED CORNERS ¾" UNLESS NOTED
- OPENINGS IN CONCRETE WALLS OF 2'-0" OR GREATER IN EITHER DIRECTION SHALL HAVE 2 - #4 BARS ALL SIDES & SHALL EXTEND 24" BEYOND OPENING
- COLD WEATHER CONCRETING GUIDELINES TO BE FOLLOWED PRIOR TO PERFORMING
- PLYLASH TYPE "P" or TYPE "C" MAY BE USED TO REPLACE NO MORE THAN 15% OF THE CEMENT CONTENT.
- 4" SLUMP MAX. 5-7% AIR ENTRAINED FOR ALL FOUNDATION & SLAB ON GRADE
- MAXIMUM AGGREGATE SIZE OF ¾" UNLESS NOTED OTHERWISE

MATERIALS:

ANCHOR RODS: ASTM F1554 GR.36
CONCRETE SLABS @ WATER TANK: 3500 PSI AT 28 DAYS
CONCRETE SLABS (GO IN TANK): 4,000 PSI AT 28 DAYS
ELSEWHERE: 3000 PSI AT 28 DAYS

CAST IN PLACE CONCRETE:

- CONCRETE MIXES SHALL BE DESIGNED PER ACI 318
- CONCRETE SHALL CONFORM TO THE FOLLOWING PROPERTIES:

CONCRETE LOCATION	MIN. f'c (28 DAYS)	SLUMP	W/C RATIO
ELEVATED SLABS	3,500 PSI	3" - 4"	0.45
FOUNDATIONS	3,500 PSI	3" - 4"	0.5
INTERIOR SLAB ON GRADE	4,000 PSI	3" - 4"	0.5

AT CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO PRODUCE FLOWABLE CONCRETE. MAXIMUM SLUMP SHALL NOT EXCEED 10 INCHES. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S TECHNICAL DATA FOR APPROVAL PRIOR TO POURING CONCRETE.

ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318
HOT WEATHER CONCRETING PER ACI 305
COLD WEATHER CONCRETING PER ACI 306

ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO PLACING OF CONCRETE, EXCEPT THE VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "TUCKED" IN PLACE. DO NOT TIED BAND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER.

REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH ACI 315

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO ENSURE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORTING AND RESHORING

REINFORCING STEEL:

- LAP REQUIREMENTS: 33 BAR DIAMETERS (CONCRETE) 40 BAR DIAMETERS (MASONRY)
- CORNER BARS REQUIRED AT FOUNDATION WALL LOCATIONS OF SOFT & MAJOR OF HORIZONTAL WALL SPLITS AT ALL CORNERS & INTERSECTIONS
- REBAR NOT TO BE WELDED UNLESS ASTM A706 GRADE REBAR IS PROVIDED
- REBAR SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE.
- DOUBLE MAT IF USED IN SLABS FOR PROPER PLACEMENT
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185-97, CENTERED IN SLAB
- REINFORCING BARS:
  #4 THRU #18 BARS - ASTM A615 - GRADE 60
  #2 & #3 BARS - ASTM A615 - GRADE 40
- WELDED WIRE FABRIC (WWF) - ASTM A185

FOUNDATION BEARING NOTES:

- FOUNDATION PREP SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT. GEOTECHNICAL RECOMMENDATIONS SUPERSEDE ALL GENERIC RECOMMENDATIONS BELOW. THE FOLLOWING GUIDELINES ARE ONLY TO BE UTILIZED IF A GEOTECHNICAL REPORT IS NOT PROVIDED.
- ASSUME BASE BENEATH SLAB PER GEOTECHNICAL REPORT.

- SOILS BENEATH FOOTINGS & SLABS TO BE PROTECTED FROM FREEZING DURING CONSTRUCTION.
- MOISTURE CONTENT AND/OR THE ENTRAINED WATER SHALL BE PURGED TO PREVENT SURFACE WATER BUILD-UP DURING ALL PHASES OF CONSTRUCTION.
- PRIOR TO PLACEMENT OF STRUCTURAL MATERIALS, GRAVELS, SAND, & CONCRETE & MASONRY, EXISTING SOILS TO A DEPTH OF 12" BELOW BOTTOM OF EXISTING FOOTINGS MAY REMAIN.
- ANY STRUCTURAL FILL REQUIRED BENEATH FOOTINGS AND/OR SLABS SHALL BE TO THE SPECIFICATION OF THE GEOTECH OR REPORT FOR THE PROJECT. EXCAVATIONS TO VERIFY BEARING CONDITIONS.

POTENTIAL STRUCTURAL SETTLEMENT GIVEN IN GEOTECHNICAL REPORT IS ASSUMED TO BE ACCEPTABLE TO OWNER.

CONCRETE (CONT.)

CONCRETE SLAB NOTES:

- MAXIMUM CONCRETE SLUMP FOR ALL SLABS SHALL BE 5".
- ALL WELDED WIRE FABRIC SHALL BE IN ACCEPTANCE WITH ASTM A185. LAP ADJOINING PIECES AT LEAST ONE FULL MESH.
- SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THIS SHALL NOT BE AS LATE AS POSSIBLE, PREFERABLY 4-6 WEEKS AFTER THE SLAB HAS BEEN CAST, PRIOR TO FINISHING. BEFORE ALL DEBRIS FROM SLAB JOINTS, THEN FILL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS:
  - 6" OR BELOW SLAB FILL JOINTS WITH EPOXY RESIN
  - 6" - 8" SLAB CONTROL JOINTS FILL WITH FIELD POURED OR ELASTOMERIC SEALANT
- EXPANSION SLABS SHALL BE SHOWN ON THE STRUCTURAL DRAWINGS. SPECIFICAL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR SLAB LOCATIONS, THICKNESS AND REINFORCING.
- THE USE OF POLYPROPYLENE FIBERS IN LIEU OF WELDED WIRE FABRIC IS PROHIBITED.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CONCRETE CURBS. CURB SLAB ACCELERATION TO CURBS

FOUNDATION NOTES:

ALL REINFORCING IN WALL CONTINUOUS (CONT.) OR THE BARRIER SHALL BE LAPPED 36 BAR DIAMETERS AT CORNERS AND CONCAVE BACKFILL SHALL BE DONE UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING EITHER BY TEMPORARY BRACING OR BY PERMANENT CONSTRUCTION.
ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL FULL HEIGHT OF WALL, PROVIDE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 15'-0" OR 2 TIMES THE WALL HEIGHT.

WOOD FRAMING

- ALL WOOD FRAMING MATERIALS SHALL BE SURFACE DRIED WITH A MAXIMUM OF 19% MOISTURE CONTENT.
- ALL UPPER FLOOR OR ROOF FRAMING SHALL BE BRACED AT MIDSPAN AND NO MORE THAN 8'-0" CENTERS WITH FULL DEPTH BLOCKING.
- ALL FRAMING EXPOSED TO THE WEATHER OR EXPOSED TO CONCRETE OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS.
- BOLT HOLES SHALL BE CAREFULLY DRILLED NOT OVER 1/16" LARGER THAN THE BOLT DIAMETER. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BUT NOT TO THE EXTENT OF CRUSHING THE WOOD UNDER WASHERS.
- WOOD TO STEEL SHALL BE BOLTED WITH A307 NOT LESS THAN WASHER BOLTS.

WOOD TRUSSES:

- ROOF TRUSS DESIGN LOADS ARE 30 PSF SNOW + 8 PSF DEAD TOP CHORD & 7 PSF DEAD BOTTOM CHORD. ADDITIONALLY, BOX FOR DRIFTING SHALL BE DESIGNED FOR 10 PSF ATTIC LIVE LOAD (RESERVE ATTIC NOTES SHALL BE STRUCTURE THAN 100 SQ.FT.)
- FLOOR TRUSS DESIGN LOADS ARE 40 PSF LIVE + 10 PSF DEAD TOP CHORD & 7 PSF DEAD LOAD BOTTOM CHORD.
- TRUSS SUPPLIER TO PROVIDE CONTRACTOR WITH SHOP DRAWINGS PRODUCED IN THIS SUBMITTAL ARE STRESS DIAGRAMS, CONNECTOR DESIGNATIONS AND BRACING AND/OR BLOCKING REQUIREMENTS.
- ROOF TRUSS ONLY, TRUSS MANUFACTURER IS TO PROVIDE INSTRUCTIONS TO CONTRACTOR FOR INSTALLATION OF HUMAN-FACTURED TRUSS UNITS.
- TRUSS DRAWINGS ARE DIAGRAMMATICAL & ARE THEREFORE INTENDED TO ESTABLISH OUTLINES OF TRUSS CONFIGURATIONS.
- TRUSS DESIGN TO ACCEPT WIND SECTION AT EACH END AS STRUCTURE DUE TO DEAD, LIVE, AND WIND LOADS SHALL BE CONSIDERED BY THE MANUFACTURER.
- TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, OR ALTERED IN ANY WAY WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- WOOD TRUSSES SHALL BE ERECTED IN ACCORDANCE WITH THE TRUSS MANUFACTURER'S REQUIREMENTS BY AN EXPERIENCED CONTRACTOR.

WOOD STUD WALLS:

- PROVIDE FULL DEPTH BLOCKING AT MID-HEIGHT ALL INTERIOR BEARING STUD WALLS
- PROVIDE 2x BLOCKING AT 48" BEARING PANEL JOINTS IN SHEAR WALLS
- BEARING WALLS TO HAVE DOUBLE (2ND) 2x6 TOP PLATES W/ STAGGERED SPLICES UNLESS NOTED OTHERWISE.
- ADDITIONAL WALL PLATES OR VERTICAL STUDS IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.
- PROVIDE 2x6 @ 16" O.C. VERTICAL FRAMING AT ALL BEARING & EXTERIOR WALLS UNLESS NOTED OTHERWISE.

PLYWOOD AND OSB SHEATHING:

- ALL PLYWOOD AND OSB CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS
- PARTIAL PLYWOOD OR OSB PANELS WITH THE LONG DIMENSION OF THE PANELS ACROSS THE SUPPORTS AND WITH THE PANEL CONTINUOUS OVER TWO OR MORE SPANS. STAGGER FACE BLOCK JOINTS. ALLOW ¼" SPACING BETWEEN PANEL ENDS & EDGES UNLESS OTHERWISE RECOMMENDED BY PANEL MANUFACTURER.
- PROVIDE DE-STACKING AT UNSUPPORTED PANEL EDGES AS FOLLOWS:
  ROOF AND FLOORS = AT ALL UNSUPPORTED EDGES
  WALLS = ALL EXTERIOR WALLS AND INTERIOR WALLS AS SHOWN ON PLANS

MATERIALS:

STRUCTURAL FRAMING:
LUMBER - #1 MIN (TYP.) F_b = 975 PSI, F_v = 150 PSI, E = 1.5x10⁶ PSI
(NO FRAMING #1 MIN WITH E (CONSTRUCTION GRADE) F_b = 875 PSI, F_v = 135 PSI, E = 1.3x10⁶ PSI
LVL BEAMS
1.9E = F_b = 2,325 PSI, F_v = 310 PSI, E = 2.0x10⁶ PSI
1.9E W.B.U.= F_b = 2,325 PSI, F_v = 310 PSI, E = 2.0x10⁶ PSI
GLULAM BEAMS (NO ORIENTATION) F_b = 2,400 PSI, F_v = 290 PSI, E = 1.8x10⁶ PSI
POSTS: HEATER #1

WOOD FRAMING (CONT.)

NAILING SCHEDULE

CONNECTION	ATTACHMENT
JOIST TO SILL OR GIRDER, TOENAIL	(3)-16d
BLOCKING TO JOIST, TOENAIL EACH END	(2)-16d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	(2)-16d TOENAILS
TOP PLATE TO STUD, END NAIL	(2)-16d
STUD TO SOLE PLATE	(4) OR TOENAIL or (2) PLATE NAIL
DOUBLE STUDS, FACE NAIL	(1) @ 24"O.C.
DOUBLE TOP PLATES, FACE NAIL	(1) @ 16"O.C.
BUILT-UP STUD PIERS	AS REQ'D
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(2)-16d
CEILING JOIST TO HEADER, TOE NAIL	(4)-8d
ROOF RAFTERS TO PLATE, TOENAIL	(3)-16d
CEILING JOISTS TO PLATE, TOENAIL	(3)-16d
ROOF RAFTERS TO CEILING JOIST, FACE NAIL	(5)-16d
ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS, TOENAIL	(4)-16d
BUILT-UP CORNER STUDS	(3)-16d
BUILT-UP GIRDER BEAMS	(3)-16d @ 32"O.C.
½" (1/2") OSB/PLYWOOD SHEATHING (USE 8" SPACING AT EDGES IF CANTILEVER CONFIGURATION) AT PANEL EDGE WITH 6" PLYCLIP BETWEEN EACH RAFTER)	6d @ 6"O.C. - 3 ROWS 6d @ 12"O.C. @ INTERMEDIATE FRAMING OR 16 GA MSG STAPLES @ 4"O.C. @ PANEL EDGES & 12"O.C. @ INT. (STAPLES MAY PENETRATE ALL BEARING MEMBERS AND BLOCKING)
½" (1/2") OSB/PLYWOOD SHEATHING (ALLOWS 1 CONTINUOUS HEAD OF CONSTRUCTION ADHESIVE)	6d @ 6"O.C. @ EDGES 6d @ 12"O.C. @ INTERMEDIATE FRAMING
25GA PREPAINTED METAL SIDING AS REQUIRED	FOR DRAINING PLATTEN SIDING W/ RESPONSE TO SATISFY LOADING REQUIREMENTS WASHER - 1 PER FLAT AT BOUNDARIES & 1 PER PLATE AT INTERMEDIATE SUPPORTS WITH 1½" MINIMUM PENETRATION INTO WOOD FRAMING
½" (1/2") HPA AND PLYWOOD	10d COMMON @ 6"O.C. @ PANEL EDGES & 12"O.C. @ INTERMEDIATE FRAMING OR SCREWS WHERE MOISTURE MAY ACCUMULATE (GALVANIZED NAILING)

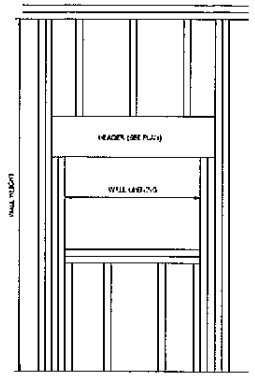
BEARING STUD SCHEDULE

EXTERIOR WALL OPENING WIDTH RANGES

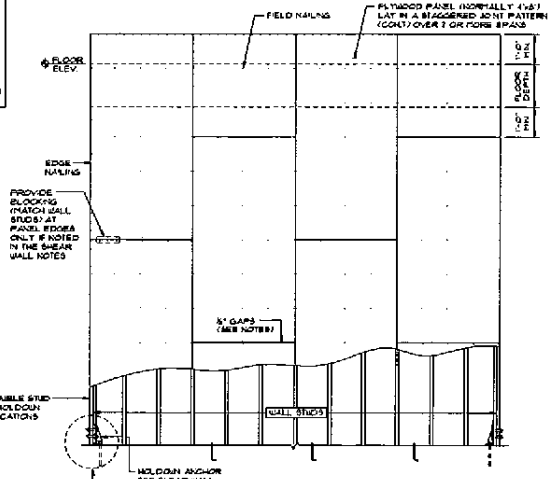
VALUE = # BEARING TRIMMER STUDS / # OF FULL HEIGHT KING STUDS								
WALL HEIGHT	3'-0"		10'-0"		11'-0"		12'-0"	
WALL OPENING								
3'-0"	1	1	1	1	1	1	1	2
4'-0"	1	1	1	1	2	1	1	2
5'-0"	1	1	1	2	2	1	2	2
6'-0"	1	2	2	2	2	2	2	2
7'-0"	2	2	2	2	2	2	2	2
8'-0"	2	2	2	2	2	2	3	3
9'-0"	2	2	3	2	2	3	3	3
10'-0"	3	3	3	2	3	3	3	3
11'-0"	3	3	3	3	3	3	3	4
12'-0"	3	3	3	3	3	3	3	4

TABLE VALUES ASSUME:

- TABLE VALUES ASSUME 30 PSF SNOW LOAD AND 115 MPH EXP. "C" ULT. WIND RESISTANCE
- SPACING OF 24" O.C. OR BETTER
- WALL BEARING ROOF TRUSSES (ONLY) SPACING 24" O.C. OR LESS WITH 2-2"X12" BEAMS
- FRAMING SPECIFIED IN TABLE ONLY TO BE USED IF INFORMATION IS NOT SHOWN ON PLANS
- WHERE MULTIPLE STUDS TO BE STITCHED TOGETHER W/ SIMPSON SDWS SCREWS @ 12"O.C. WITH LENGTH NECESSARY TO ENGAGE ALL MEMBERS.



NOTE: SEE SHEAR WALL SCHEDULE FOR NAILING WHICH REPEATS THE USE OF STAPLES EQUIVALENTS CAN BE SUBSTITUTED FOR APPROVAL. TEK SCREWS TO BE SUBSTITUTED FOR NAILS IN WALLS FRAMED W/ LIGHT GAUGE STEEL MATERIAL. SEE SHEAR WALL NOTES FOR SIZE & SPACING OF SCREWS



ELEVATION SHEAR WALL

4067789 DCL
02/09/2024 03:01 PM Page 58 of 84
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(406)321-2280
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BILLINGS MT, 59101

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DUPLEX
OPTION C (2 BED)
STRUCTURAL

PRELIMINARY

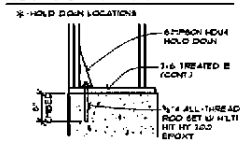
SET
ISSUED:
CHECKED BY:

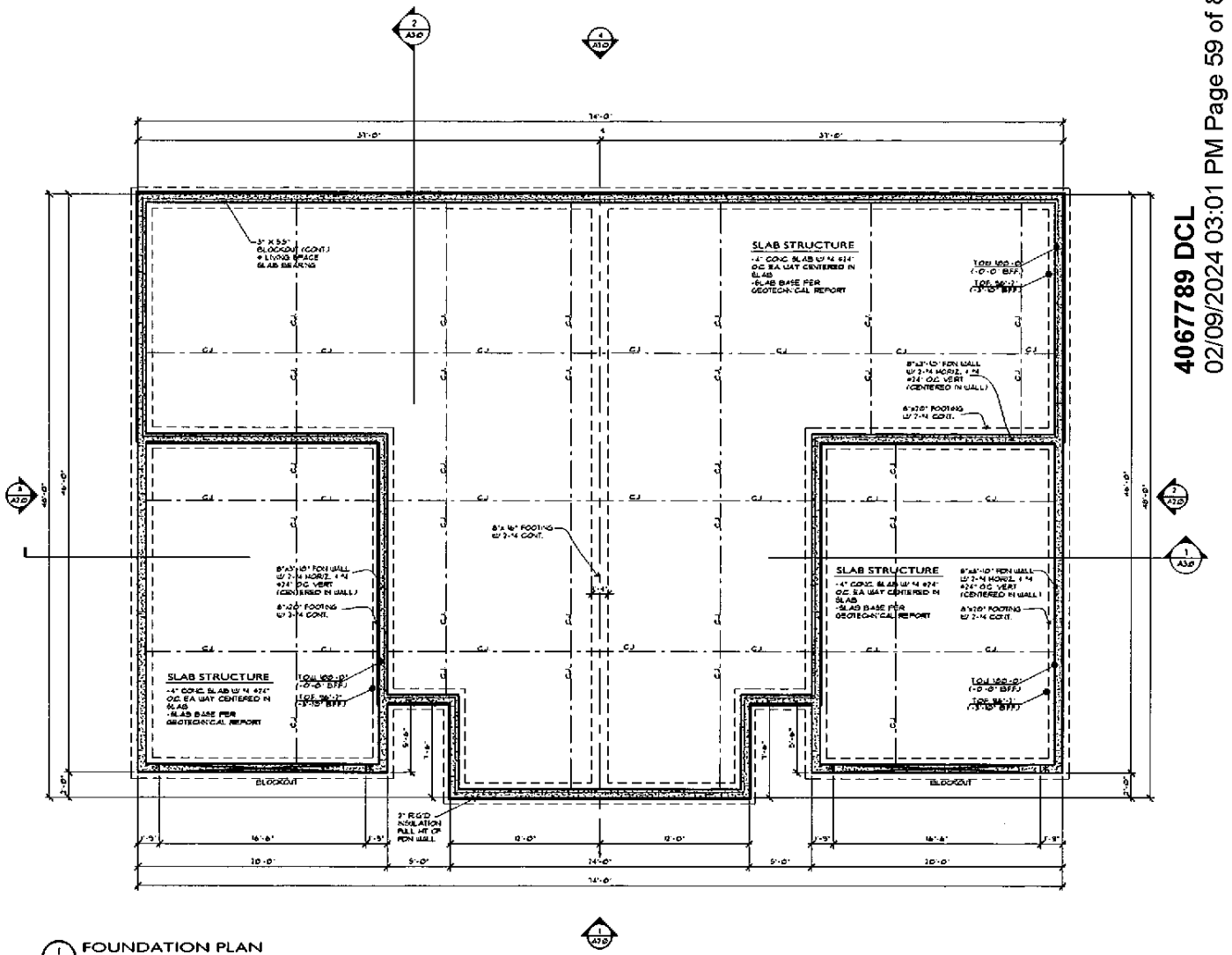
STRUCTURAL
SHEET
ST0.0

GENERAL NOTES:

- ALL STRUCTURAL INFORMATION TO BE VERIFIED W/ STRUCTURAL ENGINEER
- ALL ELEVATIONS ARE IN REFERENCE TO FINISHED FLOOR ELEVATION OF 100'-0"
- T.O.W. = TOP OF WALL
- T.O.F. = TOP OF FOOTING
- (C) = 1" DEEP SAWCUT CONTROL JOINT @ 17'-0" O.C. MAX.
- REINF. FOUNDATION

HOLD DOWN DETAIL





1 FOUNDATION PLAN
SCALE: 1/4"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 59 of 84
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JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT. 59101

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DUPLEX OPTION C (2 BED)

FOUNDATION PLAN

SHEET
ST1.0

GENERAL NOTES:

- ROOF TRUSS LAYOUT IS FOR DESIGN REFERENCE ONLY
- CONTRACTOR TO VERIFY ROOF FRAMING W/ MANUFACTURED ENGINEERED TRUSSES
- BLOCKED WALLS REPRESENT BEARING WALLS
- ALL HEADERS AND STRUCTURAL COMPONENTS TO BE VERIFIED
- PRE-ENGINEERED TRUSS @ 24" O.C. PER MANUFACTURER
- 7/16" OSB PANELS STITCHED TOGETHER W/ 8D @ 6" EDGE SPACING AND 12" FIELD SPACING
- PROVIDE 5/8" PANELS BELOW GABLE END TRUSSES BEARING ON TILE SHED TO MATCH TRUSS PLY'S
- PRE-ENGINEERED TRUSS CONNECTIONS BY MFG. SHOWN ON TRUSS SHOP DRAWINGS
- ROOF SHEATHING TO BE INSTALLED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS WITH 8D COMMON NAILS @ 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS
- 1/16" MIN. GAP BETWEEN ROOF SHEATHING PANELS
- 1/8" MIN. GAP BETWEEN ROOF SHEATHING PANELS AND VERTICAL SURFACES SUCH AS WALLS, PARAPETS, CHIMNEYS, AND OTHER ROOF PENETRATIONS
- 1/4" MIN. GAP BETWEEN ROOF SHEATHING PANELS AND VERTICAL SURFACES SUCH AS WALLS, PARAPETS, CHIMNEYS, AND OTHER ROOF PENETRATIONS
- 1/16

2 STOREY DUPLEX OPTION D

TRAIL RIDGE TOWNHOMES

BILLINGS MONTANA

CONTACT

Corey Klein
PI Consulting, L.L.C.
Mobile: 406.861.3810
Email: clein@pinnaclecompanies.com
Web: http://pinnaclecompanies.com

OWNER

INDEX OF DRAWINGS

T1.0	TITLE
S1.0	SITE PLAN
A1.1	MAIN LEVEL PLAN
A1.2	UPPER FLOOR PLAN
A2.0	ELEVATIONS
A2.1	ELEVATIONS
A3.0	BUILDING SECTIONS
A3.1	WALL SECTIONS
ST0.0	GENERAL STRUCTURAL NOTES
ST1.0	FOUNDATION PLAN
ST1.1	FRAMING PLAN
ST2.0	ROOF FRAMING PLAN

SPECIAL INSPECTION

SOILS TO BE INSPECTED BY "RIMROCK ENGINEERING" PRIOR TO PLACEMENT OF FOOTINGS

CODE ANALYSIS

-OCCUPANCY: R-3 (BUILDINGS THAT DO NOT CONTAIN MORE THAN TWO DWELLING UNITS)
-TYPE OF CONSTRUCTION: V-B
-2HR RATED SEPARATION REQUIRED BETWEEN UNITS
-EACH UNIT TO HAVE ITS OWN ELECTRICAL SERVICE

SITE INFO

Certificate of Survey: 983 Parcel 2C
Full Legal: S10, T01 S, R25 E, C.O.S. 983, PARCEL 2C, AMD **ANNEXED** (32)

ZONING: N2-Mid-Century Neighborhood

STORM WATER DRAINAGE NOTE:

PER SWMM 2.1.1, DOWNSPOUTS AND DRAINAGE FLOW PATHS AS SHOWN ON PLAN.
PER SWMM 2.1.3, MINIMUM LENGTH OF 15' FROM HARD SURFACES AT 5% OR LESS SLOPE FOR LAWN AND 10' OR LESS FOR OTHER PERVIOUS AREAS PRIOR TO REACHING THE PROPERTY LINE

DUE TO THE EXISTING TOPOGRAPHY AND NATURAL DRAINAGE FEATURES PRESENT ON THIS SITE, ALL EFFORTS SHOULD BE MADE KEEP SITE DRAINAGE AS NATURAL AS POSSIBLE. NO ATTEMPTS SHOULD BE MADE TO REDIRECT WATER TOWARDS ANY NEW OR UNNATURAL DRAINAGE AREAS OR ADJACENT PROPERTIES.

ALL DOWNSPOUTS AND STORM WATER RUNOFF FROM THE CONSTRUCTED AREAS SHALL BE CONTROLLED AND DIRECTED TO DRAIN TO THESE NATURAL DRAINAGE AREAS. ALL PERIMETER AREAS TO BE UNALTERED IN EFFORTS TO MAINTAIN THE NATURAL DRAINAGE PATTERNS

FINISHED GRADE TO SLOPE AWAY FROM FOUNDATION WALLS A MINIMUM GRADE OF APPROXIMATELY 10 PERCENT FOR AT LEAST 10 FEET FROM PERIMETER WALLS (PER GEOTECH)

DRAFTSTOPS

R302.12 DRAFTSTOPPING

IN COMBUSTIBLE CONSTRUCTION WHERE ATTIC IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR-CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1000 SQUARE FEET. (N1310) DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR ABOVE AS WELL AS A CEILING BELOW. DRAFTSTOPPING SHALL BE INSTALLED IN FLOOR CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:
CEILING IS SUSPENDED UNDER THE FLOOR FRAMING.
FLOOR FRAMING IS CONSTRUCTED OF TRUSSES OR WEB OR PERFORATED MEMBERS.

CONTRACTOR NOTES

1. CONTRACTOR SHALL VERIFY ALL SITE DIMENSIONS & LOCATION PRIOR TO CONSTRUCTION
A. VERIFY THAT ALL INFORMATION WITHIN THIS PLAN SET IS CONSISTENT WITH OBSERVED EXISTING CONDITIONS
B. ENSURE COMPLIANCE WITH LOCAL CODES & ORDINANCES AS IT PERTAINS TO THE SITE LOCATION
2. CONTRACTOR TO VERIFY THAT BEAM/HEADER SIZES HAVE BEEN PROPERLY DETERMINED FOR SITE LOADING IN THE AREA WHERE THIS STRUCTURE IS TO BE BUILT.
3. REFER TO ENGINEERED ROOF TRUSS LAYOUT FOR INFORMATION REGARDING STRUCTURAL LOADING DATA USED TO DESIGN THIS STRUCTURE. (DATA TO BE PROVIDED BY THE DISTRIBUTORS OF THE RESPECTIVE TRUSS/FLOOR JOIST SUPPLIERS.)
4. CONTRACTOR TO VERIFY WITH ANY DESIGN REQUIREMENTS OVER UNDISTURBED SOIL.
5. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION OF ALL FOOTING SIZES, LOAD REQUIREMENT, SOIL BEARING DATA, & REQUIREMENTS
6. CONTRACTOR SHALL PROVIDE SUBSTITALS TO OWNER AND ARCHITECT PRIOR TO CONSTRUCTION FOR ALL EXTERIOR MATERIALS, COLORS & TYPES.
7. CONTRACTOR TO VERIFY LOCATION OF SMALL SOIL SURFACES THAT REQUIRE FOUNDATION ADJUSTMENTS
8. CONTRACTOR TO PROVIDE PROTECTION FOR ALL AREAS REQUIRING GLAZE IN WITH SAFETY MATERIALS
9. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL DETAILS REGARDING PRODUCTS INCORPORATED, INSTALLATION AND OPERATING DATA THAT MAY BE REQUIRED BY OWNER OR BUILDING DEPARTMENT WHEN OBTAINING PERMITS
10. BUILDING SHALL HAVE APPROVED ADDRESS NUMBERS. THE NUMBERS SHALL BE CONTRASTED WITH THE BACKGROUND. NUMBERS SHALL BE 4" HIGH WITH A MINIMUM STROKE WIDTH OF 1/2". ARABIC OR ALPHABETICAL LETTERS IN A VISIBLE AREA.

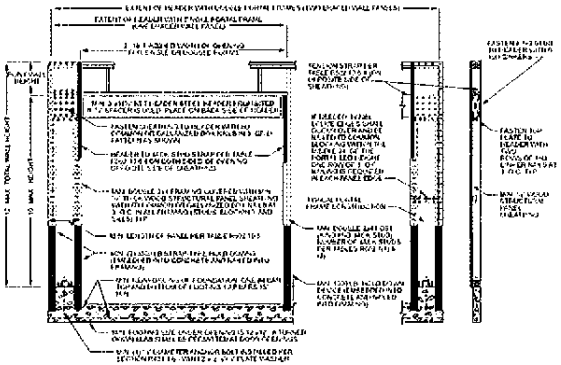
GENERAL NOTES

1. ALL CONSTRUCTION TO COMPLY WITH IBC, IRC, ADA & FAIR HOUSING, AS WELL AS ALL OTHER LOCAL & NATIONAL CODES THAT MAY APPLY INCLUDING AMENDMENTS
2. CIVIL PLANS ARE BY CIVIL ENGINEER.
3. PLUMBING, GAS AND ELECTRICAL SIZING TO BE DESIGN BUILD BY CONTRACTOR
4. MAXIMUM CLOTHING DRYER EXHAUST DUCT TO BE 35'-0" REDUCE BY 2'-5" FOR EACH 45 ELBOW, & 5'-0" FOR EVERY 90° ELBOW OR PER MANUFACTURER INSTRUCTIONS
5. CONTRACTOR SHALL LOCATE A 22"X 30" ATTIC ACCESS NOTED
6. SLOPE GRADE AWAY FROM FOUNDATION WALLS AT A MINIMUM GRADE OF APPROXIMATELY 10 PERCENT FOR AT LEAST 10 FEET FROM PERIMETER WALLS (PER GEOTECH)
7. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALL AND ROOF THROUGH JOINTS IN COPINGS, MOISTURE PERMEABLE MATERIALS, AND OTHER PENETRATIONS THROUGH THE ROOF PLANE.
8. NET FREE ATTIC VENTILATION TO BE 1/150 OF THE AREA TO BE VENTED WITH 1/3 - 1/2 LOCATED IN THE UPPER ATTIC POSITION. (IRC 1202.2)
9. AN ICE BARRIER CONSISTING OF AT LEAST TWO LAYERS OF UNDERLAYMENT CEMENTED TOGETHER OR 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" INSIDE THE EXTERIOR WALL LINE OF THE BUILDING (R905.2.7.1)
10. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGE CEILING BENEATH HABITABLE ROOMS SHALL BE SEPARATED BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT (R302.6)
11. WHERE CERAMIC TILE IS USED CEMENT, FIBER CEMENT OR GLASS MAT GYPSUM BACKER IN COMPLIANCE WITH CODE AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHALL BE USED AS A BASE FOR TILE IN TUB AND SHOWER AREAS AND WALL PANELS IN SHOWER AREAS. (R702.4.2)
12. INFORMATION FOUND ON THESE ADOPTED CODES SHALL GOVERN FOR PLAN FOUND & SPECIFICATIONS WHERE DISCREPANCIES OR CONFLICTS OCCUR.

PORTAL FRAME

PORTAL FRAME PER ASCE 7-10 4.2

ASCE 7-10 4.2 Method 1 Wall Portal Frame With Roof Beam



FRONT ELEVATION SECTION

WALLS AND INTERIOR PARTITIONS, WOOD-FRAMED

GA FILE NO. WP 3520	GENERIC	2 HOUR FIRE	65 to 69 STC SOUND
GYPSUM WALLBOARD, WOOD STUDS			

Base layer 5/8" type X gypsum board, screw fastened vertically at 12" o.c.
Stud, 2x4 (38x89) wood studs at 16" o.c. with 1 row of 1" (25) thick fiberglass batt insulation.
Face layer 5/8" type X gypsum board, screw fastened vertically at 12" o.c. with 1 1/4" (32) long screws.
Joints taped and filled.

Note: Assembly is load-bearing. Sound rating based on 2 1/2" (64) glass fiber batt insulation in cavity. Use of resilient channel on one side of wall improves sound rating to STC 52. Use of resilient channel on both sides of wall improves sound rating to STC 56. (LOAD-BEARING)

Thickness 4 3/4" (121)
Approx. Weight 6 psf (29 kg/m²)
Fire Test Design No. U305 in UL Fire Resistance Directory
(Fire Test: ASTM E 119)
Sound Test RSIC Report 1778

FIREBLOCKING

R302.11 FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET. (3048 MM).
AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
2. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
3. AT OPENINGS AROUND VENTS, PIPE DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1001.9.

4067789 DCL
02/09/2024 03:01 PM Page 61 of 84
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JEFF WOLLSCHLAGER
(406) 321-2280
225 GRAND AVE
BILLINGS MT. 59101

PAGE:

2 STORY DUPLEX OPTION D

TITLE/ SITE

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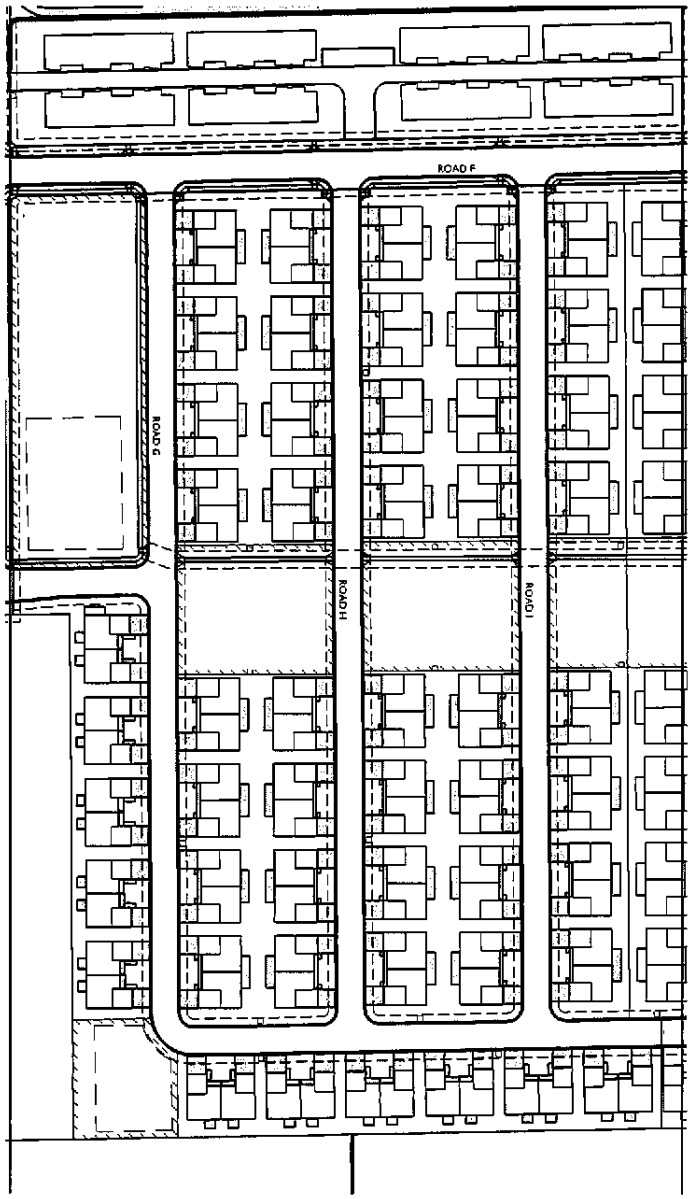
CHECKED BY:

SHEET

T1.0

1 SITE PLAN
SCALE: 1/16"=1'-0"



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(406) 321-2280
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4067789 DCL
02/09/2024 03:01 PM Page 63 of 84
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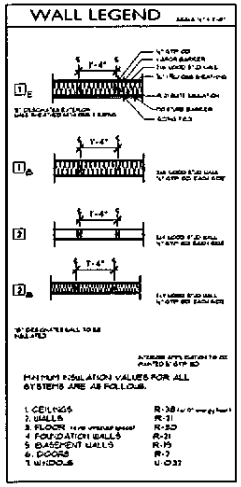
NOTES

- ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING. WINDOWS AND DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS NOT DIMENSIONED TO BE CENTERED IN SPACE PROVIDED.
- ALL MAIN LEVEL INTERIOR DOOR HEIGHTS TO BE 6'-8".
- EXTERIOR DOOR & WINDOW HEIGHTS TO BE 6'-8" A.F.F.

WALL LEGEND



MINIMUM INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS:

1. CEILINGS	R-38
2. WALLS	R-21
3. FLOOR	R-30
4. FOUNDATION WALLS	R-21
5. BASEMENT WALLS	R-15
6. DOORS	R-3
7. WINDOWS	U-0.32

- (F) EXHAUST FAN, 100CFM INTERMITTENT IN KITCHENS, 50 CFM BATHROOMS TO LET ROOMS INTERMITTENT
- (SD) SMOKE DETECTOR. (SMOKE DETECTORS WITHIN 20' OF A COOKING APPLIANCE MUST BE THE ALARM SILENCING TYPE)
- (HB) HOSE BIB (VERIFY EXTERIOR LOCATION)
- (C) CARBON MONOXIDE DETECTOR
- SG SAFETY GLAZING
- FD FLOOR DRAIN

AREA

AREA
1003 SQ. FT. MAIN LEVEL LIVING
1074 SQ. FT. UPPER LEVEL LIVING
451 SQ. FT. GARAGE
138 SQ. FT. FRONT COVERED ENTRY
186 SQ. FT. REAR COVERED PATIO
NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

LIGHTING NOTE:

ILLUMINATED STAIRWELL IRC R303.7 REQUIRES NOT LESS THAN 1 FOOT-CANDLE (11 LUX) AT 0' A WALL SWITCH AT EACH FLOOR LEVEL TO CONTROL THE LIGHT SOURCE.

UFER GROUND

A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED IN THE FOOTING.

SMOKE DETECTORS

SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS, IN BASEMENTS, AND ON EACH STORY.

FUEL BURNING APPLIANCES

FUEL BURNING APPLIANCES, WHERE OPEN COMBUSTION AIR DUCTS TO OUTSIDE COMBUSTION AIR TO OPEN COMBUSTION FUEL BURNING APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH IRC 2018 M1701.1

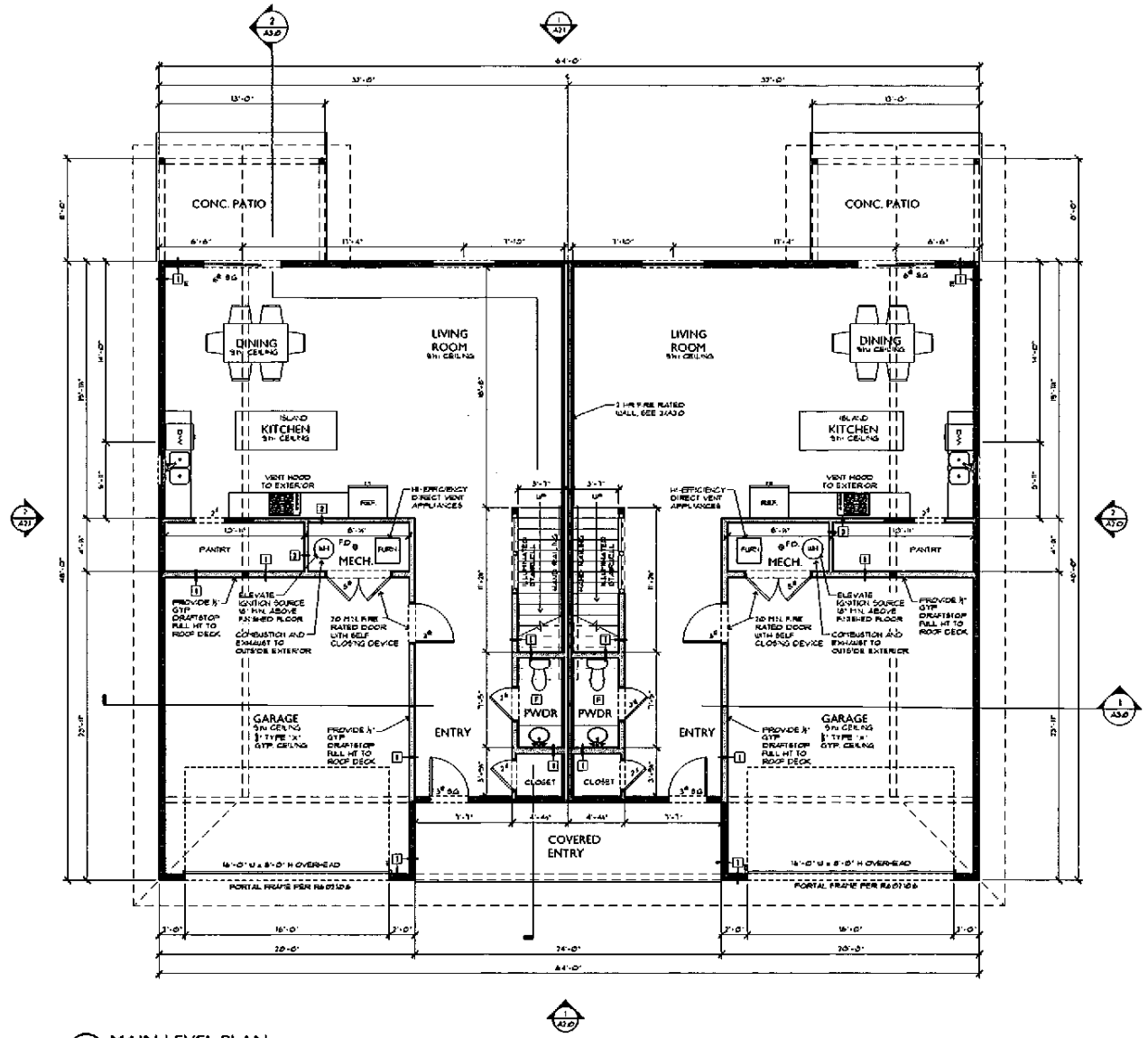
MECH. VENTILATION

IMC 403.3 KITCHEN AND BATHROOM EXHAUST FANS
KITCHEN TO BE 100CFM INTERMITTENT
BATHROOMS TO BE 50CFM INTERMITTENT

IMC 2018 TABLE M1506.4.3(1) CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE @ <1,501 SF (3) BEDROOM = 15 CFM I.E. INTERMITTENT WHOLE HOUSE VENTILATION SEE TABLE M1506.4.3 (3)

- THE WHOLE HOUSE VENTILATION SYSTEM SHALL CONSIST OF AN OUTDOOR AIR DUCT CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER TO PROVIDE SUPPLY VENTILATION

R303.1 MECHANICAL VENTILATION
BLOWER DOOR TEST LESS THAN 3.5 AIR CHANGES AN HOUR WILL REQUIRE WHOLE HOUSE VENTILATION



1/A1 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

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JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT. 59101

PAGE 3

2 STORY DUPLEX
OPTION D

MAIN LEVEL PLAN

SET

MAIN LEVEL PLAN

SHEET
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4067789 DCL
02/09/2024 03:01 PM Page 64 of 84
eRecorded For Yellowstone County, MT

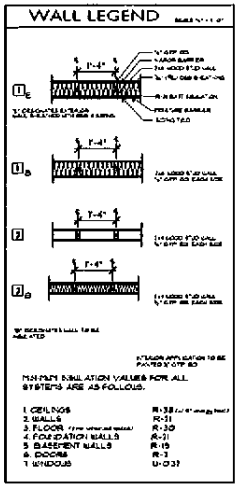
NOTES

ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING. WINDOWS AND DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS NOT DIMENSIONED TO BE CENTERED IN SPACE PROVIDED

ALL MAIN LEVEL INTERIOR DOOR HEIGHTS TO BE 6'-8"

EXTERIOR DOOR/ WINDOW HEIGHTS TO BE 6'-8" AFF.

WALL LEGEND



MINIMUM INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS:

1. CEILINGS	R-38
2. WALLS	R-21
3. FLOOR	R-30
4. FOUNDATION WALLS	R-21
5. BASEMENT WALLS	R-19
6. DOORS	R-3
7. WINDOWS	U-0.27

(F) EXHAUST FAN, 50CFM INTERMITTENT KITCHENS, 20 CFM BATHROOMS/ TO LET ROOMS INTERMITTENT

(SD) SMOKE DETECTOR, (SMOKE DETECTORS WITHIN 20' OF A COOKING APPLIANCE MUST BE THE ALARM SILENCING TYPE)

(HB) HOSE BIB (VERIFY EXTERIOR LOCATIONS)

(C) CARBON MONOXIDE DETECTOR

SG SAFETY GLAZING

FD FLOOR DRAIN

AREA

AREA
1001 SQ FT. MAIN LEVEL LIVING
1071 SQ FT. UPPER LEVEL LIVING
461 SQ FT. GARAGE
184 SQ FT. MAIN COVERED ENTRY
186 SQ FT. REAR COVERED PATIO
NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

LIGHTING NOTE:

ILLUMINATED STAIRWELL (IRC R303.7 REQUIRES NOT LESS THAN 1 FOOT-CANDLE (11 LUX) AND A WALL SWITCH AT EACH FLOOR LEVEL TO CONTROL THE LIGHT SOURCE

UFER GROUND

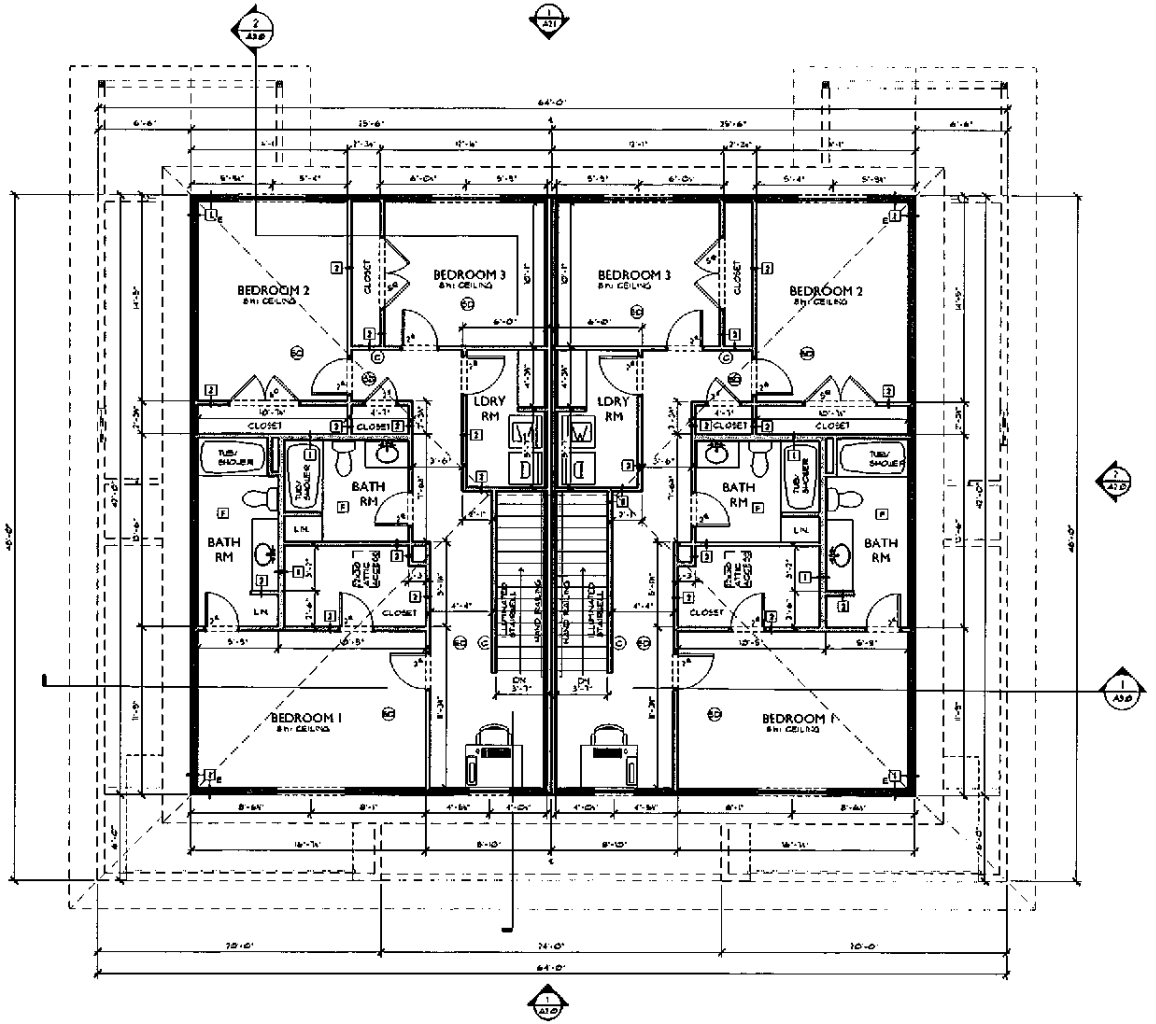
A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED IN THE FOOTING

SMOKE DETECTORS

SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS, IN BASEMENTS, AND ON EACH STORY

EGRESS WINDOWS

EGRESS WINDOWS @ UPPER LEVEL TO HAVE A MIN NET CLEAR OPENING OF 5.7 SQ. FT. WITH A MIN HEIGHT OF 24" & A MIN WIDTH OF 20". 44" A.F.F. TO OPEN TO MAX.



1 / A1.1 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

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JEFF WOLFE HEAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT, 59101

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2 STORY DUPLEX OPTION D

UPPER LEVEL UNIT PLAN

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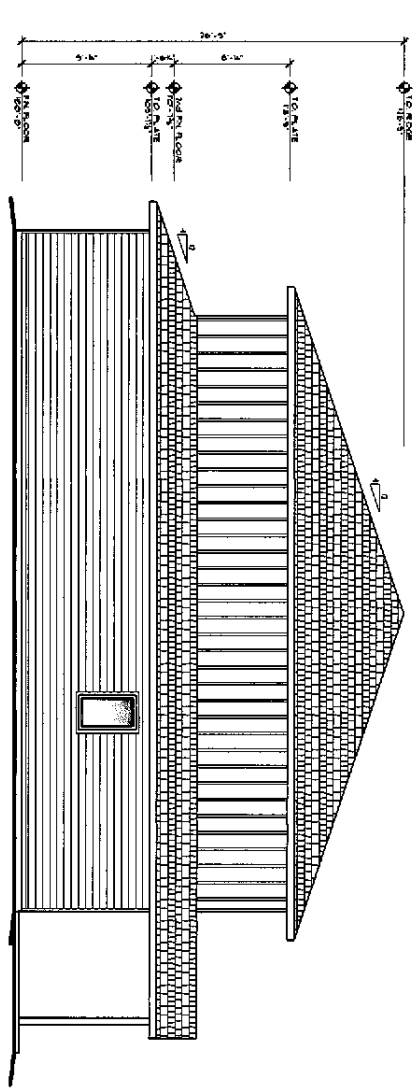
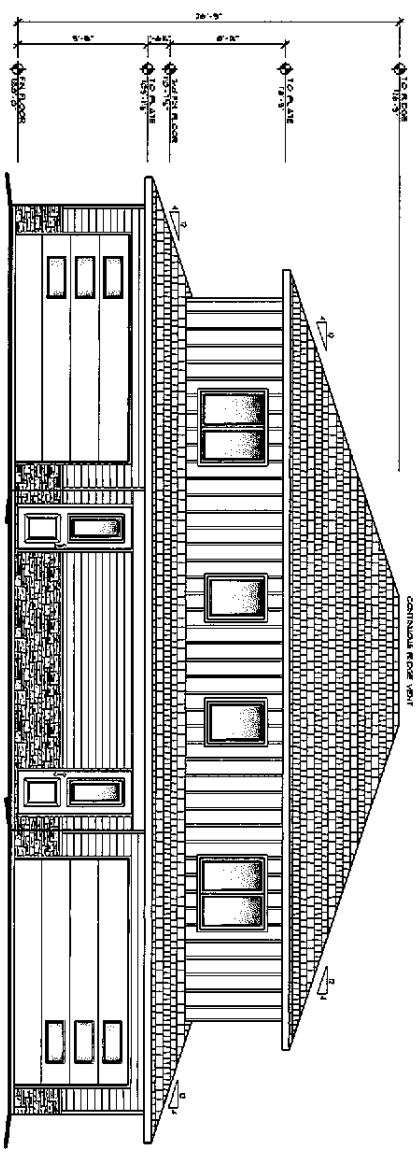
A1.2



SIDE ELEVATION
SCALE: 1/8"=1'-0"



FRONT ELEVATION
SCALE: 1/8"=1'-0"

PRELIMINARY

2 STORY DUPLEX OPTION D

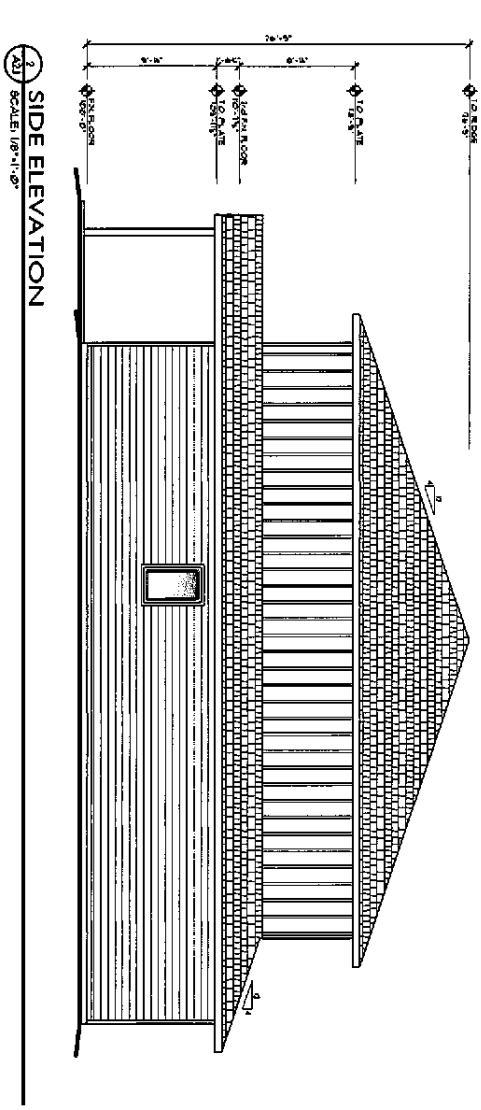
ELEVATIONS

A-LINE DRAFTING AND DESIGN

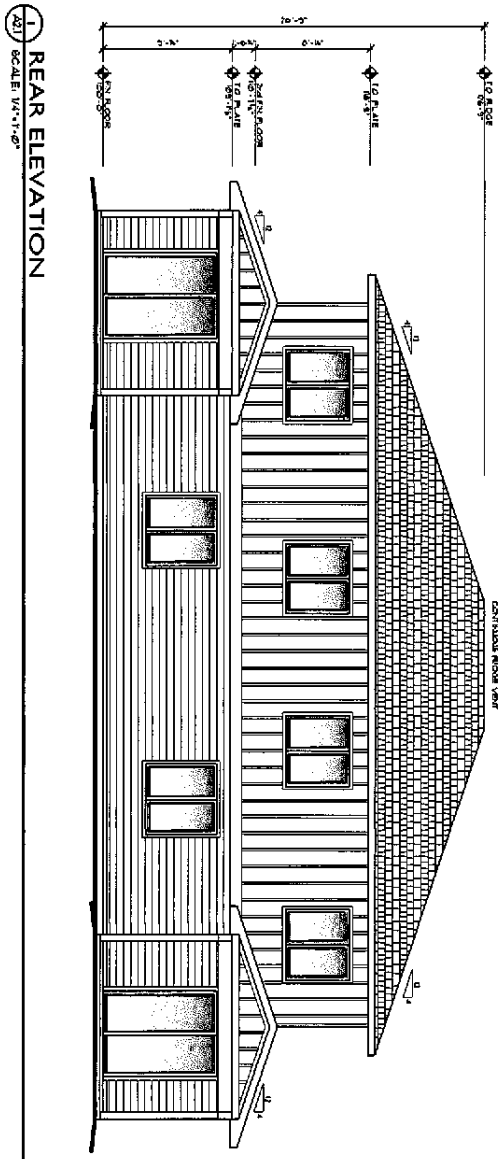
JEFF WOLTSCHLAGER
(406) 321-1390
BILLINGS, MT 59101

PAGE 5

SHEET A2.0



2 SIDE ELEVATION
SCALE: 1/8"=1'-0"



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

PRELIMINARY

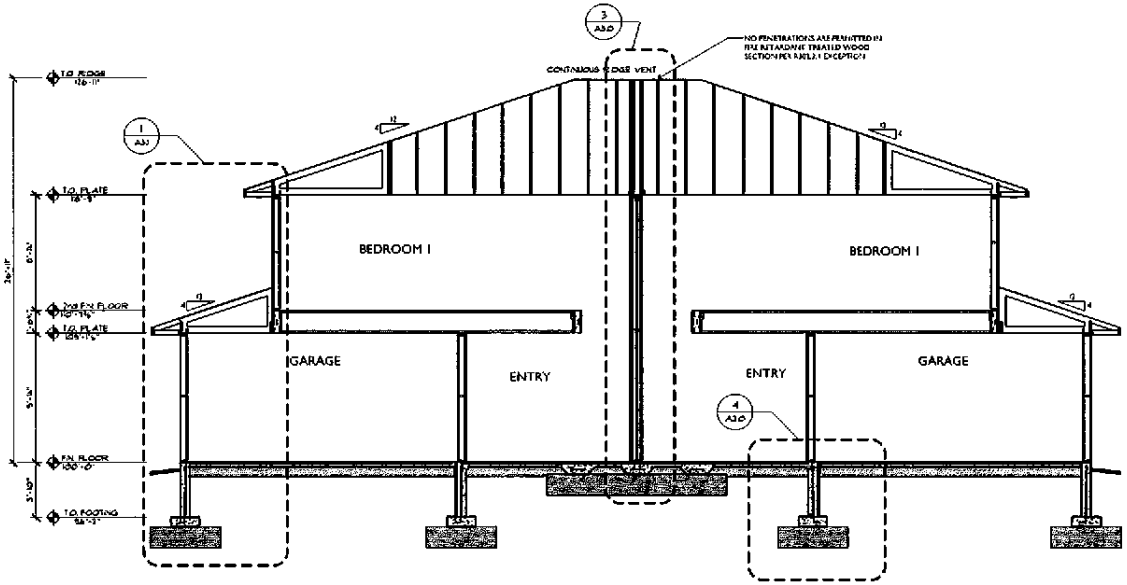
2 STORY DUPLEX
OPTION D

ELEVATIONS

SHEET A2.1

PAGE 6

A-LINE DRAFTING AND DESIGN



1 BUILDING SECTION
SCALE: 1/4"=1'-0"

FIREBLOCKING

R302.11 FIREBLOCKING

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED BY WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:

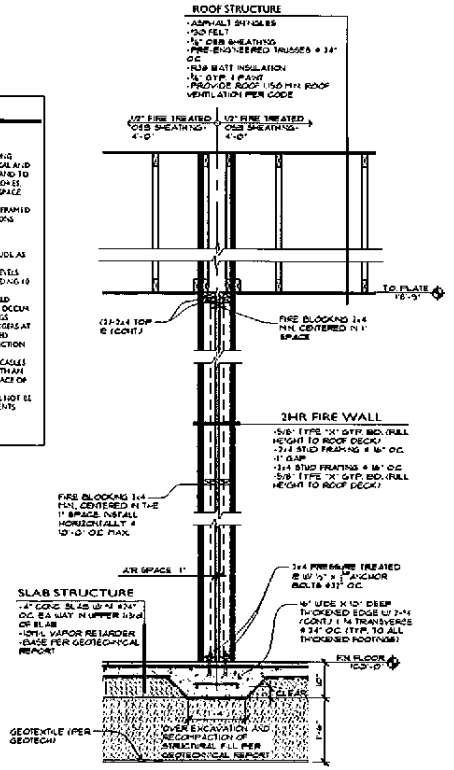
(1) IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).

(2) AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES, SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.

(3) IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.

(4) AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E136 REQUIREMENTS FOR THROUGH-PENETRATING FIRESTOPS.

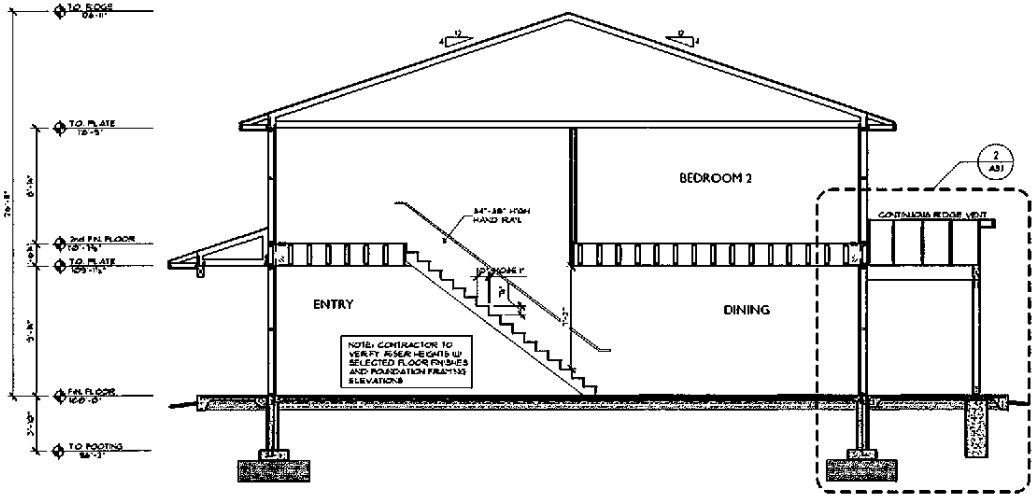
(5) IN CONCEALED SPACES OF CHIMNEYS AND FIREPLACES. SEE SECTION R1003.19.



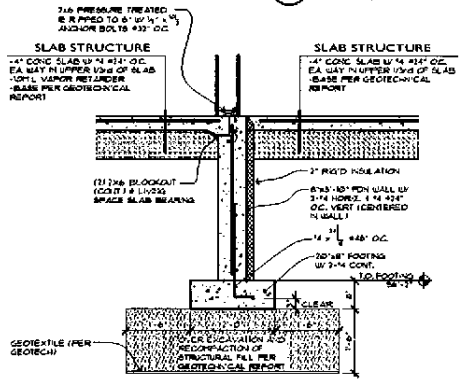
FIRE WALL NOTES:

PENETRATIONS ARE NOT ALLOWED

2 HR WALL SECTION
G.A. FILE WP 3820
SCALE: 3/4"=1'-0"



2 BUILDING SECTION
SCALE: 3/16"=1'-0"



4 GARAGE WALL DETAIL
SCALE: 3/4"=1'-0"

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JEFF WOLLSCHLAGER
(406) 321-2280
735 GRAND AVE
BILLINGS MT. 59101

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2 STORY DUPLEX OPTION D

SECTIONS

SET:

ELEVATIONS

SHEET
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4067789 DCL
02/09/2024 03:01 PM Page 67 of 84
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4067789 DCL
02/09/2024 03:01 PM Page 68 of 84
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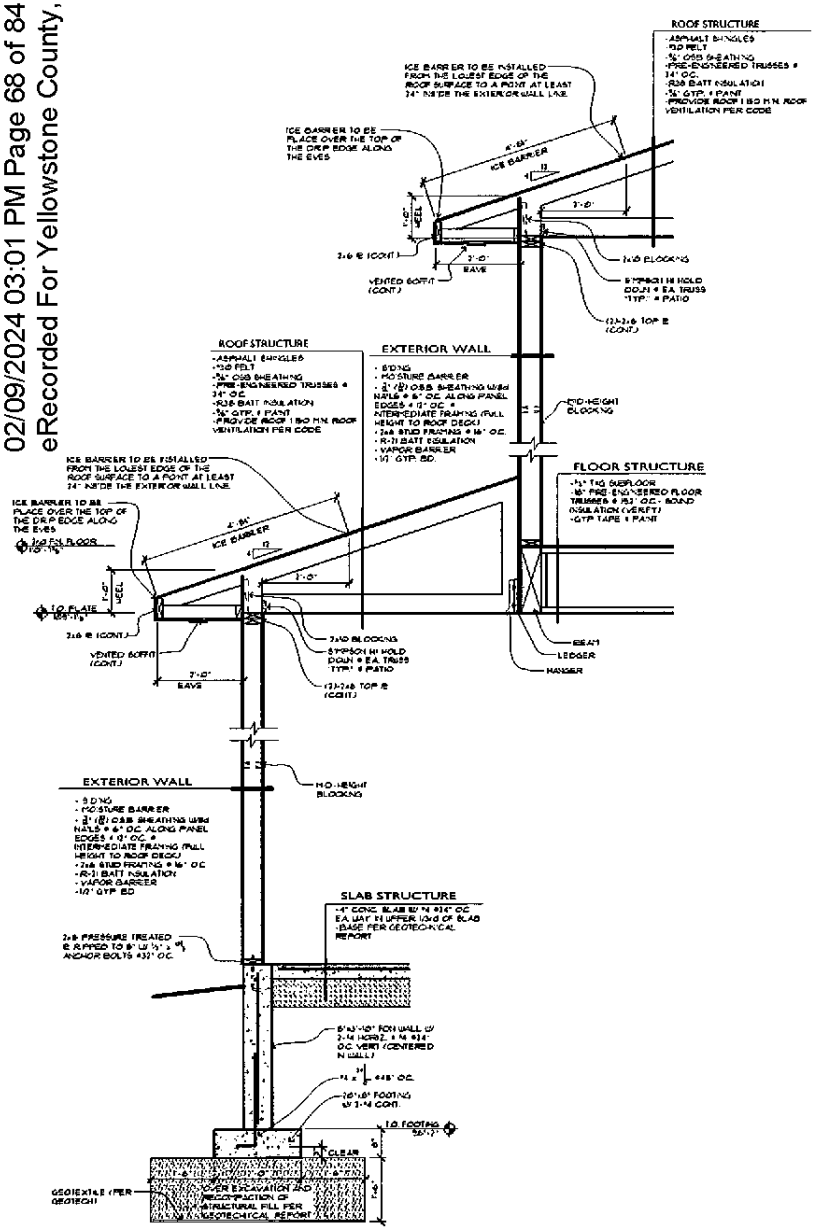
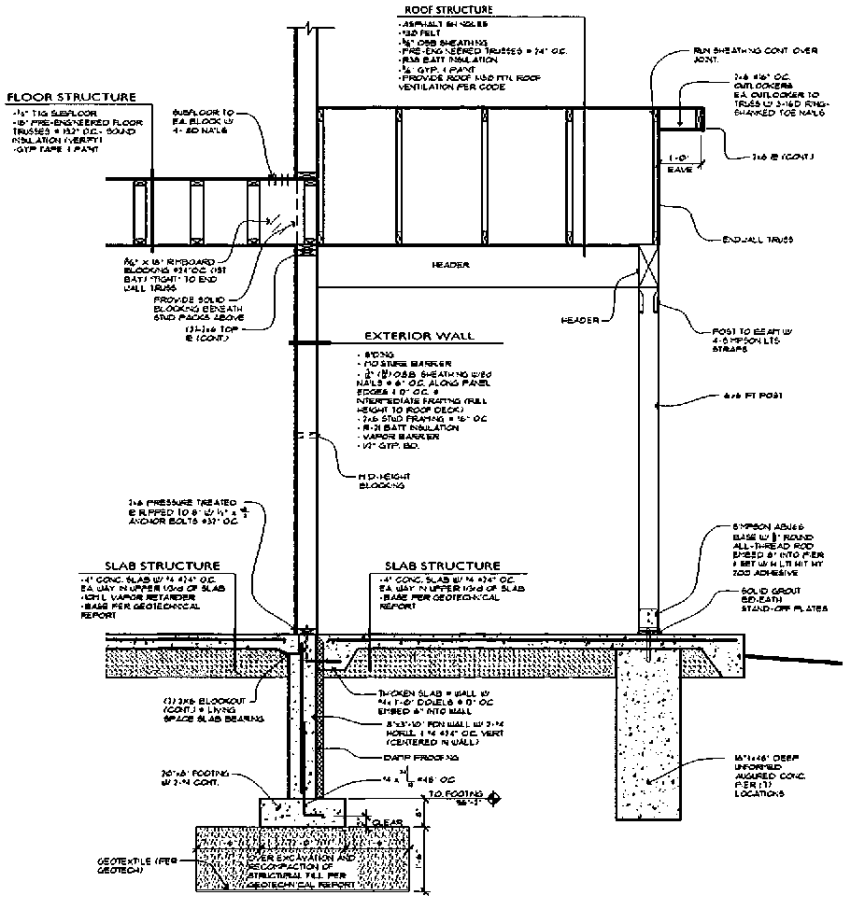


1 A3.1 WALL SECTION
SCALE: ¾"=1'-0"



2 A3.1 WALL SECTION
SCALE: ¾"=1'-0"

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JEFF WOLLSCHLAGER
(406) 321-2280
225 GRAND AVE.
BILLINGS MT. 59101

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2 STORY DUPLEX OPTION D

MAIN LEVEL PLAN

SHEET: A2.0
DRAWN BY: JW
CHECKED BY: JW

MAIN LEVEL PLAN

PRELIMINARY

SHEET
A3.1

STRUCTURAL NOTES

CONFORMING CODES

INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION
AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 14TH EDITION
AMERICAN CONCRETE INSTITUTE, 318-14
AMERICAN SOCIETY OF CIVIL ENGINEERS, 7-22
AMERICAN WELDING SOCIETY D1.1 (2020)

DESIGN CRITERIA

SNOW LOAD: P_g = 30 PSF + 9 PSF (IBC), P_g = 30 PSF, C_e = 1.0, I = 1.0, C_t = 1.0
WIND LOAD: V_{ult} = 115 MPH, V_{asd} = 89 MPH (IRC – 1609), RISK CATEGORY = II, EXPOSURE = C
SEISMIC:
DESIGN CATEGORY "A": I_e = 1.0, S_s = 0.11, S_1 = 0.03
RESISTIVE SYSTEM = WOOD SHEARWALLS
SEISMIC DESIGN FACTORS: S_{DS} = 0.09, S_{D1} = 0.12, S_{MS} = 0.13, S_{M1} = 0.18, R = 6.5, C_d = 4.0
SEISMIC BASE SHEAR METHOD: LINE LOAD FACTOR = 1
FLOOR LOAD = 40 PSF (LIVE), 20 PSF (DEAD) – 60 PSF (LIVE)
FOUNDATION = ASSUMED BEARING PRESSURE OF 1500 PSF ASSIGNED CAPACITY BY GEOTECHNICAL REPORT

GENERAL NOTES

- CONTRACTOR SHALL COORDINATE OPENINGS & EMBEDDED ITEMS NOTED BY CONSTRUCTION DOCUMENTS WITH APPROPRIATE TRADE
- STRUCTURAL COMPONENTS SHALL BE TEMPORARILY BRACED IN A MANNER TO RESIST EARTHQUAKE, WIND, SNOW, & LATERAL EARTH LOADS UNTIL COMPLETION OF SYSTEM (PLYWOOD ROOF SHEATHING, PLYWOOD SHEATHED SHEAR WALLS, or FLOOR FRAMING ARE IN PLACE & SECURED PROPERLY).
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH DRAWINGS AND SPECIFICATIONS FROM ALL OTHER DISCIPLINES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- THE STRUCTURAL DRAWINGS SET FORTH IN THEIR ENTIRETY THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK & CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY, & INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCE OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO APPROVAL BY THE ENGINEER.
- LOADS TO BE APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THESE LOADS ARE SPECIFIED IN THE "DESIGN CRITERIA" PORTION OF THESE NOTES. DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND LATERAL ALL NON-PERMANENT BRACING IS IN PLACE.

CONCRETE

- ALL CONCRETE SHALL BE READY MIXED AND SUPPLIED IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS
  NO WATER SHALL BE ADDED TO MIX AT JOB SITE
- MINIMUM COVER REQUIREMENTS:
  CAST AGAINST EARTH = 3"
  FORMED WALLS = 1½"
  TOP OF SLAB = 1"
- CHAMFER ALL EXPOSED CORNERS ¾" UNLESS NOTED
- OPENINGS IN CONCRETE WALLS OF 2'-0" or GREATER IN EITHER DIRECTION SHALL HAVE 2 - #4 BARS ALL SIDES & SHALL EXTEND 24" BEYOND OPENING
- COLD WEATHER CONCRETING GUIDELINES TO BE FOLLOWED IN COLD TEMPERATURES
- FLY ASH TYPE "F" or TYPE "C" MAY BE USED TO REPLACE NO MORE THAN 15% OF THE CEMENT CONTENT.
- 4" SLUMP FOR 3,000 PSI CONCRETE USED FOR ALL FOUNDATIONS & EXTERIOR SLABS
- MAXIMUM AGGREGATE SIZE OF ¾" UNLESS NOTED OTHERWISE

MATERIALS:

ANCHOR BOLTS: ASTM F1554 BOLTS
CONCRETE SLABS (INTERIOR): 3500 PSI AT 28 DAYS
CONCRETE SLABS (EXTERIOR): 4,000 PSI AT 28 DAYS
ELSEWHERE: 3,000 PSI AT 28 DAYS

CAST IN PLACE CONCRETE:

- CONCRETE MIXES SHALL BE DESIGNED PER ACI 301
- CONCRETE SHALL CONFORM TO THE FOLLOWING PROPERTIES:

CONCRETE LOCATION	MIN. f'c (28 DAYS)	SLUMP	W/C RATIO
ELEVATED SLABS	3500 PSI	3" - 4"	0.45
FOUNDATIONS	3500 PSI	3" - 4"	0.5
INTERIOR SLAB ON GRADE	4000 PSI	3" - 4"	0.5

AT CONTRACTOR'S OPTION, AN APPROVED ADMIXTURE MAY BE USED TO STABILIZE PUMPABLE CONCRETE. WATER/SLUMP LIMIT SHALL NOT EXCEED 1.5 PSI/INCH. THE CONTRACTOR SHALL SUBMIT TEST RESULTS OF THE PROPOSED CONCRETE MIXES ALONG WITH THE MANUFACTURER'S TECHNICAL DATA FOR APPROVAL PRIOR TO POURING CONCRETE.

ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318
HOT WEATHER CONCRETING PER ACI 305
COLD WEATHER CONCRETING PER ACI 306

ALL REINFORCING STEEL SHALL BE SET AND TIED IN PLACE PRIOR TO POURING OF CONCRETE. DO NOT TACK VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE "FLOATED" IN PLACE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED BY APPROVED BY THE ENGINEER.

REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH ACI 315.

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO ENSURE MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC TIPPED OR STAINLESS STEEL.

FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 80% OF ITS 28 DAY COMPRESSIVE STRENGTH. THE CONTRACTOR SHALL PROVIDE ALL SHORING AND RE-SHORING.

REINFORCING STEEL:

- BAR REQUIREMENTS: 20 BAR DIAMETERS (CONCRETE) / 40 BAR DIAMETERS (MASONRY)
- CORNER BARS REQUIRED AT FOUNDATION WALL LOCATIONS OF SPLICE & WHERE # OF HORIZONTAL WALL STEEL AT 90° CHANGES & INTERSECTIONS
- NO SPLICE NOT TO BE WELDED UNLESS ASTM A706 GRADE REBAR IS PROVIDED
- REBAR SHALL BE SECURELY TIED IN PLACE WITH #16 ANNEALED IRON WIRE
- CURING SHALL BE USED TO BE ALL FOR PROPER HYDRATION.
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185-67, CENTERED IN SLAB
- REINFORCING STEEL BARS:
  #4 (½") & SMALLER: ASTM A615 - GRADE 60
  #5 & #6 BARS: ASTM A615 - GRADE 40
- WELDED WIRE FABRIC (WWF): ASTM A185

FOUNDATION WALL NOTES:

- EXCAVATION SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT. GEOTECHNICAL RECOMMENDATIONS SUPERSEDE ALL GENERIC RECOMMENDATIONS BELOW. THE FOLLOWING GUIDELINES ARE ONLY TO BE UTILIZED IF A GEOTECHNICAL REPORT IS NOT PROVIDED
- PROVIDE BASE BENEATH SLAB PER GEOTECHNICAL REPORT.

- SOILS BENEATH FOUNDATIONS SHALL BE PROTECTED FROM FREEZING DURING CONSTRUCTION
- POSITIVE DRAINAGE AWAY FROM THE EXCAVATION SHALL BE PROVIDED TO PREVENT SURFACE WATER BUILD-UP DURING ALL PHASES OF CONSTRUCTION
- FROST HEAVE MAY AFFECT INTERIOR AND EXTERIOR SLABS, GARAGES, DRIVEWAYS, AND CONCRETE & MASONRY. PLACING SLABS ON TOPS OF 18" BELOW BOTTOM OF EXISTING FOOTINGS IS ADVISED
- ANY STRUCTURAL FILL REQUIRED BEYOND FOOTINGS AND/OR SLABS SHOULD BE TO THE SPECIFICATION OF THE GEOTECHNICAL REPORT BY THE PROJECT. EXCAVATION TO VERIFY BEARING CONDITIONS.

-POTENTIAL STRUCTURAL SETTLEMENT GIVEN IN GEOTECHNICAL REPORT IS ASSUMED TO BE ACCEPTABLE TO OWNER.

CONCRETE (CONT.)

CONCRETE FLATWORK:

- MAXIMUM CONCRETE SLUMP FOR ALL SLABS SHALL BE 5".
- ALL WOVEN WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A 185. LAP ADJOINING PIECES AT LEAST ONE FULL MESH. SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. SLABS SHALL HARDEN AS LATE AS POSSIBLE. INTERFACE ALL EDGES AFTER THE SLAB HAS BEEN CAST PRIOR TO FINISHING. REMOVE ALL DEBRIS FROM SLAB NOW, WHEN FILL IN ACCORDANCE WITH PARAGRAPHS RECOMMENDINGS AS FOLLOWS:
  - 6" OR LESS IN SLAB FILL: 90% WITH HEAVY RAMMER
  - 4" - 6" SLAB OVER 24" JOISTS FILL WITH ITEM POURED OR ELASTOMERIC SEALANT
- EXPANSION SLABS SHALL NOT BE SHOWN ON THE CONSTRUCTION DRAWINGS. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXPANSION SLAB LOCATIONS, THICKNESS AND REINFORCING.
- THE USE OF FOR REINFORCEMENT RESTS IN LIEU OF REBAR OR WELDED WIRE FABRIC IS PROHIBITED
- SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF CONCRETE LAYING. FLOOR SLAB ACCORDINGLY TO DRAWS.

FOUNDATION NOTES:

- ALL REINFORCING IN WALL CONTINUOUS (CONT.) OR TIE DRAWINGS SHALL BE LAPPED 36 BAR DIAMETERS AT CORNERS AND UNLESS NOTED OTHERWISE. ALL BACKFILL SHALL BE DONE UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING EITHER BY TEMPORARY BRACE OR BY PERMANENT CONSTRUCTION.
- ALL RETAINING WALLS SHALL HAVE AT LEAST 12" OF FREE-DRAINING GRANULAR BACKFILL FULL HEIGHT OF WALL. PROVIDE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT APPROXIMATELY EQUAL INTERVALS NOT TO EXCEED 30'-0" OR 3 TIMES THE WALL HEIGHT.

WOOD FRAMING

- ALL WOOD FRAMING MATERIALS SHALL BE SURFACE DRIED WITH A MAXIMUM OF 19% MOISTURE CONTENT.
- ALL BUILDER FLOOR OR ROOF FRAMING SHALL BE BRACED AT MIDSPAN AND NO MORE THAN 8'-0" CENTERS WITH FULL DEPTH BLOCKING.
- ALL FRAMING EXPOSED TO THE WEATHER OR EXPOSED TO CONCRETE OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS.
- MULTIPLE PIECES SHALL BE NAILED TOGETHER AS PER TABLE 2304.10.1 MINIMUM NAILING SCHEDULE. BUILT-UP GIRDER TRUSS SHALL BE STAGGERED TIGHT BY NOT TO THE EXTENT OF CRUSHING THE WOOD UNDER WASHERS
- WOOD PERSONS SHALL BE SOLIDLY WITH ASTM NOT EXPOSED UNLESS GALVANIZED BOLTS

WOOD TRUSSES

- ROOF TRUSS DESIGN LOADS ARE 30 PSF SNOW + 8 PSF DEAD TOP CHORD & 7 PSF DEAD BOTTOM CHORD. ADDITIONALLY, SOLUTION DRIVEN SHALL BE DESIGNED TO MEET ANY LIVE LOAD (EXCEPT IN THE ACCESS OPENING) IS SMALLER THAN 20 PSF.
- ROOF TRUSS OVERHANGS ARE 4'-0" EAST - 8 PSF DEAD LOAD TOP CHORD & 7 PSF DEAD LOAD BOTTOM CHORD
- TRUSS SUPPLIES TO ENSURE CONSTRUCTION WITH SHOP DRAWINGS PROVIDED BY THE SUPPLIER. ALL STAMPED DRAWINGS, CONNECTOR DESIGNATIONS AND MARKINGS AS PER BUILDING REQUIREMENTS.
- ADDITIONALLY, TRUSS MANUFACTURER IS TO PROVIDE INSTRUCTIONS TO CONTRACTOR FOR INSTALLATION OF PERMANENT BRACED TRUSS UNITS.
- TRUSS DRAWINGS ARE DIAGRAMMATICAL & ARE TYPES ONLY INTENDED TO ESTABLISH OUTLINES OF TRUSS CONFIGURATIONS.
- TRUSS DESIGN TO ACCEPT FOR SECONDARY BRACING STRESSES DUE TO DEAD, LIVE, AND WIND LOADS SHALL BE CONSIDERED BY THE MANUFACTURER.
- TRUSS MEMBERS AND CONNECTIONS SHALL NOT BE CUT, NOTCHED, OR ALTERED IN ANY WAY WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER
- WOOD TRUSSES SHALL BE ERECTED IN ACCORDANCE WITH THE TRUSS MANUFACTURER'S REQUIREMENTS BY AN EXPERIENCED CONTRACTOR.

WOOD STUD WALLS:

- MINIMUM FULL DEPTH BLOCKING AT MIDHEIGHT IN ALL EXTERIOR BEARING STUD WALLS
- PROVIDE 2x BLOCKING AT 8'-0" SPACING (MAX.) IN SHEAR WALLS
- BEARING WALLS TO HAVE DOUBLE (CONT.) TOP PLATES W/ STAGGERED SPLICES UNLESS NOTED OTHERWISE.
- SUPPORT SHALL PLATES OR VERTICAL STUDS IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED
- MINIMUM 2x6 @ 16" O.C. VERTICAL FRAMING AT ALL EXTERIOR & EXTERIOR WALLS UNLESS NOTED OTHERWISE.

PLYWOOD AND OSB SHEATHING:

- ALL PLYWOOD AND OSB CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS.
- INSTALL PLYWOOD OR OSB PANELS WITH THE LONG DIMENSION OF THE PANELS ACROSS THE SUPPORTS AND WITH THE PANEL CONTINUOUS OVER TWO OR MORE SPANS. STAGGER PANEL END JOINTS. ALLOW ¼" SPACING BETWEEN PANEL EDGES & BOARD UNLESS OTHERWISE RECOMMENDED BY PANEL MANUFACTURER.
- NAILING TO BE SPACING AT UNBRACED EDGE PANEL EDGES AS FOLLOWS:
  ROOF AND FLOORS = AT AREAS INDICATED ON PLANS
  WALLS = ALL EXTERIOR WALLS AND INTERIOR WALLS AS SHOWN ON PLANS

MATERIALS:

DIMENSIONAL MATERIALS:
LUMBER - #1 DENSE HF: F_b = 975 PSI, F_v = 150 PSI, E = 1.6x10⁶ PSI
2x4 FRAMING - #1 HEM FIR (CONSTRUCTION GRADE): F_b = 925 PSI, F_v = 335 PSI, E = 1.3x10⁶ PSI
LVL BEAMS:
1¾" = F_b = 2325 PSI, F_b = 2800 PSI, E = 1.8x10⁶ PSI
3½" or thicker = F_b = 2325 PSI, F_b = 2800 PSI, E = 2.0x10⁶ PSI
GLULAM BEAMS (24F-V8 DF/DF): F_b = 2400 PSI, F_b = 1450 PSI, E = 1.8x10⁶ PSI
POSTS: HEM FIR #1

WOOD FRAMING (CONT.)

NAILING SCHEDULE

CONNECTION	ATTACHMENT
JOIST TO SILL OR GIRDER, TOENAIL	(3) 10d
BRIDGING TO JOIST, TOENAIL EACH END	(2) 10d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	(2) 16d TOENAILS
TOP PLATE TO STUD, END NAIL	(1) 16d
STUD TO SOLE PLATE	(1) 16d TOENAIL or (2) 16d
HOUSE STUD, FACE NAIL	(2) 16d @ 24" O.C.
DOUBLE TOP PLATES, FACE NAIL	(2) 16d @ 16" O.C.
BUILT UP STUD PACK	(2) 10d @ 8" O.C.
END PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(2) 16d
CENTER WALL HEADER, FACE NAIL	(2) 16d @ 16" O.C.
FLOOR JOISTS TO PLATE, TOENAIL	(3) 16d
CEILING JOIST HEADER TO STUD, TOENAIL	(4) 16d
ROOF JOISTS, LAPS OVER PARTITIONS, FACE NAIL	(3) 16d
ROOF JOISTS TO PARALLEL RAFTERS, FACE NAIL	(3) 16d
BUILT UP CORNER STUDS	(2) 10d @ 24" O.C.
BUILT UP GIRDER BEAMS	(2) 10d @ 32" O.C.
½" (4'X8') OSB ROOF SHEATHING (FIELD SHEATHING IN STAGGERED CONFIGURATION AT PANEL EDGE WITH 1 - PLY OF BETWEEN EACH SUPPORT)	8d @ 6" O.C. @ EDGES; 8d @ 12" O.C. @ INTERMEDIATE FRAMING
½" (SHEAR WALL) OSB WALL SHEATHING (16" O.C. STUD & 24" PANEL JOINTS)	8d @ 6" O.C. @ EDGES; 8d @ 12" O.C. @ INTERMEDIATE FRAMING OR 16 GA WIRE STAPLES @ 3" O.C. @ PANEL EDGES & @ 12" O.C. @ INTERMEDIATE FRAMING
½" (24/24) TRUSS SHEATHING (NAILING + CONTINUOUS BEAD OF CONSTRUCTION ADHESIVE)	8d @ 6" O.C. @ EDGES; 8d @ 12" O.C. @ INTERMEDIATE FRAMING
26GA PREPAINTED METAL SIDING AS REQUIRED	#10 CORRUGATED WITH SCREWS W/ NEOPRENE TO SATISFY HOLDING REQUIREMENTS WASHER - 2 PER FLAT AT EDGE/CORNERS & 1 PER FLUTE AT INTERMEDIATE MEMBERS WITH ½" MINIMUM PENETRATION INTO WOOD FRAMING (2" O.C. MAXIMUM SPACING REQUIREMENT @ UNSUPPORTED EDGES
½" (SOFFIT) PLYWOOD PLYWOOD	#8 DRYWALL TRIM SCREW @ EDGES TO BE USED TO SHEATH ALL BUILT UP EXTERIOR CORNERS @ 12" O.C. @ INTERMEDIATE FRAMING OR WHERE MOISTURE MAY ACCUMULATE (GALVANIZED NAILING)

BEARING STUD SCHEDULE

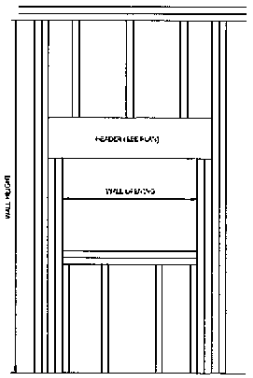
EXTERIOR WALL BRACING NAILING PLAN

VALUE = # EQUIVALENT 10' STUDS / # OF FULL HEIGHT LONG STUDS

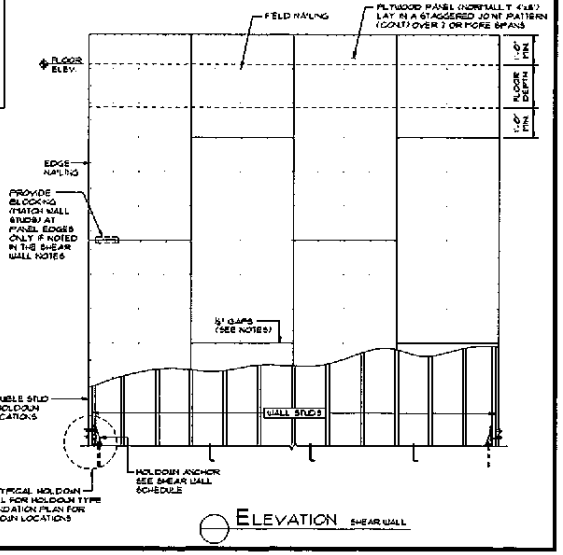
WALL HEIGHT	8'-0"			10'-0"			12'-0"		
WALL OPENING									
3'-0"	1	1	1	1	1	1	1	1	2
4'-0"	1	1	1	1	1	2	1	1	2
5'-0"	1	1	2	1	1	2	1	1	2
6'-0"	2	2	2	2	2	2	2	2	2
7'-0"	2	2	2	2	2	2	2	2	2
8'-0"	2	2	2	2	2	2	2	2	2
9'-0"	2	2	2	2	2	2	2	2	3
10'-0"	2	2	2	2	2	2	2	2	3
11'-0"	2	2	2	2	2	2	2	2	4
12'-0"	2	2	2	2	2	2	2	2	4

TABLE VALUES ASSUME:

- TABLE VALUES ASSUME 30 PSF SNOW LOAD AND 115 MPH EXP. "C" ULT. WIND PRESSURE
- BRACING OF #1 REF. OR BETTER
- SHALL BEARING ROOF TRUSSES (OR #1) SPACED @ 24" O.C. OR LESS WITH 2'-0" EAVES
- FRAMING SHOWN IN TABLE ONLY TO BE USED IF NO OPENINGS ARE NOT SHOWN ON PLANS
- LONG FRAMING STUDS TO BE STITCHED TOGETHER W/ 12" MINIMUM SCREWS @ 12" O.C. WITH HEAD WITH NECESSARY TO ENGAGE ALL HOLDERS



NOTE: SEE SHEAR WALL SCHEDULE FOR NAILING REQUIREMENTS. THE USE OF STAPLE EQUIVALENTS CAN BE SUBMITTED FOR APPROVAL. TEK SCREWS TO BE SUBSTITUTED FOR NAILS IN WALLS FRAMED W/ LIGHT GAUGE STEEL MATERIAL. SEE SHEAR WALL NOTES FOR SIZE & SPACING OF SCREWS.



ELEVATION SHEAR WALL

4067789 DCL
02/09/2024 03:01 PM Page 69 of 84
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JEFF WOLLSCHLAGER
(406)321-2280
225 GRAND AVE.
BILLINGS, MT. 59101

PAGE 9

2 STORY DUPLEX OPTION D

STRUCTURAL

PRELIMINARY

SHEET ST0.0

GENERAL NOTES:

HOLD DOWN DETAIL

UFER GROUND

1 FOUNDATION PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

2 STORY DUPLEX OPTION D

FOUNDATION PLAN

SHEET ST1.0

PAGE 10

A-LINE DRAFTING AND DESIGN

GENERAL NOTES:

- ROOF TRUSS LAYOUT IS FOR GENERAL REFERENCE ONLY
- CONTRACTOR TO VERIFY FLOOR FRAMING W/ MANUFACTURER SPECS
- SHADED WALLS REPRESENT BEARING WALLS
- ALL STRUCTURAL HEADERS TO BE VERIFIED WITH ENGINEERING CALCULATIONS
- SEE GENERAL STRUCTURAL NOTES ON SHEET S1.0
- 1TYP. POST TO BEAM W/ 4 - 8"ø NAIL LIST STRAPS

DRAFTSTOPS

GENERAL NOTES:

- ROOF TRUSS LAYOUT IS FOR GENERAL REFERENCE ONLY
- CONTRACTOR TO VERIFY ROOF FRAMING W/ MANUFACTURER SPECS
- SHADED WALLS REPRESENT BEARING WALLS
- ALL HEADERS AND STRUCTURAL COMPONENTS TO BE VERIFIED
- PRE-ENGINEERED TRUSS @ 24" O.C. PER MANUFACTURER
- ADD PADDA BRACED TOWER PER U.B.C. AND BRACED WALLS @ 10' O.C.
- PROVIDE BLKG PADDA BELOW/UNDER TRUSSES BEARING MULTIPLE GIRDER TRUSS PLY'S
- ALL TRUSS TO TRUSS CONNECTIONS BY PRE-ENGINEERED TRUSS MANUFACTURER
- ALL INTERIOR WALL OPENING JAMBS TO BE DOUBLE STUDS UNLESS NOTED OTHERWISE
- 1TYP. POST TO BEAM W/ 4 - 8"ø NAIL LIST STRAPS

1 FRAMING PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

2 STORY DUPLEX
OPTION D

FRAMING PLAN

SHEET
S1.1

A-LINE
DRAFTING AND DESIGN

DRAFTSTOPS

GENERAL NOTES:

ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

2 STORY DUPLEX OPTION D

ROOF FRAMING PLAN

SHEET ST2.0

A-LINE DRAFTING AND DESIGN
JEFF WOLSCHLAGER
(406) 321-2280
BILLINGS, MT 59101

DUPLEX OPTION E

TRAIL RIDGE TOWNHOMES

BILLINGS **MONTANA**

OWNER

CHRISTENSEN, MIKE
353 732 9067
@gmail.com

CONTRACTOR

CONTRACTOR

SCOPE OF WORK

NEW SINGLE FAMILY RESIDENCE

ADOPTED CODES

INTERNATIONAL RESIDENTIAL CODE, 2021 EDITION

GENERAL NOTES

-CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION

-ALL EXISTING AND FINISHED GRADES AND ELEVATIONS TO BE VERIFIED PRIOR TO CONSTRUCTION

INDEX OF DRAWINGS

T1.0	TITLE/SITE PLAN
A1.1	MAIN LEVEL
A2.0	ELEVATIONS
A2.1	ELEVATIONS
A3.0	BUILDING SECTIONS
A3.1	WALL SECTIONS
ST1.0	FOUNDATION PLAN
ST1.1	MAIN LEVEL FLOOR FRAMING PLAN
ST2.0	ROOF FRAMING PLAN

SITE INFO

Certificate of Survey: 983 Parcel: 2C
Full Legal: S10, T01 S, R25 E, C.O.S. 983, PARCEL 2C, AMD **ANNEXED** (22)

ZONING: N2-Mid-Century Neighborhood

GENERAL NOTES

A. GEOTECHNICAL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL NECESSARY GEOTECHNICAL INFORMATION. EXCAVATION, STRUCTURAL AND NON-STRUCTURAL BACKFILL, DRAINAGE CONTROL, SUBSURFACE PREPARATION, REMEDIATION, AND MATERIALS USED FOR BACKFILL SHALL BE ADDRESSED IN THE GEOTECHNICAL REPORT. THE CONTRACTOR IS TO CONFORM TO RECOMMENDATIONS FOR CONSTRUCTION AND DRAINAGE CONTAINED THEREIN, WHETHER DETAILED OR NOT. PROVIDE BACKFILL MATERIALS AS RECOMMENDED.

B. SITE AND UTILITIES

1. TOPOGRAPHY AND EXISTING CONTOURS SHALL BE VERIFIED BY CONTRACTOR. CONTRACTOR TO CONFIRM DISTANCES, GRADES, AND FINAL TOPO BEFORE THE START OF CONSTRUCTION

2. THE CONTRACTOR SHALL VERIFY SITE STAKING. THE FOOTPRINT OF THE HOME SHALL BE VERIFIED ON THE SITE PRIOR TO CONSTRUCTION

3. ALL SERVICE LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR

C. GENERAL CONDITIONS

1. CONTRACTOR TO PROVIDE ALL SHOWN, DESCRIBED, OR OTHERWISE NECESSARY REQUIREMENTS FOR COMPLETE CONSTRUCTION AND FINAL OCCUPANCY. THE STRUCTURAL FRAMING SYSTEM MAY BE ADJUSTED FOR CONVENIENCE AND ACCOMMODATION OF PLUMBING, HEATING, AND ELECTRICAL SYSTEMS, PROVIDED STRUCTURAL INTEGRITY IS MAINTAINED AND INTERNATIONAL RESIDENTIAL CODE DESIGN LOAD REQUIREMENTS ARE MAINTAINED.

2. CONTRACTOR TO OUTLINE ANY DEVIATIONS FROM THE MATERIALS DESCRIBED IN THESE DRAWINGS AND PROVIDE SAMPLES AS REQUIRED TO CONVEY THE INTENT, APPEARANCE, AND FUNCTION OF THE PROPOSED SUBSTITUTION.

3. THE CONTRACTORS SHALL VISIT THE SITE TO BE AWARE OF TOPOGRAPHICAL FEATURES, SITE CONDITIONS, ACCESSIBILITY, LOCATION OF UTILITIES, ETC.

4. MECHANICAL / HVAC CONTRACTOR TO COORDINATE DUCT RUN LOCATIONS WITH CONTRACTOR/ TRUSS MANUFACTURER PRIOR TO TRUSS FABRICATION.

5. ELECTRICAL CONTRACTOR TO VERIFY METER LOCATION W/ OWNER PRIOR TO CONSTRUCTION.

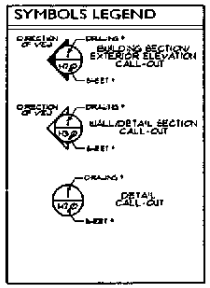
D. FOUNDATION SYSTEM

1. ALL FOUNDATION/FOOTING ELEVATIONS CALLED OUT ARE RELATIVE TO THE FINISHED FLOOR ELEVATION OF 100'-0".

ABBREVIATIONS ARE AS FOLLOWS:
AFF= ABOVE FINISHED FLOOR
BFF= BELOW FINISHED FLOOR
TOF= TOP OF FOOTING
TOW= TOP OF WALL

TO BE DETERMENT

SYMBOLS LEGEND



SITE PLAN
SCALE: 1/16"=1'-0"

4067789 DCL
02/09/2024 03:01 PM Page 73 of 84
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JEFF WOLLSCHLAGER
(406) 421-2280
325 GRAND AVE
BILLINGS MT, 59101

PAGE:

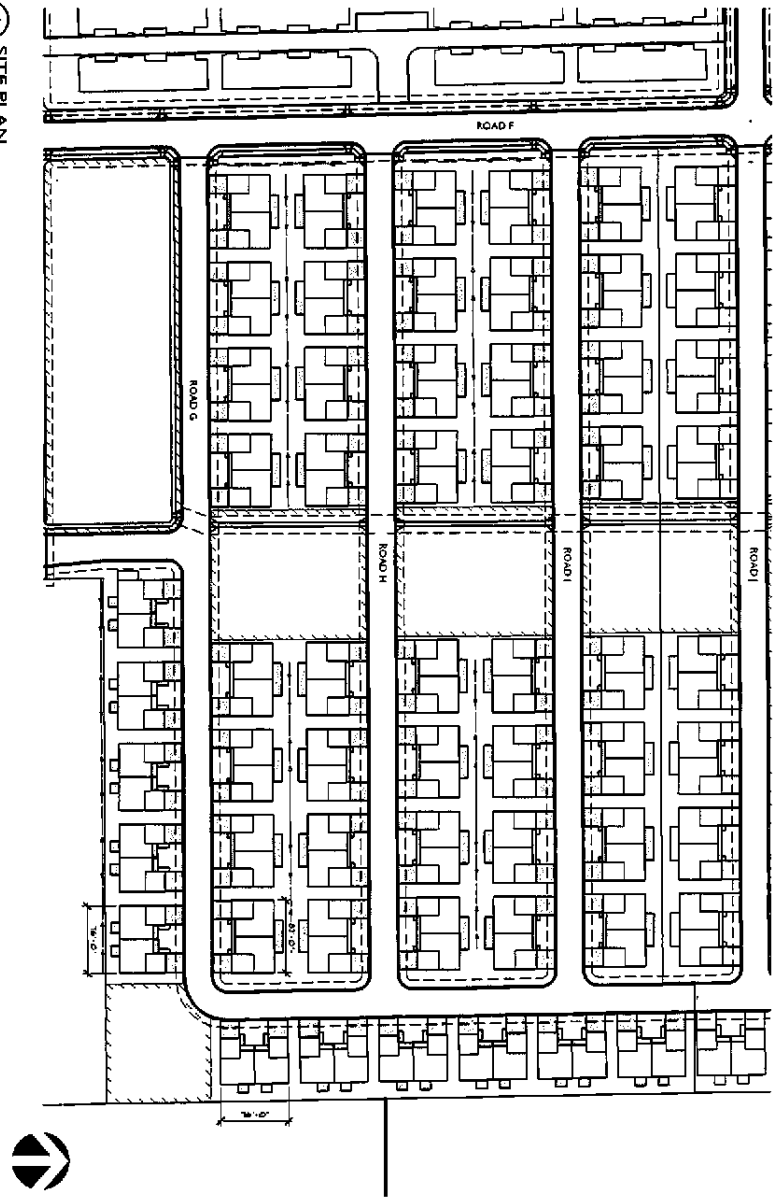
DUPLEX 1547SF
OPTION E

TITLE/ SITE

SHEET
T1.0

SITE INFO

SITE



1 SITE PLAN
SCALE: 1/16"=1'-0"

PRELIMINARY

SHEET
S1.0

DUPLEX 1547SF
OPTION E

SITE PLAN

PAGE 2

JEFF WOLLSCHLAGER
(406) 861-2380
BILLINGS, MT 59101

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02/09/2024 03:01 PM Page 75 of 84
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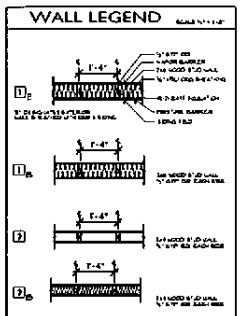
NOTES

ALL WALL DIMENSIONS ARE TAKEN TO THE EDGE OF FRAMING. WINDOWS AND DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING. OPENINGS NOT DIMENSIONED TO BE CENTERED IN SPACE PROVIDED

ALL MAIN LEVEL INTERIOR DOOR HEIGHTS TO BE 6'-8"

EXTERIOR DOOR & WINDOW HEIGHTS TO BE 6'-8" A.F.F.

WALL LEGEND



MINIMUM INSULATION VALUES FOR ALL SYSTEMS ARE AS FOLLOWS

1. CEILINGS	R-38
2. WALLS	R-21
3. FLOOR	R-30
4. FOUNDATION WALLS	R-15
5. BASEMENT WALLS	R-15
6. DOORS	R-2
7. WINDOWS	U-0.32

F FAN
SD SMOKE DETECTOR
HB HOSE BIB
C CARBON MONOXIDE DETECTOR
SG SAFETY GLAZING

AREA

AREA
1547 SQ FT MAIN LEVEL LIVING
391 SQ FT GARAGE
178 SQ FT PATIO
43.50 FT COVERED ENTRY

NOTE: ALL AREAS ARE TAKEN FROM THE OUTSIDE OF FRAMING OR FOUNDATION

UFER GROUND

A CONCRETE ENCASED ELECTRODE (UFER GROUND) IS REQUIRED BY THE FOOTING

SMOKE DETECTORS

SMOKE DETECTORS ARE REQUIRED IN EACH SLEEPING ROOM, OUTSIDE SLEEPING AREAS, IN BASEMENTS, AND ON EACH STORY

BEDROOM ESCAPE WINDOW

- EGRESS MAIN LEVEL WINDOWS TO HAVE A MIN NET CLEAR OPENING OF 5.7 SQ. FT. (OR PER SEC. R310.2) WITH A MIN. HEIGHT OF 24" & A MIN. WIDTH OF 20" 44" A.F.F. TO DRIVING MAX.

FUEL BURNING APPLIANCES

FUEL BURNING APPLIANCES, WHERE GAS CONSUMPTION OCCURS PROVIDE COMBUSTION AIR TO OPEN COMBUSTION FUEL BURNING APPLIANCES SHALL BE # (DETAILED) ACCORDANCE WITH IECC 2301 R402.4.1

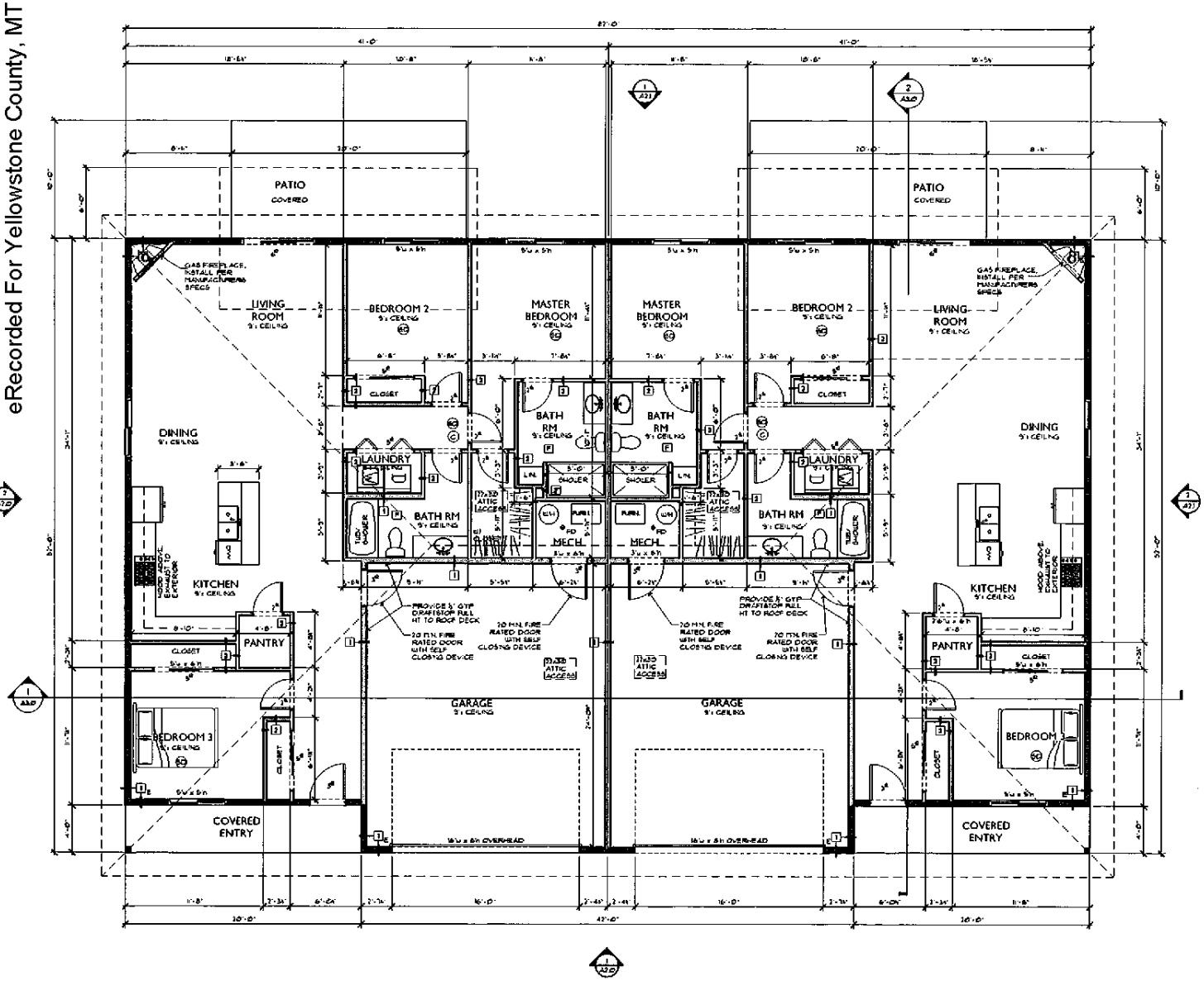
MECH. VENTILATION

R303.5 KITCHEN AND BATHROOM EXHAUST FANS. KITCHEN TO BE 100CFM INTERMITTENT BATHROOMS TO BE 50CFM INTERMITTENT

IRC 2018 TABLE M1507.4.3(1) CONTINUOUS WHOLE HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE @ 1,501-3,000 SF (1) BEDROOM = 60 CFM (IF INTERMITTENT WHOLE HOUSE VENTILATION SEE TABLE M1507.4.3 (2))

THE WHOLE HOUSE VENTILATION SYSTEM SHALL CONSIST OF AN OUTDOOR AIR DUCT CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER TO PROVIDE SUPPLY VENTILATION

R303.4 MECHANICAL VENTILATION
BLOWER DOOR TEST LESS THAN 5 AIR CHANGES AN HOUR WILL REQUIRE WHOLE HOUSE VENTILATION



1 A1.1 MAIN LEVEL PLAN
SCALE: 1/4"=1'-0"

A-LINE DRAFTING AND DESIGN
JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT. 59101

PAGE 2

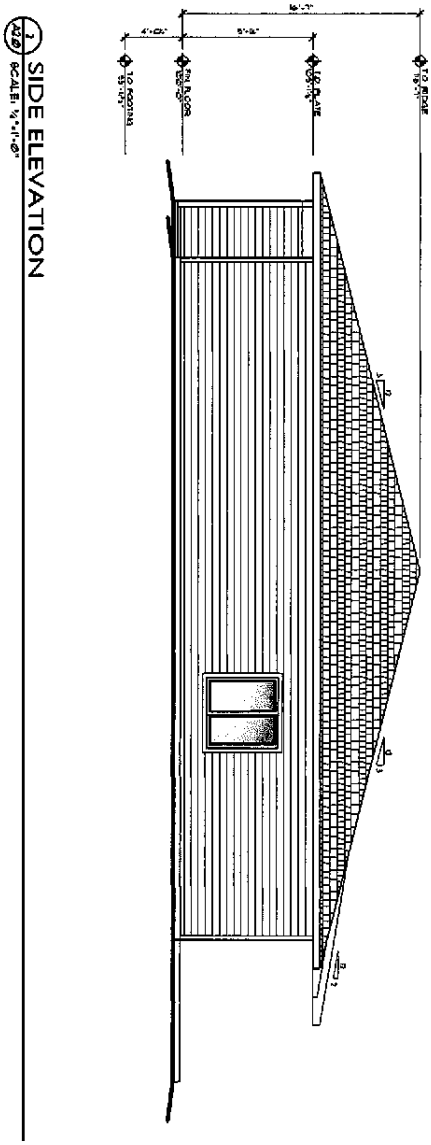
DUPLEX 1547SF
OPTION E

MAIN LEVEL PLAN

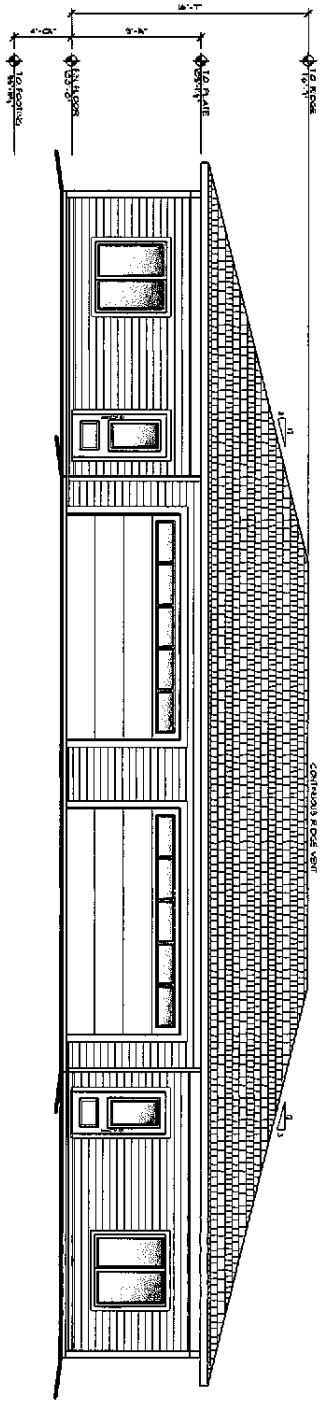
PRELIMINARY

MAIN LEVEL PLAN

SHEET
A1.1



2 A2.0 SIDE ELEVATION
SCALE: 1/4"=1'-0"



1 A2.0 FRONT ELEVATION
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX 1547SF
OPTION E

ELEVATIONS

SHEET A2.0

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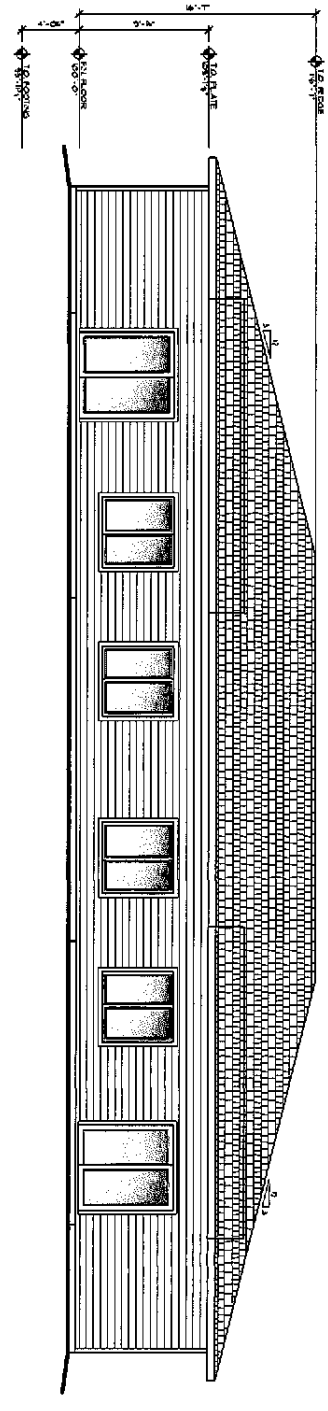
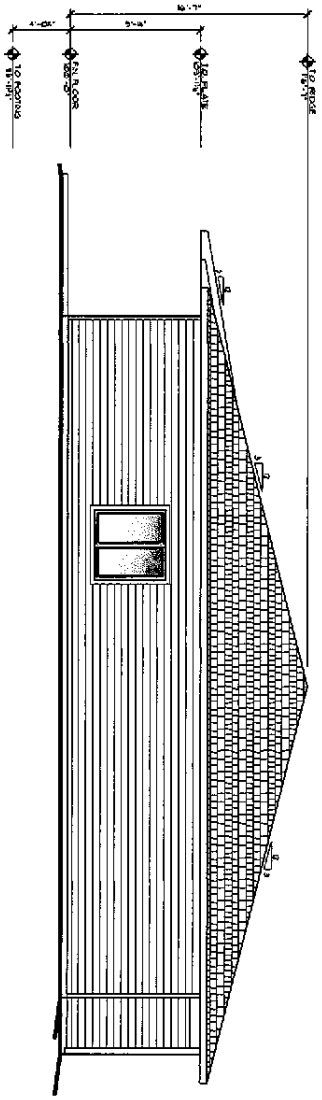
JEFF WOLLSCHLAGER
(406) 671-2380
2715 MINNESOTA AVE
BILLINGS, MT 59101



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



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

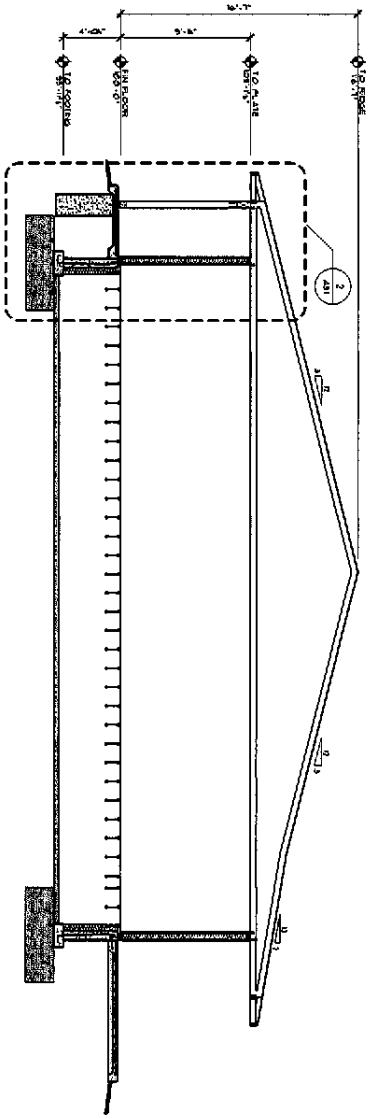
PRELIMINARY

DUPLEX 1547SF
OPTION E

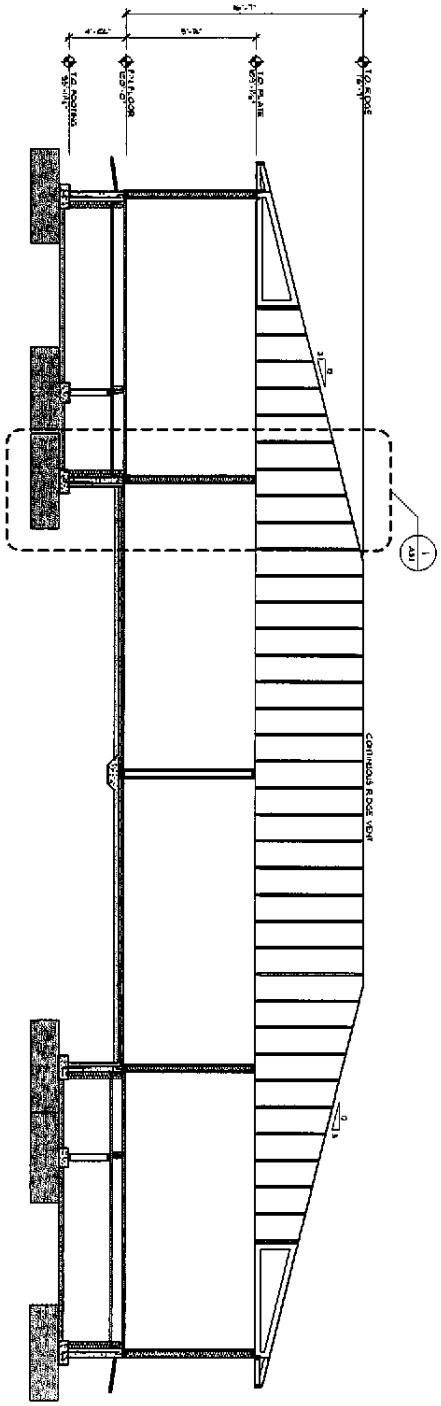
ELEVATIONS

SHEET A2.1

A-LINE
DRAFTING AND DESIGN
ELIT WOLLSCHLAGER
(406)321-2210
BILLINGS, MT 59101



1 A3.0 BUILDING SECTION
SCALE: 1/4"=1'-0"



1 A3.0 BUILDING SECTION
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX 1547SF OPTION E

SECTIONS

SHEET A3.0

A-LINE DRAFTING AND DESIGN

4067789 DCL
02/09/2024 03:01 PM Page 79 of 84
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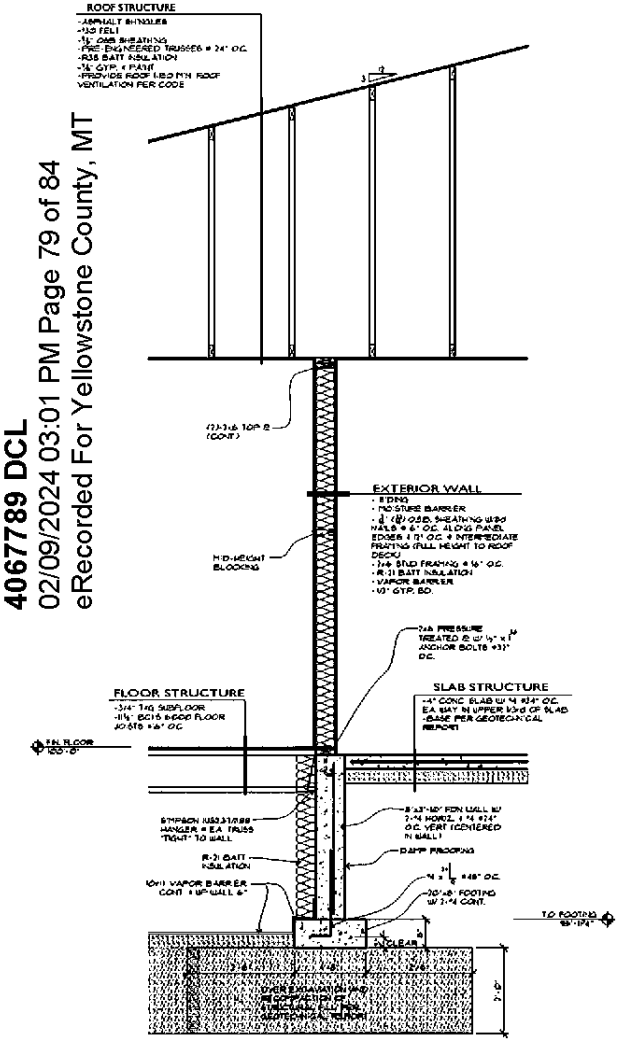
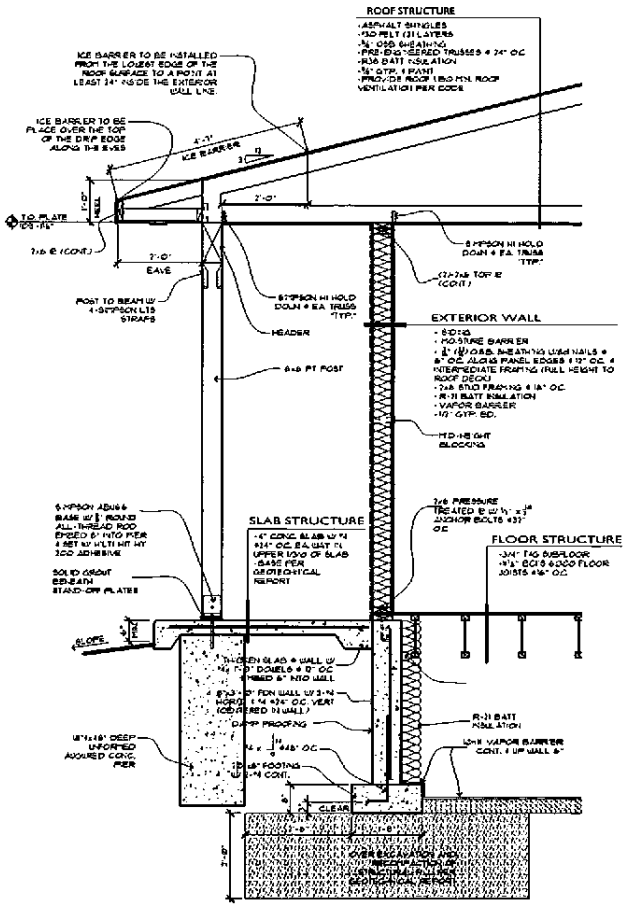


1 A3.1 WALL SECTION
SCALE: 1/4"=1'-0"



2 A3.1 WALL SECTION
SCALE: 1/4"=1'-0"

PRELIMINARY

A-LINE
DRAFTING AND DESIGN

JEFF WOLLSCHLAGER
(406)321-2280
725 GRAND AVE.
BILLINGS MT. 59101

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DUPLEX 1547SF
OPTION E

WALL SECTIONS

SET

DRAWN BY:
CHECKED BY:

WALL SECTIONS

SHEET
A3.1

HOLD DOWN DETAIL

* HOLD DOWN LOCATIONS

GENERAL NOTES:

FOUNDATION PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX 1547SF
OPTION E

FOUNDATION PLAN

SHEET
ST1.0

A-LINE
DRAFTING AND DESIGN

4067789 DCL
02/09/2024 03:01 PM Page 81 of 84
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GENERAL NOTES:

- FLOOR JOIST LAYOUT IS FOR DESIGN REFERENCE ONLY.
- CONTRACTOR TO VERIFY FLOOR TRUSS MANUFACTURERS SPECS
- BRACED WALLS REPRESENT BRACED WALLS
- ALL STRUCTURAL MEMBERS TO BE VERIFIED WITH ENGINEERING CALCULATIONS.
- SEE GENERAL STRUCTURAL NOTES ON SHEET ST1.0

DRAFTSTOPS

SEE CODE SECTION R302.12 FOR CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE. DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1,000 SQUARE FEET. WHERE THE CONCEALED SPACE IS DIVIDED INTO AREAS BY DRAFTSTOPPING, THE TOTAL AREA OF THE CONCEALED SPACE SHALL BE PERMITTED TO BE INCREASED BY A FACTOR OF 1.5 FOR EACH DRAFTSTOPPED AREA. DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES: 1. FLOOR-CEILING ASSEMBLIES WITHOUT A CEILING SUSPENDED UNDER THE FLOOR FRAMING. 2. FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES: CONSTRUCTED OF TWO OR MORE STORIES.

1 FLOOR FRAMING PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX 1547SF
OPTION E

FLOOR FRAMING PLAN

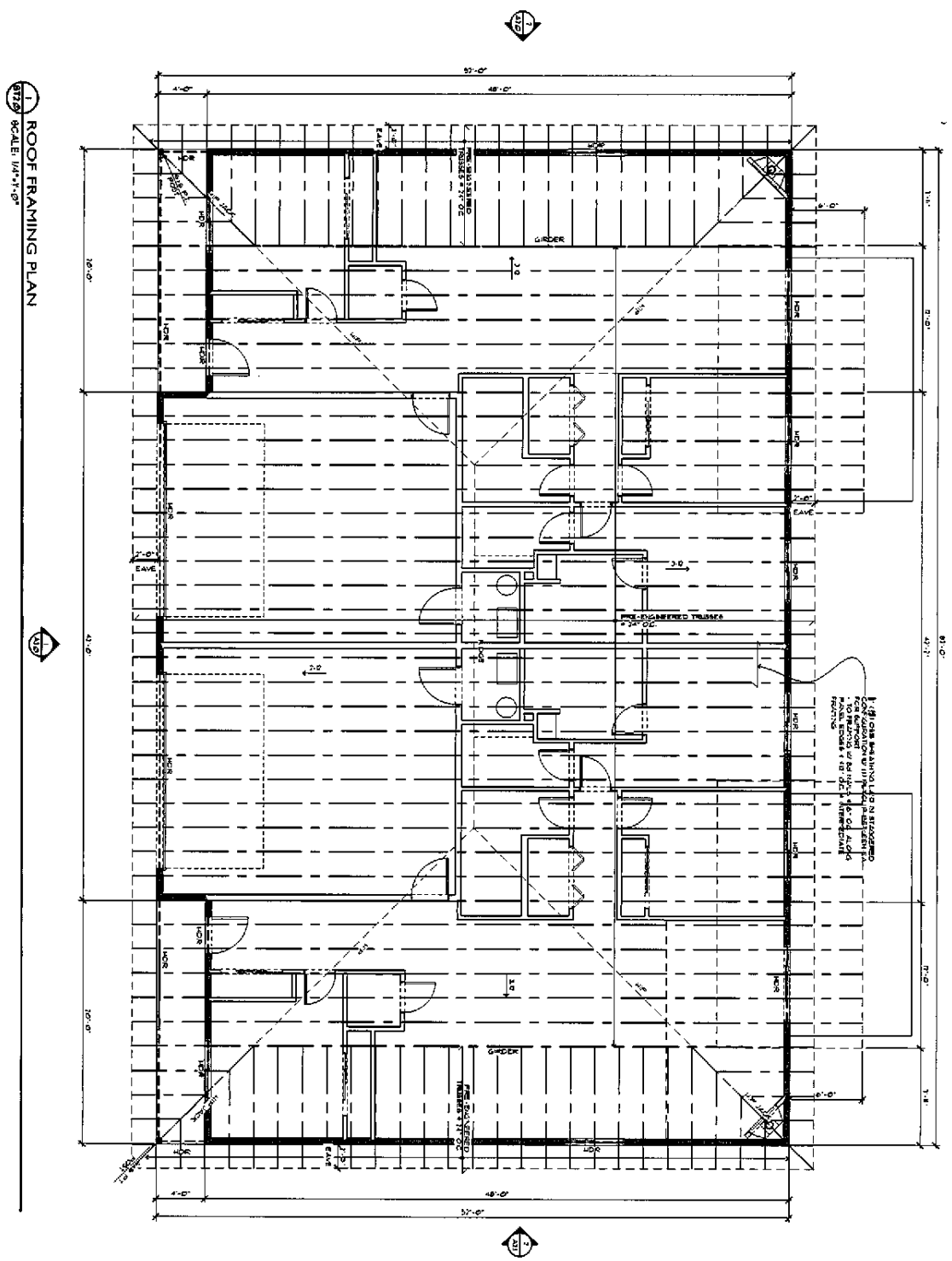
SHEET ST1.1

A-LINE DRAFTING AND DESIGN

JEFF WOLLSCHLAGER
(406)321-2280
1 KINGMAN AVE
BILLINGS, MT. 59101

GENERAL NOTES:

DRAFTSTOPS



ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY

DUPLEX 1547SF
OPTION E

FLOOR FRAMING PLAN

SHEET ST2.0

A-LINE
DRAFTING AND DESIGN

Exhibit C

TRAILRIDGE TOWNHOMES

The area of land which is a part of each unit is shown below:

Phase 1 - Unit # (Total 102 Units)	Area of Included Land
Duplex Option A: 3bedroom /2 bathroom **Addresses 4605, 4606, 4607, 4608, 4611, 4612, 4613, 4614, 4617, 4618, 4619, 4620, 4623, 4624, 4625, 4626, on Twisted Pine Drive** **4620, 4622, 4626, 4628, on Ravenwood Drive** **10 Buildings**	**1397.5 sq ft living space + 490 sq ft garage + 100 sq ft front covered entry + 186 sq ft rear patio = 2173.5 total sq ft**
Duplex Option B: 3bedroom /2 bathroom **Addresses 4607, 4608, 4609, 4610, 4613, 4614, 4615, 4616, 4619, 4621, 4625, 4627 on Ravenwood Drive** **4609, 4611, 4615, 4617, 4621, 4623, 4627, 4629 on Talking Tree Drive** **10 Buildings**	**1434 sq ft living space + 454 sq ft garage + 119 sq ft front covered entry + 186 sq ft rear patio = 2193 total sq ft**
Duplex Option C: 2bedroom /2 bathroom **No Addresses or Buildings Currently identified using this Option**	**1178 sq ft living space + 519 sq ft garage + 168 sq ft front covered entry = 1865 total sq ft**
Duplex Option D: 2 story, 3bedroom /2.5 bathroom **Addresses 605, 607, 611, 613, 617, 619, 623, 625, 629, 631, 635, 637 on Willow Branch Road** **4610, 4612, 4616, 4618, 4622, 4624, 4628, 4630, 4634, 4636 on Talking Tree Drive** **11 Buildings**	**1003 sq ft main level living space + 1071 upper lever living space + 461 sq ft garage + 104 sq ft front covered entry + 186 sq ft rear covered patio = 2825 total sq ft**

<u>Duplex Option E: 3bedroom /2 bathroom</u> **Addresses 4701, 4702, 4703, 4704, 4707, 4708, 4709, 4710, 4713, 4714, 4715, 4716, 4719, 4720, 4721, 4722 on Twisted Pine Drive** **4703, 4704, 4705, 4706, 4709, 4710, 4711, 4712, 4715, 4716, 4717, 4718, 4721, 4722, 4723, 4724 on Ravenwood Drive** **4705, 4707, 4711, 4713, 4717, 4719, 4723, 4725 on Talking Tree Drive** **20 Buildings**	**1547 sq ft living space + 505 sq ft garage + 40 sq ft front covered entry + 120 sq ft rear patio = 2212 total sq ft**