JACKSON/TETON COUNTY AFFORDABLE HOUSING

REQUEST FOR PROPOSALS

DESIGN-BUILD SERVICES FOR

ADAPTIVE REUSE OF THE HISTORIC BENSON CABIN TO CREATE AFFORDABLE HOUSING

445 EAST KELLY AVE. JACKSON, WY

CONTENTS

1. INTRODUCTION

The Jackson/Teton County Housing Authority, through the Jackson/Teton County Housing Department ("Housing Department"), is seeking design-build services from a qualified team to adaptively reuse the historic Benson Cabin as permanently deed-restricted housing on a county-owned property located at 445 East Kelly Ave, in Jackson, WY.

The Benson Cabin property is zoned Neighborhood Low Density 5 (NL-5). The Benson Cabin is listed in the Jackson Historic Register and is subject to Type 1 Certificate of Appropriateness review for all exterior modifications. The cabin is subject to the International Residential Code.

A competitive response to the Request for Proposals (RFP) will propose a livable space for local workers and their families that respects the character of this important historic resource. The goal of this historic preservation rehabilitation project is to create a model for how historic, single-family homes can offer an opportunity to provide workforce housing while preserving the character of Jackson.

Selection of a Design-Build (DB) team will prioritize those that meet one or more of the Secretary of the Interior's (SOI) Professional Qualification Standards or have demonstrated experience working on historic buildings.

The Housing Department requests that interested parties respond to the solicitation by 5:00 P.M. MST on Friday, February 6th, 2026.

2. CLIENT

The Housing Department works to create healthy housing solutions so that our workforce can live, spend, and volunteer locally, maintaining the community character we all cherish. To learn more, visit jhaffordablehousing.org.

The Benson Cabin, once fully renovated, will serve as employee housing for Teton County. As such, it will be managed and maintained by Teton County.

3. PROJECT OVERVIEW

Background

The Benson Cabin was constructed as a residence for Ed Benson and his family in 1920 and housed the town's first commercial hydroelectric generator. Ed Benson is an important figure in Jackson history as the first person to sell electricity for public use in the emerging ranching town. The property has been in continuous residential use since Ed Benson sold the cabin in 1954 (see **Appendix A** for further historic background).

In 2020, Teton County acquired the 1.08-acre parcel on which the cabin is located to develop affordable housing in partnership with Habitat for Humanity. The 1.08-acre parcel was re-platted as the Benson-Brown Station Townhome Addition and divided into six common area and eighteen townhome lots. In 2022, to maximize usable square footage on the site for townhome construction, the one-story Benson Cabin was relocated within the site, set on a new foundation, and non-historic additions were removed. The roof structure and floor joists were reinforced to meet structural code in place at that time (see **Appendix B** for more information). The Housing Department plans to rehabilitate the historic Benson Cabin at 445 East Kelly Avenue for use as a single-family residence to be rented to county employees.

Description

The goal of this project is to preserve the historic character of the Benson Cabin while modernizing the residence to provide comfortable, livable, and affordable housing. The Housing Department aims to develop a model for the adaptive reuse of historic structures that is economically competitive with new construction, demonstrating that preserving community character and creating affordable housing are not mutually exclusive.

This project is being executed in partnership with a preservation consultant, Old School Heritage Solutions (OSHS). Both Housing Department staff and OSHS will be involved throughout the entire project. The Housing Department will serve as the primary point of contact, contract signatory, invoice recipient, and liaison between the hired project professionals and government agencies, including coordination of document submittals. OSHS will be involved in the pre-bid walkthrough, kick-off and status meetings, project documentation review, and site visits, and will make recommendations to the Housing Department as the final authority on decisions.

4. SERVICES AND SCOPE OF WORK

Design and construction services are expected for the completion of this project. As funding allows, the anticipated design and construction work may include, but is not limited to, interior wall relocation; exterior soffit repair; new bathroom and kitchen layout, finishes, appliances, fixtures, and/or relocation; upgraded mechanical, electrical, and plumbing; window and door replacement; insulation; exterior stairs; and any other code-compliance-related work. **Site planning and site work is not included in the scope of services**. The DB team is only responsible for water, electrical, and waste within the building envelope and its interior. The county will provide water, sewer, and electrical hookups to the building.

The Scope of Services includes:

- Review of the existing site documentation (See ***Attachment A: Historic Documentation and Existing Conditions****)*
- Redesign of interior one-bedroom layout to accommodate single-family occupancy that meets applicable residential building code, historic preservation standards as described in this RFP, and livability standards in **Attachment C**.
- Repair and refinishing of cabin exterior, including new roof, stripping, repairing, and finishing of logs, chinking repair with NHL 3.5 mortar, repair/replacement of deteriorating gable-end soffits, new rear door, and code-compliant entry and exit stairs.
- Building Permit application to be submitted for Housing Department, Town of Jackson Planning/Building Department Review, and Teton County Historic Preservation Board review at 30% (including Type 1 Certificate of Appropriateness) and 75% completion at minimum, and 100% completion.
- Construction administration and execution for Benson Cabin preservation and remodel while meeting applicable residential code, historic preservation standards, and livability standards.
- Regular progress meetings during all stages of the project: at least one at kick-off; one for the 30% and 75% design submittals; and regularly scheduled progress meetings during construction.
- Submission of brief status memos quarterly, due March 1; June 1; September 1; until the conclusion of the project.

All work performed shall adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties (Rehabilitation Standard) and all local, state, and federal laws and regulations. All work and final products are subject to Housing Department and Town of Jackson Planning/Building Department Review and shall incorporate any changes requested by either agency to their satisfaction.

5. PROJECT BUDGET

This project is supported by Teton County funding, which will align with the budget proposed by the selected DB team. Creative cost-cutting measures that do not compromise the livability of the home are encouraged. For example, reusing existing building components like fixtures and windows.

Services will be contracted based on a lump sum, negotiated with the selected DB team. This may result in necessary modification(s) to the scope of work, which the Housing Department will discuss with the selected DB team. In no event shall the selected DB team be entitled to receive more than the contracted amount unless authorized in advance and in writing by the Housing Department. Competitiveness of the budget will be considered as part of the proposal review process. Budgets that prioritize construction costs over administrative and design costs as a ratio of overall budget will be considered more competitive.

Note: Planning and Building Department permit review fees are waived for affordable workforce housing developments. DB teams should assume no other fees are waived.

6. SCHEDULE

Required Project Milestones

1. Within one month of contract (estimated by mid-April 2026): Schematic Design (30% design concept) and a Type 1 Certificate of Appropriateness (CoA) application due to Housing Department for review
2. Within two months of contract execution (estimated by mid-May 2026): The DB team must present the Type 1 CoA to the Teton County Historic Preservation Board at a public meeting
3. The Housing Department will review final designs at 75% completion and provide comments within two weeks
4. DB team must apply for and receive a Wildland Urban Interface (WUI) permit through the Jackson Hole Fire/EMS-Fire Division prior to application for Building Permit
5. Within three months of contract execution (estimated by mid-June 2026): DB team must provide a complete Building Permit application to the Housing Department for review prior to formal submittal to the Town of Jackson
6. Within one month of Building Permit approval: Construction must begin
7. Within three months of starting construction: The DB team must pass final electric, fire, plumbing, mechanical, and building inspections from the Town of Jackson.

Work is expected to begin immediately upon execution of the contract and conclude as expeditiously as possible, allowing for a completion date of no later than December 31, 2026.

7. DESIGN REQUIREMENTS

Land Development Regulations

The entire Benson-Brown Station Townhome Addition site is approximately 1.08 acres and is zoned Neighborhood Low Density 5 (NL-5). For planning and legal purposes, the Benson Cabin is treated as part of the larger Benson-Brown Station Townhome Addition. Because the property is part of a larger parcel, **the Housing Department will prepare all site development plans for the Benson Cabin assigned area that meets requirements for LSR, parking, on-site storage, utility hook-ups, landscaping, and circulation in the context of the larger site.**

While the details are currently under development, DB teams can assume that the site plan includes two tandem 9' x 20' parking spaces directly north of the cabin and a walkway from the street to the south (primary) elevation. The north yard may also include on-site storage. Please see **Attachment F** for a site plan concept.

Building Code

The Benson Cabin continues to function as a residential property and thus is subject to the International Residential Code. The Housing Department met with the code official on September 22, 2025, and discussed the following issues:

- Bedroom egress- the existing bedroom window (or any window) does not meet bedroom egress requirements because the bottom sill is too high above the floor. Furthermore, the existing window sash does not meet the minimum window opening size for egress. Because the windows are not historic and the opening is only 1" too high, a new, egress-compliant window that expands the window opening would not alter the character of the historic building and should be included in any design proposal.
- Seismic and snow load structural- when the cabin was moved in 2022 it was secured to the new foundation to meet Town of Jackson seismic requirements. Likewise, the roof members were reinforced with new structural members, and a central support post was added to the structure **(see Appendix B)**. **No known structural work is required to meet building code as part of this project per the Structural Engineering Report provided in Attachment E. However, any proposed moving or removal of existing walls or other structural support by the DB team is subject to further structural engineering by the DB team in the Building Permit application.**
- Energy Conservation - Because the Benson Cabin is on the Jackson Historic Register, R501.6 Historic Buildings of the International Energy Conservation Code (2021) applies to the project. Therefore, the building envelope does not need to meet the International Energy Conservation Code (2021) standards, as it would for any other major remodel. However, DB teams should include additional measures in their design to enhance energy conservation wherever possible without negatively impacting the historic character and materials. Note: The interior log walls have been identified as a character defining feature. Because they are larger than 8 inches in diameter, they provide adequate insulation value and should not be furred out and insulated solely for energy conservation purposes (but can be covered where desired for functionality, such as a kitchen or bathroom).
- Wildland Urban Interface (WUI)- Effective January 1, 2025, all private land parcels in the Town of Jackson and Teton County are now within the mapped Wildland Urban Interface and subject to IWUIC review by the Fire Department. Regardless of the location of the project or the scope of work to occur, prior to submitting for a building permit, all applicants must apply for a WUI permit through the Jackson Hole

Fire/EMS-Fire Division. As part of the building permit submittal, the applicant will be required to provide their WUI permit number.

This list is not exhaustive, and DB teams are encouraged to identify any other code issues as they develop their scope and estimates.

Historic Preservation Standards

The Benson Home was found to have enough historic significance and integrity to be listed on the Jackson Historic Register per Sec. 8.5.7 of the Town of Jackson Land Development Regulations on December 21, 2021 (Project P21-289). The property is now subject to and eligible for the provisions in the town's historic preservation program, including Division 5.9 (Preservation of Historic Properties); Sec. 5.8.13 (Historic Preservation Design Guidelines); Sec. 8.5.8 (Certificate of Appropriateness for Exterior Alterations); and Sec. 8.5.9 (Certificate of Appropriateness for Repositioning and Relocation) in the LDRs. The Benson cabin is not currently subject to a Historic Preservation Easement.

For the Certificate of Appropriateness for Exterior Alterations to be approved, the alterations must meet the Secretary of the Interior Standards for the Treatment of Historic Properties (Rehabilitation Standard). Simply put, the alterations must not impact the character defining features to a point where there is a significant loss in historic integrity. The Teton County Historic Preservation Board (TCHPB) will review the Type 1 CoA submission to determine that the exterior alterations meet this standard.

The interior alterations will not be included in the Type 1 CoA and, therefore, will not be reviewed by the TCHPB. However, the Housing Department will review drawings to ensure that the two interior character defining features (exposed interior log walls and wood flooring in the living/kitchen space) will not be altered to a point that historic character is lost on the inside of the structure. **All remaining interior finishes (other than the log walls and hardwood floors) are not considered historic and can be demolished or altered to achieve the aims of creating livable, comfortable housing.**

Livability Standards

Because this property will be a county-owned, deed-restricted housing unit, the property is subject to Jackson/Teton County Housing Department Rules and Regulations, Section 3.3 Livability Standards as a one-bedroom single-family home (see **Appendix C** for checklist). Where livability standards cannot be achieved without negatively impacting historic integrity and adhering to the SOI standards, the DB team can file for an exception following the process outlined in the livability standards.

Environmental Quality Standards

Although this project falls below the threshold for a four-bedroom residential project that requires mandatory hazardous materials abatement, the county is committed to worker and residential safety and will adhere to commercial property standards for this project. A hazardous materials inventory has been completed (see **Appendix D**).

8. CONSTRUCTION REQUIREMENTS

Site access

Construction efforts shall be coordinated with the Housing Department and not impact the other residential units built or in construction at 445 East Kelly Ave.

Construction zone

Though the Benson Property is legally part of the larger Benson-Brown Station Townhomes addition, for the purposes of this project, the Housing Department has identified a construction zone to contain all staging, construction, and waste removal. Please see Attachment F.

Rules and Regulations

DB team must follow all applicable laws, codes, rules, and regulations in Jackson and Teton County for construction and waste disposal.

9. INSTRUCTIONS TO DB TEAMS

Timeline (subject to change as needed):

- January 6, 2026: RFP Release
- January 13, 2026: Pre-bid walkthrough of cabin
- January 16, 2026: Deadline for respondents to submit questions
- February 6, 2026: Submission Deadline
- February 11, 2026: Review, Interviews (optional), and Scoring at Housing Supply Board Meeting
- February 17, 2026: Consideration of RFP Award and funding direction at Board of County Commissioners meeting
- March 3, 2026: Consideration of contract and funding allocation at Board of County Commissioners meeting

Procedures

By responding to this RFP, DB team agrees to meet all applicable local and state regulatory requirements.

Submissions are due **February 6, 2026, by 5 pm MST.** Submissions received after 5 pm will not be considered.

Incomplete submissions will not be considered. Responses must be submitted through the Teton County www.PublicPurchase.com portal and may not exceed 10 pages. Plan sheets do not count against the page limit.

All questions must be submitted on the Public Purchase site, no later than January 16, 2026. Answers will be provided on a rolling basis.

The Housing Department reserves the right to request additional materials from the DB team at any stage in the RFP process.

Requirements

DB teams must provide the following information in this order.

1. Introductory Letter

Please include a letter of interest that clearly demonstrates the DB team's understanding of the project and interest in being considered for the project. The letter shall include the DB team's name, contact information, and primary contact name.

2. Qualifications

a. Proposed Project Team. Please include an organizational chart and a description of each member of the DB team, including: a resume, how the member will participate in the project, their relevant

experience, and portfolios of any similar projects on which they have worked. At a minimum, teams must include an architect and general contractor licensed to work in Jackson, WY.

b. Examples of similar projects, including at least two projects involving historic buildings of similar scope of work as this project, completed within the last seven years.

c. References. Please provide two references for whom your team has provided similar services. List the name, address, email address and telephone number for each reference along with a brief

d. Description of the relevant work experience for each reference. Indicate which team members worked on each project.

3. Project Description

The project description must contain the following:

a. Proposed project approach and scope of services.

b. Itemized project budget indicating cost per service/deliverable, an allowance for reimbursable expenses, if applicable, and a remainder allowance for all construction costs. At a minimum, line items for project tasks must include:

   i. MEP upgrades/replacement

   ii. Interior demolition

   iii. Interior framing and wall finishing/trim

   iv. Door and window infill work and/or replacement door and window work

   v. Bathroom, laundry, and kitchen finishes, fixtures, and appliances

   vi. Flooring repair and replacement

   vii. Exterior maintenance (log paint removal and refinishing, soffit repair, roofing, etc.)

   viii. Exterior stair repair, replacement, or construction

c. Project schedule that identifies milestones and stipulates durations for key tasks and the overall project through completion of construction.

d. Scaled floor plan concept

Subcontracts

DB teams must identify all portions of the work intended to be performed through subcontractors.

10. EVALUATION AND SELECTION PROCEDURES

Evaluation Procedure

Each response will be evaluated in accordance with the indicated criteria. Special consideration will be given to DB teams who demonstrate familiarity with historic structures.

1	**Background and Qualifications (33%)** a) Special expertise of personnel, especially in historic log structures, including demonstration that one or more team members meets one or more of the Secretary of the Interior's Standards and Guidelines Professional Qualifications Standards, or has demonstrated recent experience working on historic structures. b) Past relevant experience following SOI Standards for Rehabilitation.
2	**Project Approach & Management (33%)** a) Names and functions of personnel assigned. b) Ability to meet project needs, including current workload. c) Commitment to project completion within the time and budget proposed in the response. Although no maximum budget is assigned in this RFP, respondents that minimize total project budget with efficient and realistic cost-saving measures will be scored higher. d) QA/QC methods.
3	**Technical Merit (33%)** a) Demonstrated comprehension of tasks to be completed. b) Completeness and clarity of submittal. c) Adequately addresses project goal(s) and objective(s).

Award

Acceptance of the successful DB team's proposal does not create a contractual relationship between the Housing Department and the successful DB team. The Housing Department reserves the right to award the contract to the next available DB team in the event the successful DB team fails to enter into the contract, or the contract with said DB team is terminated.

11. EXECUTION OF AGREEMENT

Submittal of a proposal binds the successful DB team to perform the work upon acceptance of the proposal.

Upon acceptance of the proposal, the successful DB team must provide:

- Contract for review
- Completed Form W9
- Satisfactory evidence of insurance coverage as required by the Housing Department, including but not limited to:
    - General Liability coverage with minimum limits of no less than $1,000,000.00 per claim.
    - Automobile Liability coverage to include Owned, Non-Owned, and Hired Autos, with minimum combined single limits of no less than $1,000,000.00 per claim.

- Workers' Compensation and Employer's Liability coverage with minimum limits of no less than that required by Wyoming law.
- Professional Liability coverage, if applicable, with minimum limits of no less than $1,000,000.00 per claim.
- Builders Risk Insurance, with minimum coverage for no less than the total value of the entire construction project on a replacement cost basis.

- If ACH payment preferred: Name and email address of the individual to whom a secured form can be sent to obtain necessary information

ATTACHMENT A: HISTORIC DOCUMENTATION AND EXISITING CONDITIONS

SITE DEVELOPMENT

Edward C. Benson was born in Colorado in 1883, but he spent his childhood and young adult years in the mid-Atlantic. Benson started his career as a bank clerk in Jersey City (following his father's footsteps), but by his thirties, he was working on and selling automobiles. Benson married Sylvia Miller from Philadelphia in the 1910s, and they lived there until moving West in 1917.

Although we don't know what prompted the Bensons to move west, Sylvia Benson was reported by the Jackson paper in 1917 to be spending time with Frances Mears, owner of the STS Dude Ranch. So, it's possible that before relocating to Jackson, the Bensons might have been summer guests at one of the local Philadelphia-connected dude ranches (White Grass, STS, or Bar BC).

E.C. Benson moved to Jackson before his bride, meeting her in Victor, Idaho, on Saturday, May 29, 1920, for her permanent move to the valley (although she returned back east for several months during the winter of 1921). The couple signed the paperwork to buy the property on Kelly Avenue from George Kelly on June 1, 1920. Interestingly, Benson was already supplying electric to limited customers prior to 1920, but it is unclear what facility he was using.

1 Benson Dredging the Pond to the East of His Newly Constructed Cabin

Benson not only constructed the cabin, which served as his power plant, but he also dredged a pond east of the cabin and diverted nearby Cache Creek to it, routing water under his home to power two water turbine generators he built in his basement. Although hydroelectric power was fairly common (the Chambers Ranch on Mormon Row, the Murie Ranch, and the Snake River Ranch all had similar generators), Benson was the only business selling the power he generated.

2 Benson in Front of his Cabin (1920s)

By December 1920, the Courier reported that "Freighters arrived the latter part of last week with the engine for the electric light plant which C.E. [sic] Benson is installing. Mr. Benson is engaged at present setting poles and stringing wires. He expects to be ready to turn on the juice soon." In January of 1921, the paper reported that after two months of installing poles and stringing wires that the system is nearly ready. And later that winter, they reported that "he now has the polls about all set and the wires practically all strung. Just as soon as he wires a few more buildings, the 'juice' will be turned on. Mr. Benson plans to have meters installed so each person can use all the juice he wants and pay accordingly."

In 1921, the all-female town council granted Benson the exclusive franchise to provide Jackson with electricity. By the end of that year Jackson considered itself "a modern 'burg' ...since E.C. Benson has erected seven street lights on some of the principal street corners. They burn until 11:00 o'clock every night." Starting in 1920, Benson began advertising in the *Jackson's Hole Courier* as "a seller of electrical supplies."

In 1923, Benson bought the corner property on Center and Deloney streets to serve as the company's headquarters. His home on Kelly Avenue was the only power source for Benson's operations until the late 1920s, when he built a dam and power plant on Flat Creek. Interestingly, he constructed a power station cabin on Flat Creek that was a smaller version of the Kelly Ave. cabin but less decorative.

At some point before 1930, Benson also built a generator station to house diesel generators on the property on Kelly Ave. In 1931, Benson incorporated the Jackson Hole Light and Power Company. Unfortunately, rural development loans favored power cooperatives over private companies, which led to Lower Valley Power and Light's acquisition of Jackson Hole Light and Power in 1952.

Sylvia Benson died of a cerebral hemorrhage in 1934, and Benson married Parthenia Hansen (Cliff Hansen's elder sister) in the early 1940s. Parthenia's daughter, Edith Stinnett, lived in the Benson Cabin on Kelly until 1968 when she sold the property to Norris and Grace Brown. The Browns added a porch and kitchen to the south side of the structure in 1977. The generators still remained in the basement. The land surrounding the Browns' one-acre property was sold to the town in 1988 and turned into Mike Yokel Park.

HISTORIC SIGNIFICANCE AND INTEGRITY

Historic significance is the importance of a property to the history, architecture, archeology, engineering, or culture of a community, state, or the nation. Integrity, also known as historic integrity, is the ability of a property to convey its

historic significance. A property must possess sufficient significance and integrity to be considered eligible for the Jackson Historic Register.

Significance

The Benson Home is significant for the role that it played in the development of a struggling ranching town into a thriving summer tourism destination. The property is significant not only as the place where the town's first electrical service was created but also as the home of the individual responsible for making that electrification possible. Although electrical power was not available on ranches until after World War II, the electrification of Jackson in 1921 symbolized the changes the rural ranching community was experiencing at the end of the second decade of the twentieth century.

The period of significance for the property is the year the cabin was built, 1920, and the year Benson sold the property and no longer lived there, 1947.

Integrity

Jackson/Teton County Housing Authority significantly improved the historic integrity of the property in 2022 by removing several additions that were outside the period of significance. The additions had been built on almost every side of the property, obscuring the historic Benson Cabin beneath them. At the same time, the housing authority was required to move the cabin to make way for much-needed housing. Moving a property, even within the same parcel, does affect overall integrity. However, because the setting and context are nearly identical to the original location, the impact was minimal.

Some other notable changes have taken place on the cabin since the period of significance. First, the three chimneys that once lined the roof (presumably to assist with exhaust in the basement as well) are no longer present. The storm cellar entrance and daylight basement windows are also gone. Small material changes, such as paint on the logs, a modern door and windows, a new roof, and painted shingles, also affect the overall integrity. However, many of these material changes are reversible, so the material integrity may be restored someday.

Despite the changes, the Benson Cabin still communicates its significance as the home of Jackson's electrical pioneer, who helped to modernize the growing ranching community.

TOWN OF JACKSON HISTORIC REGISTER STATUS

The Benson Home was found to have enough historic significance and integrity to be listed on the Jackson Historic Register per Sec. 8.5.7 of the Town of Jackson Land Development Regulations on December 21, 2021 (Project P21-289). The property is now subject to and eligible for the provisions in the town's historic preservation program, including Division 5.9 (Preservation of Historic Properties); Sec. 5.8.13 (Historic Preservation Design Guidelines); Sec. 8.5.8 (Certificate of Appropriateness for Exterior Alterations); and Sec. 8.5.9 (Certificate of Appropriateness for Repositioning and Relocation) in the LDRs.

BUILDING DESCRIPTION AND CONDITION

The Benson Cabin, located at 445 East Kelly Ave., is a one-story log structure that exemplifies the log craftsman style of the early 20th century in Jackson. Materials were sourced locally, although the original windows were probably purchased from the Deloney Store and transported by train to Idaho. The building's footprint is generally rectangular (oriented east to west) with a 9' x 9' vestibule entrance attached to the south. Today, the building functions as a 1-

bedroom, 1-bathroom home with a kitchen. During its period of significance, the bathroom likely was not within the main log structure—initially as an outhouse and later as a lean-to shed added to the north.

Foundation

Following the cabin's move in 2022, the building sits on a reinforced poured concrete stem wall foundation that is 3 feet deep and 8 inches thick. The floor joists are supported by wood stud walls in the crawlspace. A pressure-treated Douglas fir sill was used to prevent decay of the sill log, although there is no record of vapor barrier tape. Because the historic basement housed the turbine (and Ed Benson's favorite fishing hole), the cabin traditionally had a raised foundation, which was an unusual design feature in Jackson at the time. The main visual difference between the new foundation and the historic one—aside from modern materials—was that the historic foundation was daylighted through small wood windows, likely making it easier for Benson to work in the basement during the day. The vestibule was supported at each corner by rock piers and filled in between with loose rock.

The crawlspace can be accessed from the cabin bedroom. Historically, the basement was accessed through a storm cellar entrance on the south side. The new foundation is in excellent condition, and there is no sign of moisture problems.

Log Walls

The square-notched log walls are likely crafted from lodgepole pine harvested from Cache Creek. The logs on the north wall, which were covered by a former non-historic addition, reveal their original finish. The logs on the north elevation were also notched to fit the now-removed north bedroom addition. However, the notches are superficial and serve as a record of the building's history, so they should remain untouched. The logs on the rest of the building are painted brown. The south kitchen wall includes new infill logs that reflect repairs made after the non-historic southern addition was removed in 2022. Overall, the logs are in good condition.

The unpainted north elevation logs show that the cabin was chinked with oakum, mortar chinking, and dimensional chinking stops. The original mortar was lime-based, a softer material than the wood, allowing moisture to escape through the sacrificial mortar rather than the logs, which helps slow wood deterioration. The harder chinking under the latex paint on the rest of the structure is probably Portland-based, and although mostly intact, it is less compatible than lime-based chinking. However, the structure was likely chinked with Portland mortar decades ago, and the logs are only experiencing normal deterioration for their age, suggesting that the hard mortar likely isn't truly problematic due to the quality and density of the logs. During the next regular maintenance cycle, the owner should consider using an NHL 3.5 mortar with the porosity of lime but greater durability. Similarly, in the next log maintenance, the owner should consider removing the paint to allow the logs to breathe. This will ultimately extend the logs' lifespan, as waterborne paints trap moisture behind their film, which seeps in through normal cracks and blisters that develop on any painted surface.

The unpainted log section on the north elevation has a few lower logs that will need repairs within the next 5-10 years, but they are not problematic right now. The damage likely occurred before the non-historic addition and may have led to the addition used to cover the problem area.

Roof and Roof Structure

The main cabin roof is covered with modern brown V-groove standing seam metal. The vestibule has a black membrane covering. While historic photos of the Benson Cabin are too illegible to clearly see the roof, it is likely that, given

Benson's success and status, the design details of the rest of the house, and other buildings from the same period in town, the roof was originally cedar shingles or shakes. Metal and rolled roofing were common options at the time of construction, so a metal roof isn't unusual. However, because of the prominently visible V-groove style, the roof does slightly detract from the overall historic character of the building. In the future, the current roof could be replaced with a corrugated metal roof, wood shingles, composite shingles, or three-ply rolled roofing, and still meet the Secretary of the Interior's Standards for the Treatment of Historic Properties.

In 2022, before the building move, the interior roof structure was reinforced by sistering modern lumber to strengthen the roof assembly.

The exterior roof structure on the gable ends features a closed eave with decorative knee brackets. The gable-end soffits are made of beaded board, which displays a level of craftsmanship not often seen in Jackson structures of that era. The non-gable-end eaves are simple open eaves, allowing the rafter tails and skip sheathing to be visible from below. All these elements are painted brown, and the paint is in fair condition, protecting the wood components. The gable-end soffits are deteriorating and pulling away from the structure.

Cladding and Trim

The gable ends and east- and west-facing upper walls of the vestibule are covered with brown shingles painted brown to match the logs. The building features simple square-profile trim painted tan. The cladding and trim are in fair condition.

Windows and Doors

The cabin has six window openings fitted with modern replacement windows that slide open, either double or triple pane (year unknown). The attic gable ends feature ventilated single-lite wood awning windows. These windows seem to be original or at least older than the first-floor replacement windows. On the north elevation, two additional window openings have been filled in with live edge boards, indicating that the infill is quite old. This was probably done when the north side addition was added to the building. There is also another window opening on the northern end of the eastern elevation that has been boarded up.

The vestibule has modern fixed windows on the south and west elevations (the window opening on the east side of the vestibule is boarded up). The eastern end of the south elevation (the kitchen location) lacks a window or door opening, or any evidence of it, due to the 2022 infill construction.

The historic windows were simple wood sliders (no muntins) on the cabin and fixed six-light sash in the vestibule on all three sides. All windows are in fair condition.

Currently, the building can only be accessed through the center door in the south vestibule. There is an opening on the north elevation that has been boarded up, where an exterior door once provided access to the property to the north. The south vestibule door is a modern fiberglass single-pane door.

Site

While major changes, such as the loss of the creek running through the basement or the neighboring pond, have affected the integrity of the setting, the site still retains several historic characteristics, such as the mature vegetation and views up Cache Creek Drainage. The site generally slopes downward toward Kelly Avenue; however, there is a high

point to the east of the cabin that should be addressed for water runoff. For the most part, however, the relocation and installation of the new foundation has created positive drainage away from the building.

Interior

The cabin interior has lost much of its historic character due to modifications over the years (before Teton County ownership). The kitchen and bathroom seem to have been remodeled in the 1980s or 1990s and lack any original design features. The quarter-sawn oak floor might not be original, but it likely belongs to the period of significance. The historic chinking has been replaced with synthetic chinking. New walls with popcorn-texture finish, doors, trim, and recessed lighting have been added. The floor plan and layout have been altered since the historic period, though it is unclear how many rooms the cabin initially included. When the house was built, Jackson did not have indoor plumbing, so the building likely did not include a bathroom. Similarly, the kitchen would have been limited to a wood stove/oven and a work surface for food prep. The interior is in good condition with no major signs of water damage or underlying problems.

BUILDING CHRONOLOGY TIMELINE:

Year	Event	Notes
1920	Benson constructed cabin and basement and used as house and power station to light 7 street lights	Begin Period of Significance
1920s	Vestibule added	
1947	Benson sold the property to his stepdaughter, Edith Stinnett	End of Period of Significance
1961	E.C. Benson died in Florida where he retired	
1968	Stinnett sold the property to Norris and Grace Brown	
1977	Brown added on to property	Probably occurred other times than 1977, but that is the only year with documentation of alterations. This also happened around the time when the Brown's constructed their taxidermy shop on site.
1988	The Browns sold the surrounding acre to the Town of Jackson for use as Mike Yokel Park.	

2020	Grace Brown died. Teton County purchased the cabin and property from Brown's heirs.	
2021	Teton County placed the Benson Cabin on the Jackson Historic Register	
2022	Teton County removed non-historic additions, repaired the south log wall, and placed the cabin on a new foundation to the south of the original location.	

CHARACTER DEFINING FEATURES

Character defining features (CDFs) are **features or elements** that give the building its **visual character** and that should be taken into account in order to preserve them to the maximum extent possible.

Benson Cabin

445 East Kelly Ave

South

East

North

West

Character Defining Features

(present)

Shingle and awning window

Log walls,chinking, box corners

Decoratie knee braces and closed eave (E/W gable end)

Exposed log walls (with marks) and oak flooring

Open eave (N/S eaves), exposed rafter tails, and horizontal fenestration pattern

Treed site, and proximity to street and sidewalk

Low-slung, rectilinear plan with vestibule entrance and stairs

Character Defining Features

(missing or obscured)

Six-lite vestibule windows on all three sides and wood single-lite door

Unfinished logs and unpainted chinking with chinking stops

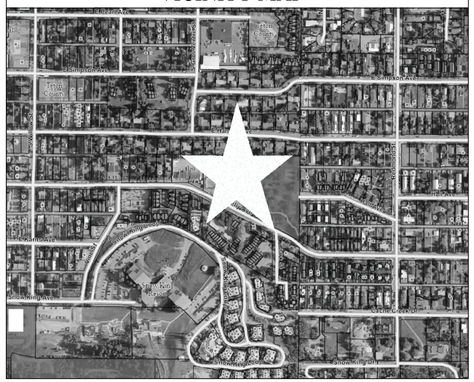
Regular fenestration pattern on all elevations (e.g. windows where infill has occured)

Shingle roof. Note this photo is from the power station at Flat Creek built by Benson in the 1920s., not the Benson Cabin

White painted window trim and white wood slider windows (without muntins)

Regular window pattern on south elevation kitchen wall.

ATTACHMENT B: 2022 BUILDING PERMIT



GENERAL NOTES

1. THE GENERAL CONTRACTOR MUST OBTAIN ALL REQUIRED BUILDING PERMITS AND AGENCY APPROVALS.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR EXECUTING WORK IN CONFORMANCE WITH THE INTERNATIONAL BUILDING CODES AND ALL OTHER AGENCY REGULATORS.
3. THE CONTRACTOR MUST INSPECT THE SITE BEFORE BEGINNING WORK AND IDENTIFY CONFLICTS OR INCONSISTENCIES BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS.
4. THE GENERAL CONTRACTOR MUST VERIFY ALL EXISTING SITE DIMENSIONS AND CONDITIONS.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, MATERIALS SCHEDULES, ETC. WITHIN THE SCOPE OF THE PROJECT, AND REPORT ANY DISCREPANCIES TO THE DESIGNER.
6. THE GENERAL CONTRACTOR MUST NOTIFY THE DESIGNER IMMEDIATELY OF CONDITIONS, WHICH REQUIRE DEVIATION FROM CONSTRUCTING THE WORK AS INDICATED IN THE CONTRACT DOCUMENTS.
7. DO NOT SCALE DRAWINGS IN ORDER TO DETERMINE DIMENSIONS. WRITTEN DIMENSIONS GOVERN, AND LARGE SCALE DETAILS GOVERN OVER SMALLER SCALE DRAWINGS. WALLS AND PARTITIONS ARE DIMENSIONED FROM FACE OF FRAMING, UNLESS OTHERWISE NOTED.
8. ALL DIMENSIONS ARE MEASURED FROM FACE OF STUD AS INDICATED. ALL COLUMNS ARE MEASURED FROM CENTERLINE. CONTRACTOR TO BE AWARE OF ALL N.T.S. (NOT TO SCALE) DIMENSIONS.
9. THE PRESENCE OF THE DESIGNER ON THE JOB SITE DOES NOT IMPLY APPROVAL OF THE WORK. THE GENERAL CONTRACTOR MUST CALL SPECIFIC ITEMS TO THE DESIGNER IF HE WISHES TO OBTAIN DESIGNER'S APPROVAL.
10. THE GENERAL CONTRACTOR MUST SUBMIT ALL PROPOSED SUBSTITUTIONS IN WRITING TO THE DESIGNER FOR APPROVAL WITH SUFFICIENT INFORMATION. SAMPLES, AND DIFFERENCE IN COST FOR EVALUATION. IF A REVISION OR SUBSTITUTION IS MADE TO IN ANY WAY ALTER THE WORK SO THAT IT DOES NOT CONFORM WITH THE CONTRACT DOCUMENTS WITHOUT THE DESIGNER'S WRITTEN APPROVAL, SUCH ACTION WILL RELIEVE THE DESIGNER OF ANY LIABILITY FOR THE RESULTING AESTHETIC EFFECT, SUBSEQUENT FAILURE, PROPERTY DAMAGE OR PERSONAL INJURY.
11. THE GENERAL CONTRACTOR MUST PERFORM HIGH QUALITY PROFESSIONAL WORK. THE WORK OF EACH TRADE MUST MEET OR EXCEED ALL QUALITY STANDARDS PUBLISHED BY THAT TRADE.
12. THE GENERAL CONTRACTOR MUST ARRANGE TO ACCOMMODATE "NOTE IN CONTRACT" WORK AND MUST REQUEST INSTRUCTIONS FROM THE DESIGNER BEFORE PROCEEDING.
13. THE GENERAL CONTRACTOR MUST TAKE CARE TO PROTECT NEWLY INSTALLED MATERIALS, FINISHES AND ASSEMBLIES.
14. THE GENERAL CONTRACTOR MUST HALT THE WORK AFFECTED WHEN NOTIFIED OF A PROPOSED CHANGE AND PROCEED ONLY AFTER RECEIVING INSTRUCTIONS FROM THE DESIGNER.
15. THE GENERAL CONTRACTOR MUST SUBMIT A DETAILED PROJECT SCHEDULE AT THE BEGINNING OF THE PROJECT. ANY SIGNIFICANT CHANGES WHICH WOULD ALTER THAT INITIAL SCHEDULE MUST BE DOCUMENTED IN A REVISED SCHEDULE.
16. THE GENERAL CONTRACTOR MUST PROVIDE ADEQUATE AND PROPER DRY STORAGE AND HANDLING OF ALL BUILDING MATERIALS, SUPPLIES, AND FINISHES IN ACCORDANCE WITH PRODUCT MANUFACTURERS RECOMMENDATIONS.
17. THE GENERAL CONTRACTOR MUST DETERMINE THAT ALL EQUIPMENT SPECIFIED WILL FIT THROUGH EXISTING DOORWAYS AND CORRIDORS BEFORE EQUIPMENT IS PURCHASED OR SCHEDULE THE INSTALLATION SEQUENCE TO AVOID CONFLICTS.
18. THE GENERAL CONTRACTOR MUST COMPLY WITH THE RULES OF THE SUBDIVISION AND THE COUNTY AND THE DIRECTIONS OF THE OWNERS FOR CONSTRUCTION FACILITIES, USE OF PREMISES, ACCESS TO THE PROJECT SITE, AND TRASH REMOVAL.
19. ALL MECHANICAL, ELECTRICAL, AND CIVIL ENGINEERING SERVICES AND SYSTEMS WILL BE SPECIFIED AND INSTALLED BY THE RESPECTIVE TRADES. ALL SYSTEMS SHALL BE DESIGNED WITH THE RESPECTIVE CODES.
20. EACH TRADE IS RESPONSIBLE FOR INSPECTION OF SERVICES AND TO ADVISE THE GENERAL CONTRACTOR, DESIGNER, AND OWNER AS TO CURRENT CONDITION, POSSIBLE PROBLEMS AND POTENTIAL SOLUTIONS WITH RESPECT TO THEIR TRADES.
21. THE CONTRACTOR SHALL VERIFY WITH THE DESIGNER THE SELECTION, FABRICATION, FINISH, AND INSTALLATION OF ALL INTERIOR FINISH ITEMS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

ALL INTERIOR RUNNING AND STAND TRIM
ALL INTERIOR CABINETS AND MILLWORK, INCLUDING COUNTERTOPS
ALL PLUMBING FIXTURES AND FITTINGS
ALL LIGHTING FIXTURES

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS
ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE
THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF
RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS.
AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE
BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY
BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION
BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

DRAWING INDEX

VICINITY MAP

1 SITE PLAN
SCALE: NTS

ZONING INFORMATION

ZONING: NL-5 (ZONING TEXT AMENDMENT P21-093)
STREET SETBACKS ~~20'~~ **15' per admin adj P21-327**
REAR SETBACK 10'
LEFT SIDE SETBACK 10'
RIGHT SIDE SETBACK 5' (HISTORICAL DESIGNATION ALLOWS FOR REDUCED DISTANCE)
HEIGHT OF STRUCTURE: EXISTING BUILDING FROM FINISH FLOOR TO TOP OF ROOF 15'-2 1/4" + NEW GRADE TO FINISH FLOOR 1'-7 1/2" = 16'-9 3/4"
TYPE: V-B
OCCUPANCY CLASSIFICATION: ~~BUSINESS (FUTURE OCCUPANCY TO BE DETERMINED AT A LATER DATE)~~ **UTILITY - shed**
SPRINKLERED: NO
STORIES ABOVE GROUND PLANE: 1
2018 IRC **(see attached 1/17/22 letter from G&S Structural Engineers on adherence to 2021 IBC)**
GROUND SNOW LOAD: 110 POUNDS PER SQUARE FOOT

IMPERVIOUS SURFACES INFORMATION

SQUARE FOOTAGE OF EXISTING ROOFED AREA: 852 SQ. FT. (EXISTING BUILDING TO BE MOVED TO NEW LOCATION)
SQUARE FOOTAGE OF PROPOSED ROOFED AREAS, INCLUDING COVERED PORCHES: 852 SQ. FT. (EXISTING BUILDING TO BE MOVED TO NEW LOCATION - SAME AS EXISTING ROOFED AREA - ONLY COUNTED ONCE)
PAVED, CONCRETE, OR UNPAVED DRIVEWAYS AND PARKING AREAS : 3,180 SQ. FT.
OTHER IMPERVIOUS SURFACES SUCH AS SOLID TERRACES AND PAVED SIDEWALKS: 0 SQ. FT.
TOTAL 4,032 SQ. FT.

GROSS SITE AREA: 47,044.8 SQ. FT.

NET SITE AREA: 47,044.8 SQ. FT.

LANDSCAPING PROVIDED ON SITE IS 0 SQ. FT. FOR THIS PHASE OF THE PROJECT

RADON MITIGATION PER TOWN OF JACKSON

GENERAL:
ALL BUILDINGS USED FOR THE HOUSING OF PERSONS SHALL BE PROVIDED WITH BASIC RADON MITIGATORS. THESE MITIGATORS ARE BASIC IN NATURE AND MAY REQUIRE SUPPLEMENTAL EQUIPMENT SHOULD HIGH LEVELS OF RADON BE FOUND IN THE STRUCTURE.

CRAWL SPACE MITIGATORS:
IN RESIDENTIAL STRUCTURES BUILT ABOVE A CRAWL SPACE, THE FOLLOWING MEASURES ARE REQUIRED:

1. SEALING OF CRAWL SPACE WALLS, ALL PORTIONS OF CRAWL SPACE WALLS BELOW GRADE SHALL BE SEALED WITH DAMPPROOFING OR WATERPROOFING.
2. ALL PENETRATIONS TO BE SEALED. ALL SEWER, WATER, POWER, OR OTHER BELOW GRADE PENETRATIONS OF THE CRAWL SPACE SHALL BE THOUGHLY CAULKED. ADDITIONALLY, ALL PENETRATIONS BETWEEN THE CRAWL SPACE AND THE LIVING SPACE SHALL BE CAULKED. ACCESS INTO THE CRAWL SPACE SHALL BE FITTED WITH A WEATHER-STOP THAT WILL PROVIDE A POSITIVE SEAL.
3. VENTILATION OF CRAWL SPACE. IN ADDITION TO THE VENTILATION REQUIRED BY OTHER SECTIONS OF THIS CODE, ONE FOUR (4) INCH DIAMETER SCHEDULE 20 PVC PIPE SHALL BE INSTALLED FROM THE CRAWL SPACE THROUGH THE ROOF. THIS PIPE SHALL NOT SERVE ANY OTHER USE AND SHALL BE CONTINUOUS FOR ITS ENTIRE LENGTH. OFFSETS FROM THE VERTICAL SHALL BE MINIMIZED. THE PIPE SHALL BE LABELED WHERE NOT CONCEALED WITHIN CONSTRUCTION WITH THE WORDS "RADON VENT." THE PIPE SHALL BE PLACED SO THAT THE PART OF THE PIPE IMMEDIATELY BENEATH THE ROOF AND OUTSIDE THE LIVING AREA IS ACCESSIBLE IN SUFFICIENT QUANTITY THAT A FAN MAY BE INSTALLED. THE FAN SHOULD BE RATED AT 90 TO 150 CFM TO NO STATIC PRESSURE. THE FAN POWER SHALL BE PLACED IN THE IMMEDIATE VICINITY OF THE PIPE. A RAIN CAP SHALL BE PROVIDED AT THE UPPER TERMINATION OF THE PIPE TO PREVENT THE ENTRY FOR WATER INTO THE SYSTEM.

BASEMENT MITIGATORS:
IN RESIDENTIAL STRUCTURES BUILT ABOVE BASEMENTS, EITHER HABITABLE OR NON-HABITABLE, THE FOLLOWING MEASURES ARE REQUIRED:

1. SEALING OF BASEMENT WALLS. ALL PORTIONS OF BASEMENT WALLS TO A POINT ABOVE SHALL BE THOROUGHLY SEALED WITH AN APPROVED WATERPROOFING.
2. ALL PENETRATIONS TO BE SEALED. ALL PENETRATIONS IN WALLS ARE TO BE THOROUGHLY CAULKED. IN ADDITION, ALL CRACKS IN FLOOR SLABS, JOINTS WHERE THE FLOOR MEETS THE FOUNDATION WALLS AND PENETRATION THROUGH THE BASEMENT FLOOR ARE TO BE SIMILARLY SEALED.
3. UNDER SLAB VENTILATION. A RADON COLLECTION SYSTEM CONSISTING OF FOUR (4) INCH PERFORATED PIPE SHALL BE PLACED WITH HOLES DOWN AND BEDDING IN FOUR (4) INCHES OF WASHED GRAVEL OF PEA SIZE OR LARGER WITHOUT FINES. THE PIPING SHALL BE CONNECTED TO A SOLID VERTICAL PIPE THAT WILL PASS THROUGH THE ROOF AS DESCRIBED IN CRAWL SPACE MITIGATORS #3. A BARRIER OF POLYETHYLENE SHEETING SHALL BE PLACED OVER THE SYSTEM AND GRAVEL. ALL LAPS OF SHEATHING SHALL BE AT LEAST ONE FOOT. THE SHEETING SHALL BE SEALED AROUND PENETRATIONS AND TO FOUNDATION WALLS. A COVER OF FOUR (4) INCHES OF SAND OR CRUSHED GRAVEL SHALL THEN BE PLACED OVER THE SHEETING TO RECEIVE THE SLAB.
4. ALTERNATIVE DESIGN FOR UNDER SLAB VENTILATION. THE SYSTEM REQUIRED ABOVE MAY BE REDUCED TO THE PLASTIC SHEETING AND SAND WHEN A VENTILATION SYSTEM DESIGNED TO PROVIDE POSITIVE PRESSURE IN THE BASEMENT AREA IS PROVIDED AND APPROVED BY THE BUILDING OFFICIAL. (IF A WOOD STOVE IS PLACED IS PLACED IN THE BASEMENT, THIS ALTERNATIVE DESIGN MAY NOT BE USED.)

ABBREVATIONS

AB	ANCHOR BOLTS	FLR.	FLOOR	P.S.F.	POUNDS PER SQ. FOOT
A.F.F.	ABOVE FINISHED FLOOR	FLUR.	FLUORESCENT	P.S.I.	POUNDS PER SQ. INCH
AC.	ACOUSTICAL	FTG.	FOOTING	P.T.	PRESSURE TREATED
ADJ.	ADJACENT	F.B.O.	FURNISHED BY OTHERS	R.	RADIUS
A/C	AIR CONDITIONING	GA.	GAUGE	REF.	REFERENCE
ALT.	ALTERNATE	G.C.	GENERAL CONTRACTOR	REQ'D	REQUIRED
ALUM.	ALUMINUM	GYP. BD.	GYPSUM BOARD	REINF.	REINFORCE (ING) (MENT)
APPD.	APPROVED	G.F.I.	GROUND FAULT INTERRUPTED	R.O.	ROUGH OPENING
B.O.	BOTTOM OF	HVAC	HEATING/ VENT/ AIR COND.	R.D.	ROOF DRAIN
BSMT.	BASEMENT	H.C.	HOLLOW CORE	RS	ROUGH SAWN
BRG.	BEARING	H.M.	HOLLOW METAL	SIM.	SIMILAR
BLK	BLOCK	HR.	HOUR	S.C.	SOLID CORE
BLKG.	BLOCKING	INCL.	INCLUDE (D) (ING)	SPEC.	SPECIFICATION (S)
BD.	BOARD	INSUL.	INSULATE (D) (ION)	SPKR.	SPEAKER
BLDG.	BUILDING	INT.	INTERIOR	SQ.	SQUARE
C.J.	CONTROL JOINT	JT.	JOINT	SYS.	SYSTEM
CLG.	CEILING	MFR.	MANUFACTURER	THK	THICK (NESS)
CLR.	CLEAR (ANCE)	MTL.	METAL	T&G	TONGUE & GROOVE
COL.	COLUMN	M.O.	MASONRY OPENING	T.O.S.	TOP OF STEEL
CONC.	CONCRETE	MAX.	MAXIMUM	T.O.W.	TOP OF WALL
CMU	CONCRETE MASONRY UNIT	MECH.	MECHANICAL	TPL	TRIPLE
CONST.	CONSTRUCTION	MED.	MEDIUM	TYP.	TYPICAL
DTL.	DETAIL	MM	MILLIMETER (S)	U.B.C.	UNIFORM BUILDING CODE
DWG.	DRAWING	MIN.	MINIMUM	U.N.O.	UNLESS NOTED OTHERWISE
(E)	EXISTING	NOM.	NOMINAL	V.C.T.	VINYL COMPOSITION TILE
EA.	EACH	(N)	NEW	V.L.T.	VAULTED CEILING
E.F.	EACH FACE	NO.	NUMBER	V.T.R.	VENT THROUGH ROOF
E.J.	EXPANSION JOINT	N.I.C.	NOT IN CONTRACT	V.B.	VAPOR BARRIER
ELEC.	ELECTRIC (AL)	N.T.S.	NOT TO SCALE	W.C.	WATER CLOSET
EQ.	EQUAL	O.C.	ON CENTER	W.P.	WATER PROOF (ING)
EXIST.	EXISTING	O.D.	OUTSIDE DIAMETER	W.W.F.	WELDED WIRE FABRIC
E.W.	EACH WAY	PVMT.	PAVEMENT	W	WIDTH, WIDE
F.D.	FLOOR DRAIN	PL.	PLATE	W/	WITH
FIN.	FINISH	PLYWD.	PLYWOOD	W/O	WITHOUT
		PVC	POLY VINYL CHLORIDE		

HISTORIC DESIGNATION

PER ITEM P21-289, THE BENSON HOME AND ASSOCIATED TURBINE EQUIPMENT, LOCATED AT 445 E. KELLY AVENUE HAS BEEN DESIGNATED TO THE JACKSON HISTORIC REGISTER PER SEC. 8.5.7 IN THE TOWN OF JACKSON LAND DEVELOPMENT REGULATIONS (LDR'S). THIS APPROVAL IS BASED ON THE HISTORICAL SURVEY AND OTHER INFORMATION PROVIDED IN THE APPLICANT'S SUBMITTAL (ON FILE), AS WELL AS THE RECOMMENDATION OF APPROVAL FROM THE TETON COUNTY HISTORIC PRESERVATION BOARD, PROVIDED AT ITS BOARD MEETING ON 14 DECEMBER 2021, WITH THE FOLLOWING CONDITIONS:

1. THE DESIGNATION INCLUDES BOTH THE ORIGINAL LOG BUILDING AND THE TURBINES.
2. BOTH THE ORIGINAL LOG BUILDING AND THE TURBINES OF THE BENSON RESIDENCE SHALL BE REHABILITATED IN THEIR NEW LOCATION ON-SITE IN ACCORDANCE WITH THE SECRETARY OF INTERIOR STANDARDS FOR REHABILITATION.

THE REFERENCED PROPERTY IS NOW ELIGIBLE FOR AND SUBJECT TO THE PROVISION IN THE TOWN'S HISTORIC PRESERVATION PROGRAM, INCLUDING: DIV.5.9 (PRESERVATION OF HISTORIC PROPERTIES); SEC. 5.8.1.B (HISTORIC PRESERVATION DESIGN GUIDELINES); SEC. 8.5.8 (CERTIFICATE OF APPROPRIATENESS - EXTERIOR ALTERATIONS); AND SEC. 8.5.9 (CERTIFICATE OF APPROPRIATENESS - REPOSITIONING AND RELOCATION) IN LDR'S.

SQUARE FOOTAGE INFORMATION

FLOOR AREA FOR BUILDINGS	HABITABLE	HABITABLE BASEMENT	UNHABITABLE	UNHABITABLE BASEMENT	TOTAL
(E) MAIN HOUSE	1,457 SQ. F.T	767 SQ. FT.			2,227 SQ. FT.
PROPOSED CHANGES	- 608 SQ. FT.	- 767 SQ. FT.			-1,375 SQ. FT.
(N) MAIN HOUSE	849 SQ. F.T				849 SQ. FT.

LICENSED ARCHITECT
ROY CORNELIUS KINSEY, IV
B-0238
DATE: 28 Dec 2021
STATE OF WYOMING

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

OWNERSHIP & USE OF DOCUMENTS

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

OWNER:
Teton County
PO Box 1727
Jackson, WY
83001

REVISIONS

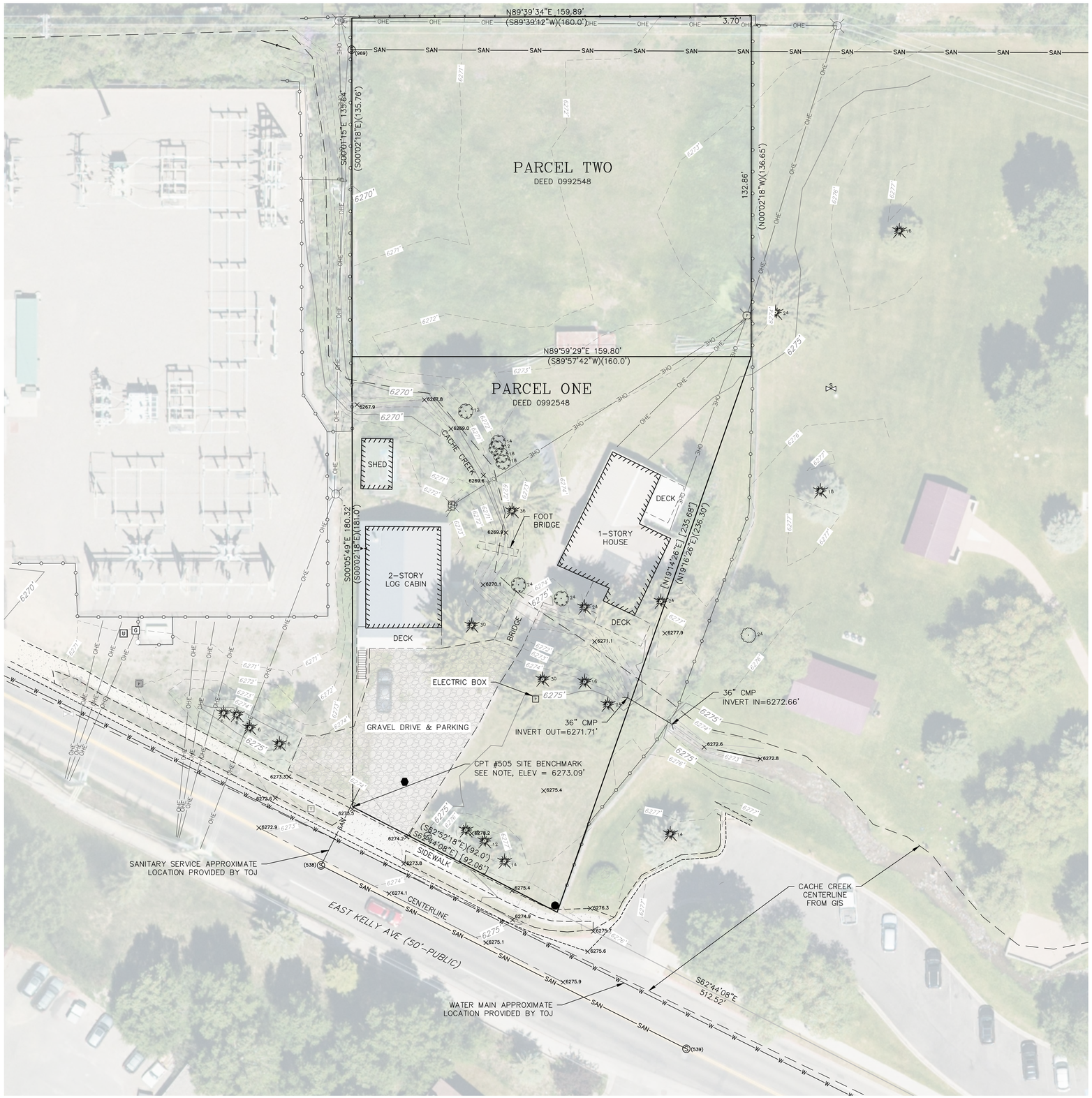
MOVE/BUILDING PERMIT

SHEET NAME
COVER PAGE

SCALE
VARIES

DATE
28 DECEMBER 2021

SHEET
A0.1



LEGEND

(E) - EXISTING (P) - PROPOSED

- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
- PROPERTY BOUNDARY
- (E) BUILDING
- (E) CHAINLINK FENCE
- (E) WOOD FENCE
- (E) DITCH FLOWLINE
- (E) EDGE OF CONCRETE
- (E) EDGE OF GRAVEL
- (E) EDGE OF PAVEMENT
- (E) TOP BACK CURB
- (E) ROAD CENTERLINE
- (E) SANITARY MAIN
- (E) WATER MAIN LOCATION FROM TOJ
- (E) OVERHEAD ELECTRIC

SURVEY NOTES

TOPO SURVEY BY:
JORGENSEN
1315 HWY 89 S SUITE #201
JACKSON, WY 83002
(307) 733-5150

JORGENSEN NOTES:

1. THIS SURVEY WAS CONDUCTED IN OCTOBER 2020 AND PREPARED UNDER THE DIRECTION OF MATTHEW GOTHAM, WYOMING PLS 13002, AND DOES NOT INCLUDE AN ENGINEERING REVIEW.
2. LOCATIONS OF UTILITIES DEPICTED HEREON ARE LIMITED TO VISIBLE STRUCTURES; UNDERGROUND LOCATIONS WERE NOT MARKED DURING THIS SURVEY AND MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION ACTIVITY.
3. ONLY MONUMENTS PERTINENT TO SUBJECT PROPERTIES (PARCELS ONE AND TWO, DEED 0992548) ARE DEPICTED.
4. ELEVATIONS WERE DERIVED USING GPS OBSERVATION METHODS AND REFERENCE NAVD29. SITE BENCHMARK ELEVATION IS 6273.09' AT THE SOUTHWEST PROPERTY CORNER.
5. RECORD DIMENSIONS SHOWN ARE FROM SAID DEED 0992548.
6. BASIS OF BEARING FOR THIS SURVEY IS A LOCALIZED GRID SYSTEM BASED ON JORGENSEN ASSOCIATES GPS NETWORK.

SANITARY SEWER MANHOLE DETAILS FROM SURVEY

(538)
Rim Elevation=6273.46'
Invert In Elevation=6262.66'
Invert Out Elevation=6262.56'
8" PVC

(539)
Rim Elevation=6276.87'
Invert (E) In Elevation=6269.87'
Invert (S) In Elevation=6269.97'
Invert Out Elevation=6269.77'
8" PVC

(968)
Rim Elevation=6277.22'
Invert (E) In Elevation=6260.52'
Invert Out Elevation=6260.47'
8" PVC

(969)
Rim Elevation=6270.10'
Invert In Elevation=6258.10'
Invert Out Elevation=6258.00'
8" PVC

N

0 20' 40'

DRAWING SET TITLE: GEC PERMIT
DATE: 12/28/21
DRAWN BY: TK
CHECKED BY: KC
JOB #: 20263

Y2 CONSULTANTS
ENGINEERING, SURVEYING & PLANNING
LANDSCAPE ARCHITECTURE, GIS
NATURAL RESOURCE SERVICES
Y2consultants.com
307 733 2999

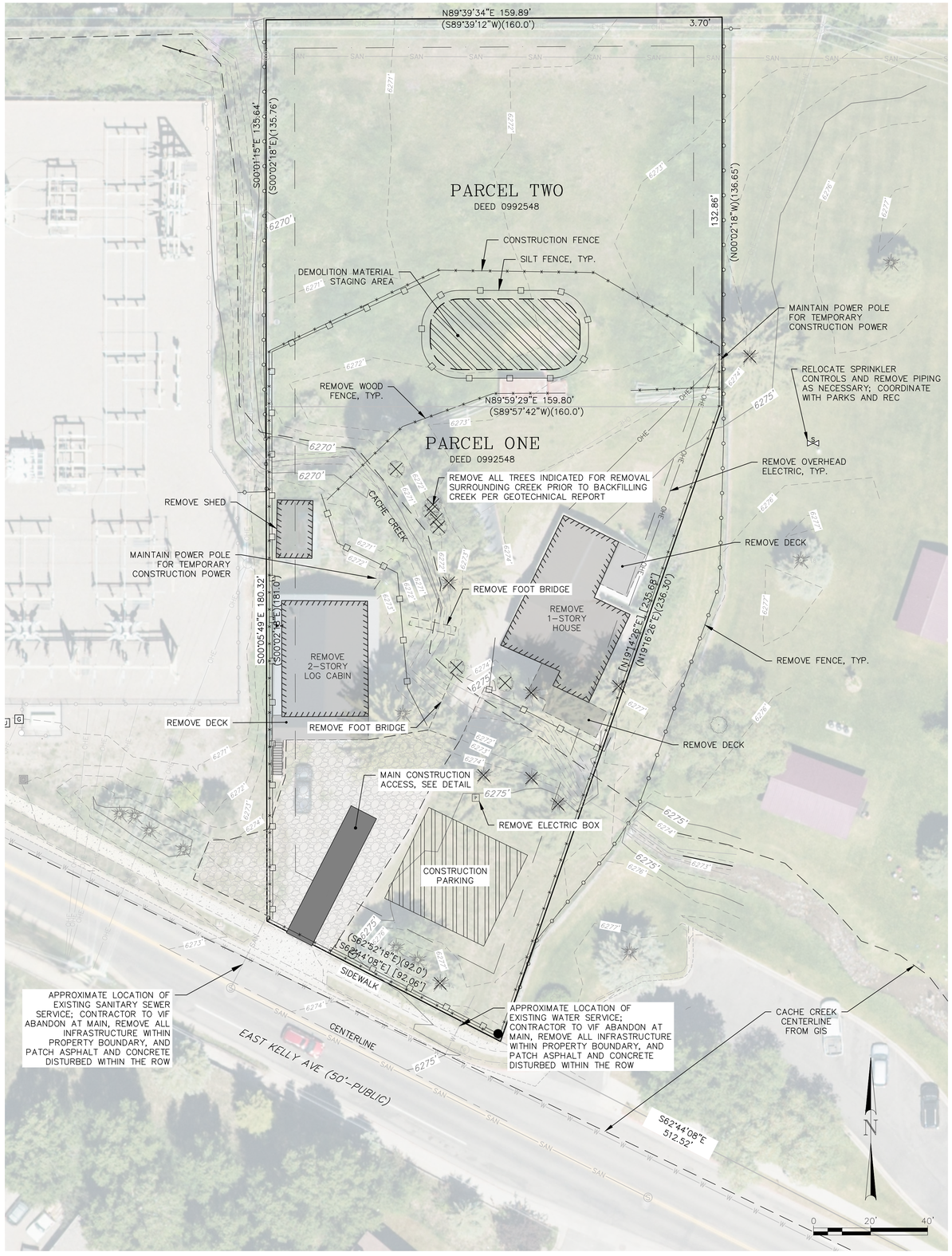
Professional Engineer
Kaitlyn Creasey
18534
Date 12/28/2021
WYOMING

BROWN PROPERTY AFFORDABLE HOUSING DEV
TETON COUNTY
445 EAST KELLY AVENUE
JACKSON, WYOMING 83001

EXISTING CONDITIONS

C1.1

LAST SAVED: 12/28/2021 10:47 AM BY: TYLERK PLOT BY: KATIE CREASEY
F:\2020\20263_445-East-Kelly\Civil\ACAD\20263_BASE-CIVIL-P.dwg



NOTES:

1. FOUNDATIONS SHALL BE REMOVED AND BACKFILLED. GRADES SHALL BE FLUSH WITH EXISTING GRADE WITHOUT SLOPES STEEPER THAN 2:1.
2. BACKFILL MATERIAL SHOULD BE APPROVED BY GEOTECH ENGINEER; FUTURE BUILDINGS AND DRIVING SURFACES WILL BE BUILT WITHIN BACKFILL AREA.

REQUIREMENTS FOR DEMOLITION PERMIT

1. A DISCONNECT LETTER FROM LOWER VALLEY ENERGY AND/OR OTHER UTILITY SUPPLIERS STATING REMOVAL OF GAS METER(S), AND DISCONNECT OF ELECTRIC SERVICE, PHONE SERVICE AND CABLE SERVICE AS REQUIRED.
2. FOR COMMERCIAL PROJECTS OR RESIDENTIAL PROJECTS IN HIGH DENSITY DEVELOPMENTS, A PLAN FOR SECURING THE SITE AND PEDESTRIAN PROTECTION MAY BE REQUIRED. NOTIFICATION OF ADJACENT LANDOWNERS AND/OR RESIDENTS BY THE PARTY DEMOLISHING THE BUILDING MAY BE REQUIRED.
3. A LETTER FROM AN INDIVIDUAL QUALIFIED TO ASSESS THE PRESENCE OF POTENTIALLY TOXIC MATERIALS IN THE STRUCTURE BEING DEMOLISHED (I.E. LEAD BASED PAINTS, INSECTICIDES, OIL BASED PAINTS, ETC.), THEIR REMOVAL AND SITE OF DISPOSAL MAY BE REQUIRED.
4. TEMPORARY SANITARY FACILITIES SHALL BE PROVIDED FOR WORKMAN ON SITE.
5. AN APPROVED FIRE EXTINGUISHER SHALL BE AVAILABLE AT TIMES DURING DEMOLITION. PRIOR TO SHIPMENT TO A FINAL DISPOSAL AREA, ALL DEBRIS SHALL BE SORTED. FAILURE TO SORT DEBRIS WILL RESULT IN HIGHER DISPOSAL COST TO THE CONTRACTOR AND OWNER. NO ON-SITE BURNING OR BURYING OF DEBRIS IS PERMITTED.
6. RECYCLABLE ITEMS AND CERTAIN HAZARDOUS WASTE PRODUCTS MAY BE DISPOSED OF AT THE JACKSON COMMUNITY RECYCLING CENTER. CONTACT THE RECYCLING CENTER TO DETERMINE WHAT HAZARDOUS PRODUCTS ARE ACCEPTED AND WHEN.
7. FINISHED MATERIALS IN GOOD REPAIR, SUCH AS TOILETS, SHOWER AND TUB VALVES, KITCHEN SINKS, HARDWARE AND DOORS MAY BE DONATED TO THE HABITAT FOR HUMANITY RESALE OUTLET, RESTORE. CONTACT THE STORE ABOUT OTHER ITEMS THEY MAY NEED.
8. OTHER MATERIALS, SUCH AS DRYWALL, INSULATION, TREATED LUMBER, PLUMBING WASTE AND VENT MATERIALS, ETC., SHOULD GO TO THE COUNTY LANDFILL TO BE TRANSFERRED TO A DISPOSAL FACILITY.
9. PRIOR TO TRANSPORTING DEMOLITION WASTE TO THE TRASH TRANSFER STATION, CALL THE TETON COUNTY INTEGRATED SOLID WASTE AND RECYCLING (ISWR) 48 HOURS IN ADVANCE TO REQUEST A DROP-OFF. ISWR MAY REQUIRE A RECEIPT OF ASBESTOS ABATEMENT PAPERWORK FROM CONTRACTORS DELIVERING LARGE VOLUMES OF DEMOLITION WASTE. PLEASE CALL THE SCALE HOUSE, 733-7172, 48 HOURS IN ADVANCE TO SCHEDULE A DROP-OFF FOR ALL LOADS.

LEGEND
(E) - EXISTING (P) - PROPOSED

- (E) MAJOR CONTOUR
- (E) MINOR CONTOUR
- PROPERTY BOUNDARY
- (E) BUILDING
- (E) CHAINLINK FENCE
- (E) CONSTRUCTION FENCE
- (E) DITCH FLOWLINE
- (E) EDGE OF CONCRETE
- (E) EDGE OF GRAVEL
- (E) EDGE OF PAVEMENT
- (E) TOP BACK CURB
- (E) ROAD CENTERLINE
- (E) SANITARY MAIN
- (E) OVERHEAD ELECTRIC
- AREA OF DEMOLITION
- (P) SILT FENCING
- (P) CONSTRUCTION STAGING AREA
- TREE TO BE REMOVED
- TREE TO REMAIN

DRAWING SET TITLE: GEC PERMIT
DATE: 12/28/21
DRAWN BY: TK
CHECKED BY: KC
JOB #: 20263

Y2 CONSULTANTS
ENGINEERING, SURVEYING & PLANNING
LANDSCAPE ARCHITECTURE, GIS
NATURAL RESOURCE SERVICES
Y2consultants.com
307 733 2999

Professional Engineer
Kaitlyn Creasey
18534
WYOMING
12/28/2021

BROWN PROPERTY AFFORDABLE HOUSING DEV
TETON COUNTY
445 EAST KELLY AVENUE
JACKSON, WYOMING 83001

DEMOLITION PLAN

C2.1

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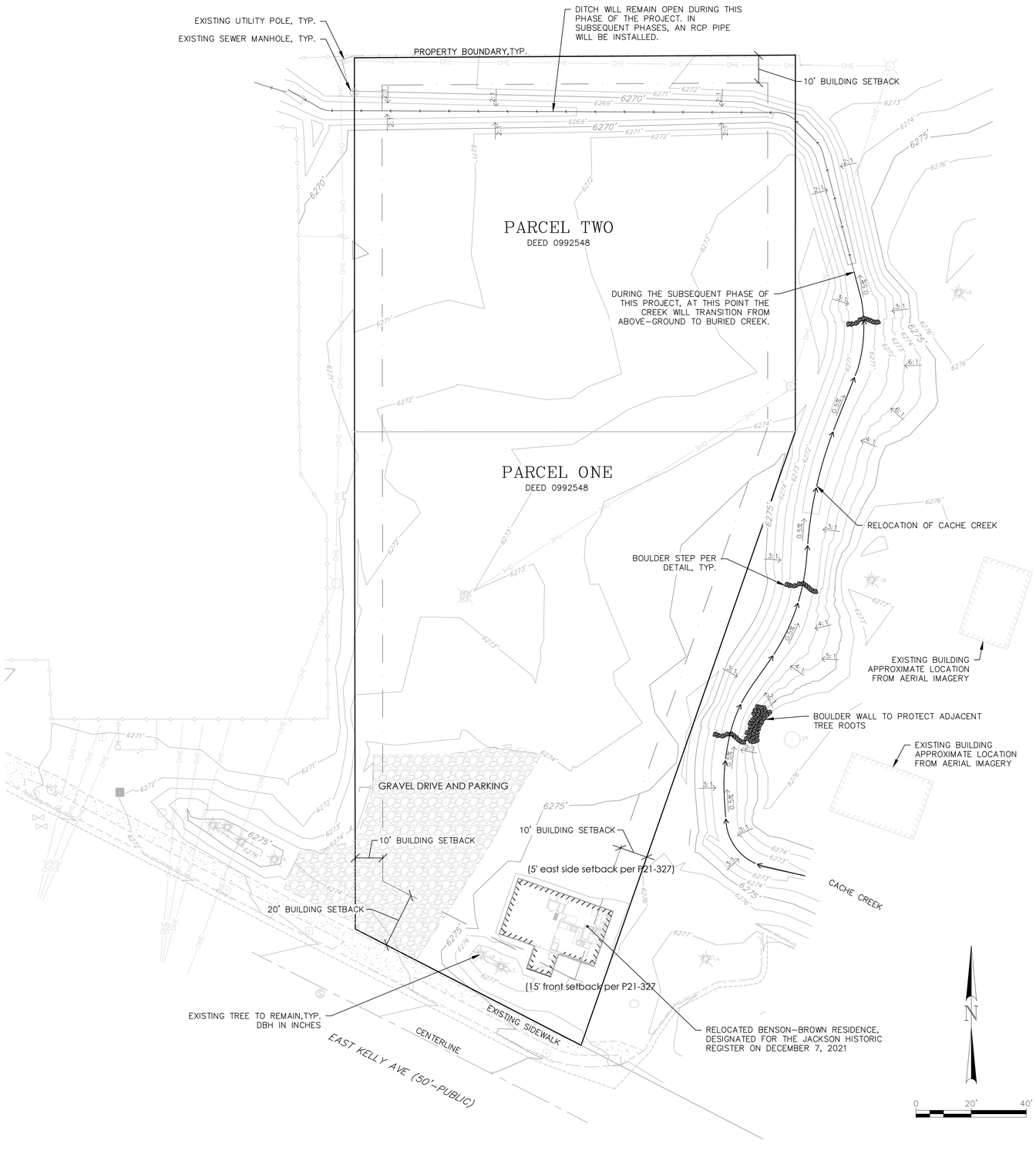

LEGEND

(E) - EXISTING (P) - PROPOSED

- (P) MAJOR CONTOUR
- (P) MINOR CONTOUR
- PROPERTY BOUNDARY
- SETBACK
- (P) CREEK ALIGNMENT
- RELOCATED STRUCTURE
- (E) EDGE OF ASPHALT
- (E) FENCE
- (E) CURB FLOW LINE
- (E) EDGE OF CONCRETE
- (E) CONCRETE
- (E) ASPHALT

DRAWING SET TITLE: GEC PERMIT
DATE: 12/28/21
DRAWN BY: TK
CHECKED BY: KC
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Professional Engineer
Kaitlyn Creasey
18534
Date 12/28/2021
WYOMING

BROWN PROPERTY AFFORDABLE HOUSING DEV

TETON COUNTY
445 EAST KELLY AVENUE
JACKSON, WYOMING 83001

FINISHED CONDITIONS

C3.1

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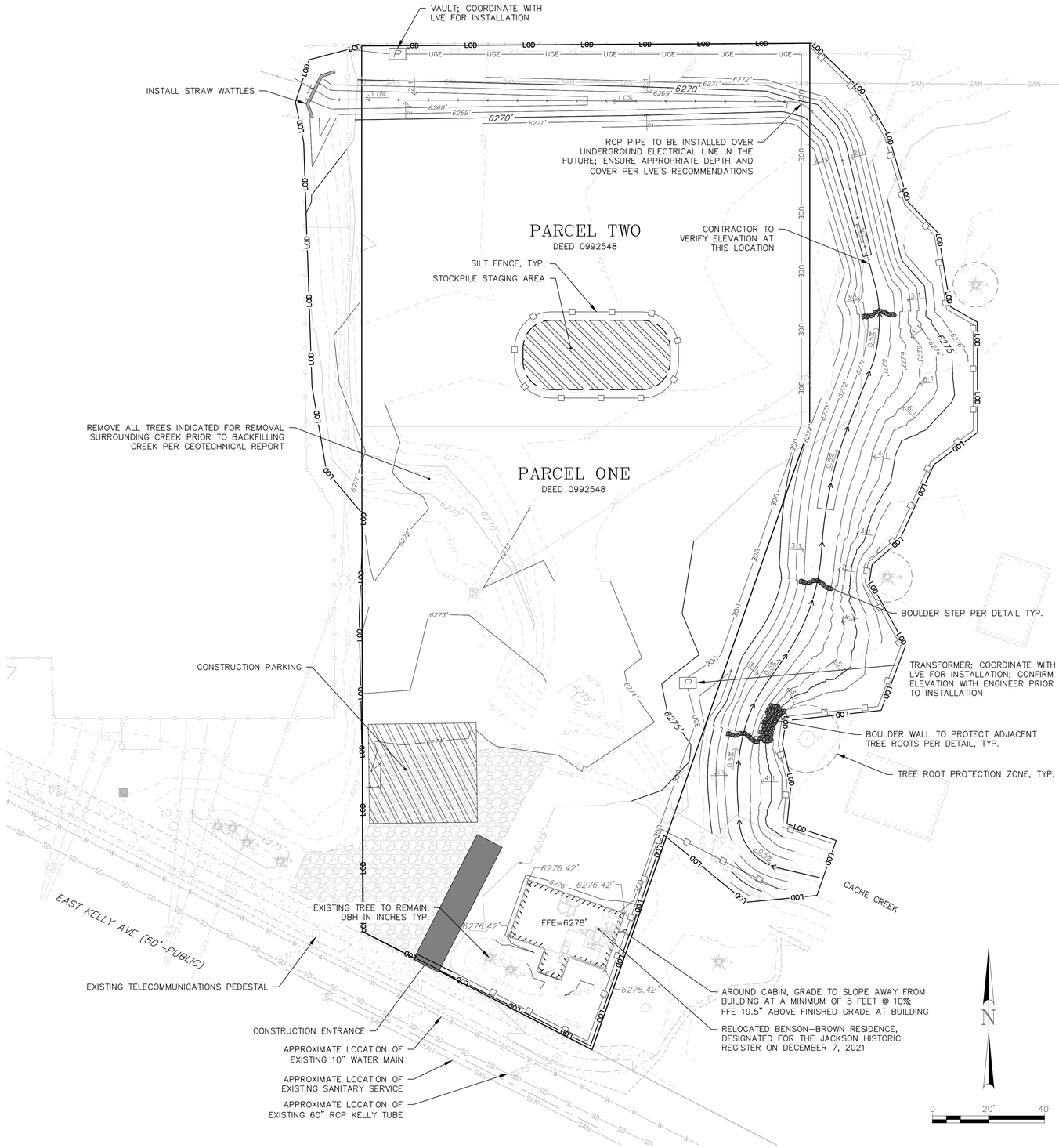

UTILITIES NOTES

1. ENSURE VAULT AND TRANSFORMER HAVE CAPACITY FOR SECOND PHASE OF PROJECT WHICH INCLUDES SIX THREE-UNIT TOWNHOMES. TRANSFORMER WILL LIKELY SERVE THREE TOWNHOMES.
2. NO WATER OR SEWER SERVICE IS BEING PROVIDED TO THE RELOCATED CABIN.

LEGEND

(E) - EXISTING (P) - PROPOSED

- PROPERTY BOUNDARY
- EASEMENT
- (P) STRUCTURE
- (E) EDGE OF ASPHALT
- (E) EDGE OF GRAVEL
- (E) FENCE
- (P) SILT FENCE
- (E) CURB FLOW LINE
- (E) EDGE OF CONCRETE
- (E) WATER MAIN
- (E) SEWER MAIN
- (E) STORM DRAIN
- (E) OVERHEAD ELECTRICAL LINE
- (P) UNDERGROUND ELECTRICAL LINE
- (E) CONCRETE
- (E) ASPHALT

DRAWING SET TITLE	DATE
GEC PERMIT	12/28/21
REVISION	1/14/2022

DRAWN BY: TK
CHECKED BY: KC
JOB #: 20263

Y2 CONSULTANTS
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NATURAL RESOURCE SERVICES
y2consultants.com
307 733 2999

Professional Engineer
Kaitlyn Creasey
16534
Date: 1/14/2022
WYOMING

BROWN PROPERTY AFFORDABLE HOUSING DEV
TETON COUNTY
445 EAST KELLY AVENUE
JACKSON, WYOMING 83001

GRADING & UTILITY PLAN

C4.1

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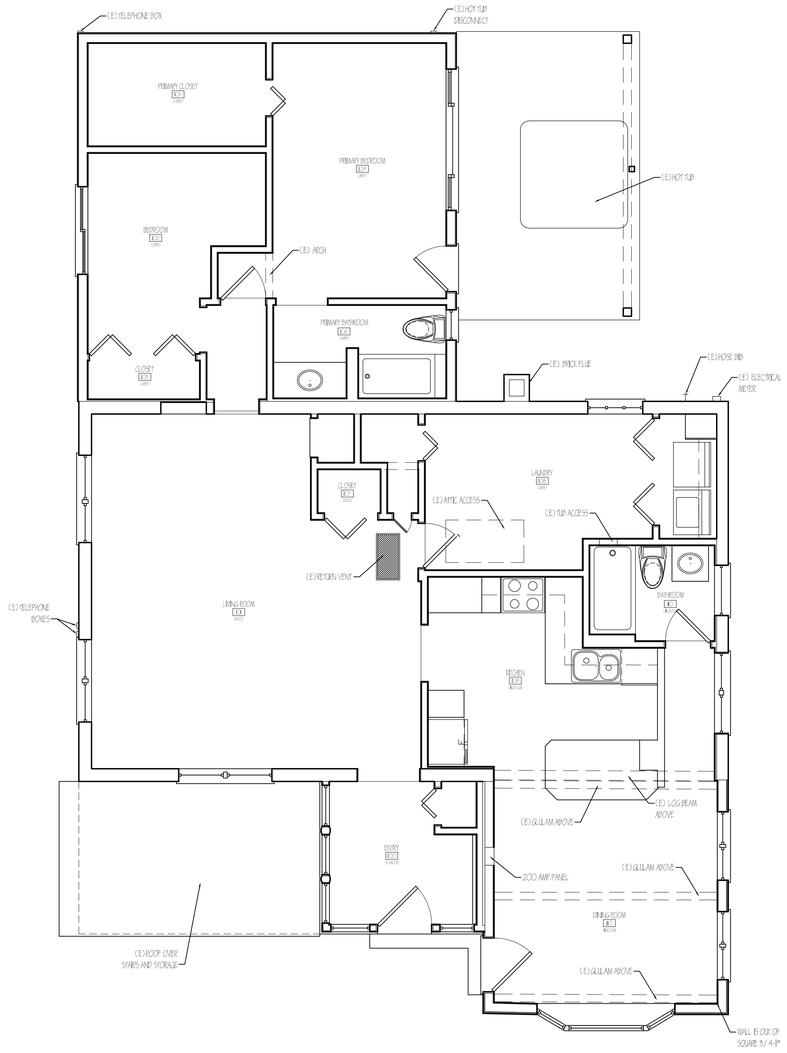


(N) DOOR

DEMO DOOR

(E) DOOR

(N) WALL

DEMO WALL

EXISTING WALL TO REMAIN

(E) WALL SCONCE. SEE INTERIOR ELEVATIONS UNLESS OTHERWISE NOTED ALL

(E) FLOOR OUTLET

(E) CEILING HEIGHT

(E) J-BOX IN CEILING

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS. AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

PLAN NOTES

1. ALL MEASUREMENTS OFF OF LOG WALLS ARE TAKEN AS AN AVERAGE. LOGS VARY FROM 7" TO 9" IN DIAMETER. THE LOGS ARE HAND-HEWN THEREFORE THE SURFACE IS NOT CONSISTENT.
2. LOG BEAM VARY FROM 8" TO 9" IN DIAMETER AND HAVE A NATURAL TAPER FROM ONE END TO THE OTHER END.
3. THE ASSUMPTION OF 5/ 8" DRYWALL ON THE WALLS
4. NO DIMENSIONS SHOULD BE IMPLIED OR MEASURED FROM THIS PLAN UNLESS THE DIMENSION IS SPECIFICALLY CALLED OUT ON THE PLAN.
5. PLANS ARE ONLY REPRESENTATIVE OF THE EXISTING BUILDING NOT TO BE USED FOR MEASUREMENTS - ALL DIMENSIONS NEED TO BE FIELD VERIFIED

ALL DIMENSIONS MUST BE FIELD VERIFIED

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

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS

MOVE/BUILDING PERMIT

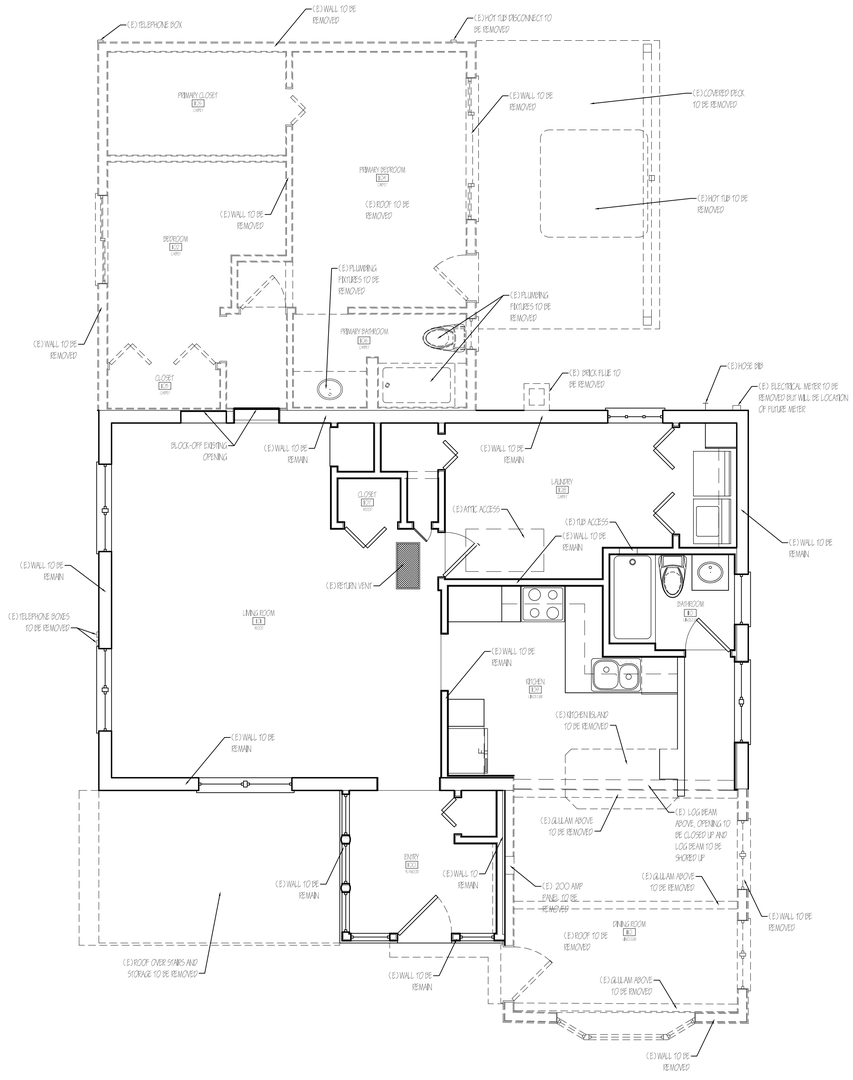
LICENSED ARCHITECT
ROY CORNELIUS KINSEY, JR.
B-0238
DATE: 28 DEC 2021
STATE OF WYOMING

SHEET NAME
EXISTING FIRST FLOOR PLAN

SCALE
1/4"=1'-0"

DATE
28 DECEMBER 2021

SHEET
A1.1



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

TOWN OF JACKSON
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PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

DEMOLITION PLAN NOTES

1. ALL MEASUREMENTS OFF OF LOG WALLS ARE TAKEN AS AN AVERAGE. LOGS VARY FROM 7" TO 9" IN DIAMETER. THE LOGS ARE HAND-HEWN THEREFORE THE SURFACE IS NOT CONSISTENT.
2. LOG BEAM VARY FROM 8" TO 9" IN DIAMETER AND HAVE A NATURAL TAPER FROM ONE END TO THE OTHER END.
3. THE ASSUMPTION OF 5/8" DRYWALL ON THE WALLS
4. NO DIMENSIONS SHOULD BE IMPLIED OR MEASURED FROM THIS PLAN UNLESS THE DIMENSION IS SPECIFICALLY CALLED OUT ON THE PLAN.
5. PLANS ARE ONLY REPRESENTATIVE OF THE EXISTING BUILDING NOT TO BE USED FOR MEASUREMENTS - ALL DIMENSIONS NEED TO BE FIELD VERIFIED

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS
MOVE/BUILDING PERMIT

LICENSED ARCHITECT
ROY CORNELIUS KINSEY, JR.
B-0238
DATE: 28 DEC 2021
STATE OF WYOMING

SHEET NAME
FIRST DEMOLITION FLOOR PLAN

SCALE
1/4"=1'-0"

DATE
28 DECEMBER 2021

SHEET
A1.2

STRUCTURAL DRAWING NOTES

BROWN FOUNDATION

I. GENERAL APPLICATION
A. These drawings must be used in conjunction with the architectural drawings to clearly define the requirements for construction.

B. Do not scale drawings.

C. In the opinion of the Contractor, any items that appear to be deficiencies, omissions, contradictions or ambiguities in the drawings, should be brought to the attention of the Architect and/or G&S Structural Engineers.

II. CODES AND SPECIFICATIONS **(see attached 1/17/22 letter from G&S Structural Engineers on adherence to 2021 IBC)**
A. International Building Code (IBC) - 2018 Edition

III. DESIGN CRITERIA
A. Wind — 3 Second Gust Wind Speed = 115 MPH (Ultimate) / 89 MPH (Nominal)
Exposure = B
Risk Category II
Enclosure Classification = Enclosed
Components and Cladding Pressure = 15 psf

B. Seismic
Ss = 1.21.1%g — Sds = 0.82g
S1 = 36.5%g — Sd1 = 0.47g
Risk Category = II — Ie = 1.00
Site Class = D — Seismic Design Category = D
R = 6.5 — V = Cs W = 0.126W
Light Frame Bearing Walls With Wood Shear Panel System Equivalent Lateral Force Analysis Method
Percentage of roof snow used for design = 20%

C. Live Loads per IBC Sec. 1607 — Uniform (psf)
1. Ground snow: Pg — 110
2. Roof
a. Snow Load: Pf — 75
1. Is = 1.0
II. Ce = 1.0
III. Ct = 1.0
b. Live Load — 20
3. Floors — 40
4. Interior wall lateral pressure — 5

D. Dead Loads — Uniform (psf)
1. Framing system — 15 (Roof) / 15 (All Floors)

E. Design Assumptions
1. Soil bearing pressure used is 5000 psf for columns and wall footings as per the 445 E Kelly soils report, by Nelson Engineering dated 12/17/21. Any variation encountered, different from this report, shall be brought to the attention of G&S Structural Engineers before proceeding.

F. Allowable Stresses (unless otherwise noted)
1. Concrete (Reference ACI 318-14, section 19.3-Concrete Durability Requirements)
a. Footings (and interior foundation walls)
I. Per ACI Table 19.3.1.1 - F0,S0,W0,C1
II. Minimum f'c @ 28 days — 3000 psi
III. W/C ratio — 0.55 max
IV. Slump limit — 4 - 8 inches with verified max slump of 3" before admixtures, (± 1")
V. Air entrainmentv. — 3% (± 1%) Total air content
b. Exterior/perimeter foundation walls
I. Per ACI Table 19.3.1.1 - F1,S0,W0,C1
II. Minimum f'c @ 28 days — 3500 psi
III. W/C ratio — 0.55 max
IV. Slump limit — 4 - 8 inches with verified max slump of 4" before admixtures, (± 1")
V. Air entrainment — 6% (± 1%) Total air content
2. Reinforcing steel
a. Typical — ASTM A615 Grade 60

IV. SPECIAL INSPECTION
A. The Owner or the Owner's Agent shall employ Independent Special Inspector(s) to perform the following duties. Each Special Inspector shall submit qualifications showing competency to the Building Official for approval prior to specified duties. All special inspection is to comply with IBC Chapter 17.
1. Duties and Responsibilities of the Special Inspector:
a. The Special Inspector shall observe the work assigned to be certain it conforms to the approved contract drawings.
b. The Special Inspector shall furnish inspection reports to the Building Official and to the Architect of Record. All discrepancies shall be brought to the immediate attention of the Contractor for correction.
2. Concrete:
a. No special inspection is required based upon the exceptions listed in IBC Section 1705.3.
3. Concrete and Masonry Anchors:
a. Drilled in adhesive (epoxy) and mechanical anchors:
I. Special inspection of drilled in anchors as per ICC Evaluation Services Report and/or as required by the building department.
4. Structural Backfill:
a. Periodic inspection of backfilled soil under concrete footings per the compaction requirements in the Geotechnical Engineering Report or note E in Section V.

V. GENERAL STRUCTURAL NOTES
A. All footings shall bear on undisturbed soil or rock. The foundation shall bear on the same soil type throughout the entire structure. A minimum distance of 3'-0" shall be maintained from finished grade to the bottom of all concrete footings.

B. Caution shall be taken not to undermine existing footings.

C. Contractor shall verify all dimensions in the field; any variation from the drawings shall be brought to the attention of the Architect. Any proposed field changes shall have prior approval from the Architect.

D. Adequate shoring and bracing of all structural members during construction shall be provided.

E. Backfill under slabs and footings shall be with approved material. Unless noted otherwise in a Geotechnical Engineering Report place fill in 8" maximum loose lifts and compact to 95% maximum dry density in accordance with ASTM D1557.

VI. CONCRETE
A. Unless otherwise noted, all concrete is to be made with Portland Cement - ASTM C150 with a maximum aggregate size less than or equal to one inch.

B. Concrete shall be of ready mix type conforming to ASTM C94.

C. When the average daily temperature is expected to drop below 40° F for 3 or more successive days, the concrete shall comply with the Cold Weather Concreting Standard (ACI 306). Place no concrete against frozen earth.

D. All vertical reinforcement in piers and walls shall be doweled from the footing or structure below with rebar of the same size and spacing as required above. All footing dowels shall have at least 40 diameters embedment into concrete above and shall have a 6" hook in footing below unless specified otherwise.

E. Provide corner bars at all intersecting corners. Use same bar size and spacing as horizontal wall reinforcement. Where horizontal reinforcing bars join concrete columns the reinforcing shall run continuous through columns. Where continuous horizontal reinforcement terminates, use a 90° return or separate corner bar.

F. Splices of reinforcement at points of maximum stress shall be avoided. All longitudinal reinforcement in beams and headers shall be continuous without splices between supports. Minimum overlap for lapped splices shall be as follows:
#4 - 24"

G. Reinforce all concrete walls as shown on the Concrete Wall Schedule.

H. All exterior vertical concrete surfaces below finished grade, where in contact with earth, shall be protected with an asphaltic coating.

I. No aluminum products shall be embedded in the concrete.

J. All construction joints shall be located so as not to impair the strength of the structure. Unless noted on the drawings, all reinforcement shall be continuous through the joints. Each construction joint shall be keyed.

VII. REINFORCING STEEL
A. Welding or tack welding of reinforcing bars to other bars, plates, angles, etc. is prohibited unless ASTM A706 (weldable) rebar is utilized.

B. All detailing, fabrication and placing of reinforcing bars shall conform to the ACI Manual of Standard Practice for Detailing Reinforcing Concrete Structures (ACI 315).

C. Reinforcement shall be accurately placed as indicated on the drawings and adequately supported to prevent displacement before concrete or masonry grout is placed.

D. The following minimum concrete cover for reinforcement shall be provided, unless otherwise noted.
Cast against and permanently exposed to earth.....3"
Exposed to earth or weather - #5 and smaller... 1-1/2"

VIII. TIMBER
A. All wood and timber construction that is part of this project shall comply with the Timber Construction Manual of the AITC. Other members with equivalent size and strength can be substituted only if documentation is provided to substantiate capacity of new product. All wood framing members shall have a moisture content less than 19% unless otherwise noted.

B. Notching of any structural member other than that shown on the drawings is prohibited. See Detail 2/S1.1 for Allowable Penetration in Light Framed 2x Lumber.

C. There shall be at least two nails at each contact point, with 8d thru 1" material, 16d thru 2" material and 40-60d thru 3" material.

D. Wherever possible nails should be driven perpendicular to the grain instead of toe nailed.

E. All wood materials in direct contact with concrete or masonry or within 6" of soil shall be pressure treated wood or wood of natural resistance to decay. When wood joists are located closer than 18" or wood beams are located closer than 12" to exposed soil, the wood framing shall be pressure treated wood or wood of natural resistance to decay.

F. Where wood tends to split, holes for nails shall be bored a diameter smaller than that of the nails.

G. All wood connection hardware shown on plans is based upon Simpson Strong Tie products. Equivalent hardware may be used upon approval of the Architect. All hangers are to match the width and depth of framing members with correct slope and skew where applicable. Fill all nail holes unless otherwise noted. All Simpson connectors in exterior applications or in contact with pressure treated wood shall have a corrosion resistant coating. The coating type shall be determined by referencing the "General Corrosion Information" website at "www.strongtie.com/info" and the "Corrosion Resistance Recommendations and Classifications" section.

H. See the Nailing Schedule for the typical wood to wood fastening requirements of the structural components.

NAILING SCHEDULE

All nails in this schedule are based upon IBC Table 2304.10.1 and Truss Joist specifier's guide. See the IBC table or engineered "I" Joist manufacture for additional options and requirements. All fasteners exposed to weather or moisture and/or fasteners less than 1/2"ø driven into pressure treated lumber shall be stainless steel or galvanized. Other nails with proper revised spacing may be used with written approval of the engineer.

CONNECTION	FASTENING
2x Floor Joists to bearing plate	3-10d box (0.128"x3") toenail
2x Rim Joist with 2x Floor Joists	4-10d box (0.128"x3") end nail from rim to each joist & 10d box (0.128"x3") toenail to plate below @ 6" o.c.
2x Roof Joists to top plate	4-10d box (0.128"x3") toenail or 3-16d box (0.135"x3.5") toenail
Blocking between 2x joists	3-10d box (0.128"x3") toenail to joist or truss & 10d box (0.128"x3") toenail to plate below @ 6" o.c.
Double Top Plates	
Lower plate to top of stud	2-16d common (0.162"x3.5") end nails or 3-10d box (0.128"x3") end nails
Upper plate to lower plate-staggered	16d common (0.162"x3.5") @ 16" o.c. or 10d box (0.128"x3") @ 12" o.c.
Upper plate to lower plate @ intersection	2-16d common (0.162"x3.5") or 3-10d box (0.128"x3")
Upper plate to lower plate @ splice point	8-16d common (0.162"x3.5") or 12-10d box (0.128"x3") @ each side of splice (Minimum lap: 4'-0" with 2'-0" each side of splice)
2x Built-up Headers	
2x12 or less in depth	2 rows of 16d box (0.135"x3.5") @ 12" o.c. @ each ply
Continuous header to stud	4-10d box (0.128"x3") toenail at each stud

WOOD WALL SCHEDULE

(SEE FRAMING PLAN FOR SHEAR WALL HOLDOWNS)
(SEE APPROPRIATE SECTIONS FOR BOTTOM PLATE NAILING OR BOLTING)

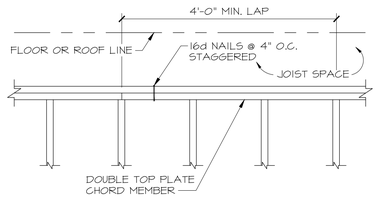
MARK	WALL STUDS (1)	SILL PLATE /BOTTOM PLATE (2)	ANCHOR BOLTS (3)	3x3x.229 PLATE WASHERS (4)	WALL BLOCKING (5)	TOP PLATE DETAIL (6)	7/16" (7) APA RATED SHEATHING	NAILING (0.131"ø x 2 1/2" MIN.) EDGES	NAILING (0.131"ø x 2 1/2" MIN.) INTERMED.
BW	2x4 @ 16" O.C.	2x	1/2" ø @ 6'-0" O.C. 7" EMBED	NO	2x4 @ 4'-0" O.C.	1/S1.1	N/A	N/A	N/A
BW	2x6 @ 16" O.C.	2x	1/2" ø @ 6'-0" O.C. 7" EMBED	NO	2x6 @ 4'-0" O.C.	1/S1.1	N/A	N/A	N/A

(1) USE NO. 2 DOUGLAS FIR.
(2) USE PRESSURE TREATED WOOD WHEN IN CONTACT WITH CONCRETE.
(3) USE A307 STEEL. DO NOT RECESS NUT AND WASHER INTO SILL PLATE. MINIMUM 2 ANCHOR BOLTS PER PIECE. LOCATE ANCHOR BOLTS 10" FROM EACH END OF PIECE. CONTRACTOR MAY USE SIMPSON TITEN HD ANCHORS OF THE SAME DIAMETER AND SPACING SPECIFIED. PROVIDE A MINIMUM EMBEDMENT OF 3 1/4" FOR 1/2"ø TITEN HD ANCHORS AND 3 3/4" FOR 5/8"ø TITEN HD ANCHORS.
(4) USE A36 STEEL. DO NOT RECESS INTO SILL PLATE. IF PLATE WASHERS ARE NOT REQUIRED, USE STANDARD WASHERS.
(5) AT BEARING WALLS (BW) ONLY. BLOCKING MAY BE ELIMINATED IF WALL SHEATHING IS APPLIED.
(6) WHERE TOP PLATE IS CUT OR DISCONTINUOUS, STRAP ACROSS BREAK WITH SIMPSON MST37 STRAP.
(7) SHEATHING TO BE PLYWOOD OR OSB. (VERTICAL OR HORIZONTAL ORIENTATION.) PROVIDE BLOCKING AT ALL UNSUPPORTED PANEL EDGES FOR NAILING, INCLUDING PANEL EDGES ABOVE AND BELOW OPENINGS.

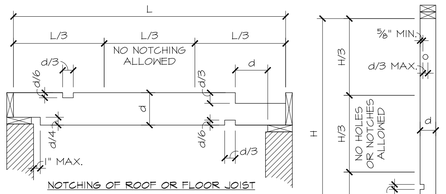
COLUMN SCHEDULE

MARK	COLUMN SIZE	MATERIAL	REMARKS
WC1	4x10	NO. 2 DOUG. FIR	

PROVIDE SOLID BLOCKING BELOW WOOD COLUMNS @ FLOOR FRAMING TO ENSURE CONTINUOUS TRANSFER OF LOAD TO COLUMN OR FOUNDATION BELOW.

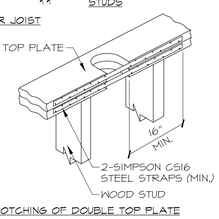


LAP SPLICE OF DBL. TOP PLATE — 1 / S1.1



SIZE SCHEDULE			
MEMBER	d/3	d/4	d/6
2x4	1 1/8	7/8	5/8
2x6	1 3/4	1 3/8	7/8
2x8	2 3/8	1 3/4	1 1/8
2x10	3	2 1/4	1 1/2
2x12	3 5/8	2 3/4	1 7/8

HOLES & NOTCHES IN BEAMS ARE NOT ALLOWED UNLESS OTHERWISE APPROVED IN WRITING BY ENGINEER



NOTCHING OF DOUBLE TOP PLATE

ALLOWABLE PENETRATION IN LIGHT FRAMED 2x LUMBER — 2 / S1.1

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PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

LEGEND

MARK ON PLAN	DESCRIPTION	SCHEDULE ON SHEET	DETAIL
BW	BEARING WALL	S1.1	-
CF	CONCRETE FOOTING	S1.1	-
CW	CONCRETE WALL	S1.1	-
WC	WOOD COLUMN	S1.1	-
WH	WOOD HEADER	S1.1	-

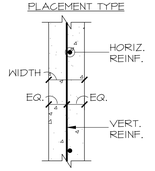
CONCRETE FOOTING SCHEDULE

MARK	DEPTH	WIDTH	LENGTH	REINFORCEMENT LONGITUDINAL	REINFORCEMENT TRANSVERSE
CF1	10"	1'-4"	CONT.	2- #4 CONT.	-
CF2	10"	2'-3"	2'-3"	3- #4	3- #4

CONCRETE WALL SCHEDULE

MARK	WIDTH	TYPE	REINFORCEMENT HORIZONTAL	REINFORCEMENT VERTICAL	REMARKS
CW1	8"	A	#4 @ 12" O.C.	#4 @ 18" O.C.	

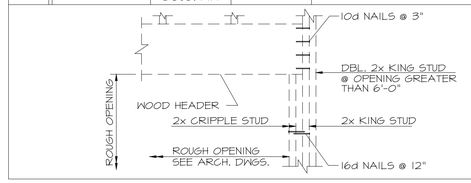
PLACEMENT TYPE



TYPE A

WOOD HEADER SCHEDULE

MARK	HEADER SIZE	MATERIAL	CRIPPLE STUD	REMARKS
WH1	2- 2x8	NO. 2 DOUG. FIR	1- 2x6	



KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS

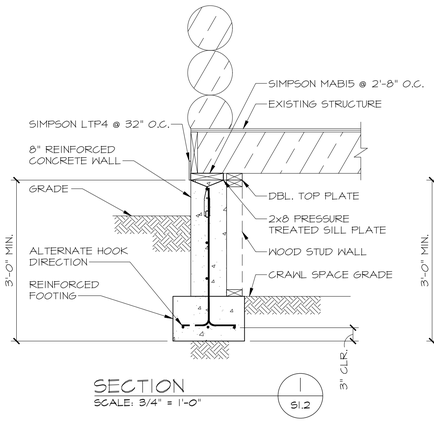
PERMIT SET	12/13/2021
CONSTRUCTION SET	12/22/2021

Professional Engineer (Civil) — SEAN M. TRACY — 6587 — Date 12-22-2021 — WYOMING

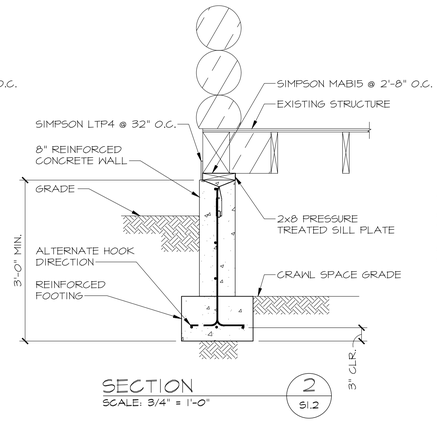
G&S STRUCTURAL ENGINEERS
505 LINDSAY BOULEVARD
IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-6918 / FAX: (208) 523-6922
E-MAIL: gs@gsengineers.net

PROJECT NUMBER: 21222
DRAFTER: JP DESIGNER: DT CHECKER: FLW

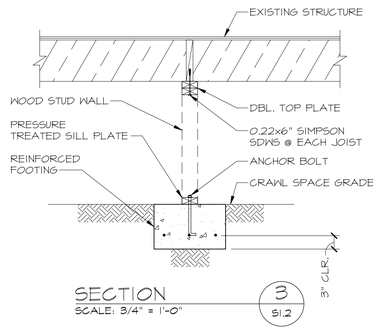
SHEET NAME
SCALE
DATE 09 DECEMBER 2021
SHEET S1.1



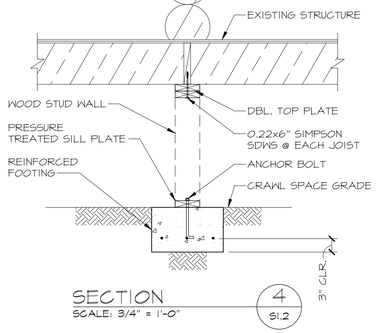
SECTION 1/S1.2
SCALE: 3/4" = 1'-0"



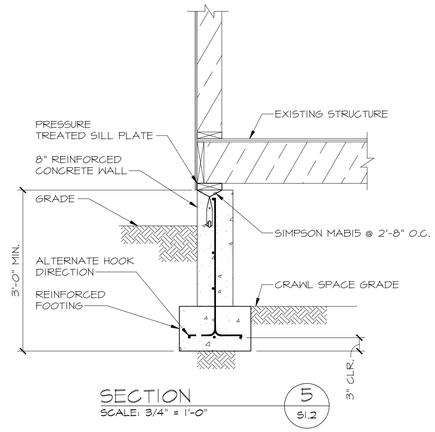
SECTION 2/S1.2
SCALE: 3/4" = 1'-0"



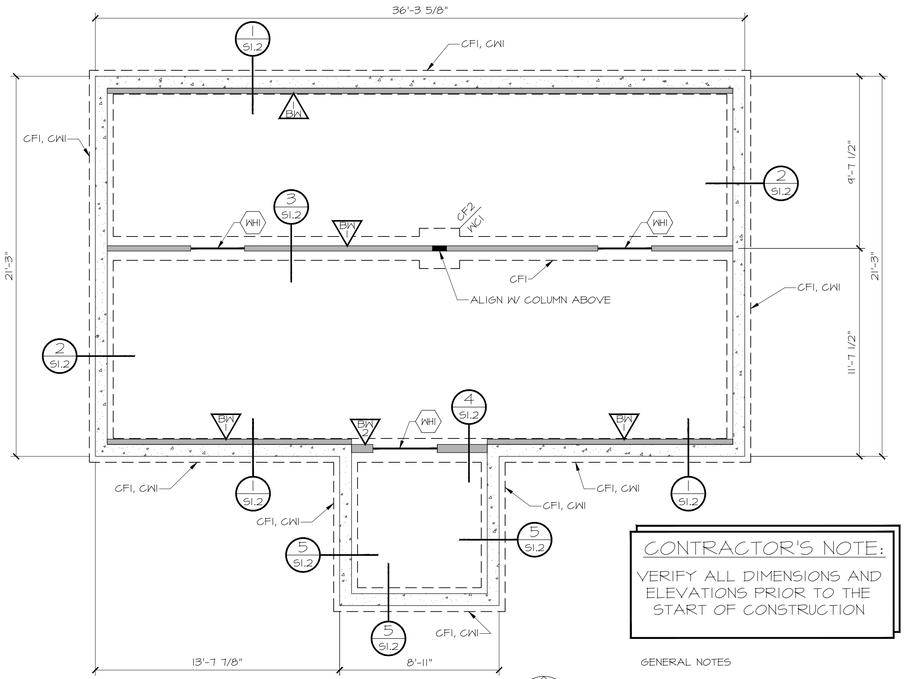
SECTION 3/S1.2
SCALE: 3/4" = 1'-0"



SECTION 4/S1.2
SCALE: 3/4" = 1'-0"



SECTION 5/S1.2
SCALE: 3/4" = 1'-0"

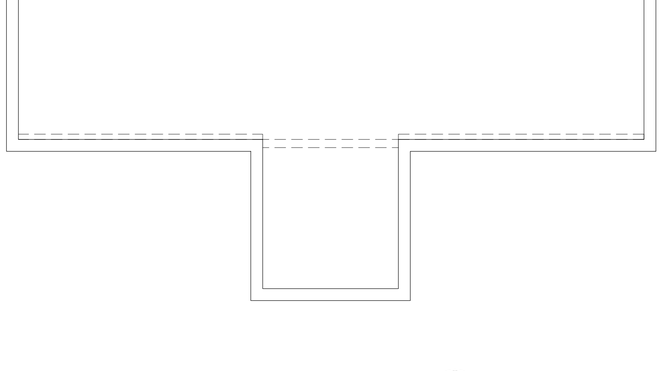


FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

CONTRACTOR'S NOTE:
VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION

GENERAL NOTES

1. For marked description items on Plan see legend on sheet S1.1.



CRAWL SPACE ACCESS
SCALE: 1/4" = 1'-0"

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS. AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS

PERMIT SET	12/13/2021
CONSTRUCTION SET	12/22/2021

Professional Engineer (Civil) SEAN M. TRACY 8587 WYOMING
Date 12-22-2021

G&S STRUCTURAL ENGINEERS
505 LINDSAY BOULEVARD
IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-6918 / FAX: (208) 523-6922
E-MAIL: gs@gsengineers.net
PROJECT NUMBER: 21222
DRAFTER: JP DESIGNER: DT CHECKER: FLW

SHEET NAME
SCALE
DATE 09 DECEMBER 2021
SHEET S1.2

TOWN OF JACKSON
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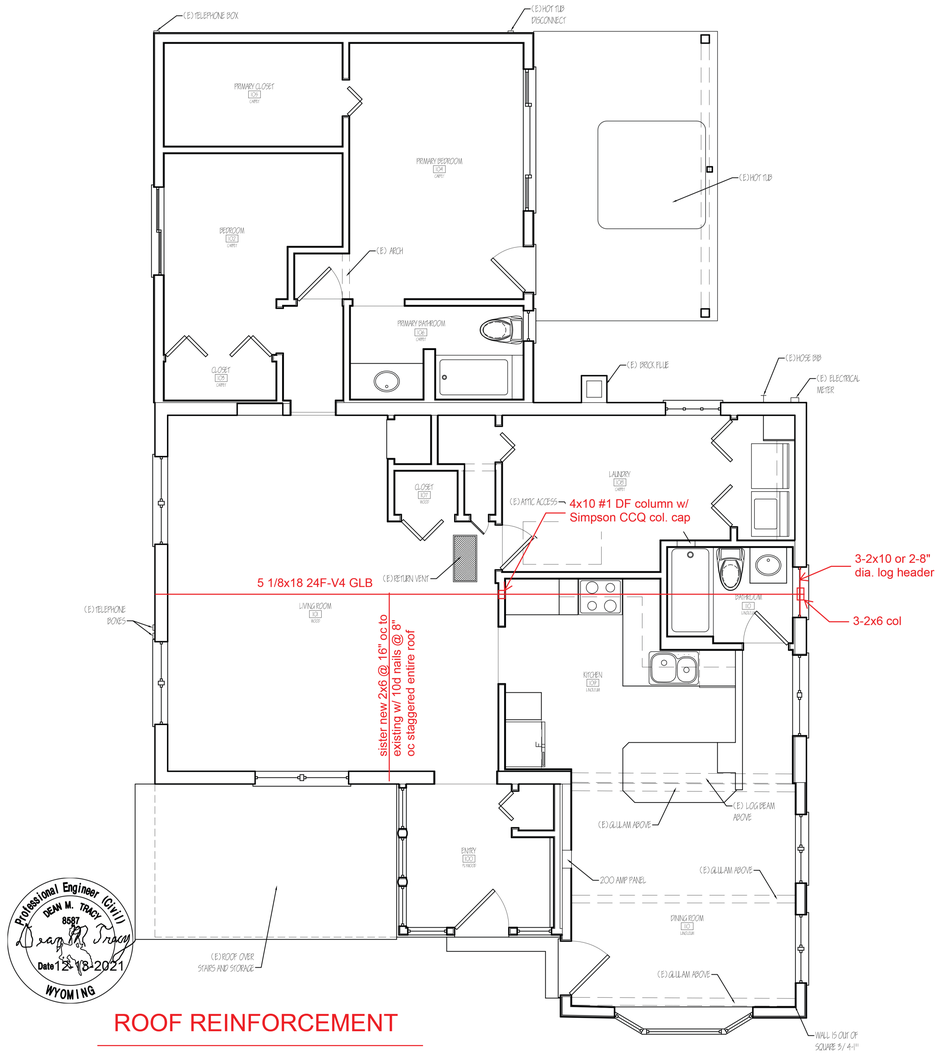


ROOF REINFORCEMENT

(N) DOOR
DEMO DOOR
(E) DOOR
(N) WALL
DEMO WALL
EXISTING WALL TO REMAIN
(E) WALL SCONCE SEE INTERIOR ELEVATIONS UNLESS OTHERWISE NOTED A.F.F.
(E) FLOOR OUTLET
X'-X" (E) CEILING HEIGHT
(E) J-BOX IN CEILING

PLAN NOTES

1. ALL MEASUREMENTS OFF OF LOG WALLS ARE TAKEN AS AN AVERAGE. LOGS VARY FROM 7" TO 9" IN DIAMETER. THE LOGS ARE HAND-HEWN THEREFORE THE SURFACE IS NOT CONSISTENT.
2. LOG BEAM VARY FROM 8" TO 9" IN DIAMETER AND HAVE A NATURAL TAPER FROM ONE END TO THE OTHER END.
3. THE ASSUMPTION OF 5/ 8" DRYWALL ON THE WALLS
4. NO DIMENSIONS SHOULD BE IMPLIED OR MEASURED FROM THIS PLAN UNLESS THE DIMENSION IS SPECIFICALLY CALLED OUT ON THE PLAN.
5 PLANS ARE ONLY REPRESENTATIVE OF THE EXISTING BUILDING NOT TO BE USED FOR MEASUREMENTS - ALL DIMENSIONS NEED TO BE FIELD VERIFIED

ALL DIMENSIONS MUST BE FIELD VERIFIED

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

Professional Engineer (Civil)
DEAN M. TRACY
8587
Dean Tracy
Date 12/18/2021
WYOMING

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS
MOVE/BUILDING PERMIT

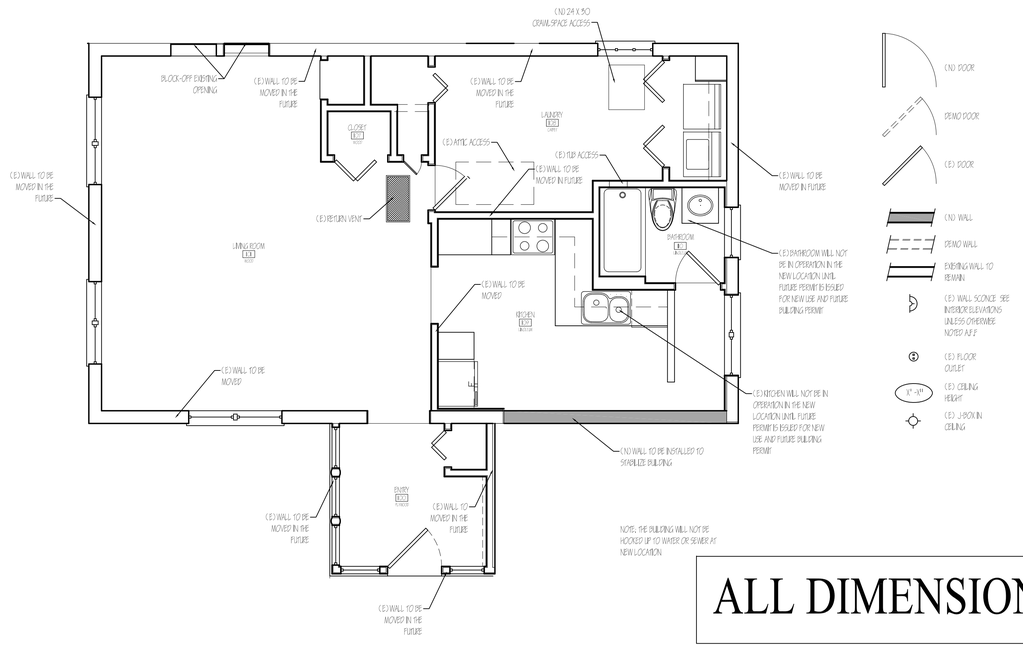
SHEET NAME
FIRST FLOOR PLAN

SCALE
1/4"=1'-0"

DATE
15 DECEMBER 2021

SHEET
S1.3

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS. AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS



PLAN NOTES

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ALL DIMENSIONS MUST BE FIELD VERIFIED

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

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS
MOVE/BUILDING PERMIT

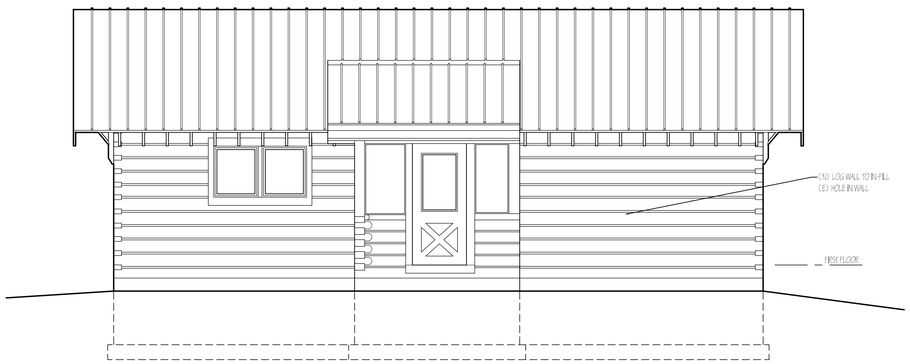
LICENSED ARCHITECT
B-0238
ROY CORNELIUS KINSEY, JR.
STATE OF WYOMING
DATE: 28 DEC 2021

SHEET NAME
FIRST FLOOR PLAN

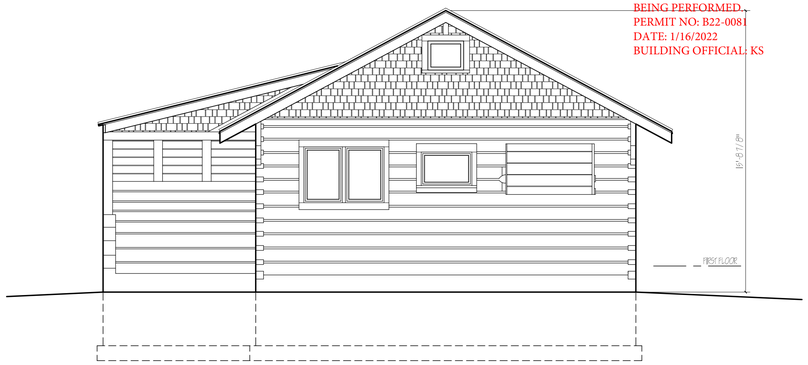
SCALE
1/4"=1'-0"

DATE
28 DECEMBER 2021

SHEET
A2.1



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



2 EAST ELEVATION
SCALE: 1/4" = 1' -0"

TOWN OF JACKSON
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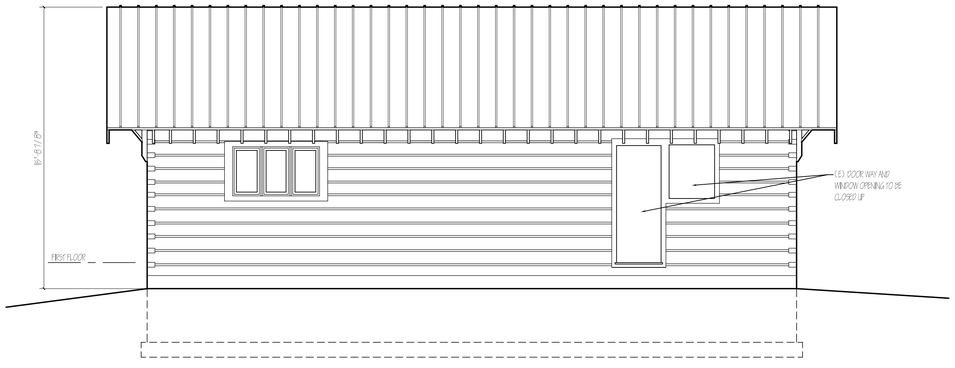
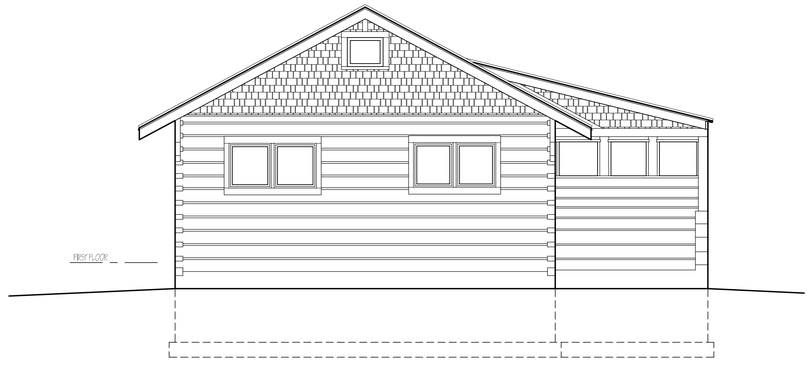
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS



3 NORTH ELEVATION
SCALE: 1/4" = 1' -0"



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

LICENSED ARCHITECT
ROY CORNELIUS KINSEY, JR.
P-0238
DATE: 1/17/22
STATE OF WYOMING

KINSEY, LLC.
P.O. BOX 12258 • 1070 ELK RUN UNIT 60
JACKSON, WY 83002 PH # 307.413.2485

PROJECT NUMBER
BROWN RESIDENCE
445 EAST KELLY AVENUE
JACKSON, WY

REVISIONS
MOVE/BUILDING PERMIT

SHEET NAME
ELEVATIONS

SCALE
1/4"=1'-0"

DATE
17 JANUARY 2022

SHEET
A5.1

G & S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402

Telephone: (208) 523-6918 **E-mail: gs@gsengineers.net** **Fax: (208) 523-6922**

January 17, 2022
#21218, 21222

Mr. Cornelius Kinsey
Kinsey, LLC
P.O. Box 12258
Jackson, WY 83002

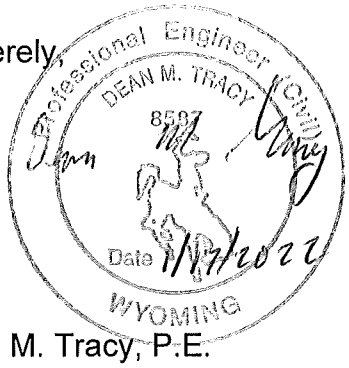
Re: Brown Residence and Foundation
445 E. Kelly Avenue
Jackson, Wyoming

Dear Cornelius,

It has been brought to my attention that the above referenced projects will be permitted under the 2021 IBC instead of the 2018 IBC. The new building code will have no negative affect on design submitted under the 2018 IBC. Attached is the lateral design for the building under the 2021 IBC which is the same as the 2018 IBC, pages 1.1-1.8.

Please call if you have any questions or if I can be of further assistance.

Sincerely,



Dean M. Tracy, P.E.

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Fall, ID 83402
208-523-6958

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dmf DATE
CHECKED BY DATE
www.struware.com

Code Search

Code: International Building Code 2021

Occupancy:

Occupancy Group = R Residential

Risk Category & Importance Factors:

Risk Category =	II
Wind factor =	1.00
Snow factor =	1.00
Seismic factor =	1.00

Type of Construction:

Fire Rating:

Roof =	0.0 hr
Floor =	0.0 hr

Building Geometry:

Roof angle (θ)	6.00 / 12	26.6 deg
Building length	37.0 ft	
Least width	30.0 ft	
Mean Roof Ht (h)	14.0 ft	
Parapet ht above grd	0.0 ft	
Minimum parapet ht	0.0 ft	

Live Loads:

Roof

0 to 200 sf:	18 psf
200 to 600 sf:	21.6 - 0.018Area, but not less than 12 psf
over 600 sf:	12 psf
	N/A

Floor:

Typical Floor	40 psf
Partitions	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Fall, ID 83402
208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dmt DATE
CHECKED BY DATE

Wind Loads : ASCE 7-16

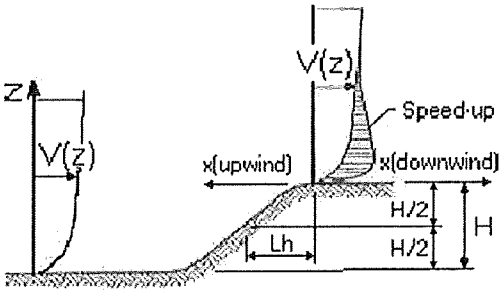
Ultimate Wind Speed	115 mph
Nominal Wind Speed	89.1 mph
Risk Category	II
Exposure Category	B
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.701
Kh case 2	0.575
Type of roof	Gable

Topographic Factor (Kzt)

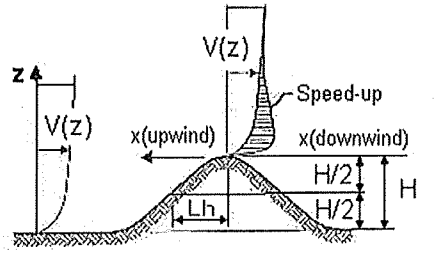
Topography		Flat
Hill Height	(H)	80.0 ft
Half Hill Length (Lh)		100.0 ft
Actual H/Lh	=	0.80
Use H/Lh	=	0.50
Modified Lh	=	160.0 ft
From top of crest: x =		50.0 ft
Bldg up/down wind?		downwind

H/Lh= 0.50 K_1 = 0.000
x/Lh = 0.31 K_2 = 0.792
z/Lh = 0.09 K_3 = 1.000

At Mean Roof Ht:
Kzt = $(1+K_1K_2K_3)^2$ = 1.00



ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	14.0 ft
B =	30.0 ft
/z (0.6h) =	30.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
If building h/B>4 then may be flexible and should be investigated.
h/B = 0.47 Rigid structure (low rise bldg)

G = 0.85 Using rigid structure formula

Rigid Structure

$\bar{e}$ =	0.33	
ℓ =	320 ft	
z_{min} =	30 ft	
c =	0.30	
g_Q, g_v =	3.4	
L_z =	310.0 ft	
Q =	0.92	
I_z =	0.30	
G =	**0.88**	use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz			
Damping ratio (β) =	0			
/b =	0.45			
/α =	0.25			
Vz =	74.1			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 14.0 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
Gf =	0.000			

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Fall, ID 83402
208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dnt DATE
CHECKED BY DATE

Enclosure Classification

Test for Enclosed Building: Ao < 0.01Ag or 4 sf, whichever is smaller

Test for Open Building: All walls are at least 80% open.
Ao ≥ 0.8Ag

Test for Partially Enclosed Building: Predominately open on one side only

	Input			Test	
Ao	500.0	sf	Ao ≥ 1.1Aoi	NO	
Ag	600.0	sf	Ao > 4' or 0.01Ag	YES	
Aoi	1000.0	sf	Aoi / Agi ≤ 0.20	YES	Building is NOT Partially Enclosed
Agi	10000.0	sf			

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao ≥ 1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi ≤ 0.20
Where:
Ao = the total area of openings in a wall that receives positive external pressure.
Ag = the gross area of that wall in which Ao is identified.
Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.
Agi = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.

Test for Partially Open Building: A building that does not qualify as open, enclosed or partially enclosed.
(This type building will have same wind pressures as an enclosed building.

Reduction Factor for large volume partially enclosed buildings (Ri) :

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog): 0 sf
Unpartitioned internal volume (Vi) : 0 cf
Ri = 1.00

Ground Elevation Factor (Ke)

Grd level above sea level = 0.0 ft
Constant = 0.00256 Adj Constant = 0.00256
Ke = 1.0000

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Fall, ID 83402
208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dmt DATE
CHECKED BY DATE

Wind Loads - MWFRS h≤60' (Low-rise Buildings) except for open buildings

Kz = Kh (case 1) = 0.70
Base pressure (qh) = **20.2 psf**
GCpi = +/-0.18

Edge Strip (a) = 3.0 ft
End Zone (2a) = 6.0 ft
Zone 2 length = 15.0 ft

Wind Pressure Coefficients

Surface	CASE A θ = 26.6 deg GCpf	CASE A w/-GCpi	CASE A w/+GCpi		CASE B GCpf	CASE B w/-GCpi	CASE B w/+GCpi
1	0.55	0.73	0.37		-0.45	-0.27	-0.63
2	-0.10	0.08	-0.28		-0.69	-0.51	-0.87
3	-0.45	-0.27	-0.63		-0.37	-0.19	-0.55
4	-0.39	-0.21	-0.57		-0.45	-0.27	-0.63
5					0.40	0.58	0.22
6					-0.29	-0.11	-0.47
1E	0.73	0.91	0.55		-0.48	-0.30	-0.66
2E	-0.19	-0.01	-0.37		-1.07	-0.89	-1.25
3E	-0.58	-0.40	-0.76		-0.53	-0.35	-0.71
4E	-0.53	-0.35	-0.71		-0.48	-0.30	-0.66
5E					0.61	0.79	0.43
6E					-0.43	-0.25	-0.61

Ultimate Wind Surface Pressures (psf)

1		14.7	7.5		-5.4	-12.7
2		1.6	-5.6		-10.3	-17.5
3		-5.4	-12.6		-3.8	-11.1
4		-4.2	-11.5		-5.4	-12.7
5					11.7	4.4
6					-2.2	-9.5
1E		18.3	11.0		-6.0	-13.3
2E		-0.2	-7.5		-17.9	-25.2
3E		-8.2	-15.4		-7.1	-14.3
4E		-7.2	-14.4		-6.0	-13.3
5E					15.9	8.7
6E					-5.0	-12.3

Parapet

Windward parapet = 0.0 psf (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

Windward roof overhangs = 14.1 psf (upward) add to windward roof pressure

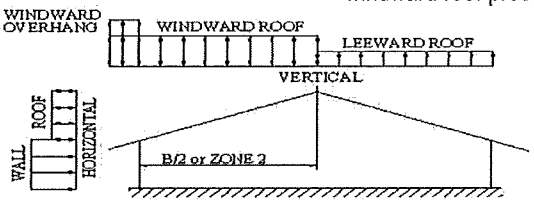
Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

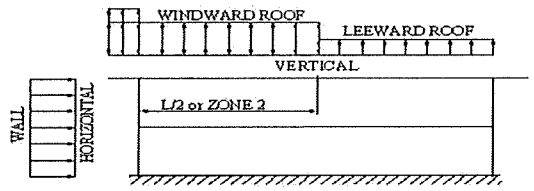
Interior Zone: Wall 19.0 psf
Roof 7.0 psf
End Zone: Wall 25.5 psf
Roof 8.0 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall 13.9 psf
End Zone: Wall 21.0 psf



TRANSVERSE ELEVATION



LONGITUDINAL ELEVATION

The code requires the MWFRS be designed for a min ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.

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208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
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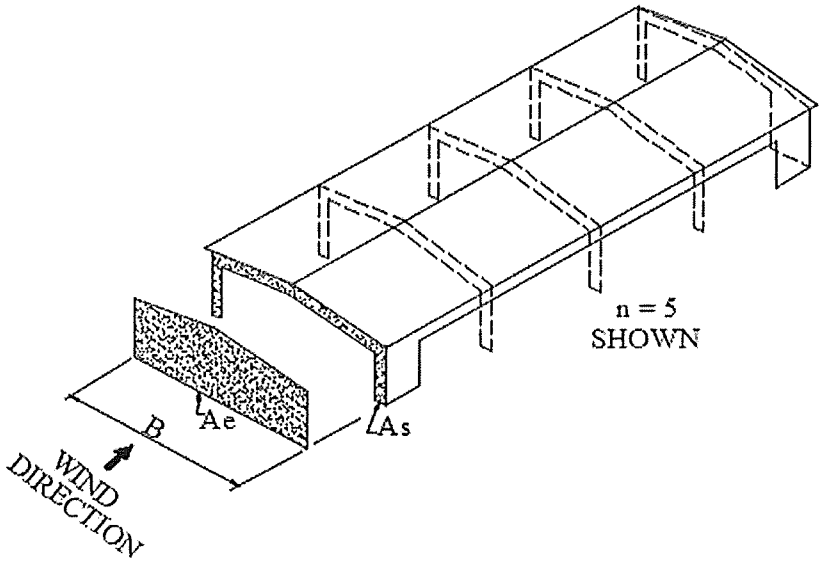
Wind Loads - h≤60' Longitudinal Direction MWFRS On Open or Partially Enclosed Buildings with Transverse Frames and Pitched Roofs

ASCE 7-16 procedure

Base pressure (qh) =	**20.2 psf**	
GCpi =	+/-0.18	Enclosed bldg, procdure doesn't apply
Roof Angle (θ) =	26.6 deg	



B=	30.0	ft
# of frames (n) =	5	
Solid are of end wall including fascia (As) =	1,500.0	sf
Roof ridge height =	17.8	ft
Roof eave height =	10.3	ft
Total end wall area if soild (Ae) =	420.0	sf

Longidinal Directional Force (F) = pAe

p= qh [(GCpf)windward -(GCpf)leeward] K_B K_S

Solidarity ratio (Φ) =	3.571	
n =	5	
KB =	1.5	
KS =	13.106	
Zones 5 & 6 area =	384	sf
5E & 6E area =	36	sf
(GCpf) windward - (GCpf) leeward] =	0.720	
p =	285.5	psf

Total force to be resisted by MWFRS (F) = **119.9 kips** applied at the centroid of the end wall area Ae

Note: The longidudinal force acts in combination with roof loads calculated elsewhere for an open or partially enclosed building.

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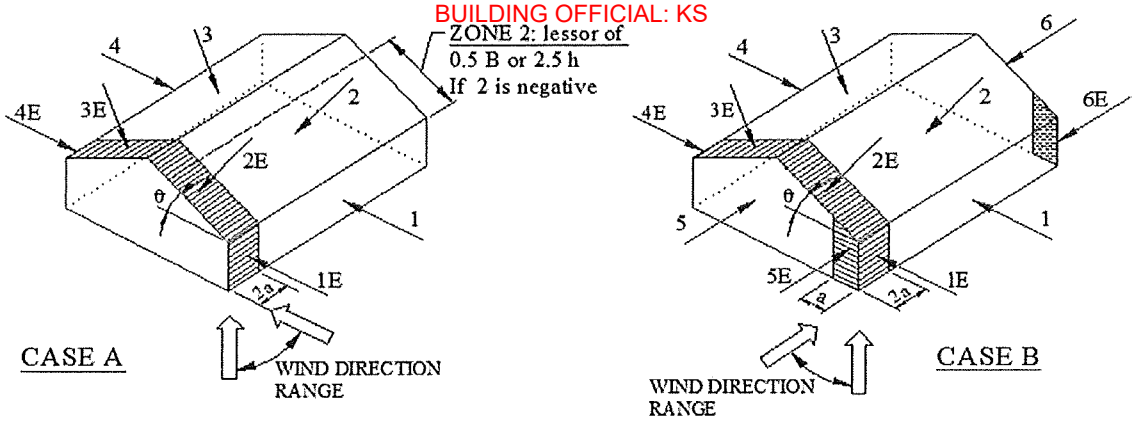
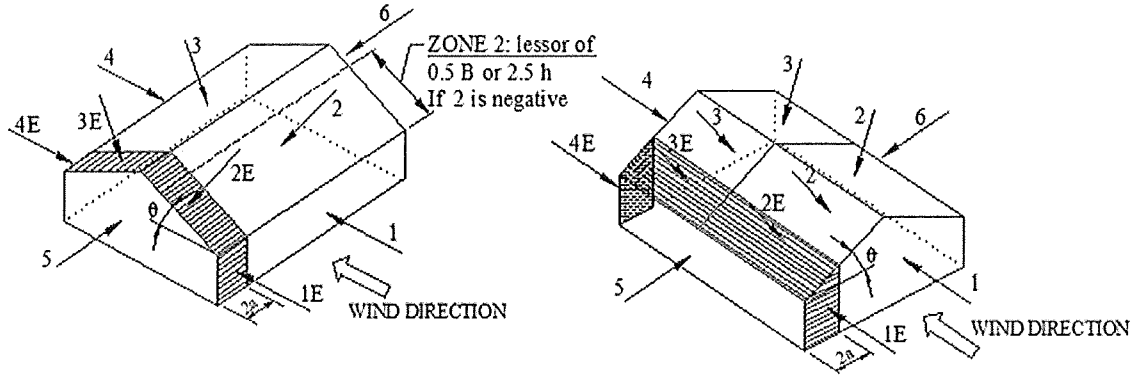


NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

ASCE 7-98 & ASCE 7-10 (& later) - MWFRS wind pressure zones



NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

ASCE 7-02 and ASCE 7-05 - MWFRS wind pressure zones

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JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
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Seismic Loads: IBC 2021

Strength Level Forces

Risk Category : II
Importance Factor (Ie) : 1.00
Site Class : D

Ss (0.2 sec) = 121.10 %g
S1 (1.0 sec) = 36.50 %g

A site specific ground motion analysis is required for seismically isolated structures or with damping systems, see ASCE7 11.4.8

Site specific ground motion analysis performed:

Fa =	1.016	Sms =	1.230	S_{DS} =	0.820	Design Category =	D
Fv =	1.935	Sm1 =	0.706	S_{D1} =	0.471	Design Category =	D

Seismic Design Category = **D**
Redundancy Coefficient ρ = 1.30
Number of Stories: 1
Structure Type: All other building systems
Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity
Flexible Diaphragms: No
Building System: **Bearing Wall Systems**
Seismic resisting system: **Light frame (wood) walls with structural wood shear panels**
System Structural Height Limit: **65 ft**
Actual Structural Height (hn) = 14.0 ft
See ASCE7 Section 12.2.5 for exceptions and other system limitations

DESIGN COEFFICIENTS AND FACTORS

Response Modification Coefficient (R) = 6.5
Over-Strength Factor (Ωo) = 3
Deflection Amplification Factor (Cd) = 4
S_{DS} = 0.820
S_{D1} = 0.471

Seismic Load Effect (E) = Eh +/-Ev = ρQ_E +/- $0.2S_{DS}$ D = 1.3Qe +/ 0.164D — Q_E = horizontal seismic force
Special Seismic Load Effect (Em) = Emh +/- Ev = $\Omega o\, Q_E$ +/- $0.2S_{DS}$ D = 3Qe +/- 0.164D — D = dead load

PERMITTED ANALYTICAL PROCEDURES

Simplified Analysis - Use Equivalent Lateral Force Analysis

Equivalent Lateral-Force Analysis - Permitted
Building period coef. (C_T) = 0.020 Cu = 1.40
Approx fundamental period (Ta) = $C_T h_n^{x}$ = 0.145 sec x= 0.75 Tmax = CuTa = 0.203 sec
User calculated fundamental period = T = 0.145 sec
Long Period Transition Period (TL) = ASCE7 map = 6 sec

Seismic response coef. (Cs) = Sdsl/R = 0.126 ASCE7 11.4.8 exception 2 equations used
but not less than Cs = 0.044Sdsl = 0.036
USE Cs = 0.126

Design Base Shear V = 0.126W

Model & Seismic Response Analysis - Permitted (see code for procedure)

ALLOWABLE STORY DRIFT

Structure Type: All other structures
Allowable story drift Δa = 0.020hsx where hsx is the story height below level x

Total Stories =	1	Floor Dead Load =	40.0 psf
Building length L =	37.0 ft	Floor LL to include =	0.0 psf
Building width W =	30.0 ft	Floor Equip wt =	0.0 kips
hn =	14.0 ft	Partition weight =	10.0 psf
k =	1.000	Ext Wall Weight =	0.0 psf
V =	0.126W		

Bottom Floor is a slab on grade

Roof Dead Load =	20.0 psf
Roof Snow Load =	0.0 psf
Roof Equip wt =	0.0 kips
Parapet weight =	0.0 psf
Parapet height =	0.0 ft

Diaphragm shall be designed for level force Fx, but not less than Fpx = Σ Fi / Σ Wi wpx, where
Fpx min = $0.2S_{DS}$ Ie wpx = 0.164 wpx
Fpx max = $0.4S_{DS}$ Ie wpx = 0.328 wpx

Seismic Forces Normal to Building Length

V = 2.8k

Level (x)	EL above Seismic Base hx (ft)	Level Weight Wx (kips)	Wx hx^k (ft-kips)	Cvx = Wx hx^k / Σ Wi hi^k	Base Shear Distribution Fx=CvxV	Σ Fx (k)	Story M	Diaphragm Force Fpx Σ Wi (k)	Fpx	Design Fpx
Roof	15.00	22	333	1.000	2.80	2.8	0	22	2.8	3.6
1	2.00	0	0	0.000	0.00	0.0	0	0	0.0	0.0
Base		22		1.000		2.8	42			

42 = Base M

Seismic Forces Parallel to Building Length

V = 2.8k

Level (x)	hx (ft)	Wx (kips)	Wx hx^k	Cvx =	Base Shear Distribution Fx=CvxV	Σ Fx (k)	Story M	Diaphragm Force Fpx Σ Wi (k)	Fpx	Design Fpx
Roof	15.00	22	333	1.000	2.80	2.8	0	22	2.8	3.6
1	2.00	0	0	0.000	0.00	0.0	0	0	0.0	0.0
Base	0.00	22		1.000		2.8	42			

42 = Base M

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JOB TITLE Brown Cabin
JOB NO. 21218 SHEET NO.
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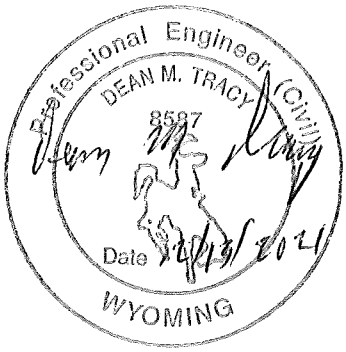
STRUCTURAL CALCULATIONS

FOR

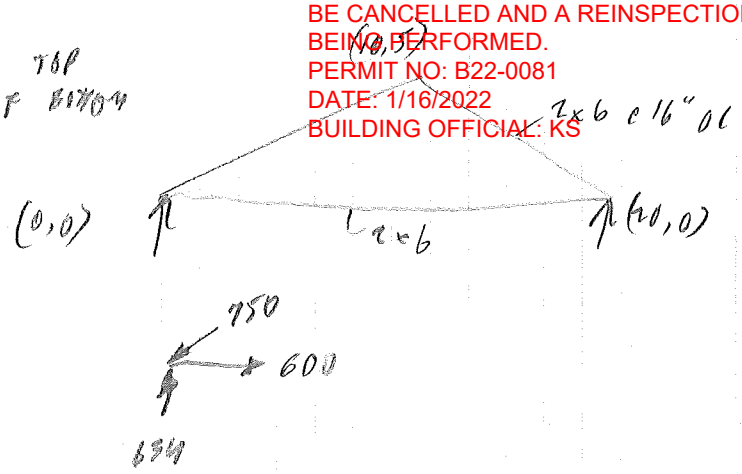
Brown Cabin



Project BROWN CABIN Project No. 21-28 Date 11-22-21

Designed By PMT

50 PLF TOP
7 PL F BOTH



50/1.33 = 38 PSF ⇒ 40 PSF ALLOW. TOTAL LOAD
10 PSF DL - 30 PSF SL

(Global) Model Settings

Display Sections for Member Calcs	3
Max Internal Sections for Member Calcs	99
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-16: ASD
Wood Code	AWC NDS-18: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	TMS 402-16: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Wood Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	top	2X6	Beam	None	DF	Typical	8.25	1.547	20.797	5.125
2	bot	2X6	Beam	None	DF	Typical	8.25	1.547	20.797	5.125

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	10	5	0	0	
3	3	20	0	0	0	

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	1	1	2			top	Beam	None	DF	Typical
2	2	3	2			top	Beam	None	DF	Typical
3	3	1	3			bot	Beam	None	DF	Typical

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
1	gravity	Yes	Y	+	1	.5																				

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	1	0	.634	0	0	0	0
2	1	3	0	.634	0	0	0	0
3	1	2	0	0	0	0	0	0
4	1	Totals:	0	1.268	0			
5	1	COG (ft):	X: 10	Y: 2.204	Z: 0			

Joint Deflections

	LC	Joint Label	X [in]	Y [in]	Z [in]	X Rotation [rad]	Y Rotation [rad]	Z Rotation [rad]
1	1	1	0	0	0	0	0	-1.078e-2
2	1	2	.005	-.023	0	0	0	1.044e-2
3	1	3	.01	0	0	0	0	1.079e-2

Maximum Member Section Forces

	LC	Member Label		Axial[k]	Loc[ft]	y Shear[k]	Loc[ft]	z Shear[k]	Loc[ft]	Torque[k-...	Loc[ft]	y-y Moment[...	Loc[ft]	z-z Moment[...	Loc[ft]
1	1	1	m...	.75	0	.25	0	0	0	0	0	0	0	0	0
2			min	.5	11.18	-.25	11.18	0	0	0	0	0	0	-.699	5.59
3	1	2	m...	.75	0	.25	0	0	0	0	0	0	0	0	0
4			min	.5	11.18	-.25	11.18	0	0	0	0	0	0	-.699	5.59
5	1	3	m...	-.559	0	.075	0	0	0	0	0	0	0	0	0
6			min	-.559	0	-.075	20	0	0	0	0	0	0	-.375	10

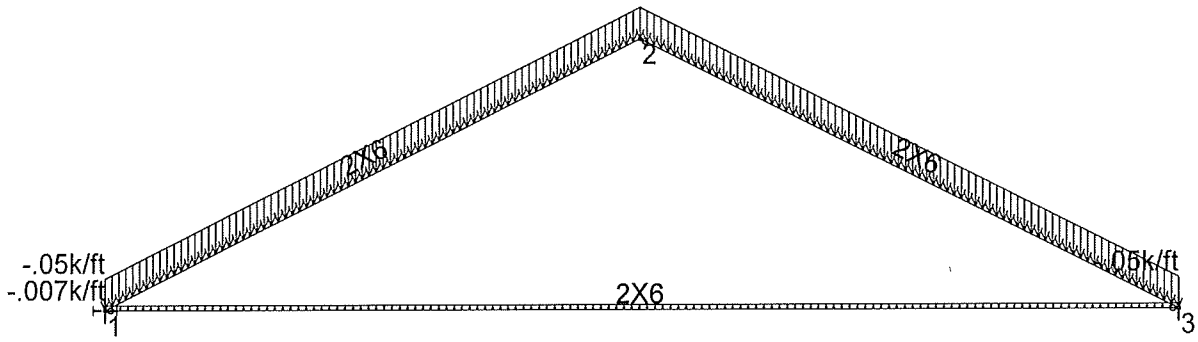
Member Section Deflections Strength

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y' Ratio	(n) L/z' Ratio
1	1	1	1	0	0	0	0	NC	NC
2			2	-.003	-.456	0	0	294	NC
3			3	-.006	-.023	0	0	5920	NC
4	1	2	1	-.009	.004	0	0	NC	NC
5			2	-.012	-.452	0	0	294	NC
6			3	-.015	-.018	0	0	5920	NC
7	1	3	1	0	0	0	0	NC	NC
8			2	.005	-.764	0	0	314	NC
9			3	.01	0	0	0	NC	NC

Member Wood Code Checks (By Combination)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]	Dir	Fc' [ksi]	Ft' [ksi]	Fb1' [k...	Fb2' [k...	Fv' [ksi]	RB	CL	CP	Eqn
1	1	1	2X6	.951	5.476	.253	0	y	.738	.878	1.293	1.495	.18	7.659	.994	.447	3.9-3
2	1	2	2X6	.951	5.476	.253	0	y	.738	.878	1.293	1.495	.18	7.659	.994	.447	3.9-3
3	1	3	2X6	.567	10	.076	20	y	.02	.878	1.05	1.495	.18	24.221	.808	.012	3.9-3

1.5



Loads: LC 1, gravity

	Brown Cabin	SK - 1
dmt		Nov 12, 2021 at 12:38 PM
21218		truss.r3d

1.6

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS. AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

Project BROWN RES Project No 21218 Date 11-20-21

Designed By DMT

(J1) l = 10'-0"
w = (15 + 75) 1.33
6:12 PITCH
2-2x6 @ 16" OC

(B1) l = 20'-0"
w = (15 + 75)(10)

5 1/8 x 18 GLB

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY | PROJECT
Nov. 20, 2021 09:49 | ROOF JOIST

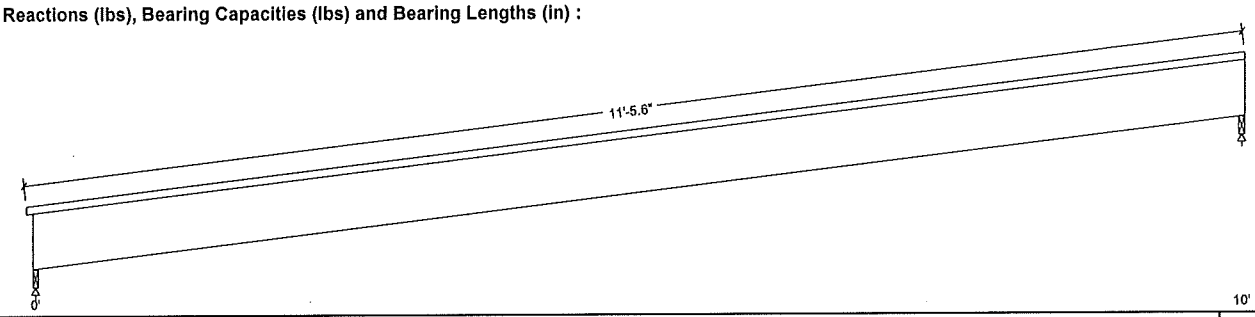
Design Check Calculation Sheet
WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location Start	(ft) End	Magnitude Start	End	Unit
Load1	Dead	Full Area				16.000 (16.0)*		psf
Load2	Snow	Full Area				75.00 (16.0)*		psf
Self-weight	Dead	Full UDL				2.0		plf

*Tributary Width (in)

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	123		123
Snow	502		502
Factored:			
Total	626		626
Bearing:			
F'theta	716		716
Capacity			
Joist	626		626
Supports	683		683
Anal/Des			
Joist	1.00		1.00
Support	0.92		0.92
Load comb	#2		#2
Length	0.58		0.58
Min req'd	0.58		0.58
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	625		625

Lumber-soft, D.Fir-L, No.2, 2x6 (1-1/2"x5-1/2")
Supports: All - Timber-soft Beam, D.Fir-L No.2
Roof joist spaced at 16.0" c/c; Total length: 11'-5.6"; Pitch: 6/12;
Lateral support: top= full, bottom= at supports; Repetitive factor: applied where permitted (refer to online help);

This section FAILS the design check

WARNING: This section violates the following design criteria: Bending and deflection

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 93	Fv' = 207	fv/Fv' = 0.45
Bending(+)	fb = 2470	Fb' = 1547	fb/Fb' = 1.60
Live Defl'n	0.85 = L/158	0.56 = L/240	1.51
Total Defl'n	1.16 = L/116	0.75 = L/180	1.55

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	900	1.15	1.00	1.00	1.000	1.300	1.00	1.15	1.00	1.00	-	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2

CRITICAL LOAD COMBINATIONS:
Shear : LC #2 = D+S, V = 557, V design = 509 lbs
Bending(+): LC #2 = D+S, M = 1557 lbs-ft
Deflection: LC #2 = D+S (live)
LC #2 = D+S (total)
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:
Deflection: EI = 33e06 lb-in2
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.
Bearing: Allowable bearing at an angle F'theta calculated for each support as per NDS 3.10.3

Design Notes:
1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. SLOPED BEAMS: level bearing is required for all sloped beams.
5. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY | PROJECT

Nov. 20, 2021 09:54 | glulam beam

Design Check Calculation Sheet

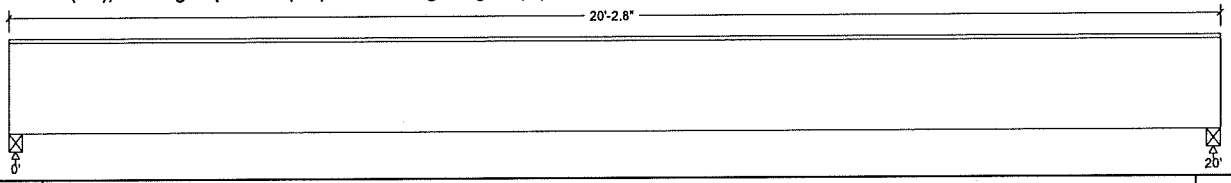
WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				15.00(10.00)*		psf
Load2	Snow	Full Area				75.00(10.00)*		psf
Self-weight	Dead	Full UDL				21.2		plf

*Tributary Width (ft)

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	1730		1730
Snow	7587		7587
Factored:			
Total	9317		9317
Bearing:			
Capacity			
Beam	9317		9317
Supports	9614		9614
Anal/Des			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	2.80		2.80
Min req'd	2.80		2.80
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Glulam-Unbal., West Species, 24F-V4 DF, 5-1/8"x18"
12 laminations, 5-1/8" maximum width,
Supports: All - Timber-soft Beam, D.Fir-L No.2
Total length: 20'-2.8";
Lateral support: top= full, bottom= at supports;

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 126	Fv' = 305	fv/Fv' = 0.41
Bending(+)	fb = 1997	Fb' = 2663	fb/Fb' = 0.75
Live Defl'n	0.60 = L/398	0.67 = L/360	0.90
Total Defl'n	0.81 = L/296	1.00 = L/240	0.81

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.15	1.00	1.00	1.000	0.965	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million		1.00	1.00	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million		1.00	1.00	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:
Shear : LC #2 = D+S, V = 9212, V design = 7723 lbs
Bending(+): LC #2 = D+S, M = 46062 lbs-ft
Deflection: LC #2 = D+S (live)
LC #2 = D+S (total)
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012
CALCULATIONS:
Deflection: EI = 4483e06 lb-in2
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY | PROJECT
Nov. 20, 2021 09:54 | glulam beam

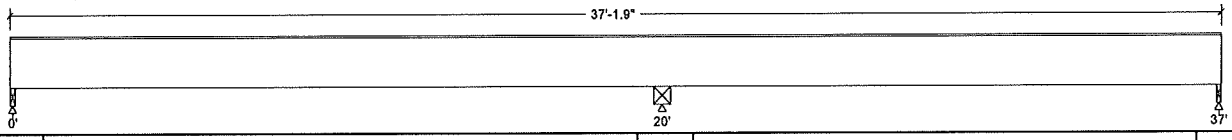
Design Check Calculation Sheet
WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location (ft) Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area	No			15.00(10.00)*		psf
Load2	Snow	Full Area	No			75.00(10.00)*		psf
Self-weight	Dead	Full UDL	No			21.2		plf

*Tributary Width (ft)

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:					
Dead	1353		3981		1026
Snow	5932		17436		4502
Factored:					
Total	7285		21416		5529
Bearing:					
Capacity					
Beam	7285		21416		5529
Supports	7517		22100		5705
Anal/Des					
Beam	1.00		1.00		1.00
Support	0.97		0.97		0.97
Load comb	#2		#2		#2
Length	2.19		6.43		1.66
Min req'd	2.19		6.43		1.66
Cb	1.00		1.00		1.00
Cb min	1.00		1.00		1.00
Cb support	1.07		1.07		1.07
Fcp sup	625		625		625

Glulam-Unbal., West Species, 24F-V4 DF, 5-1/8"x18"
12 laminations, 5-1/8" maximum width,
Supports: All - Timber-soft Beam, D.Fir-L No.2
Total length: 37'-1.9";
Lateral support: top= full, bottom= at supports;

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 156	Fv' = 305	fv/Fv' = 0.51
Bending(+)	fb = 1221	Fb' = 2730	fb/Fb' = 0.45
Bending(-)	fb = 1743	Fb' = 2104	fb/Fb' = 0.83
Live Defl'n	0.29 = L/818	0.67 = L/360	0.44
Total Defl'n	0.39 = L/609	1.00 = L/240	0.39

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.15	1.00	1.00	1.000	0.989	1.00	1.00	1.00	1.00	-	2
Fb'-	1850	1.15	1.00	1.00	0.989	1.000	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2
Emin'	0.85 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:
Shear : LC #2 = D+S, V = 11222, V design = 9607 lbs
Bending(+): LC #2 = D+S, M = 28159 lbs-ft
Bending(-): LC #2 = D+S, M = 40189 lbs-ft
Deflection: LC #2 = D+S (live)
LC #2 = D+S (total)
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012
CALCULATIONS:
Deflection: EI = 4483e06 lb-in2
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:
1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.
5. GLULAM: bxd = actual breadth x actual depth.
6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
7. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).

2.4

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY | PROJECT

Nov 20, 2021 10:01 | wpdco

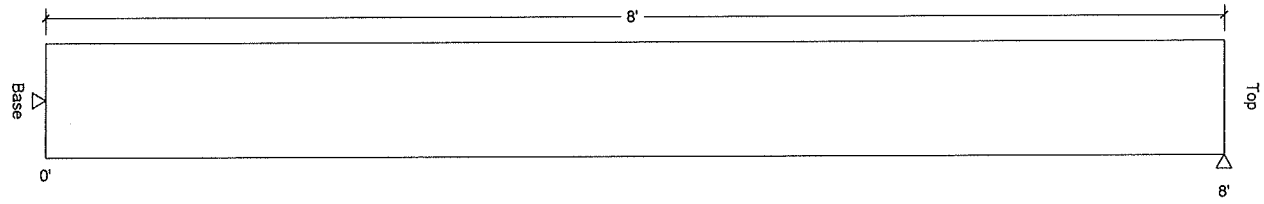
Design Check Calculation Sheet

WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	Location [ft] End	Magnitude Start	Magnitude End	Unit
Load1	Dead	Axial		(Ecc. = 1.54")		5000		lbs
Load2	Snow	Axial		(Ecc. = 1.54")		16500		lbs
Self-weight	Dead	Axial				62		lbs

Lateral Reactions (lbs):



Unfactored:			
Dead	80		-80
Snow	266		-266
Factored:			
R->L Load comb			346 #2
L->R Load comb	346 #2		

Lumber Post, D.Fir-L, No.1, 3-1/2"x9-1/4"

Support: Non-wood; Bearing length = column width

Total length: 8';

Pinned base; Load face = width(b); Ke x Lb: 1.0 x 0.0 = 0.0 [ft]; Ke x Ld: 1.0 x 8.0 = 8.0 [ft]; Lateral support: top = Lb, bottom = Lb;

WARNING: this CUSTOM SIZE is not in the database. Refer to online help.
WARNING: your custom section may be too thin to use the properties of this TIMBER database. Use a database containing LUMBER sizes instead.

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 16	Fv' = 207	fv/Fv' = 0.08
Bending(+)	fb = 665	Fb' = 1380	fb/Fb' = 0.48
Axial	fc = 666	Fc' = 1569	fc/Fc' = 0.42
Combined	(axial + eccentric moment)		Eq.15.4-3 = 0.76
Axial Bearing	fc = 666	Fc* = 1725	fc/Fc* = 0.39
Live Defl'n	0.04 = <L/999	0.53 = L/180	0.07
Total Defl'n	0.06 = <L/999	0.53 = L/180	0.10

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL/CP	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	2
Fb'+	1000	1.15	1.00	1.00	1.000	1.200	1.00	1.00	1.00	1.00	2
Fc'	1500	1.15	1.00	1.00	0.910	1.000	-	-	1.00	1.00	2
E'	1.7 million		1.00	1.00	-	-	-	-	1.00	1.00	2
Emin'	0.62 million		1.00	1.00	-	-	-	-	1.00	1.00	2
Fc*	1500	1.15	1.00	1.00	-	1.000	-	-	1.00	1.00	2

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = D+S, V =    346, V design =    346 lbs
Bending(+): LC #2  = D+S, M =   2768 lbs-ft
Deflection: LC #2  = D+S  (live)
            LC #2  = D+S  (total)
Axial     : LC #2  = D+S,  P = 21562 lbs
Eq.15.4-3 : LC #2  = D+S   Fb'= 1380
            FcE= 4732     Pxe/S=fc(6xe/d)=  665
```

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:

```
Deflection:  EI =    392e06 lb-in2
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.
```

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. FIRE RATING: may be conservative relative to approved code provisions for "short" columns.
4. Axial load eccentricity applied in direction of load face only. It is the designers responsibility to check for effect of eccentricity in the other direction.

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
	Nov 20, 2021 10:09:: 2-ply beam

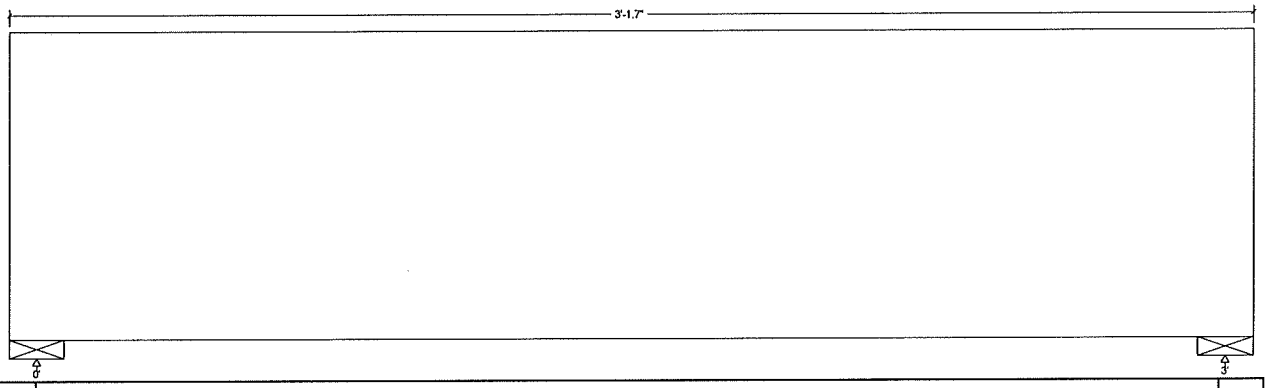
Design Check Calculation Sheet

WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Point		1.57		2500		lbs
Load2	Snow	Point		1.57		7000		lbs
Self-weight	Dead	Full UDL				9.9		plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



	0	3
Unfactored:		
Dead	1265	1265
Snow	3500	3500
Factored:		
Total	4765	4765
Bearing:		
Capacity		
Beam	4765	4765
Supports	5162	5162
Anal/Des		
Beam	1.00	1.00
Support	0.92	0.92
Load comb	#2	#2
Length	1.69	1.69
Min req'd	1.69	1.69
Cb	1.00	1.00
Cb min	1.00	1.00
Cb support	1.08	1.08
Fcp sup	625	625

Lumber n-ply, D.Fir-L, No.2, 2x10, 3-ply (4-1/2"x9-1/4")
Supports: All - Timber-soft Beam, D.Fir-L No.2
Total length: 3'-1.7";
Lateral support: top= at supports, bottom= at supports; Repetitive factor: applied where permitted (refer to online help);

This section FAILS the design check

WARNING: This section violates the following design criteria: Bending

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 171	Fv' = 207	fv/Fv' = 0.83
Bending(+)	fb = 1334	Fb' = 1305	fb/Fb' = 1.02
Live Defl'n	0.01 = <L/999	0.10 = L/360	0.14
Total Defl'n	0.02 = <L/999	0.15 = L/240	0.15

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	900	1.15	1.00	1.00	0.997	1.100	1.00	1.15	1.00	1.00	-	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2

CRITICAL LOAD COMBINATIONS:
Shear : LC #2 = D+S, V = 4757, V design = 4757 lbs
Bending(+): LC #2 = D+S, M = 7136 lbs-ft
Deflection: LC #2 = D+S (live)
LC #2 = D+S (total)
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012
CALCULATIONS:
Deflection: EI = 158e06 lb-in2/ply
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. BUILT-UP BEAMS: It is assumed that each ply is a single continuous member (that is, no butt joints are present) fastened together securely at intervals not exceeding 4 times the depth and that each ply is equally top-loaded. Where beams are side-loaded, special fastening details may be required.
5. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.

G & S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402

Telephone: (208) 523-6918 **E-mail: gs@gsengineers.net** **Fax: (208) 523-6922**

November 15, 2021
#21218

Mr. Cornelius Kinsey
Kinsey, LLC
P.O. Box 12258
Jackson, WY 83002

Re: Brown Residence
445 E. Kelly Avenue
Jackson, Wyoming

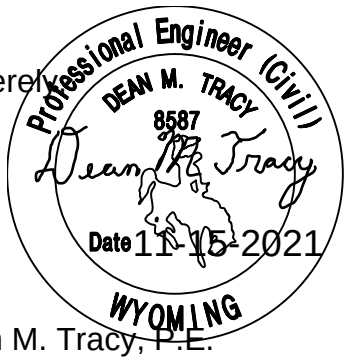
Dear Cornelius,

On the 11th of this month I had the opportunity to meet with you at the above referenced residence. The purpose of my visit was to determine the snow load capacity of the existing roof structure. The following is a brief overview of my observations and conclusions.

The roof is framed with 2x6 (1.75x5.75 actual) roof joists (top chord) at 16" on center with 2x6 ceiling joists (bottom chord) and a 2x6 ridge board. The framing members are attached to form site built wood trusses. Based upon the framing member sizes, the roof can support an allowable design snow load of 30 pounds per square foot (psf). The heel of the truss was not visible. The connections are often the point of failure. The capacity of the truss may be less than what is stated based upon the connections. The current building code in Jackson requires new construction to be designed for an allowable roof snow load of 75 psf.

G&S did not review or any other aspects of the house not stated above and does not claim responsibility for any other structural items, nor any mechanical, electrical, or architectural features. Due to the limited scope that G&S Structural Engineers had in this project, our limit of liability in this project is fees rendered. Please call if you have any questions or if I can be of further assistance.

Sincerely,



Dean M. Tracy, P.E.

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402
208-523-6918

CS2018 Ver 2019.02.12 www.struware.com

STRUCTURAL CALCULATIONS

FOR

Brown Foundation

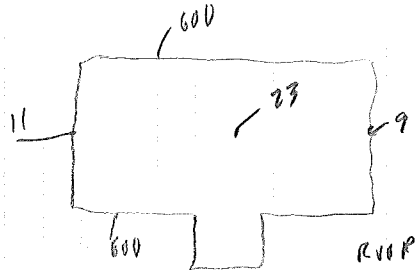
Project BROWN FOUNDATION Project No. 21242 Date 11-8-21

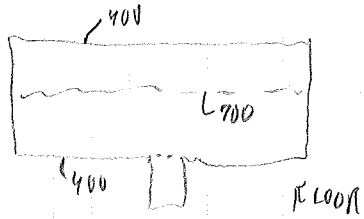
Designed By DMT

LOCATION: 445 E. KELLY
JACKSON, WY

(H) l_x 4'-0"
w = 700 PLF

2-2x8





FOOTINGS:

10" x 1'-4" x LONG - 1.3 K/LF CAP.
" " - 9K POINT LOAD
10" x 3'-0" D w/ 4-#4 EW - 11K CAP
10" x 4'-4" D w/ 6-#4 EW - 23K CAP

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY | PROJECT

Dec 8, 2021 14:43 | 2x ply beam

Design Check Calculation Sheet

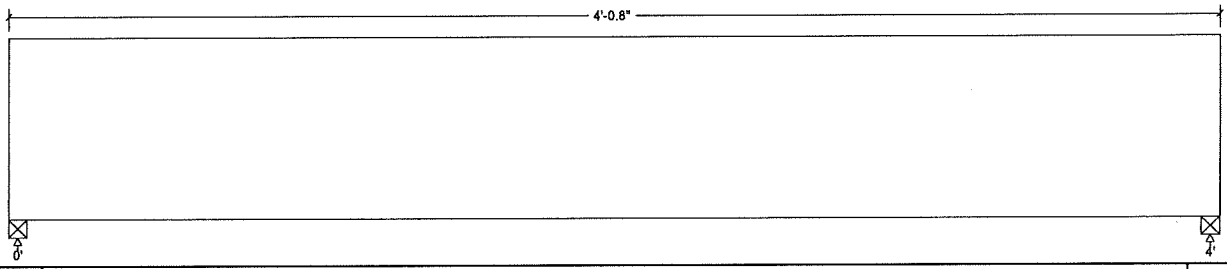
WoodWorks Sizer 10.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				25.00 (7.00)*		psf
Load2	Live	Full Area				75.00 (7.00)*		psf
Self-weight	Dead	Full UDL				5.2		plf

*Tributary Width (ft)

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	366		366
Live	1067		1067
Factored:			
Total	1433		1433
Bearing:			
Capacity			
Beam	1433		1433
Supports	1612		1612
Anal/Des			
Beam	1.00		1.00
Support	0.89		0.89
Load comb	#2		#2
Length	0.76		0.76
Min req'd	0.76		0.76
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.13		1.13
Fcp sup	625		625

Lumber n-ply, D.Fir-L, No.2, 2x8, 2-ply (3"x7-1/4")
Supports: All - Timber-soft Beam, D.Fir-L No.2
Total length: 4'-0.8";
Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress (psi) and Deflection (in) using NDS 2012 :

Criterion	Analysis Value	Design Value	Analysis/Design
Shear	fv = 66	Fv' = 180	fv/Fv' = 0.37
Bending(+)	fb = 644	Fb' = 1072	fb/Fb' = 0.60
Live Defl'n	0.02 = <L/999	0.13 = L/360	0.15
Total Defl'n	0.03 = <L/999	0.20 = L/240	0.15

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	180	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	900	1.00	1.00	1.00	0.993	1.200	1.00	1.00	1.00	1.00	-	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2

CRITICAL LOAD COMBINATIONS:
Shear : LC #2 = D+L, V = 1410, V design = 962 lbs
Bending(+): LC #2 = D+L, M = 1410 lbs-ft
Deflection: LC #2 = D+L (live)
LC #2 = D+L (total)
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASCE 7-10 / IBC 2012
CALCULATIONS:
Deflection: EI = 76e06 lb-in2/ply
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. BUILT-UP BEAMS: it is assumed that each ply is a single continuous member (that is, no butt joints are present) fastened together securely at intervals not exceeding 4 times the depth and that each ply is equally top-loaded. Where beams are side-loaded, special fastening details may be required.
5. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.

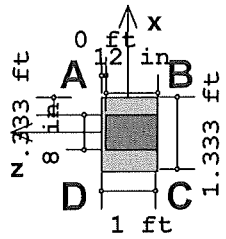
1, 2

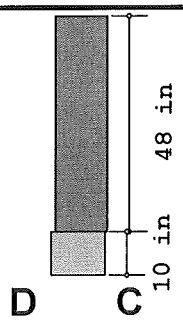
Company : **G&S Structural Engineers**
Designer : **dmt**
Job Number : **21222**

Brown foundation

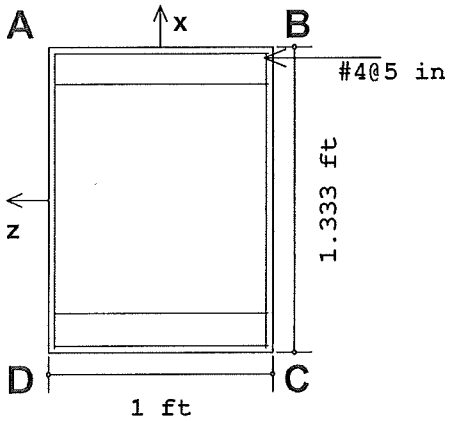
December 8, 2021
Checked By: _____

Sketch





Details



Controlling z direction steel requires the following placement:

Region 1 (starts at A):	**2 in**	Steel: **.2 in^2 (1 #4 @NA)**
Region 2 (middle):	**12 in**	Steel: **.39 in^2 (2 #4 @12 in)**
Region 3 (ends at D):	**2 in**	Steel: **.2 in^2 (1 #4 @NA)**

Bottom Rebar Plan

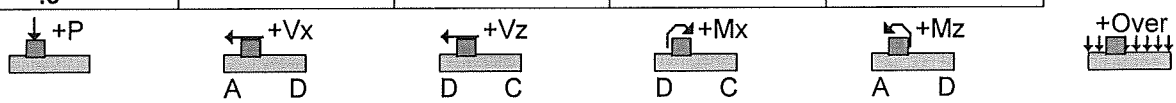
Geometry, Materials and Criteria

Length	: **1 ft**	eX	: **0 in**	Gross Allow. Bearing	: **1500 psf (gross)**	Steel fy	: **60 ksi**
Width	: **1.333 ft**	eZ	: **0 in**	Concrete Weight	: **145 pcf**	Minimum Steel	: **.002**
Thickness	: **10 in**	pX	: **8 in**	Concrete f'c	: **2.5 ksi**	Maximum Steel	: **.0075**
Height	: **48 in**	pZ	: **12 in**	Design Code	: **ACI 318-11**		

Footing Top Bar Cover	: **3.5 in**	Overturning / Sliding SF	: **1.5**	Phi for Flexure	: **0.9**
Footing Bottom Bar Cover	: **3.5 in**	Coefficient of Friction	: **0.3**	Phi for Shear	: **0.75**
Pedestal Longitudinal Bar Cover	: **1.5 in**	Passive Resistance of Soil	: **0 k**	Phi for Bearing	: **0.65**

Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-ft)	Mz (k-ft)	Overburden (psf)
DL	.5					110
LL	.8					



1.3

Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
ASCE 2.4.1-1	1DL	1500	840.986 (A)	.561
ASCE 2.4.1-2	1DL+1LL+.75LLS	1500	1441.14 (A)	.961
ASCE 2.4.1-3a	1DL+1RLL+1SL+1SLN+1RL	1500	840.986 (A)	.561
ASCE 2.4.1-4	1DL+.75LL+.75LLS+.75..	1500	1291.1 (A)	.861
ASCE 2.4.1-5a	1DL+1WL	1500	840.986 (A)	.561
ASCE 2.4.1-5b	1DL+.7EL	1500	840.986 (A)	.561
ASCE 2.4.1-6a	1DL+.75WL+.75LL+.75L..	1500	1291.1 (A)	.861
ASCE 2.4.1-6b	1DL+.525EL+.75LL+.75..	1500	1291.1 (A)	.861
ASCE 2.4.1-7	.6DL+1WL	1500	504.592 (A)	.336
ASCE 2.4.1-8	.6DL+.7EL	1500	504.592 (A)	.336

Footing Flexure Design (Bottom Bars)

As-min x-dir (Top Flexure): **.24 in^2**
As-min z-dir (Top Flexure): **.32 in^2**
As-min x-dir (Bot Flexure): **.24 in^2**
As-min z-dir (Bot Flexure): **.32 in^2**

As-min x-dir (T & S): **.216 in^2**
As-min z-dir (T & S): **.288 in^2**

Description	Categories and Factors	Mu-xx UC Max	Mu-xx (k-ft)	z-Dir As Required (in^2)	z-Dir As Provided (in^2)	Mu-zz UC Max	Mu-zz (k-ft)	x-Dir As Required (in^2)	x-Dir As Provided (in^2)
ACI-2005 9-1	1.4DL	0	0	0	.785	.00484	.05	.002	.393
ACI-2008 9-2	1.2DL+1.6LL+1.6LL..	0	0	0	.785	.0096	.09	.003	.393
ACI-2008 9-3a	1.5DL+1LL+1LLS+1..	0	0	0	.785	.00859	.08	.003	.393
ACI-2008 9-3b	1.2DL+.8WL+1.6RL..	0	0	0	.785	.00415	.04	.002	.393
ACI-2008 9-4	1.2DL+1.6WL+1LL+1..	0	0	0	.785	.00756	.07	.003	.393
ACI-2008 9-5	1.2DL+1EL+1LL+1LL..	0	0	0	.785	.00756	.07	.003	.393
ACI-2008 9-6	.9DL+1.6WL	0	0	0	.785	.00311	.03	.001	.393
ACI-2008 9-7	.9DL+1EL	0	0	0	.785	.00311	.03	.001	.393

Footing Shear Check

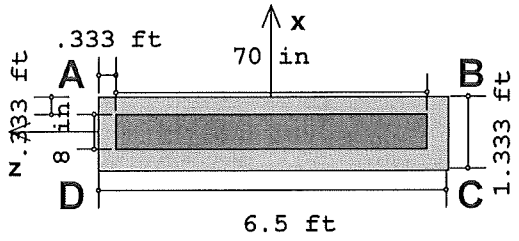
Two Way (Punching) Vc: **NA**
One Way (x Dir. Cut) Vc **9.598 k**
One Way (z Dir. Cut) Vc: **7.2 k**

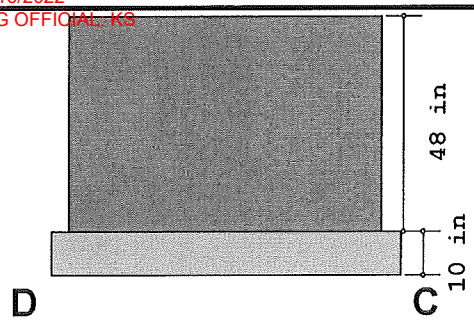
Description	Categories and Factors	Punching Vu(k)	Punching Vu/ØVc	x Dir. Cut Vu(k)	x Dir. Cut Vu/ØVc	z Dir. Cut Vu(k)	z Dir. Cut Vu/ØVc
ACI-2005 9-1	1.4DL	NA	NA	.000569333	0	.000569333	0
ACI-2008 9-2	1.2DL+1.6LL+1.6LLS+.5R..	NA	NA	.001	0	.001	0
ACI-2008 9-3a	1.5DL+1LL+1LLS+1.6RLL+1..	NA	NA	.001	0	.001	0
ACI-2008 9-3b	1.2DL+.8WL+1.6RLL+1.6S..	NA	NA	.000488	0	.000488	0
ACI-2008 9-4	1.2DL+1.6WL+1LL+1LLS+...	NA	NA	.000888	0	.000888	0
ACI-2008 9-5	1.2DL+1EL+1LL+1LLS+.2S..	NA	NA	.000888	0	.000888	0
ACI-2008 9-6	.9DL+1.6WL	NA	NA	.000366	0	.000366	0
ACI-2008 9-7	.9DL+1EL	NA	NA	.000366	0	.000366	0

Company : **G&S Structural Engineers**
Designer : **dmt**
Job Number : **21222**

Brown foundation December 8, 2021 Checked By: _____

Sketch





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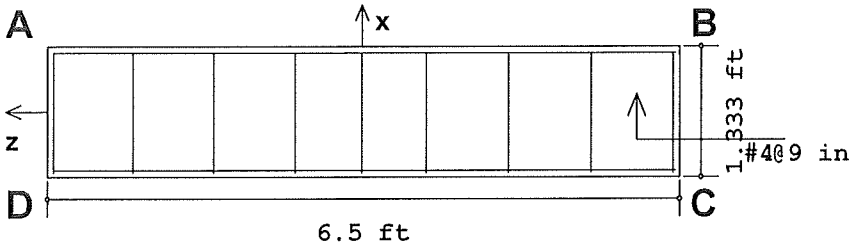


Controlling x direction steel requires the following placement:

Region 1 (starts at A):	**31 in**	Steel: **.59 in^2(3 #4 @13 in)**
Region 2 (middle):	**16 in**	Steel: **.59 in^2(3 #4 @7 in)**
Region 3 (ends at B):	**31 in**	Steel: **.59 in^2(3 #4 @13 in)**

Bottom Rebar Plan

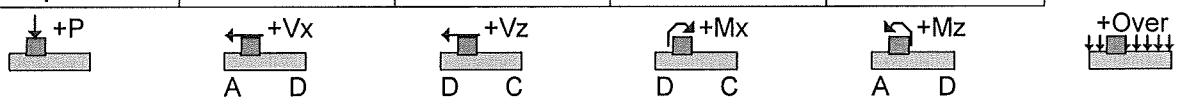
Geometry, Materials and Criteria

Length	:**6.5 ft**	eX	:**0 in**	Gross Allow. Bearing	:**1500 psf (gross)**	Steel fy	:**60 ksi**
Width	:**1.333 ft**	eZ	:**0 in**	Concrete Weight	:**145 pcf**	Minimum Steel	:**.002**
Thickness	:**10 in**	pX	:**8 in**	Concrete f'c	:**2.5 ksi**	Maximum Steel	:**.0075**
Height	:**48 in**	pZ	:**70 in**	Design Code	:**ACI 318-11**		

Footing Top Bar Cover	:**3.5 in**	Overturning / Sliding SF	:**1.5**	Phi for Flexure	:**0.9**
Footing Bottom Bar Cover	:**3.5 in**	Coefficient of Friction	:**0.3**	Phi for Shear	:**0.75**
Pedestal Longitudinal Bar Cover	:**1.5 in**	Passive Resistance of Soil	:**0 k**	Phi for Bearing	:**0.65**

Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-ft)	Mz (k-ft)	Overburden (psf)
DL	**2**					**110**
LL	**7**					



1.5

Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
ASCE 2.4.1-1	1DL	1500	672.61 (A)	.448
ASCE 2.4.1-2	1DL+1LL+.75LLS	1500	1480.5 (A)	.987
ASCE 2.4.1-3a	1DL+1RLL+1SL+1SLN+1RL	1500	672.61 (A)	.448
ASCE 2.4.1-4	1DL+.75LL+.75LLS+.75..	1500	1278.53 (A)	.852
ASCE 2.4.1-5a	1DL+1WL	1500	672.61 (A)	.448
ASCE 2.4.1-5b	1DL+.7EL	1500	672.61 (A)	.448
ASCE 2.4.1-6a	1DL+.75WL+.75LL+.75L..	1500	1278.53 (A)	.852
ASCE 2.4.1-6b	1DL+.525EL+.75LL+.75..	1500	1278.53 (A)	.852
ASCE 2.4.1-7	.6DL+1WL	1500	403.566 (A)	.269
ASCE 2.4.1-8	.6DL+.7EL	1500	403.566 (A)	.269

Footing Flexure Design (Bottom Bars)

As-min x-dir (Top Flexure): **1.56 in^2**
As-min z-dir (Top Flexure): **.32 in^2**
As-min x-dir (Bot Flexure): **1.56 in^2**
As-min z-dir (Bot Flexure): **.32 in^2**

As-min x-dir (T & S): **1.404 in^2**
As-min z-dir (T & S): **.288 in^2**

Description	Categories and Factors	Mu-xx UC Max	Mu-xx (k-ft)	z-Dir As Required (in^2)	z-Dir As Provided (in^2)	Mu-zz UC Max	Mu-zz (k-ft)	x-Dir As Required (in^2)	x-Dir As Provided (in^2)
ACI-2005 9-1	1.4DL	.00458	.05	.002	.393	.00494	.22	.008	1.767
ACI-2008 9-2	1.2DL+1.6LL+1.6LL..	.01351	.13	.005	.393	.01456	.66	.024	1.767
ACI-2008 9-3a	1.5DL+1LL+1LLS+1..	.0109	.11	.004	.393	.01174	.53	.02	1.767
ACI-2008 9-3b	1.2DL+.8WL+1.6RL..	.00393	.04	.001	.393	.00423	.19	.007	1.767
ACI-2008 9-4	1.2DL+1.6WL+1LL+1..	.00992	.1	.004	.393	.01069	.48	.018	1.767
ACI-2008 9-5	1.2DL+1EL+1LL+1LL..	.00992	.1	.004	.393	.01069	.48	.018	1.767
ACI-2008 9-6	.9DL+1.6WL	.00295	.03	.001	.393	.00318	.14	.005	1.767
ACI-2008 9-7	.9DL+1EL	.00295	.03	.001	.393	.00318	.14	.005	1.767

Footing Shear Check

Two Way (Punching) Vc: **NA**
One Way (x Dir. Cut) Vc **9.598 k**
One Way (z Dir. Cut) Vc: **46.8 k**

Description	Categories and Factors	Punching Vu(k)	Punching Vu/ØVc	x Dir. Cut Vu(k)	x Dir. Cut Vu/ØVc	z Dir. Cut Vu(k)	z Dir. Cut Vu/ØVc
ACI-2005 9-1	1.4DL	NA	NA	.003	0	.003	0
ACI-2008 9-2	1.2DL+1.6LL+1.6LLS+.5R..	NA	NA	.008	.001	.008	0
ACI-2008 9-3a	1.5DL+1LL+1LLS+1.6RLL+1..	NA	NA	.006	0	.006	0
ACI-2008 9-3b	1.2DL+.8WL+1.6RLL+1.6S..	NA	NA	.002	0	.002	0
ACI-2008 9-4	1.2DL+1.6WL+1LL+1LLS+...	NA	NA	.006	0	.006	0
ACI-2008 9-5	1.2DL+1EL+1LL+1LLS+.2S..	NA	NA	.006	0	.006	0
ACI-2008 9-6	.9DL+1.6WL	NA	NA	.002	0	.002	0
ACI-2008 9-7	.9DL+1EL	NA	NA	.002	0	.002	0

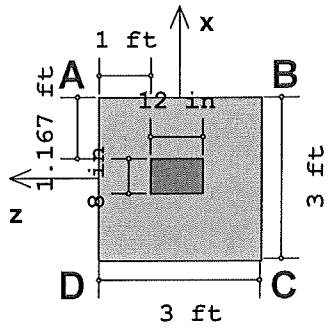
1.6

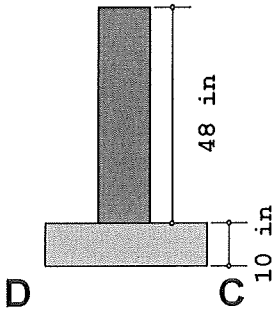
Company : **G&S Structural Engineers**
Designer : **dmt**
Job Number : **21222**

Brown foundation

December 8, 2021
Checked By:

Sketch





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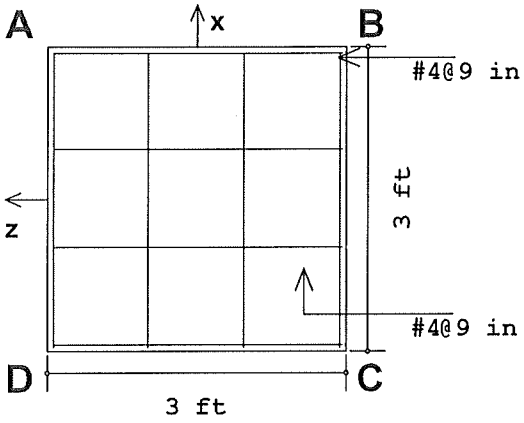


x Dir. Steel: .79 in^2 (4 #4)

z Dir. Steel: .79 in^2 (4 #4)

Bottom Rebar Plan

Geometry, Materials and Criteria

Length	: **3 ft**	eX	: **0 in**	Gross Allow. Bearing	: **1500 psf (gross)**	Steel fy	: **60 ksi**
Width	: **3 ft**	eZ	: **0 in**	Concrete Weight	: **145 pcf**	Minimum Steel	: **.002**
Thickness	: **10 in**	pX	: **8 in**	Concrete f'c	: **2.5 ksi**	Maximum Steel	: **.0075**
Height	: **48 in**	pZ	: **12 in**	Design Code	: **ACI 318-11**		

Footing Top Bar Cover	: **3.5 in**	Overturning / Sliding SF	: **1.5**	Phi for Flexure	: **0.9**
Footing Bottom Bar Cover	: **3.5 in**	Coefficient of Friction	: **0.3**	Phi for Shear	: **0.75**
Pedestal Longitudinal Bar Cover	: **1.5 in**	Passive Resistance of Soil	: **0 k**	Phi for Bearing	: **0.65**

Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-ft)	Mz (k-ft)	Overburden (psf)
DL	3					110
LL	8					

1.7

Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
ASCE 2.4.1-1	1DL	1500	598.981 (A)	.399
ASCE 2.4.1-2	1DL+1LL+.75LLS	1500	1487.87 (A)	.992
ASCE 2.4.1-3a	1DL+1RLL+1SL+1SLN+1RL	1500	598.981 (A)	.399
ASCE 2.4.1-4	1DL+.75LL+.75LLS+.75..	1500	1265.65 (A)	.844
ASCE 2.4.1-5a	1DL+1WL	1500	598.981 (A)	.399
ASCE 2.4.1-5b	1DL+.7EL	1500	598.981 (A)	.399
ASCE 2.4.1-6a	1DL+.75WL+.75LL+.75L..	1500	1265.65 (A)	.844
ASCE 2.4.1-6b	1DL+.525EL+.75LL+.75..	1500	1265.65 (A)	.844
ASCE 2.4.1-7	.6DL+1WL	1500	359.389 (A)	.24
ASCE 2.4.1-8	.6DL+.7EL	1500	359.389 (A)	.24

Footing Flexure Design (Bottom Bars)

As-min x-dir (Top Flexure): **.72 in^2**
As-min z-dir (Top Flexure): **.72 in^2**
As-min x-dir (Bot Flexure): **.72 in^2**
As-min z-dir (Bot Flexure): **.72 in^2**

As-min x-dir (T & S): **.648 in^2**
As-min z-dir (T & S): **.648 in^2**

Description	Categories and Factors	Mu-xx UC Max	Mu-xx (k-ft)	z-Dir As Required (in^2)	z-Dir As Provided (in^2)	Mu-zz UC Max	Mu-zz (k-ft)	x-Dir As Required (in^2)	x-Dir As Provided (in^2)
ACI-2005 9-1	1.4DL	.03843	.77	.029	.785	.05231	1.05	.039	.785
ACI-2008 9-2	1.2DL+1.6LL+1.6LL..	.13899	2.8	.104	.785	.18917	3.81	.142	.785
ACI-2008 9-3a	1.5DL+1LL+1LLS+1..	.10745	2.16	.08	.785	.14626	2.94	.11	.785
ACI-2008 9-3b	1.2DL+.8WL+1.6RL..	.03294	.66	.025	.785	.04484	.9	.033	.785
ACI-2008 9-4	1.2DL+1.6WL+1LL+1..	.09922	2	.074	.785	.13505	2.72	.101	.785
ACI-2008 9-5	1.2DL+1EL+1LL+1LL..	.09922	2	.074	.785	.13505	2.72	.101	.785
ACI-2008 9-6	.9DL+1.6WL	.02471	.5	.018	.785	.03363	.68	.025	.785
ACI-2008 9-7	.9DL+1EL	.02471	.5	.018	.785	.03363	.68	.025	.785

Footing Shear Check

Two Way (Punching) Vc: **76.8 k** One Way (x Dir. Cut) Vc **21.6 k** One Way (z Dir. Cut) Vc: **21.6 k**

Description	Categories and Factors	Punching Vu(k)	Punching Vu/øVc	x Dir. Cut Vu(k)	x Dir. Cut Vu/øVc	z Dir. Cut Vu(k)	z Dir. Cut Vu/øVc
ACI-2005 9-1	1.4DL	3.737	.065	.773	.048	1.031	.064
ACI-2008 9-2	1.2DL+1.6LL+1.6LLS+.5R..	13.514	.235	2.796	.173	3.728	.23
ACI-2008 9-3a	1.5DL+1LL+1LLS+1.6RLL+1..	10.448	.181	2.162	.133	2.882	.178
ACI-2008 9-3b	1.2DL+.8WL+1.6RLL+1.6S..	3.203	.056	.663	.041	.884	.055
ACI-2008 9-4	1.2DL+1.6WL+1LL+1LLS+...	9.647	.167	1.996	.123	2.661	.164
ACI-2008 9-5	1.2DL+1EL+1LL+1LLS+.2S..	9.647	.167	1.996	.123	2.661	.164
ACI-2008 9-6	.9DL+1.6WL	2.402	.042	.497	.031	.663	.041
ACI-2008 9-7	.9DL+1EL	2.402	.042	.497	.031	.663	.041

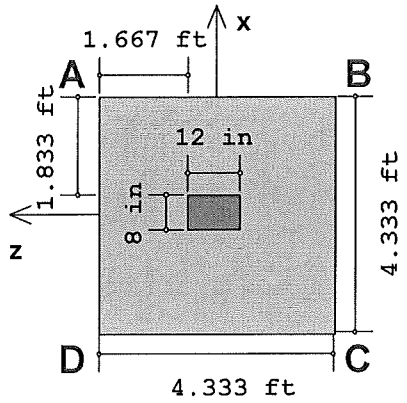
1.8

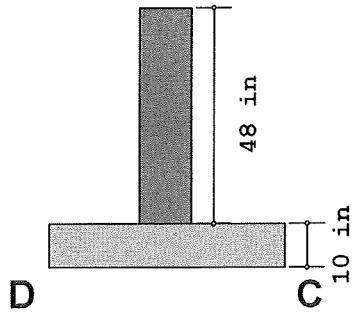
Company : **G&S Structural Engineers**
Designer : **dmt**
Job Number : **21222**

Brown foundation

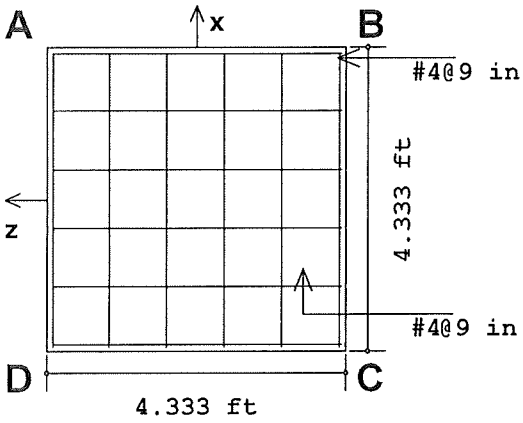
December 8, 2021
Checked By:

Sketch





Details



x Dir. Steel: 1.18 in^2 (6 #4)

z Dir. Steel: 1.18 in^2 (6 #4)

Bottom Rebar Plan

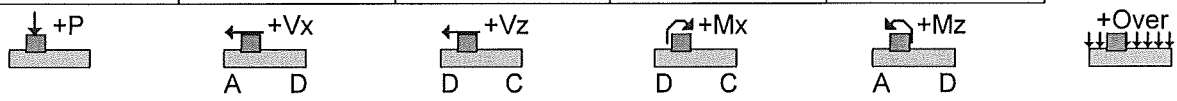
Geometry, Materials and Criteria

Length	:**4.333 ft**	eX	:**0 in**	Gross Allow. Bearing	:**1500 psf (gross)**	Steel fy	:**60 ksi**
Width	:**4.333 ft**	eZ	:**0 in**	Concrete Weight	:**145 pcf**	Minimum Steel	:**.002**
Thickness	:**10 in**	pX	:**8 in**	Concrete f'c	:**2.5 ksi**	Maximum Steel	:**.0075**
Height	:**48 in**	pZ	:**12 in**	Design Code	:**ACI 318-11**		

Footing Top Bar Cover	:**3.5 in**	Overturning / Sliding SF	:**1.5**	Phi for Flexure	:**0.9**
Footing Bottom Bar Cover	:**3.5 in**	Coefficient of Friction	:**0.3**	Phi for Shear	:**0.75**
Pedestal Longitudinal Bar Cover	:**1.5 in**	Passive Resistance of Soil	:**0 k**	Phi for Bearing	:**0.65**

Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-ft)	Mz (k-ft)	Overburden (psf)
DL	5					110
LL	18					



1, 9

Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
ASCE 2.4.1-1	1DL	1500	513.835 (A)	.343
ASCE 2.4.1-2	1DL+1LL+.75LLS	1500	1472.56 (A)	.982
ASCE 2.4.1-3a	1DL+1RLL+1SL+1SLN+1RL	1500	513.835 (A)	.343
ASCE 2.4.1-4	1DL+.75LL+.75LLS+.75..	1500	1232.88 (A)	.822
ASCE 2.4.1-5a	1DL+1WL	1500	513.835 (A)	.343
ASCE 2.4.1-5b	1DL+.7EL	1500	513.835 (A)	.343
ASCE 2.4.1-6a	1DL+.75WL+.75LL+.75L..	1500	1232.88 (A)	.822
ASCE 2.4.1-6b	1DL+.525EL+.75LL+.75..	1500	1232.88 (A)	.822
ASCE 2.4.1-7	.6DL+1WL	1500	308.301 (A)	.206
ASCE 2.4.1-8	.6DL+.7EL	1500	308.301 (A)	.206

Footing Flexure Design (Bottom Bars)

As-min x-dir (Top Flexure): **1.04 in^2**
As-min z-dir (Top Flexure): **1.04 in^2**
As-min x-dir (Bot Flexure): **1.04 in^2**
As-min z-dir (Bot Flexure): **1.04 in^2**

As-min x-dir (T & S): **.936 in^2**
As-min z-dir (T & S): **.936 in^2**

Description	Categories and Factors	Mu-xx UC Max	Mu-xx (k-ft)	z-Dir As Required (in^2)	z-Dir As Provided (in^2)	Mu-zz UC Max	Mu-zz (k-ft)	x-Dir As Required (in^2)	x-Dir As Provided (in^2)
ACI-2005 9-1	1.4DL	.07917	2.38	.089	1.178	.09579	2.88	.107	1.178
ACI-2008 9-2	1.2DL+1.6LL+1.6LL..	.37436	11.27	.426	1.178	.45298	13.64	.517	1.178
ACI-2008 9-3a	1.5DL+1LL+1LLS+1..	.27638	8.32	.313	1.178	.33443	10.07	.38	1.178
ACI-2008 9-3b	1.2DL+.8WL+1.6RL..	.06786	2.04	.076	1.178	.08211	2.47	.092	1.178
ACI-2008 9-4	1.2DL+1.6WL+1LL+1..	.25942	7.81	.293	1.178	.3139	9.45	.356	1.178
ACI-2008 9-5	1.2DL+1EL+1LL+1LL..	.25942	7.81	.293	1.178	.3139	9.45	.356	1.178
ACI-2008 9-6	.9DL+1.6WL	.05089	1.53	.057	1.178	.06158	1.85	.069	1.178
ACI-2008 9-7	.9DL+1EL	.05089	1.53	.057	1.178	.06158	1.85	.069	1.178

Footing Shear Check

Two Way (Punching) Vc: **76.8 k** One Way (x Dir. Cut) Vc **31.198 k** One Way (z Dir. Cut) Vc: **31.198 k**

Description	Categories and Factors	Punching Vu(k)	Punching Vu/øVc	x Dir. Cut Vu(k)	x Dir. Cut Vu/øVc	z Dir. Cut Vu(k)	z Dir. Cut Vu/øVc
ACI-2005 9-1	1.4DL	6.745	.117	2.003	.086	2.289	.098
ACI-2008 9-2	1.2DL+1.6LL+1.6LLS+.5R..	31.897	.554	9.47	.405	10.823	.463
ACI-2008 9-3a	1.5DL+1LL+1LLS+1.6RLL+1..	23.549	.409	6.991	.299	7.99	.341
ACI-2008 9-3b	1.2DL+.8WL+1.6RLL+1.6S..	5.782	.1	1.717	.073	1.962	.084
ACI-2008 9-4	1.2DL+1.6WL+1LL+1LLS+...	22.104	.384	6.562	.28	7.5	.321
ACI-2008 9-5	1.2DL+1EL+1LL+1LLS+.2S..	22.104	.384	6.562	.28	7.5	.321
ACI-2008 9-6	.9DL+1.6WL	4.336	.075	1.287	.055	1.471	.063
ACI-2008 9-7	.9DL+1EL	4.336	.075	1.287	.055	1.471	.063

1.10

G&S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402
208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dmt DATE
CHECKED BY DATE

Code Search

Code: International Building Code 2018

Occupancy:

Occupancy Group = R Residential

Risk Category & Importance Factors:

Risk Category =	II
Wind factor =	1.00
Snow factor =	1.00
Seismic factor =	1.00

Type of Construction:

Fire Rating:

Roof =	0.0 hr
Floor =	0.0 hr

Building Geometry:

Roof angle (θ)	6.00 / 12	26.6 deg
Building length (L)	37.0 ft	
Least width (B)	30.0 ft	
Mean Roof Ht (h)	14.0 ft	
Parapet ht above grd	0.0 ft	
Minimum parapet ht	0.0 ft	

Live Loads:

Roof

0 to 200 sf:	18 psf
200 to 600 sf:	21.6 - 0.018Area, but not less than 12 psf
over 600 sf:	12 psf

Floor:

Typical Floor	40 psf
Partitions	15 psf
Lobbies & first floor corridors	100 psf
Corridors above first floor	80 psf
Balconies (1.5 times live load)	60 psf

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Wind Loads : ASCE 7- 16

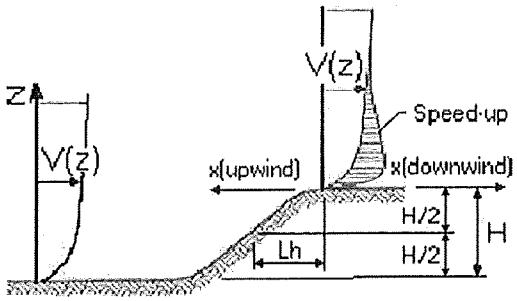
Ultimate Wind Speed	115 mph
Nominal Wind Speed	89.1 mph
Risk Category	II
Exposure Category	B
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.701
Kh case 2	0.575
Type of roof	Gable

Topographic Factor (Kzt)

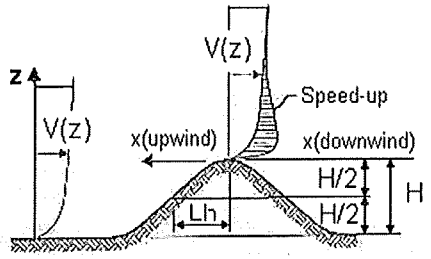
Topography		Flat
Hill Height	(H)	80.0 ft
Half Hill Length (Lh)		100.0 ft
Actual H/Lh	=	0.80
Use H/Lh	=	0.50
Modified Lh	=	160.0 ft
From top of crest: x =		50.0 ft
Bldg up/down wind?		downwind

H/Lh= 0.50 K_1 = 0.000
x/Lh = 0.31 K_2 = 0.792
z/Lh = 0.09 K_3 = 1.000

At Mean Roof Ht:
Kzt = $(1+K_1K_2K_3)^2$ = 1.00



ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	14.0 ft
B =	30.0 ft
/z (0.6h) =	30.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
If building h/B>4 then may be flexible and should be investigated.
h/B = 0.47 Rigid structure (low rise bldg)

G = 0.85 Using rigid structure default

Rigid Structure

$\bar{e}$ =	0.33
ℓ =	320 ft
z_{min} =	30 ft
c =	0.30
g_Q, g_V =	3.4
L_z =	310.0 ft
Q =	0.92
I_z =	0.30
G =	0.88 use G = 0.85

Flexible or Dynamically Sensitive Structure

34 ıcy (η_1) =	0.0 Hz				
Damping ratio (β) =	0				
/b =	0.45				
/α =	0.25				
Vz =	74.1				
N_1 =	0.00				
R_n =	0.000				
R_h =	28.282	η =	0.000	h =	14.0 ft
R_B =	28.282	η =	0.000		
R_L =	28.282	η =	0.000		
g_R =	0.000				
R =	0.000				
Gf =	0.000				

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JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
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Wind Loads - MWFRS h≤60' (Low-rise Buildings) except for open buildings

Kz = Kh (case 1) = 0.70
Base pressure (qh) = **20.2 psf**
GCpi = +/-0.18

Edge Strip (a) = 3.0 ft
End Zone (2a) = 6.0 ft
Zone 2 length = 15.0 ft

Wind Pressure Coefficients

Surface	CASE A θ = 26.6 deg GCpf	w/-GCpi	w/+GCpi		CASE B GCpf	w/-GCpi	w/+GCpi
1	0.55	0.73	0.37		-0.45	-0.27	-0.63
2	-0.10	0.08	-0.28		-0.69	-0.51	-0.87
3	-0.45	-0.27	-0.63		-0.37	-0.19	-0.55
4	-0.39	-0.21	-0.57		-0.45	-0.27	-0.63
5					0.40	0.58	0.22
6					-0.29	-0.11	-0.47
1E	0.73	0.91	0.55		-0.48	-0.30	-0.66
2E	-0.19	-0.01	-0.37		-1.07	-0.89	-1.25
3E	-0.58	-0.40	-0.76		-0.53	-0.35	-0.71
4E	-0.53	-0.35	-0.71		-0.48	-0.30	-0.66
5E					0.61	0.79	0.43
6E					-0.43	-0.25	-0.61

Ultimate Wind Surface Pressures (psf)

1		14.7	7.5		-5.4	-12.7
2		1.6	-5.6		-10.3	-17.5
3		-5.4	-12.6		-3.8	-11.1
4		-4.2	-11.5		-5.4	-12.7
5					11.7	4.4
6					-2.2	-9.5
1E		18.3	11.0		-6.0	-13.3
2E		-0.2	-7.5		-17.9	-25.2
3E		-8.2	-15.4		-7.1	-14.3
4E		-7.2	-14.4		-6.0	-13.3
5E					15.9	8.7
6E					-5.0	-12.3

Parapet

Windward parapet = 0.0 psf (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

Windward roof overhangs = 14.1 psf (upward) add to windward roof pressure

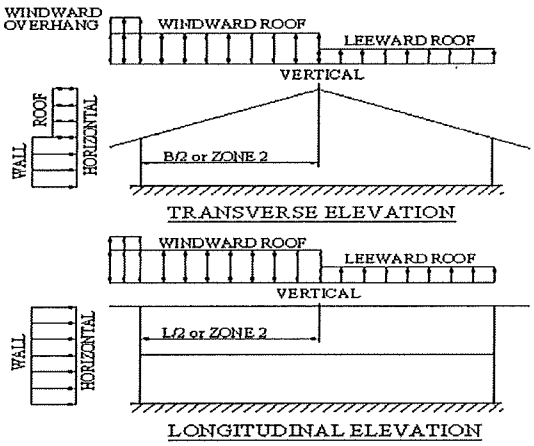
Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

Interior Zone: Wall 19.0 psf
Roof 7.0 psf
End Zone: Wall 25.5 psf
Roof 8.0 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall 13.9 psf
End Zone: Wall 21.0 psf



The code requires the MWFRS be designed for a min ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.

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208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY dmt DATE
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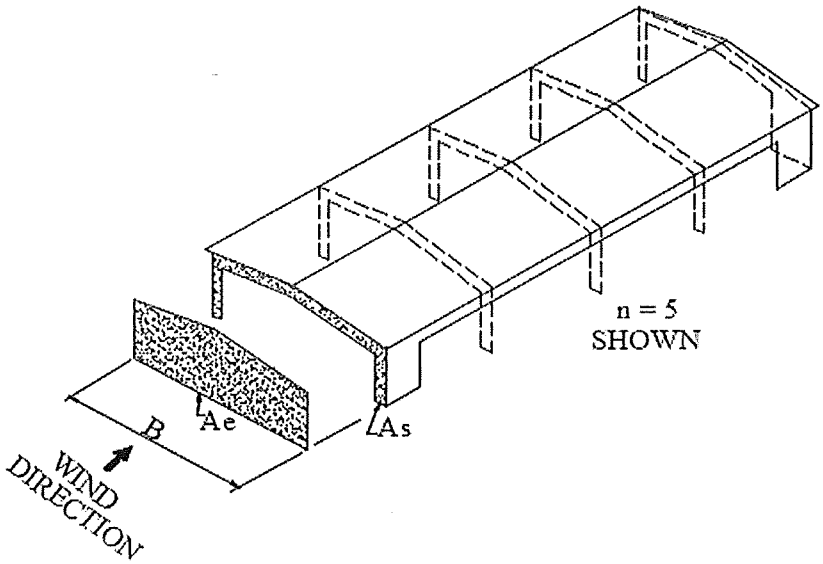
Wind Loads - h≤60' Longitudinal Direction MWFRS On Open or Partially

Enclosed Buildings with Transverse Frames and Pitched Roofs

ASCE 7-16 procedure

Base pressure (qh) = **20.2 psf**
GCpi = +/-0.18 Enclosed bldg, procdure doesn't apply
Roof Angle (θ) = 26.6 deg



B=	30.0 ft
# of frames (n) =	5
Solid are of end wall including fascia (As) =	1,500.0 sf
Roof ridge height =	17.8 ft
Roof eave height =	10.3 ft
Total end wall area if soild (Ae) =	420.0 sf

Longidinal Directional Force (F) = pAe
p= qh [(GCpf)windward -(GCpf)leeward] K_B K_S

Solidarity ratio (Φ) =	3.571	
n =	5	
KB =	0.8	
KS =	13.106	
Zones 5 & 6 area =	384	sf
5E & 6E area =	36	sf
(GCpf) windward - (GCpf) leeward] =	0.720	
p =	152.3	psf

Total force to be resisted by MWFRS (F) = **64.0 kips** applied at the centroid of the end wall area Ae

Note: The longidudinal force acts in combination with roof loads calculated elsewhere for an open or partially enclosed building.

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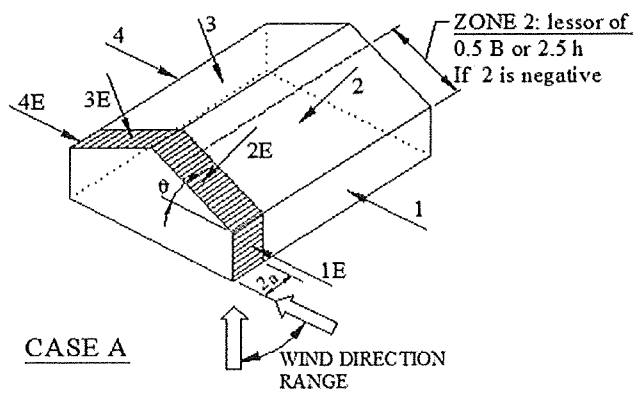
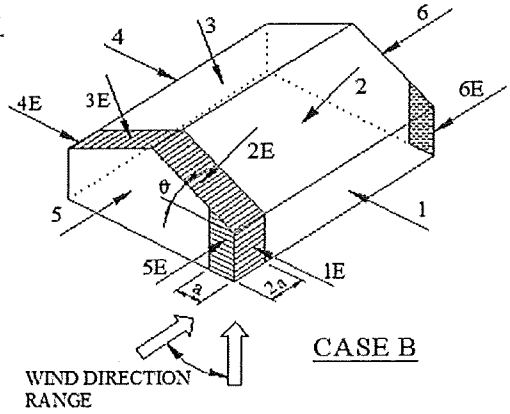
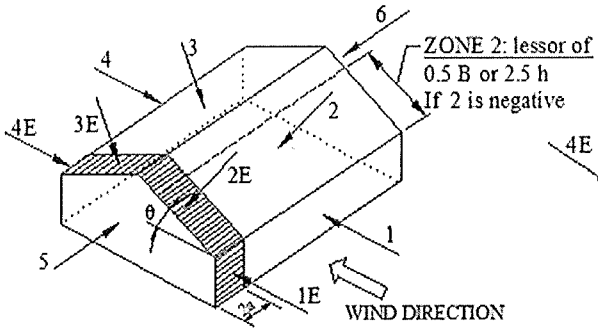


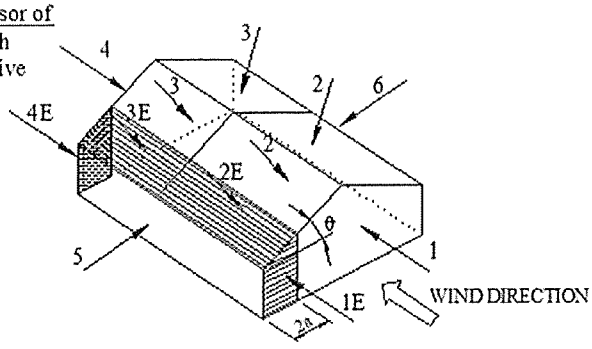


NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

ASCE 7-98 & ASCE 7-10 (& later) - MWFRS wind pressure zones



Transverse Direction



Longitudinal Direction

NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.
Exception: One story buildings h<30' and 1 to 2 storybuildings framed with light-frame construction or with flexible diaphragms need not be designed for the torsional load case.

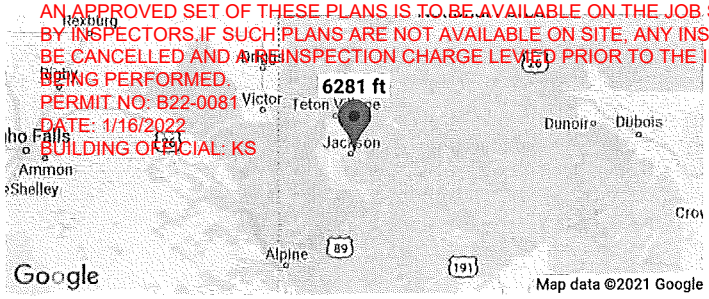
ASCE 7-02 and ASCE 7-05 - MWFRS wind pressure zones

TOWN OF JACKSON
APPROVED FOR BUILDING CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS ARE SUBJECT TO PRIOR APPROVAL. APPROVAL OF THESE PLANS DOES NOT RELIEVE THE DESIGN PROFESSIONAL, GENERAL CONTRACTOR, OR SUBCONTRACTORS OF RESPONSIBILITY FOR COMPLIANCE WITH STATE AND LOCAL CONSTRUCTION LAWS. AN APPROVED SET OF THESE PLANS IS TO BE AVAILABLE ON THE JOB SITE FOR USE BY INSPECTORS.IF SUCH PLANS ARE NOT AVAILABLE ON SITE, ANY INSPECTION MAY BE CANCELLED AND A REINSPECTION CHARGE LEVIED PRIOR TO THE INSPECTION BEING PERFORMED.
PERMIT NO: B22-0081
DATE: 1/16/2022
BUILDING OFFICIAL: KS

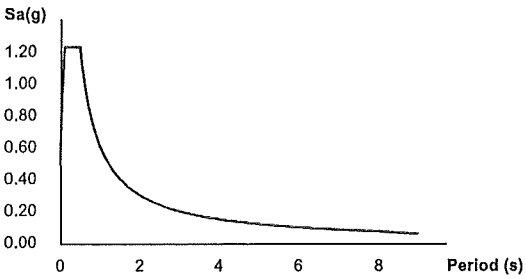
ATC Hazards by Location

Search Information

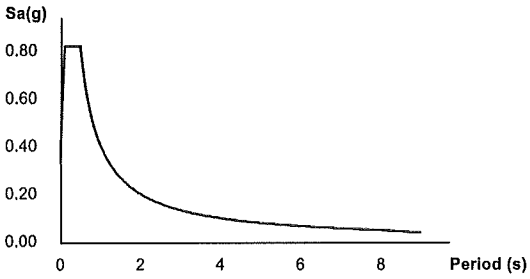
Address:	445 E Kelly Ave, Jackson, WY 83001, USA
Coordinates:	43.4754365, -110.7539785
Elevation:	6281 ft
Timestamp:	2021-12-08T22:07:09.854Z
Hazard Type:	Seismic
Reference Document:	IBC-2015
Risk Category:	II
Site Class:	D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	1.211	MCE_R ground motion (period=0.2s)
S_1	0.365	MCE_R ground motion (period=1.0s)
S_{MS}	1.23	Site-modified spectral acceleration value
S_{M1}	0.609	Site-modified spectral acceleration value
S_{DS}	0.82	Numeric seismic design value at 0.2s SA
S_{D1}	0.406	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category
F_a	1.016	Site amplification factor at 0.2s
F_v	1.67	Site amplification factor at 1.0s
CR_S	0.876	Coefficient of risk (0.2s)
CR_1	0.872	Coefficient of risk (1.0s)
PGA	0.462	MCE_G peak ground acceleration
F_{PGA}	1.038	Site amplification factor at PGA
PGA_M	0.48	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	1.211	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.382	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.554	Factored deterministic acceleration value (0.2s)
S1RT	0.365	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.419	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)

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G&S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402
208-523-6918

JOB TITLE Brown Foundation
JOB NO. 21222 SHEET NO.
CALCULATED BY GHL DATE
CHECKED BY DATE

Seismic Loads: IBC 2018

Strength Level Forces

Risk Category : II
Importance Factor (I) : 1.00
Site Class : D

Ss (0.2 sec) = 121.10 %g
S1 (1.0 sec) = 36.50 %g

Fa =	1.016	Sms =	1.230	S_{DS} =	0.820	Design Category =	D
Fv =	1.935	Sm1 =	0.706	S_{D1} =	0.471	Design Category =	D

Seismic Design Category = **D**

Redundancy Coefficient ρ = 1.30
Number of Stories: 1
Structure Type: Light Frame
Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity

Flexible Diaphragms: Yes
Building System: **Bearing Wall Systems**
Seismic resisting system: **Light frame (wood) walls with structural wood shear panels**
System Structural Height Limit: **65 ft**
Actual Structural Height (hn) = 17.8 ft
See ASCE7 Section 12.2.5 for exceptions and other system limitations

DESIGN COEFFICIENTS AND FACTORS

Response Modification Coefficient (R) = 6.5
Over-Strength Factor (Ωo) = 2.5
Deflection Amplification Factor (Cd) = 4
S_{DS} = 0.820
S_{D1} = 0.471

Seismic Load Effect (E) = Eh +/-Ev = ρQ_E +/- $0.2S_{DS}$ D = 1.3Qe +/- 0.164D
Special Seismic Load Effect (Em) = Emh +/- Ev = $\Omega o\, Q_E$ +/- $0.2S_{DS}$ D = 2.5Qe +/- 0.164D

Q_E = horizontal seismic force
D = dead load

PERMITTED ANALYTICAL PROCEDURES

Simplified Analysis - Use Equivalent Lateral Force Analysis

Equivalent Lateral-Force Analysis - Permitted

Building period coef. (C_T) = 0.020
Approx fundamental period (Ta) = $C_T h_n^{x}$ = 0.173 sec x= 0.75
User calculated fundamental period (T) = sec
Long Period Transition Period (TL) = ASCE7 map = 6
Seismic response coef. (Cs) = S_{DS}I/R = 0.126
need not exceed Cs = Sd1 I /RT = 0.418
but not less than Cs = 0.044SdsI = 0.036
USE Cs = 0.126

Cu = 1.40
Tmax = CuTa = 0.243
Use T = 0.173

Design Base Shear V = 0.126W

Model & Seismic Response Analysis - Permitted (see code for procedure)

ALLOWABLE STORY DRIFT

Structure Type: All other structures

Allowable story drift Δa = 0.020hsx where hsx is the story height below level x

BUILDING PERMIT

Town Of Jackson
P.O. Box 1687
150 E. Pearl Avenue
Jackson, WY 83001
Phone (307) 733-0520
Fax (307) 734-3563

PERMIT NUMBER: **B22-0081** DATE: **2/28/2022**

JOB ADDRESS: **445 E KELLY AVENUE**

OWNER: TETON COUNTY
PO BOX 1727
JACKSON WY 83001-1727
PHONE:

APPLICANT: TETON COUNTY
PO BOX 1727
JACKSON WY 83001-1727
PHONE: 3077328571

CONTRACTOR: Brookhurst Construction
PO Box 10521
JACKSON WY 83002
PHONE: 3074132953

DESCRIPTION OF WORK:
foundation to move building on site

ZONING	LOT:	BLOCK:	SUBDIVISION:	LOT SIZE (SF):
				0.00

FINALED	HEIGHT LIMIT	OCC GROUP:	OCC LOAD:	NO. UNITS:	NO. STORIES:	TYPE OF CONSTR:
	0					

FR SETBACK (FT):	RR SETBACK (FT):	LT SIDE SETBACK (FT	RT SIDE SETBACK (FT):	GARAGE (SF) :	BUILDING (SF) :	REMODEL /TI (SF) :	ADDITION (SF) :	OTHER (SF):
				0	0	0	0	0

VALUATION:	SPRINKLER REQ'D:	PLANS APPR BY:	DATE APPROVED:	TOTAL (SF):
$300,000.00		KB	2/16/2022	0

FEES:

TOTAL FEE	TOTAL FEES PAID	TOTAL DUE	Pay Method
$0.00	**$0.00**	**$0.00**	

COMMENTS:

(2/16/2022 2:13 PM KB)
No fee permit

Permits expire if work not commenced within 180 days or ceases more than 180 days.
The Town of Jackson is not responsible to review the applicability of plat covenants to this permit.
Compliance with plat covenants is the sole responsibility of the applicant/owner.
Separate permits are required for plumbing, mechanical and electrical work.
Separate Public Works permits are required for construction within right-of-way and/or easement.
Deviations from approved plans must be submitted for review and approval.
Final approval by the Building Official is required before occupancy.

Inspection Request Line:
(307) 733-0520 Ext. 1351
Electrical Inspection Requests:
(307) 733-4732

B22-0081

Plan Review History
BUILDING

Permit Number B22-0081

Type BUILDING
Subtype FOUNDATION
Status APPROVED

Applied 1/27/2022 KB
Approved 2/16/2022 KB
Issued
Finaled
Expired

Owner TETON COUNTY

Applicant TETON COUNTY

Site Address	City	State	Zip
445 E KELLY AVENUE	JACKSON	WY	83001

Subdivision	Tract	Block	Lot No	Parcel No
				22411634200027

Zoning	Construction Type	Occupancy Type

Type / Contact	Status	Dates Sent	Due	Received	Elapsed	Remarks and Notes Below
ADMINISTRATOR Kelly Bowlin	APPROVED	1/27/22	2/17/22	2/16/22	20	
FIRE Kathy Clay (2/13/2022 11:57 AM CLAY) All structures shall be fire sprinklered if fire department access is to be waived. Most recently meeting on this project, it was still undertermined if structures were to be condominiums or townhouses.	APPROVED W	1/27/22	2/17/22	2/13/22	17	
ENGINEERING Jeff Silliman	APPROVED	1/27/22	2/17/22	2/10/22	14	see notes

Type / Contact	Status	Dates Sent	Due	Received	Elapsed	Remarks and Notes Below

(2/10/2022 2:31 PM JSIL)
Building Permit review comments – Approved

B22-0081
ADDRESS: 445 E Kelly
OWNER: Teton County

2/10/2022
Jeff Silliman, 733-3079

DATE OF SUBMITTAL: 1/27/2022
DATE OF MATERIALS:
REVISION NO.:

The engineering division has reviewed your application for a BUILDING PERMIT submitted on and with application materials as dated above.
CONDITIONS OF APPROVAL

PROJECT CONDITIONS OF APPROVAL
No capacity fees required for this building used for storage with no connection to water or sewer utilities.

PRIOR TO CONSTRUCTION
- Pre-Construction Meeting

ENGINEERING
- FINAL ENGINEERING

ELECTRICAL	APPROVED V	1/27/22	2/17/22	2/3/22	7

Butch Gosselin

Type / Contact	Status	Dates Sent	Due	Received	Elapsed	Remarks and Notes Below

(2/3/2022 12:32 PM GOSS)
TO: Kelly Bowlin, Development Coordinator
FROM: Butch Gosselin, Chief Electrical Inspector
DATE: February 3, 2022
SUBJECT: Moving existing dwelling to new location/Brown Res
445 E Kelly
B22-0081

This office has reviewed and accepted with comments the electrical, plans for the SFD occupancy at above address in Jackson WY for. Please see the specific and general comments:
Specific comments:
1) NEC 2020 shall be followed. A permit is required for all new wiring.
2) Moving a SFD to a new location, even on same property requires that building to be brought up to the latest NEC which is the 2020 version, even if it is historic.
3) No plan review required unless it is under the IBC

See All General Comments:

1. Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling. Art. 110.3(B)

2. Ground fault protection for personnel for all temporary wiring installations shall be provided to comply with Article 590. This section shall apply only to temporary wiring installations used to supply temporary power to equipment used by personnel during construction, remodeling, maintenance, repair, or demolition of buildings, structures, equipment, or similar activities. If a receptacle(s) is installed or exists as part of the permanent wiring of the building or structure and used for temporary electric power, ground-fault circuit-interrupter (GFCI) protection for personnel shall be provided. NEC 590.6.

Wyoming Statue 35-9-120(a) Establishes the National Electrical Code as the minimum standard for the installation of electric equipment in or on buildings, Mobile homes, and premises. The 2017 National Electrical Code as adopted and published by the National Fire Protection Association. The Town of Jackson and Teton County has adopted the following amendments:

A. Article 230, Services, SECTION VI, Service Equipment – Disconnecting Means, SUBSECTION 230.7, (A), (1) Readily Accessible Location
The service disconnecting means of all services over 200 amperes in size shall be installed outside of the building or structure at a readily accessible location nearest the point of entrance of the service location. Feeders to other buildings or structures will require a disconnect on the exterior.

B. Article 250, Grounding, Section III, Grounding Electrode System and Grounding Electrode Conductor, SUBSECTION 250.52, (A), (3) Concrete Encased Electrode
All services over 200 amperes in size shall have at least 20 ft in length of bare copper conductor sized in accordance with Table 250-66 installed in the foundation footers and with enough length added to connect in the main disconnect.
C. Article 300, Wiring Methods, SECTION I, General Requirements, SUBSECTION 300.1, Scope, SUBSECTION (A) All Wiring Installations
All electrical wiring installed in buildings, structures or premises designed using the International Building Code located in the Town of
Jackson and Teton County shall be installed in accordance with the following wiring methods:
1. Article 320, Armored Cable: Type AC
2. Article 330, Metal-Clad Cable: Type MC
3. Article 332, Mineral-Insulated, Metal-Sheathed Cable: Type MI
4. Article 342, Intermediate Metal-Conduit: Type IMC
5. Article 344, Rigid Metal Conduit, Type RMC
6. Article 348, Flexible Metal Conduit, Type FMC
7. Article 350, Liquid-tight Flexible Metal Conduit; Type LFMC
8. Article358, Electrical Metallic Tubing: Type EMT
All electrical work, including low voltage wiring requires an electrical permit and shall be performed by Wyoming licensed contractors

Type / Contact	Status	Dates Sent	Due	Received	Elapsed	Remarks and Notes Below

using Wyoming licensed electricians and/or technicians.
Field inspections of the electrical system of this facility at a later date may lead to mandatory correction of any NEC violations, including the items listed above.

Please feel free to contact me if you have any further questions at bgosselin@tetoncountywy.gov.

PLANNING	APPROVED	1/27/22	2/17/22	2/1/22	5

Tyler Valentine
(2/1/2022 9:28 AM TV)
The historic Benson Home was designated as a historically signifigant structure in 2021. Later it received approval of a Administrative Adjustment to reduce the side setback from 10' to 5' and reduce the front setback from 20' to 15'.

BUILDING	APPROVED V	1/27/22	2/17/22	1/31/22	4

Kelly Sluder
(1/31/2022 9:10 AM KS)
1. There will not be any sewer or water to this structure.
2. Structure can only be used as a utility shed, or storage unit. Need to change plans to reflect the new occupancy of a U or S Occupancy.
3. If in the future, the building will require a change of use building permit from an architect and contection to water sewer.

COMMERCIAL BUILDING PERMIT APPLICATION

Building and Planning Department
P.O. Box 1687
Jackson, Wyoming 83001
307.733.0520 or 307.733.0440
www.townofjackson.com

This application form is for commercial and multi-family buildings only. If you wish to construct a one or two family residential dwelling, please use the residential application form. Separate permits are required for plumbing, mechanical, and electrical.

SITE LOCATION STREET ADDRESS 445 East Kelly Avenue

CLASS OF WORK: New ☐ **Addition** ☐ **Alteration** ☑ **Repair** ☐

PROPOSED USE/DESCRIPTION OF WORK: Describe the proposed use & work to be completed (i.e. retail, office, dwelling unit)

Move existing building to new location and foundation for immediate use as non-habitable Utility (storage shed). Building will not be occupied and any future change of use for human occupancy will be preceded by the required building permits and improvements.

OWNER Teton County **PHONE** 732-8571 (Housing Dept.)
MAILING ADDRESS PO Box 1727 Jackson, WY 83001 **EMAIL ADDRESS** kristi.malone@tetoncountywy.gov

APPLICANT (If other than owner) _____ **PHONE** _____

If the applicant is other than the owner, a notarized Letter of Authorization shall accompany this application. Only the owner or authorized agent may sign either the application or permit.

MAILING ADDRESS _____ **EMAIL ADDRESS** _____

CONTRACTOR Brian Pavey, Brookhurst Construction **PHONE** 413.2953
MAILING ADDRESS P.O. Box 10521, Jackson, WY 83002 **EMAIL ADDRESS** brookhurstcnd@hotmail.com

PLANS PREPARER Cornelius Kinsey, AIA - Kinsey, LLC **PHONE** 413.2485
MAILING ADDRESS P.O. Box 12258, Jackson, WY 83002 **EMAIL ADDRESS** kinseycornelius@yahoo.com

ENGINEER Dean Tracy - G & S Structural Engineers **PHONE** 208.523.6918
MAILING ADDRESS 505 Lindsay Boulevard, Idaho Falls, ID 83402 **EMAIL ADDRESS** dean@gsengineers.net

LEGAL DESCRIPTION:
Subdivision _____ **Lot** _____ **Block** _____
Or
Section 34 **Township** 41 **Range** 116 **Parcel** PT SE1/4NW1/4

ZONING DISTRICT NL-5 **ZONING OVERLAY DISTRICT** n/a

BUILDING DESIGN CRITERIA AND PLAN INFORMATION

All buildings are to be designed to the requirements of the 2018 International Building Code. The design criteria (Seismic Zone D, 75lbs psf Roof Snow Load, 90 mph/3 second gust Wind Load) information should be shown on the submitted plans. Plans must be drawn on 24 X 36 inch paper, to a ¼ inch scale (except for details) with dimensions. Each page shall bear a title block (with name of the owner and the building address), a scale, and a north arrow. On building elevations, the building height shall be shown and dimensioned.

IMPERVIOUS SURFACES: Impervious surfaces shall include buildings and roofed areas (eaves that overhang landscaped surfaces are excluded), paved and/or unpaved parking areas, solid terraces and other similar improvements.

Square footage of existing roofed areas	852	**square feet**	(852 sf of existing
Square footage of proposed roofed areas, including covered porches	0	**square feet**	structure will be
Paved, concrete, or unpaved driveways and parking areas	3,180	**square feet**	retained and moved;
Other impervious surfaces such as solid terraces and paved sidewalks	0	**square feet**	remainder to be demo'd
TOTAL	4,032	**square feet**	per B21-905; no new sf to be added)

GROSS SITE AREA 47,044.8 **square feet.**

NET SITE AREA: Net site area is the gross site area less all land within road rights of way or access easements.
47,044.8 **square feet or** 1.08 **acres**

Landscaping provided on site 43,012.8 **square feet** (= inverse of impervious surface total; landscape plan to be included in forthcoming BP for redevelopment of remainder of site)

PARKING: Provide the location and dimension of all parking spaces on the site plan.

GRADING: There is a separate application for this. Grading and Erosion Control Statement will be required for:

a. **Slopes of 0-5%, if area disturbed is at least 8000 square feet but less than one acre.**
b. **Slopes of greater than 5-15%, if area disturbed is at least 1000 square feet but less than one acre.**
c. **Slopes greater than 15%, if area disturbed is 3000 square feet or less.**

Grading and Erosion Control Plan prepared by a registered Wyoming professional engineer will be required for:

a. **Slopes of 0-5%, if area disturbed is one acre or larger.**
b. **Slopes greater than 5% to 15% if area disturbed is one acre or larger.**
c. **Slopes of greater than 15% if area disturbed is greater than 3000 square feet.**

PROPOSED ACCESS: If proposed construction site is accessed by a State or County road, not within the jurisdictional authority of the Town of Jackson, an approved road access permit must accompany this application. Please contact:

Wyoming Department of Transportation
1040 E. Evans Lane, Jackson 733-3665

Teton County Road Department
3190 S. Adams Canyon Dr., Jackson 733-7190

FLOOD PLAIN

Is the site or structure located in a flood plain or in close proximity to Cache Creek, Spring Creek, or Flat Creek?
Yes ☑ **No** ☐ It is located near the old location of Cache Creek but it is not located in a mapped FEMA floodway
Please be advised that development with the flood way is prohibited. If you are unsure if your site is located within the 100-year floodplain, please contact the Floodplain Administrator. Buildings located within the 100 year floodplain are required to provide an elevation certificate (FEMA Form No. 3067-0077) proving the first floor of the structure is elevated one foot above the base flood elevation. For additions or alterations to an existing structure, provide an elevation certificate for the first floor of the existing structure.

CERTIFICATE OF PLACEMENT: A Certificate of Placement will be required for all new construction and must be completed by a Wyoming licensed land surveyor.

SETBACKS

Setbacks of proposed structure from property and easement lines, streams, ponds, wetlands, and ditches. Clearly show any of these features on your site plan.

Street 15'* **Rear** 159' **Left Side** 55' **Right Side** 5'* **Alleys** n/a
Streams n/a **Ponds** n/a **Ditches** 50' **Wetlands** n/a

*Admin Adjustment for historical structure (P21-327)

HEIGHT OF STRUCTURE 16'-9-1/2" **The height of a building or structure is the vertical dimension measured from any point on the exterior of the building or structure to the nearest point of finished grade. For purposes of measuring height, finished grade shall mean the grade directly adjacent to the structure, which has been set through an approved grading and/or drainage plan. The term "finished grade" may also mean natural grade when no terrain alteration is proposed, or where otherwise applicable. Fill which is not necessary to achieve positive drainage or slope stabilization, or which is otherwise proposed clearly to raise the finished floor elevations(s) for any other purpose, shall not be considered finished grade. The vertical dimension from the highest point of the structure to the lowest point of finished grade, as viewed on any structure face or elevation, shall not exceed 110 percent of the maximum height allowed. No part of any structure may exceed the maximum structural height except for the following:**

1. **Chimneys, vents, and roof-top mechanical equipment such HVAC systems, provided that the maximum height is not exceeded by more than four (4) feet; and/or**
2. **Antenna used for the reception of television broadcast signals.**

GROSS SQUARE FOOTAGE TABULATION

	Existing	Proposed
1st Floor	849 sf	849 sf (no new sf proposed; relocation of existing)
2nd Floor	0	0
3rd Floor	0	0
Basement	0	0
Garage	0	0

FIRE SPRINKLER: The Town of Jackson requires all structures in excess of 5000 square feet to be fire sprinklered.

UTILITIES: Provide the location of all utilities on the site plan or utility plan to include any work in the public right of way or public easements.

WATER METER SIZE(S): ¾-inch ☐ **1-inch** ☐ **1 ½-inch** ☐ **2-inch** ☐ **3-inch** ☐ n/a, no water or sewer connection to this structure.

ESTIMATED COST OF CONSTRUCTION (required) $300,000

BUILDING PLANS:
Please submit building plans and corresponding documents electronically to townbuilding@jacksonwy.gov. If there is food service provide a set to the Teton County Health Department for review. Plans shall at a minimum include a site plan, landscape plan (Stamped by a landscape Architect licensed in Wyoming), foundation plan, floor plan, framing plan, building elevations, plumbing plan and/or mechanical plan. All structural plans of the building are required to be designed and stamped by an Engineer licensed in the State of Wyoming.
CERTFICATE OF OCCUPANCY IS REQUIRED. Before occupying the building, a Certificate of Occupancy must be issued by the Building Department. Persons occupying a structure prior to issuance of the Certificate of Occupancy are subject to fines under the Town of Jackson Municipal Code.

APPLICANTS' SIGNATURE, CERTIFICATION AND AUTHORIZATION: Under penalty of perjury, I hereby certify that I have read this application and state that the information herein is correct and swear that any information which may be given by me shall be truthful and correct. I agree to comply with all city regulations and state laws relating to the subject matter of this application and hereby authorize representatives of the Town of Jackson to enter upon the above-mentioned property for inspection purposes.

Kristi Malone — **Signature of Applicant**
Kristi Malone — **Print Name**
1/24/2022 — **Date**

Notice: The review and approval of a Building Permit by the Town of Jackson is not an endorsement or approval under other applicable review or regulations specific to the subject parcel or building. The Town of Jackson encourages the applicant to contact all other applicable reviewing agencies or associations at the same time or prior to submitting an application for a Building Permit.

APPLICANT'S GUIDE TO SUBMITTAL MATERIALS

Please submit building plans and corresponding documents electronically to townbuilding@jacksonwy.gov . Plans must be, ¼" = 1' scale *(except for details, which may be shown at a larger scale)*. All pages shall be on 24 X 36 inch paper. For other plan sizes please contact the Building Department. Each drawing shall bear a Title, a Scale, and North Arrow, as appropriate. On building elevations, the building height shall be shown and dimensioned. **Plans for alterations and repairs may deviate from these requirements with approval from the Building Official.**

x	COVER SHEET	x	BUILDING ELEVATIONS
x	SITE PLAN	n/a	PLUMBING PLAN (no water or sewer connection to structure)
x	UTILITIES PLAN	n/a	MECHANICAL PLAN
x	FLOOR PLAN	x	ELECTRICAL PLAN (see Utility Plan &B21-1166)
x	ROOF PLAN		FRAMING PLAN
n/a	LANDSCAPE PLAN (existing landscaping on site; plan will be included in forthcoming BP app for remainder of site)	x	FOUNDATION PLAN

XCOVER SHEET x SITE PLAN

x	PROJECT NAME & ADDRESS	x	ENGINEERING SCALE
x	PROJECT OWNER & ADDRESS	x	PROPERTY LINES (WITH BEARINGS & DIMENSIONS)
x	PLANS PREPARER, ADDRESS & PHONE		
x	VICINITY MAP	x	EASEMENTS
x	ZONING DISTRICT	x	DIMENSIONED SETBACKS
x	BUILDING OCCUPANCY/USE	x	NORTH ARROW
x	LOT AREA (SF)	x	ADJACENT STREETS
x	EXISTING & PROPOSED NO. OF STORIES (LIST FOR EACH FLOOR & BASEMENT)	x	ADJACENT PUBLIC IMPROVEMENTS
		x	PARKING (EXISTING & PROPOSED)

x EXISTING & PROPOSED FLOOR AREA (LIST FOR EACH FLOOR & BASEMENT)
x TOTAL FLOOR AREA (INCLUDING BASEMENT)
x TYPE OF CONSTRUCTION (PER THE INTERNATIONAL BUILDING CODE)
x LISTING OF THE INTERNATIONAL CODES UTILIZED IN THE DESIGN OF THE BUILDING
x DESIGN CRITERIA UTILIZED (SEISMIC ZONE D, 75 PSF ROOF SNOW LOAD, 90 MPH/3 SEC WIND LOAD
x PARKING (EXISTING & PROPOSED NO. OF SPACES)
x NOTATION AS TO WHETHER FIRE SPRINKLERS ARE BEING PROPOSED

FOR OFFICE USE ONLY

DATE RECEIVED_____ZONE_____

TYPE OF CONSTRUCTION_____OCCUPANCY GROUP_____BUILDING USE_____

FLOOR AREA 1ST FLOOR_____ 2ND FLOOR_____3RD FLOOR_____BSMNT_____GARAGE_____

TOTAL SIZE OF BUILDING (SQ. FT.)_____NO. OF STORIES_____

NO. OF DWELLING UNITS_____FIRE SPRINKLERS REQUIRED (YES/NO)_____

FEMA ELEVATION CERTIFICATE REQUIRED (YES/NO) _____BASE FLOOD ELEVATION_____

BUILDING VALUATION_____PLAN CHECK FEE_____PERMIT FEE_____

445 E Kelly (Brown Property) Project Narrative

This overall project will propose redevelopment of the entire 1.08 acre site but will be permitted and constructed in phases taking place over the next year. At this time, physical development permits are sought for Phase 1 which constitutes site preparation.

PHASE 1: Site Preparation

- **Demo Permit** for extraneous structures and non-historic components of Brown cabin (B21-905 approved 12/29/21)
- **Administrative Adjustment** to front and east side building setbacks for Brown cabin relocation (P21-327 – submitted, waiting on approval)
- **THIS APPLICATION: Building Permit** for relocation of the Brown cabin to preserve the existing historic structure but make room for redevelopment of the rest of the site. Immediate use of this cabin will be as storage/shed so the use classification for this application is listed as Utility. No residential use or human occupancy of the building is proposed at this time. Grading for this permit is limited to preparation for a new foundation and infill of the portion of Cache Creek between the current building site and the proposed building site.
- **Grading Permit** for relocation of Cache Creek (to be submitted ASAP)

PHASE 2: Site Redevelopment

- **Building Permits** for construction of six multi-unit residential buildings, including grading for horizontal infrastructure. A phasing plan will be submitted with the first Building Permit to coordinate efficient construction.
- **Building Permit** for Brown cabin/shed. At this time, Parks & Rec has interest in future use of the relocated cabin. Prior to any change of use, human occupancy, or use other than a storage shed, a Building Permit will be obtained and finaled with issuance of a certificate of occupancy.

Town of Jackson Building Permit: Exterior Lighting Submittal Requirements

(For Commercial and Residential)

Address: 445 E Kelly

In addition to completing the tables below, you will need to submit **manufacturers' product specification sheets** for all proposed outdoor lighting and a **lighting plan showing the location and height of all proposed exterior lighting**. Commercial applications shall include description of adaptive controls and plan for lighting reduction. Complex uses may require additional information.

Proposed Lighting:					
Fixture Model or Description	**No. of Fixtures**	**Shielded (Y/N)**	**Light Color (Kelvin)**	**Max Lumen per Fixture**	**Lumens Total**
Ex: Cornice P5634 sconce	*3*	*Y*	*3000*	*623*	*1869*
n/a - no new proposed lighting					

Existing Exterior Lighting (complete to the best of your knowledge):					
Fixture Description	**No. of Fixtures**	**Shielded (Y/N)**	**Light Color (Kelvin)**	**Max Lumen per Fixture**	**Lumens Total**
n/a - no existing retained					
				Lumen Total (Existing & Proposed)	

**If you need additional space to detail your exterior lighting fixtures, please submit on a separate page*

Is your exterior lighting contained entirely on your property? **Yes** ☐ **No** ☐

Exterior Lighting Requirements (Sec. 5.3.1 of the Land Development Regulations)

✓ **Shielding**. All lights over 600 lumen must be shielded so that light is directed downward (see picture on reverse side). A lumen measures the brightness of a light and is indicated on lighting packaging. A standard 60 watt light bulb is roughly 800 lumens.

✓ **Illumination per sq ft limits.** Illumination is limited by how much existing or proposed impervious surface (pavement, building footprint, decks, gravel, etc) you have on your property.

Zone	Lumens/sq ft	Example
TS, UC, UC-2, UR, AC-ToJ, AR-ToJ, OP-ToJ, OP-2, BP-R, BP-ToJ, BC-ToJ, RB, MHP-ToJ, NC-2, P/SP-ToJ, P-ToJ	3	A commercial property with 32,395 sq ft of impervious surface is allowed 97,185 lumens (32,395 X 3)
R-ToJ, S-ToJ, NC-ToJ, RB	1.5	A property with 5,500 sq ft of impervious surface is allowed 8,250 lumens (1.5 X 5,500)

✓ **Light Color.** All lights must be equal to or below 3000 K. Correlated color temperature refers to the 'color' of the light emitted. It is indicated on lighting packaging.

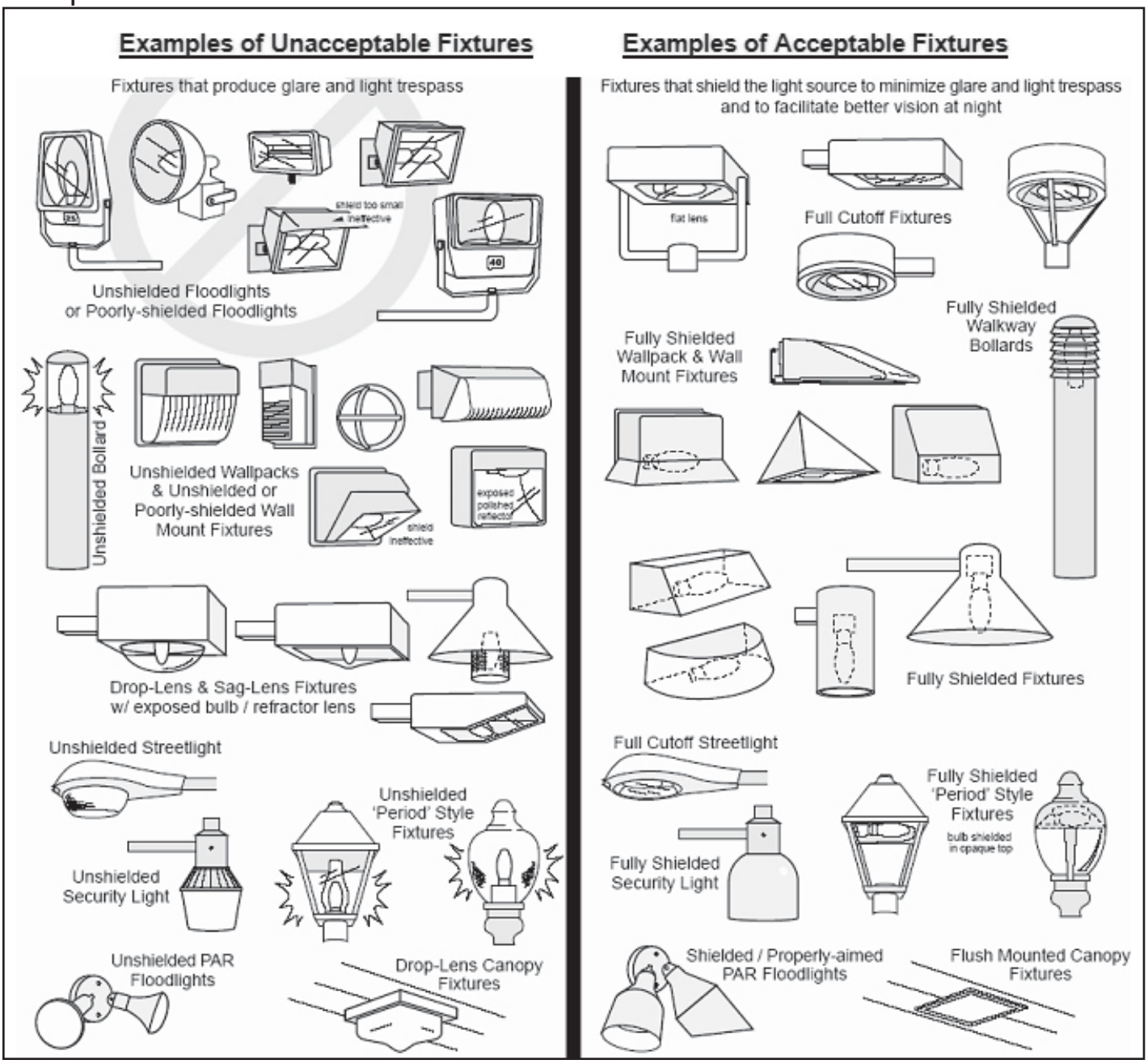
✓ **Light trespass.** Don't shine light into your neighbor's yard.

✓ **Pole Height:** Lights mounted on a standalone pole cannot be greater than 15 ft in height.

✓ **Prohibited Lights.** No flickering or flashing lights, no searchlights or laser lights, no strings of lights (unless between Nov 1 and April), or singular lights having 20,000 lumens or more.

✓ **Controls & Lighting Reduction.** All *nonresidential* properties shall use automatic lighting controls to extinguish lighting or reduce total exterior lighting by 30% by 12:00 am. Lights should be extinguished during the day when there is sufficient daylight.

Examples of Unshielded and Shielded Fixtures:



Why do we have Exterior Lighting Requirements?

Excessive or poorly designed exterior lighting contributes to Light Pollution, which has negative consequences for our community, including:

- **Hazards for public safety.** Poor lighting creates glare which makes it difficult to see hazards such as wildlife crossing the road at night.
- **Impacts to public health & Nuisance.** Excessive lighting disrupts sleep patterns.
- **Impacts on the natural environment.** Excessive lighting impacts wildlife feeding & breeding patterns.

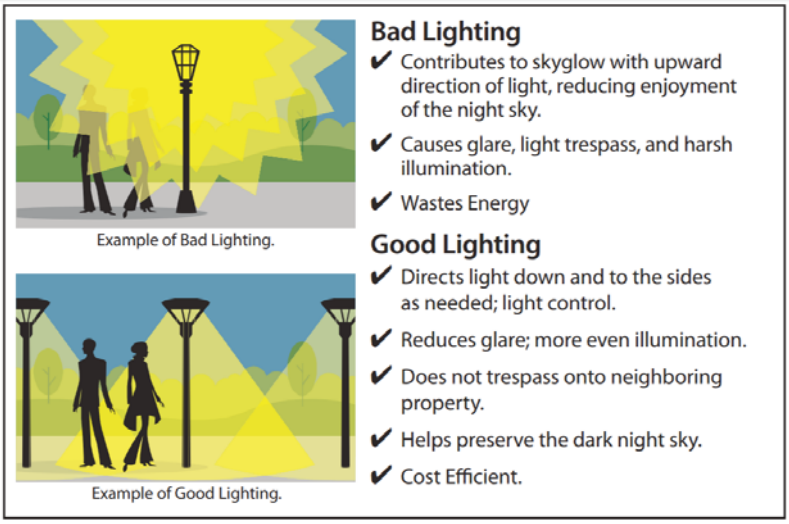


Image Credit: Boulder County. Used with permission.

ATTACHMENT C: LIVABILITY STANDARDS CHECKLIST

Jackson/Teton County Housing Department Rules Regulations
Livability Standards Checklist for 1-Bedrooms >475sf

Room	Component	Minimum Standard	On Plans (dated_____)
Kitchen	Room Size	120sf	
	Base Cabinets	5' lineal x 2' deep x 26" high (no more than two cabinets <1' wide count)	
	Upper Cabinets	5' lineal x 1' deep x 30" high (no more than two cabinets <1' wide count)	
	Countertop material	New, durable, easily cleaned material	
	Countertop size	3' continuous workspace	
	Sink width	30"	
	Range/oven width	30"	
	Refrigerator size	20 cubic feet	
	Dishwasher width	24"	
	Appliances	New, Energy Star, UL-listed Ventilation fan over range	
Living & Dining Rooms	Room Size	120sf	
	Room Dimensions	None <10'	
	Functional furniture layout for living area	7' sofa, circulation, side tables, etc.	
	Funcitonal furniture layout for eating area	2 chairs/stools	
	Windows	1 that can open	
	Entryway storage	Closet, hooks or storage space for 2 persons' coats/boots	
	Linen Closet Size	30" wide x 26" deep x 7.5' high	
Bathrooms	Amenities	Bathtub w/ shower, sink, toilet	
	Storage	4sf	
	Floor materials	water-resistant, no carpet	
Bedrooms	Room SIze	120sf	
	Windows	1 that can open	
	Closet size	6' wide x 26" deep x 7.5' high	
	Closet amenities	Shelf over rod	
	Furnace/boiler/water heater	sized for 2 persons	
	Mechanical items	not located to minmize required floor area or storage area	
Warrantees	Range/Stove/Oven	1-year	
	Refrigerator	1-year	
	Dishwasher	1-year	
	Garbage Disposal	1-year	
	Furnaces, boilers, hot water heaters	5-year	
	Floors	10-year	
	Window coverings	where ped/vehicle access adjacent, install top-down window coverings requried	
Other Design Features	Built-in storage (drawers under beds, under stair, etc.)	bonus/in lieu of	
	Shelving in dead space	bonus/in lieu of	
	washer/dryer access to rentals	bonus/in lieu of	
	extra additional/rec equipment storage	bonus/in lieu of	
	Additional closet space	bonus/in lieu of	
	Additional cabinetry	bonus/in lieu of	

ATTACHMENT D: HAZARDOUS MATERIALS REPORT

JORGENSEN

PO Box 9550 | 1315 HWY 89 S., Ste. 201
Jackson, WY 83002
PH: 307.733.5150
www.jorgeng.com

November 18, 2025

Kristi Malone
Jackson Teton County Affordable Housing
200 S. Willow Stret
Jackson, WY 83001
kristimalone@tetoncountywy.gov
307.732.8200

RE: Asbestos & Lead Paint Building Inspection, Parkside at Benson-Brown Cabin

To Whom It May Concern:

In accordance with the U.S. Environmental Protection Agency (EPA), Wyoming Department of Environmental Quality (WDEQ) regulations, OSHA worker safety standards, and regional solid waste disposal requirements, The Jackson/Teton County Affordable Housing Department contracted Jorgensen Associates, Inc. **(Jorgensen)** to conduct an asbestos building inspection of a historic residential cabin located at 485 E. Kelly Avenue in Jackson, Wyoming known as The Benson-Brown Cabin.

Samples of suspect materials were collected from this cabin for the analysis of Asbestos-Containing Material (ACM) and lead-based paint in preparation for future renovations.

Inspection and Technical Approach
A Jorgensen-provided, EPA-certified asbestos building inspector conducted a visual inspection of the cabin's interior and exterior on November 7, 2025. During this inspection, suspect building materials were identified, and bulk samples were collected for ACM and lead-based paint analysis.

The inspector collected bulk material samples by taking a composite core that included all layers within the suspect materials, in accordance with applicable federal and state regulations.

Building History & Description

- **Year Built:** 1920 with subsequent remodels occurring since originally built.
- **Size:** Approximately 852 square feet, which consist of a main floor, basement and attic.
- **Construction:** Log construction with a concrete basement and metal roof.
- **Exterior Finishes:** Log construction including synthetic chinking and wood shingled gable ends. Metal roof.
- **Interior Finishes:** Log walls with synthetic chinking, wood paneling and trim, and a limited amount of drywall. Flooring consists of linoleum on a plywood subfloor in the entry, kitchen and bathroom, wood plank flooring in the living room, and carpet on a plywood subfloor in the laundry room. Doors are fiberglass and wood.
- **Insulation:** Insulation observed consists of fiberglass batten insulation.
- **Not Observed:** No fire doors, suspect carpet mastic, suspect window glazing, nor suspect heating duct putty was observed.

Asbestos Laboratory Analysis
The bulk suspect samples were submitted to EMSL Analytical, Inc. (EMSL) in Indianapolis, Indiana, for analysis using Polarized Light Microscopy (PLM) methodology. EMSL is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory for Bulk Asbestos Fiber Analysis.

- *Note:* Per EPA NESHAP (40 CFR 61, Subpart M) regulatory guidance, samples containing less than 1% asbestos must be point-counted to be considered a trace-containing material.

Lead-Paint Laboratory Analysis
Paint samples were submitted to EMSL Analytical, Inc. (EMSL) in Indianapolis, Indiana, for analysis using Flame Atomic Absorption SW 846-7000B in paint chips methodology.

Materials Sampled for Asbestos Analysis
The following twelve (12) samples of suspect ACM were collected from the structure for analysis:

- Two (2) samples of linoleum flooring and mastic, entry
- Two (2) samples of linoleum flooring and mastic, kitchen
- Three (3) samples of drywall texture/finish
- Three (3) samples of drywall

Laboratory Results for Asbestos Analysis
Laboratory results, received on November 16, 2025, reported that all samples collected for the analysis of asbestos The full laboratory analysis is attached to this report.

***The kitchen sink does exhibit a black undercoating which should be assumed to contain asbestos.**

Paint Sampled for Lead Analysis
There is a limited number of painted surfaces in this cabin; the following three (3) samples were collected for analysis:

- Laundry Room, pink
- Bathroom and living room ceiling, white
- Living Room Back Door Jam, white

Laboratory Results for Lead Analysis
The paint sample from the living room back door jam tested as lead-based paint at 40,000 parts per million (ppm). The other two samples are considered lead-paint containing.

Lead-based paint is defined by lab analysis as paint with a concentration of 5,000 parts per million (ppm) or more. Paint is considered lead-based if it tests above 5,000 ppm; paint is considered lead-containing at levels below 5,000 ppm.

Conclusion and Recommendations
Based on the laboratory analysis, suspect materials present in this cabin have tested negative for asbestos and may be handled as such. The kitchen sink, which has a black undercoating, should be assumed asbestos. This sink undercoating is not friable and so does not pose an immediate heath concern; it should be disposed of accordingly when replaced.

The white paint present on the living room back door jamb strongly tested as lead-based paint and is in a deteriorating condition. Health precautions should be taken to abate or remove or this paint.

Although all reasonable efforts were made to discover potential ACM, some suspect materials may remain hidden in walls, voids, or other concealed areas. Please contact our office should any additional suspect materials be uncovered during demolition.

Thank you for allowing Jorgensen to provide this asbestos building inspection for your project. Please contact us if you have any questions or if we can provide additional services.

Sincerely,
JORGENSEN ASSOCIATES, INC.

Mac Dukart
Project Manager
Certified Asbestos Inspector and Management Planner

Kitchen Sink Suspected Asbestos Undercoating

Kitchen Sink

Living Room Back Door Jam with Lead-Based Paint, white

EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order:	162514506
Customer ID:	JORG50
Customer PO:	25719
Project ID:	

Attention:	Mac Dukart	**Phone:**	(307) 733-5150
	Jorgensen Associates, PC	**Fax:**	(307) 733-5187
	PO Box 9550	**Received Date:**	11/10/2025 10:10 AM
	1315 Highway 89 S., Suite 201	**Analysis Date:**	11/14/2025
	Jackson, WY 83001	**Collected Date:**	11/07/2025
Project:	Jackson Teton County Affordable Housing		

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TC-F1-Linoleum *162514506-0001*	ENTRY - LINOLEUM FLOORING	Gray Fibrous Heterogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
TC-F1-Mastic *162514506-0001A*	ENTRY - LINOLEUM FLOORING	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F2-Linoleum *162514506-0002*	ENTRY - LINOLEUM FLOORING	Gray/White Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
TC-F2-Mastic *162514506-0002A*	ENTRY - LINOLEUM FLOORING	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F3-Linoleum *162514506-0003*	KITCHEN - LINOLEUM FLOORING	White Fibrous Heterogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
TC-F3-Mastic *162514506-0003A*	KITCHEN - LINOLEUM FLOORING	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F4-Linoleum *162514506-0004*	KITCHEN - LINOLEUM FLOORING	White Fibrous Heterogeneous	30% Cellulose <1% Glass	70% Non-fibrous (Other)	None Detected
TC-F4-Mastic *162514506-0004A*	KITCHEN - LINOLEUM FLOORING	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F5-Linoleum *162514506-0005*	BATHROOM - LINOLEUM FLOORING	Gray/White/Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F5-Mastic *162514506-0005A*	BATHROOM - LINOLEUM FLOORING	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F6-Linoleum *162514506-0006*	BATHROOM - LINOLEUM FLOORING	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-F6-Mastic *162514506-0006A*	BATHROOM - LINOLEUM FLOORING	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-T1 *162514506-0007*	KITCHEN - DRYWALL TEXTURE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-T2 *162514506-0008*	LIVING ROOM - DRYWALL TEXTURE	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TC-T3 *162514506-0009*	LAUNDRY - DRYWALL PAPER	Gray/White/Blue Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
TC-DW1 *162514506-0010*	KITCHEN - DRYWALL	Brown/White Fibrous Heterogeneous	30% Cellulose	60% Gypsum 10% Non-fibrous (Other)	None Detected

Initial report from: 11/14/2025 13:12:53

EMSL Analytical, Inc.
6340 CastlePlace Dr. Indianapolis, IN 46250
Tel/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order:	162514506
Customer ID:	JORG50
Customer PO:	25719
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TC-DW2 *162514506-0011*	LIVING ROOM - DRYWALL	Brown/White Fibrous Heterogeneous	20% Cellulose <1% Glass	70% Gypsum 10% Non-fibrous (Other)	None Detected
TC-DW3 *162514506-0012*	LAUNDRY - DRYWALL	White Non-Fibrous Homogeneous	<1% Cellulose <1% Glass	95% Gypsum 5% Non-fibrous (Other)	None Detected

Analyst(s)
Hilary Jarvis (11)
Kailee Konyshak (7)

Asbestos Laboratory Manager
or Other Approved Signatory

Initial report from: 11/14/2025 13:12:53

EMSL Analytical, Inc.

6340 Castleplace Drive, Indianapolis, IN, 46250
Telephone: 317.803.2997 Fax:317.803.3047
www.emsl.com

EMSL Order ID: 162563432
LIMS Reference ID: CD63432
EMSL Customer ID: JORG50

Attention: Mac Dukart
Jorgensen Associates, PC [JORG50]
PO Box 9550, 1315 Highway 89 S., Suite 201
Jackson, WY 83001
(307) 733-5150
mdukart@jorgeng.com

Project Name: JACKSON TETON COUNTY AFFORDABLE HOUSING 25719

Customer PO: 25719
EMSL Sales Rep: Stefan Wiersgalla
Received: 11/11/2025 10:10
Reported: 11/18/2025 08:52

Analytical Results

Analyte	Results	RL	Weight(g)	Prep Date & Tech	Prep Method	Analysis Date & Analyst	Analytical Method	Q	DF
Client Sample ID: TC-P1/LIVING ROOM BACK DOOR JAM WHITE									**Date Sampled: 11/07/25**
Matrix: Chips									**LIMS Reference ID: CD63432-01**
Lead	40000 ppm	1600 ppm	0.2537	11/13/25 OCX	SW-846 3050B	11/13/25 OCX	SW 846-7000B	Pb2	25
Sample Comments:									
Client Sample ID: TC-P2/BATHROOM CEILING WHITE									**Date Sampled: 11/07/25**
Matrix: Chips									**LIMS Reference ID: CD63432-02**
Lead	<64 ppm	64 ppm	0.2549	11/13/25 OCX	SW-846 3050B	11/13/25 OCX	SW 846-7000B	Pb2	1
Sample Comments:									
Client Sample ID: TC-P3/LAUNDRY ROOM PILE									**Date Sampled: 11/07/25**
Matrix: Chips									**LIMS Reference ID: CD63432-03**
Lead	<97 ppm	97 ppm	0.1643	11/13/25 OCX	SW-846 3050B	11/13/25 OCX	SW 846-7000B	Pb2	1
Sample Comments:									

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Certified Analyses included in this Report

Analyte	Certifications
SW 846-7000B in Chips	
Lead	16-OHDOH,16-AIHA ELLAP

List of Certifications

Code	Description	Number	Expires
16-MO	Missouri Drinking Water	10180	03/31/2026
16-NYDOH	New York Potable Water, Metals Solid and Hazardous Waste - Asbestos	12130	04/01/2026
16-AIHA ELLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - ELLAP	157245	08/01/2027
16-AIHA IHLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - IHLAP	157245	08/01/2027
16-CA ELAP	California Metals in DW, Chemistry and Bulk Asbestos in Hazardous Waste	2575	06/30/2026
16-A2LA Food	A2LA Food Microbiology	2845.11	01/31/2026
16-A2LA Chemistry	A2LA Environmental and Chemistry	2845.25	11/30/2025
16-IN Metals/Asbestos	Indiana Lead and Metals and Asbestos in Drinking Water	C-49-09	12/31/2026
16-OHDOH	Ohio - Lead in Paint Chips, Wipes, Soil and Air	E10040	05/03/2026
16-FLDOH	Florida Asbestos and Metals in Drinking Water, PCBs	E871170	06/30/2026
16-NJDEP	New Jersey Metals, Organics and Inorganics in DW PCBs	IN002	06/30/2026
16-IN Colilert/HPC	Indiana Colilert and HPC	M-49-06	12/31/2026

Please see the specific Field of Testing (FOT) on www.emsl.com <http://www.emsl.com> for a complete listing of parameters for which EMSL is certified.

Notes and Definitions

Item	Definition
Pb2	The MS recovery for Lead was outside of the method control limits due to matrix bias.
(Dig)	For metals analysis, sample was digested.
[2C]	Reported from the second channel in dual column analysis.
DA	Direct Analysis
DF	Dilution Factor
MDL	Method Detection Limit.
ND	Analyte was NOT DETECTED at or above the detection limit.
NR	Spike/Surrogate showed no recovery.
Q	Qualifier
RCS	Respirable Crystalline Silica
RL	Reporting Limit
Wet	Sample is not dry weight corrected.

Measurement of uncertainty and any applicable definitions of method modifications are available upon request. Per EPA NLLAP policy, sample results are not blank corrected.

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www.emsl.com

EMSL Order ID: 162563432
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Project Name:	JACKSON TETON COUNTY AFFORDABLE HOUSING 25719
Customer PO:	25719
EMSL Sales Rep:	Stefan Wiersgalla
Received:	11/11/2025 10:10
Reported:	11/18/2025 08:52

Sara Dille Laboratory Manager or other approved signatory

Analysis following EMSL SOP for the Determination of Environmental Lead by FLAA. The laboratory has a reporting limit of 0.0064% by wt., based upon a minimum sample weight of 0.25g submitted to the lab, and is not responsible for any result or reporting limit provided in mg/cm2 since it is dependent upon an area value provided by non-lab personnel. A "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty and definitions of modifications are available upon request. Results in this report are not blank corrected unless specified.

Rocky Mountain Center
for Occupational and Environmental Health
250 East 200 South, Suite 100
Salt Lake City UT 84111
Phone: (801) 581-4055

THIS CERTIFIES THAT

Michael Dukart

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN ASBESTOS ABATEMENT

Asbestos Inspector/Management Planner Refresher

DATE: January 9, 2025
NUMBER: **W250044**
EXPIRES: January 9, 2026
CREDITS: 0.80 CEUs / 1.34 ABIH CM Points

Dr. Beth Rhoades
Associate Dean
Division of Online and Continuing Education
Weber State University

ATTACHMENT E: STRUCTURAL ENGINEERING REPORT

G & S Structural Engineers
505 Lindsay Boulevard
Idaho Falls, ID 83402

Telephone: (208) 523-6918 **E-mail: gs@gsengineers.net**

November 21, 2025
#25146

Ms. Kristi Malone
Jackson/Teton County Affordable Housing
P.O. Box 714
Jackson, WY 83001

Re: 445 E. Kelly
Jackson, Wyoming

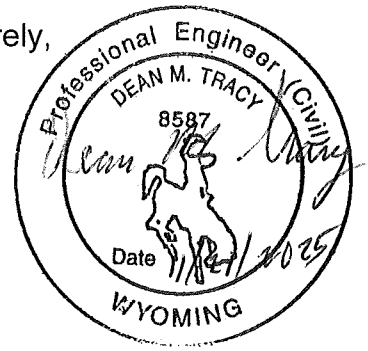
Dear Kristi,

Yesterday I met with you at the above referenced site. The purpose of the visit was to determine if the roof reinforcement per G&S' drawing dated 12-18-21 had been installed as shown in the drawing and if the reinforced roof complies with the 2024 IBC. The following is a brief overview of my observations and conclusions.

The roof reinforcement was installed as shown in G&S' drawing dated 12-18-21. The glulam beam and sistered joists were properly installed. Attached are the calculations that show the reinforced roof framing is adequately sized for the 2024 building code.

Please call if you have any questions or if I can be of further assistance.

Sincerely,



Dean M. Tracy, P.E.

G&S Structural Engineers
505 Lindsay Blvd.
Idaho Falls, ID 83402
208-523-6918

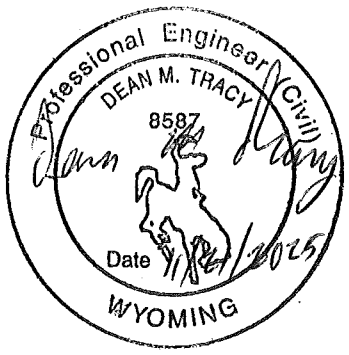
JOB TITLE Brown Cabin

JOB NO. 25146 SHEET NO.
CALCULATED BY DATE
CHECKED BY DATE

STRUCTURAL CALCULATIONS

FOR

Brown Cabin



ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Snow

Results:

Ground Snow Load, p_g:	158 lb/ft^2
20-year MRI Value:	87.95 lb/ft^2
Winter Wind Parameter:	0.35
Mapped Elevation:	6624.3 ft
Data Source:	ASCE/SEI 7-22, Figures 7.6-1 and 7.6-2 A-D
Date Accessed:	Fri Nov 21 2025

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

Ground Snow Loads for IRC only, $p_{g(asd)}$:	110.6 lb/ft^2

G&S Structural Engineers
505 Lindsay Blvd.
Idaho Falls, ID 83402
208-523-6918

JOB TITLE Brown Cabin
JOB NO. 25146 SHEET NO.
CALCULATED BY DATE
CHECKED BY DATE

Snow Loads : ASCE 7- 22

Ultimate Snow Forces

Roof slope	=	26.6 deg
Horiz. eave to ridge dist (W)	=	14.0 ft
Roof length parallel to ridge (L)	=	36.0 ft

Type of Roof		Hip and gable w/ trussed systems
Ground Snow Load	Pg =	158.0 psf
Risk Category	=	II
Snow Factor	=	1.0
Roof R value	Rroof =	60
Thermal Factor	Ct =	1.200
Exposure Factor	Ce =	1.00
Pf = 0.7*Ce*Ct*I*Pg	=	132.7 psf
Unobstructed Slippery Surface		no
Sloped-roof Factor	Cs =	1.00
Balanced Snow Load	=	**132.7 psf**

Near ground level surface balanced snow load = **158.0 psf**

Rain on Snow Surcharge Angle		0.28 deg
Code Maximum Rain Surcharge		8.0 psf
Rain on Snow Surcharge	=	0.0 psf
Ps plus rain surcharge	=	132.7 psf
Minimum Snow Load	Pm =	0.0 psf
Uniform Roof Design Snow Load	=	**132.7 psf**

NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs

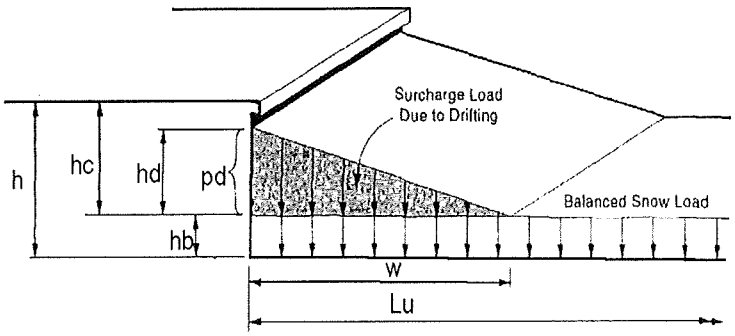
Unbalanced Snow Loads - for Hip & Gable roofs only

Winter Wind Parameter W2 = 0.55

Required if slope is between 7 on 12 =	30.26 deg	
and 2.38 deg =	2.38 deg	**Unbalanced snow loads must be applied**
Windward snow load =	39.8 psf	= 0.3Ps
Leeward snow load from ridge to 10.19' =	190.0 psf	= hdγ / √S + Ps
Leeward snow load from 10.19' to the eave =	132.7 psf	= Ps

Snow Drift 1 - Against roof projections, parapets, etc

Up or downwind fetch	lu =	0.0 ft
Projection height	h =	5.2 ft
Projection width/length	lp =	20.0 ft
Snow density	γ =	30.0 pcf
Balanced snow height	hb =	4.42 ft
	hd =	0.00 ft
	hc =	0.78 ft
hc/hb <0.2 = 0.2	**Therefore, no drift**	
Drift height (hd)	=	0.00 ft
Drift width	w =	0.00 ft
Surcharge load:	pd = γ*hd =	**0.0 psf**
Balanced Snow load:	=	132.7 psf
		132.7 psf



Snow Drift 2- Against roof projections, parapets, etc

Up or downwind fetch	lu =	0.0 ft
Projection height	h =	4.0 ft
Projection width/length	lp =	20.0 ft
Snow density	γ =	30.0 pcf
Balanced snow height	hb =	4.42 ft
	hd =	0.00 ft
	hc =	-0.42 ft
hc/hb <0.2 = -0.1	**Therefore, no drift**	
Drift height (hc)	=	0.00 ft
Drift width	w =	-3.39 ft
Surcharge load:	pd = γ*hd =	**0.0 psf**
Balanced Snow load:	=	132.7 psf
		132.7 psf

Note: If bottom of projection is at least 2 feet above hb then snow drift is not required.

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
505 Lindsay Blvd. Idaho Falls, ID Nov. 21, 2025 07:49	joist24.wwb

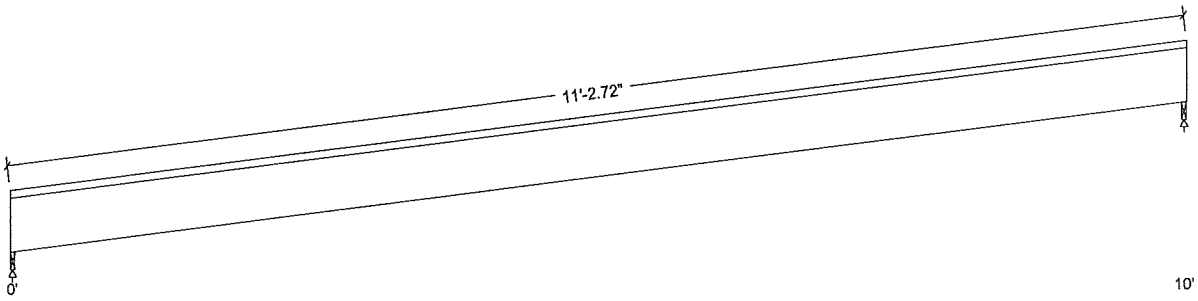
Design Check Calculation Sheet

WoodWorks Sizer 13.2.1

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				15.00(8.0")		psf
Load2	Snow	Full Area				133.00(8.0")		psf
Self-weight	Dead	Full UDL				2.0		plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	67		67
Snow	445		445
Factored:			
Total	379		379
Bearing:			
F'theta	716		716
Capacity			
Joist	537		537
Support	586		586
Des ratio			
Joist	0.71		0.71
Support	0.65		0.65
Load comb	#2		#2
Length	0.50*		0.50*
Min req'd	0.50*		0.50*
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	625		625

*Minimum bearing length setting used: 1/2" for end supports

Lumber-soft, D.Fir-L, No.2, 2x6 (1-1/2"x5-1/2")

Supports: All - Timber-soft Beam, D.Fir-L No.2

Roof joist spaced at 8.0" c/c; Total length: 11'-5.5"; Clear span(horz): 9'-11.5"; Volume = 0.7 cu.ft.; Pitch: 6/12

Lateral support: top = continuous, bottom = at supports; Repetitive factor: applied where permitted (refer to online help);

This section PASSES the design code check.

Analysis vs. Allowable Stress and Deflection using NDS 2024 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 56	Fv' = 207	psi	fv/Fv' = 0.27
Bending(+)	fb = 1496	Fb' = 1547	psi	fb/Fb' = 0.97
Live Defl'n	0.52 = L/255	0.56 = L/240	in	0.94
Total Defl'n	0.69 = L/193	0.75 = L/180	in	0.93

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	2
Fb'+	900	1.15	1.00	1.00	1.000	1.300	-	1.15	1.00	1.00	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	2

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = D + 0.7S
Bending(+): LC #2  = D + 0.7S
Deflection: LC #2  = D + 0.7S  (live)
            LC #2  = D + 0.7S  (total)
Bearing   : Support 1 - LC #2 = D + 0.7S
            Support 2 - LC #2 = D + 0.7S
Load Types: D=dead S=snow
Load combinations: ASD Basic from ASCE 7-22 2.4; all LC's listed in the Analysis report
```

CALCULATIONS:

```
V max = 337, V design = 308 (NDS 3.4.3.1(a)) lbs; M(+) = 943 lbs-ft
EI = 33.27e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow…)
Total deflection = 1.50 permanent + "live"
Bearing: Allowable bearing at an angle F'theta  calculated for each support
as per NDS 3.10.3
```

Design Notes:

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2024) and the National Design Specification (NDS 2024), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. SLOPED BEAMS: level bearing is required for all sloped beams.

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
505 Lindsay Blvd. Idaho Falls, ID Nov. 21, 2025 07:54	lvl beam24.wwbu

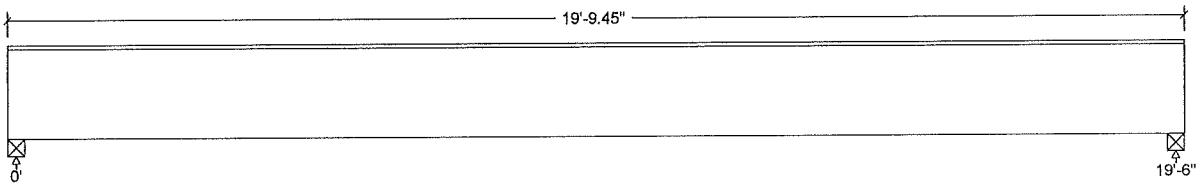
Design Check Calculation Sheet

WoodWorks Sizer 13.2.1

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				15.00(10.50')		psf
Load2	Snow	Full Area				133.00(10.50')		psf
Self-weight	Dead	Full UDL				21.2		plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	1765		1765
Snow	13817		13817
Factored:			
Total	11497		11497
Bearing:			
Capacity			
Beam	11497		11497
Support	11864		11864
Des ratio			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	3.45		3.45
Min req'd	3.45		3.45
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Glulam-Unbalan., West Species, 24F-V4 DF, 5-1/8"x18"

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 19'-9.44"; Clear span: 19'-2.56"; Volume = 12.7 cu.ft.; 12 laminations, 5-1/8" maximum width,

Lateral support: top = continuous, bottom = at supports;

This section PASSES the design code check.

Analysis vs. Allowable Stress and Deflection using NDS 2024 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 152	Fv' = 305	psi	fv/Fv' = 0.50
Bending(+)	fb = 2383	Fb' = 2670	psi	fb/Fb' = 0.89
Live Defl'n	0.71 = L/329	0.98 = L/240	in	0.73
Total Defl'n	0.90 = L/258	1.30 = L/180	in	0.70

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cvr	LC#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.15	1.00	1.00	1.000	0.967	-	-	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million		1.00	1.00	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million		1.00	1.00	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = D + 0.7S
Bending(+): LC #2  = D + 0.7S
Deflection: LC #2  = D + 0.7S  (live)
            LC #2  = D + 0.7S  (total)
Bearing   : Support 1 - LC #2 = D + 0.7S
            Support 2 - LC #2 = D + 0.7S
Load Types: D=dead S=snow
Load combinations: ASD Basic from ASCE 7-22 2.4; all LC's listed in the Analysis report
```

CALCULATIONS:

```
V max = 11274, V design = 9373 (NDS 3.4.3.1(a)) lbs; M(+) = 54960 lbs-ft
EI = 4483.28e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow...)
Total deflection = 1.50 permanent + "live"
```

Design Notes:

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2024) and the National Design Specification (NDS 2024), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2015 and manufactured in accordance with ANSI A190.1-2012
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).

ATTACHMENT F: SITE PLAN CONCEPT