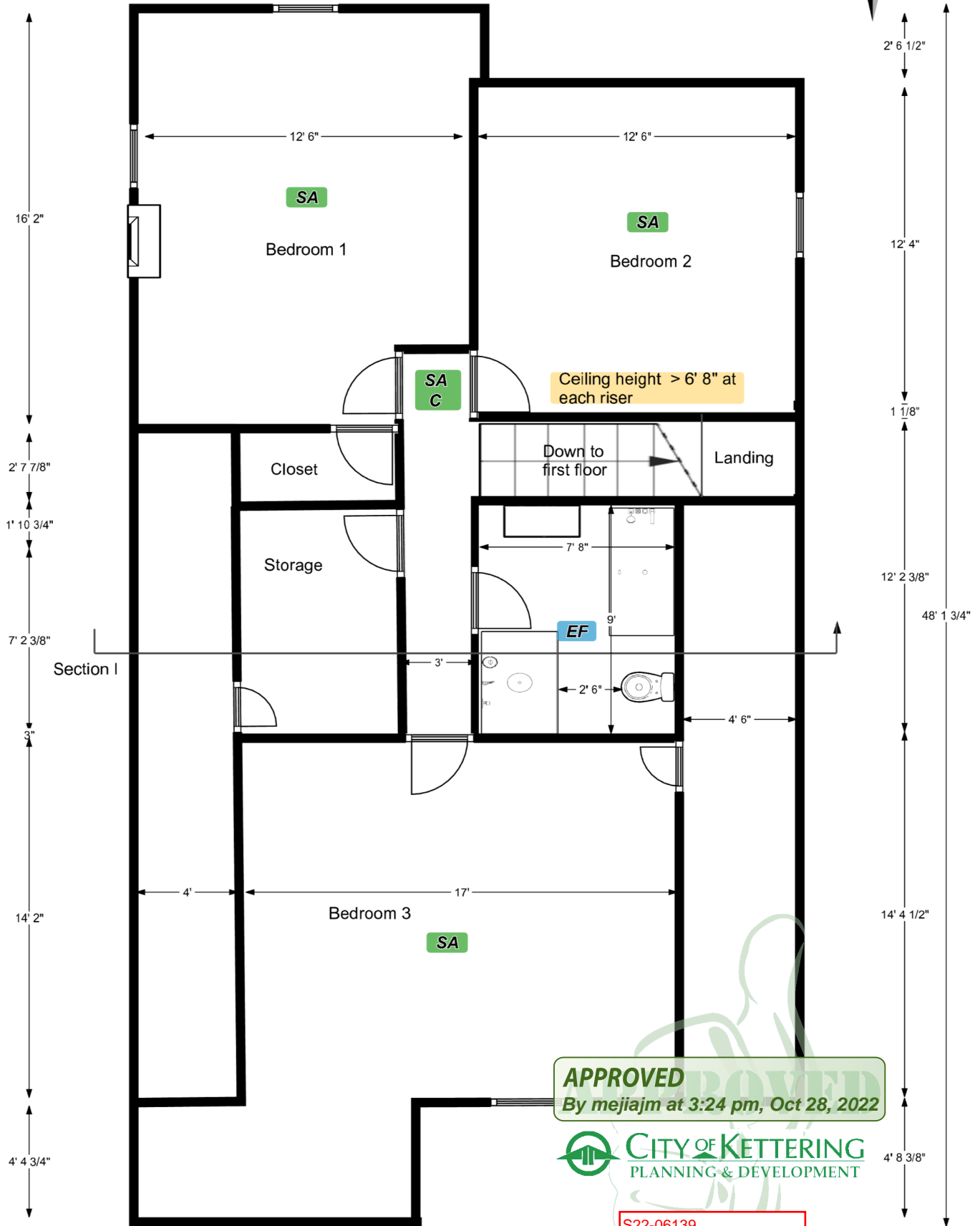


# Attic New Rev 1

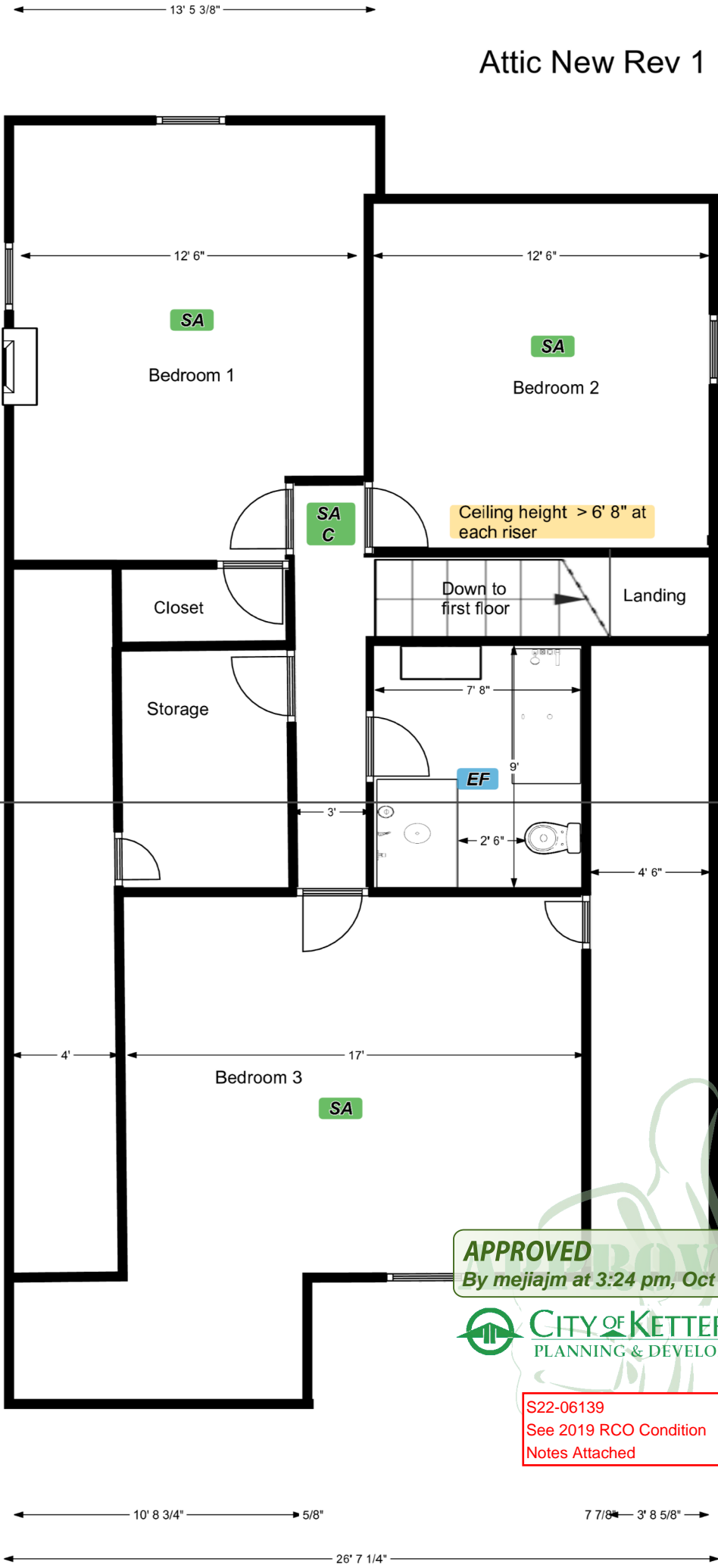


Section I

**APPROVED**  
By mejajm at 3:24 pm, Oct 28, 2022



S22-06139  
See 2019 RCO Condition  
Notes Attached



**Note**

The attic has been used as living space in the past and is planned to provide 3 bedrooms and one bathroom.

The attic floor joists run from West to East and consist of 2" x 6" joists spaced 16" on center spanning from the side walls to the central load bearing wall. The rafter span is 19" oc and the roof pitch is measured at 12/12. The height from floor to ridge is measured at 13' 6"

**Reinforce structure**

- Sister each floor joist with a 2x8 joist. 2x8 sisters have to be notched by 1.75 inch in height and 2.25 inch in width to fit into existing framing structure. The ceiling height on the first floor is lowered by 1.75 inch as a result. See drawing for Section 1
- Install new subfloor using 5/8 plywood sheeting
- Install new collar ties at 10' 4" using 2x6 framing members

**Egress requirements**

- Replace bedroom windows to meet egress requirements as follows  
 Bedroom 1: New 30x48 casement window West facing  
 Bedroom 2: New 30x48 casement window East facing  
 Bedroom 3: New 30x48 casement window South facing

Window sills max 44" above floor

**Wall framing**

- Install new wall framing using 3' 5/8 20 gage metal studs reinforced with 2x4 wood studs where needed

**Roof Insulation**

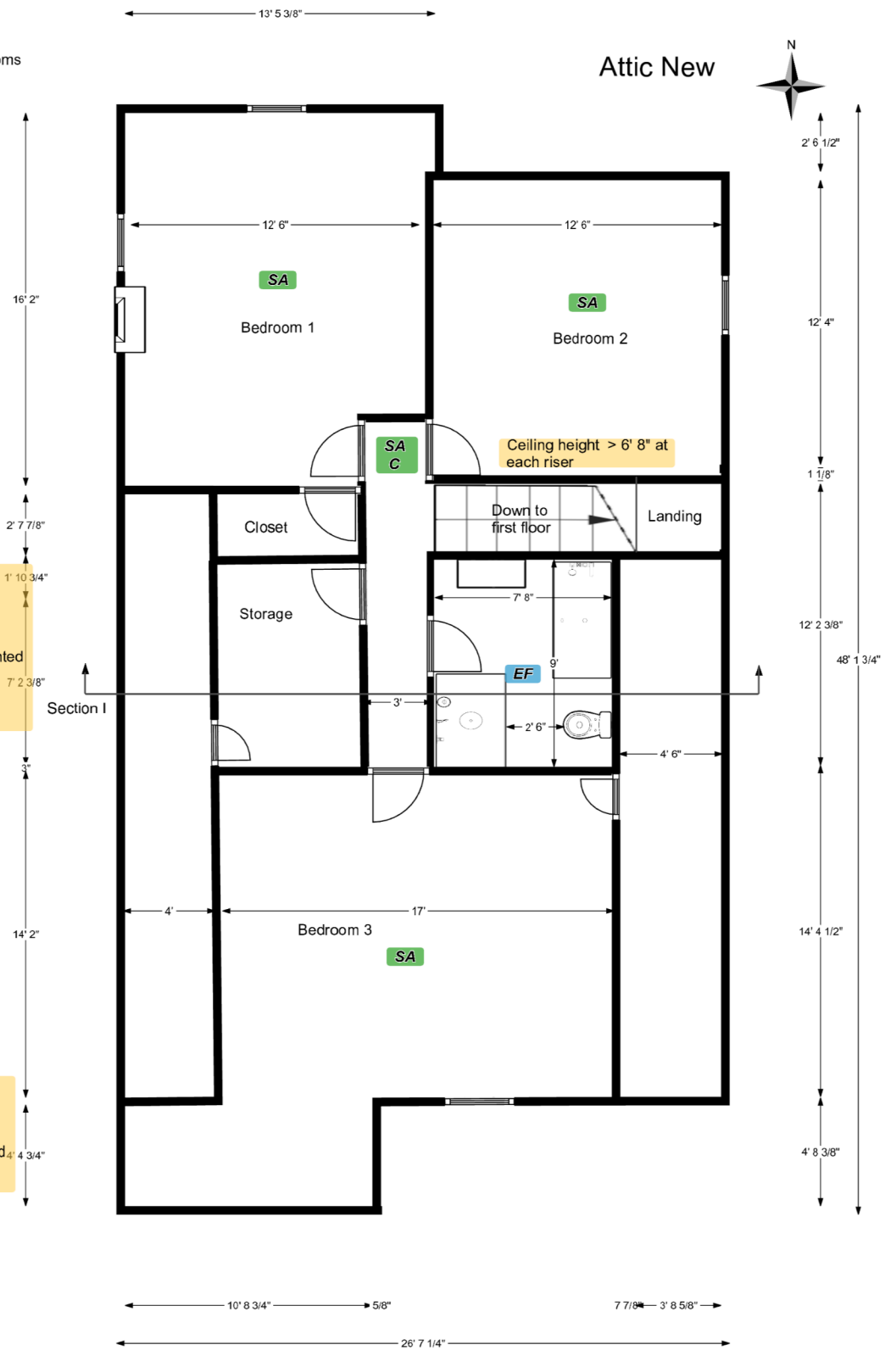
Rafters are insulated with a layer of R19 fiberglass in between the rafters, a second layer of R15 Mineral wool and an intermediate 1-inch gap of air in between the two layers to add 4 to the total R value and support thermal breaking. The mineral wool is installed between lightweight 25 gauge 2x4 metal studs which are mounted between knee wall and Collar ties. The ceiling is insulated with a layer of R19 fiberglass plus R15 Mineral wool. The knee walls complete the thermal envelope and are insulated with R15 Mineral wool. See also Section 1 Insulation drawing.

**New bathroom**

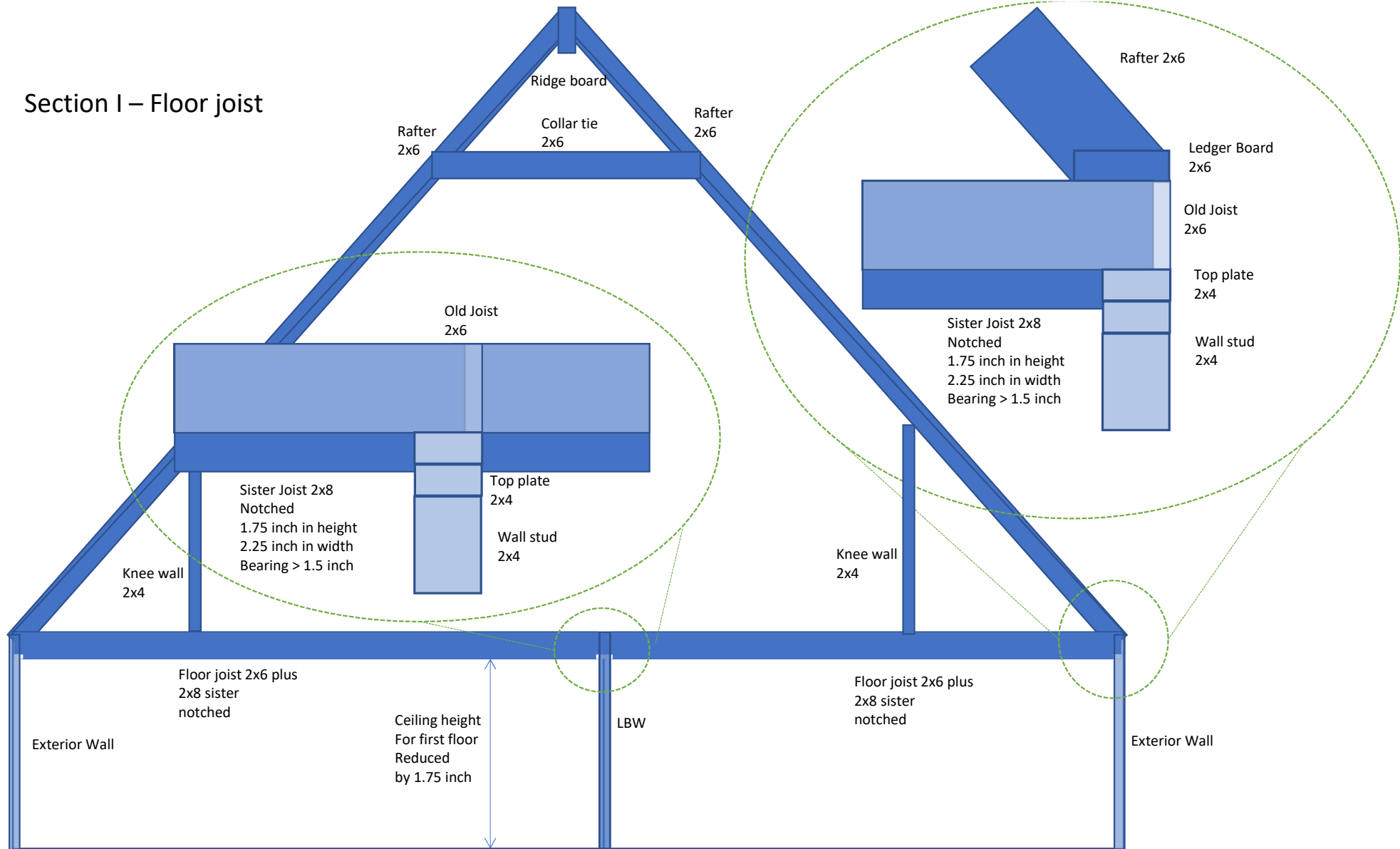
- Install shower, tub, sink and toilet as layed out.

**Application description**

Related to S21-07959 where work on the first floor including relocation of the staircase was conducted. The attic layout is adjusted to the changed location of the staircase. The layout now includes three bedrooms. The windows for the bedrooms have to be replaced to meet egress requirements. The original floor joists were not sufficiently strong and are to be reinforced.





# Section I – Floor joist

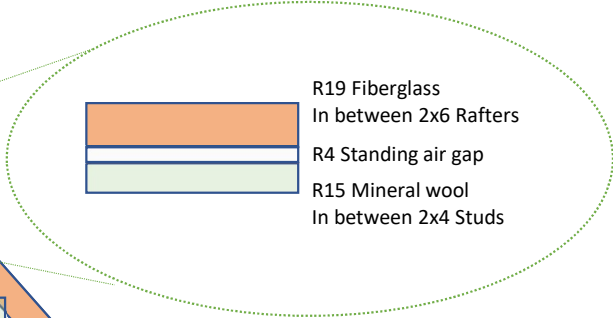
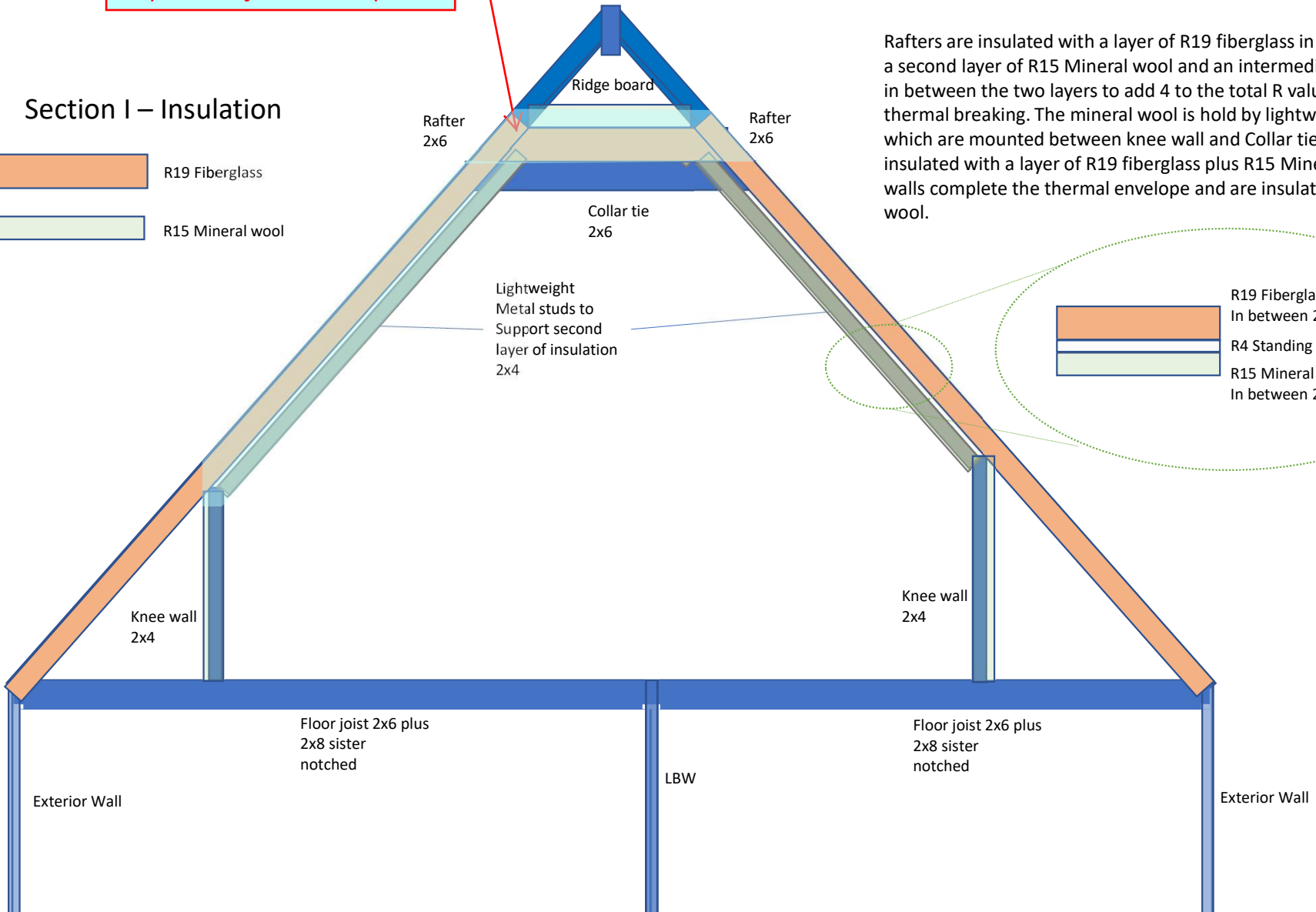


Typ. min. R-49 req'd in attics. In attics with ceilings above a reduction is R-38 permitted if insulation is extended uncompressed over top of wall plate or adjacent roof slope.

### Section I – Insulation

-  R19 Fiberglass
-  R15 Mineral wool

Rafters are insulated with a layer of R19 fiberglass in between the rafters, a second layer of R15 Mineral wool and an intermediate 1-inch gap of air in between the two layers to add 4 to the total R value and support thermal breaking. The mineral wool is hold by lightweight metal studs which are mounted between knee wall and Collar ties. The ceiling is insulated with a layer of R19 fiberglass plus R15 Mineral wool. The knee walls complete the thermal envelope and are insulated with R15 Mineral wool.



**S22-06139**

**APPROVED**

*By mejajm at 3:24 pm, Oct 28, 2022*

**REFERENCE: 2019 Residential Code of Ohio  
(RCO) For One, Two and Three Family Dwellings**

**CONDITIONS:**

1. Inspections will be made based on the approved plans, which shall be available at the jobsite at all times for review by code officials.
2. Submit either with application or at framing inspection required design data/details/calculations for all pre-engineered structural members including, but not limited to trusses, laminated beams, steel beams and lintels.
3. Wall framing shall comply with the Residential Code of Ohio Chapter 6. Minimum headers per Sec 602.7. Studs shall have full bearing on nominal 2-by or larger plate of width at least equal to the width of the studs, Sec 602.3.4. Stud size height and spacing per Sec 602.3.1.
4. The width of a hallway shall be not less than 3 feet per Sec 311.6.
5. Headers per Table 602.7(1) and Table 602.7(2). Headers shall be supported to one or more jack studs per Table 602.7(2) for interior bearing walls and Table 602.7.5 for exterior bearing walls. All supporting loads shall be transferred to grade. Footings shall be of sufficient design to transmit resulting loads to the soil within the limitations of the character of the soil per Sec 403.1.
6. Structural floor members shall not be cut, bored or notched in excess of the limitations specified in Sec 502.8 and Fig 502.8. Notches in solid lumber joists, rafters and beams shall not exceed 1/6 the depth of the member, shall not be longer than 1/3 the depth of the member and shall not be located in the middle 1/3 of the span. Notches at the ends of the member shall not exceed 1/4 the depth of the member. The tension side of nominal 4" thick or greater members shall not be notched except at the ends. The diameter of holes shall not exceed 1/3 the depth of the member and shall not be closer than 2" to the top or bottom of the member, or to any other hole or notch in the member, Sec 502.8.
7. Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-lam members or I-joists are prohibited unless permitted by manufacturer's recommendations or when designed by a registered design professional, per Sec 802.7.2.
8. Floor framing shall comply with the Residential Code of Ohio Chapter 5. Per Sec 502.1.2 structural capacities and design provisions for prefab wood I-joists shall be established and monitored in accordance with ASTM D 5055
9. Every new habitable room (living, family, recreation, dining rooms, etc.) shall have windows with glazed areas of no less than 8% of floor area. In lieu of natural light or ventilation, provide artificial light or mechanical ventilation per Sec 303. Glazed areas need not be openable unless required by Sec 310, Emergency Escape and Rescue Openings.
10. Minimum Room Areas per Sec 304: except for kitchens, habitable rooms shall have a floor area of not less than 70 sf and shall not be less than 7 ft. in any horizontal dimension.
11. Ceiling heights per Sec 305.
12. Bathrooms shall have either operable windows or exhaust fans ducted to outside, Sec 303.3 & 1505.2.
13. Bathroom fixture spacing and shower floors and walls shall be installed per Sec 307 and the plumbing code.
14. Safety glazing required in hazardous locations per Sec 308.4. Applied films meeting impact testing in accordance with CPSC 16 CFR 1201 under Sec 308 Glazing are acceptable. An impact test report from an OBBS recognized assessment body is required.
15. Interior and exterior stairways shall meet the following requirements: (Sec 311.7)

Minimum stairway width = 3' 0"	Minimum tread width = 9"
Maximum riser height = 8¼"	Minimum headroom = 6' 8"

There shall be a landing or floor at each side of an exterior door.

16. Handrails shall be 34" to 38" in height measured vertically from nosing of tread. Handrails are required on at least one side of stairs of 4 or more risers. Handrails shall be "graspable" per Section 311.7.8.5. Handrails may project a maximum of 4½" on either side of the stairway. (Sec 311.7)
17. Under-stair Protection per Sec 302.7. Enclosed accessible spaces under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with ½" gypsum board.
18. Every new sleeping room, per Sec 310, shall have at least one Emergency Escape and Rescue Opening that opens directly into a public way or to a yard or court that opens to a public way except where the dwelling or dwelling unit is equipped with an automatic sprinkler system per Sec 2904:
  - Minimum net clear opening = 5.7 SF (5.0 SF min when bottom of window is at grade level)
  - Minimum net clear height = 24"                      Minimum net clear width = 20"                      Maximum sill height = 44"
19. When new or altered bedrooms, or the area immediately outside such rooms, are included in the scope of work, provide smoke alarms utilizing photoelectric and ionization technologies; separate or dual sensing alarms may be used. Alarms shall be listed in accordance with UL 217 and installed in accordance with NFPA 72 and 2019 RCO. Locate alarms inside bedroom and in the immediate vicinity outside of sleeping room as required for new dwellings. Alarms outside of bedrooms must have photoelectric technology. Smoke alarms in new construction or accessible alterations shall be interconnected, receive primary power from building wiring, and be equipped with battery back-up. (Sect. 314). Maintain 36" clearance from diffusers, return air grills, ceiling fan blades, bathrooms and showers
20. Per Sec 315 in existing construction, carbon monoxide alarms shall be provided outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units where fuel fired appliances are used or there is an attached garage if proposed work involves: alterations, repairs and additions of a sleeping room or the area in the immediate vicinity outside of a sleeping room; an addition of or an alteration to an attached garage; an addition, alteration, repair or replacement of a fuel-fired appliance. If new sleeping rooms are created provide carbon monoxide alarms outside and in the immediate vicinity of such rooms.
21. Insulation shall meet the requirements of Chapter 11. The prescriptive method per Sec 1101.4 - 1104 and Table 1102.1.2 IS listed below:
  - Walls: R-20      Ceilings: R-49      Basement/crawl walls: R-13 batt or R-10 rigid      Slabs: R-10, 2 ft.
  - Foam plastic shall be separated from interior of building per Sect. 316.
22. Fireblocking to be provided as required in Sec 302.11 and Sec602.4.
23. Roof ventilation required per Sect. 806.
24. Attic access of 22" x 30" min with ready access is required for any attic area 30" or greater height from top of framing member to bottom of framing members and 30 or more square feet with combustible ceiling or roof construction, Sec 807.
25. A separate mechanical permit is required for work performed.
26. Plumbers shall be registered with the City of Kettering. Work shall comply with the Ohio Plumbing Code. A separate plumbing permit may be required.
27. Electrical work shall comply with the National Electric Code (N.E.C.). A separate electric permit is required for work performed
  - Receptacles within 6 ft. of edge of sinks shall have G.F.C.I. protection.
  - Bathrooms are required to have G.F.C.I. protected receptacles.
  - Provide ACFI protection in all areas as required in N.E.C. 210.12(A)
  - All AFCI and GFCI devices must be readily accessible per N.E.C. 210.8 and 210.12