Tilly Jane A-Frame
Project List

Structure Stabilization Projects

Rafter/Buttresses. The structure was found to have an adequate truss system that almost makes the buttresses superfluous. The building will remain stable as the buttresses are cut and removed.

Excavate holes to 2-foot depths for boulder footings

Break up concrete abutments, use as crushed rock for base filler.

Fill remainder of holes with ¾ minus gravel.

Compact gravel base.

Set boulder on gravel base, use largest surface area on boulder to support replacement logs.

Pour approximately 4 shovel fulls of cement powder (see Appendix A) onto gravel base and wet.

Cut off rotten rafters leaving as much solid wood as is available for half-lap splicing (Figure 1).

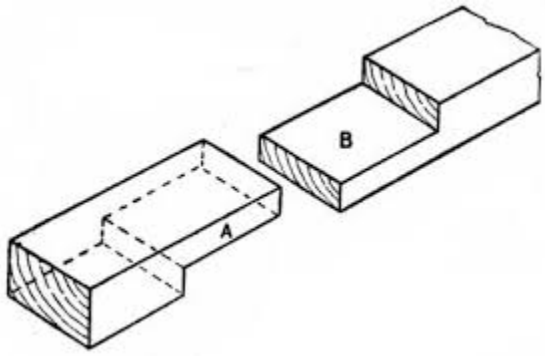


Figure 1. Half-lap splice**.**

Replace rotten lower sections with locally derived logs (Pacific silver fir, hemlock).

Match existing log diameters with new logs.

Treat lower ends of logs with Chromated copper arsenate (CCA). http://www.fs.fed.us/t-d/pubs/htmlpubs/htm06772809/index.htm

Secure spliced logs with two bolts 5/8" diameter, preferably 2-feet apart at both ends of splice.

Bolt heads can be counter sunk to show less.

Splice bolts should be unobtrusive, black or rust-colored.

Lower ends of logs to be anchored to boulders using mechanincal anchor. (see Appendix A – Simpson Titen anchors for

wood into rock or concrete). Anchor can be either toe-nailed (angle-drilled)
into sides of log and into boulder, or hidden from, underside. Drill holes to be plugged with wood plugs.
Treat entire log with clear preservative (see Appendix A).

After boulder settles (one year later) drive cedar shims to re-secure log/boulder connection.

However, the three buttress braces on southwest corner are currently supporting a portion of the structure and will require support as these are replaced. Jack up building to allow for removal of wood posts, then lower back onto new posts as needed.

Stabilize spreading logs at gable apex (Figure 2) with a gusset plate and threaded rods.
Gusset plate and rods should be unobtrusive; black or rust colored.
Threaded rods to travel through roof into logs.

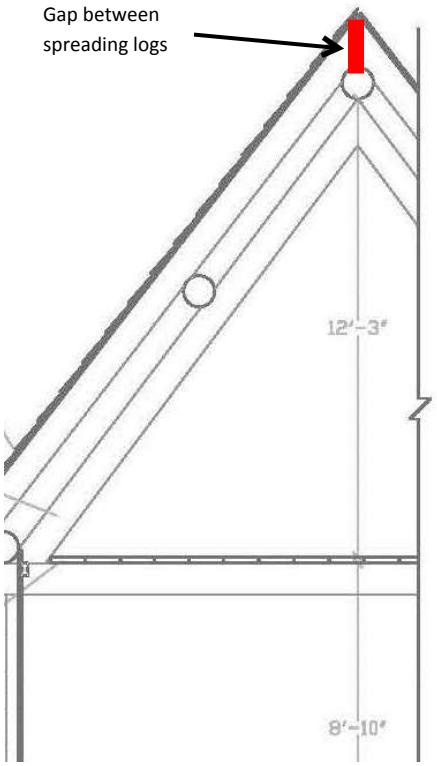


Figure 2. Log spread at gable apex.

Drainage around structure should be improved following natural slope. The north half of the slope around the structure trends to the north, while the southern half trends to the south. Remove (excavate, rake) all material for at least 6-inches

below any exposed wood around entire structure. Treat all exposed surfaces, including roof, with clear preservative (see Appendix A).

Other Projects

Loft flooring should be improved. Beams are not adequate for the span to support existing floor and people loading.

Add 5/8" threaded rods with large washers and nuts or other supports attached to rafter and beam (Figure 3).

Reinforced attachments should be placed 3-feet out from each end of beams.

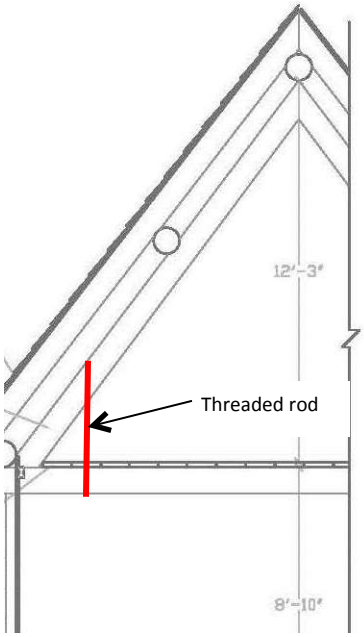


Figure 3. Beam support placement.

Floor should be brought to same level to avoid tripping hazard.

Secure floor support (2"x6") to beam (Figure 4) with lag bolts or similar screws (see Appendix A)

Cut off newer floor boards (non-T&G) to butt against existing T&G flooring and be supported on newly added floor supports attached to beams.

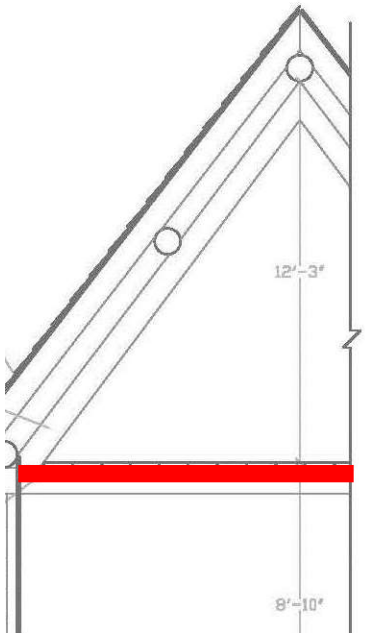


Figure 4. Floor support board shown in red.

Add 2”x4” boards perpendicular across flooring, spaced 2-feet apart. Secure with 3” heavy drive screws.
Add 1 1/8” plywood across newly added 2”x 4” boards. Secure with screws. Plywood should extend across gaps in flooring near edge of roof.

Additional cross-bracing should be added to interior rafters to match other rafter ties. Also painted brown to match existing.

Additional balusters should be added to porch railing, stair railing, and stovepipe railing.
Maximum of 4” space between balusters to meet residential code.
Spring-loaded gate should be added to main stairway entrance.

Glow-in-the-dark “Exit” signs should be added at each door/stairway and the northern window.

Caution tape should be added to entrance/exit of higher southern loft area.

An additional smoke detector should be added in the southern loft area.

Fire extinguishers should be mounted off of the floor.

Main stairway does not meet code. Should be moved against wall to provide adequate (More code compliant) tread depth and riser height. https://ems-team.usda.gov/sites/fs-eng-lookouttowers/SitePages/Common%20Problems.aspx

Loft interior should be painted with white semi-transparent stain to reflect light and help make spaces more livable.

Holes in concrete floor should be chiseled out, filled and leveled with a concrete patch approx. 3 inches thick.

Remove dangerous tree against southwest corner. There are materials available to cushion and shield the roof from falling branches.

Re-shake roof.

Paint shiny stove pipe a matte gray finish.

Appendix A – Examples of Acceptable Materials

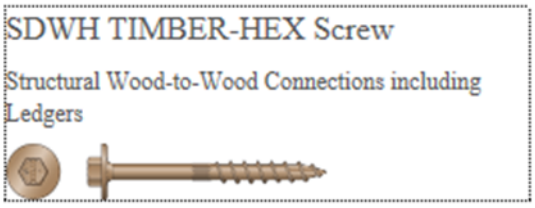
PORTLAND CEMENT

QUIKRETE® Portland Cement (No. 1124) complies with current A
be mixed with aggregate and other ingredients to make concrete m
and Type III.

Available in:
47lb. bags - 63 per pallet
94lb. bags - 35 per pallet

Cement is an irritant and need you to wear gloves and eye protection when working with it. It can burn you.

Example of a product for treating logs and exterior wood siding to prevent rot now and in future. Spray it with weed sprayer and brush in as needed. Allow it to soak in good.



Example of an acceptable connector for use in the floor supports.

Titen HD Anchor Product Data - Mechanically Galvanized

Size (in.)	Model No.	Drill Bit Dia. (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
⅜ x 5	THD37500HMG	⅜	9/16	50	100
⅜ x 6	THD37600HMG			50	100
½ x 5	THD50500HMG	½	¾	20	80
½ x 6	THD50600HMG			20	80
½ x 6½	THD50612HMG			20	40
½ x 8	THD50800HMG			20	40
⅝ x 5	THD62500HMG	⅝	15/16	10	40
⅝ x 6	THD62600HMG			10	40
⅝ x 6½	THD62612HMG			10	40
⅝ x 8	THD62800HMG			10	20
⅝ x 5	THDB62500HMG	⅝	15/16	10	40
⅝ x 6	THDB62600HMG			10	40
⅝ x 6½	THDB62612HMG			10	40
⅝ x 8	THDB62800HMG			10	20
¾ x 8½	THD75812HMG	¾	1 ⅛	5	10
¾ x 10	THD75100HMG			5	10

1. Mechanical galvanizing meets ASTM B695, Class 65, Type

Example of an acceptable mechanical anchor for attaching log buttresses to boulder base supports.