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KITSAP COUNTY
PARKS & RECREATION

November 1, 2014

Dori Leckner
Kitsap County Parks
614 Division Street, MS-1
Port Orchard, WA 98366

Dear Ms. Leckner:

This letter is a report of my findings and recommendations concerning the Single Family Residence located on Kitsap County Park property at 19235 NW Stavis Bay Road in Seabeck, WA. The residence is a post & beam wood frame structure supported on treated wood pilings laid out in a grid 10ft o.c., with the exception of pilings along the southern edge of the deck which are 12ft from the adjoining line of pilings. A layout with gridlines for reference has been included (Image 1). When you contacted me in August you asked that I visit the site and make an assessment of the existing deck framing and 1 or 2 of the support piles for the residence. On September 8th I was able to visit the site where I met with the current tenant, Brian Bailey. Brian was able to show me around and point out the pilings that were of concern.

Deck Framing

The deck is located on the southern end of the building and wraps part way around the west side. There are two distinct areas of framing. The first area is located between gridlines A & B and extends from gridline 2 to gridline 5. This portion of the deck is partially supported by pairs of cantilevered 4x12 beams extending 6ft past the pilings of gridline B to gridline A.5. A 4x12 beam is attached to the ends of these cantilever beams with conventional light gage steel hangers (Image 2). This 4x12 supports additional 4x12 beams that span the last 6ft to the pilings at gridline A and cantilever out an additional 18 inches where they support another 4x12 beam from gridline 2 to gridline 4 and a (2)2x12 beam between gridlines 4 & 5. This beam and the one located at gridlines A.5 support 2x6 deck framing at 16" o.c. that spans from a ledger at gridline B to 2ft past gridline A. This results in the joists cantilevering 6" past the last beams. The 4x12 beams that cantilever out from under the main floor of the residence appear to be in good shape. However, the 4x12 located at Gridline A.5 has some soft spots when probed with a scratch awl. The beams that extend from gridline A.5 out past the pilings at gridline A also have rot damage, and the connections to the last beams are failing as a result. In fact the connection at the southeast corner, nearest to piling 2A, has completely failed (Image 3). This has caused the beam to deflect downward putting additional stress on the connection closest to piling 3A. This connection has begun to fail from the stress and the presence of rot in the supporting beam (Image 4). The connection closest to the piling at 4A is also beginning to fail as a result of rot in the supporting beam (Images 5 & 6). The tenant has roped off the southeast corner of the deck above to prevent access, and limit the impact of any additional live load.

The second area of deck is located between gridlines 5 & 6, and extends from gridline A to gridline D. This area is framed with 2x8 deck joists @ 24" o.c. that are supported by a ledger at gridline 5 (Image 7) and cantilever 2ft past beams located at gridline 6 (Image 8). The ledger at gridline 5 is nailed in place. Current codes would require the use of lag screws or thru-bolts to avoid the loading of nails in withdrawal during a seismic event or some other cyclic live load. The beams at gridline 6 consist of 4x10's on the inside face of the pilings and (2)2x10 beams on the outside face. The 4x10's have some rot when



probed with a scratch awl, and when tapped sound hollow indicating there may be extensive rot in the interior core of the beam. Additionally, deck beams are spliced to the ends of 4x12 beams supporting the house at piling 6D (Images 9 & 10). While this connection does not appear to be in distress, it can be described as non-standard at best.

I recommend the careful de-construction and rebuilding of the existing deck. When the existing decking surface is removed, the tops of all beams should be checked for any decay that was not observable at the time of my visit. All of the damaged or rotting beams or joists should be replaced with identical new pressure treated material. The new 4x12 beam at gridline A.5 should be hung from the cantilevered house 4x12's with inverted Simpson HU412 or HUC412 hangers. The new 4x12's that extend from gridline A.5 to cantilever over the piling along gridline A should be attached to the 4x12 at gridline A.5 with Simpson HU412 hangers in standard orientation. The new exterior 4x12 beam at exterior edge of the deck framing should be hung from the cantilever 4x12's using inverted HU412 hangers. Additionally, I also recommend that the connections of all existing ledgers be supplemented by the use of Simpson SDWS or SDWH wood screws at least 3" long staggered @ 12" o.c.

Pilings

The support pilings for the residence consisted of treated wood poles with tapered profiles. The piling diameters were approximately 14 inches at ground level. The majority of the pilings observed were in good shape. Three of the piling had some damage at their base at ground level. Piling 1D had minor insect damage at ground level. Piling 5C has some minor damage at ground level of an undetermined origin. Piling 2C (Image 11) was the worst of the three, and had an area of insect damage approximately 2 inches square at the surface and extending 3 to 4 inches into the piling. At the time of my visit, a pest control specialist was on site to apply insect spray to the pilings in order to eliminate any ongoing infestations.

While I was on site Brian Bailey showed me some of the piling inside the residence that he was concerned about. The pilings 1E, 1F, 3B, 3C, 3D, 3F, 4C, 5C, 5D, & 6D all had vertical cracks along the grain lines (Images 12 thru 16). The cracks varied in width, with some as wide as 1 inch at the surface. According to Brian, the cracks had primarily appeared after the Nisqually earthquake in 2001. These cracks, while aesthetically unpleasant, do not appear to have affected the ability of the pilings to support the weight of the structure. No damage was observed that may have compromised any of the beam to post connections.

At this time I do not recommend the need for repairs to any of the pilings. However, all of the pilings should be monitored to ensure there are not any new infestations of insects. I recommend that the size and locations of the vertical cracks in the above mentioned pilings be documented. If the cracks worsen, or new cracks appear following any new seismic activity, the pilings should be evaluated by a design professional specializing in the repair of wood pilings or utility poles.

If you have any question, please do not hesitate to contact me.

Sincerely,

Mark Myers, P.E.





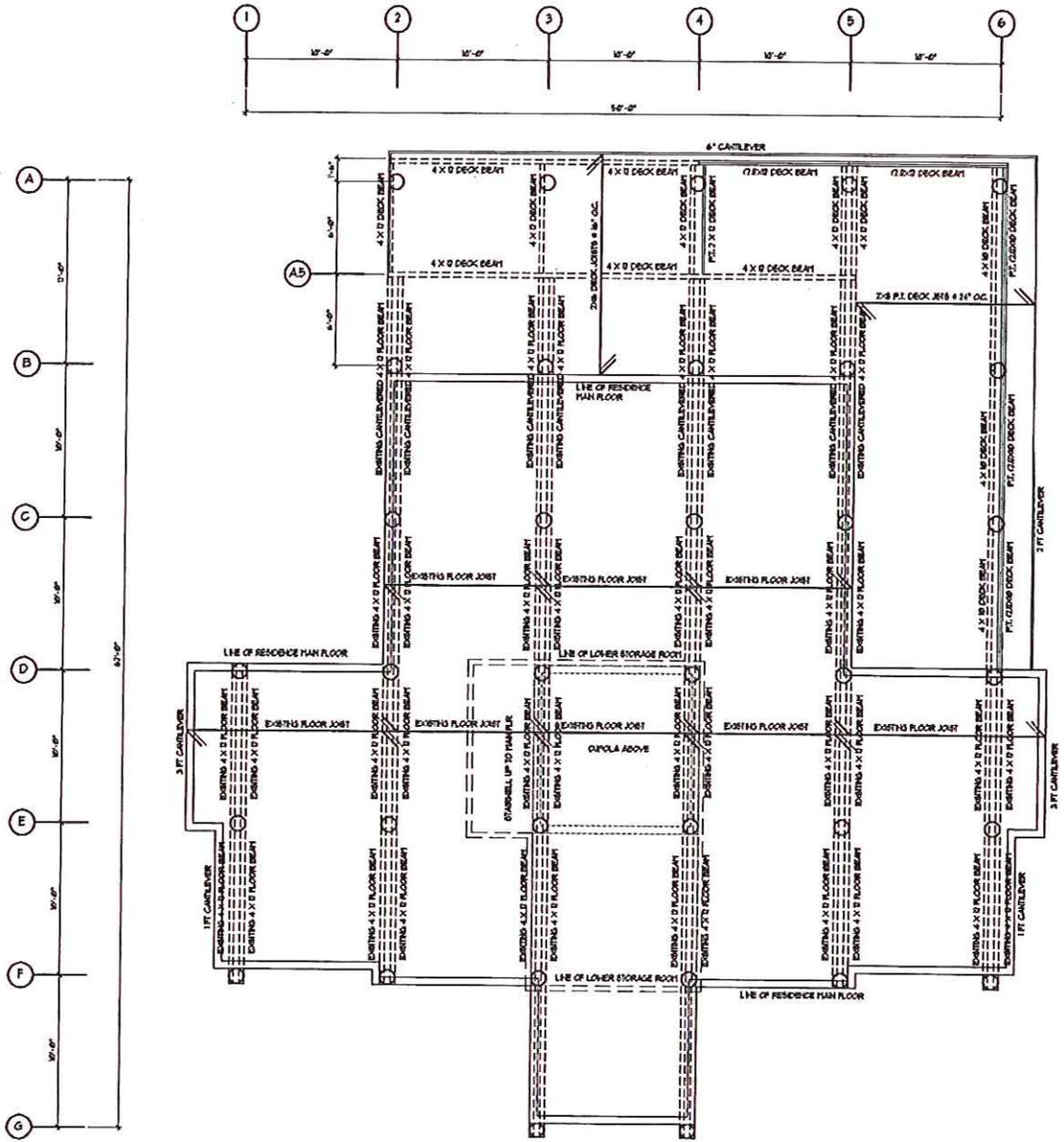


Image 1





Image 2



Image 3

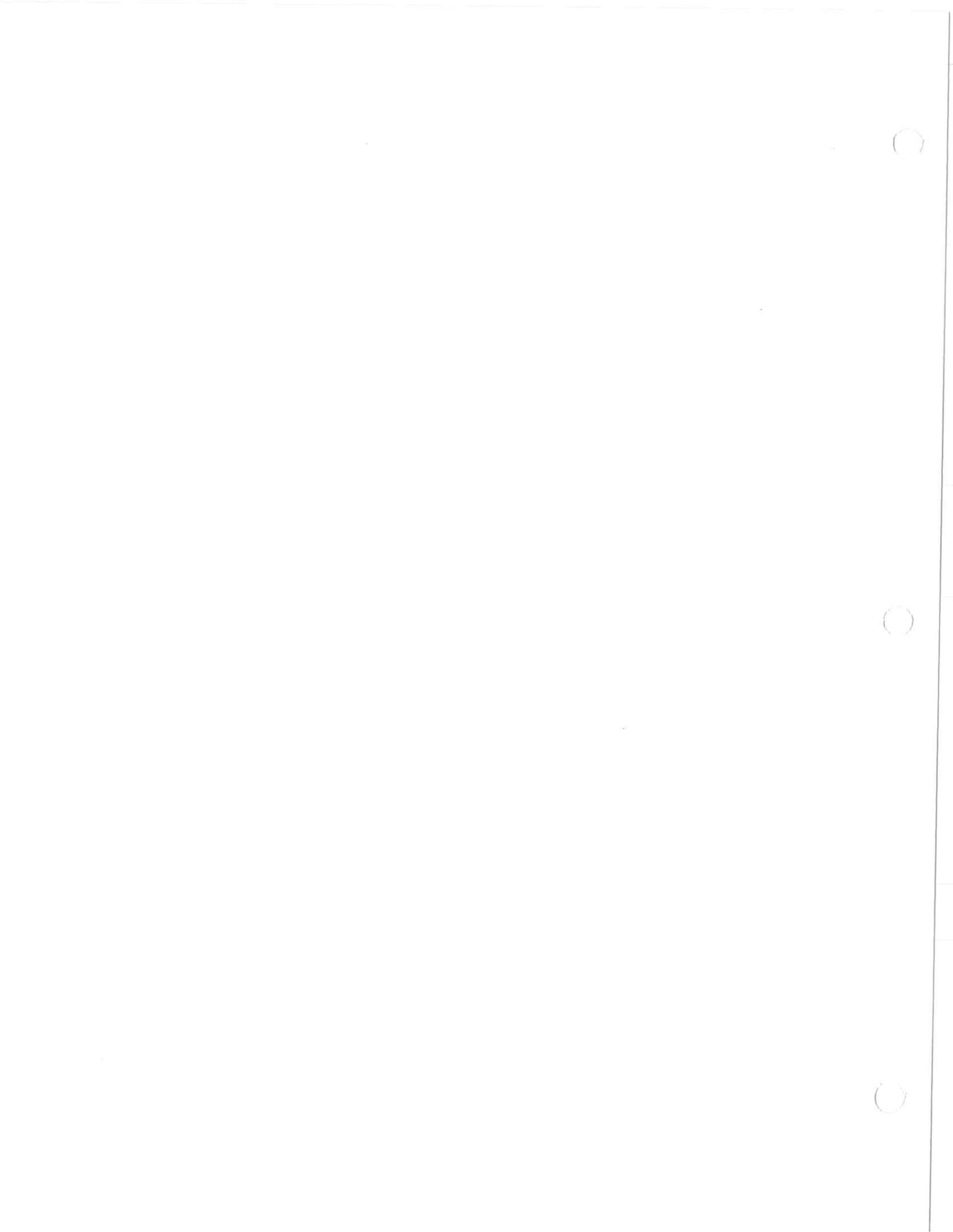




Image 4



Image 5





Image 6



Image 7





Image 8



Image 9

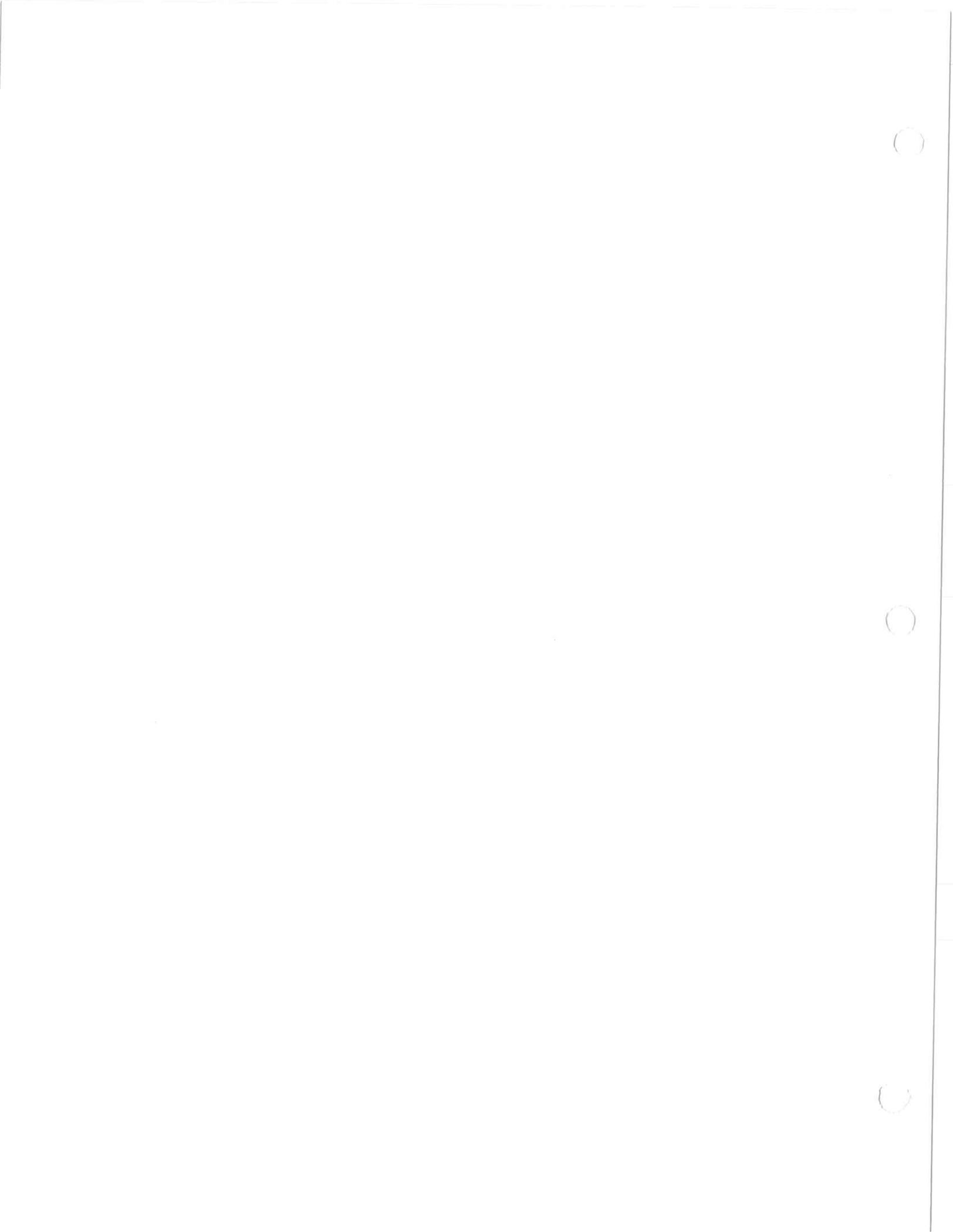




Image 10



Image 11



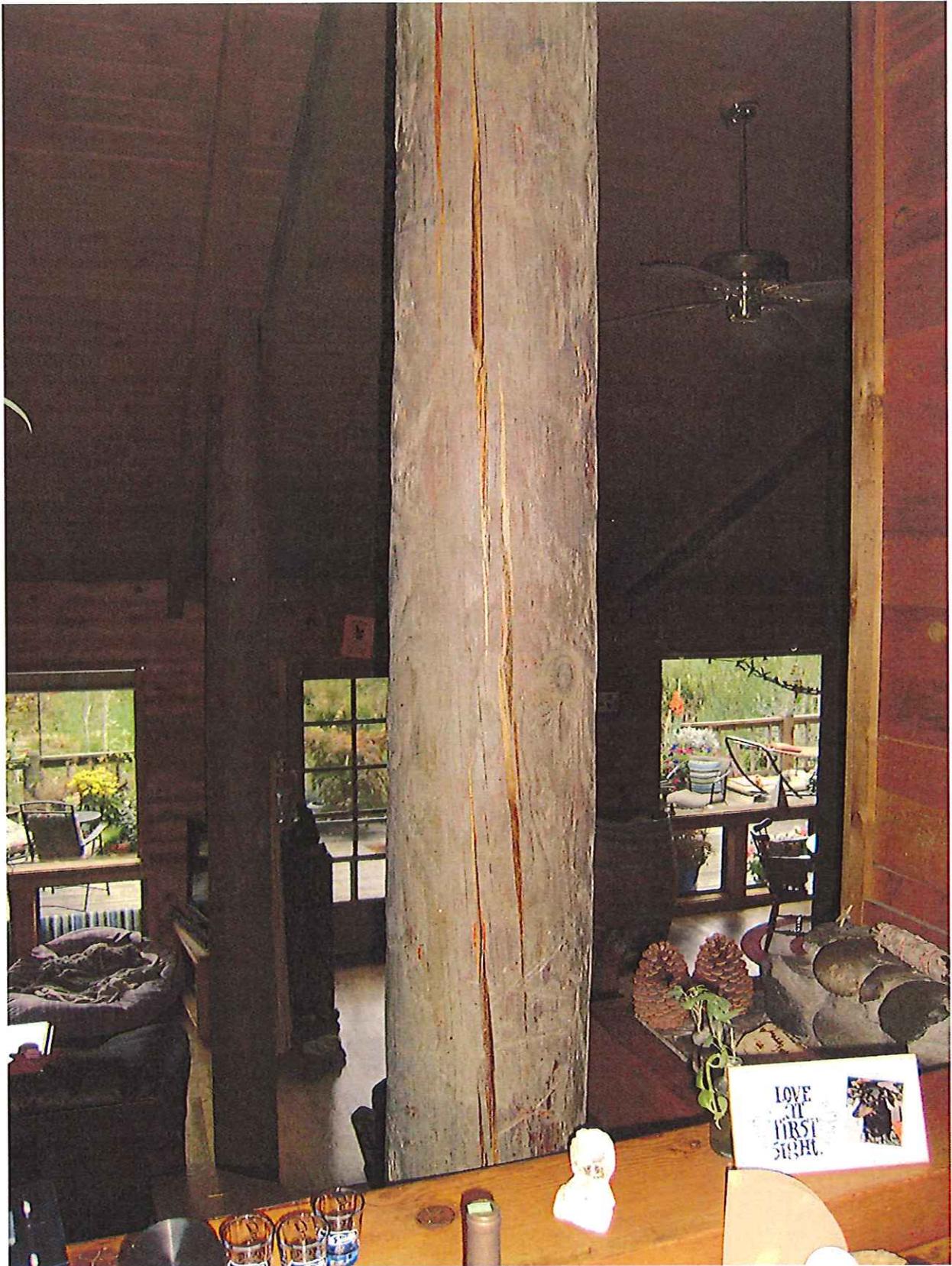


Image 12



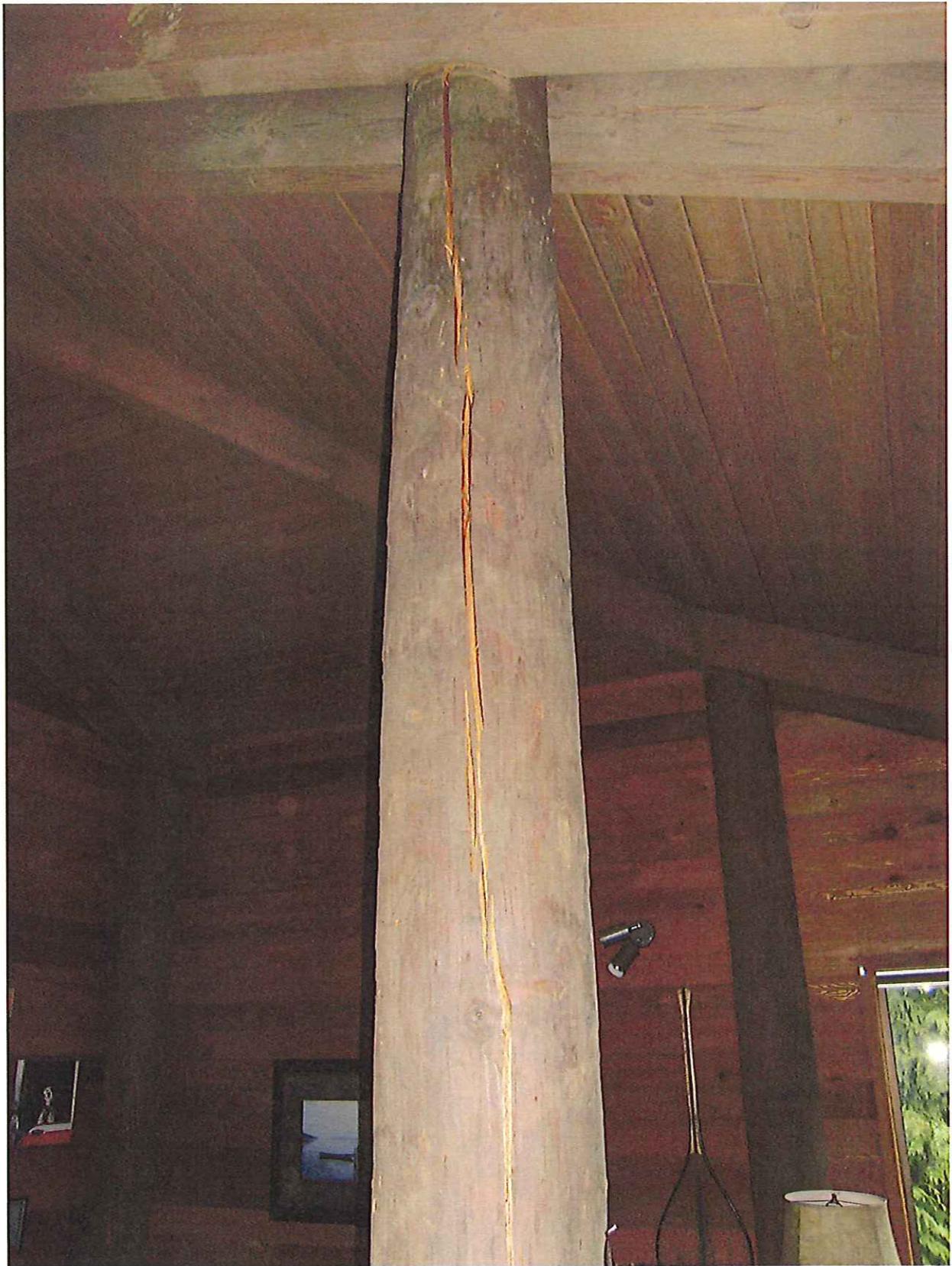
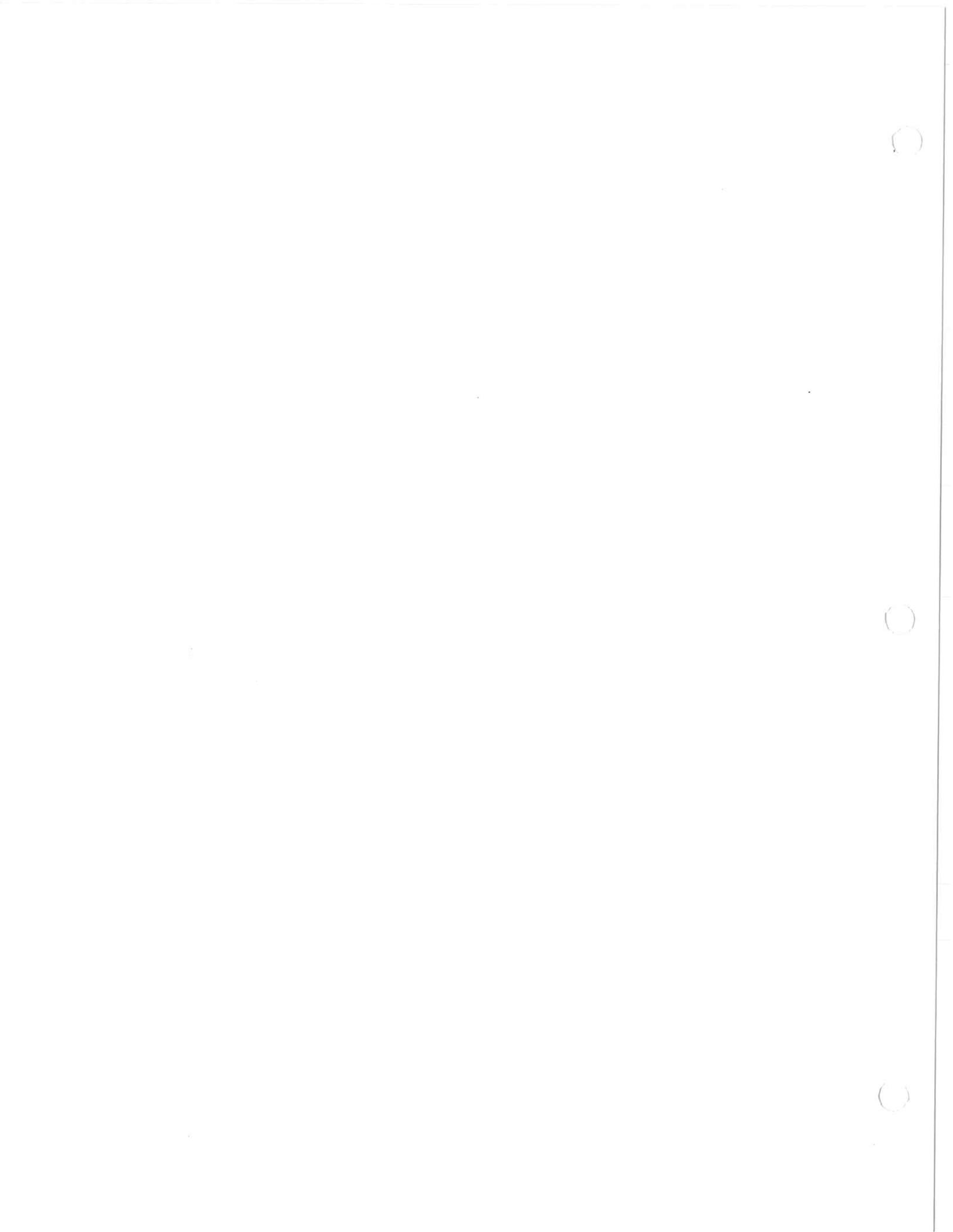


Image 13



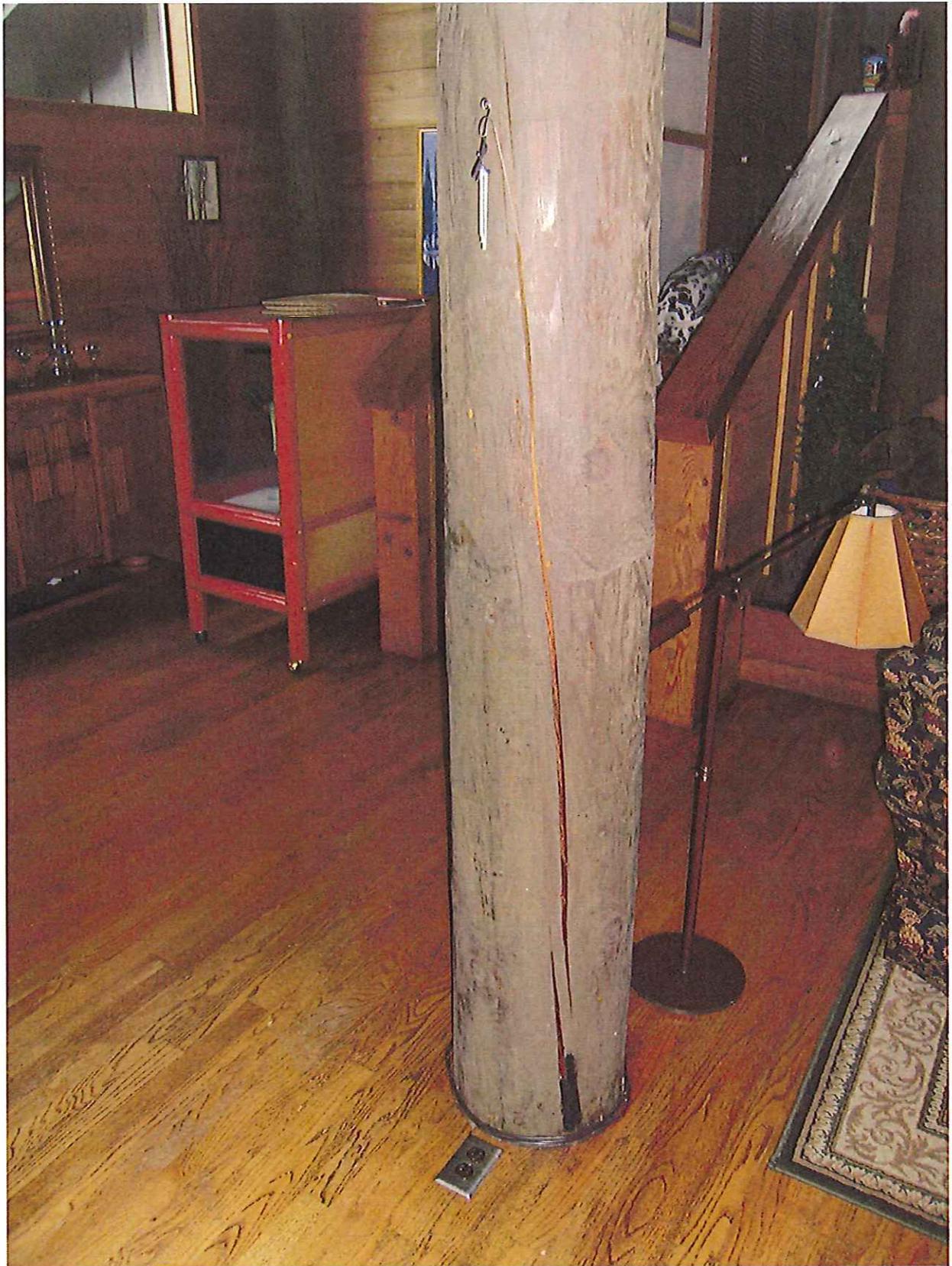


Image 14





Image 15





Image 16

