INSPECTING *VIGAS* AND CORBELS

This section briefly explains how to inspect *vigas* and corbels and how best to preserve, repair or replace them.

The method developed for the repair of *viga* ends uses a threaded glass fiber rod to join new ends to existing *vigas*. The advantage of using glass fiber rods is that pieces of wood replaced in this manner may be unscrewed and replaced again as the need arises. The disadvantage is that this method can only be done utilizing one rod, ideally installed at the center of the cut face of the *viga*, since the new *viga* end is designed to be screwed into place. (See Part Three, *Repairing Vigas and Corbels* for directions on how to obtain threaded glass fiber rods from a distributor in the Southwest.)

Corbels have a decorative value and a structural role in supporting the *vigas* that rest on them. In making the decision to replace embedded corbel sections, it is advisable to first confirm the bearing strength of the *vigas* themselves with a structural engineer. Every effort should be made to conserve as much of the decorated corbel and viga face as possible. Consider performing minor repairs, consolidation, and/or splicing techniques. Other solutions, such as replacement, should be considered only if the *vigas* and corbels are not salvageable or if excessive wood deterioration is found at the mid-span of the *viga*. The *viga*, most likely, will need to be replaced if wood deterioration exceeds 60% of the structural volume of the *viga*.

Before beginning the step-by-step inspection process described below, each *viga* must be assessed for structural stability. Look for failures, damages from moisture, insects or fungus invasions, and any risk of partial or complete collapse.

Above: The pigmented *latillas* and decorated *vigas* in the ceiling of the Socorro Mission in Socorro, Texas. Photo: Ed Crocker.

TOOLS AND MATERIALS REQUIRED


Auger bit


Awl (punch)


Drill


Gloves


Goggles


Ladder


Measuring tape


Pointed hand saw and key hole saw


Rubber mallet


Scaffolding


Wood dowel

Wood glue

Begin by making a general assessment of the *vigas* and corbels in the building.

1. Look for vertical cracks: Verify that the *viga* does not have vertical failures (cracks or fractures). Notice that horizontal failures usually appear as normal, dry checks in the wood fiber structure of the *viga* and typically do not affect its structural integrity.

2. Localize vertical cracks: If vertical cracks occur in the middle load-bearing area of the *viga*, consider asking an engineering consultant to determine the appropriate type of intervention. Furthermore, structural repair in the middle of load-bearing areas may cause adverse visual impacts. If this should be the case, consider removing and completely replacing the *viga* to match the original.

3. Assess erosion: Permanent or casual water infiltration results in moisture retention in the *vigas*. Moisture retention contributes to the growth of fungi spores that aggressively soften the wood and, as a result, attract burrowing insects.

4. Determine extent of erosion: Erosion may be concentrated in specific areas or all along the *viga*. To assess the depth of decayed wood, remove softened wood until solid wood is reached. When the softened wood has been removed, estimate the volume of solid material remaining: If the remaining solid wood is 60% or more of the total original volume, the *viga* should be consolidated (preferably using a dutchman). If this is not the case (less than 60% of the original volume is solid wood), consider splicing the decayed section of the *viga* only at its end. For more information on using a dutchman or *viga* splicing, see Part Three, *Repairing Vigas and Corbels*.

Once a general assessment has been made of the structural stability of the *vigas* and corbels, a reflected ceiling plan of the building should be drawn. Use the example below as a guide to the rest of this section. Inspection sheets are provided for your use at the end of this section. The following step-by-step guide outlines how to inspect *vigas* and corbels for deterioration and rot.

5. Pick at the *viga* or corbel with an awl to assess deterioration. Looking for soft wood that indicates rot.

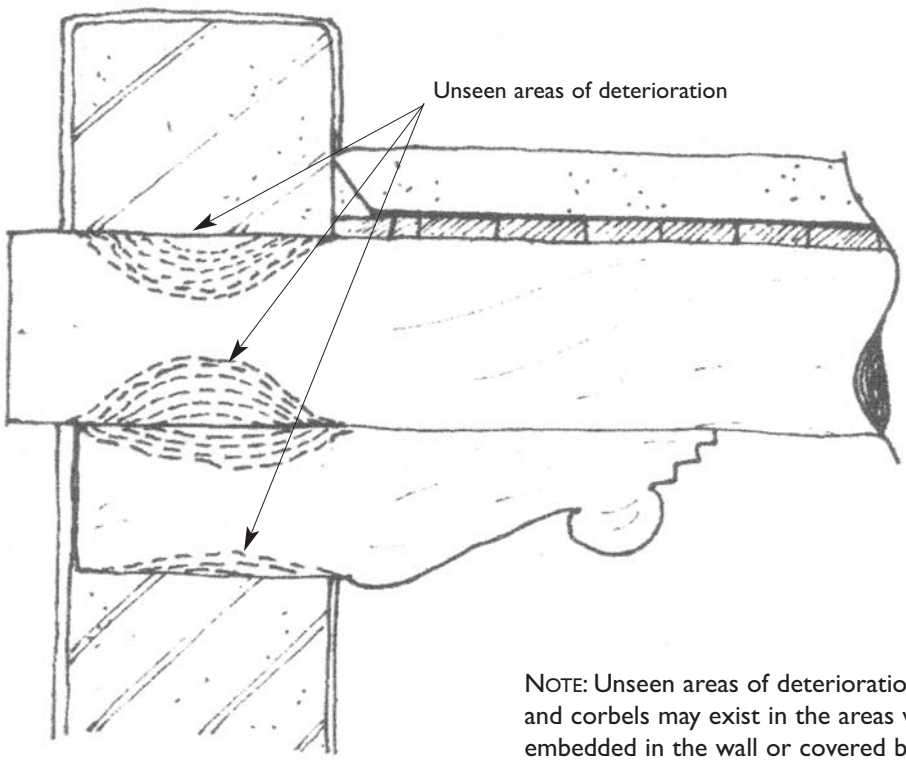
6. Set up scaffolding or a ladder close to the *vigas* to be inspected. Begin by lightly tapping the *viga* and corbel from all sides with a mallet. Carefully listen for a hollow or solid sound.

7. Using a 1/4-inch self-feed auger bit, drill into the *viga* at a 30° to 45° angle from the point where the *viga* meets the face of the wall. The wood is sound as long as the bit self feeds If the bit fails to feed, there is a likelihood of rot. Remember to drill the outside ends of the *vigas* as well.

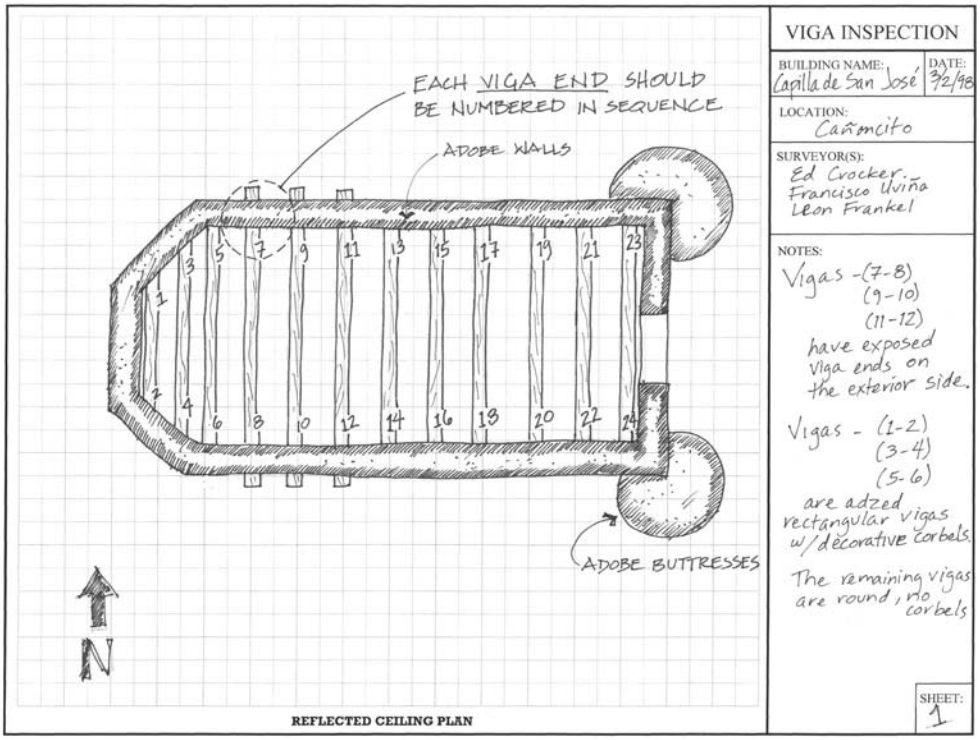
8. The cuttings from the drill will tell much about the condition of the wood. Sharp, curly cuttings with good color and a strong pine or pitch smell indicate solid material. Dry, faded and crumbly cuttings with no scent indicate rot.

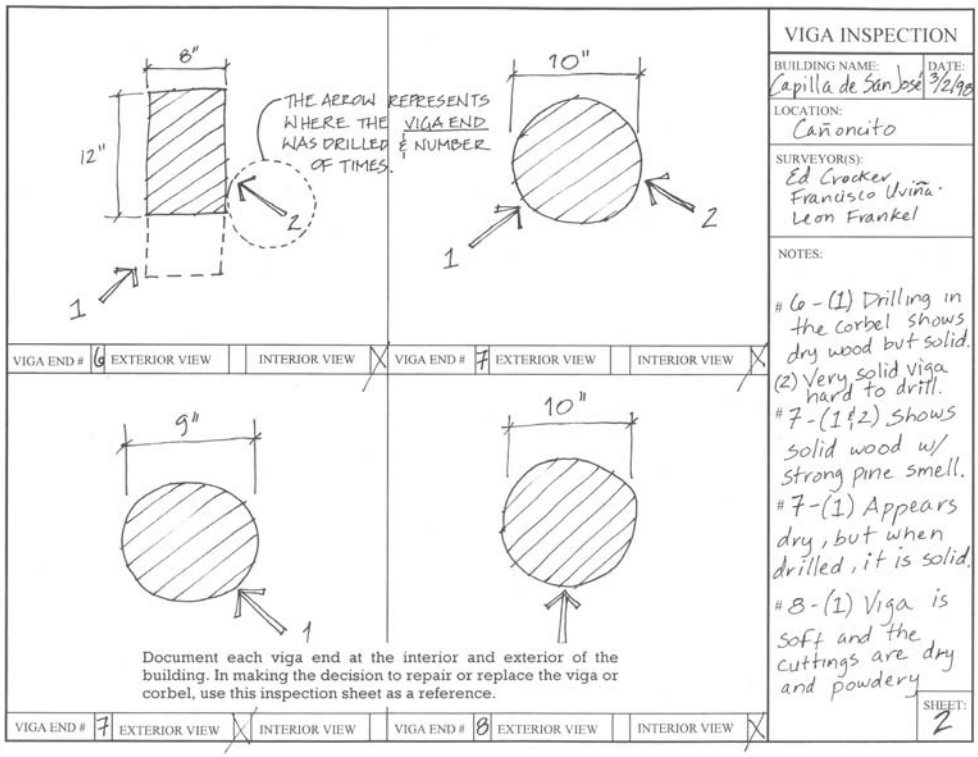
9. Plug the hole using a 1/4-inch wooden dowel. Apply wood glue three inches from the end of the dowel and spread with your finger. Push the dowel into the hole as far as it can go. Cut the dowel flush with the *viga* using a keyhole saw.

10. Repeat the process and document your work following the sample diagrams provided. *Viga* ends or corbels that are damaged should be exposed for a more precise assessment and should be repaired or replaced according to the extent of the deterioration present (see Part Three, *Repairing Vigas and Corbels).*



NOTE: Unseen areas of deterioration in both *vigas* and corbels may exist in the areas where they are embedded in the wall or covered by the parapet.





Examples of completed *Viga* Inspection Forms, side 1 and 2.