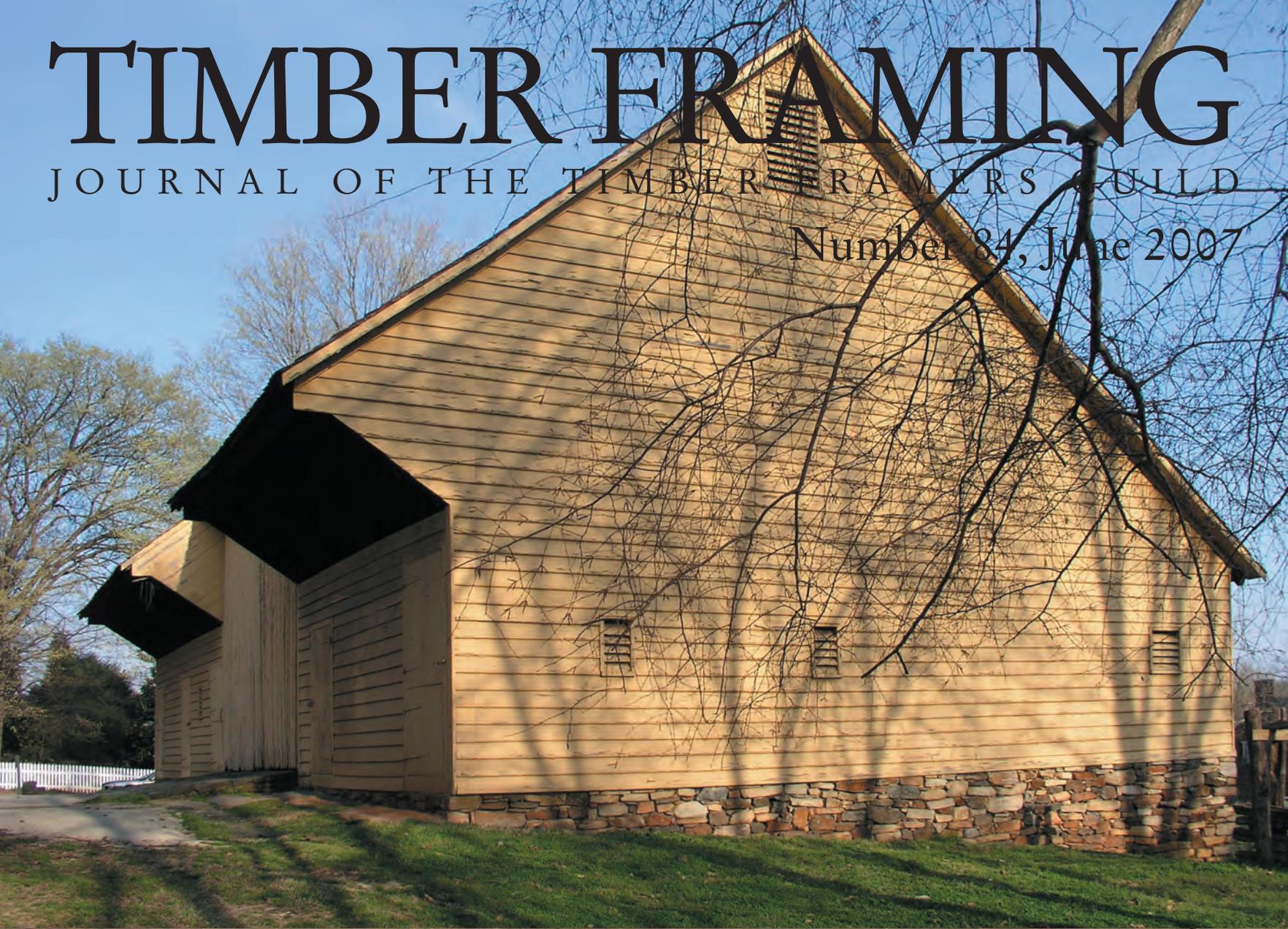


TIMBER FRAMING

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TTRAG at Old Salem

inside will be for a bathroom. Outside, earthen ramps will rise to swinging barn doors hung from strap hinges, and the original threshing floor planks will be reinstalled as finish flooring.



Photos and drawings Shaun Garvey
Fig. 1. *The Chase barn as found, apparently 19th-century.*



Fig. 2. *English barn cut and spread apart, with new roof framing.*

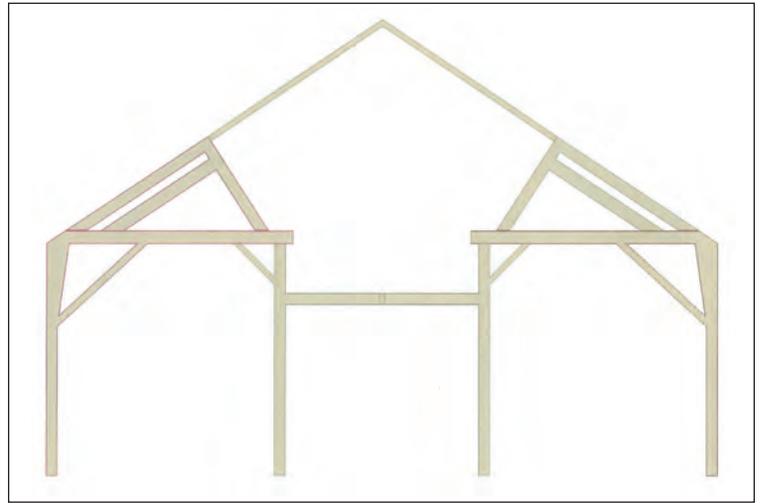


Fig. 3. *Cross-section of the 40x65-ft. Chase barn as found, with cut and spread tie beam and canted purlin posts. English tying joints were first clues to barn's origin as two 30x40-ft. English barns.*

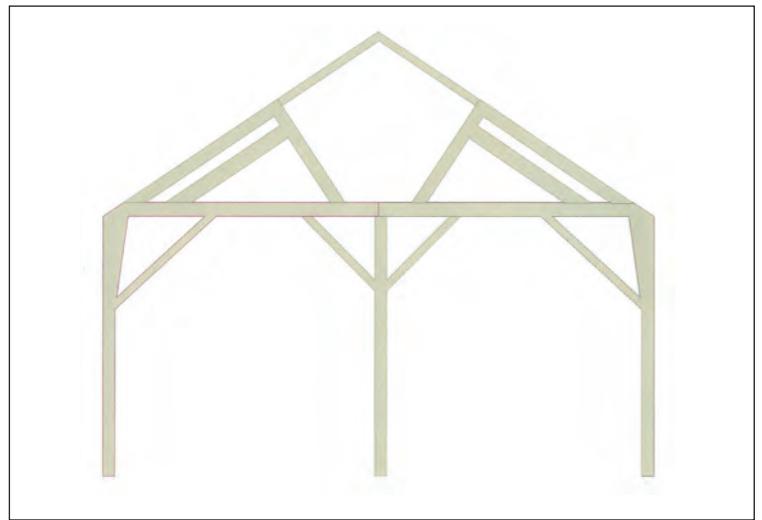


Fig. 4. *Cross-section of barn rebuilt as house frame on new site.*

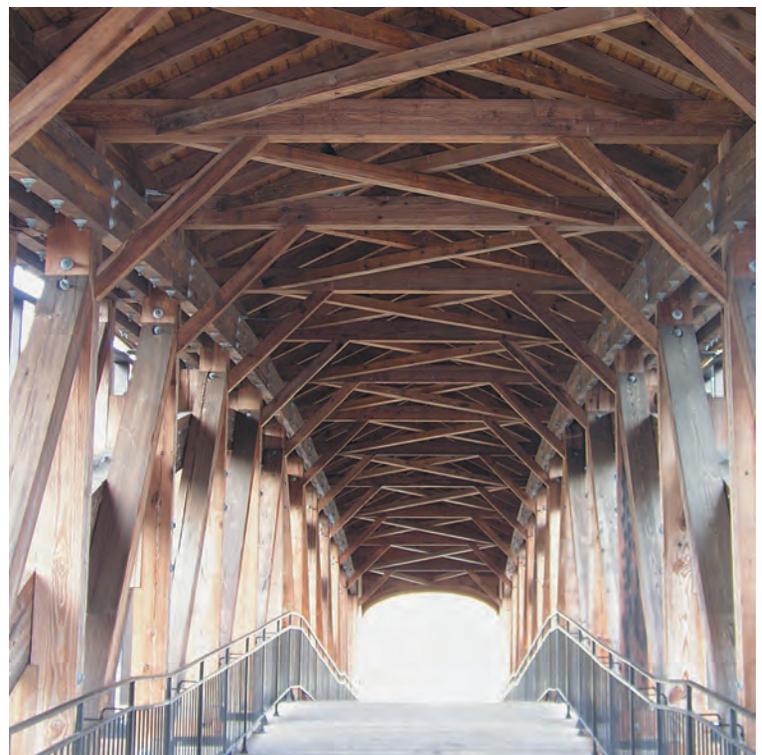
Projects at Old Salem, North Carolina

David C. Fischetti, P.E.

A UNIQUE covered pedestrian bridge passes over Highway 52 and connects the Visitor Center and the Museum of Early Southern Decorative Arts at Old Salem, site of North Carolina's first Moravian community (Fig. 1). To enhance and blend with the cultural landscape and historic architecture of Old Salem, several types of covered bridge structures were considered. The final choices were the Burr arch truss and the Town lattice truss. The Burr truss is a two-hinged arch combined with multiple kingpost truss; the arch affords great stiffness. The Town lattice has many redundant members; it affords great toughness. Though Theodore Burr's patent of 1817 claimed nothing but the arch combined with a multiple kingpost truss, it became the most popular covered bridge structural system in the United States (see TF 78).

The Moravians arrived in Salem in 1753 from Bethlehem, Pennsylvania. Of the seven surviving covered bridges in Lehigh and Northampton counties near Bethlehem, all are Burr trusses. This was likely the type of bridge that the Moravians would have constructed for themselves during the first half of the 19th century.

THE roof structure of the ca.-1785 Single Sisters' House at Old Salem consists of principal and common A-frames with both collar



Ken Rower

Fig. 1. *Covered pedestrian bridge at Old Salem, N.C.*



David C. Fischetti above and below

Fig. 2. Repairs to a principal frame at the Single Sisters' House, Old Salem.



Fig. 3. A pair of light steel trusses now support the steeple in the attic of St. Philip's Moravian Church. Main roof trusses are composite vernacular queenrods.



Old Salem Museums & Gardens

Fig. 4. Reconstruction of the 1823 Moravian Log Church.

beams supporting the upper attic and tie joists supporting the third floor. Timber frame work required traditional timber repairs to the ends of the floor joists and to the lower portions of principal and common rafters (Fig. 2).

OFTEN a building is placed on marginally adequate soils without benefit of a deep foundation. Consolidation can produce quite dramatic amounts of differential settlement. The 1890 addition to the 1860 St. Philip's Moravian Church in Salem was constructed on a portion of a preexisting cemetery. The underpinning of St. Philip's Church provided an opportunity to repair the large cracks in the addition by pulling sections of the wall together. Once the gaps were closed, the cracks could be repaired by a combination of masonry rebuilding and stitching. By necessity, the masonry repairs had to occur after the walls were fully supported by the underpinning system consisting of grade beams and pin piles.

The roof of the 1860 church is framed with "queenrod trusses" consisting of 5x8 timber top chords, double 7/8-in. square iron queenrods, 2 3/4 x 3 1/2-in. braces (webs) and a bottom chord of doubled 4x10 timbers spliced together and fastened with trunnels (wood pegs). Properly, these members together constitute an assembly better described as tied and braced principal rafters with sag rods. We added two light steel trusses to replace remnants of steeple supports (Fig. 3).

Work at St. Philip's also included construction of a replica of the 1823 Log Church based on photographic and archaeological evidence. Structural design issues at the Log Church included the A-frame roof structure, support of the false chimney clad with brick veneer, bracing of the gable endwalls, support of the open belfry, porch and balcony details and tiedown details connecting the log structure to the foundation (Fig. 4).

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