

The Alexander Knight House



Photos Cynda Warren Joyce

AS a child I lived in the Stow House, an impressive 1696 framed colonial saltbox in Stow, Massachusetts, with its exposed timbers, a narrow winding staircase beside a massive stone chimney and wide pine floors. My father, who had restored the house, passed on to me a great appreciation for these buildings of hewn timbers. Lately I have participated in building a plausible small house in that style while using traditional tools and techniques, the Alexander Knight House in Ipswich, the coastal town in Massachusetts where more first-period (1625-1725) houses remain than anywhere else in the country.

The idea for the Knight House project developed with the help of Ipswich architect Mathew Cummings and craftsman James Whidden (see photo back cover), who had come to Ipswich from Ashburnham in central Massachusetts to work on historic houses. The new building was to be a recreation of a one-room, English-style timber frame house built in 1657, using as nearly as possible the tools, materials and construction methods of the first period.

Alexander Knight, an innkeeper in Chelmsford, England, emigrated to Ipswich in the Massachusetts Bay Colony in 1635 and quickly acquired significant land, but his fortunes had declined as soon as 1641. The town appears to have granted him a small lot and house in 1657. Susan Nelson, an architectural historian and an expert on historic preservation in Ipswich, found this reference in

the Town Register of April 1657: “. . . secure a house to be built for Alexander Knight of 16 foote long & twelve foote wyde & 7 or 8 foote stud upon his ground & to pryd thatching & other things nesasary for it.”

Whidden’s and Cummings’s work in modern times allowed them a unique view into the past as the skeletons of old Ipswich houses were revealed during restoration. Sound determinations regarding local techniques and materials could be made from this experience.

The Ipswich Museum agreed to host the project on the grounds of its 1677 Whipple House property and, in 2009, the Alexander Knight House team was formed of entrepreneurs and several skilled craftsmen who shared a keen interest in the project. In addition to Whidden, Cummings and Nelson, they included Richard Irons, restoration mason; Tim Chouinard, hardscape designer and builder; and myself, Cynda Warren Joyce, visual artist. Later, in 2012, Matt Diana, a housewright, joined the team.

The team used traditional tools throughout the construction process, providing ongoing demonstrations at the museum site, accompanied by lots of discussion. Sitework began by digging the cellar hole by hand, with shovels and volunteers. The fieldstone foundation was built by Tim Chouinard and the hearth by Richard Irons, using local materials.



1 Facing page, Alexander Knight House, nearly finished siding and thatching, a plausible 1657 construction on the grounds of the 1677 Whipple House in Ipswich, Massachusetts. Matt Diana shown preparing to set donated leaded glass window in prepared opening.

2 Alan Ganong trimming white pine log at Ledyard, Connecticut, sash sawmill, to produce siding and flooring for Knight House. Carriage stops before cut is complete and board must be pried off.

3 Plate assembled to post on blocks in shop, showing teazle tenon and half-dovetail housing for tie beam in English tying joint.

4 English tying joint in oak, signature assembly of first period New England houses.

5 Matt Diana, left, and Jesse Brown assembling tying joint during raising. Dovetail flare is on far side of tie beam. Crushing on near face likely from previous test assembly.

The carpentry began by selecting white oak for the frame. Early New England builders chose white oak for its strength, rot-resistance and nearer resemblance to English brown oak than other New England oaks. While white oak was abundant in 1657 in Ipswich, it is relatively scarce today. The best trees for hewing grew in the deep forest, without lower branches, thereby eliminating knots for considerable lengths of timber. After a tree was felled, it would be cut to length and hewn where it lay into the major framing timbers—sills, posts and principal rafters. (In our case, but for one that became a timber, we did not fell the necessary trees.)

Jim Whidden, Matt Diana and Jesse Brown hewed and prepared the timbers. To minimize waste and effort, logs of appropriate diameter for each timber were needed; some wane was acceptable (and even desired for authenticity). Whidden acquired white oak at a local sawmill that was too dry, too large and thus difficult to work with. These logs went to working 19th-century sash sawmills to be converted into scantlings, the smaller members of the frame. (Powered by water, sash mills feature blades stretched in a sliding wooden frame or *sash*, crank-driven to travel up and down and were in wide use from the 17th through the 19th centuries. Records exist of one granted in Ipswich as early as 1649.) Green logs of a smaller diameter were required for the main members of our little frame. Fortunately, I found white oak in my own fire-

wood and sought out the producer in central Massachusetts, who then became the source for our white oak logs.

The finish floors and siding required wide, clear white pine boards appropriately sawn at a sash mill. In 1657, 24-in.-dia. and larger clear pine would have been plentiful (while the King's Pine, over 36-in. dia., was sent to England). Suitable 12-ft.-long white pine logs were donated from Maine and additional logs 16 ft. and longer purchased in Connecticut from a managed forest.

Whidden delivered many logs to the sash sawmills (in Derry, New Hampshire; Sturbridge, Massachusetts; and Ledyard, Connecticut) to prepare the scantlings and boards. The large pine was sent on logging trucks. We worked closely with the sawyers who cut both the white oak and the white pine for the job.

Whidden used scribe rule to lay out the joinery. The layout, cutting and trial fitting of the main frame was done at his shop. The raising took place in September 2010, with many hands to help. Volunteer Dick Chapman fashioned white oak trunnels as needed during the raising. The raising crew set the principal rafters by the end of the day. Temporary siding and flooring served as we awaited finish materials. Since much secondary framing remained to do for the walls, roof and chimney, work continued through the following summer and fall. We each cut a few mortises, sawed a few studs or fashioned a tenon in the ever-hardening oak.



6 Thatchers Michael French and Lorin Johnson of Plimoth Plantation place bundled rolls at chimney base to hold next layer. Bundled rolls surround chimney perimeter.

7 Using giant needle, Justin Keegan of Plimoth Plantation weaves hemp cord back and forth through thatch to secure transverse spar.

8 Justin Keegan affixes first course of final layer of dressed bundles.



THE roof system and chimney framing were nearly finished when our housewright and inspiration Jim Whidden died sadly and unexpectedly at the age of 49, in late November 2011, leaving a large void and much work still to be accomplished. The team and his friends and family were determined to finish the project, and many donations were made in his memory.

Matt Diana, who had been employed by Whidden for several years and shared his passion for traditional building, decided to take up the reins. He had previously worked on the Knight House and volunteered as our new housewright for the remainder of the work. He finished the roof and chimney framing before winter came again. Diana also framed the windows and door and prepared riven lath of white oak for the roof-thatching and the wood-framed chimney.

We met with artisans from Plimoth Plantation, who came to Ipswich and showed us how to harvest thatch from the Ipswich marshes and prepare it for the roof. In the spring of 2012, the team collaborated with Plimoth Plantation's Michael French and Justin Keegan, who agreed to thatch the roof. Along with their expertise, instruction and considerable time, they supplied appropriate tools and additional necessary materials. We prepared long bundles of reed and tied them around the edges of the roof to hold the thin *fleeing*, a mat of tall grasses, then a thick layer of wet tangled hay. Another row of long bundles around the edges held the finished courses begun at the bottom, laid and dressed and worked up to the ridge. Spars held the dressed bundles in place, woven onto the riven lath using a large needle and cord. Thatching in progress often brought traffic to a stop along South Main Street in Ipswich.

Meanwhile, the chimney frame was fitted with riven white oak lath in preparation for plastering with a daub of local clay, straw and sand. Volunteers directed by Richard Irons mixed the daub in frames with bare feet. Mason Jeremy R. Brown applied the daub to the wet interior of the chimney, hauling buckets to the top and working his way down. In 1657, home fires would have burned year-round on a broad, deep hearth, for cooking and to heat water for washing.



9 Jeremy R. Brown applies daub to framed, heavily lathed interior of spacious wood-framed chimney wetted down in Fig. 10, starting at top.

10 Chimney framing integrated with end wall of house. Note collar beam, studs, end rafters. Pulley wheel and rope allowed mason to haul daub bucket to top to start job, then to any point below.

11 Richard Irons, left, oversaw mixing of local clay, straw and sand into daub for chimney. Daub mixer Kai Colombo, center, a restoration glass artist, donated a leaded glass window to the project.



The wide eastern white pine boards for finish work eventually arrived from the mills, to be used for the exterior bevel siding and interior flooring after decay-prone sapwood was removed. Early houses had plank doors of clinch-nailed, shiplapped pine boards, which Diana built and finished with reproduction hardware. Salvaged wrought iron nails, along with hardware forged by George Ivan Paré, of George Forge in Rhode Island, and Alex Bandazian, a blacksmith at Plimoth Plantation, can be seen throughout the house. In 1657, an oilcloth or shutter normally covered an opening in a house of this size; glass, a luxury at the time, was imported and therefore very expensive. But an important donation to the Knight house (from yet another impassioned craftsman, Kai Colombo of Shards Stained Glass) appeared: a diamond-paned, leaded-glass window. The window was fitted to the house despite the fact that historically it was not appropriate to such a modest dwelling. Perhaps it might have been given to Knight by a wealthy benevolent neighbor?

The team will complete the Alexander Knight House later this year and formally donate it to the Ipswich Museum. The house will then become a permanent exhibit on the grounds of the Whipple House, offering visitors a chance to see how an ordinary person lived in the Massachusetts Bay Colony.

Using colonial timber frame construction methods and related authentic processes to build the Alexander Knight House, I met people who showed uncommon commitment and freely shared their knowledge. Along with our timber framers and carpenters, the sawyers, thatchers, masons, stonemasons and blacksmiths all displayed passion for their work, and the countless volunteers' and contributors' interest and enthusiasm were a delight to behold. Although I too possess passion for the things I do, I will be forever changed by the experience of working with these men and women, the builders of our world.

—CYNDA WARREN JOYCE

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