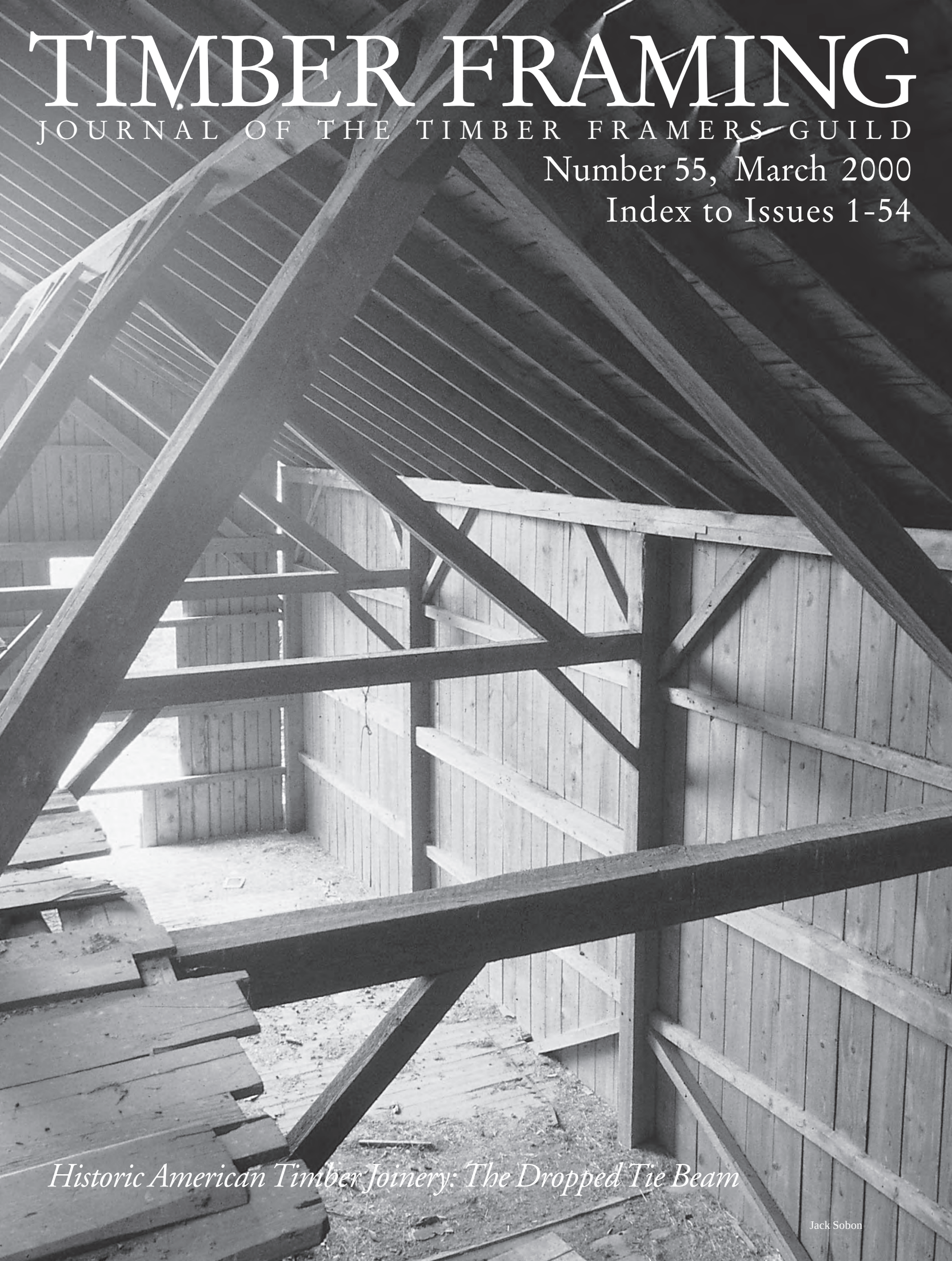
TIMBER FRAMING

JOURNAL OF THE TIMBER FRAMERS GUILD
Number 55, March 2000
Index to Issues 1-54



Historic American Timber Joinery: The Dropped Tie Beam

Jack Sobon

TIMBER FRAMING
JOURNAL OF THE TIMBER FRAMERS GUILD

Number 55 March 2000

CONTENTS

On the cover, late barn (after 1860) in North Adams, Massachusetts, built with dropped tie beams. Photo by Jack Sobon.

Published Quarterly

Timber Framers Guild
PO Box 60
Becket, MA 01223
www.tfguild.org
joel@tfguild.org will@tfguild.org
888-453-0879

Editorial Correspondence
PO Box 275, Newbury, VT 05051
802-866-5684 rowerk@together.net

Editor: Kenneth Rower

Contributing Editors
History: Jack Sobon
Timber Frame Design: Ed Levin

Correspondents
England: Paul Price

Subscription $25.00 Annually
Or by Membership in the Guild

ISSN 1061-9860

1 9 8 5

TOPICS

The Best We Can Do

IN America, does our economic and political system reflect the restless and chaotic opposing forces of the natural world? Or, will Nature come to mean *human nature*? Not long ago on a Boston highway, I passed an old-fashioned VW beetle with a bumper sticker that advised, "Save the planet, kill yourself!"

The situation is not without hope, but the contests are often fierce, involving real questions of survival. The jobs-versus-owls issue, an example of the competing interests that seem to haunt every environmental problem, was clearly and sympathetically presented by Bob Sproul at the Guild's October conference in Fairlee, Vermont. Bob owns a sawmill in Myrtle Point, Oregon, with modern equipment and efficient organization. He's been in the timber business a long time, and he's never lost his appreciation for the benefits of forest beauty. Part of his enterprise is salvaging fallen trees. This work has brought him into close association with timber framers, who are often looking for the large, premium timbers that result.

Myrtle Point, in the southwestern quarter of Oregon, lies about equidistant from Coos Bay to the north and Siskiyou National Forest to the south. Both the spotted owl and the marbled murrelet inhabit certain locations in this area. These two threatened species sit at the eye of the hurricane raging over how to use our National Forests. Their natural habitat is old-growth forest stands.

In April 1993, President Clinton hosted the Northwest Forest Summit. The result of the gathering was a loosely formulated goal called the President's Plan. The intention was to resolve deadlock between environmental groups and the timber industry over the fate of remaining old-growth forests, defined for this purpose as groves of trees not pruned or managed for at least 200 years. The plan was proposed on the heels of the frenzied buying, selling and building of the 1980s. Both forest advocates and the timber industry had hopes that a compromise would be reached.

TIMBER FRAMING, Journal of the Timber Framers Guild, reports on the work of the Guild and its members, and appears quarterly, in March, June, September and December. TIMBER FRAMING is written by its readers and welcomes interesting articles by experienced and novice writers alike. Contributions are paid for upon publication at the rate of $125 per published page. ♻

Twenty years earlier in 1973, the National Environmental Policy Act had been passed. This act required the U.S. Forest Service and the Bureau of Land Management (BLM) to analyze how they were managing National Forests and other public lands throughout the country.

In 1976, the National Forest Management Act was passed, and specific plans were created for each National Forest. Most of these forests are west of the Mississippi River. According to Tom Hussey, the Forest Service's staff member for regional planning in the Pacific Northwest, the initial plans were a type of zoning that divided the forests into areas for recreation, commercial activity (chiefly logging) and wildlife habitat. There were some rules and regulations. Awareness of the speed of environmental change was just beginning.

The President's Plan of 1993 was not a detailed blueprint, but rather the first step in creating new management directives based on scientific information. With funding from the Department of Agriculture and the Department of the Interior, parent departments respectively of the Forest Service and the BLM, a nongovernmental group was formed to gather the information. This 100-person group, the Forest Ecosystem Management Assessment Team (FEMAT), comprised "wildlife biologists, ecologists, foresters, hydrologists, analysts and technicians of all sorts, under the direction of Jack Ward Thomas . . . with the mandate to come up with a workable strategy for the forests in the Pacific Northwest," as described by The Forest Partnership, a group of timber industry and environmental organizations which co-founded the movement for certified wood products and forests, and which publishes the periodical *Initiatives For a Sustainable Forest Industry.*

The focus on the Pacific Northwest reveals a major commercial difference between western and eastern forests. Sales of timber from National Forests provide a large part of the raw material for the western timber industry, whereas the majority of timber milled in the East is cut from private lands.

FEMAT came up with 10 options, of which the one selected (the ninth) called for a "structure-based" management plan. (Over the years, the names have varied for well-designed forest plans—sustainable forestry, biodiverse forestry, ecosystem management.) Structure-based management includes inventory, selective harvests, identification of tree stands and regulations for clearcuts and fire protection, and, under Option 9, has as a primary aim greater protection for fish and wildlife.

Option 9 brought general dissatisfaction to both industry and environmental groups. The first group felt the rules were too re-

strictive, the second not strict enough. In its publication *Initiatives* (Vol I, No. 3), The Forest Partnership observed, "Under Option 9, most species were given a 40 percent to 60 percent chance of surviving and being well-distributed throughout the ecosystem. It must be kept in mind that these percentages measure likelihood of viability for habitat—how this will translate into species viability is unclear."

The National Forest Plan of 1994 (based on Option 9) created 19 forest plans for individual forests. The territory west of the Cascade mountain range in the states of Washington and Oregon and in northern California is identified as the region in which the greatest number of old-growth stands remain. (Myrtle Point lies squarely in this region.) According to the Forest Service's Tom Hussey, old-growth forests comprise 4 percent of all U.S. forests, but four-fifths of these forests are inside National Forests. Elsewhere, one reads or hears that 90 percent of U.S. old-growth has been cut. Together with the shifting definition of old-growth, the numbers don't really describe the matter. (Some years ago, the Guild, in correspondence with the Forest Service, used a standard of 160 years or older to define old-growth trees. In another context, according to Bob Sproul and others, it takes 80 years for a Douglas fir to produce a timber of interest to a demanding modern timber framer.) Some stands are second-growth with very old trees. And in any stand there can be single old-growth trees called "residuals." The territories are often so remote that we may not have found all of the old-growth.

The implementation of Option 9, meanwhile, expanded the number of regulations governing logging. Greater care was expected in treatment of waterways, both fish bearing and intermittent. Time-of-day restrictions were placed on logging activities. Some limitations related to fire hazards; others were to facilitate nesting habits of the marbled murrelet. Field inspections increased. Site visits included marking of trees and post-logging impact inspections.

National Forest timber sales have always been conducted at public auction, with sizable tracts going to the highest bidders, usually large companies. All parties must pay up in advance of the removal of timber. Charges now include new impact fees.

The final burden that has brought Bob Sproul to his knees was a court injunction that virtually stopped all logging, regardless of type, in certain areas. This injunction, placed in August 1999 on two dozen timber sales in the northwest and southwest regions of Oregon, was the result of litigation (Oregon Natural Resources Council et al *v.* U.S. Forest Service et al) brought against the Forest Service by 13 environmental organizations led by the ONRC and including the Northwest Ecosystem Alliance and chapters of The National Audubon Society.

Carey Stillwell, a staff lawyer with the Western Environmental Law Center in Eugene, Oregon, told me that a stage has been reached called "stipulation to dismiss," which means that the injunction will be lifted when the settlement agreement is fulfilled. The agreement requires the Forest Service to perform accurate surveys that it was originally required to do under the terms of Option 9.

In northern California, an independent case known in short form as "Headwaters" (it has its own Website) also illustrates the contentious and time-consuming nature of contemporary forest issues.

In settlement of the issue, which has been fought out over roughly the same time period as the Option 9 saga (since 1993), some 8,200 acres of old-growth redwood forest are to be bought by the government from the Pacific Lumber Company for the sum of $380 million. Until the 1980s, Pacific Lumber had been logging for over 100 years and had established a reputation as a model employer and forest manager. But in the era of the savings and loan debacles, they sold to Maxxam, headed by one Charles Hurwitz. The sale dramatically altered Pacific Lumber's financial stability and leadership, and exposed the redwoods to imminent danger.

In the coming transaction, the state of California will pay $130 million and the United States government $250 million. Pacific Lumber for its part has agreed to create a Habitat Conservation Plan and a Sustained Yield Plan to govern forestry practices on its remaining 200,000 acres. According to the information posted on the Headwaters Website, an approved habitat conservation plan is a long-term conservation plan established under the U.S. Endangered Species Act that "allows a private landowner to incidentally take listed species, provided adequate conservation measures are enacted that allow for the long-term survival and recovery of the species."

Since 1994, many Habitat Conservation Plans (HCPs) have been approved and enacted. The President's Plan included a concept of "no surprises" intended to relieve developers, landowners and timber industry members of unexpected, punitive regulations. HCPs were supposed to assess potential impact on wildlife, minimize takings and provide plans for species recovery. To this end, federal and state support in various forms would be made available in the management of private lands. So far, the results of HCPs are mixed and sometimes downright negative. HCPs constitute a new issue between commercial and environmental interests. They also illustrate the different time lines which govern the market and scientific research.

A sustained yield plan, meanwhile, is specified as "a state plan which provides for maximum sustained production of high-quality timber products over a 100-year planning period . . . requires protection of watersheds, wildlife, and fisheries, and must abide by applicable state and federal laws such as the endangered species acts. . . . an SYP is in force for 10 years."

The details of public hearings and reviews are lengthy and symptomatic of our system that turns on a recognition of opposing forces. We are a people who have learned to bring our passionately held beliefs and opinions to a bargaining table where stylized and legal debate replace aggression.

We are also a people who have developed the capacity to see ourselves in the suffering of the weak—perhaps even the weak of other species. Human nature may be the cause of most of our environmental problems, but only humans (we suppose) agonize over the losses incurred and attempt to rectify them. At the same time, we sometimes recognize in ourselves the self-centeredness of the strong. For many of us in timber framing, economics is not a theoretical subject. It is very much about survival. We, ourselves, may be among the endangered species.

Bob Sproul described finding a ring of scientists on their knees in a remote part of the forest. They were inspecting lichen and fungi. It was a moment that highlighted for him the unreasonableness of the situation, with its focus on tiny details. On the other hand, we do now understand that botanicals growing only in the cool dampness of old-growth forests may have curative potential for some of our ills. We don't know what's out there.

It is a fact, however, that the ring of forces surrounding National Forest issues is large. It includes private and governmental scientists, industries, agencies, elected officials, environmental groups and private citizens. The process of debate is cumbersome and clumsy, and we live with it as the best we can do. —Nancy Janssen Currier

Nancy Currier lives in Bedford, N.H., and takes a steady interest in local and national forest isssues. The Headwaters Website is <ceres.ca.gov/cra/headwaters>.

Historic American Timber Joinery, A Graphic Guide

THIS article is first in a series of six to discuss and illustrate the joints in American traditional timber-framed buildings of the past, showing common examples with variations as well as a few interesting regional deviations. The series will not describe the cutting process (that is best left to the "how to" books), but it will occasionally mention whether a joint is simple to fashion or labor intensive. Structural merits will be discussed only in general terms. Most of the research underlying the articles has been done in the heavily timber-framed northeastern United States, but the findings are applicable over a much wider area. This series was developed under a grant from the National Park Service and the National Center for Preservation Technology and Training. Its contents are solely the responsibility of the author and do not represent the official position of the NPS or the NCPTT. The six articles, to appear in successive issues of TIMBER FRAMING, will be entitled, respectively :

I. Tying Joints (Tie below Plate)
II. Tying Joints (Tie at Plate)
III. Sill and Floor Joints
IV. Wall Framing
V. Roof Joinery
VI. Scarf Joints

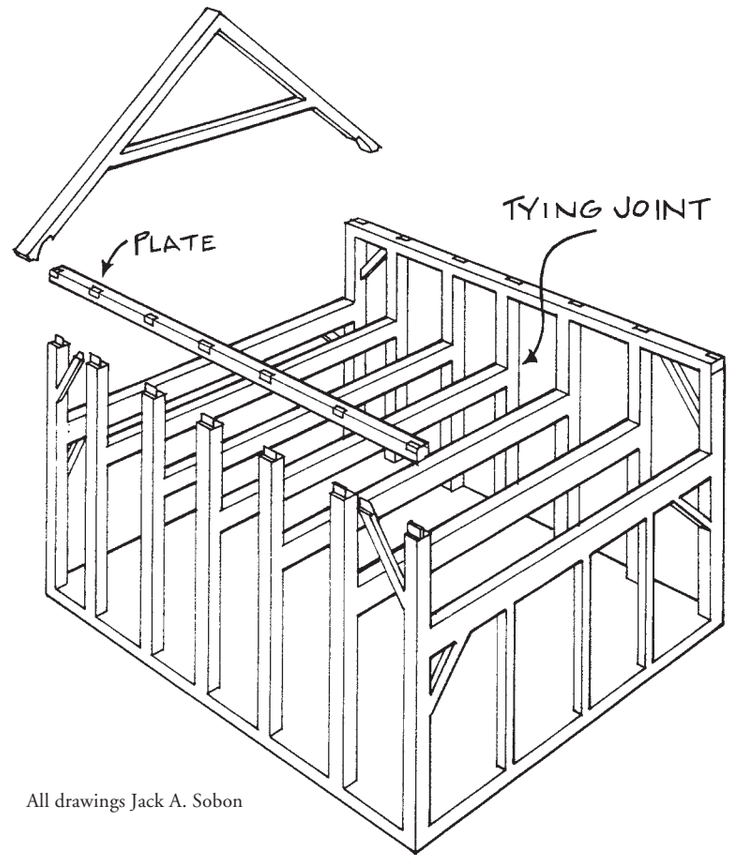
I. Tying Joints (Tie below Plate)

OF all the joints that make up a traditional timbered frame, the most important are the tying joints. Tie beams, also referred to as crossbeams, anchorbeams, ties and lower chords (in trusses), are transverse horizontal members that span from wall to wall or eave to eave, resisting the outward thrust of the roof planes. Where the tie beam joins the wall framing, we have the *tying joint*. Tying joints are usually the only connections in a frame that must resist tension. When a tie beam joins the feet of principal rafters, the result is a triangle, a rigid structural shape. In wide structures, rafters are often supported by purlin plates somewhere in midspan, and their effective span is thus shortened (see Fig. 2). Support by purlin plates normally reduces outward thrust of the rafter at the plate and consequently the load on the tying joint. But wind loads can cause bracing to exert tension loads on the tying joint. (See, for example, Ed Levin, "Frame Engineering," TF 30.) In aisled structures, the tie beams may not be continuous across the entire width, but may span from post to post of the aisles. Of all the joints in a frame, the tying joints especially must be of good structural design and each one well crafted (there is no redundancy).

Because of their complexity and variety, tying joints may conveniently be divided into two groups: tie below plate and tie at plate. This article will focus on the former group.

The tie below plate, or *dropped tie* as it is often called, joins the wall posts below the plate. Its connections are generally simpler than those of the tie into plate and probably its configuration is the more widespread. Since it lies below the plate, occasionally several feet, and the rafters join to the plate, it doesn't create the nice triangle with the rafters that engineers like to see. The rafters carry roof thrust to the plate. The plate transfers the load to the post. The posts are joined by the tie beams. Each joint must be sufficient to carry the load, and the post must not break.

If the load path is convoluted, why did the arrangement arise? In traditional timber framing it is often simpler and stronger to stagger joints. When a joint is cut in a timber, wood is removed



All drawings Jack A. Sobon

Fig.1. In the typical New York State timber-framed Dutch house, the plate is 3 to 4 ft. above the second floor. The closely spaced H-bents, typically 3 to 5 ft. on center, illustrate the tie-below-plate condition.

and the timber's strength is diminished. Joining multiple members at the same location often creates complex joinery and can weaken members excessively. Raising the plate a foot or two above the tie avoids this problem, and raising the plate several feet above the tie also makes the space under the roof more usable.

The Through Mortise and Tenon (Figs. 3-5). Probably the most prevalent tying joint in America, the through mortise and tenon was the standard joint in the carpenter's repertory where a joint was subject to tension loads. The mortise is cut completely through the post to maximize the tenon length. Because the connection relies entirely on the pins to resist withdrawal, pin size and location are critical. Failure of this joint can occur in five ways:

1. The pin can shear off (pin too small or decayed), and the joint withdraws.
2. The wood in the tenon between the pin hole and the end of the tenon, called the *relish,* can split out (tenon too short or pin hole too close to end of tenon), and the joint withdraws.
3. The mortise face can split out (pins too close to face), and the joint withdraws.
4. The post can split in a line from the pin hole up to the post's top tenon (joint too near the post top), and the top portion of the post breaks away.
5. The post can break off at the tying joint (too much cut out of the post).

Generally, through tenons are used to maximize the relish in the

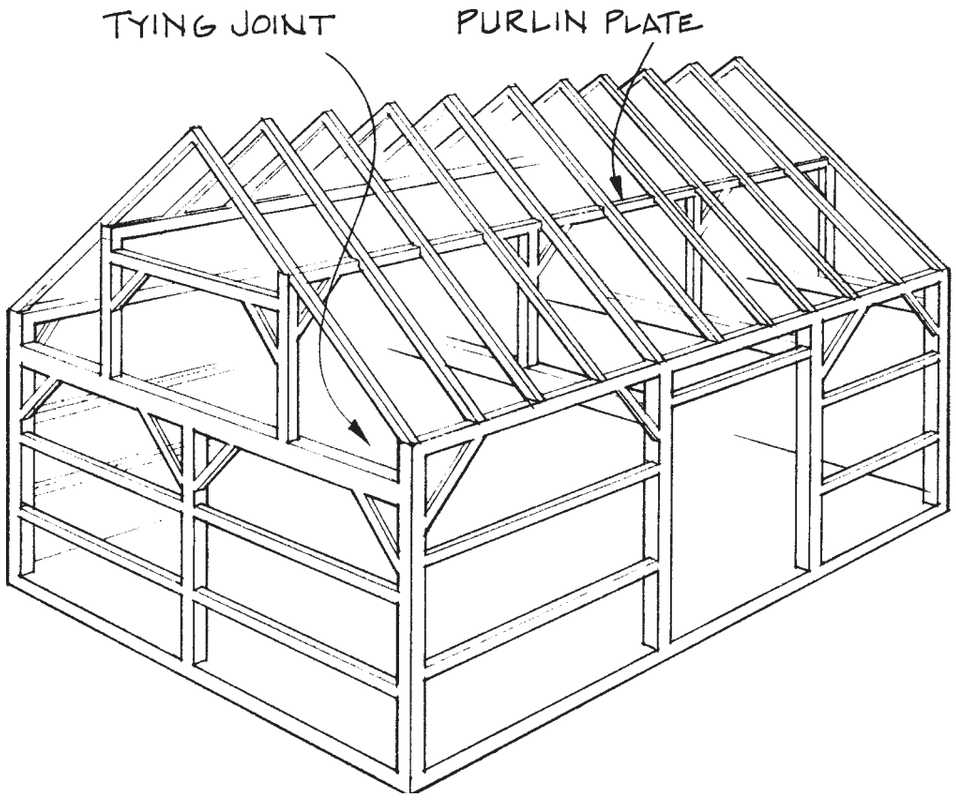


Fig. 2. The three-bay, side entrance barn, common throughout western New England and New York after about 1800, made use of the tie-below-plate tying joint. The rafters were additionally supported by continuous purlin plates at their midspan.

tenon beyond the pin hole, but a few blind (not through) tenons have been found. The use of two or more pins is common, often not in line to avoid mortise face split out. Some typical pin placements are illustrated in Fig. 5.

In most buildings, this joint is housed because the tie beam often carries floor loads. Instead of the tenon alone, the full width of the beam bears on the post; a substantial increase in bearing as well as shear strength is accomplished. A diminished housing is typical in scribe rule frames, a parallel housing in square rule frames. (Square rule frames are marked and cut according to a system in which a smaller, straight and square timber is envisioned within each real, irregular timber; all joints are cut to the surfaces of the imagined inner timber, such that standardization is possible for similar pieces, and assembly is necessary only once, at the raising. Scribe rule frames, on the other hand, are built according to an older system that custom-fits each timber to an adjoining one, a process that requires arranging the individual pieces on a framing floor and assembling and disassembling large parts of the frame before raising the whole.) Because the diminished housing retains more wood on the post and allows more relish in the tenon behind the upper pin hole, it makes a marginally stronger connection. The depth of housing in a scribe rule joint is typically consistent within a frame and is commonly 1 in. In square rule framing, many joints appear to be housed to some depth simply as a consequence of the system, but load-bearing tying joints will have noticeably deeper housings.

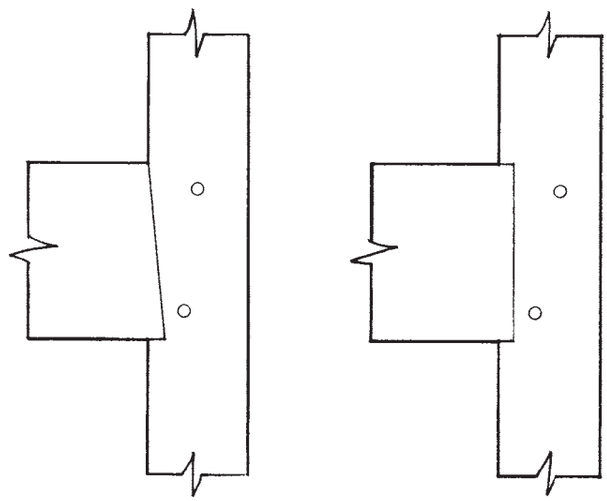


Fig. 4. The two basic types of housed through mortise and tenon joints. The diminished housing (on the left) was primarily used in scribe rule frames. The parallel housing (on the right) is found in both scribe rule and square rule frames.

Fig. 3. The through mortise and tenon. In its most basic form, it handles moderate loads. This simple tying joint occurs in countless buildings of every period and nationality.

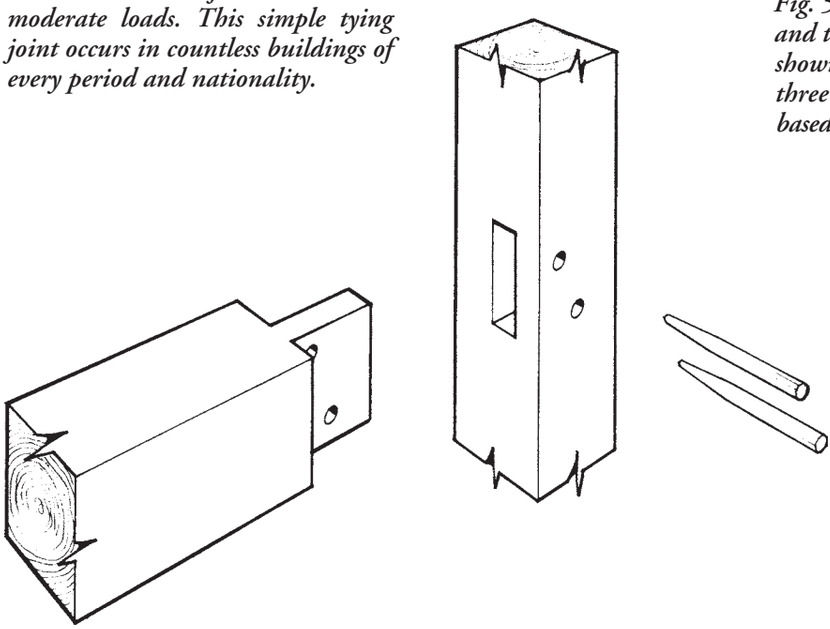
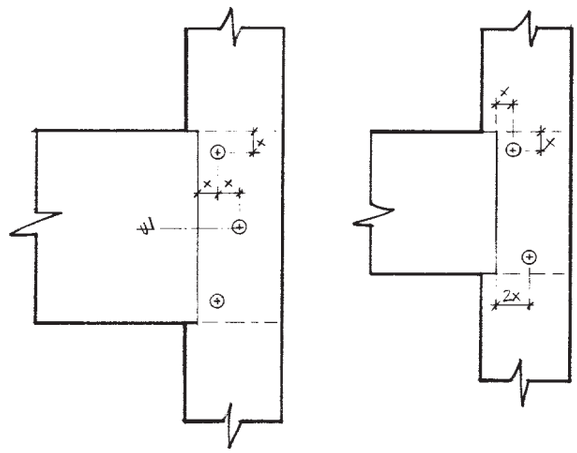


Fig. 5. Pin number and placement varied with the size of the member and the preferences of the builder. Members 6 in. deep or smaller (not shown) usually have one pin; 7 to 10 in., two pins; and above 10 in., three pins. The distance shown as "x" is often either 1½ in. or 2 in., based on the tongue or blade of the framing square used by the builder.



Blind-Housed Through Mortise and Tenon (Figs. 6 and 7). When the post face is wider than the tie beam, the tie beam is often housed into the post. It may be set flush with the layout face of the post (for example, the outside face of an outside post) or centered. A wide post can minimize breakage at the joint. Occasionally a tie beam is reduced in width at its end to allow for a blind housing. This extra wood retained on the post adds considerable strength compared with a post whose face has been cut right across to form an open housing.

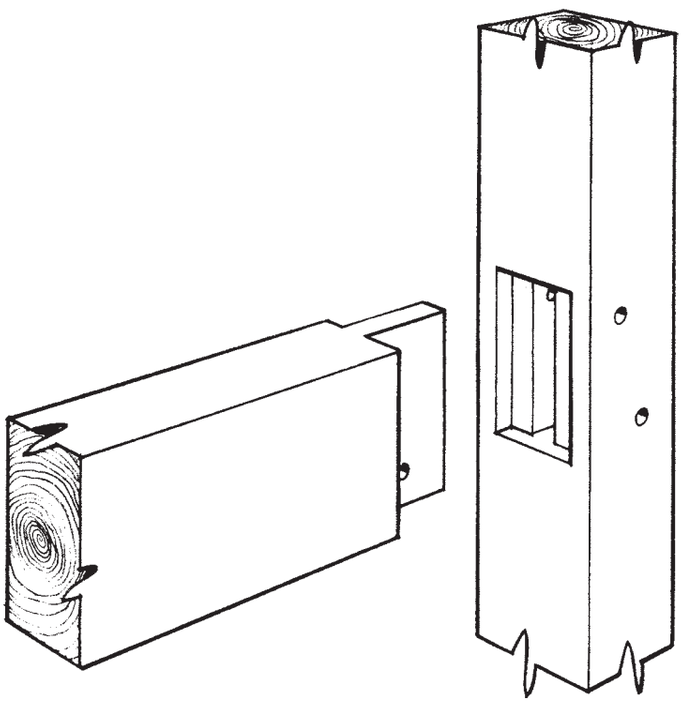
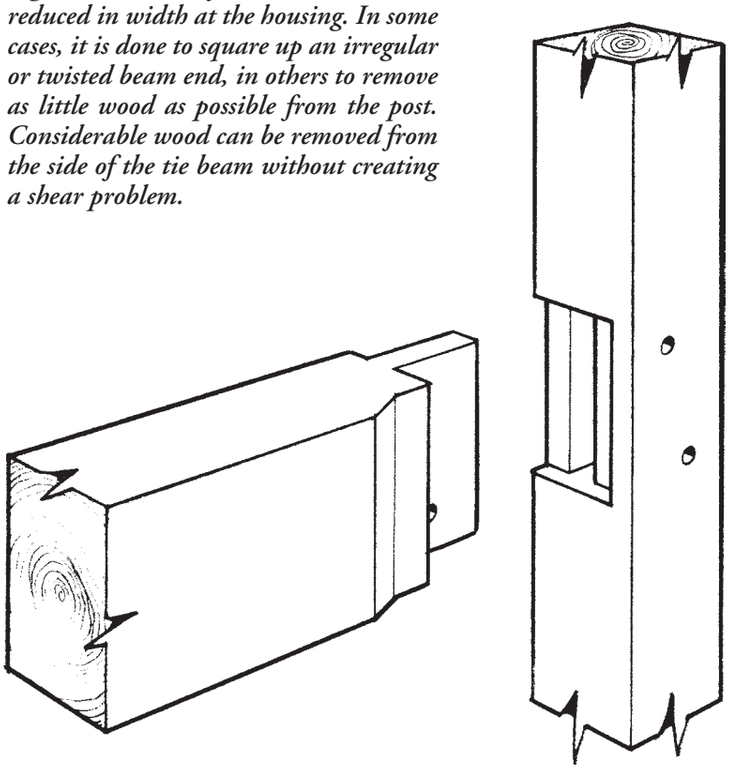


Fig. 6. In a blind-housed through mortise and tenon, the tie beam may be flush with one side or centered as shown. The uninterrupted long grain flanking the joint on the post resists breaking at the joint and mortise face splitout.

Fig. 7. Occasionally, the tie beam end is reduced in width at the housing. In some cases, it is done to square up an irregular or twisted beam end, in others to remove as little wood as possible from the post. Considerable wood can be removed from the side of the tie beam without creating a shear problem.



Paired Through Mortise and Tenon (Fig. 8). In frames with larger members, paired or twin tenons were occasionally used. Such a configuration will likely outperform a simple mortise and tenon, with reduced tendency for pin shear and mortise-face splitout. However, the advantage must be judged against the substantial additional work in the cutting of the joint. Paired tenons are sometimes found in mill structures, barns and large wooden machines like cider presses.

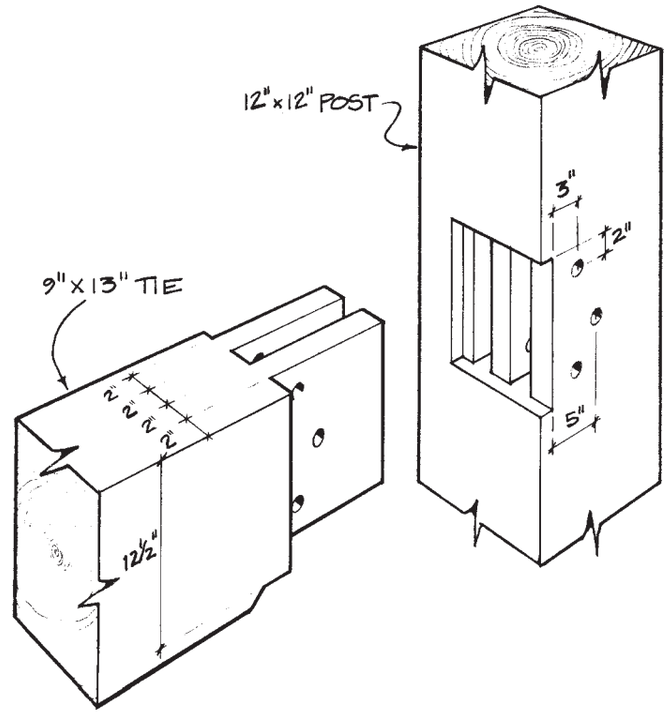


Fig. 8. Paired or twinned through mortise and tenon as found in a ca. 1840 barn in Middleburg, New York. The joint is housed flush with one side. As is typical of square rule structures, the tie beams are reduced to a consistent depth (here 12½ in.) at the joint. This rugged connection has well resisted the forces in the 50-ft.-wide barn.

The Wedged Dovetail Through Mortise and Tenon (Figs. 9 and 10). This joint is arguably the strongest to use in this particular application. It does not rely upon pins to resist tension. Instead, the bottom of the tenon is angled to form a half-dovetail as shown in the photo (from a late-18th-century barn, Great Barrington, Mass.). The mortise is extended above and also angled to permit a wedge to be inserted from the outside of the post. Though pins are used to bring the joint tight, the wedge-and-dovetail configuration does the work. If worked in green timber, shrinkage will allow some withdrawal. However, in many old frames with this joint, the connection is still snug. This is probably due to the speed at which timber ends dry. Much of the tenon's shrinkage has already occurred prior to assembly even though the interior of the timber a few feet away may still be saturated with water. Ordinarily it is difficult or impossible to drive the wedge further after the exterior skin is applied. Though this joint involves more work than the basic one, it is certainly worth the effort. It has been found in buildings of all nationalities and types and from every period.

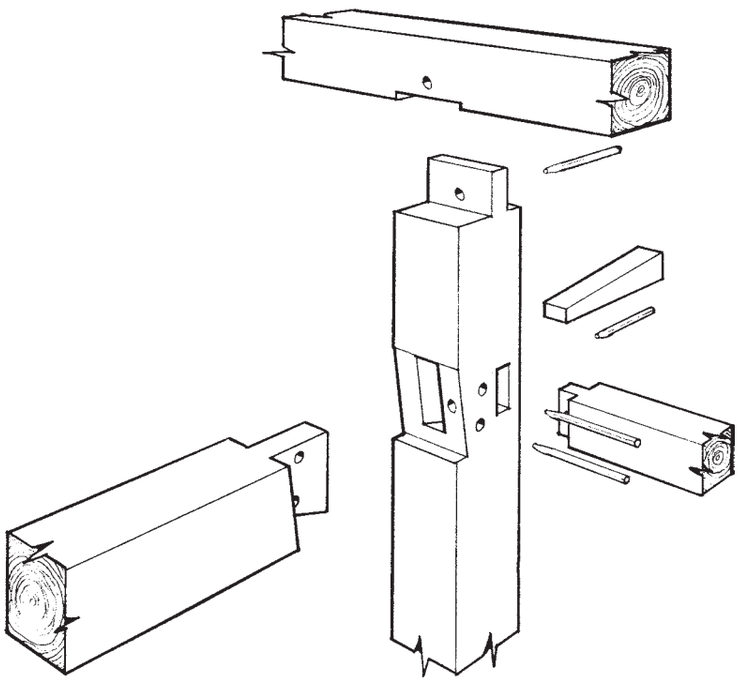
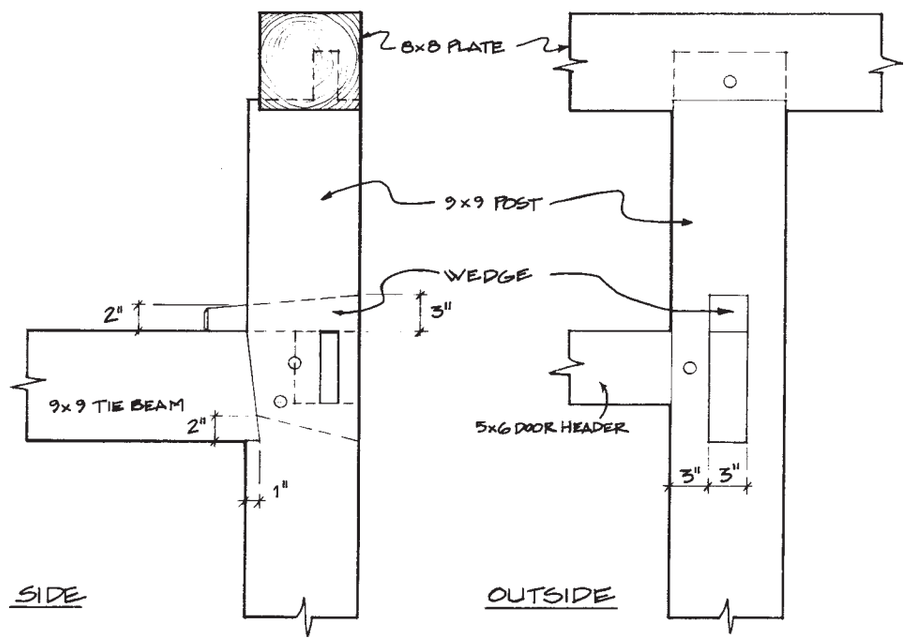


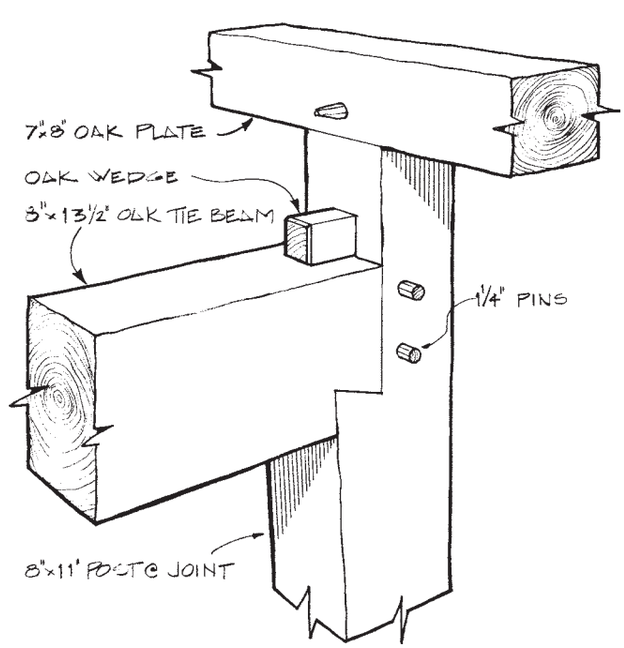
Fig. 9. Above, exploded view of the wedged dovetail through mortise and tenon in a late-1700s three-bay, 30x40-ft. English barn in Adams, Massachusetts, framed almost entirely of beech.

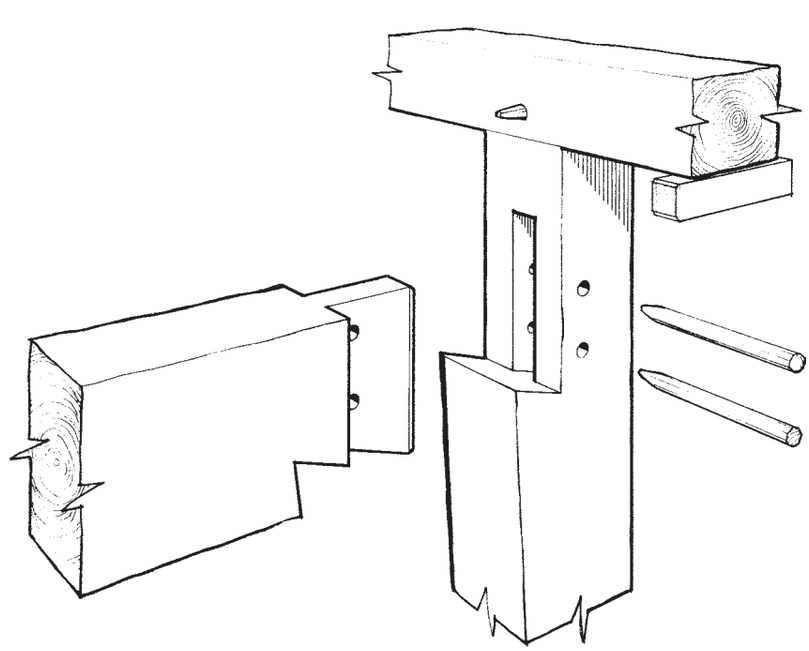
Fig. 10. At right, side and end views of the same joint with dimensions. A door header joins the post at the same height as the tie beam.

Figs. 11 and 12. Below and below right, assembled and exploded views of a wedged dovetail through mortise and tenon with dovetailed housing, as found in a 28x34-ft., three-bay side entrance barn in East Chatham, New York, probably dating from the second half of the 18th century. This unique joint has exceptional tensile strength.

The Through Mortise and Tenon with Dovetailed Shoulder (Figs. 11 and 12). A local (Columbia County, New York) variation of the wedged dovetail joint has the dovetail on the tenon continue into the housing which, because of the flare of the post, is about 3 in. deep. Only two buildings have been found with this joint. Judging by their location and similarities, they are likely the work of the same builder. The drawback to this joint would be the potential for the tie beam to fail in shear where it is notched to fit the housing. Apparently the load on the joint in this 28-ft.-wide barn is matched by the heavy oak tie beam, for nothing has failed in over 200 years.







The Kerf-Wedged Dovetail Through Mortise and Tenon (Fig. 13). A variation allows a basic tenon to become a full dovetail. Kerfs are sawn near the edges of the tenon and wedges are driven in to expand the tenon to fit a dovetail-shaped mortise. The kerfs are not parallel to the tenon edges, but angled away from the edge to avoid creating a splitting plane in the tie beam tenon when the edges of the tenon are bent away to follow the splay of the mortise ends. The advantage of this type over the wedged half-dovetail is that the tenon is not reduced in cross-section to create the dovetail. The disadvantage is that the angle of the dovetail must be shallow, and thus it will be affected relatively more by shrinkage of the tenon. In the illustrated example, the tenon flares only ¼ in. on the top and bottom. After seasoning and shrinking of the members, the two pins may be carrying the entire load. It would seem that seasoned timber is necessary to use with such a subtle dovetail flare. I have found only one timber example, though the joint is common in furniture.

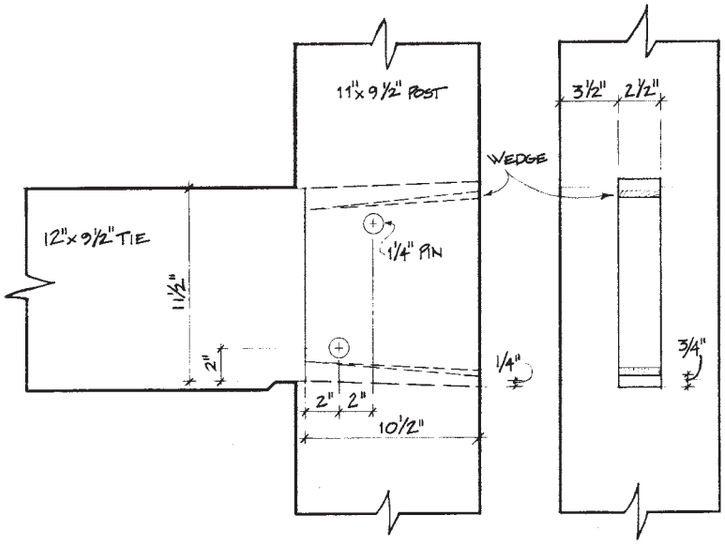


Fig. 13. This kerf-wedged dovetail through mortise and tenon joint is found in the upper floors (after 1810) of the Machine Shop at Hancock Shaker Village, Hancock, Massachusetts. It was used for both the tying joints and the queenpost trusses. This joint is much more common in furniture than in framing. Because of shrinkage in the height of the tenon, the wedges are loose, indicating that the pins are carrying the load.

Through Mortise and Extended Tenon (Figs. 14-16). When the building is aisled as in Dutch barns, the primary tying joints typically occur at the posts that flank the central aisle. These posts are joined by an *anchorbeam,* creating an H-shaped bent. The side aisles are treated as lean-tos and gain their strength from the H-bent. Since the tying joint is now interior, the tenon can be extended for additional strength without being exposed to the weather. (In Europe, such tenons are often exposed on the exterior of buildings.) Adding a foot or so of tenon prevents relish failure. By adding wedges through this tenon, all five potential modes of failure mentioned earlier are effectively eliminated save one: where the post breaks at the tying joint. The wedges can be driven additionally after the building is finished and the wood seasoned. The only disadvantage is that an additional 2 ft. or more of length are required on the anchorbeams, typically the largest timbers in a building. (Sections 12 by 24 in. are not uncommon.) The profile of the tenon varied with the builder.

This joint is synonymous with Dutch barn framing and can be found in hundreds of buildings throughout the area first settled by the Dutch, primarily New York and New Jersey. However, it was not the only tying joint used in Dutch barns, nor was it used only in Dutch framing.

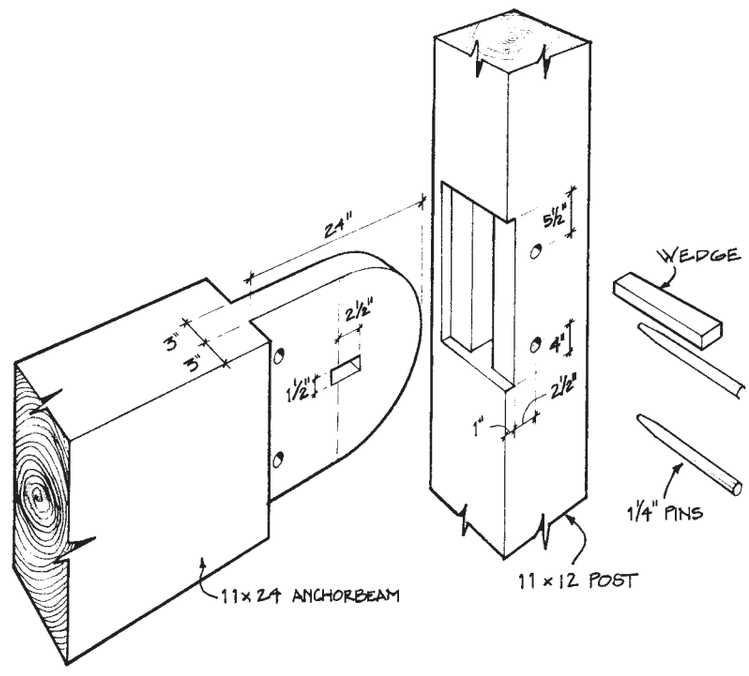
Necked Tying Joint (Fig. 17). Referred to in The Netherlands as a *Kopbalkgebint*, this joint also extends beyond the post for great strength. It may be used in non-aisled structures and still be protected from the weather as it can be tucked under an overhanging roof. The tie beam end resembles a head and neck. The tenon or neck fits in a slot cut in the top of the post to make a form of bridle joint. The post has paired tenons into the plate. This ingenious joint could hardly be improved upon. Its only disadvantage is that its location is fixed at just below the plate. It also requires posts wider than normal to accommodate the extra joinery. Only three American examples have been documented, two in Dutch barns in Blenheim and Schoharie, New York, the third in a three-bay "English" barn in Warren, Vermont (See TF 30).

—Jack A. Sobon

This unusual tenon profile appears on three Dutch barns in Coeymans, New York, and is likely the signature of a particular builder.

Photos Jack A. Sobon

Fig. 14. Below, a through mortise and extended tenon as found in an 18th-century 47x45-ft. Dutch barn in Root, New York. Two pins and a single wedge secure this housed version. Note that the pins are not equidistant from the top and bottom of the tenon. Perhaps this was done to reduce the tendency of the 24-in.-deep white pine anchor beam to lift off the shoulder as it shrank.



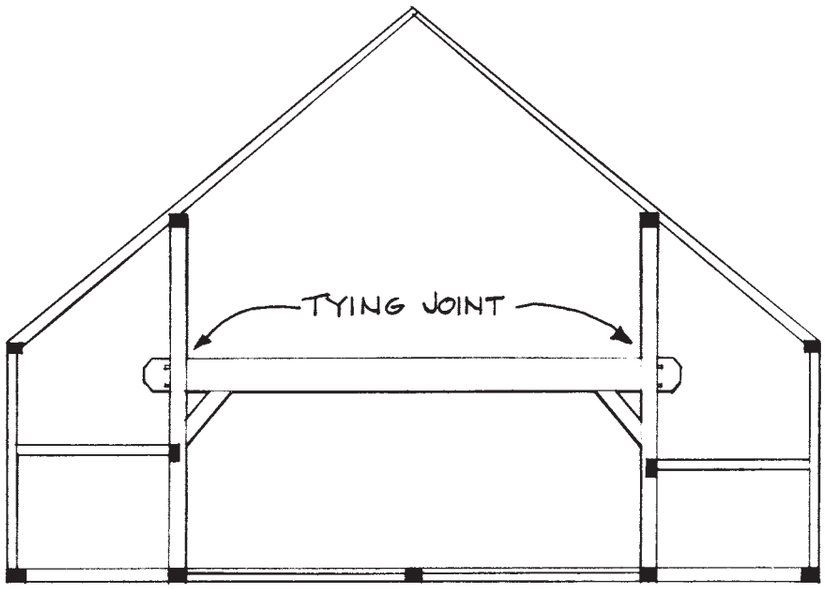


Fig. 15. The New World Dutch barn is an aisled building. The structural core is the H-shaped bent, each composed of aisle posts and an anchorbeam with heavy braces. Because the tying joint is interior, the tenon can be extended without being exposed to the weather.

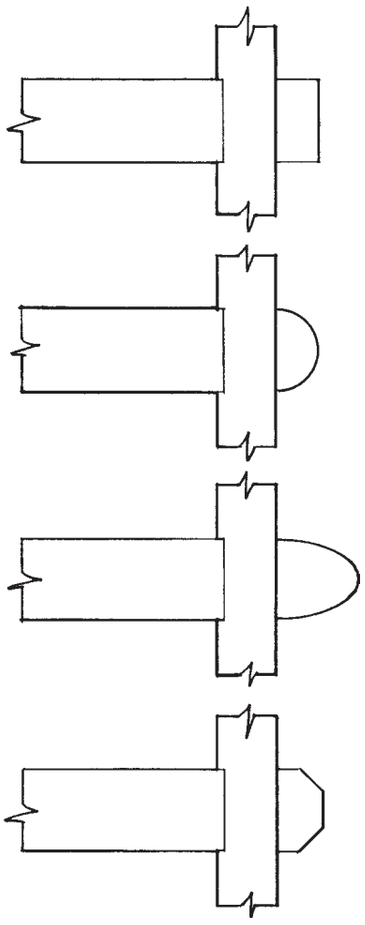
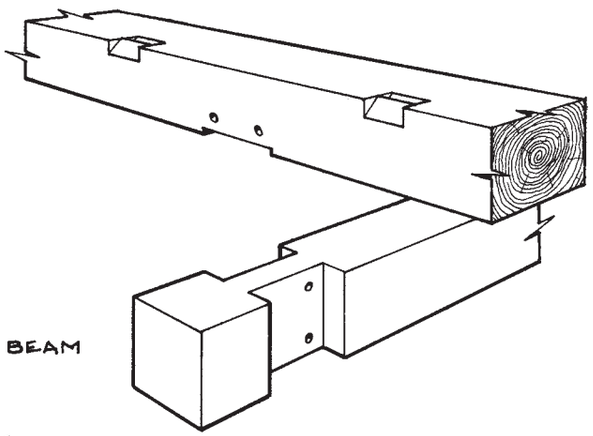
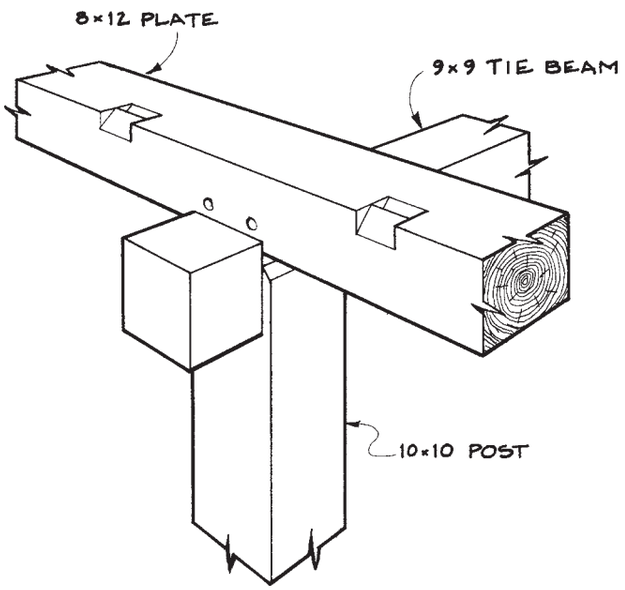


Fig. 16. Common variations on the shape of the protruding tenon. All versions have been found with two wedges, one wedge or no wedges.

Anchorbeam tenon ends from a pre-1820 Dutch barn taken down in Altamont, New York.





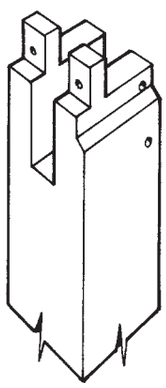


Fig. 17. Assembled and exploded views of a necked tying joint in a ca. 1840, 30x40-ft. English barn in Warren, Vermont. The 9x9 tie beam has a 3-in.-thick neck secured as a normal through tenon with two 1-in. pins. The head protrudes 8 in. past the post. Two, 2-in.-thick tenons secure the post to the plate. This building was cut using the square rule system, and consequently the joint is housed into the plate. Roof thrust is additionally resisted by the plate bearing directly against the head of the tie beam.

Index to TIMBER FRAMING 1-54 October 1985-December 1999

Subjects

Issue Number by Date

1: Oct 85	19: Mar 91	37: Sep 95
2: Jul 86	20: Jun 91	38: Dec 95
3: Mar 87	21: Sep 91	39: Mar 96
4: May 87	22: Dec 91	40: Jun 96
5: Aug 87	23: Mar 92	41: Sep 96
6: Nov 87	24: Jun 92	42: Dec 96
7: Feb 88	25: Sep 92	43: Mar 97
8: May 88	26: Dec 92	44: Jun 97
9: Aug 88	27: Mar 93	45: Sep 97
10: Nov 88	28: Jun 93	46: Dec 97
11: Feb 89	29: Sep 93	47: Mar 98
12: May 89	30: Dec 93	48: Jun 98
13: Aug 89	31: Mar 94	49: Sep 98
14: Nov 89	32: Jun 94	50: Dec 98
15: Feb 90	33: Sep 94	51: Mar 99
16: May 90	34: Dec 94	52: Jun 99
17: Sep 90	35: Mar 95	53: Sep 99
18: Dec 90	36: Jun 95	54: Dec 99

Index by Subject

(Index by Author, page 17)

Apprenticeship

Architectural Design

Architectural Design Contests and Expositions

Automationaa

Barns

Biographies and Profiles

Book Reviews

Bridges

Business Council

Business Management

China

Churches

Compound and Roof Joinery (*See also* Layout)

Culture and Cross-Culture

Dismantling

D-I-Y

Durability (Earth, Wind, Fire, Water)

Egypt

Guild Workshops

Heating, Ventilation and Air Conditioning

Historic Framing

Holland and Dutch America

Humor

Indexes

Japan

Layout Techniques (*See also* Compound and Roof Joinery)

Log Building

Norway

Pegs and Pegging

Preservation and Reconstruction

Index by Author

BOOKS

A Visitor's Guide

A Guide to Medieval English Tithe Barns, by James W. Griswold. Published by Peter E. Randall, Portsmouth, New Hampshire, 1999 (ISBN 0914339737). 10 in. x 7 in., 85 pp., copiously illustrated. Softcover, $15.00.

AVOID Fornication! According to Paul Price, editor of that fine occasional journal, *The Mortice & Tenon*, this is the text of the exhortation to be found incised into a stone plaque 8 ft. up the side of St. Mary's Braemore Church, in (Old) Hampshire. Paul was one of our team who recently repaired the tower frame. What, dear reader, does this have to do with the price of pegs? Why, a picture of the church appears on page 46 of the book at hand!

I'll buy or read any book about barns, but I took a little time to work out exactly who this book is aimed at. I decided that it makes a very good guide for a visiting North American, as it's small enough to carry around while exploring the countryside. I would add that carrying as well the highly portable *Discovering Timber Frame Buildings*, by Richard Harris, and referring to this latter work on matters of framing, would neatly sidestep most criticism that *A Guide to Medieval English Tithe Barns* might attract. (While this is not a review of *Discovering Timber Frame Buildings*, it's worth pointing out that this pocket-sized book is probably the most useful brief guide available on English timber framing.)

Mr. Griswold rightly points out in his overview that we British have slipped into a tendency to call any old or large barn a tithe barn, especially to enhance its standing or perceived value. Having neatly passed the blame for an issue of nomenclature to the natives, the author goes on to set his boundaries. He covers from 1066 (the date of the last successful invasion of England) to the dissolution of the monasteries in 1555, and sensibly includes all large barns and those of historic importance, avoiding academic distinctions between monastic and tithe barns.

Mr. Griswold rightly draws attention to the magnificent Great Coxwell barn, and notes the compliments paid to it by William Morris and Frank Lloyd Wright (an architect much admired by myself), but also includes my favorite barns: Bradford-on-Avon and especially the barn at Lacock. The latter is magnificent, I never tire of visiting it, one always finds it a calm oasis and a cool (in all meanings of the word) place, no matter how many tourists are clogging up the rest of the village.

Lacock, a National Trust Village, has many fine buildings in the vernacular style and is very much worth a visit. (It will be on the TFG-UK Frame Spotting tour proposed for the autumn of this year.) Having made me happy, Mr. Griswold then goes on to mention the barn at Priory Farm in my own village of Kington St. Michael, also known for the famous Jolly Huntsman pub and its Old Speckled Hen beer.

The *Guide to Medieval English Tithe Barns* is not a book on timber framing, nor is it an academic attempt to deliver the last word on a big subject. What it does do is cover most of the bases. It explains tithes and tithing, gives basic history and touches on social history and population, agriculture and timber.

Of course, when we hit construction, it is easy to nitpick. For example, I have never encountered crucks derived from the method shown on one page (22), and the scarf joint on another (28) would ideally have a pair of folding wedges as the key. And, while I'm nitpicking, I could mischievously point out that it might have been appropriate in a book about English barns that the English stone tiles be hung on English wooden battens with English aluminium pegs, or, better still, the cleft oak ones that we make.

I liked the hints on finding barns and the suggested etiquette when trying to gain access to privately owned barns. I was especially pleased to see the author's assertion that having a North American accent seemed to be an advantage.

Mr. Griswold includes what he honestly calls A Partial Inventory of Medieval English Tithe Barns. I'm sure that for many people this section alone will justify the purchase price of the book. If incomplete, it is a good starting point. I can update the entry for Pilton Barn. This stone building was hit by lightning in the early '60s and burned. It is said that the local farmer kept piling up the timbers, with the result that it burned for three weeks, and nothing survived of the framing. But another local farmer, Michael Eavis, who is also the promoter of the world famous Glastonbury Rock festival, bought the remains of the barn, and formed a trust to bring the building back into existence and into communal use. This barn is now undergoing restoration by the capable hands of McCurdy and Co. The existing masonry walls are being carefully conserved, and a new roof built based on those of the Glastonbury Abbey group.

I took the book with me recently on a visit to our Scottish yard so the crew up there could have a look. Our Canadians in Scotland decided that the volume written by the American about the English barns was "A neat little book." I agree. —Bill Keir

Bill Keir (bill@carpenteroak.co.uk) is managing director of Carpenter Oak & Woodland in Chippenham, Wiltshire.

NON-PROFIT ORG.
U.S. POSTAGE
PAID
EAST BARRE, VT
PERMIT NO. 2