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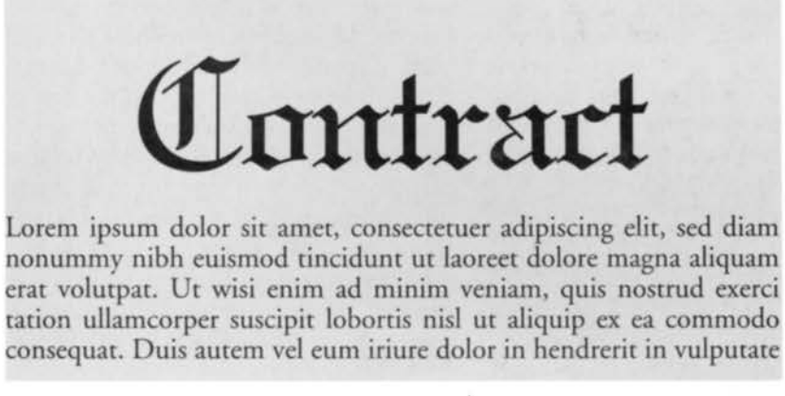
Michael Anderson

Spiraling Dragons II: Reflections on Japanese Carpentry

Marcus Brandt

Historic Framing



Plain Language Contracts

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LETTERS

Rolling Plates?

I ENJOYED TF39, especially Michael Anderson's wonderful insights on Japan and the two good engineering articles. I am particularly glad to see Ed Levin's article ("Joint Engineering II") covering outward thrust from the roof, as it is often overlooked by framers (especially conventional ones) working today. I was troubled, however, by his last comment concerning overturning plate moment. Since I have known Ed he has had this rolling plate phobia. Perhaps he has nightmares where plates are rolling off his buildings! I have personally known a lot of old and new plates with common rafters step-lapped into them and haven't noticed such a problem. What I occasionally see is a plate with spiral grain that twisted as it seasoned and caused one end to rotate. (Twisting at the opposite end is prevented by the roof thrust.)

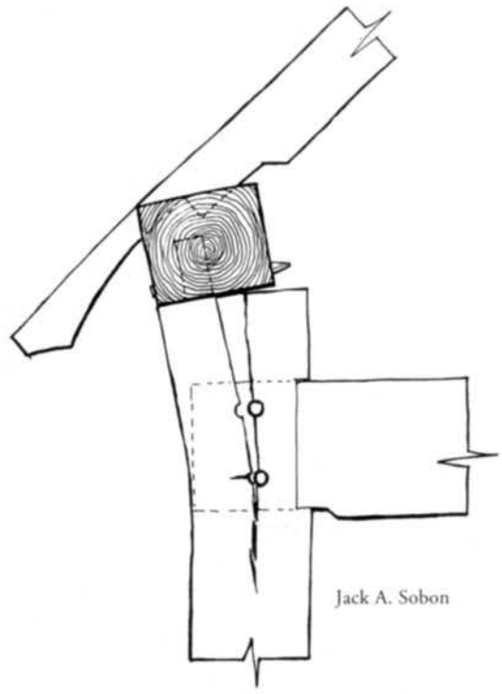

FIG. 1

Because the post mortise is typically nearer to the outside face of the plate, if the timber is boxed-heart, tangential shrinkage can cause the inner portion to lift off the post. I have noticed this in new plates even before the rafters are applied. It is minor and not a structural concern.

I have seen plates in old structures that were grooved on their underside for vertical boards, and these plates overhung their posts by 2 in. or more without signs of rotation. So why does the engineering say there is a problem even though reality doesn't? First, the rafter is not an axial load meeting the plate at a point; it has a large contact surface. To rotate the plate, the roof would have to lift up. As the roof pitch lessens and thrust increases, so does the contact area in the rafter seat. Engineers always consider an axial force acting along the centerline of a member and in theory such a force would cause rotation. But the geometry of this joint causes the full thrust to occur at the very bottom of the rafter. The bottom inch of Ed's rafter could handle the whole load and in fact would as soon as the plate rotated a fraction of a degree. The reason we don't get rotation is right there in Ed's drawings. Take the angle of the resultant vector

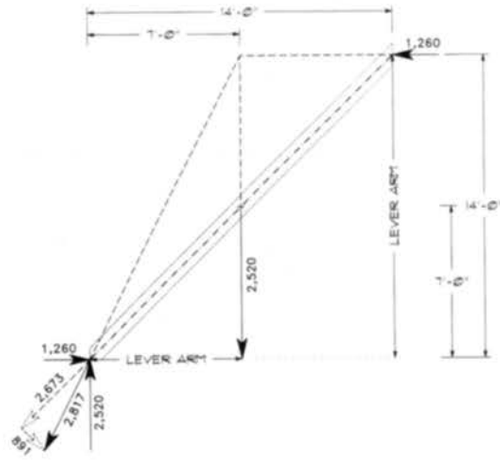

FIG. 2

Ed Levin

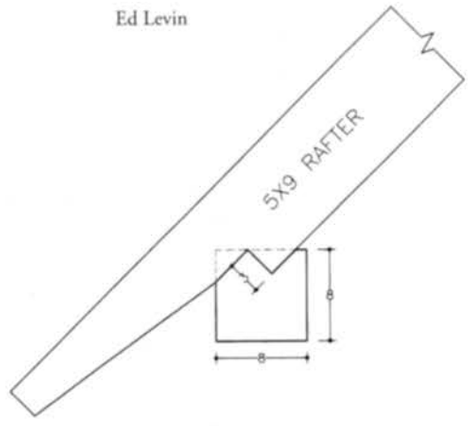

FIG. 3

TIMBER FRAMING, Journal of the Timber Framers Guild of North America, 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. ♻

(2,817 lbs.) in Fig. 2 and apply it to the first inch of the rafter seat in Fig. 3. Extended, it comes down over the post. In simplest terms, the weight of the roof prevents rotation. In old examples, the joinery is somewhat different from Ed's example. The rafter top is usually flush with the plate and the latter is often rectangular in section and laid flat. This brings the resultant force even farther inside. Sometimes in old frames these post-to-plate joints weren't even pegged!

Where old frames exhibit a real problem is not covered in Ed's discussion. The failures I see involve the post splitting from the inside of the top tenon down to the peg-holes of the tie-beam mortise (Fig. 1), a potential structure collapse. This is especially to be found in frames where the distance between the plate and the tie-beam is less than a foot. The pegs are pulling on the inside half of the post, the plate is pushing on the outside half: the post-top becomes a wishbone. This splitting can be prevented by joinery design and there are traditional solutions available. Obviously, Ed needs to present us with a Joint Engineering III!

JACK A. SOBON WINDSOR, MA 01270
April 10, 1996

BOOKS

Stue, Loft, Kirke

Norwegian Wood, A Tradition in Building, by Jerri Holan. Foreword by Christian Norberg-Schulz. Rizzoli, New York, 1990. 8 in. x 10 in., 14 color plates, profusely illustrated. Softbound, $22.95 from The Astragal Press, Mendham, NJ 07945-0239.

THIS book is a remarkably complete study of the three surviving traditional Norwegian building types: the *stue*, or dwelling house; the *loft*, or store house; and the *stave kirke,* or stave church. Through a multitude of photographs, maps, drawings and descriptions the author explores each building type and strives to show how each was a response to its place in the world as well as to a particular life style. There are many examples of store houses built between 1600 and 1900 plus plans and photographs of virtually every one of the 22 surviving *stave kirker.* The *stuer*, or main farm houses, are illustrated more sparsely, although their styles and varied locations are noted.

Norway is a heavily forested land, and open land was and is precious. The author contends that because of this, Norwegian architecture shows a particular affinity for and knowledge of wood. Buildings were constructed of either logs or vertical staves with plank walls from the earliest times until the 19th century. The *loft* (plural uninflected), which had a distinctive block house shape in order to provide covered areas for drying meats, were typically of log construction, with a variety of connections. The *stuer* were usually of plank construction, similar to ancient Viking houses. Most dramatically, the *stave kirker*, as one can deduce from their name, used huge tree trunks as columns to achieve impressive height, rivaling, on a smaller scale, the Gothic churches of Europe. Beginning in the middle of the 19th century, Norwegians actively promoted a sense of national identity and history, so that these rural relics were repaired, restored and often moved to open air folk museums. One area in which I wish the author had spent more time was the amount of restoration done on these buildings, although it has been documented that the surviving *stave kirker* are up to 800 years old. In the folk museums one can see buildings from different times and regions, each sharing the same basic type, but varying in size, layout, and decoration according to the region from which they came. Not surprisingly, the southern and richer areas produced more open farm layouts; in the frozen north, the typical farm was arranged in a protective square, to keep out the fierce winter snows and wind. This is well documented in drawings and photographs, and the link between building construction and the local climate is very clear.

But even though the images are compelling, and the variety of timber construction and decoration is fascinating, I found the book hard to read. The author rhapsodizes endlessly about the mythic and creative forces of the builders of these structures, and how romantic they are, but she largely misses an important point.

Small, dark and totally enclosed timber huts, which is what these *stuer* are, are not signs of romanticism or attachment to mythic forces, they are the result of traditional building combined with extreme poverty. The author mentions that windows were not introduced until the 16th and 17th centuries, long after these building types were anachronisms, but does not stress how dark and smoky they would have been.

In fact, the typical Viking house, which was also built of logs or staves, and had a bark and sod roof, also featured no windows, a small, low door for defense and an open smoke hearth. Primitive corner hearths and chimneys were not introduced until the late 16th and early 17th centuries, so for some 800 years at least the typical rural Norwegian lived in a smoke-filled hut, without windows. Once glass was available, apparently in the 18th century, windows were cut into both *stuer* and *stave kirker*, and the later dwelling houses have a distinctly European look.

One of the most striking elements of a stave kirke, not really brought out by the flash photography used in the book to show the wonderful interior details, is how dark it is. Tiny openings, high up like distant stars, provide the only natural light. The interiors are grim, and powerful in the harsh lifestyle they reflect. The mixture of traditional pagan carving and runes, combined with Christian building types and symbols, shows just how merged the two cultures were after the 11th century and how powerful the hold of ancient traditions was. What I found remarkable was how late the intricate, entwined carving style lasted, from the Viking era around 850 AD all the way until the 19th century, when it was used to decorate a farm storehouse's entry posts.

The Viking era, when the Norwegians with their Danish and Swedish cousins hurled themselves upon the "civilized" world, introduced these Nordic adventurers to the entire western world, from Greenland to Constantinople. They were exposed to all sorts of building traditions, and what I found most interesting was the way in which various architectural traditions were brought home to be interpreted and expressed in wood.

Because the history of many of these buildings is obscure, *Norwegian Wood* stresses locations and building types as defined by localities. This is certainly valid, since even today accent, traditional jewelry and dress and even sweater patterns label one as coming from a particular region. But it would have been interesting to track how outside influences changed traditional construction. For example, the swirling, painted patterns used to decorate the interiors of 18th century houses clearly had baroque origins, but were reinterpreted by the Norwegians. And a few of the later farms, glimpsed in some of the pictures, clearly show European models for their origin.

So beautiful and impressive as these traditional Norwegian buildings are, they are much like the reconstructed English houses at Plimoth plantation; interesting, and making the maximum use of local materials, but dark and uncomfortable to live in. Perhaps that is why most Norwegians today live in pre-fabricated wooden houses, mass-produced with modern windows and utilities.

Norwegian Wood is a very thorough and well-illustrated exploration of traditional Norwegian building, and the drawings are very clear in showing how these buildings were constructed. But because of the daunting prose, the book is chiefly useful as a picture and detail resource. The many photographs and details of intricate and fascinating timber construction can inspire one today, even though as a guide for modern construction, they illustrate a bygone tradition.

—JONATHAN VINCENT

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Plain Language Contracts

A RECENT survey of state statutes indicates that 13 states out of 50 have now enacted legislation calling for the use of what is called "plain language" in a variety of situations. The earliest of these may have been a 1970 California law applicable to consumer goods warranties. Since then, the subject matters chosen by California and other states have included state agency documents, legislative statements concerning taxes, insurance policies, and, in some states, the listing of precise mathematical formulas for determining what is called the "reading ease" of documents. Not surprisingly, the most popular application of plain language laws is to consumer transactions, as defined from state to state. Most such laws have dollar limits of application, meaning that contracts for amounts over the limits are exempt from the application of the law; $50,000 seems to be a popular limit. Some states have totally excluded real estate sales, while others have not only specifically included them, as well as mortgage loans, but removed any dollar limits. Typically, these laws require consumer contracts to be written in a simple, clear, understandable and easily readable way for the benefit of the consumer. Without exception, these laws applicable to consumer contracts contain provisions to the effect that the law shall not be waived.

The point to be seen is that plain language laws have been around long enough, spread far enough, and become applicable to enough legal relationships that ordinary people without legal training have become accustomed to reading and understanding fairly-drafted contracts and being confident that they know their rights and obligations. Some may say that plain language laws are just one more example of the constant meddling of bureaucrats which makes the conduct of business more and more difficult for the ordinary businessman trying to get along and make an honest living. In a real sense, like the solid line in the center of the road which makes simple travel possible, the concept of plainly written contracts carries with it both the restriction of its methods and the potential freedom of being able to put together a deal in which both sides have confidence and without the necessity of having it drafted by a lawyer. The result will be that the law serves the parties instead of the reverse.

WHY HAVE A WRITTEN CONTRACT ANYWAY? There once was a craftsman who wanted it known that he had no need of any contracts since he and his customers "did business on a handshake." While that concept is a tribute to the fundamental goodness (salvageability?) of human nature, perhaps it could stand a closer look. The handshake is really symbolic of the mutual acknowledgment of two people that they have arrived at a meeting of their minds as to who is to do what, where, when, why, how and for how much money. But what is it called, this meeting of the two minds? Does the word "contract" come to mind? It should, because, stripped of any convoluted applications to the case at bar, that is the fundamental definition found in pronouncements of the highest courts of all of the states which are the beginning points for all discussions on the nature of contracts. Note, however, that the law does not make definitions for their own sake. The law cares what a contract is because the law understands that a contract is a promise, or set of promises, for a valuable consideration (here read "money"), for the breaking of which the law provides a remedy. It is easily seen, then, that the handshake deal, provided that it can be shown to exist, is truly an enforceable contract.

HOW, then, can the handshake contract be shown to exist? What are its terms, provisions, conditions and limitations? The oral statements of the contracting parties have usually been the things depended upon to establish what it was that they agreed to do. Later written documents such as letters, memos and invoices have not really been given much more credibility than oral statements, since these writings can be carved out to be just as self–serving as any oral statement. The contracting parties are left in the classic confrontation of "his word against mine"—and the cynical among us will predict that the winner in such a contest will be the most convincing of two liars . . . er, lawyers. The simple truth is that just about every contract ever made sooner or later becomes burdensome to every contracting party; and, confronted with the actual burden of performing, or paying, or whatever else may be required, the burdened party perceives himself in a situation, the details of which he did not exactly anticipate way back when the "handshake deal" was put together. Even though these uncomfortable details might logically be seen to be direct consequences of the making of the deal and the earlier parts of the performance of it, this burdened party might think he or she is acting in good faith when saying, "If I had known this might come about, I never would have made that deal." Human experience tells us that there is a great temptation to take the next step and deny that the "handshake deal" was ever made. No matter what a court of law might make of the situation, everybody concerned will be a loser because the problem has gone beyond the ability of the contracting parties to fix it.

If it is true that the lock on the tool shed door keeps the honest person honest, then it can also be said that the well-written contract, signed by all the persons and entities concerned, is a pretty effective "temptation killer," at least as far as ordinary, reasonable people live and work. To be sure, there are some people who will not be kept honest, no matter what the terms of a written contract. More about them later; for the time being, it is suggested that the parties be presumed to be fundamentally (or, perhaps, persuadably) capable of "good faith."

WHY NOT ONE OF THE POPULAR, PRE-PRINTED FORMS? The considered answer to this question is that their very popularity and broad application to everything from multi–million dollar office and shopping center projects to speculative apartment developments to small warehouses and everything in between makes them inadvisable for the craftsman trying to match his skill to the dreams of the typical customer. The usual reference is to the American Institute of Architects Form which, in one edition or another, has been used over and over for nearly the entire 20th century. This length of service seems to suggest that this form should not lightly be discarded. It is truly a monument to the lengths to which dedicated lawyers, or, in this case, three or four generations of them, are capable of going when advocating the welfare of a single class of clients. Consider, however, the following. First, the form of contract has no real meaning unless it is read together with its standard form of General Conditions, which are carefully designed to confer total responsibility upon the contractor, to confirm absolute control in the architect (whose independence from project owner is artificially created by the document), and to require quite rigidly that all contractor's disputes be submitted to arbitration but at the same time forbidding contractor from making architect a party to the arbitration. Second, these General Conditions grant to architect the power to direct changes in the work of the contract without the consent of the contractor and without meaningful limitation as to scope, cost or performance time. Third, the Form and General Conditions have undergone at least 12 revisions since 1913 and seem to be continually involved in litigation in a variety of different jurisdictions so that their meaning and application are constantly being subjected to

re-examination and re-interpretation, the result being a patch-work quilt of law described by careful lawyers (are there any other kinds?) in terms of "trends," "majority rules," "minority views" and "needs for clarification." The craftsman who presses for some definitive statement on a given point usually finds that it seems to be dependent on to whom the question is addressed at any given occasion; and a careful reading of the answer shows that it is nearly always phrased in language suggesting the possibility of a different interpretation in a litigated case, "depending on the facts of the case."

THE CRAFTSMAN DESERVES SOMETHING BETTER. Adequately considered, the circumstances of the craftsman speak of a contractor who does not easily or willingly conform to someone else's Procrustean bed. By its very nature, craftsmanship rejects the "one-size-fits-all" concept; it thrives on adaptation and the willingness to do the unique; and, above all, it necessarily includes the appropriate adaptation of the "right tool" to accomplish each phase of the project. The craftsman should have no trouble viewing the written contract with owner as a tool. It is, in the first place, a translator of the craftsman's skill into the owner's completed project. It is also a translator of owner's treasure into craftsman's working capital and, ultimately, the profit that sustains and promotes the next project. Finally, it is, over all, the articulation of the manner of temporary cooperation between two parties who have quite different and fundamentally opposing expectations, to wit: the most building for the money as opposed to the most money for the building. Viewed in this light, it should also be rather easy to accept the idea that the written contract, like any other tool, should not be expected to perform a job for which it is not designed. It cannot, for example, be expected to protect, totally, one side; for what is designed to function as a shield to one side looks like, and often functions like, a sword to the other side; and it invites controversy and the meddling of a self-appointed field leveller. It is suggested that the articulation of this temporary relationship between craftsman and owner can best be drawn up with fair contributions from both sides, and with at least an understanding by each of the fundamental concerns of the other. It is, moreover, urged that this search for articulation should be the first effort, even before design concepts or costs are approached. It is not hard to imagine a craftsman reluctantly making a somewhat uncomfortable deal to cut and raise a frame because the time and effort already expended on designing and estimating the project might otherwise be lost. An owner who demands substantial work such as design before discussing and resolving the manner of doing business might very well be looking to gain an unfair advantage. In most cases, if people are invited to put down in writing the things they think ought to be in a contract, they usually present something shaded somewhat to one side, fundamentally useful, and capable of being adjusted, after a good discussion, to answer the basic needs of both sides. The craftsman who is prepared with a list of subject matters or areas to be addressed in the contract is in a position to work across a table with an owner to produce the fundamental articulation; and comparatively little time is required to discover whether or not something workable in the way of a contract can be produced. The following is suggested as a reasonably logical order.

1. THE PARTIES. This is the occasion to learn and list the names, addresses and telephone numbers of all people who will have any power or authority to act, make commitments, make decisions or bind either side of the contract. If there will be limited access to someone who will be making decisions, such as a particular time period of ordinary weekdays, or not at all on weekends, this is the time to learn about it and find a way to accommodate it. Both sides will have to accept the fact that certain communications and notices are best done in writing; so here is the place to set down the address to which the writing is to be sent. Fax transmittals have become a way of life for all of us, and this can also be handled well. It is suggested, however, that a provision be included requiring that hard copies be sent by way of confirmation. On-line and e-mail probably have not been around long enough to have much in the way of case-developed legal status; and it is not recommended that they be relied upon to satisfy a contract requirement for "writing." This section could be concluded with a provision to the effect that additions to the list of people authorized to act have to be made in writing before the person can act.

2. DEFINITIONS. As a woodworker can never have too many clamps, so a contract can never have too many definitions. But why are they needed? Owner knows very well what owner wants; and craftsman knows very well what he can and will be able to do. But in a real sense, the contract is being reduced to writing so that a stranger can see exactly what both owner and craftsman have bound themselves to do. What stranger? Even without a name it is possible to describe this stranger. More often than not, the stranger is male; he is middle-aged, probably a bit overweight, has a mortgage, children in college; he wears a black robe and sits on a bench; and his job, in a contested contract case, is to decide, as a matter of law, what the terms of a contract mean. He also has what always looks to him an unfair burden of cases which the Chief Judge expects him to resolve; and anything, such as a handy and complete list of term definitions, which helps him make short work of a case, will make him temporarily happy.

But why talk about a judge? Isn't the whole idea of drafting a contract to avoid lawyers and judges? Yes, indeed! But long experience tells us that stretching out a worst-case scenario and planning how to handle it makes us take the steps necessary to avoid it; and if, despite the caution, the worst happens, then the tools are in place to deal with it. In the case of our middle-aged stranger, an adequate set of definitions should do his job for him; and he is less likely to decide in advance how he wants to end the case, then justify it by going backwards through the contract to find places where he has some room to "interpret" and producing an interpretation which neither side even argued, let alone thought possible. This is how he punishes parties for making him "decide" something which he thinks they should have settled on the court house steps instead of forcing the case to trial. As a practical matter, adequate definitions make it easier to control a dispute since the same principle of taking a judge's job away from him makes it less likely that a lawyer will find something to sink a hook into and support an argument.

What is to be defined? The short answer is "everything"; the work; every document referred to anywhere; the methods; all plans and specifications. Never, never, never let an adjective or other descriptive word get into the contract without defining it! This section of the contract is probably where the craftsman can best smoke out the "customer from hell" we all would like to avoid. Any waffling or resistance to exact definitions being included in writing should suggest caution in any further dealings. A very practical tool here is a separate pad of paper dedicated to the collecting of all of the words and terms requiring definitions, even if one or more of the actual working definitions has to be cobbled together from several sources later on in the drafting process; the fundamental need is acknowledged each time a new word is mentioned; but the search for articulation between owner and craftsman will not bog down or get sidetracked; on the contrary, it proceeds in orderly fashion through the next and subsequent topics.

3. OWNER'S RESPONSIBILITIES. Here is where all of owner's duties apart from the obligation to pay the contract price should be set out.

Owner should be willing to stipulate his

financial responsibility. If he is financing the project entirely from his own resources, he should be willing to provide verifiable references. If the project is being financed by a lender, contractor should require a notice from lender in the event that lender exercises any right or power to hold up an advance or stop making any further advances.

Owner should be willing to guarantee any surveys or statements as to site conditions on which contractor is expected to rely. There is some resistance to this request, from time to time. If it appears, owner should be reminded that site conditions often lead to expensive extras; and performance deadlines cannot be considered since they would be meaningless.

Contractor should stand ready to assist in obtaining permits, easements, utilities connections and the like; but, basically, the responsibility for these should be owner's. This does not apply to inspections and code compliance, which are separately handled by the contractor.

Owner may demand the right to issue a stop-order. If it is insisted upon, then it has to be limited to circumstances which amount to a breach of the contract by contractor; and it has to be preceded by written notice of what owner claims amounts to the breach and the notice has to afford contractor the opportunity to correct the breach.

4. CONTRACTOR'S RESPONSIBILITIES. Here is the place where contractor should carefully set out his familiarity with the plans and specifications, specify any limitations on knowledge of site conditions and list all work by owner or any other contractor which must necessarily be completed before his work can start. If the foundation, for example, is being done by another contractor, here is where the contract should require an inspector's sign-off as a pre-condition to starting the clock on the framing.

This is the place where any supervisory duties should be spelled out; contractor cannot be reluctant to take these on since he wants and needs access to the whole site to perform his work; they should, however, be written to remove any doubt about them.

Now would be a good time to set out all the materials and labor to be provided by the contractor, as well as the utilities to be used on site to do contractor's work (and whether these are to be provided by contractor as part of the contract work). More often than not, owner provides the utilities; but failure to say something in the contract on this point could be a source of delays and a needless dispute very early in the life of the contract. As part of this section, it would be a good idea for the contractor to guarantee the skill of the work force and their proper conduct while on owner's job site.

Here, also, is the spot to set out any special scheduling or coordination requirements to be followed by contractor. It may seem somewhat picky, but if contractor's work has to be done around, say, a mechanical contractor, a bland assurance of owner's control over the other contractor may not be enough if there is active interference resulting in delay or damage to the work as installed. There has to be a real statement as to who is the "site boss."

Now would be a good point in the discussion with owner to find out the "stuff" of which this potential "cooperator" is made. Provide this person with two separate sheets of paper; ask for separate listings of owner's ideas as to where the responsibilities ought to "shake out" as between owner and contractor; then "remember" a telephone call that must be returned and leave owner alone for 15 minutes telling him to make his notes for examination upon return. You can expect that the listing will go somewhat in owner's favor; but look for at least a couple of spots where there looks to have been an attempt to balance an entry on one list with an entry on the other. To the jaded among us, this element of balance will come as a pleasant surprise; to the rest of us, this will be the confirmation that here is someone with whom we would like to do business.

On the other hand, if the listings are grossly disproportionate and totally lacking in balance, this is the tip-off that the potential contract may be a source of serious trouble; and the evaluation as to whether the work is all that necessary to the craftsman will have to be made. The hand should not be tipped at this point; even if it looks like a "no way in hell" proposition, the importance of the listings as a "discovery tool" can be put aside by proceeding to the next section or two. While it may cause an eyebrow or two to rise, this concealing of the significance of something in the mind of the craftsman is not dishonest because there is no duty to disclose the actual weight ascribed to any given factor in the negotiations. Moreover, if word leaks out to other potential customers, future responses will be loaded and provide no useful information.

5. THE WORK. This is where the nature and extent of the project should be adequately described. This is not, however, the place to deal with exact specifications. Just as there was a pad for noting words and terms for inclusion in the definition section, there might be good use made of another pad for noting specification references so that they can be reserved to the specifications and kept out of the language of the contract itself. The importance here is to reserve near total control of the wording of the specifications to the craftsman to keep the project within his capacity and to avoid any potential ambiguity. This is definitely the place in which there must be set out those things which are not to be included within the expected scope of the work. This part has to be so clear that there can be no mistaking the intentions of the parties.

6. TIME FOR PERFORMANCE. The craftsman would be well advised to try to avoid any rigid deadlines; working with natural material or supplies of it which can never be guaranteed provides any number of possible interruptions to performance. Among themselves, craftsmen know that this is truly beyond the control of the craftsman; but it must be remembered that "the stranger" would invariably rule that the craftsman is responsible for anticipating such supply problems. There has to be some reluctance to discuss anything of the sort with owner on the theory that it may put owner off. This has to be a judgment call for the negotiator on a case-by-case basis; but trouble awaits the craftsman who agrees to a deadline without a reasonable proceedure for securing extensions of time. The best way to limit the problem in such a case is to negotiate a liquidated damage clause which allows the craftsman to know exactly what the dollar exposure is at all times.

There is another side to this coin which is often overlooked by owners. Many times an owner will think nothing of passing up a projected starting date, relying entirely on his sole power to issue the order to proceed with the work. He has no knowledge of, and no real interest in, craftsman's other work and the constant need to juggle work schedules. It would seem fair to provide something of a corresponding remedy to craftsman in the way of a liquidated damage clause for owner's delays if owner insists on a date certain for completion by craftsman.

This is also the right place to set out the precise thing or step, the accomplishment of which constitutes "substantial performance." This is where owner can use the project as intended, even if it lacks cosmetic perfection. It is important to the craftsman since it terminates any further exposure to delay claims or liquidated damages; and, of more significance, it entitles craftsman to final payment, less an allowance to cover legitimate punch-list items.

7. CONTRACT SUM AND PAYMENTS. However the initial figure is determined, this is the spot where it is expressed. Here, also, must be set out the entire schedule of periodic progress payments. Whether these subdivisions are date-fixed or event-determined makes no difference; the crucial point to be taken here is that there can be no vagueness or ambiguity. The craftsman is his own best judge of how much of his limited working capital can be held out at risk at any given time; and it is no shame to

ask for bi–weekly or even weekly payments if, for example, payroll must be met for a specially-augmented working crew. Reasonable owners understand that craftsmen may not be capable of indefinitely financing the progress of the work.

Conversely, failure to accept reality as to the extent of working capital and how often it must be turned over in order to keep the project running smoothly, can, all by itself, make the craftsman vulnerable to a nearly honest owner who cannot seem to pass up the chance to squeeze the project for enhanced work when craftsman comes to owner, hat-in-hand, seeking a change in the schedule of payments or an advance on the next periodic payment to take care of a supplier who will not wait.

Long experience tells us that the request for final payment is invariably met with a punch-list. Mostly, these are in writing; but they can take the form of a series of oral complaints. This is surely the most disagreeable feature of any project; but it might be helpful to see it as the last expression of what really is a fear of losing of power to compel performance. Professionals who make their living by explaining this sort of behavior talk at considerable length about it; but that cannot make it any easier to endure. Rather than dreading this or pretending that it will not happen, it may be more effective to provide a specific amount or contract percentage to be held in an interest-bearing escrow account until the punch-list is cleared. Owner would acknowledge that substantial completion had been achieved; but craftsman would have to acknowledge that real items, cosmetic though their nature, remained undone. The imagination of the parties could be used to figure out a contingent split of the interest to act as an inducement for prompt clearance of the punch-list.

8. INSPECTIONS . This is the logical place to provide for quality control since owner uses that power to govern his performance of his obligation to make the payments set out in the last section. Fairness dictates that, for every payment request, there ought to be at least the opportunity for owner to verify the fact and extent of progress. Whether conducted in the shop of the craftsman or on the jobsite, this has to be accorded a certain amount of dignity since each offer of inspection is a reaffirmation of craftsman's committment to the project; and the seriousness with which craftsman treats these occasions clearly conveys his expectation that owner will perform as expected by making the next payment in timely fashion.

This is the place to set out contractor's obligation to arrange for public authority inspections; but it is not recommended that periodic payments be tied to these since their timing cannot be closely controlled; and approvals are sometimes witheld on what appear to be trivial grounds, leading to considerable embarrassment.

9. CHANGES IN THE WORK. Somewhere in the world, at some indefinite time, surely long after all current members of the Timber Framers Guild have become forgotten dust, a craftsman's contract will be performed without once requiring any change of any nature. But, until then, there has to be a way of doing what has to be done to accommodate owner's new piece of his dream, or an unforseen site condition, or anything else that seems destined to frustrate those concerned. In the use of this section all the rapport established by the very process of negotiating the form of the contract will look like money in the bank. The history of discussion and accommodation and the confidence built up from the succession of documentary accomplishments is a near-guarantee of the good will necessary to deal with the need for changes.

This section should require that written submissions of change-order proposals have to be acted upon within a certain fixed number of days; and that time constraints affecting performance should be suspended while the proposal is under consideration. It is recommended that there be no restriction on the manner of pricing the change, so that it could be either on a fixed price basis on a time-and-material basis; but it is also recommended that the entire amount of the change-order be payable with the very next periodic payment, even if part of the work within the scope of the change-order goes beyond the normal cut-off date for computation of the payment. In this way, owner will be encouraged to use the change-order process for really important things. There will be occasions when some changes will be so small that use of the change-order process simply does not make sense. In such a case, especially when there is no adjustment of the contract price, a nice little letter to owner seems like a good idea; otherwise, owner might forget that a favor has been done.

10. SPECIAL PROVISIONS. To the untutored observer, it would seem to make good sense that a craftsman could suspend his performance of the contract work if owner defaults or delays making a payment called for by the terms of the contract. But without a contract provision allowing suspension of performance, craftsman has to complete his entire performance, even if no money at all is paid; otherwise he is, himself, in breach of the contract; and "the stranger" in the black robe will not help.

This, then, is the place to collect all the special ideas that make it possible to carry on but do not seem to fit in elsewhere. Some, like the power to suspend performance in the event of non-payment, could very well rise to the point of go-no go with respect to the project. The only dependable guide is to stretch out the worst-case scenario before making the decision.

11. TERMINATION. Uncomfortable as it may be to contemplate, there has to be recognition that there are times when the parties to a contract simply cannot continue to do business. Here the contract must provide for written notice of intent to terminate; and the exercise of that right by either party must be limited to the breaking of the contract by the other party. The notice must be expressed in the form of a conditional termination, to take effect after a certain number of days unless the other party corrects whatever amounts to the breaking of the contract.

Needless to say, this is the most drastic remedy conceivable; and even though there is a considerable dread at using it, it just has to be available.

12. LISTING OF DOCUMENTS. This is the section where all of the documents of any description that are included by reference should be fully listed by name, date of composition and, if necessary to further identify them, the author.

13. MEDIATION OF DISPUTES. There ought to be a way that the parties, should they arrive at a point where they cannot, by themselves, resolve their problems, can nevertheless do something short of taking the case to a court of law. Most people have some familiarity with arbitration; but that can be time consuming and expensive as well.

It is suggested that the contract provide that, at the request of either party, any dispute they are not able to resolve, shall be referred to a mediator, expense of which is to be equally shared by the parties. This makes it possible for someone with an objective point of view to find that middle ground that will enable the parties to compromise without seeming to lose the control they may feel is important to winding up the contract in orderly fashion.

14. INTEGRATION CLAUSE. Finally, when every other thing immaginable has been written, it is time to include the recitation that this is the entire contract; that no other inducements to its signing exist outside it and that there shall be no changes to the contract unless they are in writing and signed by all of the persons bound by the original contract. —David G. Crocco

The author is a retired attorney living in Ridgewood, N.J., and a notable supporter of Guild outreach efforts.

1996 Traditional Framing Symposium

THE Guild's Traditional Timber Framing Research and Advisory Group held its annual public symposium February 9-11 at the Kirkmont Center, a commodious, newly timber-framed building in Zanesfield, Ohio, nearly at the geographical center of the state and on one its rare hills. A couple of covered bridges and numerous barns, including early ones very well framed in chestnut and white oak, made up the itinerary for the customary Saturday afternoon tour, which involved a lengthy motor caravan to carry the fifty visitors and speakers who attended. Symposium proceedings follow. Additional speakers included geographer Hubert Wilhelm ("Settlement and Traditional Barns of Ohio") and John MacFarland ("Legenderstuhl Trusses").

ROMANCE AND SYMBOLISM OF COVERED BRIDGES

David A. Simmons

AMERICANS today have highly romanticized feelings about covered bridges. Perhaps the prime illustration is the story *The Bridges of Madison County* in which covered bridges provide a focal point for an erotic love affair. Covered bridges even have some mystery. How, for example, do you explain the roof? Although we have fun with the many folklore explanations, there is of course only one true reason: to preserve the timber. The 19th-century bridge builder would probably be amused at our modern attitudes. To him, a covered bridge was a practical solution to an engineering problem. How do we explain the transition from realism to romance?

Simple age is one reason. The use of wood itself also seems to imply rarity and historicity. The bridges make striking images, like barns suspended over water. Most important for today's auto-oriented world, covered bridges are a drive-through history lesson. (Unfortunately it is a lesson not learned by too many: vandalism and destruction by fire are the most serious threats to covered bridges.) A final important attribute of covered bridges is that they seem to represent Nature.

Precedents for American covered bridges go back to 16th-century central Europe, where the wooden truss was first developed. However, the truly American style of bridge was not wood but iron. Ohioans, for example, received 12 patents for wooden bridge designs during the third quarter of the 19th century. That same period saw the issuance of 52 patents for iron bridges to Buckeye bridge builders. Europeans also built iron bridges, but their designs were generally very similar. Americans produced an immense variety of iron bridge designs and Ohio alone boasted more than 70 iron bridge builders.

The last wrought-iron through-truss in Franklin County, Ohio, can be compared with the last wooden covered bridge in the county. Both were built in the late 1880s by the Columbus Bridge Company. The materials for each came from natural resources and both were altered and shaped to produce the bridge components. The two bridges were produced by a commercial concern in an industrial process where unromantic things like grime and labor relations came into play. The parts of each structure were carefully proportioned so that no more nor less material than required was used. In sum, they were as efficient designs as any produced by American industry. Both bridges were fabricated off-site and transported to the site in pieces, where their designs allowed rapid field assembly, since time- and labor-saving schemes were vitally important to the American economy. The primary difference between the two bridges was in their tension connections, the iron bridge using eyebars and pins, the wooden one using scarf-like configurations.

Iron and wooden bridges are equally industrial, engineered artifacts made after calculation of material strengths and with specialized joining techniques. Their study can reveal much about the history of American industry, natural resource use, labor-management issues, transportation, business and politics.

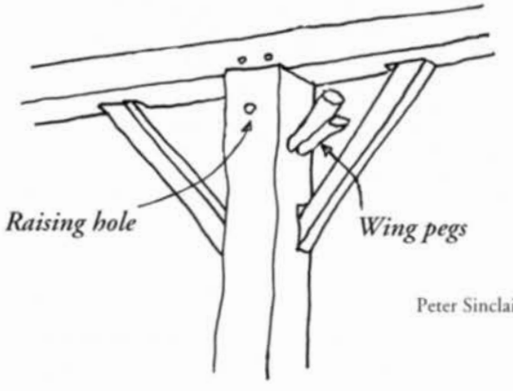
Collection Ohio Historical Society

RAISING HOLES AND WING PEGS

Peter Sinclair and Bob Hedges

FOUR Dutch-American timber-framed barns located within a few miles of each other in the township of Rhinebeck, Dutchess County, N.Y., share a style of workmanship, early 19th-century square-rule methodology and a similarity of design that suggest a single builder or family of builders. All four are drive-through aisle-barns that originally had outward-swinging wagon doors on their end-walls.

These Dutch barns are among the 14 traditional (12 Dutch and two side-entrance) barns that we have documented in Rhinebeck. All of them have raising holes drilled transversely through the columns. This is a common feature of traditional framing in the mid-Hudson region.



Peter Sinclair

The compelling and unique additional feature linking the four barns of this study is the presence of what we call "wing pegs." These fat pegs, 10 to 12 in. long, fit into 2-in. diameter holes drilled diagonally into the layout faces of the internal columns, just below the raising holes, as shown in the drawing. Like the raising hole, with which it seems associated, the wing peg remains to be explained. Such discoveries suggest what might be revealed through a detailed comparative study of the region's traditional timber framing.

HENRY ANTES HOUSE

Marcus Brandt

BUILT in 1736, the Henry Antes house in Lower Frederick Township, Montgomery Co., Pennsylvania, is a well-preserved example of a classic Germanic stone house with three-room first floor and central chimney.

The major feature of the roof structure is the pair of *Legenderstuhl* (leaning chair) trusses below. These take much of the roof load by way of the purlins that saddle into them; perhaps more important, they support the upper attic floor. Careful examination of the tapered truss posts shows that all four were made from the same log, hewn square, ripped in half and each half ripped again on a bias.

All the main attic floor joists were built into the top of the stone wall and protrude a foot and a half beyond the wall. A cornice plate is cogged into the tops of the joist ends, serving as rafter plate and exposed cornice as viewed from below. Common rafters (pit-sawn

Marcus Brandt

and hewn) sit in unpegged mortises in the cornice plate, touch the purlin and meet their mates at the peak in unpegged tongue-and-fork joints. Nail scar and lath spacing evidence indicate that the original roof was German side-lapped oak shingle, 16 in. to the weather as shown on the cover.

At the start of the project I was faced with a large array of problems. One cornice had been replaced years ago with a larger plate. As a result, all the rafters on that side had been shortened by a foot or so and all but three of the joist ends were rotten beyond use. The other cornice was original but badly rotted in several spots along the top surface. Many rafters had been replaced or had rotten ends. Fortunately, only one of the heel joints of the truss was damaged and required attention.

This work required that the bulk of the roof be disassembled and re-built. We rigged a temporary roof structure over the whole building to prevent weather damage to the interior of the building and provide scaffold access around the building for the other ongoing work. Rafters and joist ends were repaired with old timber of like age and species, fitted to the original and joined with long, undersquinted tenons and ¾-in. pegs. The replacement cornice was cut from a 6x12 piece of white oak 37 ft. 6 in. long, free of sapwood and heart. We cut out the rotten portions of the other cornice plate and pieced in Dutchmen of dry white oak of similar grain pattern as the original piece. After the Resorcinol glue set, checks and other defects were carved to obscure the joint. Oxidation with a solution of Potassium Permanganate ($KMnO_4$) added to the illusion.

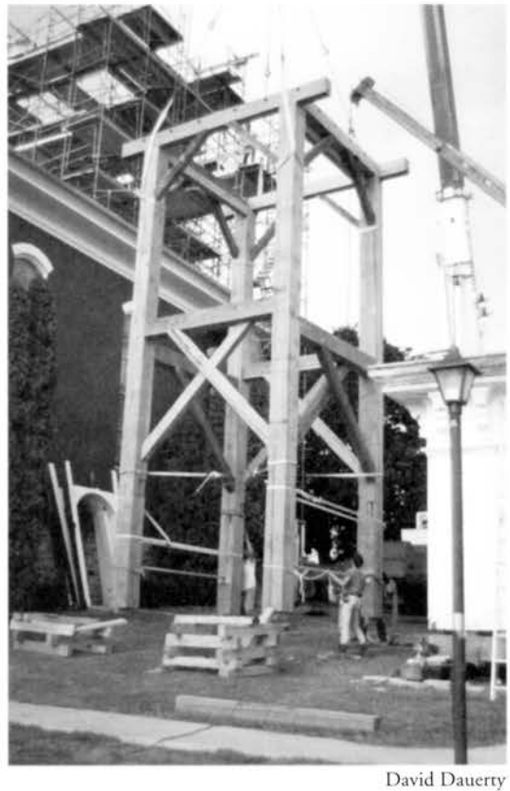
After jacking the *Legenderstuhl* truss to its proper position, the damaged heel joint was repaired with a free tenon added to the post and a new section of joist end fastened with structural epoxy and fiberglass rods.

Henry Antes was a noted leader of the Colonial period in Pennsylvania. He served as a Crown magistrate, worked for eccumenical ties among the German-speaking people of the colony and was a noted builder of mills and large structures. Most of the early stone buildings in Bethlehem and Lititz are his work. At one time, his house was converted by the Moravians into a school for all local children regardless of gender or background. The school room was in the lower attic; evidence of the clay and straw insulation can still be seen today.

ST. PETER'S CHURCH

David J. Dauerty

THE steeple of St. Peter's Church, Freeburgh, Pa., was 30 in. out of plumb on one axis and 82 in. out on the other. Tower, clock tower and steeple were supported on 14x12 sleepers, themselves carried by the first roof truss and cribbing in the masonry tower. Ring-form assemblies of heavy beams carried the bottoms of the tower posts and the clock tower posts, and also formed the basis of the overhangs for the two sections. Cribbing and sleepers under two posts had rotted causing 4 to 6 in. of subsidence. Extensive compression failure at brace nosings in tower section resulted from water infiltration. Failure of a third post led to major repair in the 1920s; apparently the post was ripped in half and replaced by two 7x14 timbers, one side at a time. The entire steeple structure had apparently come to rest on the remaining post. Significant reconstruction was indicated.



David Dauerty

GIDDINGS ROAD BRIDGE

John Smolen, P.E.

GIDDINGS Road Bridge welcomed the first creek-crosser over its red oak planks in July of 1995, becoming the third newly built covered bridge in Ashtabula County, Ohio, and raising the total number of the county's covered bridges to 15.

Funded by a grant of $427,000 from the Federal Intermodal Surface Transportation Efficiency Act, the white-stained bridge replaced a deteriorated steel bridge over Mill Creek which had been out of service for several years. As County Engineer, I spent about six months designing the covered bridge, which is very similar to the Caine Road Bridge I designed in 1986. Roadway is 22 ft. between guardrails. Overall height is 15 ft. 6 in. Load standard is HS-25-44.

Working with the Ohio Department of Transportation, we oversaw the work of B.O.G. Construction, contractor for the project, which began by removing the 67-ft. 9-in. Pratt steel trusses to make way for the southern pine trusses of the new bridge. Next, the crew installed new concrete abutments, supporting them with steel pilings.

John Smolen

The bridge was fabricated by Sentinel Structures, Inc., of Peshtigo, Wisc. The lumber pieces were numbered and shipped to Giddings Road where the contractor assembled the trusses.

The next step, which involved placing the 24-ton trusses onto the abutments, employed four cranes, one weighing 200 tons and sporting 120 ft. of boom. Sending the 104-ft. (center-to-center bearing) trusses across the creek took eight hours and attracted reporters, tourists and neighbors alike.

Framing was completed by the installation of the floor beams and the 120-ft. roof trusses. Glue-laminated southern pine makes up the main trusses, floor beams and roof trusses, with the siding and roof sheathing of yellow poplar.

ROSS COUNTY BARNS

Dan Troth

CHILLICOTHE, one of the earliest settlements to take root in Ohio, became Ross County after Ohio became a state in 1803. There in Green and Colerain Townships I was surprised to discover numerous log-built or partly log-built barns (the vast majority of Ohio's log barns are concentrated in the southeastern part of the state). The roof of one early log forebay barn is framed with seven pairs of principal rafters and three pairs of common rafters between each principal pair, with principal purlins carrying the commons at mid-span on each side. The same roof system appears less than a mile away on another forebay barn measuring 46 by 64 ft., with log-framed basement, 8-ft. overshoot and a scribe-fit timber frame above.

Just across the road sits another scribe-fit barn, 48 ft. 6 in. by 84 ft., with the same roof system yet again. Its 9-ft. overshoot seems to be a bit much as the outside wall has sagged at least 3 to 4 in. under the load. (The owner of this barn exclaimed that hogs nearly ruined his barn, explaining that hog manure contains more acid than cow or horse manure. When it dries and the hogs wallow in it, they create clouds of manure dust that settle throughout the barn. In winter the heat the hogs produce results in condensation on the underside of the roof. "One day I came in here, it was actually snowing inside the barn," he said. The water vapor and the dust combined to rust away his metal roofing. He no longer hog farms.)

My favorite barn is 50 by 92 ft., a square-rule forebay with an 8-ft. overshoot. The tie-beams are really two timbers stacked together, forming what at first glance looks like a single 9x14 tie. Erected May, 1834 by Grant Dresbach, this heavily-timbered barn, unaltered and in excellent condition, is in current use for dairying.

A mile further down the road sits a forebay 40 by 85 ft., built 1842 by Henry Bookwalter. The original bill of materials exists:

April the first 1842

Expese of bilding a barn	*$ cts*
Bought 90 trees 25 cts a tree	*Paid 22.50*
Paid 13 Thousant shindles 3 dollars a thousat	*32.00*
Paid Diging the foundation of the barn	*20.00*
Paid 50 Bushels of lime 11 cts a bushel	*5.50*
Paid 300 Pounds of nails 6 cts a pound	*18.00*
Paid Spikes and hamered nails	*3.00*
Paid Bilding the stone wall	*75.00*
Paid Tending the masons	*10.50*
Paid 15 Hundred shindles	*6.00*
Paid 18 Bushels of lime	*2.00*
Paid The Plank and lath and skantling	*108.50*
The bilding of the barn	*375.00*
Paid The hiring of hawling of the barn	*53.00*
Paid One hundred pounds of nails and staples	*8.00*
Paid The hinches and hooks and b[o?]lts	*25.00*
Paid The stone for the foundation	*38.00*
Paid Bilding the corncrib wall	*5.00*
Paid Painting the wall and plastering inside	*6.00*
	$820.00

Spiraling Dragons: The Other One

Live clean, let your works be seen.
—PETER TOSH

IN the first part of this essay (TF 39) we sought to present a reasonably objective view of where the tradition of Japanese wooden house design and construction stands in a rapidly changing nation. The prognosis, though not decisively terminal, does indicate a prolonged and disadvantageously pitched battle if the tradition is to survive in any meaningful way very far into the coming century. And we gave the opposition a name—"Industrial Housing"—vague, yet specific enough to form a position around.

And so what of the Dragons? Earlier, we identified the first dragon as the inhospitable fellow who first reared his head on the morning of the Great Hanshin Earthquake. But, we could just have easily identified him with the more protracted, less dramatic devastation of cultural entropy—things go down hill, because that's what things do when things meet up with hills. In either case, what characterizes the first dragon, dramatically eruptive or slowly curdling down an inclined plane, is that his movement is totally impersonal. Nothing is willed.

Enter the Willful Dragon.

We are discussing an act of "preservation"—not just the buildings of the past but the traditions from which they arose. Insofar as these traditions are still extant (as opposed to "revivals"), what we are talking about is *self*-preservation. The capacity for self-preservation is found only in *living organisms* and the ecological systems which they constitute. Not surprisingly, the preservation (or healthful transformation) of cultural traditions shares many of the same characteristics and weaknesses as the environmental movement. For instance, both movements seek to stop something from changing, while at the same time proposing often revolutionary solutions to related problems. They thus both enjoy the somewhat confusing distinction of being *simultaneously radical and conservative.* The success of both movements depends on the intensity and clarity of their political engagement; but both movements often fail at the political level because what is being fought for is closer to a value than a fact, and is often difficult to formulate in the language that politics is best set up to comprehend.

Polemical force is most easily attained by the subordination of honest and valid *emotional* concerns to so-called industrial-economic *practicalities.* "I love trees—let's save the trees!" becomes "We need wood—let's manage our resources." "In my traditionally-built home I intuit the wholeness of the world—let's keep this tradition going!" becomes "My traditionally built home employs local craftsmen—let's codify these techniques." Or worse. In both cases, what characterizes the re-phrased aim is a *loss of depth.* Though the issues may have been rendered more open to bilateral discussion, they have become disconnected from the *values* which gave rise to them in the first place, and so fail to connect to other, related issues. Unwittingly, we may merely have recapitulated the very platform we were attempting to dismantle.

The problem is not one of short-term vs. long-term change; short-term change is often necessary and perfectly valid. What is lamentable is to go in demanding a change in consciousness but to receive merely a shallow concession. Though the deep-shallow nature characteristic of approaches to ecological issues is well known among environmentalists, we have yet to hear of a "deep preservation" movement or a "deep craft" movement. The notion of "deep" is not yet pervasive enough for discussions of, say, "the deeper meaning" of form, color, decoration, etc. to appear other than a little oddball.

AS the environmentalists are clearly a few paces ahead of us in this respect, we could do well to learn from their approach to problems of depth in argumentation. In the late 60s and early 70s, environmentalists hoped that by turning ecology into an objective science, their argument would be strengthened and more headway could be made in achieving their demands. However, what the Norwegian eco-philosopher Arne Naess and a growing circle of "deep" ecologists realized was that *objective science cannot provide principles for action.* It simply doesn't run deep enough without a clear articulation of *values* premises.

Naess's most complete formulation of a solution to this problem first appeared in Norwegian as *Økologi, samfunn, og livsstil* in 1976 and was translated and revised by his editor David Rothenberg as *Ecology, Community and Lifestyle: Outline of an Ecosophy* (Cambridge University Press, 1989). According to Naess, science, and any attempt to emulate its empirical methods, are restricted to *descriptive* statements regarding phenomena. Though at the very ends of science decisions have certainly been made concerning what is worth describing and what isn't—that is, *evaluations* have been made—these are generally not explicitly carried over as part of scientific "method." Philosophy, on the other hand, must openly deal in two sorts of statements, one descriptive, the other *pre*scriptive: "It is" and "It ought to be." The latter are referred to as *norms*, prescriptions or inducements to act or think in a certain way. By systematically distinguishing between the two sorts of statements, Naess sought to facilitate rational discussion between deep ecologists and the more "scientific" parties seen as opposed to their agenda.

Any position on an issue ultimately rests on normative statements. To explain our norms and why we have chosen them, we call on related hypotheses. Naess's simple nomenclature to differentiate norms from their hypotheses was to end a purely normative statement with an exclamation point (*Maximize employment!* as opposed to *Most people wish to be employed.*) The norms are not derived from the hypotheses, but only "psychologically motivated" by them. Norms are intentionally vague and imprecise, so as to leave them open for discussion and individual interpretation. Even if necessary, the re-formulation of a norm does not imply the obsolescence of the original prescriptive statement, but merely confirms the necessity for constant revision in light of other, possibly opposing norms. The active debate of norms must move steadily towards a *prescriptive consensus* progressing from lower to higher levels of preciseness. Naess says, "Any system which is to serve as a common platform must [first] be articulated at low levels of preciseness."

Further, norms are divided into two classifications, *fundamental* and *derived,* and no progress can be made if the connection between derived norms and their fundamental antecedents is not made clear. Finally, it is most important to remember that in any discussion of *what is to be done*, one must be free to ask the opponent "Which hypotheses do you think are relevant to the adoption of your norm?"

BUT wait. What time do we have for philosophy? Are we not just craftsmen, carpenters, architects? Yet if our gripes and ideals are to move beyond the taproom, the job site and other closed circles already more or less in agreement with each other, towards more effective arenas, much work is in order. Once again, Mr. Naess: "All this talk is necessary because the aim of supporters of the deep ecology [*preservation, craft, architecture?*] movement is not a slight reform of our present society, but a *substantial reorientation of our whole civilization.*"

This thing we call building is both noun and verb: more than an object, building is an activity constituting a field of relationships

reaching far beyond the physical dimensions of the object itself. Any questioning of a house and its construction, if it is to achieve depth, must take place within the total field of its activity. Most responsibly, the question takes the form "*For whom is a house?*"

Generally considered, a house is for the occupants, its builders, designers, laborers of all sorts, suppliers and endless middlemen, retired lawn bowlers offering advice and children slingshotting plug nickels around the construction site after quitting time. Normative statements in support of the perpetuation of this activity we call "building a house" must be grounded *here.*

The following ten normative statements are adapted from a lecture I gave in the Spring of 1995 for the Osaka Prefectural Construction Management Research Association. In attendance were representatives of most of Osaka's largest construction companies, all of which were involved in various aspects of rebuilding earthquake-devastated Kobe. In light of the astonishing rise in prefabricated industrial housing starts and its effect on traditional wooden construction, I chose to focus on supportive norms for traditional ways of building. By implication these suggested why *not* to go with proposals for industrial production—that the industrial housing system is *not fun, too capital-dependent, not site-constructed, not beautiful* and so on. The response was overwhelmingly positive, but I have doubts about how far its influence may have spread beyond the walls of the lecture hall.

The ten statements do not claim the philosophical rigor of Naess's approach and, of course, these alone are entirely inadequate to the task of bolstering the survival chances of traditional building in Japan or elsewhere. On the other hand all statements are directly aimed at issues endemic to contemporary Japan, specifically those raised by the very real possibility of the total industrialization of housing production. Furthermore, the points have been formulated so that they may be effective even *from within the industrial housing system itself,* and so may, at the very least, serve to humanize and deflect what is perhaps inevitable. The numbering is for convenience only.

1. *Minimize capitalization requirements!* The Japanese Ministry of Construction, the richest and most relentlessly lobbied ministry in the Diet, recently sent researcher Nobuhiro Yamahata to study housing methods in the U.S. (see *Scantlings*, April 1996). Sadly, though not surprisingly, his interests were primarily in U.S.-code-approved mass production methods. Ostensibly, his research is towards revising the Japanese construction standards to incorporate these technologies effectively. Foreign firms are naturally interested, anticipating that impediments to importing their building systems and materials will thereby be removed. One shouldn't count on this. The possible lightening of gauge requirements for steel-framed houses, for example, could likely benefit only *domestic* producers of steel frame components. Access does not necessarily follow from either deregulation or liberalization of standards.

The ministry's intentions are, to be fair, not entirely anti-small builder. Genuine efforts are being made to ensure a fresh batch of trained carpenters (the apprenticeship system is being supplemented by "specialty schools") and carpenters working in rural areas are being assured steady employment

Photos Michael Anderson

Tools of the trade: the future of architecture in Japan?

(working in pre-cut factories, or building only the timber frames for urban structures). The Japanese building code has shifted and will continue to shift its favor towards standards for industrial housing. The "saving" of the Japanese carpenter means little more than restructuring his job to that of distributor and assembler of plant-manufactured parts. With concurrent revisions of the building code, what this inevitably escalates towards is a dominant building system dependent on highly capital-intensive manufacture. Small-scale, moderately capitalized local building, thus cut out of the economic (and *training!*) equation, becomes increasingly sidelined.

The widespread general health of the building profession in Japan (both traditional and otherwise), depends on placing minimal capitalization and local manufacture at the highest point on the agenda. This does not imply the *Small is Beautiful* argument of E. F. Schumacher; high-tech is just fine. But to be locally implementable by independent small groups with relative autonomy, it must be, in a word, *cheap!*

2. *Building must be fun!* At first glance, this statement must appear naive, perhaps even a silly thing to bring up in the context of any "serious" discussion of the issues. Yet it is the most honest expression I know for what it is that makes us stick with something not absolutely or immediately essential for survival.

Fun doesn't necessarily mean easy, effortless, or anything frivolous. Ask your kids—fun can be terribly hard work. Fun means FUN! When I spoke with the assembled heads of Osaka's major construction companies, I pointed out that if it isn't fun it's merely work; for any pursuit to go beyond this and become part of a nation's cherished culture, to be preserved and passed on, something must be fun—at the very least, *enjoyable.* Surprisingly, this received the most immediate, positive and unanimous reaction of anything I had to say. This made sense! It seemed to come closer to touching on problems of morale, motivation and worker satisfaction than any other "policy statement" they had heard before. Or it may have simply confirmed a frequent quip of the Japanese: "While you Americans enjoy, we Japanese merely endure."

Very few timber framers get into it for the money. This is especially true in North America where rather than a guaranteed job (in Japan, most of the wooden homes are still timber framed) timber framing is a distinctly minority building system you really have to work at marketing competitively. No, it's the work itself. A frame raising isn't just a job, it's a spectacle! Husbands in red and blue aprons bake cookies, wives sweat and drive the pegs, children roar and circle the site on shiny mountain bikes! The possibility of flight is brightly and privately considered in smiles beneath a special sky.

3. *Small building blocks!* In Nature, even the mountains are not monolithic, though they appear that way. All that is large is an aggregate of the small. No part of a home should be so large that we can't at least imagine it being held and lifted into place by, say, a half-dozen men and women. Even better, no one part should be so large that it couldn't be held easily in the hand or carried within the breadth of one's arms.

This one idea is so important that, given even the smallest amount of consideration, it immediately links itself to all other issues: ease of transport, possibilities of local manufacture, minimal capitalization, user serviceability, recyclability, worker safety, even aesthetics! It also runs 180 degrees counter

to most developing industrial housing technologies. Panelization (including "stress skins"), modular assembly, mono-trusses—these simply don't work other than in a shallow engineering sense.

One more subtle implication is worth commenting upon. It involves our psychological identification with acts of assembly. It is simply more life-affirming, more well-being-inducing to be in a beautifully timber-framed room, than, say, a gyp-clad box (however stylish that gyp-clad box may appear to be). Psychological acclimation to any environment involves the eye tracing its lines and edges. In a sense, the eye "constructs" the space. The closer this act of construction parallels the actual assembly of the building, the greater we are able to identify not just with the process of its assembly, but with the inner processes of the lives going on within the building. Also implied here is the need for a smooth gradation of sizes, no large jumps in scaling—from pinchable window mullions to huggable columns.

The extreme antithesis may best be seen in the outrageously overrated works of Japanese *architecte terrible* Tadao Ando. Huge masses of concrete and space seem to have been "extruded" all at once. All traces of assembly and the scale of the beings who have worked there have been studiously excised.

4. *Seek your livelihood at the endpoints!* In the structure of everyday economic reality, all goods and services have a source and a destination. This may mean raw material and finished product, maker and buyer, provider and client, and so on. The total economic transaction is the movement from one endpoint to the other. Simply yet fairly accurately put, making money depends on stepping in somewhere between these two points, and momentarily arresting the flow until promise of payment has been received. This intervention may be justified as "value-added marketing," "quality control," "inspection," "wholesaling," "retailing" or merely "distribution." Nevertheless, positive or not, justifiable and otherwise, most of what we call "business" consists literally of *getting in the way*—in common parlance, being *middlemen.*

Very roughly speaking, what fundamentally differentiates middle men from one another, and indirectly determines the actual usefulness and necessity of their work, *is their relative positions along the line connecting source and destination*, those towards the midpoint generally being far more superfluous than those making their living towards one of the two end points. A shift towards the center usually implies a wardrobe makeover; collars turn gradually from blue to white. As has been thoroughly remarked on (and thoroughly bashed) by U.S. economists and businessmen, Japan is extraordinarily middle-heavy. But to assume that this disadvantages only foreign trading houses is not only mistaken, but downright selfish. Among other hardships, Japanese home-buyers must endure costs from 35 to 80 per cent higher than those in North America and Europe.

Attempts to displace the middleman are immediately decried as trying to run the poor guy out of a job. The best example of which I have direct experience is timber distribution. In order to inspect the logs before they were cut for a recent project, I had to trespass through no fewer than four levels of "handlers" to find something with the bark still on it. (A single 4/4 x 21-in. x 18-ft. piece of clear Doug fir was costing me in excess of $3,000!) Driving on the way to the sawyers, I mentioned to the re-re-re-reseller that I had a good *direct* source for some walnut and cherry. Would he be interested? I was abruptly informed

A monolithically extruded residence by Tadao Ando in southern Osaka.

"Michael, stick to the *route!* We gotta put rice on the table, you know!" I couldn't help wondering, wouldn't this fellow feel a whole lot better about a whole lot of things if he was actually *doing* something with wood, rather than just driving its cost up? He hasn't spoken to me since.

View the total system as simply this: two endpoints. Create jobs as close to the endpoints as possible. If we are building houses, create jobs towards the building site end (in construction companies, say, as managers, craftsmen, and so on) or towards the material supply endpoint. This would not only make the houses cheaper and more plentiful (ironically, many of these middlemen, because their job actually only serves to make the house more expensive, cannot themselves afford to buy one!), but would enhance the quality of the work experience itself.

Work without value or necessity is bad for the soul. In recent years the Japanese have become so concerned with deaths from overwork, they invented a word for it: *karoshi.* Interestingly, deaths attributed to *karoshi* tend to happen in such areas as middle-level management and among the employees of petty bureaucracies and local governments. They work hours no longer than over-workers in other areas, but their jobs are often rather difficult to justify. *Karoshi,* far from a physical malady, is in my opinion a *spiritual* affliction riding on the heels of the devastating realization that one's work is without meaningful and necessary consequence. The long hours become truly, and fatally, intolerable. Seek your livelihood at the endpoints!

5. *Let your work be seen! (or, Build on site!)* Gone are the days when the heat of the blacksmith's fire could be felt from the street, the chopping and wrapping of the butcher seen through an open doorway, the cobbler seen cobbling, or, for that matter, the carpenter seen carpenting. As the vast majority of our physical world is man-made, these casual encounters with its everyday manufacture tell us extraordinarily important things about the world and how it got this way. To fence off the site of the world's manufacture constitutes an occlusion of its very meaning.

People, especially the young, need to see not only how the world is made, but also who makes it. Only in this way can genuine respect be found for both the built and the builder. A system of construction in which 90 percent of a building's production happens out of sight within a distant factory has little hope of inspiring in a young person's mind the dream of some day becoming a carpenter.

Insofar as possible, buildings must be constructed on site, simultaneously providing local employment, public demonstration, education and a chance to pause, watch and think, *I could do that!*

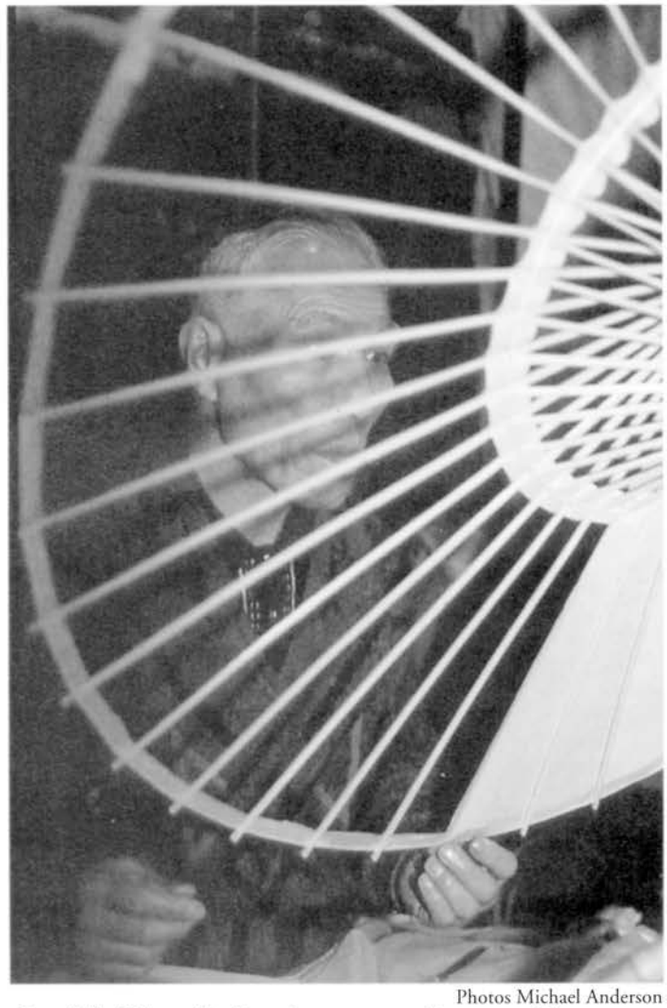
Other arguments for on-site construction such as the necessity for adjustment and tuning to local conditions of view, weather, adjacency to neighbors and so forth are well known and need not be gone into here.

6. *Make local housing locally!* The Japanese are deeply territorial, going to great lengths to extol the virtues of their own town over the one across the border. Every township boasts its own *jizake*, or local brew, and endless debates rage over who has the best *somen* noodles. Curiously, however, contemporary housing differs remarkably little

from the far northern tip of Hokkaido to the southern island of Kyushu. One must go all the way to Okinawa (arguably not a part of Japan at all) to notice a real difference, though not a particularly pleasant one: steep-roofed wooden houses suddenly give way to flat-roofed concrete boxes.

This is not so of the older houses which exhibit distinctive differences even just from village to village. Industrialized housing with the necessity of concentrating its production in a handful of large centers will only hasten the homogenization of Japanese townscapes.

Going somewhat deeper, even if the manufacture of a house and its parts were restricted to the limits of a single village (today, on certain rare occasions this is still being done), the house is unlikely to be "vernacular" in the real sense of the word. Official figures vary, yet somewhere between 60 and 80 per cent of basic construction material in a common Japanese house comes from abroad. This is hardly "building locally." High import reliance is blamed on the sharp appreciation of the yen and the rapid decline of the population in rural and mountainous regions where the timber industry once flourished. Furthermore, according to a recent government white paper, only half of potentially productive forests are currently being adequately thinned to ensure prolonged high-quality yield. Immediately, we face the risk of delimiting the problem to shallow issues of "foreign trade" and "domestic resource management." A deeper understanding (and, by implication, a more broadly pervasive *solution*) must be grounded in what we earlier referred to as the "total field" of the activity of building. This field is entirely cut adrift from its locality whenever it does not ultimately and literally reach into the roots of the land.



Photos Michael Anderson

Small building blocks: a* bangasa *maker assembles a paper parasol.

7. *Build to last!* It has been calculated that the number of wooden disposable chopsticks or *wari-bashi* thrown out each year in Japan is sufficient to build 10,000 traditional houses. However, even provided there were a way to make homes from millions of 8 in. slivers of wood, these chopstick houses would end up in the garbage pitch in another 20 years, anyway. In most cases, a house is not expected to last much beyond this. This, of course, enters the equation for the design of industrial housing. The norm here becomes something like *design for the depreciation curve!* Short term life-spanning of Japanese homes is escalating under a number of concurrent influences. The availability of cheap imported building materials (relative to the costs of local materials) encourages a view of the house as a disposable commodity rather than a multi-generational heirloom. The deregulation of Japan's construction materials markets will only accelerate this tendency. In the major urban and popular suburban areas land prices can be in excess of 5 to 10 times the cost of the homes to be built there. The house itself has little value as a real asset, and is consequently thought of as a temporary thing to be occasionally rebuilt when the occupants tire of it or deem it too untidy to continue living in.

This norm, unlike the others we are discussing, will likely come about without the need of debate. To a degree, the hubris of throw-away culture contains within itself the motivation for self-correction. But, rather than a reasoned leaning towards common sense and a shared valuing for posterity, it will come about through falling land values, rising materials costs and the unavailability of craftsmen as skilled as those who built your first home.

8. *Build for recyclability!* This is an area in which the orthodox Japanese tradition may not be as suitable as its North American cousin. Smaller-size posts with various joints and nailing along at least three faces are not particularly attractive to recyclers. Most *kaitai-ya* or building dismantlers usually employ claw-equipped tractor vehicles which, though quite efficient at tearing down a structure in a matter of a few days, also damage the timbers beyond common desirability. Though a small amount of this material may end up at the *kozai-ya* for re-selling, there is still only a very small market for used construction material. To really facilitate building recycling in any appreciable volume, the Japanese timber framing system would have to be redesigned. The frames simply don't come apart easily enough. And what may be recyclable is generally not technically or aesthetically suited for reincorporation into a similar structure.

9. *Fair pricing!* All pricing is arbitrary. "How can we sell you our land?" asked Chief Seattle. Even the most elaborately thought out, quantifiable systems for evaluation ultimately rest on the unquantifiable, even the unanswerable: *What do I need? What do I want?*

At the risk of dire over-simplification, I propose the following antithetical economic ideologies. Assume there are two types of price thinking. Type One we will call "What-I-*need*-for-this" pricing. Type Two we will call "What-I-*can-get*-for-this" pricing. Most of our ways of valuing our time and what we do with it will fall towards one of these two extremes. Momentarily pretending that the situation is actually this simple can direct us towards some astonishing discoveries about ourselves, the sort of world we would like to make, and the roles we are willing to play in its making.

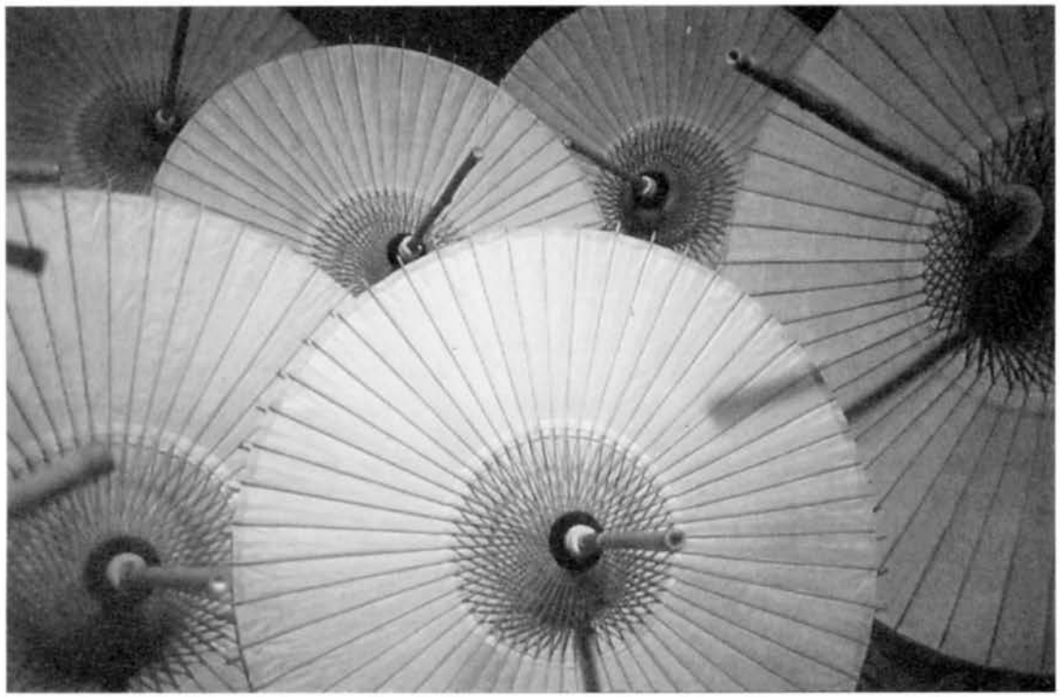
Moving from one type of pricing to the other may only mean renaming the object. Consider what happens when a "craft" object (an object of "everyday workmanship") becomes an "art" object.

Abstraction of the object or service, through quantification or "commodification," immediately moves us towards Type Two thinking. Investment thinking is the classic example. Few makers of things have not experienced the saddening disregard for the object itself when their clients see it merely in the light of an "investment opportunity."

Fair pricing arises exclusively from the former way of thinking. *What do I need for this?* The question intentionally throws us

back upon ourselves. How do I live? How do I want to live? If we must live like kings the answer may very well be, "I will charge $500 per square foot for my work." This is not an "incorrect" answer. But, fortunately, a neighborhood will tolerate only so many kings. Another person asks the same question and answers, "$80 for right now would be about right." In this way, pricing regulates itself, *but within the milieu of the lifestyles of those participating in the local economy.*

The materialism of contemporary Japan is so extreme that virtually all pricing is based on Type Two thinking. Though the very low unemployment rate, the narrow gap between rich and poor, adequate health coverage and so on are often touted as evidence of Type One thinking, living conditions and availability of affordable housing clearly indicate otherwise. Greed and unreasonable domestic pricing have raised the cost of living in Japan to the highest level in the world. Unacknowledged vast numbers of people in this first-rate economy are forced to live in third-rate housing conditions.



Paper parasols: paradigm for a better architecture?

10. *Beauty first!* Calling this a *fundamental* rather than a derived normative statement is itself open to some debate. For example, a strong case could be presented for its dependence on other basic norms such as "Well-being!" or "Maximum self-realization!" However, it is the very nature of *fundamental* normative thinking that it be essentially a given, perhaps even arbitrary, identified more by its fervor than its rigor. It is this curious "fuzziness" to Naess's system which, rather than rendering argument impotent, lends it the flexibility and *revisability* necessary to move into the extremely delicate discussion of deeply held personal values.

For any manmade object, grasped lightly in consciousness, its perceived beauty or lack of it is a starting value rather than one derived from other more basic value statements. It is an *immediate* response, and so not easily unpackable in any sort of logical manner. As such, it is archetypal of what lies at the very base of the difficulties one encounters in trying to preserve traditional craft and ways of working in the face of alternative "industrial" methods and their apparently more "objective" justifications.

More and more, when we think of beauty, we think of loss. Societies of the past seemed to agree on what it was—why can't we? To see in the homogeneity of a traditional culture's historic artistic output evidence of a "shared aesthetic value" may be compelling, maybe even obvious, but it will lead to flawed arguments; there is just no way of telling. Nevertheless, intuiting such a possibility may be a valid incentive for us to look to the present for signs of such consensus.

But, in discussing beauty with our contemporaries, we immediately encounter resistance of the strongest sort. No other discussion calls forth more quickly the oddly child-like fear of totalitarian thinking and loss of freedom of feeling and expression. In ways rarely acknowledged, the frank debate of what is beautiful and what is not has been seen as "politically incorrect" for longer than the term PC has even been in our vocabulary. Given adequate space and time, I would gladly argue that at the very base of PC wishy-washiness and argumentative ineffectuality lies this very problem: *the unwillingness to seriously confront each other on the issue of beauty.*

"Beauty is in the eyes of the beholder," goes the ready (if philosophically lazy) response. The issue is avoided in favor of others deemed more open to debate: stylistic appropriateness, measurable psychological responses (earnest labcoats with clipboards waiting outside buildings asking people *how do you feel?*), economic apologias, and the like. However, once we dare to breach this strangely taboo subject, to our surprise we discover a vast subterranean pool of highly consistent collective response to color, form, sound, rhythm and other purely "aesthetic" experiences.

To view the beauty problem as less immediate than, say, problems of affordability, ecological impact, recyclability, handicap access, or (with apologies) "functionality," is not only backwards, it runs counter to everyday perception. Besides, a half hour's browse through a good library—or even a single good book—should suffice to show that not only have most of these "problems" been solved already, but many of the solutions have been with us for decades if not centuries or more. It merely remains for businesses to find them profitable enough to implement wholeheartedly.

Treating these problems as unsolved (and the beauty problem as unsolvable) is the very wrongheadedness on which the marketing of industrial housing depends. Yet beauty is the one thing which, if frankly discussed and firmly insisted upon, will take the cause of preservationists and ecologists alike clear to the other shore. All the rest will follow. The infinitely reinventable wheel is already with us. What remains is to make it beautiful.

SPIRALING dragons, spiraling dragons. So? To be honest, I must admit that I see little or no hope for seriously diverting, let alone arresting, the deleterious trends we have been discussing. This, of course, raises the obvious question: "Why even try if decay is inevitable? Why then even *write* about it?" Simply this: *not to do so means to be not entirely alive.*

The plaint of a waning world is as old as the world itself—and may in fact be the very nature of "world"—as sure as flowers, as inescapable as the sad realization that we begin dying the moment we are born. To deny this and proclaim otherwise is the most powerfully human thing I know. And so I say: *Beauty—now!* —MICHAEL ANDERSON

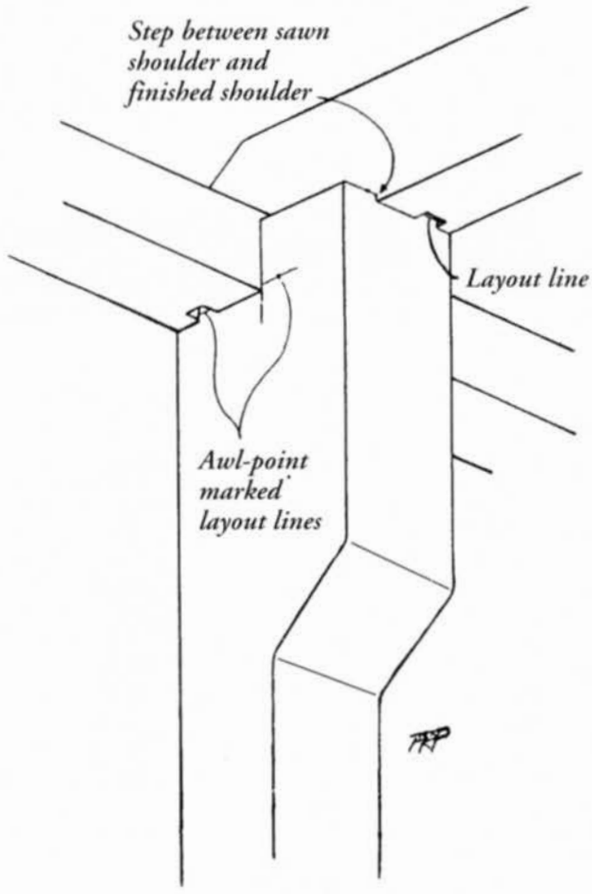
Michael Anderson's home page on the World Wide Web may be viewed at http://www.asahi-net.or.jp/~ww6m-adsn/index.html. This is the second part of a two-part article.

Double-Cutting and Historic Scribe Framing

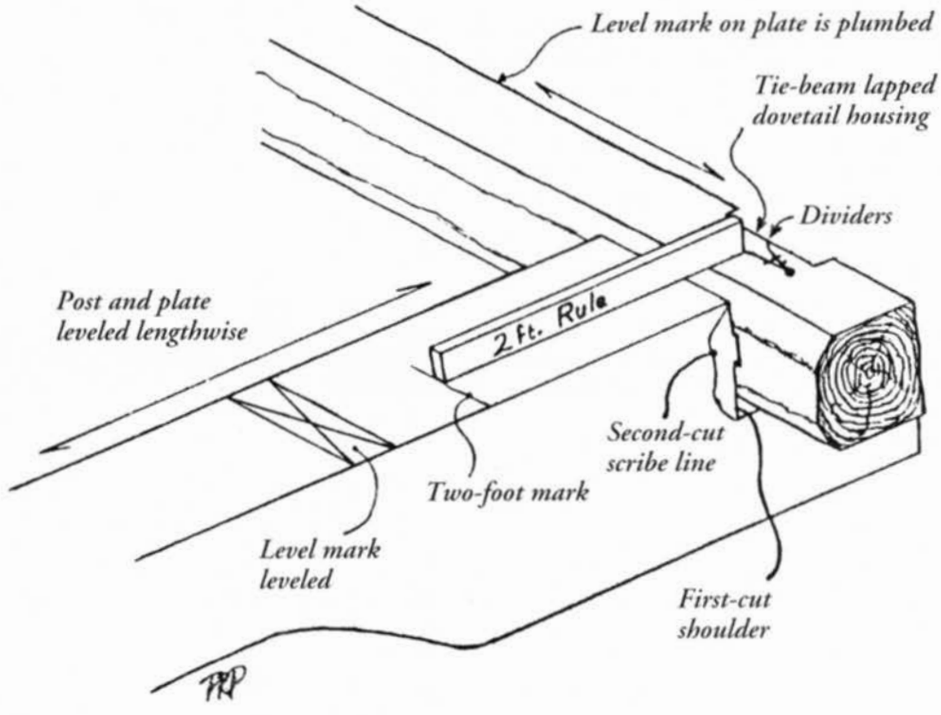
FOR a carpenter today examining standing historic frames, the question "How was it done?" looms large. Evidence in an unusually intact aisled barn at Home Farm, Breamore, Hampshire, in southern England, confirms that the traditional shortcuts and scribe techniques well described by Jack Sobon in the last issue of TIMBER FRAMING were also used in the construction of this estate barn (now dated by dendrochronology to 1587). Story pole layout, shared mortises to reduce scribe layup time, loose-fit tenons to ease assembly and the occasional informative mistake show that the 16th-century Breamore carpenters valued speed but produced tight-fitting frames to last 400 years and more. At Breamore a remarkably complete set of carpenters' layout marks survives, scratched with an awl onto the hewn and sawn oak frame. First, mortises were marked out on the main timbers, probably using a story pole or rod; primary timber mortises were precut and peg holes drilled; and a double-cut scribe method was then used to scribe tenon shoulders accurately. All joints were drawpegged with shaved, tapered oak pegs to pull them tight and presumably to help keep them tight after timber shrinkage. The quality of fit is still impressive considering the relatively poor quality timber used in much of the frame.

Today, many framers drawpeg joints and some do not. The evidence from the frames we have looked at shows that drawpegging with tapered pegs was normal practice in historic framing. In scribe framing with precut mortises this only makes sense as it ensures a tight fit and takes little if any extra time to do. The finished tenon can be inserted in the mortise, spotted, taken out and drilled to allow for the draw. As the saying runs, "Toward the shoulder from the nose, brings the joint to a close." This reminds you to offset the tenon peg hole toward the shoulder relative to the mark made for it through the mortise peg hole. Pegs in historic frames are typically distorted by being driven through the resulting offset. At Breamore, "dibbits" (our term for impressions made by the spoon bit drill) can be seen on the surfaces of posts where the brace tenons were drilled resting on the posts after being spotted, another indication of the speed with which the carpenters were framing.

One key observation regarding timber orientation. "Face carpentry" is common in the majority of English timber frames, especially in barns where exterior wall frames are faced to the outside and internal cross-frames are faced toward the threshing floor. In cases where the timbers were sawn, halved or quartered (usually from hewn baulks), the sawn heart side was used as the face side. Some people have suggested that the primary reasons for this were durability and appearance but we believe that the major factors were probably framing speed and quality. Heart-sawn surfaces are less uneven than hewn and are free of wane: a heart-face convention ensures that the majority of joints are easily framed with good shoulders. The Breamore aisle sill plates are all quartered and placed heart up, not down as durability might dictate, and thus allow good joints with the aisle posts and studs. The largest timbers in the frame are the arcade posts, each an inverted tree hewn boxed-heart to about 12x13, with a jowl up to 24 in. across. Jowled posts (left) are a feature of framing in England from the 13th century on.



PLUMB and level marks are to be found on the tops of all the primary beams at the Breamore barn and on the outside faces of the arcade posts (below). In a layup, the orientation of each primary timber (an element in two or more adjacent two-dimensional frames) was established using a plumb-bob level placed on or against its single mark. Typically, such marks are ruled across a timber on a flattened area and are perhaps most likely to be on the side upper-most during layup of the first 2-D frame the timber is placed in. In a par-



ticular layup each timber is placed and levelled along its length, then wedged so that the cross-grain mark is (usually) either level or plumb. (See Marc Guilhemjouan's series "French Scribe Framing," TF 34-36.) In a normal adjacent-frame layout, placing a timber's mark in the 90-degree position ensures correct orientation. For irregular or polygonal frames (such as the Globe Theatre, TF 37) such marks could be used as set angle marks to establish orientation in each scribe layup.

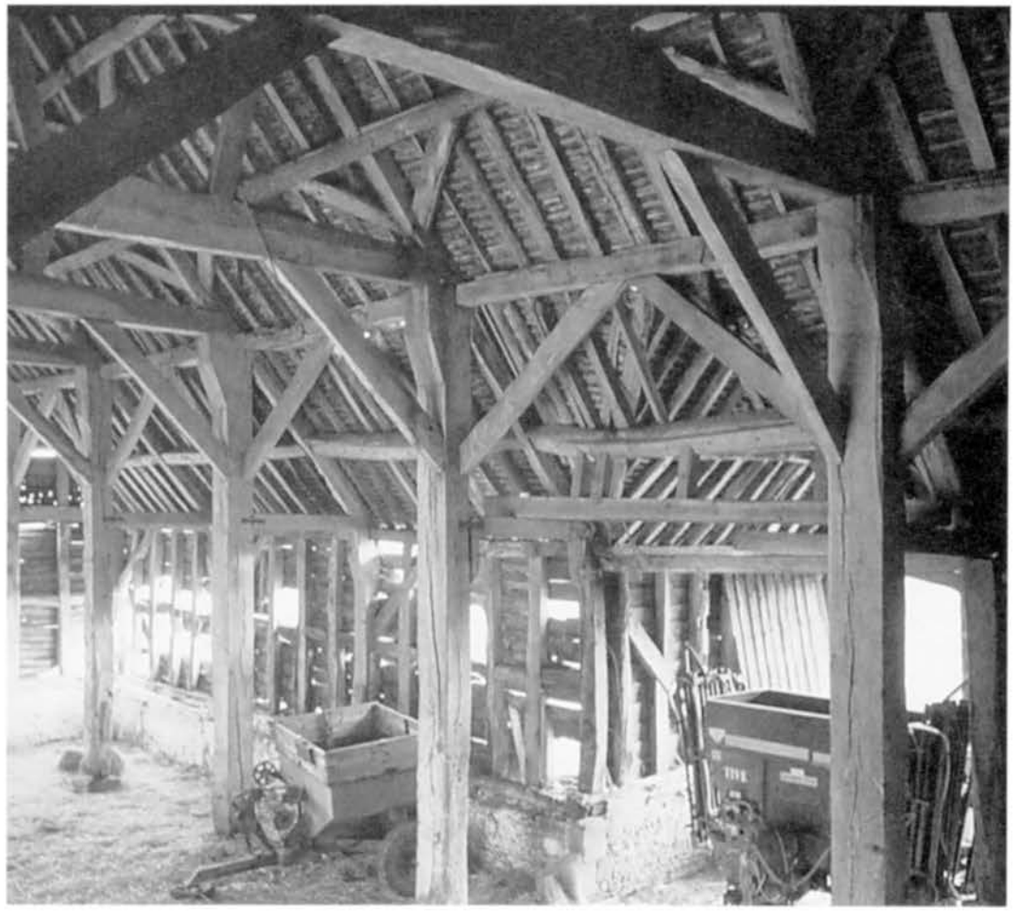
Additional layout marks are to be seen on the Breamore barn's arcade posts. Two-foot marks fix a position 2 ft. below the bottom of the tie-beam dovetail, thus accounting for variations in plate height. Others indicate uniform locations for top and bottom of brace mortises, bottom of aisle ties and top of aisle sill. The reference height marks are at the same height for all the posts of an arcade but quite different heights for each arcade. It may be that this reference height is the point from which rods were stepped off upward and downward.

This layout, marked on the primary timbers (arcade posts and plates for example), enabled mortises to be precut and pegholes drilled to allow insertion of 'first-cut' tenons in a levelled layup. Using these methods for a simple face-carpentry frame it is not necessary to have a flat floor or a full-scale lofting layout as used in French scribe framing.

THE key evidence for double-cutting in the frame can seen at the arcade and aisle posthead joints to the plate and tie-beam. At each joint between post and tie-beam (top left), a clear step can be seen between the sawn first-cut shoulder and the chiseled second-cut shoulder. This is clearly seen because the posts are thicker than the ties. If the edge of the teazle tenon (which joins the jowl of the post to the tie-beam) can be seen inside the mortise, the first-cut layout line is often visible.

First-cut layout lines are also apparent on the sides of post-to-plate tenons inside the mortises: the marked lines are higher than the final shoulder. This evidence shows that double-cutting was one method definitely used in historical framing. With the first-cut short tenon inserted into the precut mortise and the timbers correctly oriented, dividers can be used to transfer the shape of the mortised piece to the shoulders of the tenon. Second-cutting to the scribed line gives the desired fit.

The two-foot marks on the posts may also be providing a reference for the second cut so that the final shoulders at the post head fit tightly while the bottom of the dovetail in the underside of the tie ends up exactly 24 in. above the mark (at left). Thus the two-foot mark on the post provides an important reference for coordinating wall- and cross-frames (vertical plane) with the plate-tie frame (horizontal plane).



Above, view of south arcade, central threshing floor and east three bays, face to threshing floor; shared brace mortises in plate. Below, queen post collar cross-frame fully wind-braced, butt purlin roof.

Photos Paul Price

Double-cutting and the use of reference marks for positioning and orientation are still of use, especially in repairs or in new traditional frames, in joining uneven timbers accurately and positioning them correctly. Given the continuing loss of historic timberwork on both sides of the Atlantic, recognizing and recording timber surfaces (including tool marks, conversion, layout and joining evidence) not only gives instructive insights into past framing methods but also several more good reasons to value and conserve historic timberwork.

—PAUL PRICE

Paul Price is editor of The Mortice and Tenon *(Annes Cottages, Wimborne St. Giles, Wimborne, Dorset BH21 5NG, U.K.). A detailed discussion of the Breamore barn and traditional layout marks and scribing techniques appears in M&T 3.*

What is Fine Home Building?

AT THE first Guild conference I attended, in 1987, at Poultney, Vermont, Len Brackett was the keynote speaker, and he talked about his five years in Kyoto as an apprentice to one of Japan's foremost temple builders—a nearly unprecedented honor for an American. What I remember most about his talk—aside from the fact that he spent his first year learning to use a broom properly, and in his second year graduated to sharpening plane irons—I remember Lenny trying to impress upon all of us the power and sanctity of carrying on a tradition of building that stretches back uninterrupted for thousands of years. As Lenny put it, when you're standing there in the presence of these temple builders and they're discussing some aspect of their ancient, venerable craft, you don't tap one of them on the shoulder and go, "Hey, I've got an idea."

Well, I sometimes think that's the level of audacity that builders display when they decide that they can design a house themselves. How is it different for a builder to tell a homeowner, "Oh, you don't need an architect, I can design your house for you," from the homeowner to say, "Oh, I don't need a builder, my brother-in-law just got laid off by Boeing; he's got tools"?

Now I know that most architects are arrogant, egotistical, no-talent nerds in bow ties who don't know anything about the nuts and bolts of construction. But that's no reason to dismiss the whole profession. Remember, most builders are uneducated, butt-crack-flaunting scam artists who won't return your phone calls or show up when they say they will.

Most of us got into building through the process itself. I started working as a carpenter the summer after my junior year in college. It was money, and it was exercise and it was outside. But by the time I went back to school for my senior year, building was in my blood. I found it hard to take my schoolwork seriously during my senior year, having experienced that feeling at the end of the day, tired and dirty, turning around just before getting in the car to look back at what you did, and seeing walls that hadn't been there that morning. After knowing that feeling of satisfaction, it was hard to care about reading textbooks and writing papers. So I went to work as a carpenter after graduating, trying to learn the trade and pursuing, like a drug addict, that feeling of satisfaction.

Like many builders, I took design for granted. And the few architects that I encountered didn't know much about building, so I pretty much dismissed the whole profession. I hunkered down and honed my skills as a carpenter, seeking out jobs that challenged me, that demanded higher and higher quality and hence gave me more and more pleasure from the process of joining pieces of wood together precisely.

Somewhere along the way I began confusing good craftsmanship with good design. Or if not confusing the two, I was at least ignoring good design under the mistaken impression that craftsmanship can mean something in the absence of good design. Probably the most important thing I've learned working for *Fine Homebuilding* is that design comes first—nothing, and I mean nothing, ever gets built that isn't designed first, even if that design is just a vision in your head. And good design is absolutely essential to good building.

Timber framers have been among the worst transgressors when it comes to pursing good craftsmanship without regard for good design. I've been led into a lot of impressively framed great rooms, sporting joinery of such precision that it wouldn't admit a business card between the pieces. And I've been awed by the spaces and filled with admiration for the skill it took to make them, but all too often these aren't buildings I want to be in. When it comes to curling up on the sofa with Elmore Leonard's latest novel, I'd rather be back In my 200-year-old Cape where the gaps in the joinery are so big you could throw a cat through them.

WHEN I first came to the magazine and starting learning a little bit about design, I was intimidated by it. When we published an article about the Farnsworth House years ago and included a photograph of its architect Mies van der Rohe, I thought it was William Frawley, the guy who played Fred Mertz on the old "I Love Lucy" show. Back then I thought of architecture with a capital "A" and confused it with architectural history. I assumed that since I was uneducated in the subject, I was incapable of judging it. I was wrong. The single most important lesson I ever got about architecture came from Chuck Miller, *Fine Homebuilding's* managing editor, when he told me that architecture is about "making spaces" and that when experiencing a house there' s one critical question: "Is this a space I want to be in?"

Jake Covert is a residential builder out in California, and the first time he built a house designed by an architect named Cathi House, he was studying the foundation plans and noticed that they were detailed to 1/8 in. Jake was a veteran builder and had never seen plans like this. So he called the architect and asked why on earth the footings had to be detailed to such precise tolerances. Cathi House met Jake out at the site and patiently explained to him that the house was designed on unit modules that included, among other things, ⅝-in. sheetrock and 4-in. tiles with ⅛-in. grout joints. That's what good architects do: like good pool players, they think way ahead.

I talked to an architect recently who was complaining about always having to sell himself to clients. Generally speaking people understand why they need a builder more easily than they understand why they need an architect. When a potential client asked this architect, "What's an architect going to do for me?" he replied, "Well, does your garage get more sunlight than your kitchen?"

I'm not trying to be an apologist for the AIA. But I can assure you that there are good architects out there, and if you haven't found one, keep looking. I'm also not saying that a house has to be designed by an architect to be a fine home. But a house does have to well designed to be a fine home. And "well designed" doesn't mean well crafted. And it doesn't mean riddled with hackneyed architectural features like archtop windows and two-story entries.

A well-designed house is one that fits its site and its climate and its owners. It's a place you want to be, and where guests feel welcome from the moment they step out of the rain onto a sheltering porch to when they wake at three in the morning and find the guest bathroom private enough to deal with the effects of last night's Mexican dinner without fear of embarrassing themselves.

A fine home also "drinks well," which is a quality that we frequently invoke around the office when considering a house for publication. It pretty much means we can identify two or three places where it would be comfortable to sit and sip Jack Daniels.

Designing houses is a complex business. I guess, in the end, I would urge you to respect design every bit as much as you do your own craft. And if you aren't equipped to practice design yourself, study it enough so that you at least learn to recognize it, and don't waste your valuable time and efforts on anything less than first-rate design.

MY father's retired now, but he was a doctor. He was not your typical doctor, though. He never played golf a day in his life. He grew up on a farm during the Depression, and he was tight with his money. My father never drove anything

more expensive than a Chevrolet. And my sister claims he used to water down the Elmer's Glue to make it go farther.

My father tells a story on himself of attending the 30th reunion of his Harvard Medical School class. He was checking into the hotel, wearing his standard uniform of stained khaki pants, a T-shirt and a baseball cap, when a former classmate came up to him and said: "By God, I knew it was either Dick Ireton, or the plumber come to fix the toilet." My father probably took that as a compliment. At the very least, he wasn't insulted.

Nor was he surprised or upset when, after four years of studying English in college, I announced that I was going off to become a carpenter. My father wasn't bothered by the decision, but I was. I knew it was what I wanted to do, but I felt self-conscious about it, defensive. Society puts a certain pressure on all of us. It's an integral part of the American Dream that children grow up to have a better life than their parents. And "better" in this context means more money and more prestige. I think there's an even stronger expectation that a doctor's son will follow in his father's footsteps.

So I felt self-conscious about my decision to become a carpenter. And when I was out on the job site, digging footings by hand, insulating crawlspaces and laying frozen three-tab shingles in the February wind, I spent a lot of time thinking about the differences between my profession and my father's. We both worked with our hands, for instance, and got them dirty in the process. But somehow my father was esteemed by society and I was "just a carpenter" and "wasting my college education."

I had to buy all my own tools. My father's were supplied for him. I had to clean up after myself and put my tools away. My dad just turned around and walked out of the operating room. At the end of a long hard day, I'd have to go home and sharpen my chisels and plane irons. My father never sharpened a scalpel in his life.

But the one difference between my profession and my father's that bothered me more than any other was that in 40 years as a surgeon no one ever came up to my father and said: "Look, Doc, about this gall bladder thing, what can you do for me if I pay you cash?" Nobody ever said: "What if we go with staples instead of stitches? What does that do to the bottom line?" My father was always paid to do his best work. But for craftsmen in this day and age, doing your best work may be a luxury you can't afford.

When I worked as a carpenter, I heard two stories that I clung to. The first involved two guys visiting a famous European cathedral that was decorated on the outside with ornate carvings of all the saints. These guys went way up into the attic of the cathedral, climbed out on the roof, and one held the other by the ankles, dangling him so that he could view one of the saints and see that despite its obscure location, this carving was just as finely wrought as the carvings by the front door. "That's craftsmanship," the fellow said.

The other story tells of a master woodworker carving an incredibly detailed and elaborate battle scene on a pair of huge doors for the king's palace. A visitor studies the carving and asks: "With such intricate and elaborate carvings, how on earth do you know when you're done?" The old man looks up from his work and says, "Oh, I never finish. I just keep working until someone comes and takes the doors away."

Both of those stories impressed me, and I used to think doing good work was the ultimate goal. But it's not. Not if you're a professional, not if someone's paying you to get the job done. The truth is that any retired patternmaker can probably do better work than all of us. And that's because he enjoys the luxury of time. If you're a professional builder, though, good work is only half the challenge: you've got to be able to do good work quickly.

THE best carpenter I ever knew didn't do the best work. He did good work, and he did it fast. He was a sawed-off French Canadian named Bob Doyan. He wore a cloth apron, and all he carried in it was a hammer and a 6-ft. folding rule. But I swear he could unfold that rule faster than I could strip 6 ft. out of my 25-ft., spring-loaded, 1-in.-wide, extra-rigid-up-to-7-ft. Stanley tape measure.

Except for knowing that Bob had been at it for a long time, I'm not sure how he managed to do such good work so quickly. He didn't waste any motion. He didn't demand perfection, or beat himself for his mistakes. He wasn't hung up about tools; he'd use whatever was handy to get the job done (unfortunately that meant removing the fence and cutting sheets of plywood in half freehand on the tablesaw, but I didn't say the guy was perfect).

I don't need to tell you what good craftsmanship is—that would be like Bob Costas telling Randy Johnson how to throw a fastball. But I know there are some of you who are pretty smug about your ability to build a hammer-beam truss that would make Makoto Imai jealous and that you could park a truck on. And I'd like to ask you, heretical as it may sound, is your work better than it needs to be, and as a result, is it costing too much? If in the end you can't compromise the quality, then you're going to have to work faster, not only because you've got to stay in business but also because some client's life savings may be paying for every tick of your meter.

I could say that a fine home is one that's well designed and well built and leave it at that. But it's not really so simple. We're not talking about owner-builder projects here. This is a business. And I don't think a house can be a fine home if the builder goes belly up in the process of making it.

There are three reasons to build a house: 1) because you need one, 2) because you enjoy it, 3) to make money. In my experience the first two reasons are the most valid—there are better ways to make money. But most of you build houses for the second two reasons—because you enjoy it and to make money—which is a problem, because those two are damned near mutually exclusive. In a world where vinyl siding is king, how can anyone who builds for pleasure make any money?

You started building because you liked the work, but in order to keep building you've got to make a living. I sometimes think that the revival of timber framing back in the 1970s was a plot hatched by the Republicans to trick hippies into becoming businessmen. I won't venture an opinion about whether it was a good idea, but clearly it worked, at least on a small scale, because here you all are. You wanted to be craftsmen, but much to your dismay, you ended up carrying a briefcase too.

Building is a service business. And if you're only serving yourself, it's not much of a business. Good service is giving the customers what they want, not trying to sell them an expensive timber frame made of recycled old-growth fir just because that's what you enjoy building, or selling them a level of quality that they can't appreciate or can hardly afford. When I worked as a carpenter, I thought the worst thing anyone could say on a job site was "good enough." It didn't matter what dark corner of the closet I was working in, I was going to scribe the baseboard to the hardwood floor with my block plane and worry the miters and copes until they suited me. I figured that nobody could pay me enough to make the job worth doing just for the money alone. I was also working for the satisfaction that came with doing my best. Now, I think that's potentially a pretty selfish attitude. It could be irresponsible to the company you work for and to the homeowner.

So here's the problem again: you're in this business because you enjoy it, but it's pretty hard to take much pleasure from throwing up vinyl-sided raised ranches and center-hall colonials with sheetrocked interiors that have as much character as a loaf of Wonder Bread. The solution to this dilemma has traditionally been to find people who can afford the kinds of houses you enjoy building.

One of the most beautiful houses I've ever seen was a timber frame that Merle

Adams and the folks at Big Timberworks built in Montana's Paradise Valley. I liked it enough to put it on the cover of *Fine Homebuilding* last winter. But that house is a very occasional vacation and weekend home for a wealthy man who lives in the Midwest. Most of the time there's nobody living in that wonderful house, and that's something of a tragedy. Can a house be a fine home if nobody lives in it? Now Merle has every right to be proud of that house, and I'm delighted to have published it because not only was it inspirational design and craftsmanship, it was also an important look at the use of recycled timber. But I'm sure that both of us would be happier if a family with four kids and two dogs lived there and were busy adding their own scars alongside the bolt holes and rust stains on the flooring and timbers.

One thing that *Fine Homebuilding* editors and timber framers have in common is attracting criticism about expensive houses. I get it for publishing them, you get it for building them. Affordability is a big issue. If you could figure out how to build timber frame homes for less money, you'd not only have more business, you'd enjoy more often the satisfaction of housing families (as opposed to indulging rich patrons).

Despite the fact that the average house in this country continues to grow, I think most houses are way too big. At the magazine, we get proposals from people all the time who want us to publish houses that have more square feet of glass than most of us have of living space. I got a call recently from a guy outside of Washington,D.C., about a 12,000-sq.-ft. house. Who needs that much space? And that house is probably for two people with no kids. It ought to be illegal to build a house that big.

People should build smaller houses. Smaller is less expensive. Smaller consumes less material. And given how painful the process of birthing a house usually is, I think a smaller house is easier to deliver. Let it continue to grow after it's born the way people do. Why aren't more houses designed to be built in stages, as the owners can afford it, and as their families require it? I would think a young couple just starting out could live comfortably enough in a timber-framed efficiency, one big room. Most of you find ways to help each other build nice houses for less money; there must be ways to do the same thing for clients.

In Stewart Brand's book *How Buildings Learn*—which all of you should read if you haven't already because timber framing gets a powerful endorsement as a long-lasting and highly adaptable form of building—Brand reminds us that 60 per cent of the final cost of a mortgaged building goes to the bank as interest. He then introduces a radical idea from a builder named Matisse Enzer, who suggests that for the cost of a typical downpayment on a house, he could erect a small core building that the homeowner could move into, and that instead of making interest payments to a bank, the homeowner could pay him to grow the house bit by bit over time. Enzer is quoted as saying "With 10 or 12 projects like that going, I could make a good living." There may be 18 reasons why that would never work. But the point here is that we've got to question our traditional ways of supplying houses and find ways to do it better. I'm too big a fan of timber framing; I don't want to believe that it's available only to wealthy people.

I BOUGHT my house six years ago. Since then I've redone the roof, put down hickory floors, rebuilt the bathroom, remodeled the kitchen, hauled 12 in. of dirt out of the basement and poured a concrete floor. I've rewired and replumbed and added insulation. Right now I've got the foundation in for a two-story addition with a walk-out basement. And if I'm lucky, within a few weeks I'll receive a shipment of recycled southern yellow pine timbers from Pioneer Millworks so that I can timber frame, not the whole addition, but the second-floor platform, and enjoy a timbered ceiling in my living room. The original house was closer to 900 sq. ft. than I ever cared to admit. And with the addition it still won't quite be 1,500 sq. ft. of heated space. I paid a lot of money for the house (admittedly this was back before the bottom really dropped out of the real estate market). But the property was nice and I figured eventually I could end up with a fine home.

About a year ago, a local builder (and I use the term loosely here), bought six acres across the street from me. He cleared the first lot and trucked in from Pennsylvania a modular raised ranch with white vinyl siding, which he sold before he finished nailing the two halves together for $158,000. The asking price was $150,000, but the extra eight grand got the owner a brick chimney and fireplace. The owner is a single guy, a policeman actually, in his mid-twenties. I've never been in the house, so I don't actually know if he watches TV while reclining in a La-Z-Boy with the remote balanced on the arm, ESPN on the tube, box of Ritz and a beer by his side, head thrown back, low snore—but it's no stretch to imagine that scene.

There isn't really anything particularly wrong with raised ranches. My neighbor's house could be a center-hall Colonial, and I wouldn't like it any better. It was plunked down in the middle of a bare lot and looks as stark as a mobile home in an empty parking lot. There was no regard for designing a house that was appropriate to the site. There was no regard for solar orientation. The whole process struck me as bloodless. I don't think there was much pleasure or passion in the building of that house, either at the factory or at the site.

And yet, I bet if I offered to trade with my neighbor, his house for mine—my 200-year-old center-chimney Cape, with the rebuilt bathroom and the handmade cabinets in the kitchen (and the still half-gutted upstairs with rigid foam for a ceiling, the upstairs that when the tax assessor stopped by one day, asked to see the bedroom, went up and looked, came back and said, "That's not a bedroom, that's an unfinished attic")—I'll bet my neighbor would laugh in my face. I would guess that my neighbor has more of his identity wrapped up in the car he drives than in the house he lives in. The house is just a place to eat and sleep and to watch TV. So is he wrong? Is the builder wrong who gave him what he wanted and what he could afford?

Or am I wrong? Because I wouldn't trade him either. Neither of us has a fine home by any of the criteria I've mentioned this morning. But like a carrot dangling at the end of a stick, a fine home looms ahead in my mind, though it may be more years down the road than I'm willing to believe.

Last August I visited Cascade Joinery in Bellingham, Washington. And I got to see Jeff Arvin's new home, a Victorian farmhouse, with a covered porch about 8 ft. deep running all the way around it. The porch is only a couple of steps up from grade, so no handrails are necessary, and there are no railings to funnel you in one direction or another. You can step up to that porch anywhere you want. That porch is like a big pair of arms welcoming you into the home's embrace. There are no railings, but there are plenty of sturdy posts to sit and lean against. I haven't been able to get that porch and the way it made me feel out of my mind. I'm pretty sure that at the end of a long hard day, that porch would drink well. And I think I've finally figured out how to incorporate a porch like that into my new addition.

I can't actually offer up any evidence that we're not all crazy to devote so much time and attention to houses. But it doesn't feel like we're crazy. It feels like a noble thing, to build houses and to try and make them better, or even to publish a magazine about building houses. But in the end, I don't think it matters whether we're crazy or not. Building houses is what we know. It's what we do. It's what we care about so passionately that we probably couldn't stop now if we wanted to. —KEVIN IRETON

Kevin Ireton is editor of Fine Homebuilding *magazine. This essay is adapted from his talk to the Guild at last fall's Western Conference.*

GUILD NOTES AND COMMENT

AT THIS writing, the Timber Frame Business Council has achieved its IRS non-profit designation, and collected 82 members, thus moving two-thirds of the way towards the complete conversion of former Guild business members to current Business Council full members. The volunteers who comprise the board, committee members and advisors of the council have a Sisyphean task ahead: to bring some part of our charming, passionately pursued craft into commercial viability, main-stream visibility and bureaucratic legitimacy.

Why is this important?

You may argue that we should be leaving well-enough alone, that your timber frame business is moving along swimmingly and that the revealed principals of capitalism are contrary to the core values of the Guild. You could be right.

You could suggest that the efforts of the Business Council will only serve to make the big companies bigger, that mass-marketing of timber framing undermines the hand and heart principles that distinguish our work from that of so many other builders. You might be right about that, too.

You have lamented that you are unconvinced of the significance or sincerity of the national building organizations in whose circles the BC is likely to travel, that exploration of grading standards and building codes is fraught with unfulfilling risk, mind-numbing bureaucracy and heart-stopping expense, that home shows and trade shows are distasteful and valueless.

You will predict that Business Council membership will be more expensive of time and money than the (former) option of Guild business membership, that members meet in expensive places, far away, with highly paid consultants who have tassels on their loafers. You'll certainly be right about this.

So why bother?

It is argued that the force that has the largest culture-changing impact in our world is not the church, nor the arts, nor academe nor politics nor even the military; but that it is business. Especially in North America, businesses, for all their well-documented shortcomings, are the source of most pragmatic innovation, the crucible where ideas are refined, the laboratory wherein the acid tests of practicality are administered.

To the extent that you believe timber framing is a sensible building system, even in a culture that appears to worship glitz, novelty and impermanence, as much as you believe in the ecological appropriateness of thoughtfully-pursued timber framing, though you feel like a voice crying in the wilderness, as convinced as you are of the life and culture-transform-

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ing virtues of right livelihood, rise up off the bench and step to the plate. If we bring the same level of attention to business issues that we bring to timbers, our world could be a different and better place. —JOEL MCCARTY

'Inimim News

WE just completed a salvage sale. The original scaled volume was about 80,000 BF, later reduced to about 60,000 BF since most larger trees were left there in their damaged condition to provide habitat for spotted owls and pileated woodpeckers. Most of the trees included in the sale were damaged in a ferocious snow storm last spring when it first sleeted, then snowed cement, breaking out the trees about 80 to 100 ft. up. Some of the broken tops were driven many feet into the ground upside down with up to 24-in. diameter tops 30 or 40 ft. above the ground.

In February we finally had a "window" for our long-planned prescribed burn, where the 10-hour fuel (½-in. diameter material, which will normally come to equilibrium moisture content in 10 hours) was in the 10 to 13 per cent range, there was no significant wind, the relative humidity was about 45 per cent and it was declared a "burn day" by the California Air Quality Control Board. We had not expected this until spring. And a spring burn is something we feel less than completely enthusiastic about since trees and shrubs are just beginning to sprout and these tender ends are easily damaged. In addition in the spring there are nesting song birds in the lower vegetation zones, amphibians are abroad and a fire at this time would be catastrophic for them all. Since none of this is a problem in February, we burned. There were two crews of 20 men each, five tanker fire trucks, lots of people from the Bureau of Land Management, the California Division of Forestry (firemen and foresters) and California Fish and Game, the local newspaper reporter, two National Forest trucks and fuel management heads, the local volunteer fire department and a lot of neighbors. While it was really still a little too wet to get as complete combustion of ground litter as we would have liked, it still was worth the time and effort. In some areas the fire wouldn't carry, but in others flame lengths were up to 20 feet. A lot of excess small trees were killed, almost all the ground litter up to about ¼ in. was burned, and, very important, the bear clover and pine needle accumulation of the last 60 years has been substantially reduced. The terrain is now set up for an additional fall burn after a long drying summer when so much of the residual litter can be consumed. We expect to see new kinds of vegetation as a result of seeds germinating which had been sitting there for up to 30 years waiting for a fire. As well, we ought to see a spurt of growth of the remaining healthy trees, and I can report that we don't seem to have killed anything more than 8 in. in diameter. Fifteen acres down, 30 to go.

The Yuba Watershed Institute has begun to investigate having the 'Inimim forest certified with the Institute of Sustainable Forestry as a forest practicing sustainable forestry techniques. This would be the first time any federal land has ever been certified in this manner, as far as I know. Dean Swickard of the BLM is supportive of the effort and has promised $2,500 towards the cost of $7,200. A number of foresters, sylviculturists, wildlife biologists, hydrologists, and the like need to come out, look carefully at the land, see how our forest management plan would preserve important aspects of the forest and then they need to make annual inspections to be assured we are actually practicing what we plan, what we preach. The Yuba Watershed Institute has made an application to the Columbia Foundation for a grant of $5,000 to go towards obtaining this certification, and I intend to ask the Guild as one of the partners to make a contribution, even a very small one, since that would be most helpful in getting the funding with the Columbia Foundation.

Now once this certification is completed, any lumber products coming out of the 'Inimim can be marked with a "smartwood" stamp certifying its origin. I think it entirely likely that an *average* of 50,000 BF per year can be cut on a sustainable basis, probably not every year, but perhaps sales of 100,000 to 200,000 BF cut every two or three years. (There are 35,000,000 BF in the 'Inimim.) This lumber can be milled locally to whatever lengths and dimensions are desired. Very long timbers can easily be cut. I would guess we would be able to produce ponderosa pine, sugar pine, Douglas fir, white fir, black oak, madrone, and incense cedar with the bulk the pines and Doug fir. I don't know what the cost per thousand would be, but I do know that the BLM is willing to sell the logs for less if they get some other value in return, which in this case is long-term sustainability not only for timber, but for many other values as well, including the support of local economies. There are probably many timber framers who have clients who would prefer such materials harvested sustainably, and would be willing to pay a reasonable premium for such materials. So I wanted to float this before the Guild to see what kind of response we might get. I realize that cost per thousand is critical, but I am not worried about that. I should say that for the next 30 to 40 years anyway, really large trees (40 in. diameter and up) will not be commonly cut as those are the trees we are trying to grow. Eventually the 'Inimim will be supplying a steady steam of such trees, or so we all hope. But there will be many trees 18 to 36 in. diameter and 80 to 200 ft. long that will be removed for thinning and sanitation. These trees are growing too thick, infected with bugs, fungus or mistletoe, or for some other reason they should come out to open the forest and make it healthier. Is the Guild membership interested? Are Guild sawyers interested in logs perhaps?

—LEN BRACKETT

The Timber Framers Guild, The Yuba Watershed Institute and the Bureau of Land Management are partners in the management of a tract of forest in the Sierra Nevada mountains of California.