



SCANTLINGS

NEWSLETTER OF THE TIMBER FRAMERS GUILD

NUMBER 200

MAY 2016

September conference in Saratoga Springs, N.Y.

BRENDA BAKER

The Guild's 2016 annual conference is September 15–18, at the Gideon Putnam Hotel in Saratoga Springs, New York. This year's conference is extra special because it will be held in conjunction with a TFG Community Building Project in Schuylerville, NY. The Gideon Putnam Hotel is nestled in the foothills of the Adirondack Mountains and is the only hotel located in Saratoga Spa State Park. Amenities include: championship golf, a historic spa with mineral-rich waters, performing arts venues, museums, hiking, biking and cross-country trails, and multiple swimming pools.

Conference registration will be available mid-May on the Guild website www.tfguild.org.

Thank you to 2016 Conference planning committee—Brenda Baker, Michael Cuba, Amy Good, Curtis Milton, and Jonathan Orpin who are developing another dynamite conference program.

There are numerous opportunities to sponsor events at the conference and continue to support the Guild. If you would like to be a sponsor for something specific, just let us know.



The trade show is in the middle of the conference area so conference attendees will have easy access to exhibitors. Trade show registration will also be available mid-May.

For more information, please contact us at conferences@tfguild.org. This is going to be a great conference. We look forward to seeing you all there.

Four perspectives on community building projects

ELLEN GIBSON

Grigg Mullen, Tim Chauvin, Will Denton, and Mack Magee presented at the Guild conference in Coeur d'Alene, Idaho, discussing their respective experiences with community building projects. A brief synopsis was published in *Scantlings 199*.

Grigg Mullen

Grigg is a professor of civil engineering at Virginia Military Institute (VMI). What started as a hands-on instructional experience for his students led to a swelling of community involvement and a stream of other projects. These twice-yearly events involve VMI cadets, students from several colleges and high schools, Guild members, historical enthusiasts and community members of all ages and skills. Everyone is welcome.

The VMI projects always benefit a local non-profit. The chosen organization is involved in the project and the structure must be an appropriate scale. The project is guided by the ethos learned from the TFG: safety, sharing, and inclusion. There must be a good fit between project leadership and client, who must understand both their responsibilities and the Guild mission. Grigg emphasized how important it is to get help with hospitality: food, entertainment, lodging. Getting strangers to become friends over the course of the project is a goal, and a necessity.

With Grigg's projects, a core group of instructors leads the crew. Knowledgeable students, Guild leaders, and community members contribute their skills. People will rise to the occasion, and leadership and skills can be found

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SCANTLINGS

Newsletter of the Timber Framers Guild
Number 200 May 2016

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Founded 1985

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Accacia Mullen, *Scantlings* editor • Brittany Robertson, *Scantlings* layout

Scantlings, the member newsletter of the Timber Framers Guild, is published in January, February, April, May, July, August, October, and November. Next deadline: **June 10**

News contributions and correspondence: Maureen Kane, 1106 Harris Ave, Suite 303, Bellingham, WA 98225, 360/746-6571, maureen@tfguild.org.

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where you least expect them. It's important to keep things interesting, spread out responsibilities, challenge participants, and pass on knowledge of and appreciation for timber framing through community projects.

On a practical level, Grigg suggests that you get the drawings early, then pick one method of layout and one form of raising and stick with them. He noted that scribing can be hard to teach in a community project. If the timber is donated, it's best to assume the worst. Order more than you need and be ready to improvise. A lot of participants are learning skills for the first time, and while on-site training is critical, the mis-use of tools can happen. Good tools, plenty of rigging, and more saw horses than you could possibly imagine all help to make the project flow smoothly. All the contributors need to be celebrated and thanked.

Tim Chauvin

Tim, of Red Suspenders Timber Frames in Nacogdoches, Texas, has also participated in many Guild projects and echoed many of Grigg's comments. He feels that it is critical for the community to be completely on board with a project before bringing it to him and the Guild for further discussion. He sees his role as a moderator after the community has come to terms with the cost and initial planning of the project as a whole. Tim noted the requirements of a Guild project—being for the public good, having adequate local support and lead time, being a suitable design, and having enough time for completion.

The project will start with a plan, but someone needs to step forward to move it ahead. An understanding of responsibilities between the local hero, community partners and the Guild must be clarified. The local hero is the liaison between the Guild and the community. Local Heroes are responsible for coordinating the partners. They cheerlead the project from all sides, being available for interviews and, basically, whenever they're needed. This is a lot of work, and the time commitment

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In memoriam: Emmett Greenleaf

Emmett Greenleaf of Fairfax, VA, a retired Major in the U.S. Army, died on January 28, 2016. Emmett joined the Guild in 1998 and attended many conferences, projects and events. Emmett is survived by his wife, best friend and sole care giver Sharon Greenleaf, one son, 5 daughters, 14 grandchildren and 7 great-grandchildren.



Four, from page 2

should not be underestimated. The community partners need parameters to work within. They are responsible for the design, permits, funding, insurance and legal coverage. The partners manage all the non-timber related parts and activities and help with publicity before, during and after. In-kind donations of materials and labor need to be noted and recognized. The Guild's responsibility is to select a leadership team and craft an instructional plan. The Guild manages the frame portion of the project, selecting the student crew and safely cutting and raising the structure. The Guild also helps with publicity and documentation.

Tim stressed that when estimating the cost, it is important to figure in all that is involved—volunteers, donations, extra costs along with materials, site set-up, labor, etc. The community has to have the intent and the commitment to the project—they have to want it. The TFG is involved to educate and build community, and Tim noted that the Guild should not be giving a building away.

Will Denton

Will was the project manager for the Portland, Michigan Red Mill Barn project in August 2015, and the Guild's local hero there. He emphasized the significance of coordination between the leadership team and the community. He also stressed the importance of time management and recognition. Will seconded Tim's assertion that this role was a lot of work.

While having a good plan for the project is essential, a back up plan is also important. Will suggested calling in favors or hiring out parts and lining up people from other shops who might be able to provide a last minute timber. Everyone who might be needed should be up to speed with the plans and potential pitfalls, even if their contribution is not used in the end. This backup support should be a part of the original plan and budget, and not scratched together at the last minute. Will's advice: Keep it as simple as possible.

Mack Magee

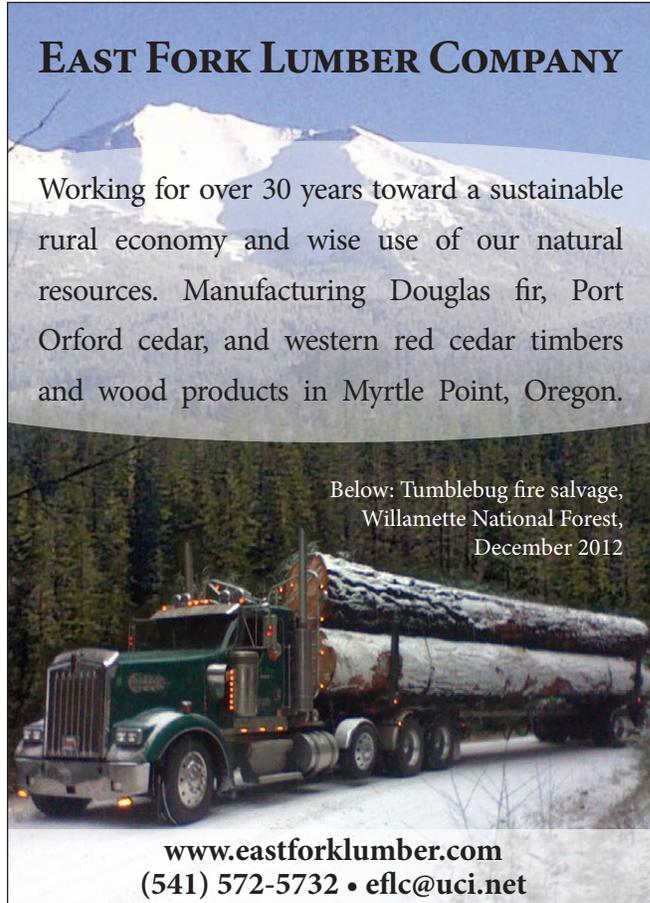
Mack, of Fire Tower Engineered Timber in Providence RI, and the Guild's Projects Committee, emphasized that the mission of the Guild is to educate the TFG community and the public— not to give away free labor or structures. This is a high tech craft that Guild members can offer to a community. He also reminded the group that volunteers and donations constitute a great value.

When asked why someone might suggest a Guild project rather than hire a local shop, Mack reminded us that the Guild is selling community involvement and that, as everyone indicated, is not only critical for project success but is a purpose in itself. The community needs to decide what the purpose of their structure is, and whether community participation in the framing and raising is important.

The goal of a Guild project is that the community is happy and students are proud of what they have learned. Publicity is an important, and often overlooked, aspect of all stages of the project and documentation is vital for promotion and future projects. TV coverage, local NPR networks, daily blog posts, and local papers can all be sources for promotion, and all partners in the project have to be on board with promotions.

Although everyone who spoke presented the topic from a different angle, everyone stressed similar points. A project starts with community commitment of time and finances. It follows Guild guidelines and involves many partners and individuals. Realistic planning and accounting are critical, and communication on all levels is key. The mission is to educate the local (public) community in the craft of framing and thus build the TFG community. Local community members are drawn in through projects and involvement in them. Ask for help and don't forget to acknowledge and thank everyone involved.

Projects have been a vital part of the Guild, introducing many people to the TFG community, to framing in general, and to community partnerships. A well-planned project, with a plan B in hand, will unite a crowd, foster collective enthusiasm, and make memories for years.



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Below: Tumblebug fire salvage, Willamette National Forest, December 2012

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From the Engineering Council

DICK SCHMIDT

The Timber Frame Engineering Council (TFEC) is looking forward to 2016 with new energy and ambitions. We will keep offering some of our continuing education activities, introduce a new educational workshop, and sponsor research that will directly benefit the ability of our members to design safer and more economical timber frame structures.

We have begun planning for the fourth edition of the popular and successful Timber Grading Training Course. Our previous three workshops, at Heartwood School in April 2014 and April 2015 and a pre-conference workshop in Coeur d'Alene just last October, were well attended and well received. We've partnered with the Northeastern Lumber Manufacturers Association in the Northeast and the Western Wood Products Association in the Northwest. Ron Anthony shared his perspective on wood grading as a wood scientist, and we enjoyed learning about the regulatory perspective from professional graders working in the industry. This collaboration serves multiple purposes, increasing the quality and credibility of the course, and raising the level of recognition and acceptance of the course among the North American grading agencies, thereby providing more value to our attendees. We hope to hold the next workshop somewhere in the Southeast, possibly in conjunction with a regional gathering, and simultaneously building a relationship with the Southern Pine Inspection Bureau.

As an outgrowth of our grading workshops, we formed a committee to develop a new document: a guide to grading structural timbers, with emphasis on new milled material and timbers in existing buildings. This guide is intended to provide a clear explanation of the grading rules and their interpretation (something that those of us who have tried to work with the grading rules know is not self-evident), and also to help establish appropriate "standard" practices for assigning grades and design values to timbers in situ. Under Ron Anthony's leadership, we submitted a grant application to the National Center for Preservation Technology and Training to fund this work. We'll learn whether our grant application is successful sometime in early Spring. Down the road is the critical but challenging topic of grading of reclaimed, recycled, and salvaged material. Anyone interested in helping with these studies is welcome to join the team and should reach Tom Nehil at tnehil@nehilsivak.com.

Tom Nehil plans to lay out his collection of razor blades, jeweler's loupes and wood samples for a lucky dozen or so attendees at a new workshop on species identification. Tom has studied this topic for many years and is well suited to break open this new avenue of learning for the Guild. We're still in the formative stages of this effort, so stay tuned for details to follow.



Accacia Mullen

Students in the TFEC timber grading course at the Guild conference, Coeur d'Alene.

In the research arena, the TFEC sponsored testing of drop-in style joist housings by Grigg Mullen and his cadets at Virginia Military Institute. Our objective is to understand how these housings behave, and hence develop guidelines for their design. We need to be able to put numbers (load capacities) on our calculation sheets, rather than just historical artifacts, in order to satisfy the questioning of those who issue our building permits. Moving forward, though, we have budgeted \$10,000 (a hefty sum by TFEC standards, but fairly modest in the broader research realm) for research to be conducted on one or two topics of interest to our members. Proposals were accepted until March 1.

Additional news includes the following:

Mark Gillis, chair of the design services committee, will contact the TFEC membership soon for an update on their professional qualifications, jurisdictions of licensure, and interest in working on Guild projects (fee based). Guild projects are essential elements of our educational mission, and TFEC engineers are invited to participate by providing their professional services.

Grigg Mullen is organizing the next TFEC Symposium, to be held as a pre-conference event in Saratoga Springs, N.Y. in September. If you have a topic that you think would be of interest to TFEC members, get in touch with Grigg at grigg@gmail.com

Jim DeStefano, publications chair, just released a new Technical Bulletin on machine-cut dovetail connections, written by Thomas Tannert from the University of British Columbia, where he did his PhD research on that topic. Another bulletin on moment-resistant connections is forthcoming. Anyone with an idea for a short bulletin may reach Jim to discuss the idea at jimd@dcstructural.com.

Brian Malone stepped up to chair a new committee on membership. This committee will focus on communicating with existing and former TFEC members to identify how the TFEC can best serve the needs of its members.

Keep an eye open for additional updates and announcements from the TFEC in future issues of Scantlings.



Convenient disconnect: defining a sustainable heritage wall

AUSTIN PARSONS

In 1963, Neil Hutcheon identified eleven requirements for an exterior wall in the Canadian Building Digest. The wall must control heat flow, air flow, water vapor flow, rain penetration, light, solar and other radiation, noise, fire, provide strength and rigidity, be durable, be aesthetically pleasing and be economical. Today, a twelfth requirement could be added to the mix: a wall also has to be sustainable.

What is a sustainable wall, and how can it be designed? This article provides an answer to these two questions.

When the idea of sustainability first came onto the scene in the late 1980s, those who wrote and talked about the idea viewed sustainability as a combination of economic, environmental and social issues. It was expected that the three issues would be seen as a whole when determining how to make something sustainable. In the past half decade, culture has been added to this set, and they are referred to as the four pillars of sustainability. Now, when trying to make something, a wall, for example, sustainable, the four pillars must be taken into account.

A heritage wall has been singled out because of its first order connection to cultural sustainability. Because of this connection, one has to think not only of the future but the past in any design decision.

The building

The example wall is one part of a historic building. To put the wall in context, the example building is a story and a half home built by a French Huguenot circa 1796–1802. The wood walls are corner post constructed in the French plank wall style (*piece sur piece en coulisse*).

The house has been retrofitted over the years. Rigid insulation and drywall were added to the inside surface of the roof sheathing in several of the upstairs rooms. In these rooms, the original plaster and lathe, along with ceiling framing members, have been removed. In the rooms where this work was not done, the dropped ceiling remained.

A portion of the earth underneath the house has been dug out to create a basement and install a furnace. Where the basement was dug out, the timber frame floor was replaced with a platform. The furnace's ductwork was surface mounted throughout the home. The central two-flue chimney terminated into a pair of back-to-back fireplaces. The fireplaces have been removed and replaced with two wood stoves.

The heritage wall

The walls have not been insulated and are covered with lime plaster on the inside and shingles on the outside. The windows are true divided light, six over six vertical sliders. They are not original, but are over 100 years old. They have been weather-stripped with interlock bronze weather strip. The doors appear to be original.

See Eco-Logic, page 12

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Tell Me a Story!

JEFF ARVIN

Long ago I decided that whoever dies with the best stories is the winner.

When I interviewed for the position I now hold, the folks interviewing me made it clear that I would spend a fair amount of time on the road (and, consequently, in the sky) visiting Guild members. Part of my charge, made in part out of financial necessity, was to “sleep on any couch that’s offered.” That was a brilliant suggestion, and not just because it keeps me from spending another night in a corporate hotel. Now, about a year later, I can report that I spend about a week out of each month doing just that—traveling to visit members and sleeping on couches. It’s the best part of the job.

Everyone I meet has a story. There are creation stories—“how I came to be a timber framer,” or “how we became a company.” There are stories that teach—“if I knew then what I know now,” or another installment of the “woulda, shoulda, coulda tales.” And there are stories that just plain entertain. The stories I hear from members make me laugh, make me think, and inspire me.

There’s lots of high falutin’ stuff on the internet about the importance of stories— how human cultures use stories to reinforce social norms, or how we use stories to extract meaning from our lives. And even how working with opposing narratives is essential to resolving conflicts. I’m sure it’s all true, but I think that the most important thing about stories is that the stories we share make us a community. Our stories connect our past to our future. They gather up the parts of us and put them together to make us complete as a community, sharing our common experience. We’re wired for stories.

So we want your stories! We know you have a bunch of them and since none of us are getting younger, it’s time to get them on record. *Scantlings* is the perfect venue.

We are looking for brief, first person stories of 200–500 words in length, but if you have a good 50 word story, send it in, and if you have a story that requires more space, we can consider making it a feature article. You don’t have to be an experienced writer; spelling and grammar won’t count—we can fix that stuff. We’ll even withhold your name if you want or you can use a *nom de plume*.

For each issue of *Scantlings*, we’ll issue a brief, open-ended prompt. Your story can be about or related to timber framing, or what it’s like living the life of a timber framer, or anything timber framers could relate to. Be as bold as you want to be. You won’t shock us, but we probably won’t publish profanity or drinking tales even though we know that some of the best stories involve both. We won’t question the truthfulness of what you write, in fact we don’t even care if what you write is true! Often the truth is irrelevant to a good story. Don’t get hung up on the facts (like mine, your

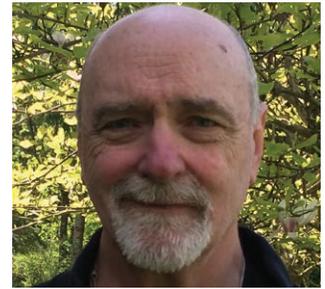
memory is questionable anyway) but you might let us know if you’re taking a wide deviation, or if you’ve changed the names of the people involved, please say so.

Submit your stories to info@tfguild.org and put OUR STORIES and your name in the subject line. How many we publish depends on how much space we have, and we reserve the right to make up new rules as we go along.

Let’s start with Teachers. We’ve all been teachers and we’ve all been taught. Tells us about it! Send us your copy by June 1, 2016 for publication in August. This is going to be fun!

Here’s the list for the coming year:

Topic	Deadline	Publication Date
Teachers	June 1, 2016	August 2016
First time	July 1, 2016	October 2016
Craft	September 1, 2016	November 2016
Tools and tool boxes	October 1, 2016	January 2017
Students	November 1, 2015	February 2017
Tradition	December 1, 2016	April 2017
Last time	February 1, 2017	May 2017
Value	March 1, 2017	July 2017



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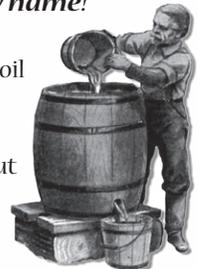
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EVENTS

These listings are for Guild workshops and meetings, were submitted by Guild members, or announce other relevant events. See www.tfguild.org/events. To submit info on a Guild event or project, reach TFG at 360/746-6571.

Guild events

Schuylerville Hand Raising Sep 5–Sep 15
Gateway Community Visitors' Center
Schuylerville, NY.

2016 TFG Annual Conference Sep 15–18
Gideon Putnam Hotel,
24 Gideon Putnam Rd,
Saratoga Springs, NY

other events

Fox Maple (2016 workshops)
At Fox Maple, in Brownfield, Maine—
Clay building May 27–29
Introductory timber framing May 30–Jun 4
Advanced timber framing Jun 6–11
Foxmaple, 207/935-3720.

EcoNest
In Portland, Oregon—
Apprenticeship Jun 20–Jul 28
Intensive Jun 27–Jul 15
Timber Framing Jun 27–Jul 1
Straw Clay Walls Jul 5–9
www.econesthomes.com, 541/488-9508.

Rancho Mastatal Sustainable Living Center
Natural building project apprenticeship Aug 1–Nov 30, 2016
Mastatal, Costa Rica.
Ali Ostergard, <http://ranchomastatal.com/pages/links/page.php?Grouping=Apprenticeship&PageName=internship>.

Rocky Mountain Workshops
Mastering the Basics of Square Rule Timber Framing / Josh Jackson and Skip Dewhirst Aug 28–Sep 3, 2016
Colorado State University Mountain Campus
Peter Haney, www.rockymountainworkshops.com, 970/482-1366.

NOTICES



Notices are for one-time events and offers, and they run free to Guild members for two issues per year. The cost to non-Guild members is \$80 per notice per issue. A notice, whether free or paid, runs for a maximum of two issues. Notices are intended for onetime events and offers; appropriateness for inclusion is decided by the [web content manager](#). For email links, see www.tfguild.org/notices.

for sale

Tools For Sale

- Protoool CSP132e 14" 220V with dado heads(2), 100' cord, rip fence, guides (\$3,000.00 OBO)
- Mafell 25ec band saw (\$4,500.00 OBO)
- Makita planer 12" KP312 (\$1400.00 OBO)
- Makita curved base planer 1002ba (\$250.00)
- Makita sander 9741 (\$200.00)

If interested, please contact joyoffish2@sbcglobal.net. Shipping will be calculated separately.

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Timber frame layout squares.

The goal was simple: create a layout square that increases accuracy, decreases layout time, and makes the layout process more enjoyable. This square incorporates the features of a framing square, try square, and protractor all wrapped into one. The square has 1/16-in. scale



Reciprocal roof framing at the St. James Episcopal Church in Cannonball, ND by Empire Timberworks.

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with laser etched markings designed for easy reading. Pivot off one corner of the base to get the plumb cut angles, seat cut, and any angles for compound joinery. Flip it over and get the opposing angles. It also makes peg layout a snap. The offset base aids in reference edge layout with graduation slots every 1/2 inch with notches on edges to mark every 1/4 inch.

Please email Brice Cochran, info@timberframehq.com.
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help wanted

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Green Mountain Timber Frames, located in S.E. Pennsylvania, has immediate openings for a shop foreman and journeyman carpenters. We are a full-service, hand-cut shop that specializes in out-of-the-ordinary architectural timber framing and French-scribe projects. Candidates must possess a positive work attitude, be team players, have an exacting eye for quality, and use all related tools & equipment proficiently.

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Journeyman carpenter.

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Our ideal candidate will also bring Dietrich's CAD experience, surveying, and log building experience. Please email john@logworks.ca or call 250/378-4977.

Timber frame structural engineer.

We are looking to hire a licensed engineer to review timber structures for our post & beam/timber frame company. Familiarity with timber joinery required. Ability to stamp in multiple states is very desirable, especially California. Compensation commensurate with experience; applicant need not be local. Excellent benefits. Please email jdickinson@texastimberframes.com or call 402/992-3403.

Timber frame designer.

Texas Timber Frames is looking for an experienced timber frame designer with knowledge of CAD and HSB to join our fast growing company. Previous experience will determine compensation. Opportunities for project management are part of the job depending on performance. Please email aarizpe@texastimberframes.com or call 210/698-6156.

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Experienced timber framer.

Lancaster County Timber Frames in York, Pennsylvania, has an immediate opening for a skilled timber framer with a minimum of 3 years of experience in all aspects of the process. You will need the physical ability to handle timbers and the skill to handle edged and hand-held power tools of all types with accuracy and speed. This position involves both work in our shop in York, Pa., and work on our job-sites erecting and enclosing our timber frame structures. Site work can require overnight stays. Ability to work at heights is required.

This is a permanent, long-term, full-time position with competitive pay rate and benefits.

If you are interested in this position and feel you possess the necessary qualifications, please send your résumé and cover letter to tdiener@lancotf.com. We will review your application and reach you by phone or email to schedule an interview and a visit to our facility.

West coast engineering staff.

New Energy Works Timberframers is looking to add an energetic, detail-oriented engineer to assist in the design and development of our complex, remarkable buildings and extraordinary building enclosures. The position works primarily out of our close-in SE Portland, OR studio, but requires some time at our shop in McMinnville, OR. Responsibilities will include preliminary structural analysis, development of applicable joinery, and connection methods as well as CAD/CAM drawings. 4-year engineering or related degree, 2D and 3D AutoCAD experience required. This position is full-time with a reasonable and always evolving benefits package. Compensation commensurate with experience. See full description here. Please send a cover letter and resume to Jonathan at joinery@newenergyworks.com.

Restoration carpenters.

Vermont Heavy Timber, LLC is a timber framing company specializing in restoration. VHTH practices a diverse array of skills, from using a woodmizer sawmill to mill up to 45' long, or hewing specialty timbers, to jacking and rigging, cutting joinery to match that existing in historic structures, or designing and cutting new frames. Experience is great, especially in timber framing, but we are willing to teach. The most important attribute is an unceasing desire to learn and perfect the craft along with the rest of the team. We are looking for a two carpenters, one of whom ideally would be interested to head up sawmill operations when not working with the crew. Please email Miles Jenness, vermontheavytimber@gmail.com, or call 802/540-5988.

Experienced timber framer in Alaska.

We are seeking an experienced timber framer to work in Homer, Alaska. If interested, please call Russ Walker, 907/399-1875.

Dietrich's draftsman.

Nicola Logworks is looking to hire a Dietrich's draftsman with a carpentry background. Required are sound knowledge of Dietrich's timber modelling software and journeyman carpenter or similar experience. Not required but desirable are log building experience, timber framing experience, and German and/or French language skills.

We are a small log and timber company located in the Nicola Valley in Southern B.C., doing a challenging variety of mass timber buildings.

Please email John Boys, john@logworks.ca.

work wanted

Itinerant timber framer looking for work.

Need an extra hand that can jump right in and cut joinery? I am looking to complete my calendar for 2016 with timber framing work on a project-by-project basis. Former Heartwood apprentice with 3 years experience including production-style shop work. I've worked for others and have designed/cut my own frames. Have tools including mortiser, circular saws, and all hand tools. Have general liability insurance. Especially interested in projects involving scribing, round timbers, challenging joinery, but I find joy in basic frames as well.

Open to projects ranging from 1 week to several weeks. I'm local to Massachusetts but will go anywhere. References upon request. Please email jsant27@gmail.com or call 843/687-5708.

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Eco-logic, from page 5

The re-design of the walls

The home's renovations have been a reaction to occupant needs and complaints. Changing out the fireplaces for wood stoves, adding insulation against the roof sheathing, digging out a basement to install a furnace—each was done to improve comfort. Little regard has been taken to conserve the original fabric. The one exception was not to replace the windows, but add weather strip.

There is a spectrum of choices available regarding the re-design of the walls. At one extreme, there is the decision to keep the wall as is and only repair or replace pieces that have failed due to rot, etc.; yet, this decision will not be environmentally sustainable in terms of operating energy or socially sustainable in terms of contemporary expectations about comfort and cost to operate the home.

At the other extreme, there is the option of a gut rehab and only retaining the visible parts. This decision is not culturally sustainable. What would be left would be a wall almost devoid of heritage, a simulacrum.

In between the two extremes is where the wall becomes sustainable. The final design choice comes down to sorting out the compromises between environmental and social sustainability on one side, and cultural sustainability on the other. Economic sustainability plays a role with both sides. The reason environmental and social sustainability are at odds with cultural sustainability is due to sustainability's

relationship with time. It is a balance between looking forward and looking backward.

The design choice was to keep the heritage wall as is, and then add a new wall around the outside—in other words, create a cocoon. With this double wall in place, heritage is preserved in a type of stasis and comfort, convenience, energy efficiency and operating costs meet modern standards.

There is another reason the double wall was selected. With a view toward heritage dogma, the new, separate layer means that from the original wall's perspective, the work can be considered a distinguishable, minimal, reversible intervention; however, wrapping the house in two envelopes leads to the unsurprising conclusion that it costs more to conserve heritage. More resources are used, and more money is spent.

The re-design and sustainability

We return to the question of what is a sustainable wall. It is one that has met the design or re-design requirement placed on it by the four pillars of sustainability: a requirement that allows the pillars to be prioritized, but not neglected or ignored. It is an all or nothing proposition. If one pillar is ignored, the wall is not sustainable. For example, an energy efficient wall is not sustainable. The design exercise comes down to an exercise in compromise. Like sustainability itself, it is in how well one deals with the various nuances that determines success.