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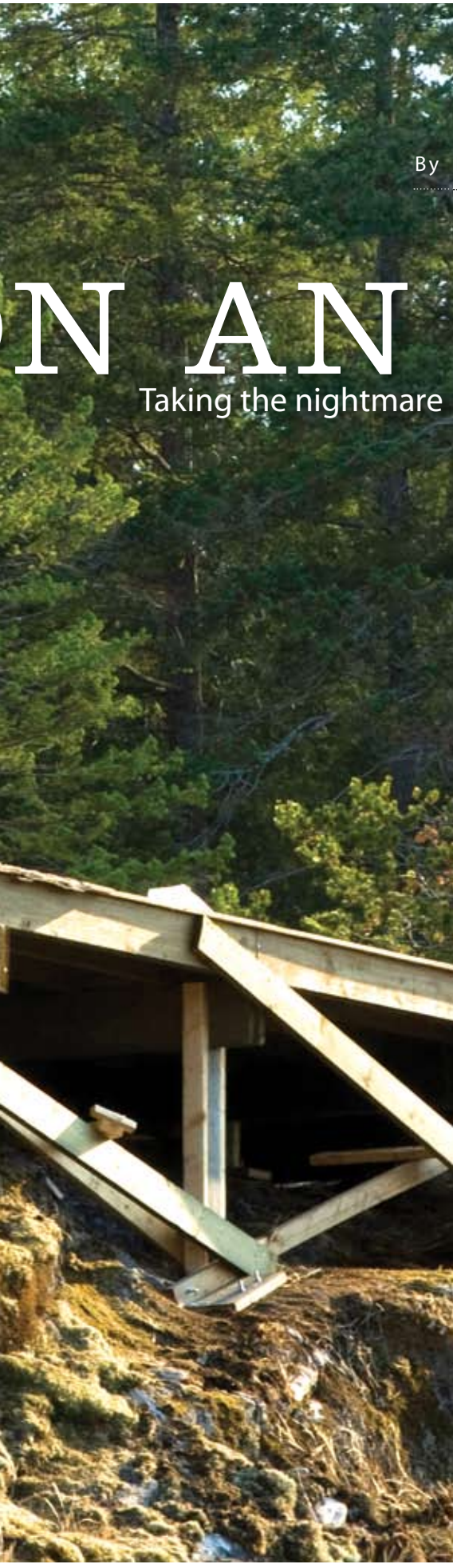

By Dave Petrina & Paul Meharg

ON AN ISLAND

Taking the nightmare out of your remote cabin dream.

Many of us dream of owning a cabin on a remote island accessible only by boat, nestled in pristine wilderness and far from the madding crowd. While this kind of inaccessibility ensures peace and quiet, it also raises challenges when it comes to actually building that cabin. When a single barge trip to transport materials or equipment onsite can cost between $2,000 and $5,000 per trip, these challenges can seem overwhelming—but don't give up on the dream.

There is a lot you can do to keep building costs and schedules under control. It all begins and ends with planning—lots of it—with some smart design and a little human ingenuity along the way.

Pre-Construction Planning

When building on islands accessible only by boat, the importance of careful planning cannot be overstressed. It is worth spending an extra few hours double- and even triple-checking material and tool requirements, and using checklists to ensure all of it makes it on to the barge. It is the absolute key to minimizing the additional costs associated with island building; costs that can include unbudgeted water-taxi trips to purchase tools, or an idle crew waiting for forgotten materials.

Design

Time and cost-savings begin with decisions made on the drafting table. In most situations, choosing a prefabricated home can provide significant benefits. There are many types of prefab construction, including pre-cut timber frames with structural insulated panel (SIP) enclosures. Some advantages of prefabrication include: reduction of barging costs since no extra materials need to be transported (all waste is generated and often re-used in the mainland shop), and a faster building process (weeks instead of months to lock-up), which can greatly reduce labour and crew accommodation costs.

Where possible, design a pier-style foundation instead of a full concrete foundation to significantly reduce the quantity of concrete required. Barging concrete and pumper trucks to pour a full perimeter foundation can be a very expensive activity. For instance, for a full concrete foundation pour on Nelson Island, the cost of the barge, pumper truck and a couple of ready-mix trucks could run as high as $10,000. Timber frame or post and beam construction work well with pier foundations as they distribute all of the building loads to a few points.

Thought should also be given to how the building will be erected;

On a rocky and unstable site, a simple temporary landing platform may be the key to a safe and successful materials delivery.

the options for getting a crane onsite are usually limited. On a recent project off the Sunshine Coast in BC, we worked the design so that no timber or structural insulated panel exceeded 400 pounds, which was the limitation of our onsite lifting equipment.

Materials Delivery When considering the location and site placement of your structure, take the time to examine the island's landing site and evaluate the logistics of unloading the main building materials and equipment. Call the various barge operators that service your area and find out what their capabilities and rates are. Try to get them to visit the site with you prior to delivery. The additional costs incurred at this time may save you the grief and cost of having to turn away a fully loaded barge due to unforeseen site constraints. It's also worth noting that barge operators can be very colourful characters. On a recent project, the barge sported a skull and cross bones, and the operator had a personality to match!

Unloading heavy materials with a crane can be a hazardous activity. Add a barge, a rocky site and some rough seas, and hazards are magnified. On our most recent island project, we fabricated a temporary landing platform on the rocks to mitigate some of these risks. It was built in a day for about $1,500 and paid for itself many times over for landing cumbersome materials including windows and doors, metal roofing, and timbers. With the barge capabilities and availability determined, it's time to coordinate with the suppliers and trucking companies.

Of course, minimizing expensive barge trips means maximizing the quantity of material delivered, while bearing in mind the storage capacity of your island site. Our firsthand experience has shown that coordinating barges with trucks and ferries usually results in delayed barges, irate truckers and anxious clients. If available, a short-term mainland staging site for materials prior to barging can help deal with inherent delays and variables in the schedule, and lower everyone's overall stress level.

Building trades, such as work done by electricians, plumbers, roofers, painters, etc. are typically sub-contracted by the general contractor, and finding these trades people for projects on remote islands can be tricky and requires some perseverance. Depending on the island's remoteness and the commute required, many builders will choose not to take on these projects and you may be limited to fewer choices. In your discussions with a builder, you need to determine if they are willing to stay on the island (as long as "adequate" accommodations are available) or if they prefer to commute daily to the site. The latter option is usually more costly, given that daily water-taxi rates can run a few hundred dollars for a 30-minute run and that you will also be paying for the dock-to-dock travel time.

Some builders demand a high premium for such work and they may only be willing to work during optimum building seasons, from May to August. We've experienced huge cost-saving benefits on our projects by having the timber-framing crew camp on-island. This is typically negotiated with the client and we include a living-out allowance as part of our contract. We can put this money toward a hotel on the mainland and water transportation, or toward camping supplies, good food and beer.

On our Nelson Island project, our crew chose the latter. My preference is to rent a cabin near the job site but this is often not an option. When we stay onsite, the client benefits as we tend to work longer days with less time spent commuting, and the crew benefits as the project goes faster, they get to work longer days and they

1 This landing platform on Nelson Island cost only $1,500 to build and saved the crew much time and effort. 2 Barging equipment and materials can be quite expensive, and ensuring you don't forget anything the first time round is vital.

MOVING MATERIALS

You'll need to answer the following questions:

- How close can the barge get to the building site?
- Will you need a large crew to move materials out of the way as the barge unloads?
- What is the reach of the barge crane?
- What are the tide heights and site exposure to wind and waves?
- What rigging does the barge require to unload your shipment?
- Do you need to build a temporary landing platform?
- How much room do you have to store material?

get to enjoy the site which is usually fantastic. The benefits include reduced transportation requirements as well as increased productivity due to longer workdays.

We've also had to get creative with incentives. In addition to lots of good food, we try to bring our families out to the site for a long weekend visit. This gives our crew a break and allows them to share the beautiful natural setting with their loved ones. Creating incentives for your builders to stay onsite pays out in the long run.

Materials Handling

Once the materials have been unloaded, consider how you are going to handle those beams. Do you need to build a block-and-tackle or winch-type lifting device onsite? We prefer to bring a certified lifting device on site. You can also build a lifting device called a gin pole (two logs lashed together and supported in a near vertical orientation by a couple of steel cables). The problem with this is they take time to build and would require an engineer's stamp to meet WCB requirements. We've also resorted to less traditional approaches, such as converting an electric-hydraulic man-lift into a mini-crane capable of lifting 400-lb items. The lift was small enough to be transported and positioned on the island by barge. We also recently used a hand-cranked material lift (basically a heavy-duty drywall lifter) to raise large timbers.

Power

Many islands are off the grid and the crews will need power for electrical tools. Generators are usually the best option. Do your research before buying a generator and consider post-construction needs. Most of the time, builders need minimal power to run low amperage tools such as circular saws or drills. Low-power, load-sensing generators are ideal for this, and minimize noise and fuel consumption. These generators are also ideal for serving domestic needs following construction. Occasionally, the builder will need more power (often 5 kilowatts) to run heavier equipment, such as a cement mixer or compressor. Consider renting a heavy-duty generator in this situation, as post-construction need for this equipment will be minimal.

If solar power capabilities are planned for the structure, consider installing the equipment onsite prior to construction. Solar power can provide clean, quiet power for low-amp loads such as cell phones, battery chargers and laptops. It's a great alternative to running a 5-kW generator just to recharge a cordless drill.

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3 Creativity is paramount when building on an island; this portable man-lift was converted to lift materials weighing up to 400 pounds. 4 Make sure you know the capabilities of your barge operator prior to moving materials to the site.

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Waste management, both human and material-related, during and at the end of the project, requires careful planning. Construction waste needs to be transported off the island (wood waste is usually burned, though restricted in the dry months, and individual islands may have further regulations). Yet there are things you can do to minimize the quantity of waste generated, such as choosing a prefabricated building style, like a kit home, or post and beam style frame. But plan on having to barge out at least some of your non-burnable waste.

As for human waste, island sites may not have adequate sanitation facilities to support a construction crew for several weeks or months. You may need to enlarge the capacity of that tiny outhouse on your site so that is not overwhelmed (and provide plenty of lime). And if a composting toilet is planned for the finished structure, consider having it installed prior to construction so the crew can use it.

Safety is a vital consideration for any construction project. Yet for obvious reasons, handling medical emergencies on a remote island is tricky. Because of the distance to medical and emergency services, it is important to have a safety plan that all workers will adhere to. Crewmembers must have sufficient first aid training and equipment onsite to meet WorkSafeBC (or the provincial equivalent) requirements. Crews also require a dependable communications apparatus and a clear evacuation plan.

Remote island construction does cost significantly more than mainland construction, however, understanding the logistical issues that generate these costs can help owners put together realistic budgets and manage their expenses. So don't give up on the dream; just get out your paper and pencil and begin writing those lists.

ABOUT THE AUTHORS

Dave Petrina and Paul Meharg work at Kettle River Timberworks Ltd., based in Vancouver, B.C. They specialize in the design, fabrication and installation of timber structures for residential and commercial projects. From architectural timber accents to complete timber structures, they offer many unique applications of traditional and contemporary timber. Their most recent island project was a 2,200-sq. ft. home on Nelson Island, off British Columbia's Sunshine Coast. For more information and lots of pictures, please visit their website at ***www.kettlerivertimber.com***.