

When installing the SeaPile[®] and SeaTimber[®], the user must take the proper precautions used in installing all other types of piling; when cutting, finishing or attaching the SeaPile[®] and SeaTimber[®], the user should also take all normal precautions, including, but not limited to, the use of hard hats, safety glasses, hearing protection and safety shoes. Operators should be aware of the weight of the SeaPile[®] and SeaTimber[®] prior to lifting. There are no toxic characteristics associated with the SeaPile[®] and SeaTimber[®]. Accordingly, shavings or cut ends may be disposed of wherever plastic is accepted.

LIKE ANY PLASTIC PRODUCT, SEAPILE[®] AND SEATIMBER[®] WILL BURN. THEREFORE, AVOID THE USE OF CUTTING TORCHES OR ANY OTHER OPEN FLAME DEVICES AROUND THE SEAPILE[®] COMPOSITE MARINE PILING.

DRIVING

The SeaPile[®] Composite Marine Piling exhibits many of the same driving characteristics of a timber pile. Since it is easy to drive, a lightweight hammer with a rated energy of between 8,000 and 15,000 ft-lbs may be used. Care should be taken in selecting the appropriate hammer for the length of pile to be driven. Once the hammer has been selected, a flat driving head should be used to ensure full surface contact with the squared flat top of the entire cross-sectional area of the pile. SeaPile[®] are designed to absorb energy, which is key to their performance as a fender piles, however, as a result, they are less efficient to drive than steel, concrete, or timber piles and will take more blows per foot.

A vibratory pile driver may be used to drive the SeaPile[®] Composite Marine Piling when conditions would permit vibratory driving of traditional timber piling. When planning to use a vibratory pile driver, consider fabricating a steel helmet to minimize damage to the top of the pile, alternatively piles can be supplied in a longer length and trimmed after being installed.

DRIVING POINTS OR SHOES

Steel driving shoes are not typically required, however they can be purchased and factory installed if difficult driving conditions are anticipated.

JETTING

SeaPile[®] can be jetted in a manner similar to any traditional timber pile. The post-driving procedures also remain the same.

CUTTING

SeaPile[®] & SeaTimber[®] are tough and harder to cut than timber. The fiberglass rebars are particularly difficult to cut through without the correct tools. We recommend the following:

Chainsaw:

- Stihl MS 661 Series, or similar

Chain Bar:

- 0.404 pitch with a 4040-7 sprocket
- 25" to 34" bar length for SeaPile[®] up to 13" Ø & SeaTimber[®] up to 12"x12"
- 34" bar length for 16" SeaPile[®]

Chain:

- RAPCO's Impact Resistant Chisel Carbide Tip Chainsaw Chain
- 0.404" pitch w/ 0.63" gauge
- RAPCO Part# B3LM-T-RF
- RAPCO Vancouver, WA: sales@rapcoindustries.com (800-959-6130)
- Slow, consistent cutting keeping chain temperature low will greatly extend the chain life; excessive heat will stretch the chain beyond adjustment before chisel tips need sharpening
- Do not use bar/chain oil; oil will mix with the hot plastic and emulsify seizing the bar sprocket and chain within the bar
- Between cuts chainsaw should be blown with compressed air to remove shavings

Life Expectancy of Carbide Tipped Chains	
10" SeaPile [®]	8 to 10 cuts
13" SeaPile [®]	8 to 10 cuts
16" SeaPile [®]	6 to 10 cuts
8x12, 10x10, 10x12, 12x12 SeaTimber [®]	8 to 10 cuts

DRILLING / COUNTER BORING

Drill:

The following drill specification is recommended for all drilling and countersinking:

- Electric: 3/4" chuck or 3 Morse Taper, 250-350 rpm
- Pneumatic: 3/4" chuck, 1.5 to 2 HP, 200-350 rpm
- Minimum Torque: 1,800 in-lb

Drilling and Counter Boring SeaTimber[®] with No Rebar:

- Standard high-speed steel twist drills are suitable for drilling holes up to 1-1/2" diameter
- For larger holes, a 1" or 1-1/8" Ø pilot hole is recommended, followed by a counter-bore type bit to enlarge the hole to the finished diameter; counter-bore bits can be purchased, fabricated at local machine shop or purchased from Tangent; consult a Tangent rep for custom bits; allow for leadtime



Drilling and Counter Boring SeaTimber[®] with Rebar:

- Drill a 1" or 1-1/8" Ø pilot hole with a standard high-speed steel twist drill or carbide tipped twist bit if drilling through rebar
- Follow with a carbide insert, counter-bore type bit; consult Tangent rep for custom bits; allow for leadtime
- *CAUTION: Apply light pressure to reduce the risk of the bit snagging on the bar and violently spinning the drill*



Thermal Expansion and Contraction:

- Holes and counter-bored holes are oversized or slotted to allow for the Coefficient of Thermal Expansion/Contraction of SeaTimber[®] which is larger than traditional materials
- SeaTimber[®] with fiberglass rebar reinforcing = 0.00002 in/in/°F
- SeaTimber[®] with fiberglass filament rebar reinforcing, but no rebar = 0.000033 in/in/°F

RECOMMENDED REPAIR PROCEDURE

SeaPile[®] & SeaTimber[®] are incredibly durable. There is no need to patch or repair abrasions, cuts or grooves for any other reason than aesthetics.

If repairs are required, it's recommended that a commercially available plastic welder is used with the appropriately colored welding rod to build up the area to be patched. The repaired surface can then be sanded flush.

If a plastic welder is not available, a less refined repair method is detailed below:

Required Tools:

- Propane torch
- Shavings of plastic matrix, left over from drilling or cutting
- Putty knife
- Sandpaper (80-100 grit) and wooden block
- Orbital or palm type sander

For Small Patches:

- Pre-heat the hole until the surrounding plastic is soft & tacky, not runny
- Quickly press shavings into the hole and heat until liquified
- Repeat in layers, until the filled void is flush, or standing slightly proud of the surface
- Allow each layer to cool before applying the next
- Sand the patch area, blending in until flush with the outer surface

For Larger Patches:

- Cut a plug from a cut off to a slightly smaller shape than the void
- Pre-heat the hole until the surrounding plastic is soft & tacky, not runny
- Quickly press shavings into the hole and heat until liquified
- Pre-heat the plug and press into the depression
- Press shavings into the gap around the plug and heat until liquified
- Repeat in layers, until the gap is flush, or standing slightly proud of the surface
- Allow each layer to cool before applying the next
- Sand the patch area, blending in until flush with the outer surface

LIFTING & HANDLING

The following considerations are recommended to resist damage when lifting SeaPile[®] and SeaTimber[®]:

- Verify the weights and lengths of the material before each lift
- Short length may be handled with care by forklift
- Use a lifting beam to handle longer lengths with pick points at 1/5 of the overall length
- Use a nylon sling or choker to lift without damaging the surface
- All lifting plans and procedures are the responsibility of the customer

STORAGE

The following considerations are recommended to resist damage when storing:

- Use minimum 4 x 4" dunnage for support
- SeaPile[®]: support at 6' to 10' increments
- SeaTimber[®]: support at 4' increments
- Stack SeaPile[®] and SeaTimber[®] no more than 5' in height
- Chock, band, or tie to secure the stack appropriately
- If stored for an extended period, check the stack periodically for stability
- Store on level surface and bring to project site 24 hours before installation for material to acclimate to ambient temperatures