

Handling & Stacking METHOD OF STATEMENT

DO'S & DON'TS

Please read.
This is **important!**



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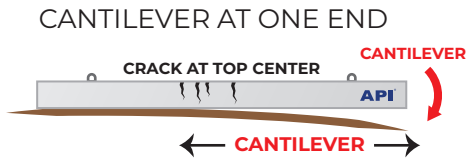
1 Stacking Method

DON'TS

PILES

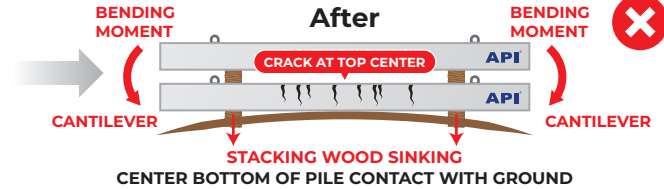
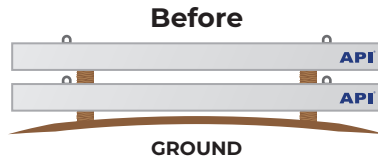
WRONG

Stacking On Uneven Ground without Timber Support.



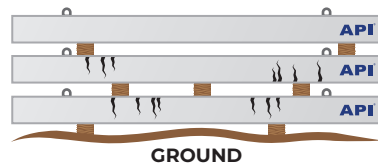
WRONG

Stacking more than one layer with small timber on soft ground.



WRONG

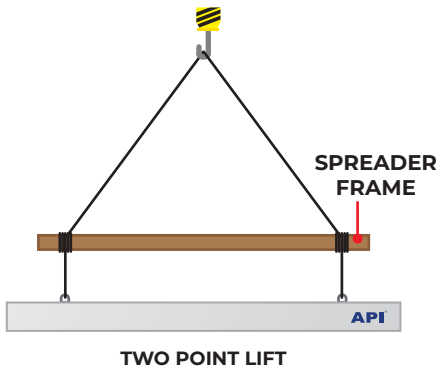
Wrong arrangement of wooden support



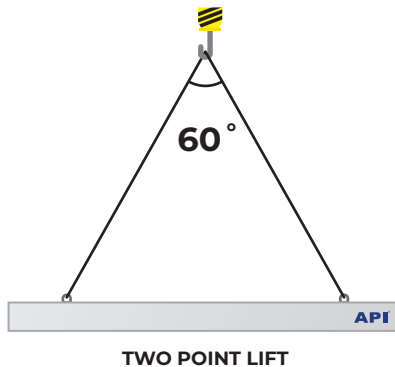
DO'S

PILES

RIGHT
LIFTING



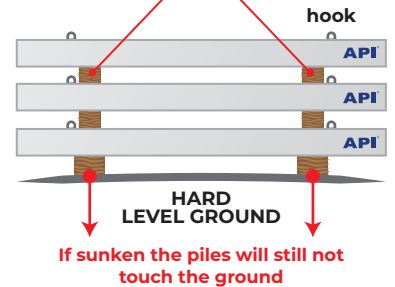
RIGHT
LIFTING



RIGHT
STACKING



Stacking timber should be in vertical line as close as possible to the hooks

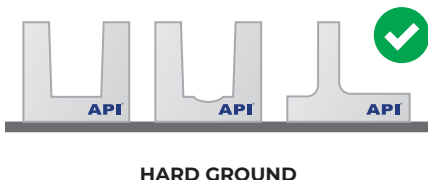


BOX CULVERT, U - DRAIN & L - SHAPE

DO'S

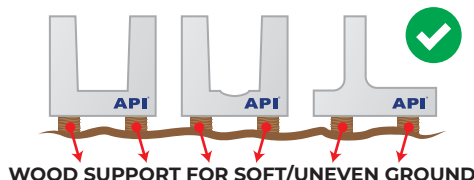
RIGHT

Stacking on hard and even ground



RIGHT

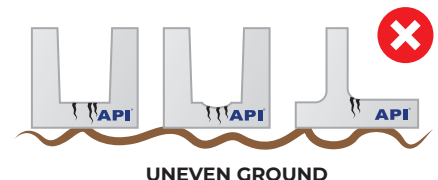
Stacking on soft and uneven ground with wooden support



DON'TS

WRONG

Stacking on soft and uneven ground without wooden support



2 Handling and Pitching of RC Piles



Hard - Level Ground

1. Ensure the RC Piles are stacked at max 3 layers
2. RC piles should be stacked on timber at the lifting hook position

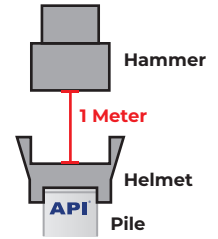


Uneven Ground

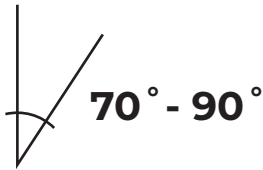
3. RC Piles should be dragged with care as any depression or unevenness of ground condition could cause the RC Piles to crack at the hook points.



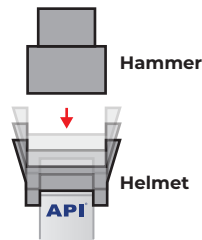
4. A wire rope should be used to wrap round the surface of the pile to lift the pile during pitching. **Avoid using the hook for pitching.**



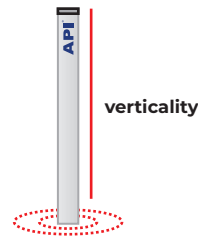
5. Lift the hammer of the piling rig **1 meter** above the length of the pile.



6. Lift the RC pile almost perpendicular to the piling rig. 70 to 90 degrees.



7. Lower the helmet of the hammer onto the RC pile.



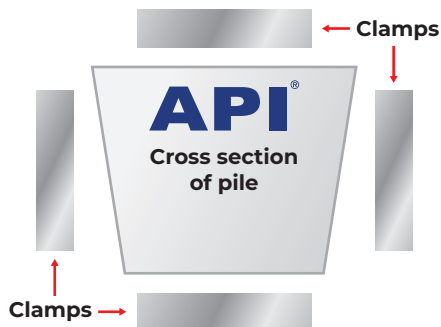
8. Adjust the RC pile to the driving point and ensure the verticality of the RC pile.



9. Ensure RC pile and machinery in proper order before driving begins.

3 Clamping of Piles Using Injection Machine

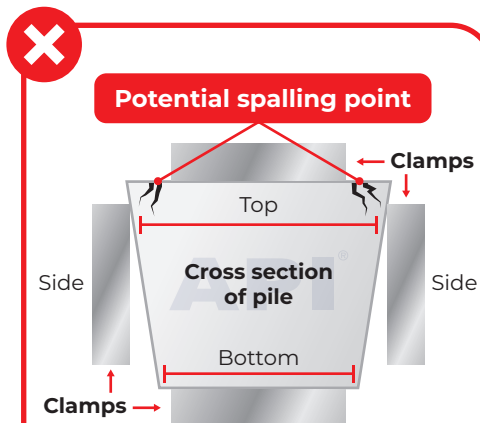
Breakages/Spalling of the surface of the pile using injection machine due to improper clamping method



Before Clamping

Root Cause :

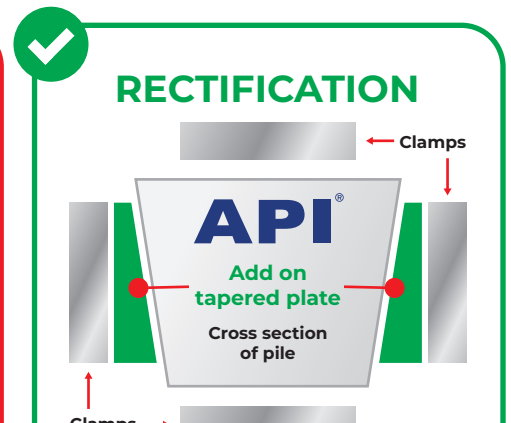
- 1) The profile of the pile is slightly tapered, larger on the top and smaller at the bottom for easy demoulding purpose
- 2) The Clamps of the Injection machine are 90 degrees to one another thus making a perfect square



During Clamping

Root Cause :

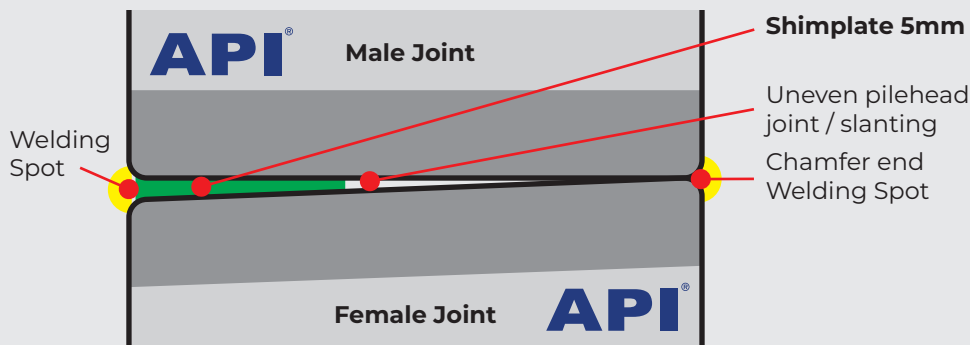
- 3) During clamping, the pile top & bottom surfaces have 100% contact **BUT** not for the side surfaces
- 4) This condition could cause the contact of pile side surface to give way occasionally



Suggest Clamping to add on tapered plate

Suggest Clamping to add on tapered plate. This could help to reduce the spalling/breakages problem

4 Rectification of Uneven Pile Head / End Plate Joint with Shimplate

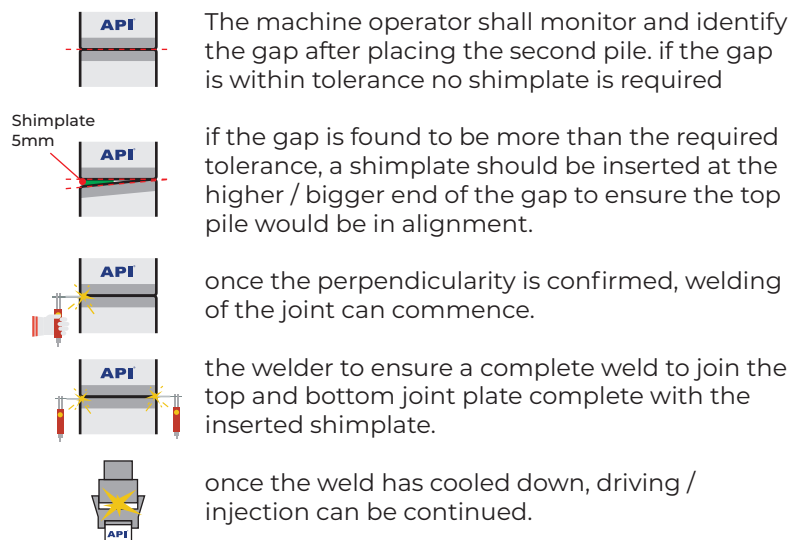


The actual pilehead slanting tolerance should be 5mm. However if the pilehead tolerance gap is more than 5mm, shimplates should be used to align the top and bottom piles.

List of materials used



Rectification Steps



Crack Acceptance Criteria For RC Piles

BS 5400:
PART 4:
1990 Table 1

Design crack widths mentioned crack width of up to 0.25mm for buried parts of structures in moderate to severe environment.

BS EN
1992-1-1:
2004 Section
7.3.1

BS EN 1992-1-1:2004 Section 7.3 Crack Control Clause 7.3.1 General Considerations refers.

BS 8110-2:
1985 Section 3
clause 3.2.4.2

BS 8110-2 : 1985 Section 3 clause 3.2.4.2 also reinforced this stand.

ICE
Specification

ICE Specification for piling and embedded retaining walls 2nd edition Clause B2.4.2 Handling, transportation and storage of piles. Clarifies this stand.

In local scene, crack width not greater than 0.25mm and the crack length not exceeding 1/2 the perimeter of the pile has been widely referred in practice.