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Examination for General Criteria for Waterfront Construction

CHAPTER 2 - PILING

1. In loose, granular soils and for piles having an EI less than $2.925 \times 10^9 \text{ kg-cm}^2$ ($10 \times 10^9 \text{ lb-in}^2$), the point of fixity may be assumed to occur below the mudline at what depth?
 - a) 3.05 m
 - b) 3.66 m
 - c) 2.44 m
 - d) 5.30 m

2. In soft, cohesive soils and for piles having an EI greater than $2.925 \times 10^9 \text{ kg-cm}^2$ ($10 \times 10^9 \text{ lb-in}^2$), the point of fixity may be assumed to occur below the mudline at what depth?
 - a) 2.44 m
 - b) 3.66 m
 - c) 3.05 m
 - d) 5.30 m

3. All piles should be designed for potential scour or future dredging to what depth?
 - a) 3.05 m (10 ft)
 - b) 6.10 m (20 ft)
 - c) 1.5 m (5 ft)
 - d) 152 mm (6 in)

4. Driving frames mask the existence of locked-in stresses?
 - a) True
 - b) False
 - c) Not enough information for a specific answer
 - d) Too many variables for a specific answer

5. How should timber piles with no tension be secured to concrete caps?
 - a) Single #5 dowel driven into pile butt
 - b) Thru-bolts with spike grids
 - c) Through-bolted dowel anchorage
 - d) Spiral-drive drift pins or steel straps

6. What types of piles are required in the San Diego marine environment?
 - a) Treated timber piles
 - b) Steel H-piles
 - c) Precast concrete piles
 - d) Untreated timber piles

7. What type of preservative treatment should be used if pholad attack is not expected?
 - a) MP-1
 - b) MP-2
 - c) MP-3
 - d) MP-4

8. What is the minimum compressive strength for non-pre-stressed precast concrete piles?
 - a) 20.68 MPa (3,000 psi)
 - b) 34.47 MPa (5,000 psi)
 - c) 27.58 MPa (4,000 psi)
 - d) 13.79 MPa (2,000 psi)

9. What is the minimum tip diameter of cast-in-place concrete piles?
 - a) 12 inches
 - b) 10 inches
 - c) 8 inches
 - d) 6 inches

10. The minimum thickness of steel H-pile metal should not be less than what?
 - a) 10.55 mm (0.40 in)
 - b) 7.89 mm (0.30 in)
 - c) 13.16 mm (0.50 in)
 - d) 5.26 mm (0.20 in)

11. For friction piles, tip closures should not project beyond the pipe wall more than what?
 - a) 9.5 mm (3/8 in)
 - b) 6.4 mm (1/4 in)
 - c) 19.4 mm (3/4 in)
 - d) 12.7 mm (1/2 in)

12. Steel sheet piles should be embedded how far into concrete caps?
 - a) 6 in. maximum
 - b) 4 in. minimum
 - c) 6 in. minimum
 - d) 3 in. maximum

CHAPTER 3 – DECK AND SUBSTRUCTURE FRAMING AND BRACING

13. What is the minimum nominal timber size for decking with stringers?
- a) 102 mm (4 in)
 - b) 76 mm (3 in)
 - c) 203 mm (8 in)
 - d) 152 mm (6 in)
14. What is the minimum chamfer for all exposed outside concrete corners?
- a) 76 mm (3 in)
 - b) 25.4 mm (1 in)
 - c) 100 mm (4 in)
 - d) 51 mm (2 in)
15. What is the minimum gap that should be provided between adjacent deck timbers?
- a) 10 mm (3/8 in)
 - b) 6.4 mm (1/4 in)
 - c) 19 mm (3/4 in)
 - d) 13 mm (1/2 in)

CHAPTER 4 – HARDWARE AND FITTINGS (PERMANENT INSTALLATION)

16. In a saltwater splash zone, drift bolt holes should be drilled to what diameter?
- a) 3.17 mm (1/8 in) larger than the bolt diameter
 - b) 1.6 mm (1/16 in) larger than the bolt diameter
 - c) 3.17 mm (1/8 in) less than the bolt diameter
 - d) 1.6 mm (1/16 in) less than the bolt diameter
17. What is the minimum metal thickness for plate washers used in freshwater construction?
- a) 10 mm (3/8 in)
 - b) 6 mm (1/4 in)
 - c) 13 mm (1/2 in)
 - d) 16 mm (5/8 in)

CHAPTER 5 – SPECIAL CONSIDERATIONS

18. Structures should be designed with a service life of how long?
- a) 20 years
 - b) 1 year
 - c) 50 years
 - d) 25 years
19. What is the expected period of protection for metallized aluminum?
- a) 10 - 20 years
 - b) 10 - 15 years
 - c) 15 - 20 years
 - d) 25 years

20. When rehabilitating existing steel pile bulkheads, the new piling should be electrically connected to the old piling?

- a) True
- b) False
- c) Not enough information for a specific answer
- d) Too many variables for a specific answer

21. In concrete quay-walls, joints should be provided at what intervals?

- a) Every 60 to 90 m (200 to 300 ft)
- b) Every 90 to 120 m (300 to 400 ft)
- c) Every 30 to 60 m (100 to 200 ft)
- d) Every 120 to 150 m (400 to 500 ft)

22. What is the compressive strength of CCA Dual treated Douglas fir?

- a) 3,346 psi
- b) 2,462 psi
- c) 2,714 psi
- d) 2,333 psi

CHAPTER 6 – EVALUATION OF EXISTING WATERFRONT STRUCTURES

23. How many samples of an undocumented material should be used for strength testing?

- a) No fewer than 5
- b) No fewer than 2
- c) No fewer than 4
- d) No fewer than 3

24. Design live loads are seldom realized in practice?

- a) True
- b) False
- c) Not enough information for a specific answer
- d) Too many variables for a specific answer

25. When evaluating concrete strength where live load is the reduced load (for tributary area), use test load magnitudes of what?

- a) $1.3D + 1.7L$
- b) $1.4D + 1.7L$
- c) $1.5D + 1.4L$
- d) $1.7D + 1.4L$



Answer Sheet for Criteria for Waterfront Construction
 TPDH-00018

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