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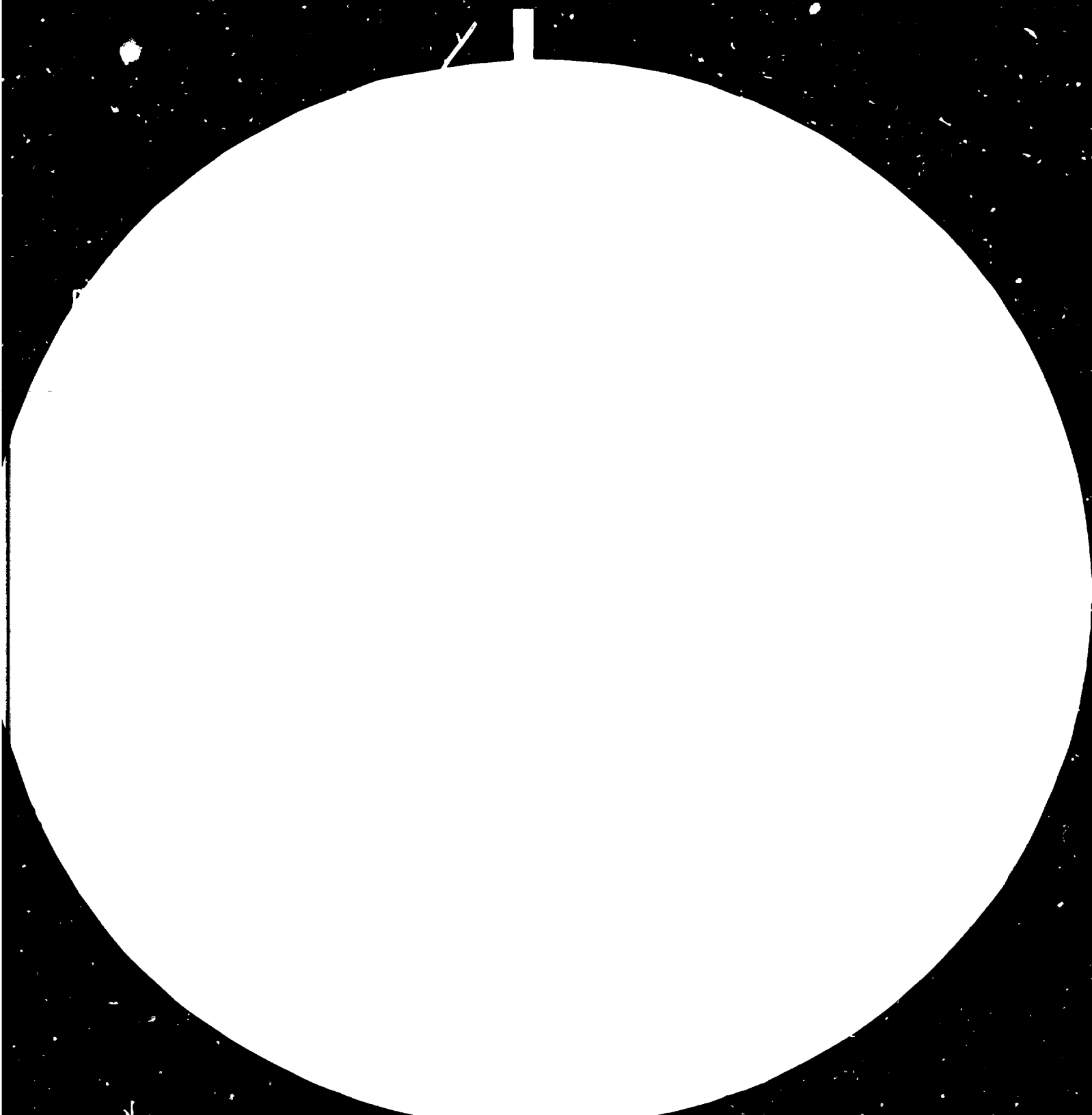
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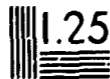
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SHIPBUILDING AND REPAIR YARD

FOR

SMALL RIVER AND SEAGOING SHIPS *

prepared by

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** Expert in shipbuilding and shiprepair.

TECHNICAL SPECIFICATION

1. GENERAL

The shipyard is destined to build and repair steel and wooden ships up to 32 m of length and 14 m of breadth.

The shipyard may be located on sea or river shore in the tropical or subtropical zone.

2. PRODUCTIVITY

The shipyard may realize the building and repair programme requiring about 300.000 working hours.

3. EXAMPLE OF BUILDING AND REPAIR PROGRAMME

3.1 Building

Steel fishing trawlers (or tugs) 13 m length	4 ships per year
River ferries 24 m length	2 ships per year
Wooden fishing boats 8 m length	6 ships per year

3.2 Repairs

Repairs of steel ships 20-32 m length	40 ships per year
Repairs of steel ships 13-18 m length	60 ships per year
Repairs of wooden boats	60 ships per year

3.3 The scope of repairs

The shipyard is equipped to pay hull conservation services mainly. It has the equipment to repair the hulls, the piping and outfit, to change the damaged parts of machinery and to produce simple elements of outfit and machines.

4. TECHNOLOGY

4.1 Shipbuilding

The plates and profiles are treated in the workshop by use of manually operated tools. The prefabrication of ship sections is made on the area provided with a sliding roof.

The assembly is done by use of mobile crane. The berth is provided with a sliding roof to allow welding during rain or to protect against high temperature during sunny weather.

The ship is launched by means of vertical lift 300 Mg.

The fitters shop, pipe shop and joinery produce elements of outfit. The finishing of the ship is made at the quays.

4.2 Repairs

The ship is docked on the vertical lift and moved on cradles to one of four repair stands. The hull is cleaned by using high pressure water, sandblasted and scraped with manual tools, painted hydromechanically.

The repair shops repair or produce the outfit elements. The ships not requiring docking are repaired at the outfitting quay.

5. BASIC TECHNOLOGICAL EQUIPMENT OF THE SHIPYARD

1. Vertical lift 3000 kN (300 T) with the set of cradles	1
2. Semiautomatic device for oxygen cutting	3
3. Welding rectifier 315 A	8
4. Sand blasting device	4
5. Guillotine shears for 2,000 x 3 mm plates	1
6. Flanging press for 2,000 x 4 mm plates	1
7. Sharpener (grinding disc dia 350 mm)	3
8. Square column drill drilling dia 40 mm	2
9. Bending rolls for 2,000 x 4 mm plates	1
10. Hacksaw max/min dia of material 300/20 mm	2
11. Furnace 1000°C chamber 340 x 230 x 640	1
12. Band saw (for wood) cutting height 380 mm	1
13. Tilting circular saw (for wood) cutting depth 115 mm	1
14. Bottom spindle moulding machine - dia of milling cutters 100 mm	1
15. Thicknessing machine depth of material 250/3 mm	1
16. Planning machine width of ent 410 mm	1
17. Universal lathe, length - 2,000 mm, swing over bed 530 mm	1
18. Universal lathe, length - 500 mm, swing over bed 200 mm	1
19. Universal lathe, length - 4,000 mm, swing over bed 400 mm	1

20. Shaper table 800 x 500	1
21. Universal milling machine, table 315 x 1,250 mm	1
22. Milling and boring machine, spindle dia 110 mm	1
23. Universal sharpener	1
24. Foam spraying equipment	1
25. High pressure water cleaning equipment	1
26. Hydromechanically operated spraying gun	2
27. Compressor hammer 50 kg	1
28. Electrical drier 250°C	1
29. Mobile crane 16 T	1
30. Fork lift truck, 2,000 kg	2
31. Fork lift truck, 1,200 kg	2
32. Diesel driven truck, pulling output 630 kg	1
33. Set of hand tools and manually operated hydraulic, pneumatic and electric tools to enable the start of production	1 set.

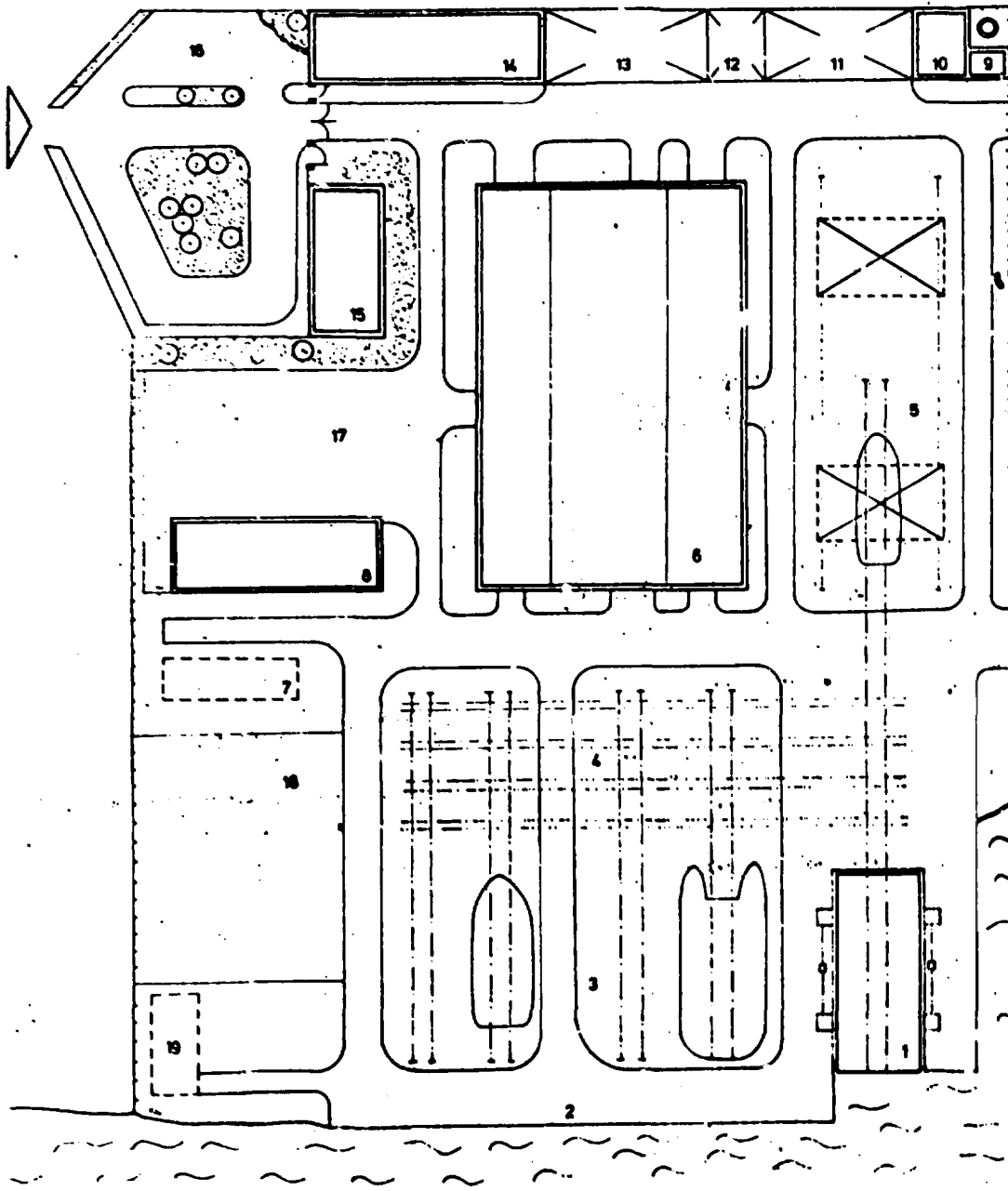
6. SERVICES

The shipyard is provided with power plant, air compressors station, water well, fuel oil and propane tanks, sewage eputation station, telephone exchange, hot water boiler.

7. AREA AND EMPLOYMENT

Area demand amounts to about 2 ha.

Employment to about 200 persons (thereof 160 workers).



LIST OF OBJECTS

1. VERTICAL LIFT 300 Mg.
2. QUAY.
3. REPAIR STANDS.
4. SHIP TRANSPORT AREA.
5. PREFABRICATION AND ASSEMBLY OF STEEL SHIPS UNDER SLIDING ROOFS.
6. STEEL TREATMENT SHIPWRIGHT OUTFIT REPAIR SHOPS AND STORE.
7. FUEL OIL AND PROPANE TANKS.
8. POWER STATION AIR COMPRESSORS MAINTENANCE SHOP
9. WATER WELL
10. PAINTS STORE
11. WOOD STORAGE
12. MATERIAL WASTE STORAGE
13. STEEL STORAGE
14. AMENITIES AND GATE HOUSE
15. OFFICE
16. PARKING
17. TRANSPORT VEHICLES PARK
18. STORAGE
19. SEWAGE EPURATION

SHIPBUILDING AND SHIP REPAIR YARD

FOR SMALL SHIPS UP TO 32 m of LENGTH



SHIPBUILDING AND SHIP REPAIR YARD

