MARINE TECH

DIVISION

Pleasure boats

Marina floats

Commercial boats

Floating warehouses

Floating structures

INDUSTRIAL DIVISION

Monolithic concrete precasting

intricate shapes

Massive or

Architectural:

decorative or structural molding

Thin shell concrete

apply at all Fibersteel affiliates.

Since June 1967 when the NATIONAL FISHERMAN headlined that "Ferro-Cement is the Hottest Thing

In Boatbuilding", and referred to the Fibersteel Company as the leading American firm specializing in ferro-cement, numerous magazines and newspapers have mentioned our work and we have been deluged with inquiries. Our small staff does not have time to prepare detailed individual replies so we have reprinted material which answers the most frequently asked questions. The leading question, of course, is "How is ferro-cement or Fibersteel better than other boat building materials?" At the risk of repeating what has already been published its merits can be summar-

SAFETY: Ferro-cement hulls have survived fire, ice, explosions and collisions which would have sunk ordinary boats. Fibersteel does not burn, rip open on impact, or become brittle with age. The high steel content prevents the cracking associated with regular concrete. Collision damage is easily repaired at sea, even below the waterline.

ECONOMY: Fibersteel makes possible very low first costs and even lower repair costs. There is no corrosion and it is impervious to worms and borers. Fibersteel boats are lighter than standard steel construction and can thus carry more payload with less fuel. Eggcrate construction between the hull and cabin sole provides low-cost tankage for water, fuel, sewage, or buoyancy.

COMFORT: Ferro-cement is odorless. It has only a fraction of the thermal conductivity of steel, so Fibersteel hulls are cooler in summer, warmer in winter, and condensation is minimal. Fibersteel dampens engine vibrations and eliminates the hull drumming so annoying in steel and fiberglass construc-

APPEARANCE: The Fibersteel molding process can produce a fair, smooth hull like fiberglass, thus solving the finish problem which has hampered other ferro-cement builders.

either ferro-cement or concrete at a much lower cost than has previously been possible. It has already applied its process to boats, houseboats, marina floats, barges, fuel docks, pontoons and floating drydocks.

The Fibersteel Company has developed a method for building marine structures of all kinds out of Since 1963 the company has built over 185 separate floating structures. In addition, two company-trained specialists supervised the installation of a Fibersteel liner inside the hull of the historic ship "JOSEPH CONRAD" at Mystic Seaport, Connecticut. A Fibersteel liner has also been used outside existing vessels to provide a permanent watertight envelope at only a fraction of the cost of replanking or replating.

Fibersteel is primarily concerned with research, and the development of better methods for the

commercial use of ferro-cement, both afloat and ashore. It builds floating structures of all types, but it does not sell plans or build one-of-a-kind boats unless they are commercial prototypes or experimental craft which will open new horizons for ferro-cement. Fibersteel did research on one-of-a-kind building systems, and had planned a book for the amateur builder, but so much has already been published for that market it was decided to concentrate on commercial processes instead. Fibersteel sells its process to commercial builders and supervises the construction of their production molds, so its key personnel are away from West Sacramento much of the time. As a result, replies to written inquiries are often delayed. Requests for information should preferably be made by telephone. Evening and weekend calls are welcome.

The first 55 foot "VALEO" motorsailer has been delivered to its owner and is being ketch rigged at the Fibersteel yard. A 54 foot commercial fishing boat, designed by Edwin Monk, N. A., and built by the Fibersteel process, is being outfitted nearby. Orders are being accepted on both vessels.

As an adjunct to its research program, Fibersteel does some pilot production at West Sacramento.

Foam filled floats cost about \$4.00 a square foot. Barges and floating concrete structures of conventional design will generally sell for \$1.00 a cubic foot based on outside dimensions. Barges and offshore drilling platforms are already being built of concrete by higher cost methods. With the Fibersteel process, floating airports, wharfs, shopping centers, apartment complexes, undersea habitats and storage tanks will be economically feasible. Fibersteel can also present design proposals for floating concrete bridges which will allow the uninterrupted passage of both ships and vehicles. Ferro-cement is not recommended for catamarans, trimarans or light displacement hulls under 25 feet. These craft could still be produced by the Fibersteel process using lighter metals and cements but the big cost advantage over fiberglass would be lost even though the advantages of impact resistance

As soon as time permits, Fibersteel will build its own production molds for the 42 foot ketch "VALITA CLIPPER", designed by George Welch, N.A., and the 36 foot "MANGAREVA", an offshore cutter from the board of naval architect W. I. B. Crealock. Mr. Welch works for John Alden of Boston, and Mr. Crealock is noted for his COLUMBIA 36'" and other production boats. The cost of these hulls will be considerably below their counterparts in fiberglass, steel, or wood. Marketing and overhead expenses will vary from producer to producer, so the price at West Sacramento might not

Concrete marina floats built by Fibersteel retail for \$3,00 a square foot of deck surface area.

and of being fireproof would be retained. Fibersteel has no size or shape limitaions. The larger the vessel the greater the savings. Compound curves are almost as easy to fabricate as flat sections, so there is no need to sacrifice performance or operating efficiency for ease of construction as so often happens with other materials. The good qualities of ferro-cement apply to much more than just the hull, deck and living quarters. Insulated refrigerator holds, fish tanks, brine tanks, fuel and water tanks, well decks, through-hull

loading ramps, and most fittings can be molded in during construction at a much lower cost than when installed separately. The Fibersteel process is much more efficient than any ferro-cement method published so far, even those based on gunite (which Fibersteel no longer uses). Because patents are still pending, we cannot reveal our exact methods except to our licensees in confidence. Our process is simple, but it took several years and many thousands of dollars to find just the right combination of materials,

equipment and method to make it practical. Very little tooling is needed, and production can be initiated without a marine railway or other expensive boat building facility. Improved construction methods, just recently developed, make it possible to pay for a mold with two hulls. Even so, anyone planning to build ferro-cement boats should have access to at least fifty thousand dollars in working capital, or a very definite advance sale commitment. Franchises are available to builders or investors for a small royalty, a franchise fee, and the expenses of a Fibersteel specialist who will plan the production facility. Martin E. Irons and Louis L.

Watson, founders of Fibersteel, also offer ferro-cement consulting services for individuals or firms

who are not interested in Fibersteel affiliation but who wish to explore the application of ferrocement to their own projects, marine or otherwise. Fibersteel is now negotiating license agreements in various parts of the world, and as soon as each one is set up we will turn over all correspondence from that area for followup. The Fibersteel custom building process can have a boat structurally complete and ready for finish cabinet work within 30 days after the plans are lofted. The production mold takes about six weeks to set up and thereafter is capable of producing a hull a day if necessary.

THE STORY OF FIBERSTEEL'S FERRO-CEMENT "VALEO"* In 1960 Martin E. Iorns, founder of the Fibersteel Company, become aware of the tremendous potential ferro-

or nent would have for boating if a method could be devised to reduce the great amount of hand labor involved and scave the problems of appearance and quality control which had been preventing commercial development.

ing degree from the University of California, became interested and assumed active management of Fibersteel's construction operations. During the next four years the company perfected its techniques in producing some 183 floating concrete or ferro-cement structures totalling more than 2,275 tons displacement. The company's early efforts centered around barges and marina floats but in 1964-1965 they built a 32' towboat, a 33' cruising houseboat

Mr. Iorns' professional background in scientific management with emphasis on labor saving methods, plus his familiarity with fiberglass boat building, the concrete ships of World War II, and the little-known research conducted by the U. S. Navy on very thin shell concrete landing craft, enabled him to outline some promising new approaches.

When the preliminary experiments were successful, Louis L. Watson, Jr., a building contractor with an engineer-

In January 1967 a record breaking storm tore Fibersteel's concrete floating drydock loose from its moorings, the 32' towboat "VALITA" and the 36' production mold were tied alongside and were pushed on to a steep shore. When the tide receded they rolled into an attitude which caused them to fill. At next high tide the still floating drydock over-rode and, on the ebb, came down with its one hundred twenty three tons on top of them. The lightly

expensive and presents engineering problems in addition to its vulnerability to fire and collision damage.

hull and production molds for a 36' motorsailer and a 50' light displacement houseboat.

Be able to carry enough sail to be independent of the engine.

Require less maintenance than fiberglass and be easier to repair.

series from his list of drawings for sale.

of a motorsailer.

reinforced concrete mold was destroyed and the superstructure of the "VALITA" was crushed, but her ferro-cement hull was only slightly damaged. She floated without a leak after being raised and pumped out. By this time the Fibersteel management was completely convinced of ferro-cement's merit and the validity of their patent-pending construction methods so it was decided to put the 55' VALEO" into production first instead of a 32' or a 36'. The selling price for the larger boat could be dramatically lower than fiberglass which is very

In order to develop a volume of sales which would keep marketing expense in line with the low production costs, it was necessary that the "VALEO" have the widest possible appeal. It must: Compare favorably with a mobile home in a trailer park in cost and financing arrangements. Be a comfortable home afloat for those who would prefer to live in a marina instead of ashore. Be a motorsailer with engine room for enough diesel power to cross any ocean on a reasonable schedule.

> Be sea-kindly with twin fore and aft centerboards to ease the helm and facilitate self-steering. Withstand striking coral heads, rocks, and the inevitable collisions with piers and floating logs.

Be fireproof, and its hull must not distort in the heat from a fuel-fed fire aboard or alongside.

Have sufficient watertight compartmentation or buoyancy tanks to stay afloat if rolled under in a storm.

Be rigged so that a retired man and wife could handle the vessel with the aid of power winches. Be dimensioned to navigate the inland waterways and canal systems of Europe and North America. Have an accommodation plan attractive to paying guests so the owner could supplement his income. Have extra machinery space for those who want an electric galley and air-conditioning. Be available in a clipper version with a larger sail plan to please the traditionalist. Have enough glass area in a raised cabin to give more than just a porthole view of the world, yet be low enough not to interfere with passage under the lowest fixed bridges. After the requirements were determined, an independent designer, Jack Rouse, prepared the lines and accommodation plans. Construction plans were prepared by others with experience in ferro-cement fabrication. The publicity

given the "VALEO" has caused some confusion regarding Mr. Rouse's relation to Fibersteel, so it must be made clear that he has no connection with the company, has never seen the Fibersteel process in operation, and has no knowledge of the patent-pending methods developed by the company to insure structural quality control. The matter of design sales must also be clarified. The Fibersteel Company has the sole exclusive right to build from, or market the plans in accordance with a contract dated January 4, 1963. At a meeting on September 26, 1968, Mr. Rouse agreed to discontinue any promotional activity connected with Fibersteel and to delete the 55' VALEO" and the 32' VALITA"

of examples not produced by its molding process. This assures a completely fair and structurally sound hull. A novice, building all the ferro-cement portions of the 55' VALEO" might put in from 3,000 to 5,000 hours of very tedious work with uncertain end results. Any one without previous ferro-cement experience would do well to buy their structurally complete boat from a Fibersteel affiliate, then make substantial savings by doing their own interior joinery, decorating, furnishing, and machinery installation. Fibersteel-licensed facilities are now under construction in several places. As these demonstrate the value of the process, capital will become available to place Fibersteel franchises in every marine *"Valeo" From the Latin, meaning 'strength' but pronounced va-lay-oh

Fibersteel would like to sell plans to the amateur builder but it knows from its own experience that the problems of mesh penetration and finish are not easily solved by the novice using any of the construction methods published so far. The company cannot afford to have public acceptance of its designs imparied by the performance and appearance

Revised Feb. 1971 During the development of the "VALEO" design, Captain Irving Johnson of "YANKEE" fame furnished Iorns with invaluable advice and assistance. Those of you who have read Captain Johnson's books, his many articles in the National Geographic, or have seen his television presentations of the "YANKEE'S" travels through Europe and up the Nile will recognize his influence on the "VALEO". The "VALEO" is a little more roomy than the "YANKEE", as a concession to those who will live aboard the year around, and it has an after cockpit for lounging or fishing. The draft is only 4 feet and her cabin top is less than 9 feet above the water line, thus enabling her to squeeze through some places which presented problems for the "YANKEE". The "VALEO'S" rig is simple and all inboard although a

clipper version with bowsprit and increased sail area will be available for those who want an auxiliary sailboat instead

The after great-cabin of the "YANKEE" has been retained but the galley has been moved up into the spacious main cabin where all the cooking, eating and socializing can take place while enjoying the view. The great-cabin now becomes the owner's private quarters with a full bath and extra space for a study, office, workshop, storage, or additional berths. An interesting and unique feature of the two forward staterooms is that they are identical so no problem will arise over which guests get the best accommodations. Each stateroom has its own lavatory. The shower and head are in a separate compartment with access from either stateroom or from the forepeak in which additional berths

can be installed for extra guests or crew. There is separate access to the forepeak through a foredeck hatch.

The "VALEO" motor yacht version will perform adequately with any engine over 100 horsepower. An analysis of the hull configuration by Cummins Diesel Company indicates that the "VALEO" should cruise at 9.6 knots with their 175 horsepower engine and at 10.0 knots with their 250 horsepower model. The maximum speeds would be

10.3 knots and 11.1 knots. The "VALEO" sailing version auxiliary should have 50 or more horse power. The "VALEO" motorsailer particulars are listed by the designer as: length over all 55°; length waterline 45°; beam 15' 6"; draft with board up 4'; draft with board down 8'; midship freeboard 5'; bridge clearance with masts up 61°; bridge clearance with masts down 9°; displacement 26.2 tons; midship coefficient .586; prismatic coeffi-

ing methods and materials.

The Fibersteel hull is less than one

strength and rigidity. Yet, collisions which would sink ordinary vessels have

inflicted only minor damage, because the material, composed of multiple lay-

ers of fine wire mesh, does not splinter or rip open on impact. Instead of being

brittle as one might expect of cement,

the steel fibers imbedded in it provide

a high degree of elasticity. When ferrocement does yield, the cement particles are held together by the steel mesh

Over

inch thick and has tremendous

the stern cockpit or from a center cockpit. The "VALEO" is being offered initially in the motorsailer version structurally complete for 12 thousand dollars delivered in the water at the Port of Sacramento. The structurally complete "VALEO" includes the hull, deck, cabin, five interior bulkheads (four of which can be made watertight), the cabin sole and an eggcrate configuration of tanks and compartments below, all in ferro-cement. Also included as a special feature is a standpipe capped off above the waterline in the cabin. All sea water intakes lead from this electrolysis-proof pipe thus eliminating the hazards of through-hull fittings. With the cap removed this pipe also provides a view of the sea bottom when anchoring in clear water. Brackets may also be attached inside the pipe to hold the underwater parts of a depth

recorder and speedometer so as to permit their easy removal for cleaning and repair.

cient .628; block coefficient .370; lateral plane area 153.3 square feet; hull surface area 1400 sq. feet; deck surface 720 sq. feet; sail area: main 514, jib 372, mizzen 236, total 1122 sq. feet; hull thickness 3/4" minimum tapering to 6" in keel. Extra reinforcement moulded in over all stress areas. The "VALEO" may be sailed from either

As soon as the owner completes the glazing and covers the hatches he could move aboard to plumb, wire and furnish at his convenience. Fibersteel can save the buyer considerable time and work by installing the rough plumbing and electrical systems during molding. Costs of these and other available options will be quoted on request. The "VALEO" has room to permit installing apartment size furniture and appliances. These can effect considerable savings providing guarantees and service policies apply to marine use. An owner able to do his own cabinet work could finish the interior for a cash outlay of about \$1,500. To progress from the live-aboard stage to mobility would require an engine in the 50 to 200 horsepower

range with shaft, stern bearing, propeller, rudder, controls, deck hardware, anchor, navigation lights, bell, horn, fire extinguishers and life preservers as required by the U. S. Coast Guard for boats in Class III. Reconditioned diesels sell from \$1,000 up. The mounting of the engine together with the cost and installation of the other equipment will add between \$1,000 and \$3,000 depending on the perspicacity of the owner in shopping among marine suppliers and his mechanical ability to do part or all of the installation. Fully fitted aluminum masts, booms, stainless steel

stays and shrouds can be obtained for about \$4,000. Sails and running rigging will cost about \$2,000.

An owner able to do most of his own work and supervise the rest could get by with a total investment of under \$20,000. To contract the work out with all new materials and equipment would cost upwards of \$35,000, but compare this with the over \$100,000 price tag on most 55' yachts in steel or fiberglass.

Valeo ... 55' Design Series for Ferrocement Construction

The name Valeo comes from Latin, signifying strength. The great strength

and impact resistance of the boats is made possible by the patented Fiber-steel construction. These boats are laid

up in molds using steel mesh and newly

developed waterproof portland cement formulas. Tanks, bulkheads, compartments, cabins, hull and deck can all be

formed by this process at a cost ap-

proaching 50% that of other boat build-

and a motoryacht.

VALEO is the class name of a series of designs based on a common hull to

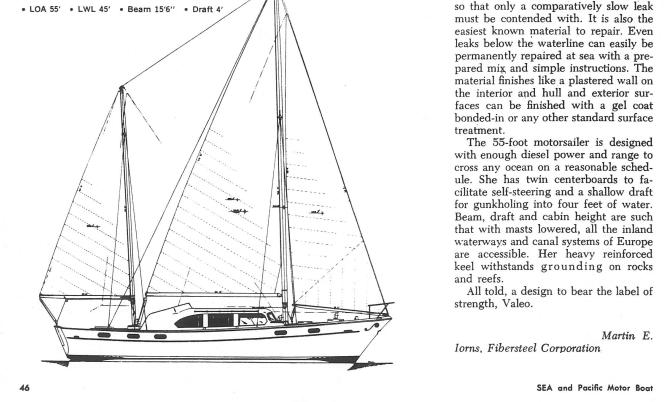
be constructed in ferrocement. Designer

Jack Rouse of Harbor City, Calif., was commissioned by Martin E. Iorns, pres-ident of Fibersteel Corporation of West Sacramento, to create a series of designs

The 32-foot ferrocement series has two sail designs and four powerboat designs from the basic hull. The 55-foot

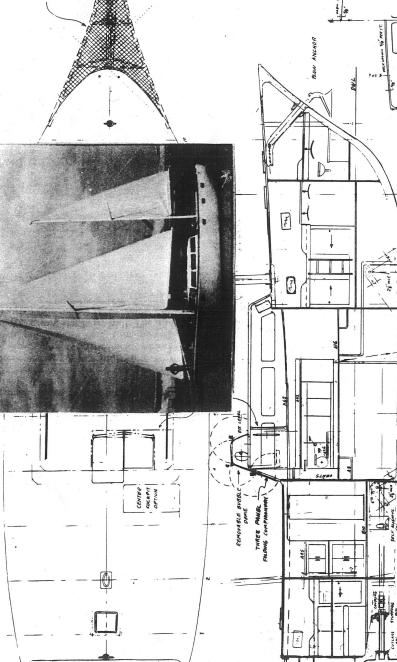
Valeo series offers three ketch designs

for a 32 and 55-foot hull.



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August 1967



S CABLE

BERTH

DOUBLE LOCALERS

STEP

CAS CAS TANKS Adapted to ferro-cement by FIBERSTEEL CO. FIBER STEEL EDWIN MONK **SPECIFICATIONS** L.O.A. 55'0" **VALEO** DISPL. ... BD'S DOWN 8'0" (OTHER RIGS AVAILABLE)

1

3.

lines.

0 BIG YACHTS AT SMALL BOAT PRICES IN SAIL OR POWER FOR WORLD CRUISING STRUCTURALLY COMPLETE\$19,500 Ready to move aboard and outfit \$34,500 Less furnishings and sails FULLY FINISHED\$59,500 SEE THESE BOATS AT PORT OF SACRAMENTO **Fibersteel**

CUSTOM DESIGNED INTERIORS HEAD ROOM 6'6'

Built by oldest and most experienced ferrocement boat builder in North America. Superior to other ferrocement construction as Fibersteel's molded laminate insures a fair, void free hull, deck and cabin. Better than steel as it will not rust.

FEATURES

- 5. Better than fiberglass as it will not burn or become brittle with age. Four to five watertight main bulkheads.
 - Up to 35 watertight compartments below the cabin soles available for tankage, storage or reserve bouyancy.
- 8. Virtually maintenance free. 9. Easily repaired at sea, even below the waterline. The STRUCTURALLY COMPLETE 55' Valeo for \$19,500 includes: hull; floors; soles; main bulkheads; urethane foam insulated deck and

cabin; choice of interior and exterior cement colors; built-in tanks for water, fuel, waste (approx. 1,700 gallons total capacity); two

Better than wood as it will not rot or burn.

- centerboards; centerboard winches; reinforced openings for hatches, vents, samson post, ports and windows; inserts for attaching skeg, stern bearing housing and stuffing box; chainplates; rough plumbing; concealed wiring for both 12 volt and 110 volt circuits in each compartment (intercom and
- hi-fi wiring at a small extra cost); stanchion sockets; molded rubrail; freeing ports for optional stern cockpit. The SEA READY version for \$34,500 includes: All of the above plus a 85 HP diesel engine; shaft; propeller; rudder; steering wheel; emergency tiller; samson post; cleats; stanchions; lifeline; horn; bell; navigation lights; plywood closure for all hatches: plexiglass in all fixed ports and windows; anti-fouling paint; and a working anchor with a 600 foot coil of 3/4 inch nylon for anchor and dock
- The FULLY COMPLETE version for \$59,500 includes: All of the above plus slooper rig (aluminum mast, stainless standing rigging, vertical roller furling and three working sails); stainwaxed mahogany woodwork; carpeting; hot, cold and sea water systems; compass; range; oven; refrigerator; freezer; 4" foam on bunks; 2 heads; tub shower.

shower of mosaic tile and marlite; watertight bulkhead doors; formica counters: stainless sinks. A bowsprit option and many custom features are available as each Valeo is built to order. A deposit of \$1,000 reserves a place in the production schedule. Four to six weeks are required to produce the STRUCTURALLY COMPLETE boat.