

TECHNICAL
PRESS INFORMATION
N.S. SAVANNAH

COMPILED FOR THE
U.S. ATOMIC ENERGY COMMISSION
U.S. DEPARTMENT OF COMMERCE
MARITIME ADMINISTRATION

BY NEW YORK SHIPBUILDING CORPORATION, CAMDEN, NEW JERSEY



PART VI

SAVANNAH EQUIPMENT PROCUREMENT

In order to insure that construction of the SAVANNAH would proceed on an orderly basis, it was necessary to schedule the procurement of all material months ahead of the actual requirement date. Schedules were developed for the procurement of steel, equipment and miscellaneous materials. The schedules showed the required date when material should be available in the Camden, New Jersey, shipyard of the New York Shipbuilding Corporation, or at the Babcock and Wilcox Company's plants where the nuclear reactor is being fabricated, and the manufacturing lead-time for the material.

Based on the schedule, requisitions were prepared by the engineering departments of the prime contractors and materials purchased on a competitive basis. In the case of steel, orders were placed with the steel mills at the earliest possible date. As the design progressed, it many times became necessary to modify orders based on structural changes of the SAVANNAH. The steel was ordered based on sub-assembly sequence and when the steel was received in the shipyard it was fabricated and assembled in sub-assembly sequence so that a definite erection sequence could be maintained.

In the case of machinery components, requisitions were placed after they were developed from the contract specifications and approved by the Government agency responsible for the administration

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of the prime contract involved. Competitive prices were received and contracts awarded to the lowest responsible bidder. Upon awarding of a contract, the vendor developed his design and submitted plans covering his recommended design. These plans were approved by the Atomic Energy Commission, the Maritime Administration, U. S. Coast Guard, American Bureau of Shipping and other regulatory bodies according to the nature of the equipment involved. After approval of the vendor's plans construction of the units was authorized. When a delivery of major equipment was missed, it became necessary for the construction departments to re-arrange their method of installation.

Miscellaneous materials were also procured on the basis of scheduling and handled in the same manner as the large equipment except that no vendors' plans were required and material could be manufactured by the vendor as soon as a Purchase Order was received.

The list of major vendors is as follows:

MAJOR VENDORS TO NEW YORK SHIPBUILDING CORPORATION:

<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Allis Chalmers Mfg. Co. 864 S. 70th St. Milwaukee, Wisconsin	Pumps, fire and bilge Transformers
American Engineering Armingo and Serpviva Sts. Philadelphia, Pa.	Steering Gear
Amer.Laundry & Machinery Co. 40 E. 34th St. New York City, N.Y.	Laundry equipment
Amer. Metal Bearings 16th & Imperial St. Los Angeles, Calif.	Shaft bearings
Arnot-Jamestown Div. Aetna Steel Products 730 Fifth Ave. New York 19, N.Y.	Joiner work and furniture

<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Atwood and Morrill Co. Salem, Mass.	6" orifice valve
Aurora Pump Division of New York Air Brake Co. 4610 Loucks St. Aurora, Ill.	Pumps, bilge and ballast Pumps, fire Pumps, salt water Pumps, air condit. Pumps, sump.
Auth Electric Co., Inc. 34-20 45th St. Long Island City, N.Y.	Wheelhouse alarm panel Hospital and stewards call sys. Burglar alarm equip.
Automatic Switch Co. Florham Park, New Jersey	Auto. bus transfer equip.
Avondale Marine Ways Box 1030 New Orleans, La.	Steel castings
Bailey Refrigeration Co. 115 King St. Brooklyn 31, N.Y.	Refrigerators
Baldt Anchor & Chain Div. of the Boston Metal Co. P. O. Box 350 Chester, Pa.	Anchors and chains
Besler Corp. Ft. of Harlan Ave. Oakland 8, Calif.	Emergency boilers and pumps
Bethlehem Steel Co. Suburban Station Bldg. Philadelphia, Pa.	Propeller and steel plates
James Biddle Co. 1312 Arch St. Philadelphia, Pa.	Portable elec. instruments
Birdsboro Steel Foundry and Machine Company 49 Furnace Street Birdsboro, Pa.	Steel castings
G. S. Blakeslee and Co. 1822 S. Laramie Ave. Chicago 50, Ill.	Galley equipment

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Bludworth Marine Div. of Kearfott Co., Inc. 1378 Main Ave. Clifton, N.J.	Echo depth sounder
Boston & Lockport Block Co. 110 Condor St. Boston, Mass.	Rigging gear
Brownell Associates, Inc. 135 E. 42nd St. New York 17, N.Y.	Cooling coils
Buffalo Forge Co. 15th and H Sts. Washington 5, D. C.	Ventilation fans
A. M. Byers & Co. Farnam Clark Bldg. Pittsburgh, Pa.	Wrought Iron Pipe
Carrier Corporation 385 Madison Ave. New York, New York	Refrigeration stores equip. Galley equip. Ships service air-condt.equip. Pumps, vacuum
Century Lighting Inc. 521 W. 43rd St. N. Y. 36, N. Y.	Dimmers for main lounge
Chapman Valve Co. Broad and Arch Sts. Philadelphia 7, Pa.	Main injector and overboard Discharge valves
Chem. Pump Corp. 1313 E. Mermaid Lane Philadelphia, Pa.	Pump - waste transfer
Chicago Pump Co. 2300 Wolfram St. Chicago, Ill.	Pumps, sewage, motor driven
Clark-Cooper Co. 516 N. Market St. Palmyra, N. J.	Steam whistle
Cleaver Brooks 225 N. Grand Ave. Waukesha, Wisc.	Evaporating plants

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Colorado Fuel & Iron Co. Wickwire Spencer Div. Claymont, Del.	Steel plates Flanged and disc heads
Commercial Engineering 1627 K St., N. W. Washington 6, D. C.	Purifiers, diesel oil
Commercial Radio Sound Corp. 652 First Ave. New York, N. Y.	Broadcast Antenna Sys.
Continental Electric Co. 325 Ferry St. Newark 5, New Jersey	Motor generator sets
Crane Co. 245 Master St. Phila., Pa.	Plumbing fixtures
Crouse Hinds Co. 1347 Wolf St. Syracuse, N. Y.	Elec. fittings and fixtures
Cutler Hammer, Inc. 1391 W. St. Paul Ave. Milwaukee, Wisc.	Fire door closing equip.
Davis Engineering 1064 E. Grand St. Elizabeth, N. J.	Fresh water sample coolers Water heaters Blowdown evaporator
Detroit Controls Corp. 5900 Trumbull Ave. Detroit, Mich.	Pressure switches
L. C. Doane Co. Essex, Conn.	Electric fixtures
Eastern Cold Storage Insulation 101 Park Avenue New York 17, New York	Insulation
Enterprise Galvanizing Co. Cumberland & Almond Sts. Phila., Pa.	Galvanizing
Exide Industrial Div. 101 N. 33rd St. Phila. 4, Pa.	Rectifiers

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Fairbanks Morse 401 N. Broad St. Phila., Pa.	Emergency diesel generator
Federated Metals Div. Perth Amboy, N. J.	Lead shielding
Galbraith-Pilot Marine Div. of Marine Electric Corp. 600 Fourth Street Brooklyn, New York	Salinity equipment Public Address equipment Music entertainment sys.
Griscolm-Russell Co. Land Title Bldg. Phila., Pa.	Blowdown evaporators
Gruendler Crusher & Pulverizing Co. 2915 N. Market St. St. Louis, Mo.	Galley equip.
Henschel Corp. Amesbury, Mass.	Shaft revolution indicator equip. Rudder angle indicator equip. Engine order telegraph equip. Audible signal bells & contacts
Hose McCann Telephone Co. 25th and 3rd Avenues Brooklyn, N. Y.	Sound powered telephone equip.
Hotpoint Company 5600 W. Taylor St. Chicago 44, Ill.	Galley equipment Electric ranges
Insinger Machine Co. 6245 State Road Phila., Pa.	Dishwashing machines
Intrusion Prepakt Co. Western Savings Fund Bldg. Phila., Pa.	Reinforced concrete for secondary shielding
Jones & Laughlin Steel Co. 462 Gateway Center Pittsburgh, Penna.	Jr. steel shapes
Kearfott Co. 117 Liberty St. New York City, N.Y.	Windows Fixed lights

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Kennedy Valve & Mfg. Co. Elmira, New York	Misc. valves
Walter Kidde Co. Suburban Sta. Bldg. Phila., Pa.	Mn. alarm and fire Dect. sys.
Koven Fabricators 98 E. Dickerson St. Dover, N. J.	Fresh water heaters Air tanks
Lake Shore Corp. 17 Battery Place New York 4, New York	Winches - cargo and topping Winches - accomodation ladd
Lamson, Inc. 303 Lawrence St. Syracuse 1, New York	Pneumatic tube equipment
Lovell Dressel Co. 478 Forest St. Arlington, N. J.	Electric fixtures Electric fixtures
Lukenweld Division of Lukens Steel Co. 572 Highway Bldg. Coatesville, Pa.	Swimming pool
Lukens Steel Co. 572 Highway Bldg. Coatesville, Pa.	Steel plate
Luminator, Inc. 120 N. Peoria St. Chicago, Ill.	Electric fixtures
MacGregor Commarain, Inc. Box 231 Middletown, Pa.	Cargo Hatches
Marine Electronics, Inc. 1510 Guilford Ave. Baltimore, Md.	Electrical test panel General alarm panel
Marlo Coil Co. 6135 Manchester Ave. St. Louis, Mo.	Heating Coils
Mar-Oil Electric, Inc. 219 Hudson St. Hoboken, N. J.	Electric storage battery

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Mackay Radio & Telegraph Co. 15 Lombard St. Philadelphia, Pa.	Radio equipment Radio direction finding equip. Loran system Lifeboat radios
Midvale Heppenstall Co. Nicetown Philadelphia, Pa.	Steel forgings
Mink-Dayton Co. 117 N. Fendlay St. Bayton, Ohio	Lighting fixtures
Minneapolis-Honeywell Reg. Co. 3345 W. Hunting Part Ave. Philadelphia 32, Pa.	Auto. heating and air condition Control system
Mobile Pulley & Machine Works 1301 Tennessee Ave. Mobile, Ala.	Steel castings
Julius Mock & Sons, Inc. 777 Rutland St. Brooklyn 3, N. Y.	Hatches Manholes Doors
Paul Morrow Co. Wilmington, Del.	Pilot house console
Murlin Mfg. Co. 200 Bk. S. Ambler Quakertown, Pa.	Electrical fixtures
Nash Engineering 254 S. 15th St. Phila., Pa.	Pumps, priming-motor driven
Natale Machine & Tool Co. Broad St. & Highway #17 Carlstadt, N. J..	Flood lights for Containment vessel
New England Trawler Equip.Co. 299 Eastern Ave. Chelsea, Mass.	Towline cable reels
Ohio Injector Corp. Suburban Station Bldg. Phila., Pa.	Valves
Otis Elevator Co. 502 N. 19th St. Phila., Pa.	Elevators, stores, cargo and passengers

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Perkins Marine Lamp and Hardware 47 Pitkin Ave. Brooklyn, N. Y.	Visual whistle signal equip.
Phelps Dodge Copper Prod.Co. Yonkers, New York	Marine cable
Phoenix Iron and Steel Co. Harrisburg, Pa.	Steel plate
Progress Electronics Co. Dept. P-6, 296 Broadway New York, New York	Adapters, plugs and jacks
Radio Corp. of America Front and Cooper Sts. Camden, New Jersey	Radio telephone equip. Radar Equip. Television equip.
Randolph Potts Co. 6745 Torresdale Ave. Phila., Pa.	Grinder-(Standard Tool Co.) Drill press-(Royersford)
J. T. Reddy Co. 162 S. Easton Rd. Phila., Pa.	Engine lathe (South Bend)
Remler Co. 2101 Bryant St. San Francisco, Calif.	F. m. antenna sys. Dumbwaiter comm. sys.
Ross Heat Exchanger Div. of American Standard Suburban Square Bldg. Ardmore, Pa.	Supply gland leakoff vapor Condensers
Rudman & Scofield 277 Pearl St. New York 38, New York	Cooking and commissary equip.
Sandusky Foundry & Machine Co. Sandusky, Ohio	Centrifugal castings
Shenango Furnace Co. Dover, Ohio	Centrifugal castings
Simes Co. 114-15 15th St. College Point, L. I., N.Y.	Illum. signs and fixtures

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<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
Sperry Piedmont Co. Div. of Sperry Rand Corp. Willoughby St. Brooklyn, New York	Gyro compass equip. Gyro pilot
Square D Corp. 2310 Haverford Rd. Ardmore, Pa.	Fused disconnect switches
Sterling Bronze Co. 211-63rd St. Brooklyn, New York	Electric fixtures
Superior Linderwood Mundy Corp. 7 Day St. New York 7, N. Y.	Capstans
Trane Company Suburban Station Bldg. Phila., Pa.	Convectors
U. S. Steel Corp. Box 2069 Pittsburgh, Pa.	Steel plates, shapes Sheet and bar
Viking Pump Co. 2336 Fairmount Ave. Phila. 30, Pa.	Pumps, diesel oil Transfer and booster
Warren Pump Co. 200 Bridges Ave. Warren, Mass.	Pumps, salt water Intermediate heat exchanger
Washington Aluminum Co. Penna. Railroad & Knecht Ave. Baltimore, Md.	Accom. ladders
Welin Boat & Davit Co. 500 Market St. Perth Amboy, N. J.	Life boats
Western Gear Corp. 417 - 9th Ave., South Seattle, Wash.	Cargo winches
Westinghouse Electric Co. 3001 Walnut St. Phila., Pa.	Switchboard mn. generator and distribution Switchboard - emergency Steering power transfer Switchboard Distribution panels Polyethylene sheets f/shielding

<u>NAME AND ADDRESS</u>	<u>MATERIALS</u>
C. H. Wheeler 19th & Lehigh Ave. Phila., Pa.	Windlass
Williams, Brown & Earle 904 Chestnut St. Phila., Pa.	Sound motion picture equip.
L. J. Wing Mfg. Co. 55-D Vreeland Mills Rd. Linden, N. J.	Vent fans
Alan Wood Steel Co. Wood Road Conshohocken, Pa.	Steel plate
Worthington Pump Co. 426 Worthington Ave. Harrison, N. J.	Pumps, submersible bilge Motor driven
Youngstown Sheet & Tube Co. 1954 Stambaugh Bldg. Youngstown, Ohio	Steel plates

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MAJOR VENDORS TO BABCOCK AND WILCOX COMPANY

A. MAJOR REACTOR SYSTEM COMPONENTS

Reactor vessel and structural internals	Babcock & Wilcox Barberton Works, Barberton, Ohio
Fuel Elements	Babcock & Wilcox Nuclear Facilities Plant Lynchburg, Virginia
(a) Fuel in powder form	Mallinckrodt Chemical St. Louis, Mo.
(b) Forming fuel into pellets	B & W Nuclear Facilities Plant Lynchburg, Va.
(c) Fuel tubes	B & W Tubular Products Division Beaver Falls, Pa.
Cruciform control rods	B & W Nuclear Facilities Plant Lynchburg, Va.
Control rod drive system	General Electric Nuclear Products Division San Jose, Calif.
Primary piping	B & W Tubular Products Division Beaver Falls, Pa.
Steam generators (Heat exchangers and steam drums)	B & W Boiler Division Barberton, Ohio
(a) Primary gate valves	Crane Co. Chicago, Ill.
(b) Primary check valves	Edwards Valve Co. E. Chicago, Ind.
Primary Coolant pumps	Allis-Chalmers Mfg. Co. Milwaukee, Wis.
Primary demineralizers	Cochrane Co. Phila., Pa.

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Effluent filters	Cuno Engineering Meridan, Conn.
Gaseous waste collection sys.	Arthur D. Little Co. Cambridge, Mass.
Letdown coolers	Graham Mfg. Co. Batavia, N.Y.
Buffer charge pumps	Worthington Corp. Harrison, N. J.
Booster pumps	Worthington Corp. Harrison, N. J.
Pressurizer	B & W Boiler Division Barberton, Ohio
Intermediate coolers	Struthers-Wells Warren, Pa.
Containment vessel air conditioning system	Buffalo Forge Buffalo, N.Y.
Primary shield tank	Knapp Mills Co. Wilmington, Del.
Buffer surge tank	Gary Steel Co. Lynchburg, Va.
Buffer seals	Stein Seal Co. Philadelphia, Pa.
Containment vessel and shielding	Constructed by New York Shipbuilding Corp. according to B & W design parameters.
Hydrogen addition system	Air Reduction Co. Charlotte, N. C.
Emergency Cooler	Graham Mfg. Co. Batavia, N. Y.
Pressurizer heaters	E. L. Wiegand Pittsburgh, Pa.
Emergency cooling pump	Chempump Co. Philadelphia, Pa.

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Pressurizer relief valves	Manning, Maxwell & Moore Stratford, Conn.
Boiler safety valves	Manning, Maxwell & Moore Stratford, Conn.
Insulation	Johns-Manville Co. Philadelphia, Pa.
Intermediate system surge tank	Richmond Engineering Richmond, Va.
Effluent condensing tank	Richmond Engineering Richmond, Va.
Buffer seal coolers	Struthers Wells Warren, Pa.
Main steam valves	Edwards Valve Co. E. Chicago, Ill.

B. STEAM PROPULSION SYSTEM COMPONENTS

Steam turbines	DeLaval Steam Turbine Co. Trenton, N. J.
Main reduction gear	DeLaval Steam Turbine Co. Trenton, N. J.
* Main and auxiliary condensers	Ingersoll Rand Corp. Phillipsburg, N. J.
* Main turbine-driven feed pumps	Worthington Corp. Harrison, N. J.
* Main and auxiliary condensate pumps	Worthington Corp. Harrison, N. J.
* Low pressure feedwater heater	Davis Co. Elizabeth, N.J.
* De-aerating feedwater heater	Worthington Corp. Harrison, N.J.
* High pressure feedwater heater	Davis Co. Elizabeth, N.J.
* Main and auxiliary air ejectors	Ingersoll-Rand Phillipsburg, N.J.

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* Turbine generators: Generators:	G. E. Schenectady, N.Y.
Turbine Generators: Turbines:	DeLaval Steam Turbine Co. Trenton, N. J.
Electrical switchgear	Westinghouse Pittsburgh, Pa.
Lube oil service pumps (IMO)	DeLaval Steam Turbine Co. Trenton, N. J.
* Lube oil purifier	DeLaval Separator Co. Poughkeepsie, N. Y.
* Main circulating pumps	Worthington Corp. Harrison, N. J.
* Moisture separator	V. D. Anderson Cleveland, Ohio
* Manoevring valve	Gimpel Machine Works Philadelphia, Pa.

*By subcontract from DeLaval Steam Turbine Company

C. AUXILIARY ENGINE ROOM MACHINERY COMPONENTS

Diesel generator sets	Cleveland Diesel Division General Motors Corporation
Take-home motor	General Electric Co. Schenectady, N. Y. (subcontract to DeLaval)
Emergency package	Cyclotherm Co. Oswego, N. Y.
Low pressure steam generator	Dravo Co. Ellicot City, Md.

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D. INSTRUMENTATION AND CONTROL PANEL COMPONENTS

Non-nuclear instrumentation and controls	Bailey Meter Co. Cleveland, Ohio
Main control panel and two auxiliary control panels	Bailey Meter Co. Cleveland, Ohio
Nuclear instrumentation	Westinghouse E. Pittsburgh, Pa. (subcontract to Bailey Meter Co.)
Radiation Monitoring	Westinghouse E. Pittsburgh, Pa.
Reactor control and safety system	Westinghouse Pittsburgh, Pa. (subcontract to Bailey Meter Co.)

E. MAINTENANCE AND HANDLING EQUIPMENT COMPONENTS

Stud tensioner	Diamond Power Specialty Corp. Lancaster, Ohio
Fuel transfer shield	B & W Works Barberton, Ohio
Fuel transfer manipulator plug	B & W Works Barberton, Ohio
Core internals transfer cask	B & W Works Barberton, Ohio
Fuel element transfer cask	B & W Works Barberton, Ohio