120’ INACE EXPEDITION MOTOR YACHT
STANDARD
SPECIFICATIONS
Designed by Luis Debasto

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01 GENERAL

01-00 GENERAL GUIDANCE AND REQUIREMENTS

01-01 Definitions

The following definitions shall apply for the purpose of these specifications:

“SPECIFICATION” shall mean these specifications included in “Plans and specification”

“GENERAL ARRANGEMENT” shall mean the General Arrangement included in “Plans and specification".

“CONTRACT” shall mean the contract entered into between the Owner and the Builder.

“OWNER” shall mean the Buyer –

“BUILDER” shall mean INACE.

“DESIGNER” shall mean INACE.

“INTERIOR DESIGNER’ shall mean Luis de Basto design.

“OWNER’S REPRESENTATIVE” shall mean such person as defined in the Contract.

“VERONIKA” shall mean the motor yacht named VERONIKA built by the Builder and delivered in August 2006.

“SUDAMI” shall mean the 111’ Expedition motor yacht named SUDAMI under construction by the Builder and due to be delivered in May of 2007.

“Optional” shall mean an item that it is not supplied on the Vessel as priced in the Contract but the Buyer has the option, at his expense, to have it installed by the Builder per the prices previously quoted on the price sheet, Addendum “C”.

01-02 Specification

This Specification details the work to be performed by the Builder, including work to be performed by sub-contractors as assigned by the Builder. The Construction Contract between the Owner and Builder is to be based upon this Specification.

There are four (4) attachments with this specification

* A List of owner supplied items and equipment
* B Allowance List
* C Optional Items list (Price Sheet)
* D General arrangements Drawings

These attachments shall be considered integral to this specification.

01-03 Discrepancies

In case of discrepancies between the various documents pertaining to the Contract and to the Specification, the following priorities will prevail:

1. Contract between Owner and Builder followed by,
2. Specification, followed by,
3. Drawings, followed by,
4. Schematics and sketches illustrating the Specification.

If one of the parties concerned becomes aware of a discrepancy they are to inform each other as soon as practicable.

01-04 Repetition

Some equipment/systems/materials/work is/are mentioned more than once in these specifications. This is done for ease of reference and because some equipment deals with more than one system. It is however emphasized that all equipment be delivered and installed once, unless expressively defined otherwise.

01-05 Intent and General Conditions

It is the intent of these Specifications that the Builder, INACE, shall construct, equip and furnish a vessel complete and fitted out in accordance with marine practices and these specifications and ready for service as a private-use, luxury ocean going, privately owned and operated motor yacht.

The yacht is intended for personal use by the Owner, his family and guests. There will be a professional captain and crew aboard, for maintaining and operating the yacht. The yacht will be operated worldwide on cruises of extended duration. The yacht will see heavy service during its lifetime. Comfort, simplicity, and ease of operation and maintenance are of primary importance without sacrifice to performance. In all regards, the yacht is to be constructed to be rugged and reliable.

The shipyard, herein referred to as the Builder, includes all subcontractors who are hired and are under the direction of the Builder. It is the intent and spirit of these specifications that the Builder shall construct, equip, and furnish a yacht complete and ready for service. All articles of equipment furnished by the Owner shall be specifically mentioned herein. Omission from the plans or specifications, or both, of any items, Which according to generally accepted practice are necessary for the proper operation of the yacht or are required for classification, shall not release the Builder from supplying and installing such equipment.

01-06 Project

The Owner might retain the services of several professionals to assist in the design, engineering and supervision of construction of this yacht. The hull and appendage lines, superstructure geometry, interior layout, deck and machinery layout, naval architecture, structural engineering and systems design/specification will be supplied by the BUILDER’s Design Dept (herein referred to as “the Designer”). The interior design including joiner detailing and interior specification will be supplied by LUIZ DE BASTO DESIGNS (herein referred to as the Interior Designer) and paid by the Owner.

The on-site Owner's representation will be the Owner's Project Manager (herein referred to as the Owner's Representative). The Owner or their representatives, which might include a professional surveyor, will do periodic on site inspection and they shall have access to the yacht and everything pertaining to the yacht at all reasonable times.

01-06-01 Owner

The Owner of the yacht is:

01-06-02 Project Manager

The Project Manager, on behalf of the Owner and referred to as such in this document will be determined at a later date.

01-06-03 Designer

The Designer, as referred to in this document will be:

INDUSTRIA NAVAL DO CEARA S/A

01-06-04 Builder

The Builder, as referred to in this document will be:

INDUSTRIA NAVAL DO CEARA S/A
Av. Presidente Kennedy,100
Fortaleza, Ceara – Brasil
Ph:(085)231-4287 / Fax:(085)253-5877
EMAIL: inace@inace.com.br

01-06-05 Interior Designer

The Interior Designer, as referred to in this document will be:

LUIZ DE BASTO DESIGNS
444 BRICKELL AVE SUITE 928
MIAMI, FL 33131

01-06-06 Surveyor

The Surveyor, as referred to in this document will be:

PATTON MARINE

01-07 Additional Conditions

The Builder shall review all arrangements and details submitted to the OWNER and to accept responsibility for the proper functioning of such arrangements.

Construction shall proceed after contract signing with the full diligence of the Builder. The yacht shall be constructed under a permanent roof. The Builder shall guarantee skilled workmanship, in keeping with the accepted yacht practice, and it conformity with the plans and specifications.

01-08 Substitutions

All materials and manufactured articles of construction and equipment are to be of a quality suitable for their respective purposes. References to trade names and catalog numbers are generally to be respected unless otherwise agreed upon by Builder and Owner.

01-09 Registration and Classification

It is planned that the yacht shall have a registry as a large charter yacht for up to twelve (12) guests. The yacht shall be designed and built to the requirements of ABS- AMERICAN BUREAU OF SHIPPING (herein referred as the

classification society)- Rules and Regulations for the Classification of Motor Pleasure Yachts - and delivered with Maltese AMS 1OO classification and by rules of MCA, LY2 - Large Commercial Yacht Code.

Where it is stated in this document "in accordance with regulatory agencies", "as per classification society" or similar, the intent is that the specifications comply with ABS requirements. The equipment and construction of the vessel, whether specified or not, shall meet all requirements of this registry, classification and code of practice, applicable to a vessel of this type, for operation on inland waterways and on the high seas.

The shipyard shall keep a log of the classification society's surveyors visits and a brief description of the subjects discussed. The Owner's representative shall have access to this log.

- ABS Maltese AMS 100 approval
- MCA LY2 - Large Commercial Yacht Code

01-10 Documentation

The Builder will be responsible to supply the following documentation at delivery of the yacht:

* Builders Certificate.
* Class Hull Certificate.
* Set of classification society approved plans.
* Stability Booklet
* Detailed Sea Trial Report
* Sounding Table(s)
* International Tonnage Certificate
* International Load Line Certificate

01-11 Insurance and Liability

The Builder shall keep the yacht and any materials intended therefore, including items furnished or delivered by the Owner, fully covered under a standard Builder's Risk Policy of Insurance while under construction, on trial, until delivery has been made.

Indemnity for loss shall be made payable to the Builder and the Owner as their respective interests may appear. A duplicate of said Policy of Insurance and any amendments thereto, shall be furnished to the Owner if requested by him or his Representative.

The Owner or his Representative will report the value of all Owner supplied items to the Builder to allow the Builder to add their value to the Policy as they are delivered The Owner shall be responsible for any increase in the cost of the Policy due to the value of Owner Supplied items.

The Builder shall indemnify and hold the Owner, and their representatives harmless against all claims whatsoever arising from injury or death of employees, workmen, and all other persons whosoever, due to the act, neglect, or default of the Builder or subcontractors, or their agents or employees.

01-12 Defective or Damaged Work

During construction any work or material found defective or unsuitable shall be removed and replaced without extra charge. The Builder will protect all work at all times and be responsible and make good any and all damage, to any part of the yacht or its equipment or furnishings, whether supplied by the Owner or by himself.

01-13 Alterations, Extras and Change Orders

These specifications have been prepared to cover equipment and materials as accurately as possible prior to the full development of building plans. Should the Builder deem it necessary or advisable during the course of construction to make any changes in the layout or details, so long as the general style and type of the yacht and its arrangements are maintained, such changes are to be made by the Builder without invalidating the contract and without added expense, provided these alterations are determined before the particular part of the work to which they refer is commenced.

No charge for alterations or extra work will be allowed unless authorized in writing by the Owner or its Representative. The Builder is to submit to the Owner's Representative the proposed labor rates and material markup for change orders prior to signing the build contract and make it part of said contract. All costs are to be presented at builder’s actual cost, including but not limited to OEM discounts and all other credits. The builder shall submit requested change orders to the OWNER or Owner's Representative for approval and all change orders shall include:

* total additional man hours
* cost of labor (as agreed in the contract)
* cost of material (cost plus markup as agreed)
* impact on the delivery date
* impact on weight, speed, range, draft and stability if any

No extra work is to be considered the grounds for invalidating the contractor for delaying the time of delivery and completion of the contract, except to the extent that delays may have been accepted by the Owner's Representative at the time of his approval of a stated change order or as stipulated by the contract.

01-14 Acceptance

The terms of acceptance shall be detailed in the contract between the Owner and Builder.

The yacht shall be deemed as delivered and accepted by the Owner after joint inspection and trails confirm that the characteristics of the yacht are in conformity with the specifications, and that the inventory (quantitative control of the yacht equipment in accordance with specifications) is entire.

The Owner reserves the right to subject the yacht to a professional survey at Owner's expense prior to acceptance as long as it is done within the time frame allowed (Builder must advice OWNER in writing 30 days prior of the intended delivery date).

This together with all required transfer of title, invoice paid, and bill of sale and/or certificate of builder shall be made at the time of turnover.

The Owner to reimburse Builder for all consumable liquids onboard at the time of turn over.

01-15 Guarantees

Speed, Draft and Range are important performance requirements for this yacht. In order to ensure these requirements are met, the Builder will follow the material sizing and specifications and will advise of any major change on the boats designed weight which might affect performance.

The Builder shall also follow the sound insulation spec herewith in order to obtain the sound levels as specified further in this document.

01-16 Warranty

The yacht shall be warranted for a period of twelve (12) months, including any defect or failure in workmanship or materials unless due to negligence or other improper act of the Owner or any other user of the vessel during such period. Under such circumstances, the Builder shall make or authorize repairs, at no charge to the Owner, as shall be necessary to correct such defect or failure, including haul out of the vessel if necessary, replacement of parts or material found to be defective, except for machinery or equipment acquired by the Builder for installation in the vessel according to the specification, in respect of which, the Builder shall be responsible only to the extent of the manufacturer's guarantee. Builder will provide Owner with manufacturers' warranties for all parts and equipment installed by Builder and will warrant the proper installation of any such parts and equipment. Any work done by a business subcontracted by the Builder shall be covered in all clauses of this warrantee, by the Builder.

The above clauses shall not relieve the Builder of liability from defects or failures occurring after the expiration of the twelve months warranty period, when such defects or failures are due to the Builder's substitution of materials other than the material specifically called for in original plans or specifications, unless such substitution has been consented to in writing by the Owner or its Representative.

When available, the Builder will offer the optional equipment manufacturer's extended warranties. If approved by the Owner's Representative, the additional costs of equipment's extended warranties will be charged to the Owner in the form of a change order.

01-17 Owner Supplied Items

The items listed in the Attachment “A” (OWNER SUPPLIED EQUIPMENT) will be supplied by the Owner and installed by Builder. The Builder shall be responsible for unloading, uncrating, receiving, storing in a suitable manner and installation of these items on the vessel and any other articles consigned to him. If there are any shipping or duty charges related to those items it will Owner’s responsibility to prepay for them and if the BUILDER has paid for them it shall be reimbursed at presentation of the charges.

It shall be the responsibility of the Builder to carefully check all purchase orders, whether originating from the Owner's Representative or from the Owner himself, considering that these PO are made available to the Builder at least 30 days prior its delivery, and also to check all material delivered to

insure conformity with the details of the specifications and with all normal working requirements, including installation within the available space. The Owner or his representative shall submit these Purchase Orders to the Builder at least 90 days prior of the work related to these purchases are to start.

Equipment and items, which are sent to the Builder and were part of the Owner supplied equipment list, will be installed by the Builder with all necessary foundations, bracketing, connections and related equipment. Suitable lockers, drawers or chocks shall be provided as required.

The Builder will be responsible for the safekeeping of all such Owner furnished items until installation onboard the vessel. Only those items specifically listed in the Attachment A will be supplied by the Owner and anything else required for a complete vessel of the type described shall be provided by the Builder.

01-18 Allowances

The Builder shall allow the following invoiced prices for the purchase and delivery, within the contract price for the following items:

Lighting Fixtures $ 12,000 U.S.
Plumbing Fixtures $ 30,000 U.S.
Interior Hardware S 12,000 U.S.
Navigation/Communication Cable installation $6,000 U.S.

The Lighting Fixtures shall include only decorative lighting for the entire vessel, such as overhead light fixtures, berth reading lights, picture lights, toilet room minor lights and specialty lights such as wall lights and table lamp. This allowance shall not include deck lights, engine room lights, utility space lights or closet lights. This allowance is for the fixtures only and does not include wiring, switches, rheostats, etc.

The Plumbing Fixtures include the entire vessel, all faucets and taps, all shower fixtures, all towel bars, toilet paper holders, toilet room glass and soap holders and other specialty toilet room decorative items.

The Interior Hardware allowance includes the entire vessel, all door hardware including locksets, latches, knobs and decorative hinges. Also included are cabinet latching hardware, and exposed decorative hinges plus all drawer pulls.

The intent of these allowances is to provide the Owner as much flexibility as possible in the selection of this equipment. The allowances are for the invoiced material cost to the Builder plus shipping and shall not include any handling charges or labor charges for installation. The allowance prices shall be converted to the currency selected by the Builder at the U.S. dollar exchange rate at the time of signing the contract. The Owner will pay any amount over these allowances at the time of material ordering.

01-19 Owner's Representative Office

The Builder shall provide the Owner's representative with a private office for the duration of the project. This office is to include one (1) desk, chairs, file cabinet, one (1) phone line, and high-speed Internet connection. One (1) dedicated parking space to be provided at the shipyard.

02-00 DRAWING SUPPLIED BY BUILDER

All plans submitted to the Owner or its Interior Designer are intended to illustrate the general type of construction to be followed, and basic design, arrangement, strength and weight shall be in accordance with such plans. Details and dimensions shown on the plans shall be followed, but it shall be the sole responsibility of the Builder to check all dimensions and details and to satisfy himself, by full size layout, if necessary, that interference's are eliminated and that fitting parts are properly installed. It shall be the responsibility of the Builder to make sure that mechanical components are suitable for the purpose to which they are intended.

02-01 Drawing Supplied by the Designer or Builder - Contract Plans

The following plans form a part of these specifications. The Contract Plans supplied by the Designer/Builder are as follows:

* General Arrangement Plan
* Profile and Inboard Profile
* Preliminary Tank Plan

02-02 Drawing Supplied by the BUILDER - Construction Plans

In addition to the contract plans, the Builder shall furnish the following Working Drawings:

* Hull Lines including 3D AutoCAD or DXF file, as required
* Rudder Geometry including AutoCAD or DAT file, as required
* Deck & Superstructure Geometry including 3D-Rhino as required
* Hull Construction Plan
* Typical Construction Sections
* Deck Construction Plan
* Rudder Construction Plan
* Steering System Layout
* Primary Machinery Layout, Exhausts & Shafting
* Tank Layout
* Anchoring & Chain Locker Details
* Outboard Profile & Striping Details

Additional drawings which are not listed above but are required for the proper construction of the yacht will also be provided by the Builder.

02-03 Copyright

Any copyright or similar protection in all drawings, specifications and plans prepared by the Designer/Builder, or on its behalf shall remain the property of the Builder.

02-04 Review of Plans by Builder

The Builders are to review all plans, drawings and specifications to check that the intended performance and functions will be achieved, and the appropriate certificates issued. The Builders will inform the Owner in writing, within twelve (12) working days, after any change is requested and the plans have been approved if the drawings and reports are thought to be not satisfactory in any respect.

02-05 Drawing Supplied by Interior Designer

In addition to the Construction plans, the following attachments form a part of these specifications:

* Cabinetry example for building a mock-up to be approved by owner as the interior standard for the Yacht interior.

The Interior Designer, if one is chosen, shall furnish the Builder with working drawings as required. The scope of supply of these drawings will be determined with the Builder and will be dependent on the needs of the shipyard in order to execute the intended style and function of the interior.

03-00 DRAWING SUPPLIED BY BUILDER

The Builder will prepare additional detail drawings, needed to properly construct this yacht or required by the classification society. Drawings by the Builder shall be submitted to the Classification Society for approval and before the work to which they refer is begun. These include piping and electrical drawings, engine room air, docking plan, safety plan rudder and steering gear drawings and shafting and bearing drawings.

The Builder shall be responsible to submit and obtain classification society's approval for all required plans. Refer to ABS for a list of Class Approved Drawings and documentation needed.

The Builder shall provide joiner work detail drawings at 1:10 or 1:1 scale or as agreed to by the Interior Designer, to the Owner.

03-0l Review of Plans by Designer

If applicable, drawings and materials will be checked by the Designer prior to being used for vessel construction.

04-00 LOFTING

The lofting of the hull, decks and superstructure geometry shall be done by computer (IGES, Rhino 3D files) and/or on the lofting floor.

05-00 MOCKUPS

Builder shall construct a simple plywood/cardboard mock-up of the lower level, galley, owner's stateroom and head, guest stateroom and head.

06-00 WEIGHTS AND PERFORMANCE

Control of weights, centers of gravity, and weight reduction is important to the performance of the yacht- wherever in the specifications approved substitutions are made for specified items of equipment or equipment specified on an "or equal" basis the equivalent weights of the new equipment shall not exceed the weight of the items specified unless mutually approved by the Builder and Owner.

07-00 TRIALS AND TESTS

07-01 Preparation

Test procedure shall be approved by the classification society – four (4) weeks notice to be given for trials.

Prior to dockside and sea trials, machinery, equipment and systems shall have been operated by the Builder - the magnetic compasses shall have been compensated. All navigational equipment shall have been connected, adjusted /tested/calibrated as per the manufacturers manuals. The fresh water system shall be decontaminated; including tanks. Fuel oil tanks and piping shall be flushed with diesel oil, bypassing machinery.

During trials, the yacht shall be in the care, custody and control of the Builder. Attendance of the Owner's Representative or the Owner at the time of the trials, or the carrying out of a request to make certain maneuvers or runs, shall not serve to place the yacht in the care or control of the Owner’s Representative or Owner and the Builder agrees to hold Owner and Owner’s Representative harmless in the event of loss or damage arising out of operation of the yacht.

The Builder is to install, without cost, such apparatus for the purpose of taking readings or measuring pressures, ventilation, deliveries, or other data for the duration of the trials. Exhaust backpressure readings are to be determined and sound level measurements shall be taken.

Before leaving the dock and returning after trials the hull flotation, tank levels, personnel on board and weather conditions shall be recorded along with a list of any items that do not belong on the yacht or are not installed and missing, complete with their weights and locations.

07-02 Dockside Trials

1. Main Machinery
   Trials shall include operation of the main machinery for four (4) hours maximum RPM or to manufacturers recommendation to the satisfaction of the manufacturer's representative.
2. Auxiliaries and Systems
   Auxiliaries and systems, such as pumps, electric plant, heating system, anchor windlass, plumbing and fresh water system as well as mechanical devices and gear shall be thoroughly tried and operated under load to satisfaction, and to determine compliance with specifications.

3. Boats, Gangways, and Anchors
   Handling of boats, gangways, anchors, and other gear shall be demonstrated.

4. Electrical Equipment
   Electrical equipment shall be tried out and demonstrated to be in proper working order.

Once it has been ascertained that the above equipment is in proper working order, the following Dockside Trials shall be conducted:

5 Generator Blackout Test (Only if a seamless transfer is installed)

The Builder shall conduct a Generator Black out test. The test will begin with one generator running and one generator on standby. The time will be measured from when the running generator is shut down until the standby generator picks tip the load. Forty five (45) seconds is the limit or the manufacturer's specification.

6. Inclining Test

An inclining experiment will be carried-out to determine the vertical center of gravity (VCG) and longitudinal center of gravity (LCG) after the launch of the vessel. The Builder will conduct the inclining experiment, to verify the stability predictions. Results are to he provided to the Owner.

7. Hatches Hose Tested

All hatches and windows shall be hose tested with a pressure of 6O PSI.

8 Noise Survey

At the dock with the generators and the air conditioning running a noise level survey (DBA and DBC readings) of each cabin and E/R shall be taken. Noise levels should be measured with doors closed and air handlers set to medium speed. Meter should be located in the center of the room at mid height.

07-03 Sea Trials

After satisfactory Dockside trials, Sea trials will be run at approximately half load displacement. A minimum of three (3) days shall be required for Sea Trials.

Trials are to include:

1. Compass Adjustment

* Magnetic compasses are to be adjusted as required. Deviation cards are to be supplied.

2. Anchor Trials

* Anchor individually with port and starboard anchors and test clutch and brake of each windlass.
* For port and starboard sides dead drop anchors and all chain overboard. Measure time to retrieve all chain. Check satisfactory self-stowage of all chain. Check hydraulic oil temperature and controls.
* The bow thruster shall. be tested simultaneously with one anchor windlass in use and the speed of the windlass shall not be effected.
* The anchor wash system shall be tested during the anchor trials.

3. Engine Speed Trials

* Speed trials shall be run over a measured course of one (1) nautical mile with five (5) runs in both directions over a range of RPMs in order to produce an accurate speed curve.
* On each run the following shall be measured: RPM, time, speed (log), speed (GPS), engine (percent) load, fuel consumption (if available), exhaust temperature and exhaust backpressure.

4. Endurance Trials

* A four (4) hour trial at maximum continuous power shall be run.
* During this trial the following shall be recorded at frequent intervals: RPM, time, engine hours, speed (log), speed (OPS), engine (percent) load, fuel consumption, engine oil pressure, coolant temperature, fuel oil pressure, boost pressure, inlet air temperature,

gearbox oil pressure, exhaust temperature, exhaust back pressure, engine room temperature, engine room pressure and seawater temperature.

* The engine room cooling and combustion air supply system shall be checked at Full power for satisfactory operation.

* During the endurance trial a noise level survey of each cabin shall be taken (DBA and DBC readings) shall be taken in each room.

* During the endurance trial the fuel oil transfer system and fuel oil separator shall be tested.

* During the endurance trial the ventilation, aft-conditioning and heating systems shall be tested for delivery, temperature, humidity control, general operation, and cycling. Provision for proper condensation drainage shall be checked.

* During the endurance trial the black and gray water overboard pump outs shall be tested.

* Each of the generators shall be run during the endurance trial and their electrical loads should be recorded.

* During the endurance trials with one generator running a noise, level survey of each cabin shall be taken (DBA and DBC readings) shall be taken in each room.

5. Maneuvering Trials

* Steering circle test port and starboard and full power measuring: speed into turn, time from helm amidships to helm hard over, time for full circle, speed out of turn and estimated turning diameter.

* Check steering gear vibration, steering angle indicators, autopilot, jog steering at all stations.

* Measure number of turns hard over to bard over.

* The emergency steering arrangement shall also be tested

* Time to make full circle port and starboard with bow thruster only.

* Stabilizing system tested: measure angles of heel while turning and under way, with and with out system working.

6. Astern and Crash Stop

* Time for engine to increase power from idle to full power

* Time for engine to decrease power from full ahead, declutch and increase power to full astern.

A detailed report booklet is to be provided at the conclusion of sea trials.

08-00 CLEANING

The Builder will at all times keep the yacht clean throughout. Particular care is to be taken that all chips, shavings, and other foreign matter is removed and all parts thoroughly cleaned before application of paint, and that when the yacht is delivered, 11cr bilges, limbers and all voids and pockets throughout shall be entirely free from such matter

09-00 ACCESSES TO COMPARTMENTS AND STORAGE

Access and shall be provided to all compartment and to all parts of the vessel Flooring throughout and it shall be fitted with suitable hatches. Access to the engine, steering gear and all other equipment that may require services of any kind shall be provided by developing joiner work, etc., which can be removed for convenient access.

Care shall be taken in locating pipes, wires and other parts to avoid blocking of access. Removable sections shall be utilized, as required.

10-00 MANUALS

The Builder shall furnish two (2) sets of instruction manuals written in English organized in ring binders to the approval of the Owner's representative. In addition, the Builder shall furnish two (2) sets of all 'AS BUILT' plans as part of the yacht's manuals. Original equipment manufacturer's manuals to be included. The Builder shall make copies of original manufacturer's equipment manuals for the Builder's use. The Builder shall provide copies of purchase order data for all mechanical and electrical components, such as engines, pumps, blowers, circuit breakers, fixtures and deck machinery.

The yacht's manuals shall include;

* Systems description and operational procedures
* Tank capacities
* Construction Plans
* Docking Plan
* Safety Plan
* Stability Booklet
* Electric wiring diagrams, including;
    - overall electrical delivery of the yacht
    - Switchboard schematics and layout
    - Wiring diagrams and schematics for all electrical systems
* Piping diagrams (water, fuel, hydraulic, black water, gray water, bilge,
* Air conditioning, ventilation and refrigeration diagrams
* Equipment list including per system
    - Manufacturers reference number, number of parts onboard
    - Number of spares on board
    - Manufacturer and/or Dealer contact information
* Equipment manufacturer's manuals
* Equipment test sheets (as applicable)
* Spare parts list
* Equipment manufacturer's warranties
* Paint coatings and varnish schedules (interior and exterior)

In addition to hard copy of all Builder created documentation, plans to be provided on CD-ROM in AutoCAD format, as appropriate.

11-00 PROGRESS REPORTS

On the last working day of each month, during the construction period, the Builder shall submit to the Buyer or his agent photographs showing progress of the vessel’s construction. Further, the Builder shall provide status reports detailing progress to date, goods and equipment on order, received or installed in the vessel and a summary of change orders during the preceding month.

100 CONSTRUCTION

100-0O GENERAL

The hull and all other plating throughout the vessel associated with the immediate hull frames webs and flanges will be welded steel. The superstructure plating and structure shall be constructed of aluminum alloy, also welded. *TRICLAD* ® material strips will be used to weld the aluminum to the main deck structure.

There is to be a bulbous bow.

Construction is to be in accordance with the approved plans. All plate cutting, grinding and preparation for welding and paint application shall be to yacht standards. For example, flanges shall be beveled slightly to minimize hard edges for better paint adhesion and retention.

100-01 Dimension and Tolerances

Length Overall	36.61 *meter*	120.OO *feet*
Length Waterline	33.80 *meters*	110.90 *feet*
Beam, Maximum	7.90 *meter*	26.00 *feet*
Draft	2.40 *meter*	7.9 *feet*
Displacement Approximate	Full load	255.0 *MT*
	Light load	180.0 *L tons*
Fuel Oil Capacity, Approximate	62.000 *liters*	16,358 *US gal*
Fresh Water Capacity, Approximate	8.820 *liter*	2,330 *US gal*
Grey Water Capacity, Approximate	1,580 *liter*	*417 US gal*
Black Water Capacity, Approximate	2,300 *liter*	607 *US gal*
Main Engines	(2) x C18 Caterpillar "B" rated: 600 BHP @ 1800 rpm	
Speed @ 90% max rpm -Cruise	10.5 knots	
Speed-Max	12.5 knots	

100-02 Weight Estimates

It is estimated that the total weight of the steel hull, decks and associates structure is 155 MT and that the aluminum superstructure and associated structure is 25 MT. This weight does not include any margins for waste.

A detailed weight estimate of the complete yacht, with a breakdown of weights per group, will be provided by the yard before construction begins.

101-00 MATERIALS

Unless the exact material specified or an approved similar is used, the Builder is to submit to the Owner well in advance, specification for any substitutions he may wish to propose, giving all pertinent data such as chemical composition, physical properties, gluing specifications and procedures and such other information as the Owner may require. The approval

of any and all substitutions for material specified which are not of similar nature shall rest with the Owner or its representatives.

101-01 Metals

1. Steel for the hull plating, main deck and raised foredeck and all other plating throughout the vessel associated with the immediate hull and main deck frames, webs and flanges will be ASTM A36 steel. Hull longitudinal framing and other steel extrusions shall be Grade A steel.

2. Aluminum alloy for the Superstructure:
   2.1. Plate: 5083-O. Specified for marine use.
   2.2. Extrusions:5086-H111 and 6061-T6 to be used as specified on the plans
3. Aluminum alloy castings are to be avoided, but where needed: 356-T6.
4. ***TRICLAD***® material will be used to weld steel to aluminum. The proper grade of ***TRICLAD***® material shall be selected to match the steel and aluminum being welded.
5. Stainless steel shall be 304, 316 or 316L, SAP 2205, Inconell 235, 234, 625 and 25-6M0 or CuNi 90/10 depending on application, except where otherwise specified.
6. Bronze or approved CPVC fittings - fittings of dissimilar materials attached to aluminum shall be insulated gaskets shall extend 3mm beyond fittings.
7. No "Anodic" protection is required (except as specified in Section 671-00 Cathodic Protection) but dissimilar under water components shall be electrically insulated from the steel hull. This includes propeller, shafting, bearings, stuffing boxes and thru-hull fittings.

101-02 Woods

All wood used in construction shall be sound, clear and free from large Knots, checks, shakes or saps, well seasoned and of a kind and quality well suited for the use intended. All lumber is to be dressed on all sides and edges, and the dimensions given are for the finished sizes. Wood shall be of the following kinds:

Brazilian Cedar

Teak Burma

Substitutions for the above specified woods must be approved, as an equivalent, by the Owner's Representative and/or the Owner. Equivalent woods may be used if an increase in weight will not result.

The moisture Content of all wood will be no more than 10% +A 2%. Wood is to be stored in a covered and ventilated storage area. It is to be bought well in advance of its intended usage. The wood shall be observed for any abnormalities during this period.

Plywood shall be marine type, waterproof; phenolic resin bonded, with sound sides. The layers of plywood will be glued for tropical conditions and will not exceed 3mm in laminate thickness. Exterior plywood to be marine grade exterior plywood for decks, ceilings, bulkheads etc. Where finished bright externally, it shall be fir plywood faced with owner-selected material. The minimum number of ply shall be 3 for thickness up to lO mm, and 5 for thickness of l2mm to l9mm.

Teak wood for decks and other areas of the yacht to be quarter sawn, Burma teak, free of checks, cracks, splits, sap, of even color and grain. To be hand-selected by the Builder.
Moisture content is to be not more than 12%.

101-03 Fastenings

Stainless steel and bronze fasteners shall be ABA brand or similar and shall be used throughout. Any substitutions shall be subject to the Owner's approval. All fasteners to steel or aluminum structure shall be properly insulated as appropriate and where threaded into aluminum members *TEFGEL* shall be used.

Clips for attachment of insulation shall be of aluminum and steel weld or glue on type.

102-00 LIMBER, LIGHTENING AND AIR HOLES

Drain boles or limber holes shall be of ample size and arranged to drain to lowest part of bilges. This includes all transverse and longitudinal members except watertight bulkheads, so That no pockets of water can be formed. No limbers to be less than 25mm, except in the case of longitudinal frames, where they may be reduced. Air holes shall be cut in tops of swash bulkheads of tanks to facilitate complete filling. Lightening and access holes shall be cut in girders and other members, as per plans so as not to impair strength. Edges of holes, cutouts and framing shall be ground/ beveled so as not to have sharp edges and to allow proper paint adhesion.

103-00 WELDING

All welds shall be sized in accordance with ABS Rules. The plans and information submitted for approval is to clearly indicate details of the welded connections of the main structural members, including the type, disposition and size of welds. Welding plant and appliances are to be suitable for the purpose intended and are to be maintained in an efficient condition. Suitable grounding arrangements are to be provided when welding is being carried out. Satisfactory storage facilities for consumables are to be provided close to working areas. All welding consumables are to be approved by ABS and are to be suitable for the type of joint and grade or material.

All welds will be staggered intermittent or as required by the classification society. Hull plating and watertight bulkheads will be double continuously welded. High load areas may also be double continuously welded as directed by the Architect. All transverse and longitudinal members within integral tanks to be continuously welded both sides (200%). All welding in visible areas to he fully welded, not stitch welding for improved paint retention.

The proper sequence of welding shall be followed to avoid distortion. Work with serious burning or under-cutting, or welds which testing indicates to lie defective must be cut out and re-welded. Joint preparation and welds shall be in accordance with ABS rules.

In addition to visual inspection, welded joints are to be examined using any one or a combination of ultrasonic, radiographic, magnetic particle, eddy current, dye inspection or other acceptable methods appropriate to the configuration of the weld. The method to be used for the volumetric examinations of welds is the responsibility of the Builder. Radiography is

generally to be used on butt welds of 15 mm thickness or less. ultrasonic testing is acceptable for welds of 15mm thickness or greater and is to be used for the examination of full penetration tee butt or cruciform welds or joints of similar configuration. Non destructive examinations are to he made in accordance with approved written procedures prepared by the Builder, which identifies the method and technique to be used, the extent of the examination and the acceptance criteria to be applied. Results of periodic test specimens prepared by welders shall be submitted to ABS for approval. Costs related to inspections of welded joints, including all methods as listed above are to be done at the expense of the Builder.

All stainless steel welding of exposed parts or fittings shall be ground smooth and finished with a high polish. All stainless steel welded parts shall be cleaned after welding.

All aluminum welding shall be by shielded inert gas process MIG (gas metal arc) or TIG (gas tungsten arc) or equal.

The Builder shall provide documentation showing the competence of all welders such as required by ABS certification.

104-00 HULL FRAMING

The vessel's framing shall be of the transverse system throughout. The structure shall consist of steel plating and shapes as required to meet American Bureau of Shipping design requirements for vessels of this type. Stanchions and supports will be provided where required to support concentrated loads, deck machinery, etc. Swash plates will be furnished in tanks where required to minimize free surface effect of fluids in the tank. Limber and vent holes shall be provided to assure proper drainage and eliminate entrapment of air and liquid pockets. Transverse frame spacing shall be on 500mm (19.68") centers. Frames, girders and longitudinal frames shall be fitted as per the Builder's plans listed in Section 002-02.

105-00 STEM

The stem is to be an extension of the CVK plate. The upper part is to be a formed plate with suitable breast hooks.

106-00 BULBOUS BOW

A bulbous bow shall be incorporated into the structure. Plating to be heavy steel.

107-00 HULL PLATING

The shell plating shall have flush welded buffs and seams using two sided welds. Hull plating welds shall be ground flush on the outside as much as allowed by ABS. Distortion of bare steel plating after being fully welded shall not exceed 4mm in any direction between frames by using a three (3) meter batten.

Insert plates of suitable thickness shall be fined as directed in way of sea chest, in way of the stabilizing fin foundations and other locations as directed. Cut outs shall have large radius at corners.

The main deck bulwarks (foredeck, boat deck, main side decks, main aft deck) are to be left open on the inside with exposed bulwark frames. Exposed bulwark and framing to be faired and painted as per topside quality.

IN GENERAL, the following sizes and thickness shall be used in the hull construction:
Note a 3/8-insert plate will be located over the strut and propeller area to reduced drumming.

107.01 KEEL	3/4" x 10" full length
107.02 STEM	3/4" x 10"
107.03 FLOORS	1/4" plate
107.04 SKEG	sides 5/16”, cross section 5/16”, bottom ½”, Depth 6”
107.05 BOTTOM PLATING	5/16" plate, up to the chine
107.06 SIDE, TRANSOM PLATING	1/4"
107.07 MAIN DECK PLATING	1/4" plate
107.08 BULKHEAD PLATING	1/4" plate and 3/16" where corrugated
107.09 TANK TOP PLATING	1/4”
107.10 TRANSVERSE FRAMES	Deck: 3"x 3" x 5/16" Side: 3" x 3"x 5/16"
107.11 TRANSVERSE FRAMES	Floors: 1/4"
107.12 ENGINE FOUNDATION	8" x 3/4"
107.13 LONGITUDINAL FLOORS	5/16”
107.14 DECK GIRDERS	3"x 3" 5/16" beams
107.15 BOTTOM LONGITUDINALS	5/16" plate
107.16 SIDE LONGITUDINALS	3"x 3" x 5/16" or plate
107.17 DECK LONGITUDINALS	5"x 3"x 5/16"
107.18 BULWARK FRAMES	4"x 1/4" plate
107.19 BULWARK LONGITUDINALS	3"x 1/4"
107.20 BULWARK CAP PLATE	2 1/2" stainless steel pipe
107.21 BULKHEAD STIFF-VERT	Corrugated
107.22 BULKHEAD STIFF-HORIZ	Corrugated
107.23 HAWSE PIPING	4" to 5"
107.25 ANCHOR PLATES	Stainless steel
107.26 CHAIN LOCKER	5/16"
107.27 RUB RAILS	“U"(9"x3"x9”) x 1/4" cress per VERONIKA

108-00 BULKHEADS – WATERTIGHT COMPARTMENTS

Watertight, oil-tight and structural bulkheads are to be welded and of scantlings as indicated.

The hull bulkheads shall be arranged as shown on the contract drawings and shall be of steel corrugated plate, or the bulkheads shall have properly sized stiffeners to comply with ABS standards. All penetrations through watertight bulkheads shall be installed strictly in accordance with ABS requirements.

Watertight bulkhead and floor penetrations to use ABS approved system for cable and piping transit to maintain water and gas tight integrity and fire and sound insulation properties.

The vessel’s hull shall be subdivided by transverse and longitudinal watertight and or oil tight bulkheads as shown on the contract drawings and consist of the following compartments:

1. Forepeak
2. Fresh Water Tanks
3. Bow thruster Compartment
4. Guest Stateroom Compartment
5. Master stateroom Compartment
6. Fuel Oil Tanks
7. Engine Room
8. Steering Gear Compartment

Refer to section 611-02 Doors, for a further description of the watertight doors in these WT bulkheads- The engine room enclosure shall be watertight, including the overhead.

109-00 DOUBLE BOTTOM WATERTIGHT COMPARTMENT

The area under the accommodations deck is to be watertight (double bottom) and shall be used for tankage. Watertight, oil-tight and structural double bottom is to be welded and of scantlings as indicated. Watertight access hatches to be provided under accommodations access hatches.

110-00 MAIN DECKS

The main deck, raised foredeck and forecastle bulkhead will be constructed out of steel. The entire main deck - also the main deck inside the superstructure - will be plated in steel. Deck plating shall be in accordance with the plans- Deck girders shall be developed in general as shown on the plans.

The main deck will be 1/4" plate; the upper deck and flybridge deck shall be 4 mm plate. Where deck stiffeners are eliminated due to deck openings the stiffeners shall be headed with properly sized members.

The footprint of the aluminum superstructure shall consist of a Triclad® strip welded to the main deck structure.

Suitable foundations shall be provided in way of anchor capstans, winches and mooring fittings. Headers and margin plates shall be fitted in way of openings and hatches. Reinforcements are to be installed at and around main openings if required.

The foundation plating under and the tray edges around the anchoring machinery on the raised foredeck shall be stainless steel as per Builder’s standard design.

111-00 INTEGRAL TANKS

The fuel tanks, potable water tanks, black and gray water tanks will be integral with the hull structure as per the Builders plans- All integral tanks are to have suitable baffles and bolted manhole cover plates (detailed in Section 632-00 Hatches and Manholes) with sufficient access for clean out.

Total approximate capacities are given in section 001-01. There will be five (5) integral fuel tanks and one (1) day tank, two (2) integral fresh water tanks, one (1) integral gray water tanks and one (1) integral black water' tanks.

In addition there will be other smaller tanks such as hydraulic oil, lube oil, dirty lube oil, sludge, etc as per Builders plans.

All tanks shall be fitted with gauges as specified elsewhere according to their particular systems and function. Builder must insure that all gauges can be removed for service or replacement without removing major joinery pieces. All tanks are to be fitted with sounding tubes with screw caps and Builder shall supply a sounding stick and capacity table for each tank- Lube oil tanks shall have sounding tubes only and each shall have a marked stick for capacity. Steel ladders to be provided as required on the main fuel tank.

All integral tanks shall be pressure tested according to a procedure as required by the classification society.

112-00 RUB RAIL

There shall be a rub rail fitted to the hull topsides port and starboard, located and with a section and shape as per Builder's plans. This rail shall consist of the INACE designed rub rail as per “SUDAMI’s”. The stainless steel face of the rub rail shall be finished polished.

113-00 CHAIN LOCKERS

Two (2) separate chain lockers, port and starboard, shall be sized for two chains as per the Specification and Builder plans. Chain lockers to be built integral to the steel hull, with rubber lining and shall be designed for self-stowage of the chain.

Each chain locker to have a properly attached lug to take the bitter ends and the ends must be detachable under load. The chain lockers shall be accessible from the forepeak through manhole covers.

114-00 ENGINE ROOM

The engine room is to be finished utilizing the best yacht practice. Soles to be finished in diamond threaded aluminum plates which is isolated from the steel sole bearer system by rubber strips. Engine room shall be laid out in an organized and professional manner. Perforated painted aluminum sheet to be installed as directed on bulkheads and overhead.

Polished stainless steel handrails to be provided where necessary.

Additional heavy duty lifting points to be installed at the overhead as per plans and a workbench with rubber top surface, drawers and sink to be provided. Vise to be installed on workbench.

115-00 DRAFT AND MARKS

Draft and Plimsle marks to be provided as required by regulatory agencies. To be painted as directed.

116-00 SUPERSTRUCTURE FRAMING

Frames, girders and longitudinal frames and girders shall be fitted as per the Builder’s plans listed in Section 002-02.

117-00 SUPERSTRUCTURE PLATING

The superstructure plating shall have flush welded buffs and seams using two sided welds, ground flush on the outside. In designated areas welds can be reinforced on the inside and ground flush on the outside. Distortion of bare aluminum superstructure after being fully welded shall not exceed 3mm in any direction between frames by using a three (3) meter batten.

117.1 CABIN SIDE UPRIGHTS	4"x 1 1/2" & 3/16"
117.2 CABIN SIDE LONGITUDINALS	4"x 1 1/2" & 3/16"
117.3 CABIN TOP TRANS. FRAMING	4"x 1 1/2" & 3/16"
117.4 CABIN TOP GIRDERS	4"x 1 1/2" & 3/16"
117.5 CABIN TOP LONGITUDINALS	4"x 1 1/2" & 3/16"
117.6 CABIN SIDE PLATING	5 mm
117.7 CABIN TOP PLATING	5 mm

118-00 SUPERSTRUCTURE DECKS

Deck plating shall be in accordance with the plans. Deck girders shall be developed in general as shown on the plans. Distortion of bare aluminum superstructure decks after being fully welded shall not exceed 3mm in all direction between frames by using a three (3) meter batten.

119-00 STANCHIONS

Structural stanchions will be used in the crew and guest accommodation and elsewhere, as required. Stanchions to be sized as per plans and filled with sand or other suitable material and isolated from structure to minimize vibration.

120-00 FOUNDATIONS

Builder will install all foundations as necessary to support equipment and as detailed in the Builders plans. These foundations will include thrusters, main engine, gearbox, generators, steering gear, windlasses, winches and other items as may be necessary. Particular attention shall be paid to proper sequence of welding of foundations to insure accurate alignment with minimal overall hull distortion.

The girders for the main engines shall be designed to be a structural member of the hull with sufficient strength and rigidity. The engine girders shall extend as far forward and aft as practicable and shall be well braced athwart ships to ensure that maximum working stresses shall be evenly transmitted to the hull.

121-00 MAST

An aluminum mast with airfoil spreaders is to be fabricated. Builder will install all foundations as necessary to support equipment and as detailed in the Builders plans. These foundations will include radars, domes, antennas and other items as may be necessary. Wiring conduit and lightning protection to be installed. Access ladder rungs to be provided. Flag halyards to be

included. Mast top (not the Arch) to either fold down hinged type or removable.

l22-00 BALLAST

If required at the time of trials a trim ballast will be installed to provide reasonably adjustment of trim. This ballast will be in placed at location to be determined by the Builder's Naval Engineer not to exceed 2000 Kgs.
All efforts shall be made to avoid the use of ballast.

123-00 BILGES

All efforts are to be made to avoid sifting water in the bilges. Bilge wells are to be installed in flat bilges such as pipe wells. Piping and machinery shall be installed to that all bilge areas can be accessed. If for any reason piping hinders access to the bilge the pipe sections must include flanged removable sections.

124-00 RUDDER POSTS

Two (2) 17.30 mm wall structural tubing welded into hull extending above DWL. Tube shall be machined to accept a bearing. The top of the rudderpost shall be flanged to accept a packing gland that is above the full load water line. Drawing to be submitted to owner and his representative for approval prior to construction

200 PROPULSION

210-00 MAIN ENGINES

Two (2) ***CATERPILLAR*** engines model C-18, B-rated - 600 BHP @ 1,800 RPM, 24V elec. start, lubricating oil filters, dry exhaust manifolds, 24V alarm system, mechanical instrument panel. Main engines are to be painted white.

Each engine to be equipped with alternator, integral seawater pump, fresh water pump, fuel pump, lube oil pump, filters, fresh water expansion tank and beat exchanger. The engines are to be fitted with the deepest oi1 sump available, and a pre-start lube oil. Each engine shall have a hydraulic pump for the hydraulic systems.

One engine shall be modified to drive an emergency bilge pump.

The starting system will be 24 volts DC.

Gearboxes shall be reversing reduction type. The engines are to be mounted on resilient mounts. All pipe connections, including exhausts, shall be with flexible sections. The Builder shall insure adequate cooling of main engine and gearbox.

Engine instruments supplied by the engine manufacturer and mounted on the engines and in the wheelhouse shall include gauges for oil pressure, cooling water temperature, engine revolutions, and gear lube oil pressure.

211-00 REDUCTION GEARS AND/OR DRIVE UNITS

Two (2) ***TWIN DISK*** Mod 5114 reduction gears or similar, 3.50:1 ratio, oil cooler, engine mounted. The gears to have power take off system with electric clutch to feed the Bow Thruster, windless and crane as per Impetus.

The yacht is to be fitted with two 4 1/2" diameter 304 stainless steel straight shaft direct coupled driving two five blade propellers. The Builder is responsible for the correct sizing of the component parts of the propulsion system including the flex coupling, etc. This yacht will see rugged service and therefore all components should be robust.

Builder is also responsible for minimizing noise and vibration associated with the propulsion system.

212-00 GENERATORS

Two (2) CATERPILLAR, KILO PAK OR SIMILAR 50 KW @ 1500 rpm, 380/220 V, Three phase, 50 Hz with double mount system, fiberglass sound shields and gas-water separators per section 301-00.
Generator sizing to be checked as per Load analysis and unit to be upgraded as needed and price difference to be charged to the BUYER as a change order.

213-00 PROPPELLERS

The propellers shall be a pair, one (1) R/H and one (1) L/H, Bronze, of 5-blade units, per FORTALEZA, with a 3 1/2" standard taper bore.

214-00 EXHAUST

The engine exhaust will be of the wet type, manufactured by ***CENTEK*** or similar with exhaust lines looped up from the engine and water injected at a high point on the downward side of the piping before the muffler.

The exhaust lines and expansion joints between the engine and the water injection ring shall be Steel or ABS approved Fire retardant Fiberglass piping. The dry portion of the exhaust piping and expansion joints shall be made of steel pipe and shall be insulated with removable high quality exhaust blankets.

The exhaust piping from the water-injected muffler to the hull plating shall be approved type hose material.

No portions of the exhaust system shall be supported with connections to the overhead or hull sides without a flex mount in order to minimize noise and vibrations transmitted to the vessels structure. The hull plating shall be fitted with insert plates and welded thru hull in way of the exhaust exits. The exhaust piping shall be supported at the exits with gussets.

215-00 ENGINE CONTROLS

Engine controls shall be ***ZF MATHERS, KOBELT OR SIMILAR*** controls as per "VERONIKA" with console mounted control heads installed in the Wheelhouse, Fly bridge and at the two wing stations.

216-00 STEERING SYSTEM

Hydraulic power Steering shall be ***KOBELT*** or similar and is to have four stations (wheelhouse, fly-bridge and two wing stations). This is to include twin steering pumps and twin ABS approved rams per "VERONIKAS". The pump in the wheelhouse shall be a manual pump and acts as a back up to the system.

217-00 BOW THRUSTER

Bow Thruster shall be a 20" ***QUANTUM*** - 75 HP and it is to be driven of the main engine gears per "IMPETUS". Per manufacture's design the system supplies 75 hp when the main engines are at idol.

218-00 GRUND TACKLE EQUIPMENT – WINDLASS / CAPSTAIN

The windlass and ground tackle shall have two Maxwell or Muir 6000 Lbs windlasses with 450' of 5/8" galvanized Stud link chain on each side (port and starboard) and 240 Kgs Navy type anchor to be stored in two polished stainless steel anchor pocket located at port and starboard bow sides. The chain shall be fed through stainless steel anchor pipes to a 316 stainless steel covering plates. Anchor system shall also include two (2) stainless rollers, two (2) chain stoppers and two (2) stainless turnbuckles for securing anchors.

219-00 AIR CONDITIONING

One (1) ***AQUAIR*** model A18-3-1 VHD consisting of three compressors with a 18 ton capacity Aqua Air Alpha Series or equivalent. Chillers shall be installed in the engine room to provide cooling for the yacht. Seawater cooling pump shall be two self-priming pumps – one being a stand-by pump - and thermostats for the fan coil units shall be Tempwise-2000. Fan coil units shall be used to provide for the cooling of designated areas and shall be furnished and installed as per estimated BTU recommended by manufacturer, after its review and analysis of the Yacht's arrangement drawings.

220-00 STABILIZER

Quantum stabilizer model 1500 with 20 sqft fins and zero speed stabilization.

221-00 ENGINE ROOM VENTILATION

Engine room ventilation shall consist of two forced air intake fans. The ventilation system shall be driven by one (1) 2 hp ***WEG***, 600mm diameter, vent fan, and one (1) ¾ hp ***WEG***, 500mm exhaust as per "VERONIKA" The fans shall be fitted with U-type expansion joints. Vent ducting shall be fabricated per designer's plans. As the air intake and exhaust are located at the top back of the stacks no demisters are used in this system

222-TANK GAUGING SYSTEM

A ***HEDAHUNTER*** or similar tank gauging system to be installed for all fuel and water tanks.

223-00 FUEL OIL SYSTEM

The fuel oil tanks shall be integral with the hull, as detailed in section 110-00. All tanks are to be fitted with a sounding tube and a level indicator connected to the tank monitoring system.

The fuel oil system shall be comprised of a total 62000 lts in five(5) tanks, two (2) main tanks, two (2) forward tanks , and one (1) day tank.

The fuel oil system, including all tanks, piping (materials and sizes) and valves is to be to the best marine practice and meet all requirements and guidelines of the classification society. In general, fuel piping to and from consumables to be hard piped using schedule 80 black steel pipe. A short section of stainless braided line may be used but in all instances, long lengths of braided hose to be avoided.

The tanks can be filled from both, the starboard and port side fill station, located in a recessed locker in the house side, under the windows. The fill pipe shall be ready to accept cam lock fittings for pressurized fueling. Located in the save-all next to the fin pipe shall be a large screened filling vent of the same diameter as fill pipe to be used only when tilling and capped at all other times.

The fill pipe leads to a fuel fill manifold to distribute the oil to the five (5) fuel oil tanks. Each fuel oil tank shall have fill and suction lines from

the fill/transfer manifold(s), each with shut-off valves. All fuel tanks are to be vented to a main vent pipe, which exits up the stack. All fuel tanks have overflows with goosenecks high under the main deck with funnels and drains to the empty tank.

Fuel will be consumed from the day tanks. This system shall service both main engines and both generators. System piping shall be constructed from black carbon steel pipe with socket-weld fittings. Flexible hoses connecting to the machinery shall be USCG approved fire-rated fuel hose with stainless steel reusable type fittings.

An ***ALFA LAVAL*** model MIB 303 or similar fuel system shall be installed per "VERONIKA's" installation and when the system is in use the day tank shall over flow into the two main tanks to create a continually circulating system.

The day tank can be filled through the fuel transfer system from a transfer manifold located in the engine room. The day tanks shall be cross-connected with a pipe, fitted with a valve, enabling to level or to isolate the day tank. Sight gauges to be fitted to day tanks.

High-level alarm shall be provided in the day tank. Fuel coolers on main engines to be fitted with bypass system.

A mechanical, reset type (*FILL-RITE* or equal) flow meter totalizer shall be installed in the transfer line. The fuel transfer system shall be fitted with a manual pump.

The day tank vents shall be screened, and led high under the deck and then to the main vent line. The days tank shall be fitted with a sludge well with drain valve and plug.

Fuel filters for the main engines and generators are to be conveniently located and dimensioned as engine/generators manufacturer's specification. Both main engines shall be fitted with duplex *RACOR* filters (single filters the generators, see section 301-00) with isolation valves and vacuum gauges. Where used for fuel piping, all hoses shall be approved by the classification society. The system shall be equipped with the following filters:

Two (2) *RACOR* fuel filters, Mod. 75900MAX30 for main engines.
Upgrade generator *RACOR* to Mod. 900MA30 single unit.

Sight gauges tank level to be placed adjacent to the tanks and fuel tank level monitors to be placed at the wheelhouse. Drip trays to be provided for all pumps, drains and fuel filters.

224-00 LUBE OIL SYSTEM

Two (2) storage tanks shall be installed, one for clean lube oil, the other for waste oil. Both tanks shall be filled within the engine room through a 25mm fill pipe with screw cap and shall be vented in the engine space with a 25mm screened vent. There shall be dipstick with on the clean oil supply. Both tanks to be fitted with sounding pipes and clean-out plates, similar to the manhole covers on the large integral tanks.

Lube oil transfer system to have one portable pump as specified in the equipment list.

Ball valves, hose and quick disconnect hose fittings are to be installed to the oil pumps of the main engines; main engine gearboxes and generators to allow transfer of lube oil.

Similar valves and fittings to be installed at the transfer pump. Clean and duty portable hoses shall be provided to allow connection to the lube oi1 pump and to the various items of machinery or to the deck for filling or for discharge. All hoses to be of high quality for its intended use.

225-00 SEAWATER SYSTEM AND MACHINERY COOLING

The Builder shall furnish and install (2) two sea chests in the engine room using 8" pipe, combined service plus a 30% overage for downstream piping losses. A Removable filter screen to be located in the sea strainers pipes which shall top at or above water line for easy filter removal

The sea valves shall be Bronze Flanged Angle Globe type valve, as required by the classification society, and flanged joints shall be completely isolated due to metal dissimilarity. The strainer pipe bottom shall be flanged for easy removable.

The seawater shall be supplied to the system via the crossover pipe that is equipped with a shut-off valve. The cross over pipe shall be of sufficient diameter to supply adequate water flow at full usage, with only one suction.

The sea chest cross over pipe shall be fitted with a fresh water connection in order to allow filling of the seawater piping arrangement while dry-docked. Sea chests to be fitted with removable tops. The sea chest arrangement shall be fitted with a vent valve which will be configured in such a way that compressed air can be attached to clear the system.

Engine room seawater inlets are to service the main engine, generators ah-conditioning, hydraulics cooling, refrigeration, water maker and fire system. Bleed valves shall be attached to the seawater piping of the main engine, generator seawater cooling pumps and heat exchangers in order to release entrapped air.

Sea chests to have external grills which are to be the removable type to allow cleaning by a diver.

300 ELECTRICAL

300-00 ELECTRICAL SYSTEM - GENERAL

The Electrical installation and all cables, devices and equipment embodied therein shall be designed and installed per INACE standards and Rules and be suitable for a steel hull and aluminum superstructure and shall comply with the classification society requirements chosen for this Yacht.

The AC system shall be a 380/220 volt AC, three phase + ground (4-wire), 50 Hz system with power supplied by two (2) diesel driven generators, or from two (2) 100-amp sources. The source shall be equipped with two (2) 70 amp circuit breaker located within 7 feet of the inlet. The inputs will be designed so that they cannot back feed to each other. The electric power is distributed on a 4-wire system and enables single-phase equipment to be supplied a one phase and the neutral of 220 volt AC.

The DC electrical system shall be a 2-wire negative ground, 24 volt system with three banks of batteries supplying power. These batteries shall be charged from engine driven alternators, or from shore power or the AC generator through battery chargers (rectifiers).

A detailed load analysis, including details of individual equipment and diversity factor used, is to be undertaken to confirm required output of generator set sizing to perform as required by these specifications. The shipyard is to ensure that generator capacity together with respective matching control gear has necessary characteristics for correct operation of the yacht's electrical power systems.

Electrical equipment is to be arranged so as to facilitate easy access for maintenance. Consideration is to be given, in the selection of electrical /electronic equipment, to the ambient temperatures to be encountered when the yacht is not in use and without power.

These systems shall be installed in general accordance with the wiring schematic developed by the Builder. The entire electrical system shall be in general accordance with and meet the requirements of ABS.

All equipment shall be of the marine type. The system shall be designed so there is no flickering of lights. All motors higher than 3 HP shall be fitted with soft starts or frequency drives. All automatic Systems shall be fitted with manual by-pass systems.

A detailed Wiring Diagram, including circuit number, shall be furnished by the Builder prior to installation. Every connection and conductor shall be shown. Each conductor will be marked at both ends and recorded on the Detailed Wiring Diagram. Two copies of the “AS BUILT” Detailed Wiring Diagram will be delivered to the Owner on delivery of the boat.

Wiring is to be neatly laid out with all connections, junction boxes and panels to be accessible for checking and servicing. All cables shall be one continuous length from source to termination if possible. If joints or splices shall be made, a junction box shall be used and the wiring diagram shall demonstrate its location.

Cable runs to be accessible, as much as possible, between wheelhouse, captain's office, engine control room, and mast and crew quarters for future equipment changes.

The installation of the Navigation Systems, Entertainment Systems, Security System and Radio Communication Systems shall be part of the Electronic installation allowance. The cables run and their installation will be the responsibility of the Builder following diagram to be furnished by Electronics/Entertainment system provider.

There will be no additional charges for running cable trays, cabling or running wires that are already part of the project, although if cable trays or wiring is to be run for extra equipment which was not part of the contract list, it will be charged accordingly.

Electrical Equipment connected to the AC main system to be capable of operation under all conditions of power supply which may have harmonic distortions and voltage fluctuation caused by solid state power conversion equipment and/or voltage surges/spikes caused by switching equipment. RF suppression to be provided to a level allowing all equipment fitted to operate satisfactorily.

Electrical equipment and interconnection of equipment, with the exception of the Electronics/Navigation equipment, is to be the responsibility of the Builder. This is to ensure that the design and operation of all systems combined are compatible, i.e. machinery, generators, motors, propulsion systems, transformers, switchboards, consoles, power management system, alarms and data systems, and devices interconnected in the yacht’s systems.

All switchboards, distribution boards and cabinets etc. in the machinery spaces, that contain electronic devices are to be mechanically ventilated if required. All other switch boards, and distribution boards outside the machinery spaces are to be ventilated by ventilation fans where necessary.

All computers and critical electronic hardware is to be mounted on vibration isolating mounts and hooked to an UPS. All computers, lighting and HVAC controllers and other user programmable components are to be in mounted, if possible, in locations where they can be easily accessible for desired reprogramming purposes.

300-01 Wiring

All cables shall be installed in accordance with ABS rules. Cables shall be thermoplastic coated, 75°C rating for engine room, 60°C elsewhere. Cables shall meet ABS standards.

Cables shall be protected from mechanical damage and shall be sized to prevent excessive voltage drops. Only multi-stranded approved wire is to be used. Solid core wire is not to be used.

All DC and AC wiring shall be color coded with the color-coding schedule to be described on the wiring diagram. All wires are to be numbered at both ends. The wiring of all pumps, motors and equipment shall be fitted with service loops where possible.

All yard delivered cables for power, lighting and instrument cables is to be according to ABS requirements.

Special attention will be given to prevent radio interference. Wherever possible, low voltage instrumentation, audio/visual, and communication cables are to be segregated and run in separate cable trays from power cables.

High voltage cables are to be segregated from cables operating at lower voltages and all high voltage cables are to be readily identifiable. They are to be installed on an approved cable support system and provided with a continuous metallic screen, sheath, or armor, which is to be effectively bonded to earth to reduce danger to personnel.

For installations sensitive to electrical interference and on locations where required by the classification societies, the cables will in addition be provided with galvanized steel wire braiding, over the braided thinned copper grounding lead, type TSH/CDM 250 V, CS 85 Halogen-Free. All communication and data wires arc to be properly shielded. Shields are to be properly grounded.

A complete list of the wire numbers shall be provided and shall be clearly identified on the wiring schematics.

300-02 Cable Trays, Hangers and Penetrations

DC and AC wiring are to be in separate runs.

Cables within the steel hull area are to be installed on metal trays. Where cables are under-hung or installed on vertical runs, the nylon straps ate to be supplemented by plastic coated stainless steel clips at approximately 5OOmm centers. Tie wraps are only to be used when cables are run on top of trays and some vertical runs only.

Cable runs where liable to mechanical damage are to be protected. Chafe protection to be provided where cabling exits cable tray and elsewhere that chafe may occur.

Data and communication cables are to be installed adequately separated from main power and distribution.

Cables where installed in groups shall be arranged as far as practicable to permit painting surrounding structure.

Junction boxes to be used throughout. There shall be no wire runs in the bilges and no open terminal boxes are to be permitted.

Where wiring penetrates watertight bulkheads, the Builder shall use ABS approved piping transit system fittings to maintain watertight integrity and sound insulation properties.

301-O0 GENERATORS

301-01 General

Two ***CATERPILLAR, KILOPAK*** *or similar 50* KW, 3 Phase, 50Hz diesel generators shall be installed. The generators are located in the Engine room and are to be installed inside fiberglass sound insulation enclosures on double resilient mounts for maximum noise and vibration reduction. Start and stop controls shall be installed in the wheelhouse and at the generators themselves or nearby them.

The generators are to have double mounts and fiberglass sound shields

Output voltage to be 380/220 volt, three phase, 50Hz. Generators to be equipped with 24 volt starter, 24 volt DC alternator, an integral seawater pump, fresh water pump, fuel pump, lube oil pump, filters, fresh water expansion tank and heat exchanger. A pre-start lube oil pump shall be fitted, as well as an electric self-priming fuel oil injection pump. Each generator is to have an instrument panel equipped with lube oil pressure and temperature gauges, water temperature gauges, Amp-meter, and hour meter. These gauges are to be mounted in the engine room and in the wheelhouse. Noise suppression capacitors shall be provided as required. Alternators for 24 volts DC shall be installed on each generator. Each generator shall be equipped with safety shutdowns in case of low coolant level, low oil level and over speed. Pre-alarm will warn before shut downs are activated.

Single *RACOR* 900 fuel filters with isolation valves and vacuum gauge for each generator is to be conveniently located and where hoses are used for piping shall be of a type approved by the classification society.

301-02 Generator Exhaust

The review and approval of the generator exhaust system by the generator engine manufacturer, as outline above for the main engines, equally applies to the generators.

Each generator exhaust shall be a wet ***CENTEK*** or similar system with water lift and water separator mufflers. The exhaust shall be carried out of each generator exhaust manifold using an insulated riser, as high as possible in the engine space. Each exhaust will then turn an elbow and enter an stainless steel water injection swirl ring to mix the engine raw water with the exhaust gases, followed by a water lift muffler. The gas/water combination then enters a water separator muffler where the gas is separated from the water. The water is drained out through side or the bottom of the boat through a standpipe and seacock while the exhaust gas is directed athwart ships to exit above the DWL - centered in the painted boot stripe – and shall be fitted with a manual shut-off valve.

All exhaust piping after the water injection ring shall be marine, non-collapsing hose as approved by the regulatory agencies. Metal sections are to be Steel.

All hose to be attached with two (2) stainless steel clamps at each connection.

No portions of the generator exhaust system shall be supported with connections to the overhead or hull sides without an isolation mount in order to minimize or eliminate noise and vibration transmitted to the vessels structure. The gasket material used to join piping sections and expansion joints must have a high temperature service rating of 600ºC and be properly reinforced to prevent structural deterioration of the gasket material. The flanges of the expansion joints shall be of sufficient diameter to allow the removal of the fasteners without damaging the exhaust system protective coating.

302-00 SWITCHBOARD AND PANELS

The switchboards and all electrical panels shall be custom built panels. The switchboards shall be dead-front, drip-proof; of approved regulatory construction and shall be arranged to provide ready access to all devices for replacement and service. All switchboard components, such as selector switches, circuit breakers (magnetic-type) shall be of a marine approved type. All circuit breakers, selector switches and indicators shall be clearly labeled as to their function. Switchboard interconnections are to be made with properly sized copper bus bars wherever possible.

The switchboard shall be broken down into two primary circuits (circuit #1 and circuit #2 as described below. Main Switchboard shall include the following:

Not with standing what is written below the system is to be a split panel system with the ability to run both generators into the main panel at the same time. Generator 1 will be able to feed circuit #1 while generator 2 is feeding circuit #2 or vice and versa. The DC panel will be housed in a separate panel from the AC.

Two (2) 70-amp circuit breaker from shore power isolation transformer.
One (1) 60-amp circuit breaker from generator #1.
One (1) 60-amp circuit breaker from generator #2.
One (1) 4-position selector/transfer switch from:generator #1, generator #2, Atlas and off position.
One (1) 4-position selector/transfer switch from generator #1, generator #2, Atlas and off position.

The switches for the shore power and generators shall be interlocked to prevent accidental connection of shore power and/or generator set simultaneously in the same bus.

Pilot lights shall be fitted on the main switchboard to indicate shore power is connected.

The main switchboard shall be located in the engine room and shall be fitted with a wooden or Lexan handrail and a rubber insulation mat on the sole. The AC panel shall be separate from the DC panel. Instrumentation shall include line voltage metering, load amperage metering, frequency meter, and ground fault and power source indicator. Substation panels will be located as needed in specified areas of the vessel.

There shall be sufficient distribution circuits so that each circuit is conservatively loaded. All cables shall enter the switchboards from the bottom or rear and shall be arranged to prevent moisture from entering the enclosure.

Easy access for servicing shall be provided by hinging the panel and the cables shall be installed and connected so that normal servicing will allow a minimum of flexing of cables and wiring.

Adequate provision is to be made for main and control cable access with cable supports provided as necessary.
Cable entry is to be via suitable gland plates in all sections and with adequate provision for grounding cable screens where required. As much as possible cabling should come in from the bottom of the panel.

Main panel cabling to come in from underneath through proper glands. If some has to come in through the top, the top shall be provided with a drip seal as required.

Panel doors on all switchboards, distribution boards and cabinets etc. are to be grounded to earth.

Cables are to have crimped (compression) type terminators. Cable glands for equipment terminal boxes are to be suitable for the reception and securing of wire braid protected cables. All terminations are to be checked with appropriate test equipment, including any fibber-optic cables.

Reception boxes, light switch boxes to be non-flammable and non-toxic.

302-01 Sub Panels

Sub panels to be clear of all liquid lines with cabling coming in from underneath with drip loops, to be engineered and identified later.

302-O2 Power Switches

Shore power, generator, and battery disconnect switches shall be as supplied by the switchboard manufacturer and are to be sized to accept the maximum circuit load.

All switches shall be 2 or 3 pole.

302-03 Name Plates

All distribution panels, alarm panels and switchboards shall have white nameplates, labeled in English, in black with white letters to clearly identify the circuit or unit or equipment, and should include the fuse size or circuit breaker rating where applicable. All push buttons, switches and receptacles shall be clearly labeled either on the mounting plate or with a suitable label plate adjacent.

303-00 ELECTRICAL CONVERSION

303-01 Batteries

The Builder shall furnish and install a low voltage system composed of the following:

Main engines: Four (4) 12-volt batteries (2 - 8D marine grade, 12 volt in series in each bank). Each main engine shall be supplied with power from a separate bank, with paralleling capability.

Generators: Four (4) 8D marine grade 12-volt batteries, two for each generator. Batteries shall be wired to provide paralleling capability.

Electronics: Two (2) 8D marine grade 12-volt batteries, wired in series. A 24 VDC distribution panel shall be installed in the Pilot House for the electronics, navigation lighting, and Pilot House lighting.

House Batteries: Two (2) 8D marine grade 12 –volt batteries.

All batteries shall be secured in properly covered boxes to prevent corrosion to the surrounding structure. Batteries shall be well vented to prevent the accumulation of explosive vapors.

The main engines (8D) and generators (8D) starting batteries shall be located in the engine room. It shall be possible to parallel starting batteries.

The Electronics/Emergency bank shall be located in the machinery space under the wheelhouse. Convenient access shall be provided for all batteries for checking, servicing and removing. All the starting and electronics batteries shall be mounted in leak proof box. Proper ventilation shall be provided throughout, see Section 510-04, Mechanical Ventilation.

303-02 Battery Chargers

The start batteries will be charged from the engine alternators. The ship service bank will be charged from engine driven alternators or from shore power and generators through the battery chargers. The chargers will have auto/manual switching for charging of the starting batteries.

The Builder shall furnish and install the following battery chargers:

- Main Engine Batteries: One (1) 220VAC 50hz /24V DC 60 amp battery charger and engine alternators.
- Generator Batteries: One (1) 220VAC 50hz /24V DC 30 amp battery charger.
- Electronics batteries: One (1) 220VAC 50hz /24V DC 30 amp battery charger.

Battery chargers shall be Sentry or Mastervolt.

303-03 DC-DC Converters

The Builder shall supply if necessary DC converters for conversion of the ship's 24 volt DC power to 12 volt DC for electronic equipment if necessary.

303-04 Inverter

No inverter is supplied on this project.

303-05 Shore Power System

The vessel shall be equipped with isolation transformers and galvanic isolators required for its input capacity if an Atlas or similar power conversion system is not installed.

There will be two 1OO Amps shore power connections at the aft end of the vessel (along with one telephone line and cable T.V.). The shore power circuit breakers and isolation transformer shall be located in the engine room. The shore power will connect to a split AC bus, which will allow the use of shore power or supplemental generator power.

The onboard system shall transfer electrical loads from generator to generator and/or shore power through the use of a Rotary selector switch at

each bus, having four positions (Gen set 1, Gen set 2, Shore Power 1 and Shore Power 2) plus an off position.

Shore power cables shall be provided by the Builder with plugs, receptacles and the “pigtail” adapters as required.

Upgrade shore cord to 2 x 150’ - 100-amp cord.

304-00 GROUNDING SYSTEM

To minimize electrolysis due to electrical leaks and for protection of personnel, an electrical ground shall be installed, connected to the metal hull. The Ground shall be connected to the framing.

High voltage cables are to be segregated from cables operating at lower voltages and all high voltage cables are to be readily identifiable. They are to be installed on an approved cable support system and provided with a continuous screen, shear, or armor, which is to be effectively bonded to earth to reduce danger to personnel. Ring terminals shall be closed at end so copper wire is completely sealed.

The following shall be connected to ground.

* Propulsion and auxiliary machinery
* Metallic enclosures of all electrical apparatus, motors, pumps, compressors, etc.
* Electronics equipment

Provide ground leak detection bulbs for the 24 volt, and 220 volt busses.

An electrolytic meter showing hull potential shall be provided. To be an *ENGLEHARD INDUSTRIES* ***“CAPAC”*** meter or equal.

305-00 LIGHTS AND OUTLETS

305-01 Interior Decorative Lights and Outlets

Interior lighting fixtures are to be purchased and installed as per the Interior Designer specifications and plans or as agreed with the Owner and per Lighting allowance values. All lights are to be 24 volts DC or 220 volts AC. Care shall be taken to provide adequate ventilation above the overhead liner. All lighting to be LED where possible.

All interior receptacles shall be *BTICINO*, or equal, duplex type. Each receptacle shall provide one 220 V, 50 Hz outlet. There shall be 115 V, 50 Hz outlets in the wheelhouse, main salon and each stateroom. All heads and wet location receptacles to be ground fault interrupt type. The outlet voltage should be clearly marked.

All interior switches, rheostats, etc., shall be *BITCINO*, or equal as selected by the Owner.

Enclosure boxes for all AC switches and outlets shall be type approved by ABS.

Wheelhouse to have dimmer system for improved night vision.

305-02 Other Interior Lights

In addition to the lights specified by the Interior Designer, if any, the Builder shall supply step lights at all steps throughout the vessel, all lighting as necessary in lockers and cabinets plus explosion proof or watertight lights as necessary in the engine room, forepeak and lazarette as designated in the plans. Builder supplied explosion proof lights to be for wet location installation, or equal.

Lights and outlets in the areas not detailed in the plans are as follows;

Fore Peak	2 x explosion proof dome light 1 x watertight AC outlet
Engine Room	4 x fluorescent light 1 x watertight DC outlet 6 x watertight AC outlet 2 x portable trouble light
Bilges/Pipe ways	Where necessary
Lazarette	2 x fluorescent light 4 x watertight AC outlet

305-03 Interior Emergency Lights

A 24-volt DC emergency lighting system, independent from all other lighting circuits shall be installed in accordance with the classification society's regulations. This system shall be fitted with a test switch so it is not necessary to disrupt the AC power in order to test the system. The emergency lighting will be automatically engaged upon blackout of the main switchboard.

305-04 Exterior Decorative Lights and Outlets

All exterior switches to be watertight, *CANTALUPI*, or equal. All exterior, forepeak, lazarette and engine room receptacles to be watertight, single receptacle. All exterior DC receptacles to be watertight with screw caps.

All exterior side deck overhead lights shall be watertight, suited for marine and yacht use, ***CANTALUPI***, or equal. All exterior stairs shall be fitted with courtesy step lights. There shall be floodlights to light aft decks and well decks for safe tender handling. All lights shall be located as per the Builder’s plans.

The vessel shall carry a set of dress lights. Provision shall be made to attach and connect these lights in a manner in accordance with the proper yacht etiquette. The dress lights to be switched from the wheelhouse.

The yacht name shall be lighted at each individual letter, including port and starboard.

305-05 Searchlights, Deck Lights and floodlights

There shall be two (2) searchlight ***ACR*** *LCR100* on wheelhouse roof remotely controlled from the bridge. The foremast shall also be fitted with two floodlights lighting the well deck.

The aft overhanging 01 deck bulwarks shall be fitted with two floodlights shining aft.

There shall be deck lights over the anchor windlasses (foredeck). There shall be deck lights at the boat crane.

Flag light to be provided.

305-06 Navigation Lights

Builder supplied navigation lights ***AQUASIGNAL*** or similar are to include red/green sidelights (with black background screens), white running lights, anchor light and stern light to be mounted as per the Builders plans. All navigation lights are to comply with the regulations of the country of registry and shall be compliant to and ABS regulations.

Navigation and deck lights to be switched from the wheelhouse. The navigation lights shall be connected to a small custom panel, which enables to switch and test every light individually.

400 ELETRONICS AND COMMUNICATIONS

401-00 MONITORING

There is to be no central monitoring system. The main engines, generators, hydraulics and electrical equipment shall be monitored by means of the standard panel that come with each equipment or custom panels as required.

There shall be a separate tank monitoring and alarm system for bilges, tanks and fire. Panels shall be mounted in the engine room, and/or the wheelhouse.

There shall be an indicator panel for all watertight doors in the wheelhouse.

The vessel shall have a general alarm system as required the classification society.

402-00 NAVIGATION AND COMMUNICATION ELECTRONICS

The electronics package, including navigation and communication equipment shall be owner’s supplied.

Owner shall make final decision on Electronic/Navigation package within the date limit set by the Builder not to delay construction and its supplier shall furnish wiring diagram and cables to be run within the set deadline date in order to avoid any delays on the delivery.

The electronics supplier will furnish the Builder with complete installation drawings and all antenna and connector cables.

Builder will be responsible for pulling all cabling and mounting all items of the electronics. The Builder's electronics supplier will be responsible for final hook-up of the wiring and for tuning all of the equipment. This installation cost is part of the electronics installation allowance.

403-00 ENTERTAINMENT SYSTEM

The entertainment system equipment shall be owner’s supplied.

Owner shall make final decision on Entertainment package within the date limit set by the Builder not to delay construction and its supplier shall furnish wiring diagram and cables to be run within the set deadline date in order to avoid any delays on the delivery.

500 AUXILIARY SYSTEMS

501-00 PIPING SYSTEMS

501-01 General

Unless otherwise specified, piping, valves, fittings, etc. are to be in accordance with the Piping Systems Table given below. All piping details, including layout, support spacing, material selection, etc., shall be completely reviewed with the Builder and ABS before installation. All piping must be clean at the time of installation and shall be pressure tested as agreed and record of the test to be kept. All piping shall be flushed with the product their intended usage is for.

All piping shall be run in a tidy manner with due consideration given to service and access. Every piping system shall have a drain, located at the lowest point of the system, fitted with a valve located in an area that permits either the attachment of a hose for drainage, or receptacle located under the drain. This fitting will allow the contained and controlled drainage of the particular piping system while maintenance or repairs are being performed. All black and gray water lines to have end caps on straight runs for clean out.

All plastic piping shall be glued or heat welded or solvent welded depending on application and as approved by the classification society. Unions shall be fitted at all connections to valves and equipment and at regular intervals in long lengths of pipe. All hose shall be marine grade, suitable for the intended application. All flexible hose sections used for petroleum products shall be fabricated from flame resistant USCG Class A hose with stainless steel fittings. All hose connections shall be by double, stainless steel hose clamps. Connections to moving machinery shall be flexible and as close to the moving part as practical.

Straub couplings shall be used but shall only be used when piping section needs to be removed to allow for routine maintenance. In these cases, only the two bolts model with the correct lining for the product it is being used for, can be used.

Unless otherwise specified, all hull connections for intake or discharge shall have butterfly valves or any other ABS approved type of valve for seawater. These shall be connected to a nipple on a local, thick hull insert plate (nipple to have same wall thickness as the insert plate thickness) with gussets fore and aft and a flange connection to the valve. All through-hulls are to have properly sized emergency plugs attached by a line. Basket strainers and strainer plates on suction sea chests are to have net area of at least 2.5 times that of the suction pipe. Intake scoops and suction sea chests are to have fore and aft removable strainer bars.

Additional strainers are to be provided for all seawater consumers such as air conditioning, fire pumps, waste treatment, water makers, etc. Strainer specifications to be approved by ABS.

All stop valves shall be butterfly type with flanges to permit removal for service. If requirements for space or service require a valve with a shorter body, gate type valves may be substituted with the specific approval of the

classification society. Check valves shall be of the ball type or spring type depending on application. Vented loops shall be fitted on all pump overboard discharge lines and the main engine and generator raw water station lines to prevent siphoning.

All pipes are to be fully supported at regular intervals with proper pipe clamps and hangers Distance in between mounts shall be maximum l.5m for rigid piping and O.75m for resiliently mounted pipes. The specific type of mount and its characteristics shall be selected considering the noise and vibration effects. All rigid piping shall be isolated from the hull to minimize noise transmission.

All systems using seawater shall be designed in such a way that a seawater supply can be connected to the system while in dry dock. This by either feeding seawater to the sea chest crossover pipe (see Section 240-00 Seawater System and Machinery Cooling) or by a separate valve at manifold.

All piping shall be identified with colored arrows indicating product and direction of flow. Additionally, colored pipe labels shall be attached to pipes on both sides of bulkheads that pipes penetrate. All valves shall be painted with the appropriate color for the product used. The color guide shall be posted in the engine room and shall be referenced on the piping schematics.

All valves shall be identified with a thermoplastic labels either riveted to the handle or placed around the valve skin with a permanent stainless chain.

501-02 Piping System Table

All piping to meet classification requirements. There shall be no plastic piping in the engine room.

Seawater

* Pipe CuNi 90/10
* Joints Welded or flanged
* Connections threaded or Flanged.(Minimize threaded as possible)
* Sea cocks CuNi 90/lO
* Valves all shall be of ABS type approved for its specific use.

Note: where CuNi piping penetrates steel decks and bulkheads a steel sleeve approximately 350mm long and of a larger diameter that adjoining piping shall be fitted.

Scupper Drains

* Steel
* Piping to be PVC.
* Fittings Stainless Steel grates on deck
* Sea Cocks None for main deck scuppers

Note: For internal scuppers steel or aluminum (depending on location) threaded fittings and plastic piping to be fitted. There are to be no hose and clamp connections in the scupper system.

Black and Gray Water

* Pipe PVC - DWG (schedule 40)
* Joints Solvent welded PVC

* Connections Steel/plastic flanged, plastic/plastic unions
* Sea Cocks to be welded sch 80 steel
* Valves PVC, true union ball type

Fresh Water (Hot and Cold)

* Pipe CPVC (schedule 80), insulated with l2mm insulation
* Joints solvent welded CPVC
* Connections Unions
* Valves Polypropylene or CBVC, true union ball type

Fire

* Water- CuNi 90/10
* Joints Welded or flanged
* Connections threaded or Flanged
* Sea Cocks, if installed shall be CuNi 90/10
* Valves Bronze

Bilge

* Sea Water intake- CuNi 90/10 / Pickups - Galvanized
* Joints Welded or flanged
* Connections threaded or Flanged
* Sea Cocks, if installed shall be CuNi 90/10
* Valves Bronze

Note: where CuNi piping penetrates steel decks and bulkheads, a steel sleeve approximately 350mm long and of a larger diameter that adjoining piping shall be fitted.

Fuel Oil and Lube Oil

* Pipe Steel
* Joints Welded or flanged
* Fittings steel
* Valves Stainless steel in engine room, true union ball type

Hydraulic

* Pipe to be *HERMETO* high-pressure seamless Steel pipe
* Joints Socket welded
* Connections Marine grade hose, sized for system pressure
* Fittings *HERMETO* high pressure Steel fittings.
* Valves 316L stainless Steel, true union ball type

Air Conditioning

* Pipe CuNi piping to be used in engine room for seawater.
* CPVC piping to be used in engine room for chill water
* Pipe CPVC outside engine room
* Valves CPVC or bronze ball valves

510-00 AIR CONDITIONlNG AND VENTILATION

510-01 Engineering Services

The air conditioning system shall be designed and the components supplied by ***AquaAir***. The supplier shall be responsible to the Builder for furnishing all drawings and diagrams showing proper installation and detailing the sizes for refrigerant piping as well as electrical and control circuits.

The Builder shall be responsible for final balancing of the system and obtaining specified air quantities at the outlets as well as minimizing noise transmission from the air handler and air noise in the ducts.

510-02 Air Conditioning

The air conditioning system design criteria are

Summer	outside 33ºC 85 % RH	inside 22ºC 50% RH
Winter	outside -10ºC	inside 22ºC 50% RH

One (1) model A18-3-1 VHD consisting of four compressor with 18 ton capacity ***AquaAir*** Alpha Series or equivalent Marine Air unit chillers shall be installed in the engine room to provide cooling for the yacht. Seawater cooling pump shall be self-priming and thermostats for the fan coil units shall be Tempwise-2000. Fan coil units shall be used to provide for the following estimated BTU requirements:

Pilot House:	Two	20,000 BTU
Sky-lounge	Two	20,000 BTU
Main salon, Dining, and Foyer	Three	16,000 BTU
Galley:	Two	12,000 BTU
Crew Quarters	Two	7,000 BTU
Crew mass	One	7,000 BTU
Guest S.R.#1 e 2:	One	12,000 BTU each
Guest S.R.#3 e 4 :	One	10,000 BTU each
Owner’s Stateroom	Two	16,000 BTU
Captain	One	12,000 BTU
Engine Room	One	16,000 BTU

The air conditioning system shall be an Aqua Air chilled water-condensing unit, 380 Volt, 3 cycle, 50 Hz with reverse cycle. Details of the system shall be in accordance with manufacturers design.

The chiller modules shall be shock mounted in a custom aluminum or steel rack, with large drip trays, located in the engine room. The modules can be individually removed for service or maintenance.

The compressor shall be staged in order to avoid excessive starting loads or burn outs. Variable frequency drives (VFDs) shall be used to totally eradicate any current spikes as compressors start.

Materials in the compressors shall be suitable for seawater operation. They shall take suction from the engine room common sea chest and shall have a common overboard discharge with a non-return check valve and stop valve on each unit. The salt-water pumps shall be resiliently mounted and easily accessed for service. Chiller rack to be painted white.

Chilled fresh water will be pumped via a closed loop system to a series of fan coils that shall cool and or heat the zone they are installed in. All chilled water piping whether copper in the engine room or CPVC elsewhere shall be covered in pipe insulation, 25mm in the engine room and l9mm outside. This insulation shall be prepared and applied per the manufacturer’s instructions. Insulation at hard 90° bends are to be mitered and special attention shall be given to glue all seams properly and to cover the seams with a glued strip of Armaflex pipe insulation or similar, not tape. It is

critical that the Insulation be unbroken for its entire length without break at the supporting clips. Builder must ensure that each line has room to be run without touching other insulation or plumbing.

Each fan coil unit is to be provided with 12mm drains to collect all water from condensation, which shall be drained to the Gray Water Tank. All condensate water drains shall be fitted with traps to prevent odors escaping from the Gray Water Tank.

The Builder shall take care to locate the fan coil units and the 3-way valves, where they may be easily serviced or removed without disassembling joiner work. Such access shall be possible without the use of any tools with the exception of suction cups. The plumbing and wiring leading into the enclosures must be completely sealed. The only way the unit should receive air is through the return duct.

All ducts shall be of the insulated flexible or rigid duct type. Length of runs and diameter shall be determined by the BUILDER and HVAC vendor.

Grills for air conditioning, where exposed, are to be decorative wood in accordance with the Interior Design plans. Each unit shall have its own thermostat and selector switch for heating or cooling. Special attention shall be given to air conditioning and heating outlets in the wheelhouse to provide defrosting of the windshield. A list of the suggested grill sizes is available from the HVAC vendor and must be adhered to assure correct airflow and pressures.

Intake grills near carpeting are to be avoided. These grills shall be installed at least 5Omm above carpeting where possible.

Fan coil controls to be Tempwise and each room shall have its own control.

510-03 Heating System

Heat is provided using the reverse cycle air conditioning system.

510-04 Mechanical Ventilation

In the galley is a range hood that shall exhaust through an accessible grease flap and then through a properly baffled grill in the cabin house side. Range hood is part of the galley equipment allowance. Balance duct from the exterior shall have a closure flap.

Automatic or manual fire flaps and extinguishing system to be provided. The extinguishing system shall be actuated from outside the galley space.

The house battery bank, located in the machinery space under the wheelhouse, shall be provided with adequate ventilation. Intake shall be through properly baffled vents located on the inside of the Portuguese bridge front bulwarks, exit shall he at the aft side of the wheelhouse on the boat deck.

All the heads shall be equipped with exhaust air fans hooked to a separate switch, exiting to the outside. Fans shall be switched manually from within the head. Fans serving the heads below the freeboard deck shall exit at least 760 mm above this deck.

510-O5 Engine Ventilation

The engine room shall have two fans (one supply and one exhaust. Fans to be variable speed, reversible and separately switched. Variable frequency drive (VFDs) shall be included for engine room fans.

Engine room supply and exhaust air shall be ducted through grills, water traps, baffles or trunks as designed by the BUILDER. Remote actuated fire flappers/doors also to be provided for intake and exhaust air which are to be part of the fixed fire suppression system. Supply air will come in through the starboard side grill, exhaust air will vent through the port side grill. Special care shall be taken to minimize noise transmission.

Duct materials for the engine room air are to be per classification requirements. Maximum engine room temperature shall not exceed 43°C in any condition.

The Builder shall fit additional blowers as necessary for ventilation purposes.

511-00 REFRIGERATION SYSTEM

The vessel has neither built-in refrigerators nor freezers. Conventional commercially available refrigerator, freezer, icemaker are to be installed. See section 650-00 Galley – Pantry - Utility Rooms for a description and listing per room.

520-00 FRESH WATER SYSTEM

520-01 General

The fresh water tanks shall be of steel, integral with the hull, as detailed in section 110-06.

The fresh water system shall have one fill and transfer and one suction water manifold, both located in the engine room. The fresh water system shall be designed to transfer fresh water in between the fresh water tanks or to fill the pressure tanks (see also Section 525-00 - Jacuzzi).

The tanks can be filled from the fill station, located on the main deck forward. (see section 220-00).

The fill pipe leads to the fresh water tank. There shall be an UV and a carbon filter installed at the tank outlet before feeding the boat. The water is fed to the pressure tank by a ***GRUNDFOSS*** pumps.

The water tanks shall have 25mm diameter overflow goosenecks high under boat deck funnel and discharge overboard. Each tank shall have one suction line and one fill line, each with shut-off valves.

The fresh water system includes two pressure pumps and one accumulator tank, as listed in Attachment B. Both pumps shall be fitted with intake strainers. This system supplies water to all the toilets (Headhunter water jet), the E/R and lazarette hose bibs, all the outside fresh water wash down hose bibs and the wheelhouse windshield washers. The pumps shall be sized to be able to handle wash down during hotel mode.

The two pressure pumps on fresh water system shall be piped in parallel with automatic pressure switches to control them, set at slightly different pressures. Pressure tank of large volume shall be installed downstream of the pumps. This system shall supply fresh water to all sinks and showers.

The hot water system is branched off the fresh water main line and shall consist of three (3) 40 Gallons electric hot water heaters. Each tank shall be fitted with 3 phase, 380 VAC, 50Hz electric heating elements. The tanks shall be installed in series with valves to isolate either tank. A diesel boiler shall be installed in the engine room and it shall be plumbed to the air conditioning closed loop piping, with shut-off valves to isolate either system. It shall have its own circulating pump, independent from the one supplied by the air conditioning manufacturer.

Care shall be taken to insulate all hot water piping to minimize heat loss- All hot water piping shall be covered in Armaflex or similar pipe insulation, as recommended by the manufacturer. All 90º bends are to be mitered and seams are to be covered with a glued ½ strip of Armaflex pipe insulation or similar, not tape. It is critical that the insulation be unbroken for it's entire length without break at the supporting clips. Builder must ensure that each line has room to be run without touching other insulation or plumbing.

There shall be one shore fresh water service connections aft in the same locations as the shore electrical power connection. The fresh water intake shall connect and pressurize fresh water system. A pressure regulator shall be installed to avoid over pressure.

520-02 Water Maker

There shall be two ***FCI*** or similar 1800 GPD water maker. The water maker will discharge to the fresh water fill manifold. The water maker shall be valved for cleaning and purging the system, when not in use, as directed by the water maker manufacturer.

The system shall be mounted in integrated steel frame and shall include feed water and high-pressure pumps; filters, sand filter, membranes, valves, instrumentation and control panel.

521-00 BLACK AND GRAY WATER SYSTEMS

521-01 Black Water System

The black water tank shall be of steel construction, integral with the hull, as detailed in Section 1 10-00 Integral Tanks. The tanks shall have a 38mm (1 ½") diameter vent that is led into the deck stack and mast. Stop valves shall be installed at the connections to the black water tank.

The tank shall be fitted with one (1) diaphragm pump actuated by a high and low level switches which will also actuate an indicator lights and an audio alarm, (no automatic pump out). The pumps will be manually controlled. The black water tank shall discharge, via a Y-valve, overboard below the waterline, as far aft of the water maker inlet as possible, through a vented loop using the black water pumps or to a deck plate for shore pump out. The vent from the vented loop shall be plumbed back into main vent. The black tank shall have access hatches (one for each frame bay), made as large as possible for ease of maintenance.

The waterjet ***Headhunter*** toilet system is to be as specified in Appendix B. This toilet system will discharge to the black water tanks, and shall have a fresh water supply, pressure pump, accumulator, etc. Each toilet shall have an adder kit that controls the toilet water supply. All piping is to be neatly laid out DWG PVC piping as recommended by the manufacturer. It is important that the Builder respects the recommended slopes and pipe diameters as to guarantee the proper drainage. There shall be reasonable access to all components of the toilet flushing system, where possible, to allow easy servicing.

Isolation valves to be provided at each toilet. System to be arranged with a threaded fittings so that piping can be flushed with fire main as required. If it is Pelt that the piping installation at any point, due to space limitations, has been arranged in such a way that clogging can occur, a removable threaded section shall be installed at these points to facilitate clearing of the piping.

A ***Hamman*** USCG Certified Type II Marine Sanitation Device (MSD) shall be installed. The MSD shall treat black water only and shall draw from the black water tank. The MSD shall discharge to the gray water tank. The sludge tank, included with the MSD, shall discharge, via a Y-valve, overboard below the waterline through vented loops using the black water pumps or to a deck plate for shore pump out.

52l-O2 Gray Water System

The gray water tank shall be of steel construction, integral with the hull, as detailed in Section 110-00 *Integral Tanks*. The tanks shall have a 35mm diameter vent, leading into the deck stack and mast and shall have a gooseneck and vent odor filter.

The tank shall have a diaphragm pump of the same model and make of the Black water pump and shall be fitted with two (2) level switches (high and low) to control the sump pump. Operation to be automatic, with an override switch to permit manual operation. Gray water pumps are to discharge directly overboard below the waterline, as far aft of the water maker inlet as possible, through vented loops.

Sinks and showers shall have individual water traps and shall drain to the gray water tanks. Air conditioning condensate and refrigerator condensate pans from chill and freeze boxes shall drain to the gray water tank, through a separate common drain pipe with appropriate water traps. The galley sinks shall have oversized drains and discharge to the gray water tank or directly overboard through a Y-valve. The dishwasher and the washing machines shall discharge to the gray water tank or directly overboard through a Y-valve. No other drains shall be connected to the galley sink and dishwasher drains- The engine room sink shall discharge to the gray water tank or to the waste lube oil tank through a Y-valve. Special care shall be taken by the builder to assure that smells are not transmitted through the yacht through the gray water drains.

522-00 FREEING PORTS, DECK DRAINS AND SCUPPERS

The main deck bulwarks shall be fitted with freeing ports, with size and location as specified on the Construction plans.

The freeing ports shall be made by cutting the required opening in the topside plating. Hull frames in way of the freeing ports shall run continuously and are to remain exposed. l2mm OD stainless steel rod shall be welded to the freeing port perimeter to finish and strengthen the exposed plating edge.

Additional, small drains and/or scuppers shall be installed as necessary to drain lockers, the flush deck hatch gutters, etc. Deck scuppers to have stainless steel deck cover with cross bars set flush into the teak decking. Scupper to be made out of metal according to the deck material (steel or aluminum) and welded to the deck with a threaded pipe fitting to accept the PVC piping. Stainless steel threaded thru hull with no valve (stand pipe), unless required by Class. Upper decks to have proper scuppers and to pass through Superstructure as required, such as through the fashion plates outboard.

Care shall be taken to combine drains and scuppers as much as possible to minimize through hulls. Care shall be taken to insure drainage around all wheelhouse windows and cabin house windows. Scuppers will be added to the main deck if necessary to avoid sitting water.

523-00 FIRE, BILGE AND ANCHOR WASH

The bilge system is to include two large bilge pumps, one (1) direct engine driven pump located in the E/R and one (1) 380 VAC electric pump located in the E/R, connected to the bilge manifold. In addition, there will be seven (7) submersible pumps, one in each compartment.

In addition, if required by ABS, there shall be one (1) portable diesel driven self-priming emergency fire and bilge pump that is compliant with ABS/MCA. It will be located in the E/R or lazarette, and shall be able to be connected to the bilge piping in such a way that it can pump from the engine room bilge manifold and therefore from any bilge compartment and discharge overboard through a fire hose. It shall also be possible to draw seawater from the sea chest for fire main use. The exhaust will be permanently plumbed to an exit in the topsides or into a generator exhaust, so it can easily be tested on a regular basis. If not required by ABS and BUYER decides to install such pump an additional cost will be provided for his approval.

The engine driven bilge pump shall he of a type that can ran dry or shall be protected by an automated shut-off when running dry.

The submersible pumps shall discharge directly overboard through vented loops high under the DWL and shall have float switches for automatic operation and manual override switches. The engine room submersible pump shall not be automatic.

All bilge suctions are connected to the bilge manifold, located in the engine room. All suctions to have strainer boxes and check valves, that are easily accessible. The main engine driven engine room bilge/fire main pump draws from the bilge manifold or the direct engine room bilge suction and discharge overboard. In addition, there shall be a direct 65mm connection to the starboard engine room sea chest, to allow for this pump to pressurize the fire main.

Under normal (non-emergency) conditions, the fire main shall be pressurized by the electric bilge/fire main pump, located in the E/R, which then draws

from the main sea chest in the E/R. There shall also be a crossover pipe from the pump to the E/R bilge manifold.

The fire main runs outside the engine room and feeds the three (3) fire stations located throughout the vessel and the forward located anchor wash. The fire stations are located as follows

Forward	locker under Portuguese bridge
Main deck	portside at galley entrance door
Engine room entrance	

Each fire station shall be fined with a fire hose as required per the classification society. All fire hose and materials (hose canvas, brass quick connections; nozzles; length and diameter of hose) are per classification society. Brackets and housings for fire hoses to be stainless steel.

Anchor wash to have four (4) nozzles in the anchor hawses and a deck connection at the foredeck forward locker. Nozzles shall have down angle. Hose connections shall be plastic or stainless steel quick disconnect type. Each anchor wash outlet shall have separate valves to regulate the flow.

The fire system shall have a fire connection to pressurize the system from shore side while in dry dock or while servicing pumps.

All bilges will be fitted with low and high level alarms and connected to a monitoring panel located in the wheelhouse, which shall include audio and visual alarms. The engine room shall have repeaters for high and low bilge alarms.

524-00 FIRE EXTINGUISHING

524-01 Fire Detection and Alarm System

A central fire alarm system shall be fitted and shall include appropriate heat and/or smoke detectors in each of the accommodation spaces and the engine room. There shall be monitoring panels in the wheelhouse and crew mess that show the location of the fire with individual lights.

The fire alarm shall be a separate noise from the standard alarms and shall be able to be heard throughout the yacht and on all decks. The system is to include all equipment needed to comply with and shall be fined per the classification society requirements.

524-02 Fixed Fire Fighting Equipment

The Builder shall be responsible to install all equipment needed to comply with the classification society requirements.

Kidde-Fenwal or similar CO_2 Fire Extinguishing System shall be installed in the engine room with a manual control located outside the engine room. An audible and visual alarm shall be located in the Engine Room and Pilot House and crew mass. The system is to be US Coast Guard compliant.
The CO2 release and manual shut downs for the main engines; shut down of the engine room exhaust fans, closure of fire flaps in the intake and exhaust air ducts to be located together as per “VERONIKA”.

If required by ABS there shall be a fixed fire suppression system for the galley as well and this system shall include all related pans and pipes to suit, and shall be installed as recommended by the system manufacturer and as approved by the classification society. Bottles to be located to suit the classification society and system manufacturer.

If required by ABS, discharge in the galley shall be controlled from a panel outside the galley entry. This panel will include emergency shut down of the stove and oven, shut down of the exhaust fans, closure of fire flaps, and discharge of water.

The gasoline and propane lockers shall contain $C0^2$ automatic fire extinguisher systems.

524-03 Portable Fire Extinguishing Systems

The Builder shall supply portable fire extinguishers for all cabins as required the classification society. Quantity and location as per class.

The Builder shall provide two (2) fireman outfits storage for storing the OWNER supplied breathing apparatus. These outfits shall have designated storage rack per M.C.A.

The Builder shall submit a Fire Plan with the location of all portable fire stations, fire hoses; portable fire extinguishers, etc, each with number and type (color coded display system).

525-00 JACUZZI

A ***Jaccuzi*** hot tub shall be installed on the fly-bridge as per arrangement.

530-00 HYDRAULICS

530-01 General

A single equipment supplier shall provide the hydraulic system. The system designer/engineer and equipment supplier shall be ***Quantum*** Company as approved by the OWNER and the BUILDER.A representative from the hydraulics supplier might be present for the system commissioning and related dock and sea trials if necessary.

The 2-fin stabilizer system, bow thruster, crane and windlasses shall share the same hydraulic power source. The hydraulic pumps are to be driven from the PTO’s installed in the Transmission Gear. This hydraulic power system has to be designed to deliver full power to the vessel's bow thruster and windlasses at main engine idle speed. The system shall have an integrated common bow manifold to supply proper pressure and flow to the bow Thruster and windlasses.

The system will contain one common hydraulic oil reservoir, fitted with well-positioned sight gauge, oil cooler and level and temperature sensors. All filters shall be fitted with red/green indicator gauges.

The Builder shall be responsible for installation of the system, including piping, filters, fluid reservoirs, distribution manifolds and valves.

All hydraulic piping is to be neatly laid out with the maximum use of continuous, straight ruins and support at regular intervals. Piping shall be flexibly mounted to minimize vibration. All fittings shall be stainless steel as described in the Piping Systems Section. The hydraulic designer/engineer/ supplier and the Builder shall take care to reduce the possibility of excessive noise from the hydraulic system by properly sizing piping to reduce turbulent flow, minimizing the number of elbows used; soft mounting hydraulic equipment as appropriate.

Local alarm and monitoring panels shall be provided.

530-02 Bow Thruster

The Bow Thruster shall be a 20" ***Quantum*** fixed tunnel type, hydraulically powered and as per manufacturer's specifications. The unit derives its power from the main gear driven pumps.

Control of the thruster shall be through three (4) fully proportional joystick control stations, located in the wheelhouse, fly bridge and the two wing stations.

There shall be swing out protective grills at port and starboard tunnel openings.

The Bow Thruster 75 HP is to be driven off the main engine gears as per " VERONIKA". According to manufacturer's design the system shall suppliy 75 hp when both main engines are at idle.

530-O3 Stabilizer

The vessel shall be equipped with an ***Quantum*** 2-fin stabilizing system model 1500 with two 20 sq ft fiberglass fins. While under way the stabilization system is powered by the hydraulic system as described above. When stabilization at anchor is used, the system hydraulics shall be fed by an independent electric motor supplied with this system and powered off the generators.

The stabilizer fins are located forward of the engine room bulkhead, and shall be installed with adequate structure and reinforcing in way of the hull penetrations following manufactures recommendation.

530-04 Anchor Windlass and Handling

The hydraulic anchor windlasses shall be the ***MUIR*** or ***MAXWELL*** 6000 Lbs vertical type, with chain gypsies and extended rope capstans on top.

Both windlasses are to be operated by a single portable remote control with lead long enough to reach the bow or by the wheel house controls.

Two 240 Kgs Navy type anchors shall be installed on the port and starboard sides of the bow, in the two Stainless steel anchor pockets, with 5/8 galvanized stud link chain for a total of 450' of chain on each side.

Stainless steel rollers, chain compressors, devil's claws necessary for proper operation and protection shall be provided. The chain will be secured on deck with a chain stopper and chain claw hook as per "SUDAMI".

In addition, there shall be stainless steel chafing bars and edge protection around the pockets as needed. Anchor pocket design and construction to be an INACE design as per “SUDAMI”.

A fixed salt-water wash down nozzle system, connected to a pressure pump located in the forepeak area, shall be installed in each hawse.

531-00 STEERING SYSTEM

531-01 Steering System

The steering system shall be a ***KOBELT*** or similar hydraulic type system, to be sized by the manufacturer for the boat size and intended use. The steering hydraulic system shall be independent and shall be approved by the classification society.

Steering shall be from the helm station in the wheelhouse and from the wing stations. All stations steering shall be by means of joysticks provided by the system manufacturer. The steering console in the wheelhouse shall also have a manual operated steering wheel for emergency use.

The autopilot is to be independent and integrated to the main steering system through a relay box furnished by the steering manufacturer. The autopilot hydraulics will be controlled by an electronic control head that will be mounted in the wheelhouse. Course input will be from a gyrocompass that shall be mounted away from any magnetic influence.

The hydraulic system for normal steering and autopilot, steering will consist of all components including piping, reservoirs, junction boxes, connections, etc. to insure proper operation. Builder will provide adequate foundations for the cylinders and will soft mount the power pack in order to minimize noise transmission.

The steering console in the wheelhouse shall also have a manual operated steering wheel for emergency steering, and shall be approved by the classification society.

531-02 Steering Stations

The wheelhouse steering station shall have engine controls, a jog lever steering control plus the steering wheel which shall function as the emergency steering, thruster controls, a rudder indicator, compass, full engine-monitoring panel, horn button, engine start and stop buttons and the navigation electronics. All instrumentation shall be set flush in the console. Two (2) comfortable helm chairs with pneumatically adjusting height shall be provided, as per “SUDAMI’s”.

The outside steering stations (the two wing stations) shall include the engine controls, thruster controls, steering jog lever controls, rudder indicator and engine tachometers, horn button, p1us main engine start and stop buttons.

Compasses are to have red bulb lighting with similar switch and rheostat.

532-00 TENDER HANDLING

The builder shall supply and install a 2000 Kgs ***OPACMARE*** hydraulic boom crane, located at the boat deck in accordance with the Construction's plans, to launch and retrieve the Owner's tender, crew tender and other equipment stowed on the boat deck.

The tender crane shall be powered by its own independent electro-hydraulic power pack. Controls shall be of the proportional type.

The Builder shall supply chocks, pad-eyes, tie-downs, and other gear as necessary to completely secure the tender. Chocks shall be removable and of a design that allows water to pass through them. All chocks for the owner's tender, shall be removable to leave a flush deck. Builder shall provide plastic threaded inserts eyes.

533-00 HYDRAULIC PASSARELLE

A OPACMARE 5335/40 gangway to be installed.

540-00 SAFETY EQUIPMENT

It shall be the Builder's responsibility to procure all safety equipment and to ensure that the installation of all safety equipment meets the classification society's requirements and regulations. This shall include life rafts, life rings, flares, life jackets, man overboard equipment and other safety items which shall be provided and stowed as directed.

The immersion suits are to be owner’s supplied.

The life rings shall be attached and recessed into the inside of the main side deck and Portuguese bridge bulwarks.

The life raft canisters are stored in stainless steel pipe cradles on the boat deck (P/S), as shown on the Construction plans. These cradles shall enable the rafts to self-deployed with a hydrostatic release.

550-00 COMPRESSOR AIR SYSTEM

550-01 Service Air

A central service compressed air system as specified in Appendix B shall be provided. Connections shall be located throughout the deck areas for filling fenders, power tools, etc.

The air horn shall also be fed by this system.

550-02 Dive Compressor

This Item will be Owner supplied and decided at a later.

600 OUTFIT AND FURNISHING

601-00 JOINERY WORK

601-01 Interior Joiner work

All joiner work is to be built and installed in accordance with the best yacht practice. In order to guarantee agreement between the Builder and Owner as to the exact style and finish of the joiner work, we will build a mockup of one of the Yacht's cabinetry to be approved by the owner and used as the Interior standard for the whole Yacht interior.

The Interior designer will develop the joiner work and fittings drawings. All joiner work installed by the Builder must be to the same or higher quality shown on the shipyard built and owner approved mockup.

601-02 Exterior Joiner work

There shall be outside granite or teak tables on the main aft deck, and the fly bridge tables.

The main aft deck coffee tables shall have a variable height and shall have two stainless steel pedestals.

601-03 Flag Pole

One (1) 2.4-meter mahogany stem flagpole and socket is to be provided by the Builder. Finished bright.

602-00 OUTSIDE BUILT-IN SETTES, SUN PADS, BAR AND STORAGE LOCKERS

The main aft deck, and fly bridge deck have built-in settees and or sun pads, as shown on the Construction's plans.

The base of these settees consists of structural metalwork, aluminum on the main deck and on the other decks, finished and faired to die same standards as the surrounding structure. All built-in boxes to have ventilation and limber holes/scuppers for drainage of trapped condensate water.

All settee bases serve as storage lockers. Access through hatches concealed behind or under the cushions and pads.

The outdoor bar on the fly bridge deck is to be made out of aluminum, finished and faired to the same standards as the superstructure. The top surface shall be granite.

603-00 CABIN SOLES, FLATS ANO FLOORING

Cabin, head and lobby soles shall be finished as described in Appendix A.

Where necessary, soles shall have suitable traps or loose sections arranged to provide ready access to the tank tops and/or bilges. Traps shall be fitted with flush plates with "T" handles for lilting. Ladders/steps to be provided as required. There shall be a light switch readily accessible below all sole hatches for bilge lighting whenever possible or adequate.

A combination of portable floor plates of painted 5mm Alcoa aluminum diamond tread plate pattern or equal and open grates shall be installed as necessary in the forepeak, lazarette and engine space.

Support framework to be welded construction, with exception of places where it might need to be disassembled to get access to valves or other equipment that requires ready access for servicing. All plates and grates shall be set on 3mm thick rubber strips to eliminate raffling.

610-00 WINDOWS AND PORTS

610-01 Hull Ports

There shall be hull ports as detailed and located and dimensioned as per the Construction's plans. All hull ports are to be of the non-opening type. Hull ports are to be provided with deadlights as required by the classification society.

The hull Portlights shall be mounted inside recessed stainless steel spigots, which shall be slightly angled to prevent salt-water puddles in front of the windows when the vessel is at rest.

610-02 Superstructure Windows and Ports

All windows and ports shall use tempered safety glass and shall all be fixed, flat panels. The wheelhouse front windows shall be l5mm thick and side windows shall be l2min thick. The salon windows shall be l2mrn thick and tinted.

The window panels shall be bedded and mounted, by means of a bolt-on flange, to a welded perimeter extrusion around the window cut outs in the house sides. This bolt-on flange shall be hidden by the joiner paneling or wall treatment.

Storm covers shall be provided for all windows if required by the classification society. They are to be as lightweight as possible and supplied with gaskets and clips. There shall be threaded inserts at each pane in the superstructure exterior plating, per yacht standards.

Storm covers of aluminum shall be provided for the mechanical air vents and are to have stand off air space. The storm covers are to have permanent labels designating their location. Stowage for storm covers shall be provided.

610-03 Window Wipers and Washers

The wheelhouse front windows shall have ***EXALTO*** mechanical wipers on each of the windows. The drive motor is to be located above the windows, under the brow. Access for service to the wipers motors shall be from inside the wheelhouse. Each wiper is to be switched separately. A spray washing system with fresh water for the wheelhouse windows shall also be installed.

610-04 Window Defrosting

The wheelhouse windows shall be defogged using the air-conditioning vents.

611-00 DOORS

611-01 Bullwark doors

There shall be two doors fitted in the main starboard side deck bulwarks, and two on the portside. Doors to be aluminum for ease of operation (light weight). Doors swing open 180º inboard, to rest against the bulwarks in the open position, as indicated on the Construction's plans. All hinges, fittings and hardware to be polished stainless steel or painted aluminum. Hinges to he lined with flexible bushings.

The starboard side of the transom bulwark shall be fitted with door giving access to the stern passarelle. Door shall hinge inboard. Door to be aluminum for lighter weight. All fittings and hardware to be polished stainless steel. Hinges to be stainless steel or painted aluminum, according to the metal where it will be attached to, with Delrin bushings.

611-02 Watertight Doors

There is to be two automatic sliding watertight fire doors between the guest staterooms and forward crew staterooms. These doors are to be approved by the classification society.

There is to be a watertight door in the recessed transom to access the lazarette from the swim platform. The transom door outside surface has curvature to match the transom surface INACE built or equal with quick-acting dogs for closure, central recessed wheel handle on the outside and polished stainless wheel handle inside. This door has no porthole and sill height per class requirements.

Engine room access from the lazarette shall be through a swinging watertight door.

611-03 Fire Doors

Two watertight sliding automatic fire doors to be placed on the watertight bulkhead on the lower deck.

611-04 Superstructure Weather tight and Water tight floors and Hatches

The main deck lobby, galley, starboard side entrance, wheel house sides, and sky lounge aft hall are to be fitted with swinging weather tight doors giving access to and from the side decks. INACE built as per "VERONIKA", these doors will be fitted with dogs and with a single door handle for use while, at anchor or in port. These doors shall be fitted with a 3OOmm diameter porthole, with the exception of the main entrance and sky lounge doors, which will have bigger rectangular shaped glass with radius corners, with size to be determined as per classification society requirements.

There shall be a watertight door fitted to the port side engine room air trunk, which doubles as the engine room main access. It shall be possible to open this door from both sides. Door to be fitted with 380mm permanent sill, this by having a raised cutout in the house (i.e. 38Omm above the finished aft deck). The fire rating and noise and fire insulation of this door shall match the criteria of the engine room air trunk walls, as set per the classification society.

All swinging weather tight and watertight doors shall be finished flush with the house side plating. The door frame shall be welded to the inside of the house side plating.

611-05 Main Salon and Sky Lounge Aft Doors

The aft end of the main salon shall be fitted with bi-parting stainless steel sliding door with fixed side window panels. These doors shall be mounted flush with the outside of the house plating and structure.

The sliding door at the aft end of the sky lounge is different in size but for the rest share the same concept. Glass sizing and sill height are to be per class requirements.

The door and side panel windows corner radius, if any, to match if possible the radius of the fixed house windows. Door window glass thickness, tinting and quality to match the fixed salon windows. The top clear opening edge of the door windows shall if possible be aligned with the fixed windows clear opening.

611-06 Interior Joiner Doors

All interior joiner doors shall be as shown on the drawings and generally as specified as per Interior Designer.

Rubber tipped bumpers with non-rattling catch hooks, or snap type non-rattling door catches, shall be fitted to all interior doors.

612-00 HATCHES AND MANHOLES

642-01 Hatches and Openings in the Main Weather Deck

There shall be one watertight hatch located on the foredeck, to be used as a means of escape from the guest quarters per class requirements.

Hatch to have a central quick-acting opening with fixed wheel inside and means of opening from outside as per class rules. Hatch shall be finished to match surrounding foredeck or painted.

612-02 Other Deck Hatches

Escape access hatch to be installed in number and location required by classification society.

612-03 Manholes

Manholes are to be fitted in each tank and chain lockers using heavy insert rings (approx. 20mw), with closely spaced studs or bolts on Inverted angle coamings and suitable neoprene gaskets for water or oil tightness. Manholes in sections of tank tops that form flooring or where floor clearance is too small shall be flush with recessed stainless steel Allen head type machine screws.

These manholes shall be located in accessible areas of cabin soles where feasible. All manholes are to be built on angles, 450mm x 450mw, where practical.

620-00 STAIRS, GANGWAYS AND LADDERS

620-01 Interior Stairs

Interior stairs are to be constructed as per drawings. All ladders and stairs are to be installed as per plans. Engine room and forepeak ladders to be painted steel.

620-02 Interior Emergency Escapes

Any emergency escape hatches will installed as per ABS requirements and will be incorporated to the interior design as best as possible.

620-03 Engine Room Access Stair

The engine room shall be accessible through the portside E/R air trunk. This E/R access shall be fitted with a fixed stair, not tubular ladder. There shall also be hook to be able to attach a block and tackle in order to lower and raise small equipment and replacement parts into the E/R. All fixed parts inside this air trunk shall have fire rating to match the air trunk fire rating and insulation.

Secondary access to the E/R shall be through the lazarette.

620-O4 External Stairs and Ladders

All external stairs are to be robustly constructed, with teak u-cads to match the main deck.

Handrails to be polished stainless steel tubing, 38mm OD, on both, port and starboard.

There shall be 09 Staircases as follows:

* Access from the swim plataform to the aft deck shall be via the two stairs located on the port and starboard side of the aft seating area.
* Access from the aft deck to the Sky-lounge deck shall be via stair located on the starboard side of the aft deck.
* Access from the aft deck to the Engine room shall be via stair located on the port side of the aft deck.
* Access from the wheel house deck to the fly bridge shall be via stair located outside amid ship on the starboard side adjacent to the wheel house door.
* Access from the wheel house to the galley shall be via stair located inside on the starboard side of the pilot house.
* Access from the main salon to the sky-lounge shall be via stair located on the starboard adjacent to the stbd entry foyer.
* Access from the main deck to the accommodations area shall be via stair located on the starboard side forward of the entry foyer.
* Access to the raised foredeck shall be via stair on the forward starboard side of the boat deck.

Bulwark door to be made of aluminum for lighter weight when swinging. Stainless steel hinges to be insulated with Delrin bushings.

The vessel shall have one set of sea-stairs, which will be stored 01) the boat deck when not in use. These sea-stairs will either be installed on the portside or starboard bulwark door openings, which shall be fitted with attachment points.

There shall be one (1) swim ladders onboard. It is for use at the swim platform, which shall be fitted in sockets. These swim ladders shall be made of stainless steel construction with non-skid rungs and shall extend a minimum of 1 mt into the water.

The second ladder shall be provided as a shipside crew ladder mounted at either the starboard or portside main side deck bulwark doors. Stowage shall be provided in the lazarette. Ladders to be folding if necessary for stowage.

620-05 Hydraulic Retractable Gangway (Passarelle)

There will be an ***OPACMARE*** model 5335/40 Hydraulic gangway in this boat.

621-00 SWIM PLATFORM

The swim platform shall be integral to the hull and recessed into the transom. An electro-hydraulic ***OPACMARE*** swim ladder shall be installed.

Teak decking shall be applied to the platform and stairs treads, to match the main deck teak decking. The platform shall he fitted with removable lifelines and stanchions, cleats and sockets for a swim ladder. All hardware fitted to the swim platform shall be stainless steel.

630-00 BULWARKS AND RAILINGS

630-01 Bulwarks

The main deck and foredeck bulwarks are to be left open on the inside, with exposed frames, as explained in section 106-00. Bulwark frames to be capped with stainless steel extrusion.

The boat deck, Portuguese bridge and sundeck bulwarks are closed on the inside (aluminum plating), faired and painted to match superstructure.

There are to be no teak cap rails. Top of bulwarks on the main deck to be a oval stainless steel INACE extrusion to create handhold. Top of bulwarks on the upper decks are to be faired and painted like the topsides.

630-02 Railings

All external stairs have stainless steel handrails, as described in Section 620-04 *External Stair and Ladders*.

The side decks shall be fitted with 38 mm OD polished stainless steel handrails, attached to the house sides at the same height as the bulwark cap rails. Attachment brackets and sockets are to be properly insulated from the aluminum or steel structure.

The raised foredeck shall have stainless steel railings around as per plans.

The railings shall be constructed of polished stainless steel tubing with stainless tube intermediates. The railing stanchions are attached to sockets on the inside of the bulwarks.

631-00 BITTS, CHOCKS AND BOLLARDS

Chocks are to be located as per the deck plan. All chocks are to be of stainless steel construction per INACE standard, with well-rounded edges and corners, and are to be properly insulated from the steel hull and bulwarks.

Stainless steel bollards to be located as per the Construction plans. Stainless steel heavy insert plates are to be located in way of bollards, which are to be welded on.

640-00 INTERIOR AND EXTERIOR HARDWARE

An allowance is provided herewith within this specifications for hardware purchase. All interior and exterior hardware will be selected by the Interior Designer and shall be of high quality and marine standards.

If the cost for the hardware selected is higher than the allocated allowance the difference will be paid by the owner.

All exterior hardware for latches, hatch closure, hinges, bases, etc. shall be of constructed out of stainless steel and shall be fully corrosion resistant. All exterior hinges shall be of the hidden type. Piano hinges for outside cabinets are not to be used.

All selected hardware is subject to final approval by the Owner.

641-00 PLUMBING FIXTURES

641-01 Sinks

An allowance is provided within these specifications, see “Allowance” section, for hardware purchase. All sinks and faucet sets in toilet rooms, in the galley, the sun deck wet bar are to be detailed by the Interior designer.

All faucets shall have hot and cold water. Toilet room sinks to drain to gray water tank. Galley sinks to have combined strainer and stopper and shall drain through a Y-valve and discharge overboard or to the gray water tank.

All sinks to be installed with traps for cleaning and odor control.

641-02 Showers

An allowance is provided within this specifications, on the “Allowance” section, for sink purchase. All showers and faucet sets are to be detailed by the Interior designer and showers are to have fixed head with mixer valve.

Shower stalls and doors to be constructed as directed by the Interior designer. Shower doorsills to overlap outside of shower doors to prevent water spillage in a seaway. Provision to be made to shower doors securely in both the open and closed positions.

There shall be a swim platform shower, telephone type with hot/cold faucet located at the transom and boarding gate in recesses with a light closure door.

641-03 Toilets

Toilets to be ***HEADHUNTER*** waterjet type and as detailed in Appendix B and with color to be chosen. Flushing water shall be supplied to the toilets from the fresh water system. For details of installation, see section 580-01 Black Water System.

641-04 Engine Room

To have a small sized stainless steel sink with hot and cold water. Hose outlet shall also be provided.

641-05 Miscellaneous Fitting

All bathrooms to be equipped with soap dishes, glass holders, towel bars, clothing hooks, toilet paper holders, garbage bins and other items supplied by Builder per allowance, chosen by Interior Designer and approved by the Owner or its representative.

650-00 GALLEY - PANTRY – UTILITY ROOMS

650-01 Main Galley

Galley joinery, countertops, deck covering and finish are to be as per "VERONIKA" standard.

The galley is to be equipped with appliances as detailed in Appendix B. These items are to be purchased by the Builder and installed in a manner that is consistent with the surrounding joinery and with reasonable access for service and maintenance. BUILDER is to insure proper ventilation, venting, drains and installation according to the manufacturer's instructions.

All the above standard equipment is to be modified so that is acceptable for an offshore yacht of this type, which is subject to heeling, pitching and rolling. Builder shall install all necessary locks, catches, shelves, fiddles and fiddles and rails.

Stove area to be sheathed with Stainless steel with insulation behind, in accordance with the regulatory bodies. stove to be supplied with sea rails and pot holders and a stainless steel crash rail to be installed in front of it.

650-02 Crew mass (Galley)

An eating/crew mass area shall be built in the galley as per the General Arrangement drawing.

650-03 Lower Deck Laundry and Utility Room

The lower deck laundry is to be fitted with appliances as described in Appendix B. Joinery finish, countertops and flooring in accordance with the construction plans and as per "SUDAMI" standard.

A separate dryer vent to be provided with easily accessible lint filter that can be accessed from inside the laundry room for daily cleaning.

650-04 Deck Pantry

The deck pantry shall be fitted with appliances to be chosen and bought by the Owner as per allowance provided. Joinery finish, countertops and flooring in accordance with the construction plans and as per Designer's drawings.

65O-05 Outdoor Appliances -Sun Deck Bar and Aft Boat Deck

The sundeck bar and aft boat deck side counter shall be fitted with appliances to be chosen by the owner as per allowance provided.

652-00 LAZARETTE

Access to the lazarette shall be through a watertight door located on the recessed portion of the transom, as shown on the Construction plans. This hatch shall be built, as described in Section 611-021.

Lazarette to be per "VERONIKA".

653-00 STORAGE

Storage shall be in accordance with plans and all storage spaces including forepeak, lazarette, engine room and bilges are to be fitted with means of storing by installing bins, hooks, etc. appropriate for the intended use. Special attention shall be given in the engine room for tools and spare parts stowage to maximize space and utility.

All storage spaces are to be provided with ventilation and drainage if required.

A workbench with rubber top cover and vise is to be installed in the engine room. Size as per drawings.

66O-01 PAINT, COATINS AND FAIRING

660-01 General

All stock for steel construction including steel plate, profiles angles, tees and sections are to be shot-blasted and protected by Epoxy weldable shop primer approved by Coating Expert prior to installation in the yacht, regardless of the location.

The paint finish throughout shall be to the highest international yacht standard. The paint shall be supplied by AWLGRIP and its exterior paint specification shall be based on the AWLGRIP specification for Marine paint application on Yachts as well as commercial vessels. The latest improvements shall be used and the hull is to be painted "Royal Blue" and the superstructure snow white.

All painting shall be applied to the manufacturer's instructions including but not limited to the temperature, humidity and technique. All due care shall be taken so as to produce a smooth finish. Boot stripe, accent stripe, etc., shall be painted per drawings. The Buyer shall approve all colors.

The following paint specifications are a general summary and may be modified in conjunction with the paint manufacturer to meet local environmental laws. The paint manufacturer's specific instructions should be followed throughout.

All paint systems are to be guaranteed and documented by the Builder as given in sections 001-09 *Guaranty* and 010-00 *Manuals*. All paint colors shall be approved by the Owner's Representative before application.

Builder shall provide the Owner's Representative with detailed paint schedule, and paint manufacturer's specifications.

660-02 Surface Preparation and Cleaning

Surface to be prepared in accordance with International Paint Co recommendations and standards as specified. Interior plate of all metal tanks shall have scale removed before fabrication.

All metal work shall thoroughly cleaned and all grease, dirt or foreign matter removed prior to painting. All edges rounded odd 3-4 minimum radius before paint.

660-03 Finishing

All paints and varnish to be sanded between coats, and particular care shall be taken while painting that all workmen are clear of boat; also, that it is clean and free of chips, sawdust and rubbish before final coats are applied.

660-04 Surface Area Estimates

To be provided with the paint schedule

660-05 Steel Hull - External below the Waterline

The bottom paint system is to use International Paint Company or approved similar and application procedures as follows

1. Sand blast steel to white metal in accordance with SSPC-SP-2 to a Sa2 standard of the Swedish Norm SIS5990-1967. Disc sanding with a 24 to 36 grit will be acceptable in limited areas where blasting is not practicable, and for the preparation of welds. Blow off surface with compressed air (do not wipe down) and removed all blasting material by vacuum cleaning.

2. Apply multiple coats of "Coal Tar" Epoxy Polyamide Primer with high level of solids, 70% class Low Voc – Compatible with cathode protection, thickness of the dry film of 125 dry film micrometers per coat.
3. Apply of one coat of painting Alcatrão-Vinilica of high level of solids 42% - monocomponent.
4. Aged Epoxi primer (over 8 weeks) must be sanded and recoated as per the manufacturer.

5. Apply multiple coats of Anti-Fouling and self-polishing bottom paint to a 12 mil(dry)coat per paint manufacturer instructions.

660-06 Steel Hull External above the waterline, Topsides and Bulwarks

The topsides paint system is to use all products from International Paint Company (International line) and application procedures as follows:

1. Sand blast steel to white metal in accordance with SSPC-SPS-85 to a 3 to 4 mil proflle. Disc sanding with a 24 to 36 grit will be acceptable in limited areas where blasting is not practicable and for the preparation of welds. Blow off surface with compressed air (do not wipe down) and removed all blasting material by vacuum cleaning.
2. Apply corrosion control coating Chromate Epoxy Primer, 0.9 mils (dry) thickness Interzinc 052 International.
3. Apply two heavy coats of Epoxy Primer Intertuf 262-International.
4. Fair surface with trowelable Micro Balloon Fairing Compound.
4. When surface is fair, apply two heavy coats of Epoxy Intergard 650 Primer White Base. Block sand with 80 grit. Fair low spots with fairing as necessary.
5. Apply a second application as recommended by paint manufacturer for dark colors of two heavy coats of Epoxy Intergard 650 Primer White Base. Block sand with 120 grit. Fair low spots with fairing as necessary.
6. Fill all small imperfections (pin holes, scratches) with a fine filler like Evercoat 4400 and larger imperfections with an epoxy filler.
8. Apply two coats finish epoxy Primer - Gray (for under Dark Color Topcoats).
9. Apply a "show coat" of topcoat to see if hull is fair enough.
10. Sand surface with 220-320 grit sandpaper.
11. Clean surface with surface cleaner.
12. Apply Premium Urethane Topcoat (white, color as selected)

660-07 Boot Top

To be one (1) or two (2) color and painted between sheered lines above the waterline as per the Construction's plans, using same paint system as the hull topsides. Builder to check the wetted water line prior of final location of boot top, before painting.

660-08 Steel Hull and Structure - Bilges

The inside is to be fully painted except for the tanks: as specified. The paint system is to use Interlux products (International Paint Company) and application procedures as follows:

1. Apply multiple coats Epoxy Primer to achieve a 12 mil (dry) primer coat.
2. Apply two (2) coats of suitable Epoxy topcoat.

660-09 Steel Hull and Structure - Internal above Bilges

The paint system is to use Interlux products (International Paint Company) and application procedures as follows

1. Disc sanding with a 24 to 36 grit, and for the preparation of welds. Blow off surface with compressed air (do not wipe down) and removed all blasting material by vacuum cleaning.
2. Apply corrosion control coating Chromate Epoxy Primer, 0.9 mils (dry) thickness.
3. Apply two heavy coats of High Build Epoxy Primer, White Base.

All interior spaces which are accessible by crew and by guests, such as the lazarette and forepeak, shall receive additional finishing coating as follows

4. Apply two to three coats finish primer sealer Epoxy Primer.
5. Clean surface with Surface Cleaner.
6. Apply Urethane Topcoat (white, color as selected by owner)

660-10 Fuel Tanks

The inside of the fuel tanks shall be blasted and cleaned internally. There will be no internal painting.

660-11 Fresh Water Tanks

The fresh water tanks shall be cleaned, scrubbed and prepared in accordance with paint manufacturer's specifications utilizing products from Interlux products (International Marine Coatings).

1. Bare steel areas, are to be blasted to SA2¼, all, dust removed and all surfaces thoroughly cleaned and degreased with an approved surface cleaner.
2. Apply INTERLINE #850 as supplied by International Marine Coatings.

660-12 Sump and Holding Tanks

The gray and black water tanks will be treated in a manner similar to the fresh water tanks.

660-13 Lube Oil Tanks

Lube oil tanks are to be disc sanded and cleaned internally. There will be no internal painting.

660-14 Chain Lockers

The inside of the two chain lockers shall be finished to the same standards as the inside of the steel hull.

660-15 Superstructure (Aluminum)- External

1. Prepare bare aluminum with AWL-PREP® PLUS or similar.
2. Abrade the surface with a 36 grit grinding disc and clean off all dust and dirt.
3. Apply corrosion control coating Chromate Epoxi Primer.
4. Apply two heavy coats of surface profile filler, High Build Yellow Epoxy Primer.
5. Fair surface with fairing Epoxy Trowelable Fairing Compound.

6. When surface is fair, apply two heavy coats or High Build Epoxy Primer.
7. Fill all small imperfections (pin holes, scratches) with Evercoat #400 and larger imperfections with an epoxy filler.
8. Apply two to three coats finish primer sealer. Epoxy Primer.
9. Sand surface with 220-320 grit sandpaper.
10. Clean surface with AWL-PREP® #400 or similar Surface Cleaner.
11. Apply Premium AWLGRIP 2000 Topcoat. (white, color as selected)

660-16 Superstructure (Aluminum) - Internal

The inside of the aluminum is to be left unpainted except for the following spaces

* Machinery space under the wheelhouse
* All lockers
* The inside of all built-in settees and outside built-in lockers

These areas shall be painted the same as the outside superstructure, without fairing layers but with 2 finish coats of White.

660-17 Yacht's Name and Hailing Port

The yacht name shall be posted at each (port and starboard) and at the transom.

Name letters font and size shall be as per OWNER's decision.

661-00 TEAK DECKING AND DECK FINISHES

661-01 Teak Decks

Teak decking shall be 15mm and shall be bonded in epoxy glue or other adhesive. No mechanical fasteners shall be used in final teak layer. Deck seams to be filled with deck seam compound, including all accelerators and primers. All adhesive compounds to be applied in strict accordance with the manufacturer's latest instructions.

All the areas in accordance with price list.

662-00 AFT AND SIDE DECKS OVERHEADS

The deck overhead panels shall be made out of aluminum and shall be welded to the structure.
Panels are to faired and painted with International Marine Coatings white with a flat low gloss finish. Color as selected by Owner.

670-00 INSULATION

670-01 General

There might be a noise and vibration consultant hired by the OWNER, such as SOUNDOWN Corp. (J&A Enterprises), Marblehead, MA, USA or VAN CAPELLEN Engineering, The Netherlands.

The Builder must give careful consideration to the noise requirements listed below. A detailed insulation schedule for acoustic, vibration and thermal

purposes, for all interior spaces and Systems shall prepared to meet the sound level requirements established by contract.

Low sound levels are important for this yacht so special attention shall be given to the reduction of noise and vibration. In particular, it is the responsibility of the Builder to minimize extraneous noise and vibration from machinery, equipment, piping, fittings, etc.

670-02 Noise and Vibration Criteria

Special attention shall be given to acoustic insulation and vibration damping to reduce noise levels in accommodation areas, and in particular in staterooms. The following tables are target sound levels which the Builder should make every reasonable effort to achieve.

Underway: Main engine in operation at 85% of maximum continuous rating and one generator in operation:

Salon	65 Decibels (A Weighed)
Wheelhouse	60
Guest Staterooms	62
Owner's Stateroom	64

Dockside: Main engines shut down, one generator running and air-conditioning in operation half speed:

Salon	55 Decibels (A Weighed)
Wheelhouse	50
Guest staterooms	50
Owner's stateroom	52

671-00 CATHODIC PROTECTION

A total of fourteen (36) zinc anodes are to be provided. Zincs are to be distributed according to manufacturer’s recommendations. Zincs are to be bolt in units. (The quantities and location might change as per manufacturer’s recommendation.

690-00 SPARES

Standard spare parts kits for the main engine, generator, refrigeration, water maker, deck machinery, hydraulic systems, etc shall be purchased by the OWNER at the time of equipment purchase by the BUILDER and shall be charged to the OWNER at the Builder’s cost.

A list of the desired spare parts shall be furnished by the Owner to the BUILDER 60 days after contract signature so it can be ordered in a timely fashion.

SPECIFICATIONS ADDENDUM
EXHIBIT "A"

List of owner supplied material/equipment for 120' Explorer Motor Yacht for_____

1. **Electronic/Communication equipment.**
2. **Entertainment equipment**
3. **Galley equipment**
4. **Tenders.**
5. **Loose furniture**
6. **Chinaware**
7. **Artwork**
8. **Linen**

SPECIFICATIONS ADDENDUM
EXHIBIT "B"
Allowances for 120' Explorer Motor Yacht for _____

Carpet with Pad	**$100.00 per sq. m**
Granite flooring and countertop	**$120 per sq. m**
Interior settee fabric and/or Brazilian calves leather	**$100.00 per sq. m**
Budget on soft goods including wall /overhead and window treatments.	**$ 30,000.00**
Electronics/Entertainment allowance	**Owner supplied**
Electronics / Entertainment cable run and equipment installation	**$ 6,000.00**
LIGHTING ALLOWANCE:	
Exterior light fixtures	**$50.00 each with a total of 100 fixtures.**
Interior light fixture	**$12,000.00**
HARDWARE	
Plumbing / Bathroom fixture hardware allowance	**$ 36,000.00**
Interior hardware allowance	**$ 15,000.00**

Note: $ means U.S. Dollars

SPECIFICATIONS ADDENDUM

EXHIBIT “C”

Price List for Optional items for the
120 Ft Explorer Motor Yacht for _____

1. De Basto Interior Designer……..... US$200,000.00