



Pacific Asian Enterprises, Inc.
 PO Box 874 • Dana Point, CA 92629
 (949) 496-4848 phone (949) 240-2398 fax

STANDARD SPECIFICATIONS

NORDHAVN 86

Updated 02.18.10

A.		GENERAL DIMENSIONS
*Dimensions are subject to change with Buyer's selected options and personal effects which may add to displacement and increase both draft and waterline length		
1		LOA: 86' 7" (26.39 m)
2		LWL: 77' 11" (23.75 m)
3		BEAM: 24' 0" (7.32 m)
4		DRAFT: 8' 2" (2.49 m)
5		DISPLACEMENT: 400,000 LBS (181.44 METRIC TONS)
6		WATER CAPACITY: 900 GALLONS (3,406.9 LITERS)
7		FUEL CAPACITY: 7000 GALLONS (26,497.9 LITERS)
8		HOLDING TANK CAPACITY: 185 GALLONS (700 LITERS)
9		GRAY WATER TANK CAPACITY: 190 GALLONS (720 LITERS)
B.		BASIC STRUCTURE
1.		Hull lamination schedule per construction plan. The area below water line to use "Isophthalic" Gelcoat and vinylester resin for the first three (3) layers. Deck lamination schedule per construction plan
2.		All FRP surfaces to be painted with Awlgrip Awlcraft 2000 Acrylic Urethane paint except non skid
	a	Hull- "Gray Stone"
	b	Deck and deck house - "Snow White"
	c	Boot top - "Flag Blue"
	d	Non-skid - Arocoat Gelcoat to match "Gray stone"
	e	Ventilation stack/flybridge - "Snow White"
	f	Engine room and Lazarette - Arocoat Gelcoat to match Soundown white mesh engine room paneling
	g	All other bilges - Light gray Gelcoat same as N55
3.		Coring:
	a	Cabin side (vertical surfaces): Klegecell # R80 varying degrees of thickness



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	b	Cabin top and deck (horizontal surfaces): Baltec or equivalent vertical end grain balsa, 1" (2.5 cm) thick
	c	Hull and Superstructure to have "Coremat" 2 mm anti print thru material in first series of lamination before roving is applied. Per construction drawing
4.		Deck/hull joint: Per PAE drawing
	a	Between deck and hull flange: 3M 5200
	b	Inside of joint: Three (3) layers M. & W.R. (where accessible)
	c	Mechanical fastening: 1/2" (1.27 cm) thru-bolt on 6" (15.2 cm) centers
	d	Teak cap: Across stern only, varnished
5.		Longitudinal Stringer
	a	Hull: Ten (10) full length each port and starboard (total of 20), engine beds and floor stringers per drawing
	b	Deck: per design drawing
6.		Interior transverse floors: Per design
7.		Ballast: Approx. 30,000 lbs (13,608 kg) lead fixed per machinery layout drawing. 4,000 lbs (1814 kg) of lead ingots supplied loose by builder. Vessel trimmed to suit during commissioning
8		Water tight bulkheads per construction drawing to include, but not limited to the following areas: Between Lazarette and crew quarters, crew quarters and E/R, E/R and lower gusset cabins, Aft bulkhead of Fwd. Guest cabin, and chain locker/collision bulkhead. Use "Roxtec" thru bulkhead fittings
C.		STANDARD MACHINERY DETAILS per drawing
		Main Engines
1		Port main Engine: MTU Series 60 model #6062HK35 with a rating of 600 hp @ 2100 rpm, wet exhaust & 24 volt starting
	a	Gear Box: Twin Disc #5114DC, with 4.59:1 reduction
	b	Engine Instrument Panel: Three (3) EDM (Electronic Display Module) instrument panels with alarm that will monitor Tachometer, Station active, Engine oil pressure, Engine water temp, Fuel consumption GPH, System voltage, Gear oil temp, Gear oil pressure, Alarm on/off button and five step illumination control. The following display choices are available by selection from the EDM menu as standard: Trip fuel consumption, Engine load, Turbo boost, ECM voltage, Fuel pressure, Fuel temp, Smoke control status and Total fuel used
	c	Alternators: 100 amp 24 volts DC
	d	Engine Controls: DDEC IV Electronic controls with brushed stainless steel finish six (6) stations: wheel house, fly bridge and aft deck, port and starboard Portuguese bridge and engine room
	e	"Air Sep" crankcase ventilation
	f	Two (2) banks of 4D batteries connected in series for 24 volt start



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	g	Each engine beds to have 1/2" (1.27 cm) stainless steel cap on top of bed and 1/4" (6.35 mm) plate on sides, plates are to be highly polished stainless steel
	h	Engine mounted on (4) vibration resilient mounts or MTU Detroit Diesel Equivalent
2		Starboard main Engine: MTU Series 60 model #6062HK35 with a rating of 600 hp @ 2100 rpm, wet exhaust & 24 volt starting
	a	Gear Box: Twin Disc #5114DC, with 4.59:1 reduction
	b	Engine Instrument Panel: Three (3) EDM (Electronic Display Module) instrument panels with alarm that will monitor Tachometer, Station active, Engine oil pressure, Engine water temp, Fuel consumption GPH, System voltage, Gear oil temp, Gear oil pressure, Alarm on/off button and five step illumination control. The following display choices are available by selection from the EDM menu as standard: Trip fuel consumption, Engine load, Turbo boost, ECM voltage, Fuel pressure, Fuel temp, Smoke control status and Total fuel used
	c	Alternators: 100 amp 24 volt DC
	d	Engine Controls: DDEC IV Electronic controls with brushed stainless steel finish six (6) stations: wheel house, fly bridge and aft deck, port and starboard Portuguese bridge and engine room
	e	"Air Sep" crankcase ventilation
	f	Two (2) banks of 4D batteries connected in series for 24 volt start
	g	Each engine beds to have 1/2" (1.27 cm) stainless steel cap on top of bed and 1/4" (6.35 mm) plate on sides, plates are to be highly polished stainless steel
	h	Engine mounted on (4) vibration resilient mounts or MTU Detroit Diesel Equivalent
3		Propellers: Hungshen 48" x 40" (121.9 cm x 101.6 cm) 4-blade counter rotating propellers. Port engine propeller to turn CCW and the starboard engine propeller to turn CW. Propellers to be built to I.S.O. class 1
4		Propeller Shafts: A22HS 4" (10 cm) diameter
	a	Taper details: Standard SAE
	b	Spurs line cutters Model #F on two (2) main engine shafts
5		Stern tube: FRP
	a	Bearing: Rubber cutlass type at aft end and fwd. end. Cooling at fwd with raw water diverted from the cooling system for the power steering
	b	Shaft seals to be PSS drip less for 4" (10 cm) shaft
6		Fuel Filter: Two (2) Racor 75-900MAX duplex with 2 micron filter elements in addition to secondary engine mounted filter
7		Noise Control:
	a	Hull Damping - Area above the propeller rotation plane to be treated with two (2) layers of E-A-R Specialty Composites Isodamp CN Tiles (CN-62), alternating between resin and chopped glass to form a constrained layer damping system to be the inboard side of the shell plate per drawing



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	b	Engine room ceiling and fwd bulkhead treated with 2" (5.08 cm) of Soundown lead foam and 2" (5.08 cm) of 3M Thinsulate. Inboard tank sides, aft bulkhead, underside of deck, forward side of engine room bulkhead and ventilation ducts to be treated with 2" (5.08 cm) of Soundown lead foam and 2" (5.08 cm) of 3M Thinsulate and covered with white aluminum panels by Soundown
	c	Salon/galley cabin sole to have 1-3/4" (45 mm) Nida Core" core system and 1/4" (6.35 mm) Soundown "decoupler" layer
	d	Engine room hatches to have rubber gasket and lock down mechanism
	e	Two stainless steel supports for salon cabin sole filled with lead shot for vibration absorption and mounted on Soundown rubber mounts
	f	Soundown Quite Pro lining covering engine room intake ventilating ducts, 1" (2.5 cm) thick secured with epoxy and mechanical fasteners
	g	Insulated bulkheads in living areas with 3M Thinsulate per drawing
	h	Forward accommodation areas between hull and hull ceiling to be insulated with 3M Thinsulate
	i	Salon overhead between deck underside and Majilite overhead panels is to be treated with 1" (2.5 cm) thick 3M Thinsulate
8		Engine Room Ventilation: (See Air Conditioning Systems and Ventilation Systems)
9		Wet exhaust system:
	a	Mufflers: Centek Industries Mufflers
	b	Custom exhaust blanket for dry portion of exhaust system
10		#1 Generator - Onan model #MDDCA e-QD 40 kW 133/230 volt AC 3-phase 60 Hz
	a	Wet exhaust system using gen-sep
	b	24 volt DC start
	c	Alternator: 20 amp
	d	Main panel located in pilot house and start stop in engine room
11		#2 Generator - Onan model #MDKBT e-QD 27.5 kW 133/230 volt AC 3-phase 60 Hz
	a	Wet exhaust system using gen-sep
	b	24 volt DC start
	c	Alternator: 20 amp
	d	Main panel located in pilot house and start stop in engine room
12		ABT system
	a	Hydraulic powered 50 hp bow and stern thrusters using 16" (40.6 cm) tunnels with proportional controls at five (5) stations
	b	TRAC #370 digital stabilizer system with 20 sq. ft. (50.8 sq. cm) fins and dual station control. Stainless steel kelp cutters fwd. of fins tied to bonding system. System to be powered with engine driven pump
	c	Hydraulic bilge pump 180 gallons (681.4 Liters) per minute
	d	Hydraulic anchor wash pump/fire fighting pump 180 gallons (681.4 Liters) per minute
13		Install vise in engine room at work bench



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	14			Water maker: 2000 Gallons (7.571 Liters) per day Village Marine model PW2000 with UV sterilizer, media filter and remote panel
D.				AIR CONDITIONING SYSTEM AND VENTILATION SYSTEMS
	1.			Air Conditioning System:
				CRUISAIR Tempered Water System (chilled water) 12 ton (3xMTC48DC) 208 volt AC-230 volt AC 3-phase 50/60 Hz per PAE design
		a		Modular Tempered Unit: FMTC3X4HDC Framed Chiller, 12 tons, 3-stage, 230 volt 50/60 Hz, 3-phase
		b		Control Panel: MPEDR3UDC1 TWLC3-Unit Panel , 2 Pump Relays, 230 volt - 3 phase
		c		Air Handlers 237Btu/hr total 208 volt AC 60 Hz - 3 phase:
			1	Two (2) x ATB9C - Lower Mid Cabins and heads
			2	One (1) x ATB6C - Lower Fwd. Cabin and head
			3	Two (2) x ATB12C - Master Stateroom and head
			4	Two (2) x ATB18C - Galley/Dining
			5	Two (2) x ATB18C - Salon and day head
			6	Two (2) x ATB12C - Wheel House
			7	One (1) x ATB12C - Captains Cabin and Head
			8	Two (2) x ATB12C- Sky Lounge
			9	One (1) x ATB9C- Crew Cabin/Laundry area
			10	One (1) x CBSBF24C - Engine room
		d		Circ Pump: CPOD180B3X
		e		Sea Water Pump: PS3000B3X
		f		Room Controllers:
			1	Eleven (11) x SMXHTG, SMX LCD Key Pad/Display, Grey
			2	Eleven (11) x PLTX-HVSTAT, SMXII PWR LGC BX for TW/New HV Board
			3	Five (5) x CXP30 Cable Interconnect 30' (9.4 m) SMXir
			4	Six (6) x CXP10 Cable Interconnect 10' (3.5 m) SMXir
			5	Eleven (11) x TSEP5 Cable Temp Sensing Element with RJ-11 5'-3" (1.6 m)
		g		Accessories:
			1	EXT240 Expansion Tank-TW-Bladder
			2	BFC66 Balancing Flow Control
			3	1060915 Automatic Vent
			4	1070200 Backflow Preventer Valve
			5	1070201 Pressure Regulator Valve
			6	DSV2/240 Vent Dual Spiro 2" (5.08 cm) FPT/240Btu/hr Max
			7	1010020 Strainer
	2.			Engine Room Ventilation System
		a		Two (2) Intake Fans - Multifan model #4E50-240 volt 60 Hz 20" (50.8 cm) diameter rated at 4638 CFM @ 0.0" SP. Two (2) louvered vents on P&S side deck at fwd end of engine room with screened blower inlet. Each intake fan will pull through a Delta T moisture eliminator located at the deck side



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	b	Two (2) Exhaust Fans - Multifan model #4E50-240 volt 60 Hz 20" (50.8 cm) diameter rated at 4638 CFM @ 0.0" SP. Two (2) louvered vents on P&S side deck at fwd end of engine room with screened blower inlet
	c	Fire/Smoke Dampers – Ruskin Low Leakage Control Damper, 18"x18" (45.7cm x 45.7cm) Stainless Steel Rear Flanged equipped with a side mounted Honeywell H-2024 (24 volt DC) Fast-Acting, Two Position Actuator. One (1) damper each installed on the engine room side of each blower for easy access. Each damper will be normally open and will close on SEAFIRE actuation. For boats equipped with main engine dry exhaust, one (1) damper each installed on the inside of each main engine exhaust stack louvered vent opening - damper size to be compatible with stack opening
	d	Two (2) intake fans and two (2) exhaust fans have adjustable speed controls Grainger model #3C955 to adjust engine room air flow
		Auto Blower Stop and Damper Closure on Engine Room SEAFIRE Actuation (See Fire Protection System)
		Note: See Noise Control item F
3.		Lazarette
	a	One (1) Exhaust Blower - Multifan model #4E25-240 volt 60 Hz 10" (25.4 cm) diameter Rated at 882 CFM @ 0.0" SP. Intake air will be passive from holes in the cockpit lockers
	b	One (1) General Service Temperature Switch - bulb and capillary type, range 1-150 degrees F, SPDT rated at 15 amps at 125/480 volt AC. McMaster-Carr# 47525K62. Switches wired in blower circuit with contacts closing on rising temperature
	c	Auto Blower Stop on SEAFIRE Actuation in the compartment
4.		Heads
	a	One (1) Exhaust Blower each head - Jabsco Model #36770-0115 rated at 250 CFM 120 volt AC
	b	One (1) Intra on/off switch with indicator light for each head
	c	Ducting is to be 4" (10.2 cm) I.D.
5.		Staterooms
	a	One (1) Supply Blower for master, and lower staterooms (6 total). McMaster-Carr model #19135K85 rated at 122 CFM 120 volt AC. On/Off wall switch for blower start and stop
	b	Blower located to insure minimal noise in stateroom
	c	Ducting is to be 4" (10.2 cm) I.D.
	d	Cabin intake air is to come from a louvered intake from outside the boat and ducted to the stateroom
E.		FIRE PROTECTION SYSTEM
1.		SEAFIRE Fixed System Fire Extinguishers - Two (2) Systems per PAE design
	a	Engine Room: Per Seafire quote #1042A
	1	One (1) x model #130054 240 lb (106 Liter) FM-200 cylinder assembly 2" (5.08 cm) valve
	2	One (1) x model #124173 Cylinder supervisory switch Normally Open
	3	One (1) x model #122305 Outlet adapter 2" (5.08 cm) valve
	4	One (2) x model #130046 Marine Cylinder Mounting Bracket 16" (40.6 cm)



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		5	One (1) x model #131050 Pneumatic control head
		6	One (1) x model #121-121 Actuation hose (pilot hose) 48" (121.0 cm)
		7	Two (2) x model #121105 Fitting 1/4" (6.35 mm) Straight
		8	One (1) x model #134020 Manual pull station yacht type 20' (50.8 cm)
		9	One (1) x model #131-261 Engine Shutdown & Restart 8 Circuit 24 volt
		10	Two (2) x model #131082 Nozzle 1" (2.5 cm)
		11	Two (2) x model #131020 Pneumatic heat detector, Marine
		12	One (1) x model #131023 Pneumatic detection, tubing 3/16" (4.7 mm) copper 30' (76 cm)
		13	Two (2) x model #121096 Fitting 3/16" (4.7 mm) Union
		14	Six (6) x model #121097 Fitting 3/16" (4.7 mm) Nut
		15	One (1) x model #121098 Fitting 3/16" (4.7 mm) Tee
		16	One (1) x model #131010 Pressure switch single pole double throw
		17	One (1) x model #123172 UV Protected Plastic Sign, "Warning"
		18	One (1) x model #123-173 UV Protected Plastic Sign, "FM200"
		19	One (1) x model #123174 UV Protected Plastic Sign, "Remote Pull Station"
		20	One (1) x model #123175 UV Protected Plastic Sign, "Local Operation"
		21	One (1) x model #131296 Visual audible alarm (Horn/Strobe)
		22	One (1) x model #123144 Design Manual, FM-200 Marine
		23	One (1) x model #123145 FM-200 Marine OWNERS MANUAL
		24	One hundred thirty six (136) x model #131100 FM 200 Agent Factory Fill
		25	One (1) x model #131040 Manual pull station yacht type 40' (12.2 m)
		26	One (1) x model #131062 Dual discharge adapter
		27	One (1) x model #131-290 deluxe discharge alarm
	b		Lazarette:
		1	(1) SEAFIRE Model FD-1400-M
		2	(1) SEAFIRE Deluxe Discharge Alarm Model #131-290
	c		Fire pump. Refer to section G19
	2.		Portable Fire Extinguishers
	a		Pilot House, Sky Lounge, Fly Bridge, Galley, Salon, and Master Stateroom: One (1) each USCG TYPE B-II (6 total)
	b		Guest and Crew Cabins: One (1) each USCG TYPE B-1 (5 total)
	c		Laundry: One (1) each USCG TYPE B-1 (1 total)
	F.		STEERING SYSTEM
	1.		Kobelv Hydraulic Steering System - 35 degree Rudder Deflection, Single Station (Wheel House) per quote no. SQ-15872
	a		Helm Pump x One (1): Model #7005-AL long shaft
	b		Cylinders: One (1) x Model # 7085-B16 balanced cylinder with 3-1/2" (8.9 cm) Bore with 16" (40.6 cm) stroke and one (1) x Model# 7085-SB16 servo cylinder with 3-1/2" (8.9 cm) bore and 16" (40.6 cm) stroke
	c		Safety and Bypass Valve: Model #7020
	d		Double arm for 7080 cylinder Arm: Model #7084-T



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	e	Single Arm Tiller Arm: Model #7084-S
	f	Two (2) rod ends Model: #7085-0004
	g	Two (2) 7085 tie bar ends with nut: Model # 7085-1004
	h	Filler Tank: Model #7002-A
	i	Rudder feedback unit: Model #7168-P
	j	Master rudder angle indicator: Model #7175-BMA
	k	Rudder angle indicator: Model #7175-BSA
	l	Transfer box : One (1) station +AP: Model # 7173-TX2
	m	Jog lever for Five (5) stations: Model # 7170-A1
	n	Single solenoid valve base (no sol): Model #7144
	o	Solenoid valve: Model #7148-SOL24V
	p	Power pack is two (2) Eaton model #04223-LH 7/8-13 tooth 2 bolt SAE "B" pad, PC pumps including reservoir, tank top return filter, low level/high temperature switch and pressure gauge. Cooling of hydraulic oil is done through two heat exchangers that are fed with raw water from a gear driven pump on each main engine
	q	Flow control: Model #3005
	r	Flow control: Model #3005-B
	s	Auto pilot interface: #7085-SAP-24
	t	Non drain back valve #7143
	u	Operator's Manual
2.		Hydraulic lines: Seamless copper tubing 5/8" (16 mm) I.D. with reinforced rubber hydraulic lines to the hydraulic rams and helm pump
3.		Steering wheel: 30" (76 cm) stainless steel destroyer type in wheel house x one (1)
4.		Emergency tiller: To attach to top of stbd. rudderpost and stow in Lazarette - fabricated of stainless steel
G.		RUDDERS
1.		Rudder stock: 3-1/2" (8.9 cm) A22HS x two (2)
2.		Rudder: per PAE design
3.		Rudder carrier shoes: Two piece fabricated 316 stainless steel per drawing. Main piece fastened to hull by rivets. Aft piece removable so that rudders can be removed. Shoes to be tied into bonding system and to have attached zinc plate
4.		Rudder carrier per drawing
5.		Rudder stock stuffing box: Bronze traditional style x two (2)
6.		Rudder stock tube: FRP with bronze/rubber cutlass bearing at the bottom



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	a	"T" bolt clams at stuffing box x two (2)
H.		PLUMBING SYSTEM
1.		Water Tanks
	a	Number and capacity: Two (2) tanks totaling 900 gallons (3,407 Liters)
	b	Material: Fiberglass from male molds with FDA approved gel coated interior
	c	Inspection plates: Appropriately positioned and sized for access
	d	Tanks air tested to 4.5 pounds (0.3 bar) per sq. inch
	e	Each tank to have "Wema" level gauge
	f	Each tank to be fitted with sight gauge
	g	Tank baffles to be spaced on 24" (61 cm) centers as shown in design
	h	Exterior of tanks finished in blue gel coat
	i	Tanks to comply with ABYC section H-23 for potable water systems for use on boats
	j	Cleanliness: Tank interior surfaces to be thoroughly vacuumed and wiped down prior to final closure
2.		Fuel Tanks
	a	Number and capacity: Four (4) main tanks totaling 7000 gallons (26,498 Liters) with one centerline aluminum "Day Tank" at 50 gallons (189.7 Liters) which will gravity feed from main tanks in Engine room. Two forward tanks will be transferred to main E/R tanks thru the fuel transfer system section G.2.H.
	b	FRP construction from male molds using Vinylester resin. To comply with all ABYC codes for diesel fuel tanks. Tanks to be coated with fire retardant Gelcoat on outside to comply with ABYC section H-33.20 for fire resistance
	c	Inspection Plates appropriately positioned for interior access by average size man. Plates to be fitted with labels that contain all information as stated in ABYC section H-33.16.3. Each internal baffle to have a removable panel to allow access to entire interior of all fuel tanks
	d	Fuel system to include a powder coated aluminum supply reservoir, which feeds by gravity from two engine room fuel tanks. Reservoir to be approximately 50 gallons (189.27 Liters) fitted with a drain valve at the bottom of the reservoir for water and debris purging and with a water sensor – illuminating a light and audible alarm in wheelhouse if excessive water is present. Reservoir fitted with five (5) draw spigots for two (2) main engines, two (2) generators and spares - mounted at lower level of reservoir but above water sensing probe. All returns from mains and generators to be plumbed into reservoir via a return manifold
	e	Sight gauges provided for two (2) of the four (4) fuel tanks (Engine room tanks only)
	f	Each tank to be air tested to 4.5 pounds (0.3 bar) per sq. inch
	g	Provide baffles on 24" (61 cm) centers
	h	Transfer manifold and 24 volt DC Orberdorfer gear pump (#OB992Q-10-F18BCT) 3.86 gallons (14.61 Liters) per minute fuel pump with timer switch and Racor 1000 fuel filter with 10 micron element which can transfer fuel from one tank to another and scrub fuel while transferring. Transfer is also used to fill top part of supply reservoir for consumption testing when main fuel tank level drops below the level of the testing part of the reservoir
	i	System to be built per PAE design



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	j	Exterior of tanks finished in red gel coat
	k	Cleanliness: tank interior surfaces to be vacuumed and wiped clean before final closure
	l	Each tank to have two (2) 1-1/2" (3.8 cm) I.D. vent lines
	m	Each tank to have separate 2" (5.08 cm) I.D. fill pipe located a minimum distance of 18" (45.7 cm) from any ventilation openings
	n	All hardware that comes in contact with fuel to be bonded into the 24 volt DC ground system
3.		Fuel Pipe and Hose
	a	Supply lines from engine room tanks to supply reservoir are 1-1/2" (3.8 cm) I.D. with Aeroquip brand fuel hose and swaged brass fittings
	b	Fuel line from supply reservoir to main engine filter is 3/4" (1.9 cm) I.D. with Aeroquip brand fuel hose and swaged brass fittings
	c	Fuel lines from supply reservoir to optional generator and wing engine to be 1/2" (1.27 cm) I.D. with Aeroquip brand fuel hose and swaged fittings
	d	Vent lines to be Trident fuel certified, reinforced hose 1-1/2" (3.8 cm) I.D.
4		Water Hoses
	a	Cold water: Hose from water tanks to water pump and to accumulator to be 1" (2.5 cm) diameter reinforced and approved for potable water; Branch lines to be 1/2" (1.27 cm) and 3/4" (1.9 cm) PVC pipe (blue) Shurpex
	b	Hot water: Reinforced 1/2" (1.27 cm) and 3/4" (1.9 cm) PVC pipe (red) Shurpex
	c	Sea water hoses: Trident brand reinforced for marine use and provided with double stainless steel clamps below the water line
	d	All hoses used shall meet the requirements for service as set out by ABYC for the system intended
5		Hot Water Heater System: Per PAE design
	a	Heater: Two (2) RHEEM Vanguard Low Boy, 47 gallon (178 Liters) with dual 240 volt AC elements for quick recovery (one 4500 watt, one 1000 watt). Grainger part #3WA72
	b	System have recirculation pump Grundfos model no. UP15-42SU Grainger stock no. 4P10D
6		Thru Hulls: Bronze body, stainless steel balls and Teflon seats
	a	Grounding wire: #6 gauge green wire
	b	Each thru hull to have a clearly visible tag indicating use.
	c	Each thru hull to be easily accessible
7		Fresh Water System: Per PAE design
	a	Main Pump: Headhunter Mach 5 Model #M5-115 - 120 volt with pressure regulator and Groco WSA-1000 strainer on pump inlet
	b	Groco #PST5 accumulator tank with pressure gauge
	c	Hose from water tanks to water pumps and to accumulator to be 1" (2.5 cm) diameter reinforced and approved for potable water
	d	Back up Pump: Headhunter Mach 5 Model #M5-115 - 120 volt with pressure regulator and Groco WSA-1000 strainer on pump inlet installed as back up to main pump



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	e	Filter: US water filter housing with a 5 micron sediment filter installed downstream of fresh water discharge manifold
	f	Pump Selection Manifolds x two (2): Pump inlet and discharge manifolds made of stainless steel standard pipe. Supply manifold furnished with isolation ball valves from each fresh water tank, to each fresh water pump, and from the water maker. Discharge manifold furnished with isolation valves from each pump
8		Plumbing fixtures
	a	Head sinks - Two (2) in Owner's SR, One (1) in salon day head, three (3) in guest lowers, one (1) in wheel house, one (1) in aft crew. Kohler#K2210 17" x 14" (43.2 cm x 35.6 cm) oval white. (8 total)
	b	Galley sink: Double Stainless Steel Kohler #K3355
	c	Head faucets: Grohe Model# 33170-0000 chrome (8 total)
	d	Galley, wet bar and engine room sink faucets: Grohe Model# 33939-000 chrome/chrome (3 total)
	e	Engine room sink, wet bar, fly bridge and aft deck sink: local made stainless steel
	f	Shower fixtures: Six (6) All Grohe #28.225 handle, #28.856 soap dish, #28.666 24" (61 cm) shower bar, #28.151 hose, #34.436 thermostat valve
	g	Owner's head tub Kohler #K-1247 "SEASIDE" Bath. White. "Coralais" faucet, #K-7161-AF Clear flow adjustable pop up drain
	h	Tub faucet: Kohler "Coralais" with #k-7161 Clear Flow adjustable pop-up drain
9		Shower and sink sump pump system for crew head, engine room, and laundry
	a	One (1) Lancaster sump-less sump pump #399 115 volt AC 60 Hz located under cabin sole in laundry area. Shower ,sink, e/r sink and washer drain to pump via PVC manifold with 1-1/2" (3.8 cm) outlet. Sump pump discharges to gray water tank. Requires 1/2" (1.2 cm) vent line
10		Sump pump system for forward guest heads
	a	One (1) Lancaster sump-less sump pump #399 115 volt AC 60 z located under cabin sole in laundry area. Shower ,sink, e/r sink and washer drain to pump via PVC manifold with 1-1/2" (3.8 cm) outlet. Sump pump discharges to gray water tank. Requires 1/2" (1.2 cm) vent line
11		Bilge Pumps: Per PAE design
	a	Electric: Six (6) Par Jabsco 34600-0031 120 volt 60 Hz 10.8 gallons (41 Liters) per minute Diaphragm 1" (2.5 cm) diameter ports, with "Ultra Senior" 24 volt auto float switch #UPS-01-24/32. With relay for 120 volt operation One (1) in each water tight compartment
	b	Manual: One (1) Edson Model #117AL-200-230-PC
	c	Hydraulic driven emergency pump: (1) Pacer model #ISP2GLHYC plumbed to all water tight compartments with 2" (5.08 cm) PVC piping. Manifold for emergency pump to be located in easily accessible location. Pump to operate by manually switching on. Per PAE design
	d	Electric driven emergency bilge pump: (1) Pacer model #ISP2GL D3.0C plumbed to the emergency bilge manifold for use as a back up if the hydraulic driven emergency pump fails
	e	High Water Bilge Alarm Panel - Pilot House per PAE design. High water bilge sense will come from std. Ultra Senior in each bilge compartment. Visual and audio alarm panel in pilot house



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12		Toilets and Holding Tank System: Per PAE drawing
	a	Toilets to operate on vacuum principle using single Sealand #M-115 #511500 120 volt AC vacuum pump as the primary and an additional #M-115#511500 120 volt AC vacuum pump as back up
	b	All toilets to be Sealand "Magnum Opus" #230801 with "HushFlush" and chrome trim with standard below floor mount (white) (8 total)
	c	Water supply to toilets to be fresh water only
	d	Holding Tank: One (1) FRP 185 gallon (700 Liter) holding tank
	e	Use only schedule 80 PVC pipe or Trident "Odor Shield" #140 sanitation hose
	f	Holding tank overboard pumps: Edson "Bone Dry" #120ELB 20 gallon (75.71 Liter) per minute 120 volt AC electric and Edson "Bone Dry" #557BR 30 gallon (113.5 Liter) per minute manual pump per drawing
	g	Holding tank vent to use Sealand# 310002 vent filter
	h	Deck fitting for portable evacuation facility
	i	Holding Tank Level Monitor: Sealand 24 volt Tank Watch 4 Panel and Cap with Vent, 45" (114.3 cm) probes Part #600115, including Universal Flange 3" (7.6 cm) NPT with gasket and stainless steel hardware, 24 volt "Do Not Flush" status panel #700024 and shut down relay #342490 warning system at each toilet
13		Fresh water outlets on the foredeck, aft deck, fly bridge, Portuguese bridge deck and one (1) in engine room using stainless steel "Scandvik" spigots #11204
14		Gray Water System: Per PAE design
	a	Tank: One (1) FRP 190 gallon (720 Liter) tank. All sinks, showers, and air conditioning condensate to drain to tank. All drains to have "P" traps and sloped down hill run to tank. Exception: Crew head sink and shower and e/r sink drains, laundry and forward guest cabin head drains will be pumped to gray water tank with the "Lancaster" sump-less sump pumps as described in section G.9.A and G.10.A. Tank equipped with electric and manual discharge pumps, level switch for pump starting, and level monitor system
	b	Electric Discharge Pump: Jabsco #JA18690-0000 115 volt AC with auto/manual switching. Pump inlet to draw within 1" (2.5 cm) of the absolute bottom of the tank. Pump to discharge overboard through anti siphon loop
	c	Level Switch: McMaster-Carr model #50195K93, 24 volt to auto start and stop the gray water pump in the AUTO mode. In AUTO mode, switch to start pump at 2.5" (6.4 cm) depth and stop pump at 1" (2.5 cm) depth
	d	Level Monitor System: Sealand 24 volt Tank Watch 4 Panel and Cap with Vent, 45" (35.6 cm) probes part #600115, including Universal Flange 3" (7.6 cm) NPT with gasket and stainless steel hardware
	e	Manual back up pump: Edson Model #117AL-200-230-PC
15		Deck Shower - "Scandvik" #10640640 aft deck shower installed on transom per PAE design
16		Washer/Dryer unit - Maytag "Neptune" stacked washer dryer unit
17		FRP Sea Chest for raw water supply to various systems:



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	a	Generator(s), water maker intake, air conditioning and spares
	b	Dual 2" (5.08 cm) diameter intakes port and starboard of keel using two (2) Groco #ARG2000 with Monel basket
	c	All rubber impeller pumps to draw from the top of the chest. All centrifugal pumps to draw from the bottom of the chest
18		Oil Change System
	a	System utilizes a 24 volt Orberdorfer Gear Pump Model #OBN993-M-F36-RC 4.8 gallons (18.7 Liters) per minute to drain and fill engine lube oil from/to crankcases of main and generator(s) engines. Pump is controlled by a three (3) position switch mounted at pump location. Switch positions to be labeled "ENGINE OIL DRAIN", "OFF", "ENGINE OIL FILL"
	b	Oil change manifold per PAE design. Manifold, pump and control switch to be located in an accessible and comfortable location. Engine side of manifold to include isolation valves for each engine. Pump discharge/fill side to include a hose of suitable length for drawing from and discharging to a locally placed container
	c	All hose used in oil change system to be Aeroquip model #FC234-8 type wire reinforced
19		Hydraulic drive anchor wash/fire fighting pump: One (1) Pacer model #ISP2GLHYC to 2" (5.08 cm) intake thru-hull and Groco strainer at bow. Provide "y" valve to switch from anchor wash to fire fighting system. Fire fighting to consist of a "Izerwaren" valve #91.778 , Nozzle #91.718, two (2) 91.707 fire hoses with couplings, stowed in #91.727 container
20		Beam central vacuum system-Serenity Plus quiet package Model 2775
	a	Serenity plus power team wand kit
	b	Inlet valves-Beam plastic inlet valves with wires in brown
	c	Hose sock-gray
	d	Floor rug combo tool
I.		ELECTRICAL SYSTEM
1		The AC electrical system is a 3-phase 120/208 volt distribution system with a maximum capacity of 60 kW. Power is supplied from two Onan generators and through one 100 amp shore power connection. The vessel is fitted with a 35kVA shore power converter allowing connection to any shore connection worldwide. Provisions have been made for the seamless transfer of power from generator to generator, or generator to shore side power connection
	a	Atlas 35kVA shore power converter with seamless transfer
	b	120 volt AC inverter system for emergency power, control power to the helm station and for refrigeration during times when the generators are offline
	c	AC Outlets are standard US format 120 volt AC. Location shown on drawing
	d	All outlets in head compartments, mechanical spaces, exterior and galley are GFCI type. All external outlets have water proof covers
	e	One (1) Glendinning shore power cord retrieval system provided for the 120/208 volt AC, 100 amp. ships shore power connection. The system to be provided with 100' (30.48 m) of shore power cable. Shore power inlet to be located at the stern of the vessel



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	2		The DC electrical system is a 24 volt distribution system with a maximum capacity of 765 amp/hours. The DC system is to provide limited power the ships inverter system and provide power to the helm station DC equipment
		a	Standard batteries are located per PAE machinery drawing and are provided as follows:
		1	24 volt DC house battery bank - Consists of six (6) 8D, 12 volt "Lifeline" AGM batteries @ 255 Ah each. connected in series/parallel. A total battery bank capacity of 765 amp/hours is provided for emergency, control, ships equipment and limited operation without operation of a generator or shore power connection
		2	12 volt DC helm power is drawn from one (1) 4D battery
		3	Port main engine starting - two (2) 4D "Lifeline" AGM connected in series for 24 volt starting. Switching logic to parallel with 24 volt house bank for emergency starting
		4	Starboard main engine starting - two (2) 4D "Lifeline" AGM connected in series for 24 volt starting. Switching logic to parallel with 24 volt house bank for emergency starting
		5	#1 Generator starting- two (2) Group 31 "Lifeline" AGM connected in series for 24 volt starting. Switching logic to parallel with 24 volt house bank for emergency starting
		6	#2 Generator starting- two (2) Group 31 "Lifeline" AGM connected in series for 24 volt starting. Switching logic to parallel with 24 volt house bank for emergency starting
		b	24 volt battery charging is provided in the following ways:
		1	Inverter/charger provides a total of 70 amps at 24 volts for the house battery bank
		2	Main engine starting battery bank is charged from the respective engine alternator
		3	Generator starting battery bank is charged from the respective engine alternator
		4	Each charging source can be switched to accommodate any single failure of a charging device
	3		All wire to be marine grade , tinned conductor, 600 volt insulation type and sized according to the ABYC Standards
	4		When possible wiring to be color coded per ABYC standards
	5		Connectors to be ring type with closed end seamless construction
	6		SSB radio round plane and lightning ground systems per PAE drawing
	7		Electrolysis control per PAE drawing
		a	All thru hulls to be bonded together with a #6 green wire and tied into the DC grounding system
		b	All hardware mounted below water line - i.e. stuffing box, rudder shoe, rudder frame, all thru hulls, engines, and strainers to be connected to bonding system
		c	Zinc plates to be tied into the bonding system based on the hull potential requirements of the vessel
		d	One (1) "Perry nut" zinc on the end of each main engine propeller shaft
	8		Electrical Panels
		a	Main AC distribution and control panel located in E/R, sub panels located fore and aft on each deck as required



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	b	Main DC distribution and control panel located in E/R, sub panels located fore and aft on each deck as required
	c.	AC/DC distribution panel in wheel house for helm instrumentation and equipment
	d	House battery control panel in Lazarette, control of the panel at the helm station
	e	Engine/gen start battery and emergency parallel control panel at entrance to engine room, control of the panel at the helm station
	f	Generator start/stop panel in wheel house
	g	Helm station control and monitoring panel for bilge pumps, engine room ventilation, navigation lights, high water alarms, pump monitoring and other shipboard systems
J.		INTERIOR
1.		General: Per PAE drawing with N72 style joiner work
	a	Cushions throughout boat per PAE drawing of buyer's choice of ultra leather or fabric
	b	Interior steps to all teak. Corner of steps to have nonskid varnish
	c	Interior lockers and drawers to be locking Timage with chrome push button
	d	Interior overhead panels - Majilite Destiny Parchment #JHD6S. Removable, held in place by Velcro
	e	Interior door lock sets to be Mobella "Mc Coy" chrome brass
	f	Interior cabin doors to have rubber gaskets for sound reduction and door hooks
	g	Hanging lockers to have automatic interior lights controlled by micro switch. Lined with Cedar
	h	Solid (non louvered) cored doors for heads and staterooms 1.25" (3.2 cm) thick with rubber gaskets on door jambs
	i	Interior teak woodwork including cabin sole in pilot house to be varnished with 60% gloss varnish
	j	Salon tables, pilothouse table to be varnished with high gloss varnish
	k	All hand rails to be teak
	l	Structural bulkheads dividing staterooms and heads to have 3/4" (1.9 cm) furring strips on each side to allow application of 3/4" (1.9 cm) thick sound insulation. The finished bulkhead material of 3/8" (9.5 mm) thickness to be applied over this
	m	Mirrors are located thru out vessel as shown on interior drawings
	n	All drawers to have stainless steel ball bearing slides
2		Galley
	a	Sub zero #700TCIR and #700TCIL refrigerator/freezer with teak panels x two (2). One right hand hinge and one left hand hinge
	b	Sub zero #700TF L freezer with teak panels located across from galley fwd. of day head - left hand hinge
	c	Counter top: Granite with bull nosed edges
	d	Flooring: Ceramic tile or stone
	e	Cabinet paneling: All teak
	f	G.E. Profile Stainless steel drop in electric range #JD968SFSS with custom stainless steel sea rails and pot holders
	g	Locker and drawer interior finish: Formica white
	h	GE "Advantium" #SCA1001DSS microwave oven with exhaust blower
	i	GE Profile #GCG1540FSS 15" (38.1 cm) stainless steel trash compactor



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	j	Dishwasher 24" (61.cm) Bosch #SHV6803 stainless steel
	k	Garbage disposal Insinkerator 3/4 hp #444SS
	l	Stove alcove to be lined with Stainless steel
	m	Lift up galley partition to divide galley from dining room
	n	Pantry to starboard of galley
	o	Sliding doors to galley to have frosted glass panels
3		Dining room
	a	Hutch on port side with beveled glass doors and drawers under
	b	Custom teak table with extension leaf and six custom teak and fabric chairs
	c	Door to galley/side deck to have frosted glass panel
4		Wet bar
	a	Three (3) custom bar stools
	b	Sub-zero refer drawers #700BR lighted locker over with beveled glass doors
	c	Sub-zero wine chiller #424
	d	Stainless steel sink with Grohe faucet #33.939.000 chrome/chrome
	e	Granite counter top
	f	Overhead locker
	g	Cabinet/paneling: Varnished teak
5		Main Salon
	a	Floors: Carpet with 2 lb./sq.ft 1/2" (1.27 cm) thick Soundown underlayment pad
	b	Cabinet/paneling: Varnished teak
	c	Teak table between chairs on port side
	d	Furniture: Two (2) movable chairs with two (2) ottomans
	e	Locker interior finish: Teak
	f	Teak wrapped stainless steel support column at fwd. End of settee
	g	Aritex lift for 50" (127 cm) flat screen TV on port side of salon. (TV not included)
	h	Prewire for surround sound speakers
	i	Teak valance/air con soffit P&S and aft sides of salon
	j	Two overhead teak hand rails
	k	Two (2) Teak coffee tables starboard side with high gloss varnish
	l	Settee along starboard side with storage under
	m	Mullions along port and starboard side for installation of widow treatments
	n	Overhead to have perimeter recess with strip lighting
6		Salon Day Head
	a	Floors: Teak
	b	Counter top: Granite with bull nosed edge
	c	Mirror and towel bar as shown on drawing
	d	Cabinet/joiner work: All teak
	e	Locker and drawer interior finish: Formica
	f	Toilet paper holder and Towel bar: TBD



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7			Master Cabin
	a		Floors: Carpet with 2 lb./sq. ft. 1/2" (1.27 cm) thick Soundown underlayment pad
	b		Cabinet/paneling: Varnished teak
	c		Hanging locker interior finish: Cedar wood
	d		Alcove for flat screen 42" (106.7 cm) TV. (TV not included)
	e		Vanity/desk with chair
	f		Lounge chair
	g		Mattress: Standard king size
	h		Hanging lockers to be cedar lined with full length mirrors on inside of doors
	i		Book shelves and night stands next to bunk
	j		Teak headboard frame
8			Master Head (His and Hers)
	a		Floors: Ceramic or stone tile to be specified with order
	b		Counter top: Granite with bull nosed edges
	c		Mirrors and towel bars: As shown on drawings
	d		Walk thru molded FRP shower stall with frameless glass doors accessed from both heads
	e		Cabinet/joiner work: All teak
	f		Locker and drawer interior finish: Formica
	g		Toilet paper holders and towel bars: TBD
	h		Bath tube to have frameless glass doors
	i		Acrylic bath tub: Kohler Tub enclosure to be tiled with buyers choice of tile or stone
	j		Mirrored locker doors in tub enclosure.
9			Pilot House - Layout per PAE drawing
	a		Floors: Teak - varnish
	b		Cabinet/joiner work: Varnished teak
	c		Counter tops and instrument panel faces: Formica #939 dark gray
	d		Hi-Low teak table at settee to slide in and out
	e		Settee with chart drawers under
	f		Helm seat - Three (3) Stidds 500N-2X2 Low Back "Slimline". Vinyl and pedestal color are buyer's choice
	g		Chart table with Cantalupi "Rico" chart light
	h		Locker interior finish: Formica
	i		Book shelves and chart drawers and lockers as shown on PAE drawing
	j		Drinks refrigerator under port side of settee - Isotherm Model #CR049NV567
	k		Compass- Ritchie SS 5000 5" (12.7 cm) mounted on teak block
	l		Top of instrument console to be wrapped in black leather or ultra leather
10			Pilot House Head
	a		Floors: Teak - varnished
	b		Cabinet/joiner work: All teak
	c		Toilet paper holder: TBD



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	d	Counter tops: Granite with bull nosed edges
	e	Locker interior finish: Formica
	f	Towel bars TBD
	g	FRP shower stall with aluminum and glass bi-fold door
11		Captain's Cabin Pilot House
	a	Flooring: Carpet with pad
	b	Cabinet/joiner work: Varnished teak trim
	c	Locker interior finish: Formica
	d	Mattress: Single 5" (12.7 cm) foam
	e	Desk with movable chair
	f	Hanging locker cedar lined
	g	Dresser with four (4) drawers and mirror over
	h	Drawers under bunk
	i	Overhead lockers and shelves over bunk
	j	Mullions for window treatments on two windows
12		Sky Lounge
	a	"L" shaped settee starboard side
	b	Teak coffee table
	c	Customer chairs and ottoman port side
	d	Teak end table
	e	Aritex lift system for 42" (106.7 cm) flat screen TV. (TV not included)
	f	Lockers and book shelves port side and stbd aft
	g	Mullions for window treatment for all six windows
13		Forepeak (Chain Locker) Water tight collision bulkhead
	a	Shelves: Longitudinal plywood shelves with 5" (12.7 cm) fiddles provided port and starboard for storage
	b	Pad eye in each locker for bitter end of chain
	c	Finish: Painted with gray gel coat
	d	Locker to be divided for dual anchors and chain
	e	Both lockers to be self draining thru thru-hulls at boot top
14		Aft stairway to crew cabins and engine room
	a	Bulkheads to be finished: Varnished teak
	b	Teak hand rail
15		Crew cabin
	a	Floors: Carpet with pad
	b	Cabinetry and joiner work: Formica with teak trim
	c	Mirrors as shown
	d	Hanging locker with Cedar wood lining
	e	Book shelves and lockers outboard of lower berth



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	f	Drawers under berths
	g	Mattresses: Custom 5" (12.7 cm) thick foam x two (2)
	h	Forced air ventilation system with adjustable blower per PAE design
16		Crew head
	a	Floors: Lonseal #154 Sandstone
	b	Cabinetry: Formica with teak trim
	c	Shower to be molded FRP
	d	Counter tops: Granite with bull nosed edges
	e	Aluminum/glass bi-fold shower door
	f	Towel bars TBD
	g	Toilet paper holder TBD
	h	Full height mirror over sink
17		Laundry/passageway
	a	Floors: Lonseal #154 Sandstone
	b	Cabinetry: Formica with teak trim
	c	Hanging locker under stairs lined with Formica
18		Forward port and starboard guest cabins
	a	Floors: Carpet with 2 lb./sq. ft. 1/2" (1.27 cm) thick Soundown underlayment pad
	b	Cabinet/paneling: Varnished teak
	c	Hanging locker interior finish: Cedar wood
	d	Dresser outboard
	e	Drawers under bunk
	f	Mattress: Standard king size
	g	Night stands next to bunk
	h	Teak headboard frame
19		Forward guest cabin
	a	Floors: Carpet with 2 lb./sq. ft. 1/2" (1.27 cm) thick Soundown underlayment pad
	b	Cabinet/paneling: Varnished teak
	c	Mirrors as shown
	d	Hanging locker with Cedar wood lining
	e	Drawers under berths
	f	Mattresses: Custom 5" (12.7 cm) thick foam x two (2)
	g	Forced air ventilation system with adjustable blower per PAE design
20		Port and starboard and forward guest heads
	a	Floors: Tile or stone
	b	Cabinetry: Varnished teak
	c	Shower to be molded FRP
	d	Counter tops: Granite with bull nosed edges
	e	Aluminum/glass bi-fold shower door



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	f	Towel bars
	g	Toilet paper holder
	h	Full height mirror over sink
K.		LIGHTING (Per PAE lighting plans)
1.		Main overhead lighting throughout interior: Daniel R. Smith "Pearl" 35 watt 120 volt AC . Lighting controlled by wall switches. (Approx. 100 lights)
	a	Showers: Daniel R. Smith "Antigua" 20 watt 24 volt AC. (Approx. 9 lights)
	b	Under Cabinetry Lights: Daniel R. Smith "Monteserrat" 20 watt 24 volt AC. (Approx. 12 lights)
	c	Spots: Daniel R. Smith "San Pedro" 35 watt 120 volt AC. (Approx. 10 lights)
2.		Exterior overhead lights , F/B and side decks: Daniel R. Smith "Cosica" 20 watt 24 volt DC. (Approx. 25 lights)
3.		Overhead reading lights : Daniel R. Smith "Pearl" 35 watt 120 volt AC direction spot lights controlled from separate switches. (Approx. 15 lights)
4.		Engine Room and Lazarette Lights
	a	Imtra Fluorescent Lights Model #ILRS200CP2-54-1 120 volt AC 48" (121.9 cm). (Approx. 6)
	b	Imtra Fluorescent Lights Model #ILMUL2-24T5HPF1 120 volt AC 24" (61 cm). (Approx. 11)
	c	Daniel R. Smith "Anitgua" Emergency Lights Model #005.023205.000 24 volt DC. (Approx. 10)
	d	Imtra Utility Lights Model #ILIM90200 24 volt DC/120 volt AC. (Approx. 7)
5.		Courtesy Lights
	a	Exterior: Daniel R. Smith "Bimini" LED 24 volt DC White. (Approx. 26 lights)
	b	Interior: Daniel R. Smith "Bimini" LED 24 volt DC Red. (Approx. 35 lights)
	c	24 volt DC LED white rope lighting under settees, bunks and toe space in selected areas interior and exterior, white exterior and red interior. Imtra part #ILMDL-WH-24LED for white and Imtra part #ILMDL-RE-24LED for red. Per PAE drawing
6.		Hanging Locker Lights and misc. Lockers: Daniel R. Smith "Pacific" 24 volt AC. (Approx. 20)
7.		Navigation lights and signal lights for vessels over 12 m (39' - 6"): Aqua Signal 55 series
	a	Port nav light - #55300 24 volt
	b	Star nav light - #55200 24 volt
	c	Stern light - #55500 24 volt
	d	Steaming light - #55400 24 volt
	e	Anchor light - #55000 24 volt
	f	Restricted maneuverability lights - #55000 x two (2) all around white, #55004 x four (4) all around red. 24 volt
	g	Stainless steel "Light Stand" per PAE design



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8.		Owner's cabin and port and starboard guest cabins to have two (2) each 120 volt AC Cantalupi "Ondine" chrome bronze swing arm reading lights. (6 total)
9		Wall Lamps in salon in four (4) locations. Alico "Centerra" with off white/chrome hem shade
10		Wall Lamps at fwd. End of dining area in two (2) locations. Alico "Centerra" with off white/chrome hem shade
11		Wall Sconces in heads, Four (4) in owner's head, Two (2) in day head, Two (2) in wheelhouse head, Four (4) total in guest heads. Eureka Model #3156-JDJ-CHR-FRO-120-277 volt AC
12		Reading spots in crew cabin and forward cabin. Daniel R. Smith "Little Inagua" 20 watt 24 volt AC (Approx. 6)
13		Deck Floodlights: Aqua signal 120 volt/500 watt series 1069 mounted one (1) each on port and starboard F/B hardtop and one facing aft on the mast. Three (3) total
14		Spotlight - Carlisle & Finch 200 watt spotlight #XY2EDE-RF with dual station remote controls. Unit mounted on the flybridge hardtop
L.		EXTERIOR, DECK HARDWARE, and EQUIPMENT
1		Non Skid - All horizontal surfaces on deck to have a diamond pattern non skid as shown in deck plan - standard non skid to be a contrasting color to parameter deck
2		Stainless 316 handrails 2" (5.08 cm) O.D. with electro polished bases. All rails shown on PAE drawings to be standard in addition to those specified
	a	Handrails at transom
	b	Hand rail around aft deck coaming 2" (5.08 cm) diameter
	c	Handrail on underside of aft deck overhang 1-1/2" (3.8 cm) O.D.
	d	Hand rail at port and starboard side boarding doors
	e	Recessed hand rails from lower deck to P/B deck
3		Stainless Steel 316 Hawse fittings by Aritex Model no. D08Z: Six (6) port and starboard per drawing 7" x 16" (17.8 cm x 40.6 cm) with rollers. Four (4) at port and starboard side deck bulwarks to be recessed and to have cleat option. One (1) on aft center line with cleat. (11 total)
4		Bollards - Stainless steel 316 Aritex Model A251 Type 500 18" (45.7 cm) bollards. (10 total)
5		Upper rub rail cap to be 316 stainless steel 2-3/4" W x 1/2" thick (7 cm x 1.27 cm) fastened with flush 316 stainless steel fasteners. Stainless steel caps on upper and lower rub rails as shown in design
6		Lower rub rail cap to be 316 stainless steel 2-1/4" W x 3/8" thick (5.7 cm x 9.5 mm)



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7			Manship ports in hull and deck as shown on design. Ports positioned as follows:
	a		Six (6) starboard side hull 8" x 18" (20.3 cm x 45.7 cm) oval opening
	b		Six (6) port side hull 8" x 18" (20.3 cm x 45.7 cm) oval opening
	c		All opening ports to be fitted with screens and deadlights
	d		Fixed window in day head. 34" x 17" (86.4 cm x 43.2 cm)
	e		Two (2) Fixed windows in galley 34" x 17" (86.4 cm x 43.2 cm)
8			Stainless steel 316 double bow roller - Maxwell style square rollers for 5/8" (16 mm) stud link chain. Roller to be built per PAE design
9			Stainless steel 2" (5.08 cm) diameter 316 rails and stanchions on upper deck and F/B deck . Rails to have welded on round bases with fastening studs on bottom and dual 1-1/2" (3.8 cm) divider rails as shown on drawing
10			Foredeck to have 2" (5.08 cm) diameter 316 stainless rail with 2" (5.08 cm) diameter stanchions. Welded to round bases with fastening stud welded on bottom
11			Windshield Wipers: "Exalto" two (2) speed self-parking motor, with wash system for four (4) front windows
	a		#EX2167.32 wiper motor 223BS 24 volt/23Nm, for one (1) 3/8" (9.5 mm) bulkheads x four (4)
	b		#EX2135 T1 Pantograph arm 17.7" - 23.6" (45-60 cm) adjustable x four (4)
	c		#EX2174 curved wiper blade 17.7" (45 cm) x four (4)
	d		#EX2159 Combo switch for single wiper 24 volt x four (4) (custom engraved panel per PAE design)
	e		#EX2143 24 volt solenoid valve for wash system x one (1)
	f		#EX2136.03 tubing retainer strip x four (4)
	g		#EX2184 Washing Jet for type 1 adjustable pantograph arm x four (4)
	h		#EX2186 plastic bulkhead connector for 19.7" (50 cm) (new style)
	i		#EX2154 Tubing 1/4" (6.35 mm) soft black x 16' (5 m)
	j		#EX2157 Tubing 1/4" (6.35 mm) hard black for push fit plumbing fittings x 16' (5 m)
	k		#EX2129 elbow 1/4" (6.35 mm) x six (6)
	l		#EX2166 T-coupling 6x6x6 mm x four (4)
	m		#EX2119 straight coupling , 1/4" (6.35mm) x one (1)
	n		#EX2105.025 Gallery with adjustable spring to tension wiper against window x four (4)
12			Horn: Kahlenberg dual trumpet #D-1 with chrome finish and fog timer 120 volt compressor with 24 volt DC solenoid
13			Deck hatches: Per deck plan, Five (5) Lewmar #70 "Ocean Series" to include insect and privacy screens. One (1) Lewmar #60 "Ocean Series" to include insect and privacy screens. All on foredeck
	a		Install one (1) Lewmar #70 "Ocean Series" on the port side of the lower platform to access the flybridge hardtop
14			Access to F/B from Sky Lounge stairway and PCM F/B hatch same as N72



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15			Windows PCM with 1/2" (1.27 cm) thick tempered glass
	a		All side windows to be tinted glass
	b		Sky lounge to have three (3) opening windows. Two (2) stbd and one (1) port
	c		All salon and wheel house windows are recessed 1" (2.5 cm)
	d		All salon windows to have storm plate receptacles
	e		Captains cabin to have one (1) opening window
	f		Aft salon window to be opening
	g		Forward facing pilot house windows to be 5/8" (16 mm) thick tempered glass and non-tinted
16			Aluminum doors by Pacific Coast Marine as follows (Note: interior as well as exterior PCM doors are included in this schedule):
	a		Wheel house - Two (2) each, Weather Tight Dutch door, one L.H. Mortise hinge, one R.H. Mortise hinge. C.O. 21" x 73" (53.3 cm x 185.4 cm)
	b		Salon after - One (1) each, Weather Tight sliding door with glass panels. 48" x 73" (121.9 cm x 185.4 cm)
	c		Salon port and starboard side - Two (2) each, Weather Tight Dutch door, one RH Mortise hinge and one LH. C.O. 21" x 73" (53.3 cm x 185.4 cm)
	d		Engine room - One (1) each, Water Tight model no. PCM4170-W with sound blanket core, painted. R.H. surface mount hinge. C.O. 21" x 73" (53.3 x 185.4 cm)
	e		Lazarette - One (1) each, with port hole, Water Tight model no. PCM4170-W with sound blanket core, painted. R.H. surface mount hinge. C.O. 21" x 70" (53.3 cm x 177.8 cm)
	f		Sky Lounge - One (1) each, Weather tight double opening with al glass panels. 48" x 73" (121.9 cm x 185.4 cm)
	g		Door to fwd. Lower stateroom: Water tight model no. PCM4170-W C.O. 21" x 73" (53.3 x 185.4 cm)
	h		Chain Locker: Water tight FRP hatch
	i		F/B hatch
17			Boarding doors: port and starboard - opening in two pieces. Top to fold up and over and bottom to open outboard. Stern doors on port and starboard side aft per drawing. Doors to have Aritex "blind" dog lock/handles
18			Davit: Marquipt 3500 lb (1588 kg) capacity hydraulic/240 volt AC davit with extendable boom to 20' (50.8 cm) mounted on fore deck per drawing. Davit sized and positioned to launch dinghies from port and starboard side
19			Aft deck exterior cabinet per drawing
	a		Sink: S.S. local made
	b		Faucet: Scandvik model #MR2500-10810 folding type.
	c		Gagganau BBQ
20			Bottom treatment: Five (5) layers of epoxy barrier coat and three (3) coats of anti fouling paint



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21		P/B deck and F/B deck to drain through eight (8) 2" (5.08 cm) deck drains - four (4) per side . P/B deck to have sixteen (16) freeing ports - (8 per side)
	a	Lower side decks to drain through eighteen (18) freeing ports with flaps - (9 per side)
22		Anchor well to drain through three (3) scuppers 2" (5.08 cm) diameter
23		P&S storage lockers in Portuguese bridge with stainless louvers
24		Two (2) FRP ventilation stack/radar mast with flag halyards port and starboard per PAE design
25		Portuguese bridge control stations port and starboard side of forward P/B as on N72APH with engine controls, bow and stern thruster controls, start/stop/horn
26		Aft deck control station for engine control ABT bow and stern thruster jog levers, start/stop, air horn push buttons and forward windlass control. Located on starboard side of transom facing aft as on N76 APH
27		Flybridge per PAE design with FRP hardtop, sink, drinks U-line drinks reefer, and three (3) Stidds "Slimline" helm chairs #500n-2x2 white vinyl and settee with vinyl cushions and high gloss teak table. Jacuzzi brand Three person spa. Sink to drain directly overboard. Ritchie SS 5000 compass installed. Three (3) stainless steel bar stools
	a	Folding faucet to be Scandvik model #MR2500-10810 chromed brass
28		FRP hardtop over F/B with molded in non-skid 4" (10.2 cm) diameter Stainless steel support stanchions at fwd end P&S
28		Stern capstan winches: Two (2) Maxwell VC 3000 208 volt AC 3-phase electric port and starboard per PAE design
30		Flag Staff - 60" (152.4 cm) teak flag staff with 2" (5.08 cm) socket for aft P/B deck rail
31		Door to foredeck through Portuguese bridge with custom Aritex pantograph hinge and latch
32		Anchor: Aritex 300 lb. (136.01 kg) stainless steel plow x two (2)
33		Chain - 800 ft. (243.84 m) 5/8" (16 mm) Stud Link chain in two (2) 400 ft. (122 m) lengths from port and starboard chain lockers
34		Swim ladder: Stainless steel with teak steps mounted on swim step under FRP hatch accessible from water
35		Cleats - Two (2) fold up style 10" (25.4 cm) cleats on swim step port and starboard for dinghy tie up



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36		Windlass: Dual matched set of Maxwell VWC 6000 hydraulic three (3) station controls wheelhouse, flybridge and aft deck and foot switches with chain counters and band brake and 5/8" (16 mm) Stud Link chain gypsy x two (2)
37		Aritex chain stopper with devils claw chain tensioner for 5/8" (16 mm) diameter Stud Link chain x two (2)
38		All exterior locker doors to use flush stainless steel pull rings for latches same as N72
39		All exterior locker doors to have stainless steel louvered vents
40		All exterior door keepers to be ABI #2039CH
41		Two (2) Fishing pole holders flushed into bulwarks in cockpit. One each port and starboard sides with drains
42		Stainless steel stem plate with dual anchor wash nozzles P&S and Nordhavn emblem
43		Life raft pads port and starboard side of F/B deck
44		Swim Step Rails - Three (3) 2-1/2" (6.4 cm) diameter "U" shaped rails across swim step
45		Recessed 24 volt backlit stainless steel Nordhavn name plates by Aritex: Two (2) port and starboard side per PAE design
46		Foredeck lockers , two (2) flush style port and stbd. as shown on drawings. Hinges to be Freeman Style "Large Yoke" with gas shocks
47		100 gallon (378.54 Liter) gasoline storage tank with electric pump installed inside Portuguese bridge and accessed from foredeck deck
48		Marquipt Sea Stairs: Six (6) step with swivel platform option. Stairs to stow in alcove in bulwark side. Alcove to have hinged cover. Per PAE design
49		Marquipt Sea ladder with brackets at port and starboard side of bow for access to dinghy after launching. Ladder to stow in foredeck box
50		All deck lockers and stowage boxes to be fitted with stainless steel gas shocks of the proper rating
		* Specifications are subject to change at the discretion of designers and builders