

**Location:** Available width is 31 by 180 meters, Location has good accessibility for pedestrian and vehicle access, ancillary parking facilities In the area

**Conditions for mooring:** Very good. Completely protected against swell, currents. Good protection against winds.

# POWER, MAINS WATER, BLACK WATER CAPACITIES FOR CITY PLANNING

**Mains Shore Power** 2.500 KVA  
 Rated voltage (primary): 25/20/11 kV  
 Rated voltage (secondary): 400 V  
 Average consumption 1200 Kw / Hr

Vessel has it's own transformer onboard, max shorepower handling 2 500 Kva. Carrier AC uses most power, depends on weather and occupancy. Vessel has a heat pump system using temperature fluctuation in seawater for HVAC cooling and heating.

## **Freshwater**

Pressure 3-6 Bar  
 Max capacity 15 m3 / hour, 100 m3 per day

Connection to city water infrastructure

**Sewage (Black and grey)** 15 m3 / hour, 100 m3 per day

Connection to city sewer infrastructure

Group	Description	Shore Connection kWh at Max. Capacity per hour
1	1 Propulsion service	37
2	2. Ship service system	141
3	3. HVAC	931
4	4. Accomodation service	132
5	5. Galley	114
6	6. Lighting	136
Total power consumption kW		1491
cos phi		0,8
Total power consumption kVA		1864

## GENERAL DESCRIPTION

Sunborn Barcelona is a self propelled floating hotel and convention resort equipped for hotel operation. Vessel is classified under surveillance of Lloyd's register of shipping, and it has IMO number 9475272.

Hull of the vessel is build according to LR requirements and from LR classified materials (grade LR A steel). Whole vessel fulfils European MED regulations.

The vessel will be arranged with ship's public spaces on the decks 1, 2, 3 and 7. The public spaces are designed and built to the luxury cruiser standard.

The facilities include:

- Two level Ball Room on the deck 1-2
- Conference area on the deck 1, which can be divided into the 4 smaller
- Banquet/Night club on the deck 2, for approx. 200 persons
- reception with shop on the deck 2
- Lobby Bar and cafe on the deck 3,
- Fine dining restaurant on deck 3
- Sun Deck with pool and bar on the deck 7
- Panorama restaurant on the deck 7
- gym and spa facilities on the deck 7

Accommodation is arranged on the decks 2, 3, 4, 5 and 6. The standard cabin size is approximately 30 m<sup>2</sup>. The floating hotel has 166 standard cabins and 17 suites ranging from 48,5 m<sup>2</sup> to 111 m<sup>2</sup>. All the cabins are outside cabins, up from deck three with private balconies. The wheelhouse is located on the deck 7.

The floating hotel propulsion is designed to have diesel electric propulsion with two rudder propellers and two propulsion motors with input rating approx. of 920 kW / 1800 r.p.m. each. The floating hotel will also have a bow thruster with Nominal input power of 300 kW.

The electric plant shall consist of four generating sets (+1 optional position) worked by four stroke diesel engines of approximately 800 kW each, burning M.D.O.

The speed of floating hotel with self propulsion will be defined during sea trials, and it is expected to be approximately 6 kn.

<u>Main dimensions</u>	<u>(approx.)</u>
Length overall	141,20 m
Length on the waterline	127,40, m
Breadth, moulded	22,76 m
Design draught approx.	3,70-4,20 m

Total area on decks 18 190 m<sup>2</sup>, which consists of:

Public areas	4566
Administration areas	1809
Cabin area	7279.8
Outside areas	2190
Technical areas	2345
<b>TOTAL</b>	<b>18190</b>

## 2.7 DESIGN PARAMETERS

### Ambient Conditions

Ambient Temperatures:

The floating hotel's equipment is to be designed for the following conditions:

Winter:                      outside air: 5°C      seawater: 4°C

Summer:                     outside air: + 35°C      seawater: + 32°C

Except for air conditioning, which is defined in chapter 5.11.

### Autonomy

Floating hotel is equipped for self propulsion and with generator sets for autonomous energy production.

### Electric Voltage

3 x 400 V 50 Hz              for power generation and main consumers

230 V 50 Hz                    for lighting and smaller consumers, etc.

### Stability:

in compliance with Intact Stability (IS) - Intact Stability for All Types of Ships Covered by IMO Instruments Resolution A.749(18) Amended by MSC.75(69) - Annex - Code on Intact Stability for all Types of Ships Covered by IMO Instruments - chapter 4.7.3 Intact stability criteria

#### 4.1 MOORING AND ANCHORING EQUIPMENT

The anchoring equipment: the floating hotel is fitted with two anchors.

There are two electric capstans fitted forward, combined with windlass and capstan. They shall have a working and storage zone.

Two capstans similar to the forward ones shall be fitted aft, but these shall not have windlasses.

The floating hotel is equipped with fixed mooring system. Six arms and attachment to the floating hotel are included. Attachment and reinforcements to the pier by the owner.

#### 4.2 BOW THRUSTERS

The floating hotel is equipped with bow thrusters with a power of 300 kW, driven by electrical motor, for manoeuvring.

#### 4.3 FIRE-FIGHTING EQUIPMENT

Throughout the entire floating hotel water based fire-fighting system with its corresponding water mains shall be fitted.

The portable fire-fighting elements (hoses, extinguishers, axes, fire-man suits, etc.) shall be in accordance with the rules.

Throughout the floating hotel there shall be an addressable fire detection system with smoke sensors and; heat and smoke in engine rooms, in accordance with the rules.

In accommodation and machinery areas a high pressured water sprinkler fire-fighting system shall be fitted, in accordance with the rules.

#### 4.4 LIFE-SAVING EQUIPMENT

Floating hotel will be equipped with lifesaving appliances according to rules shall be fitted on board for 210 Persons as per SOLAS requirements for passenger vessel for short international voyages. The rescue/life boat will have its corresponding davit.

There shall be installed inflatable life rafts with adequate evacuation system for 101 persons, each board side shall be provided with same amount (total amount 202).

## 5.10 HEATING AND COOLING

### General description

A modern heat pump system is installed to produce cooling and heating energy utilising the temperature of the sea water. This arrangement will substantially lower the amount of energy needed to heat/cool the hotel during it's port operations.

The installed heat pump system provides chilled water for cooling, hot water for heating and for domestic hot water supply. The heat pump system consists of three crew compressors of type Carrier 30HXC190.

### The compressors have two working modes

Heating mode when the control of the compressor is done by the set point temperature of the leaving or entering liquid of the **condenser**.

Cooling mode when the control of the compressor is done by the set point temperature of the leaving or entering liquid of the **evaporator**.

### Coefficient of Performance - COP

When comparing the performance of heat pumps the term **coefficient of performance (COP)** is used to describe the ratio of useful heat movement to work input compared to the needed work. Heat pumps are more *effective* for heating than for cooling if the temperature difference is held equal. This heat includes the compressor's dissipated work as well as the heat removed from the inside of the appliance.



## 5.11 AIR CONDITIONING SYSTEM

The ventilation and air-conditioning system has been designed with significantly lower airflow speeds than normal passenger vessels to create a more silent ventilation system for the floating hotel.

As in a normal passenger vessel the air flow speed is up to 15m/s, in the Sunborn the optimum design parameter has been set to a half of the speeds of a typical passenger vessels. Special attention has also been given to Cabin ventilation, where the fan-coil unit is located over the bathroom of the cabin, and the air is led next to the cabin window/balcony door to distribute the air equally in to the cabin through wide distributor to prevent feeling draft in the cabin and to equal the cabins temperature by creating an air curtain in front of the windows.

The climate parameters set to the floating hotel can be overtaken by increasing the airflow in the ventilation and by installing an additional cooling compressor. Also the dimensioning of the cooling piping (diameters) have been designed so, that by installing more powerful pumps, the flow of the piping can be increased, to meet higher demands.

### Design and construction parameters

In accommodation spaces such as cabins, wheelhouse, public rooms, etc a complete air conditioning system to be installed.

Design to maintain the following conditions with a min. fresh air per person 15 m<sup>3</sup>/h.

	Outside	Inside
Summer	+ 35 °C 80 % RH	+ 24 °C 50 % RH
Winter	- 10 °C	+ 20 °C min 35 % RH
Sea water	+ 32 °C	

Heat load calculation to be made according ISO standards 7 547 and minimum air changes shall be in accordance with the following table

### 7.7.2 SEWAGE SYSTEM

For water-closet and urinary sewage, a gravity discharge system will be installed. a separate system with Vacuum toilets will be installed to public and crew areas at the lower decks when gravitational systems can not be utilised.

These systems shall discharge into a sewage treatment plants or to the sewage holding tanks arranged in fore and aft of the floating hotel. All the grey water shall be discharged into the grey water holding tanks or into the last section of the sewage treatment plants.

A Sewage treatment plant is installed and operated on the activated sludge/suspended aeration system, accelerating natural biological process to produce clean, safe effluent suitable for discharging at the sea. Total capacity is estimated to be as much as flow of 6010 litres/day. Sewage treatment plant is based on a total capacity of max 50 persons. The equipment is to work automatically. This capacity is enough for the transportation voyages. Additional equipments can be installed on board later if necessary.

The floating hotel has sewage holding water tanks with total capacity of 340 m<sup>3</sup>. To empty these tanks to shore there will be four (4) electric driven, centrifugal pumps.

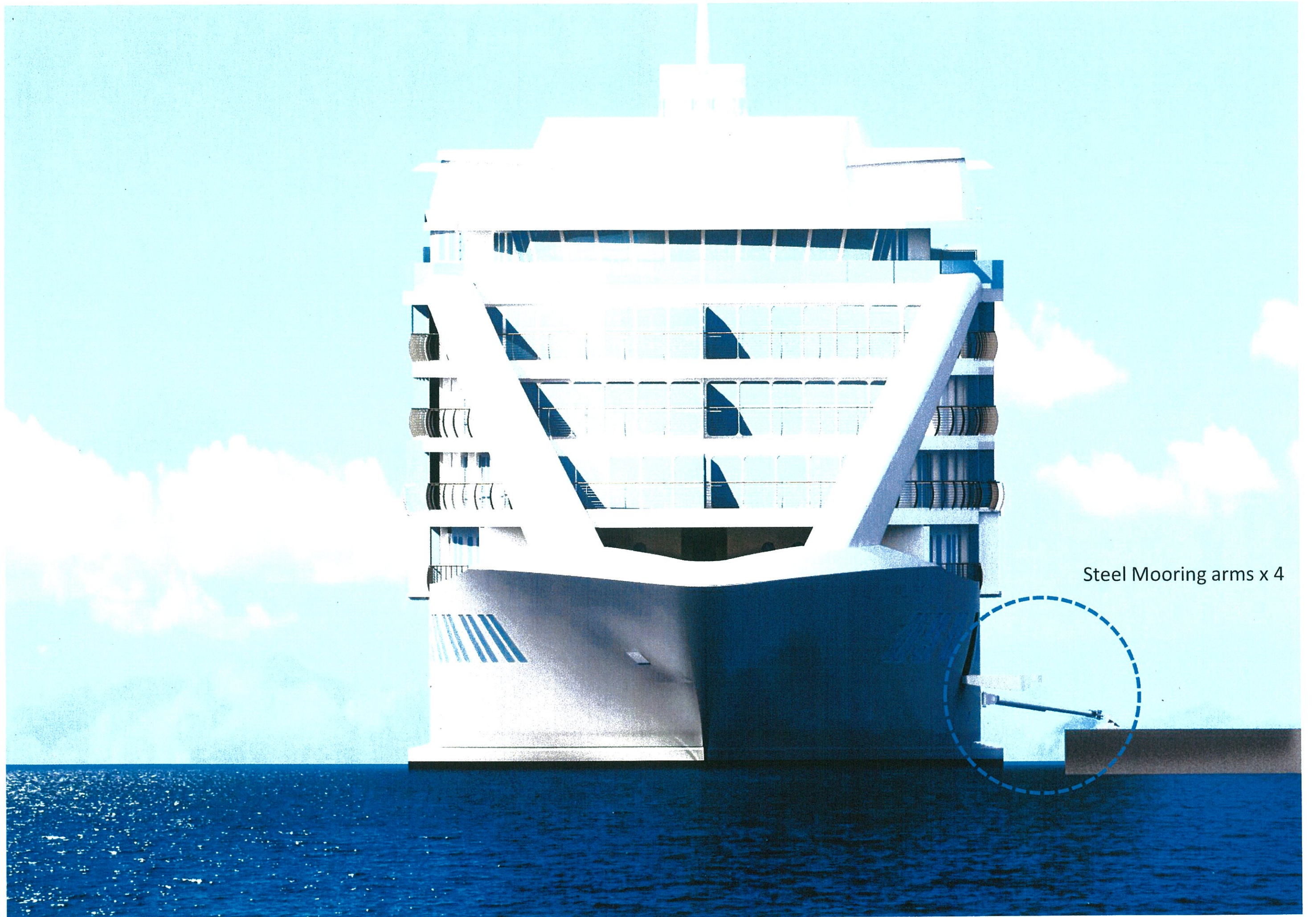
All the sewage tanks can be cleaned usings pressure water cleaning equipment thru special connections on tanks.

## 7.10 SHORE CONNECTION SPACE

Under deck 2 there shall be mounted shore connections for:

- Fresh water
- Fire-fighting
- Fuel
- Lube oil
- Bilge discharge
- Leakage oil discharge
- Sewage water discharge
- Galley oil discharge

All the connections shall be placed and marked, and will have different connection flanges to avoid mistakes. The possibility of locating the electricity and telephone shore connection also in this space shall be arranged.



Steel Mooring arms x 4







