

GENERAL AREA - ROOM 501		
Floors		Non-slip salt water resistant paint
Walls		Hygienic Paint
Roof		N/A
Doors	Rear door	<i>To Remain</i>
	Front personnel door	<i>Yard Access: Roller Shutter doors, with personnel door and access for fork lifts. Must be secure to comply with Home Office regulations</i>
	Connecting door	<i>Stair access to mezzanine to be removed, access to mezzanine to be via stair in 502 (see dwg No C0025/BW/AQ/002)</i>
Security requirements		<i>Rear door to 501 with keypad to remain. All other access doors to be openable from the inside only.</i>
Mezzanine		Repair corroded steelwork Access for fork lift truck to be allowed for.
Fixture & fittings		Gas cages: Gas bottles need to be in external cages to the rooms and easy access for changing the bottles and manipulation of gauges. 2 cages for each room should be allowed. Gases to be used include. Carbon Dioxide Nitrogen Oxygen Work bench – saltwater proof
Storage		N/A
Fire	Alarms	Smoke & heat detector, Sounder and flashing beacon, consider aspirating system.
	Extinguisher	Re-use existing
Lighting		<i>Existing lighting and fire exit signage to remain</i>
Power		<i>8 x 240v 1ph 16A commando sockets with isolators, 2 x 240v 1ph 3-pin and 2 x 110v 16A outlets with transformer. 2 x 3 phase & 2 x 110v sockets for plugging in transport aquariums (outside wall). 1 No 3ph 200A external generator connection to refrigerating plant via DB c/w changeover switch.</i>

Telephone		<i>1 No RJ45 IP54 Network outlet</i>
Data	Nr of ports	<i>2 No RJ45 IP54 Network outlets for control panel networking</i>
Water / drainage	Sink x 1 WHB x 1	<i>Sink to drain to seawater waste tank. Corrosion proof. Minimum Dimensions 760mm long x 450mm wide. H&C fresh water supply. Hand wash basin with H&C fresh water supply. Drainage to foul drain.</i>
BMS		<i>Control Panel – HMI Ability to see readings, control set points from control panel. Restricted access.</i>
Gas Detection		<i>Oxygen depletion alarm (excess and depletion required in each experimental room)</i>
Other pertinent information		<i>Seawater storage: insulated, with own filtration system 25 000 L. Ability to pump into holding tanks on mezzanine 2 x 1000 litre Seawater holding tanks on mezzanine. Both chilled to provide Antarctic and temperate temperature water (-2° - +15°C) Gravity feeds to Experimental rooms and Aquarium rooms Fresh water storage on mezzanine 500L – Ro system (to be supplied by BAS) All rooms to have external alarms (beacon & sounder) for temperature/plant failure Floor drain in each room to seawater waste tank, with plugs available in case of chemical spills. Floors waterproof and non-slip. Wipeable walls Ports in Experimental Rooms to allow thermocirculators/chillers etc. to be run from outside. Shelving for thermocirculators</i>

ROOM 1 – ANTARCTIC AQUARIUM		
Minimum internal dimensions	8.3 width x 3.1 depth x 2.35 Height	
	<i>The pumps currently in the room would ideally be external with the water chilling plant in a temperature controlled plant room.</i>	
Doors	Size	<i>As existing</i>
	Notes	Raised Threshold to prevent spillages
Windows		Viewing window in door. Gives ability to check if someone is working in room without opening doors to decrease heat load on plant and improve H&S. <i>Black out blinds required.</i>
Air Temperature	Range	<i>-5°C to 10°C. ±1 °C from setpoint. Adjustable via control panel HMI, restricted access</i>
	Controls	<i>Ability to control & monitor from BMS with remote access required (external to BAS)</i>
	Heat Gain	Internal heat gain from pumps. Filters etc.
Water Temperature	Range	<i>-2°C to 6°C ±0.2 °C from setpoint.</i>
	Controls	<i>Ability to control & monitor from BMS with remote access required (external to BAS)</i>
Lighting	Lux level	<i>Programmable 365 days. Must be able to simulate daylight and night time condition. Red lights to be provided during night time condition.</i>
	Controls	<i>Ability to control from BMS. Minimum, aquarium, office and outside requirement</i>
Fire	Alarms	Detector and flashing beacon. No sounder internal to the Aquarium to reduce stress on specimens
	Extinguisher	N/A
Power Requirements	Sockets Metering	<i>20 x 240v 1ph 16A + 3ph for pumps (if not external-number to be confirmed) 2x 110v IP56. 2 x 13A UK and European waterproof sockets for plugging in equipment brought in by users.</i> Room metered separately required for lighting / power/ refrigeration etc – connected to BMS

Data	Nr of ports	<i>2 x RJ45 Network Sockets</i>
Refrigeration		<i>Duty & standby – connected to BMS All Chilled water (Glycol) fittings marine grade stainless steel. Heat exchangers to be titanium. Chilled sea water to be plastic ABS as the materials need to operate effectively below 0°C and in salt water environment.</i>
Water		<i>Feed from Sea water holding tank on mezzanine (1,000 L) - chilled Feed from fresh water tank on mezzanine (RO system)</i>
Drainage		<i>Drainage from Aquarium systems into waste water tank. Ability to block drain in case of chemical spill, cleaning materials entering drain.</i>
Trapped in Alarm		<i>To sound locally and to central point</i>
Fixtures & furniture	Tanks	<i>Existing tanks to remain</i>
	Other	<i>Phone access</i>
Other Requirements		
Other pertinent information		<i>Waterproof and non-slip floors. Wipeable walls</i>

Experimental Room 1		
Minimum internal dimensions		<i>2.8 width depth 2.35 As is x3.1</i>
Doors	Size	<i>As Existing</i>
	Notes	<i>Raised Threshold to prevent spillages Sliding door into aquarium as existing</i>
Windows		<i>Viewing window in door. Gives ability to check if someone is working in room without opening doors to decrease heat load on plant and improve H&S. Black out blinds required.</i>
Air Temperature	Range	<i>-5°C to 10°C +/- 1 °C</i>
	Controls	<i>Ability to control & monitor from BMS with remote access required (external to BAS)</i>
	Heat Gain	<i>Casual heat gain up to 4 kw from equipment.</i>
Water Temperature	Range	<i>-2°C to 6°C ± 0.2°C (from thermocirculators BAS supply)</i>
	Controls	<i>Ability to control & monitor from BMS. Minimum, aquarium, office and outside requirement</i>
Lighting	Lux level	<i>Programmable 365 days. Must be able to simulate daylight and night time condition. Red lights to be provided during night time condition.</i>
	Controls	<i>Ability to control from BMS.</i>
Fire	Alarms	<i>Detector and flashing beacon. Sounder?</i>
	Extinguisher	<i>N/A</i>
Power Requirements	Sockets	<i>12x 240v 1ph and 2 x 110v 16A outlets with transformer.</i>
	Metering	<i>Room metered separately required for lighting / power/ refrigeration etc – connected to BMS</i>
Data	Nr of ports	<i>2 x RJ45 Network sockets</i>
Refrigeration		<i>Duty & standby – connected to BMS</i>

Water		Sea water & fresh water – from chilled holding tanks on mezzanine
Drainage		<i>Floor drain to waste water tank. Ability to block drain in case of chemical spill, cleaning materials entering drain.</i>
Gases		<i>. 40L size gas bottles in gas cages outside compound. Oxygen depletion & alarms required.</i>
Trapped in Alarm		<i>Required – sound locally and to central point.</i>
Fixtures & furniture		Removable Flexible strong benching. Saltwater proof.
Other Requirements		
Other pertinent information		<i>Floors waterproof and non-slip. Wipe able walls All Chilled water (Glycol) fittings marine grade stainless steel. Heat exchangers to be titanium. Chilled sea water to be plastic ABS as the materials need to operate effectively below 0°C and in salt water environment.</i>

EXPERIMENTAL ROOM 2		
Minimum internal dimensions	<i>2.930 width x 3.130 depth 2.345 height</i>	
Doors	Size	<i>As Existing</i>
	Notes	<i>Raised Threshold to prevent spillages</i>
Windows		<i>Viewing window in door. Gives ability to check if someone is working in room without opening doors to decrease heat load on plant and improve H&S. Black out blinds required.</i>
Temperature	Range	<i>-5°C to 30°C +/- 1°C</i>
	Controls	<i>Ability to control & monitor from BMS. Minimum, room, office and outside requirement</i>
	Heat input	<i>Casual heat gain up to 4 kw from equipment.</i>
Lighting	Lux level	<i>Programmable 365 days. Must be able to simulate daylight and night time condition. Red lights to be provided during night time condition. LED</i>
	Controls	<i>Ability to control from BMS.</i>
Fire	Alarms	<i>Detector and flashing beacon. Sounder?</i>
	Extinguisher	<i>N/A</i>
Power Requirements	KVA	<i>12Kw Maximum for equipment to be used (if thermocirculators can't run outside)</i>
	Sockets Metering	<i>12 x 16A 240v 1ph 2 x 16A 110v. 2 x 13A 1ph 240v UK and European waterproof sockets for plugging in equipment brought in by users. Room metered separately required for lighting / power/ refrigeration etc – connected to BMS</i>
Data	Nr of ports	<i>2 x RJ45 Network sockets</i>
Refrigeration		<i>Duty & standby – connected to BMS</i>
Water / drainage		<i>Sea water & fresh water – from chilled holding tanks on mezzanine Floor drain to waste water tank. Ability to block drain in case of chemical spill, cleaning materials entering drain.</i>

Gases		<p><i>Lines for - oxygen, CO2, nitrogen, air, mixed gases. Gas detectors. 40L size gas bottles in gas cages outside compound.</i></p> <p><i>Detection & alarms required.</i></p>
Trapped in Alarm		<p>Required – sound locally and to central point, potential to notify more than one person</p>
Fixtures & furniture		<p><i>Flexible strong removable benching. Saltwater proof.</i></p>
Other Requirements		<p>Area for disinfection of equipment</p> <p>Area on wall for hanging nets and hoses etc</p>
Other pertinent information		<p><i>Floors waterproof and non-slip.</i></p> <p><i>Wipe able walls</i></p> <p><i>All Chilled water (Glycol) fittings marine grade stainless steel. Heat exchangers to be titanium. Chilled sea water to be plastic ABS as the materials need to operate effectively below 0°C and in salt water environment.</i></p>

EXPERIMENTAL ROOM 3		
Minimum internal dimensions		<i>2.93 width x 3.13 depth 2.35 height</i>
Doors	Size	<i>As Existing</i>
	Notes	<i>Raised Threshold to prevent spillages</i>
Windows		Viewing window in door. Gives ability to check if someone is working in room without opening doors to decrease heat load on plant and improve H&S. <i>Black out blinds required.</i>
Temperature	Range	<i>-5°C to 30°C</i>
	Controls	<i>Ability to control & monitor from BMS. Minimum, room, office and outside requirement</i> <i>Controllability to ±1°C</i>
	Heat input	<i>Casual heat gain up to 4 kw from equipment</i>
Lighting	Lux level	<i>Programmable 365 days. Must be able to simulate daylight and night time condition. Red lights to be provided during night time condition. LED</i>
	Controls	<i>Ability to control from BMS. Minimum, room, office and outside requirement</i>
Fire	Alarms	<i>Detector and flashing beacon. Sounder?</i>
	Extinguisher	<i>N/A</i>
Power Requirements	Sockets	<i>12 x 16A 240v 1ph, and 2 x 110v 16A outlets with transformer.</i>
	Metering	<i>Room metered separately required for lighting / power/ refrigeration etc – connected to BMS</i>
Data	Nr of ports	<i>2 No RJ45 Network Sockets</i>
Refrigeration		<i>Duty & standby – connected to BMS</i>
Water / drainage		Sea water & fresh water – from chilled holding tanks on mezzanine <i>Floor drain to waste water tank.</i> <i>Ability to block drain in case of chemical spill, cleaning materials entering drain.</i>

Gases		<p><i>Lines for - oxygen, CO2, nitrogen, air, mixed gases. Gas detectors. 40L size gas bottles in gas cages outside compound.</i></p> <p><i>Detection & alarms required.</i></p>
Trapped in Alarm		<p>Required – sound locally and to central point, potential to notify more than one person</p>
Fixtures & furniture		<p><i>Flexible strong removable benching. Saltwater proof.</i></p>
Other Requirements		<p>Area for disinfection of equipment</p> <p>Area on wall for hanging nets and hoses etc</p>
Other pertinent information		<p><i>Floors waterproof and non-slip.</i></p> <p><i>Wipe able walls</i></p> <p><i>All fittings marine grade stainless steel/titanium and all plastic fittings ABS as the materials need to operate effectively below 0°C and in salt water.</i></p>

Life Sciences Specimen Store +4°C		
Minimum internal dimensions	<i>3.0 width</i>	<i>3.13 depth</i> <i>2.35 height</i>
Doors	Size Notes	<i>As Existing</i> Clear opening Pallet truck access desirable
Temperature	Range	<i>-5°C to 30°C</i> <i>+/-1 degree</i>
Lighting		Low Energy with Emergency
Fire	Alarms Extinguisher	Sounder and flashing beacon N/A
Power Requirements	KVA	No internal power sockets required
Refrigeration		Duty & standby – connected to BMS
Trapped in Alarm		Required – sound locally and to central point, potential to notify more than one person
Fixtures & furniture		Existing racking to be re-used.
Other Requirements		
Other pertinent information		

Life Sciences Catalogued Store -25°C		
Minimum internal dimensions	<i>3.0 width</i>	<i>3.13 depth</i> <i>2.35 height</i>
Doors	Size	<i>As Existing</i>
	Notes	Clear opening
Temperature	Range	<i>-25°C to °C</i>
		Controllability to $\pm 2^{\circ}\text{C}$
Lighting		Standard lighting – LED ?
Fire	Alarms	Sounder and flashing beacon
	Extinguisher	N/A
Power Requirements		No internal power sockets required
Refrigeration		Duty & standby – connected to BMS
Trapped in Alarm		Required – sound locally and to central point, potential to notify more than one person
Fixtures & furniture		Existing racking to be re-used
Other Requirements		
Other pertinent information		

Life Sciences Frozen Store -25°C		
Minimum internal dimensions	3.125 width	6.645 depth 2.35 height
Doors	Size	As Existing
	Notes	Clear opening Pallet truck access highly desirable
Temperature	Range	-25°C +/- 2°C
Lighting		Low Energy with emergency lighting
Fire	Alarms	Sounder and flashing beacon
	Extinguisher	N/A
Power Requirements		No internal power sockets required
Refrigeration		Duty & standby – connected to BMS
Trapped in Alarm		Required – sound locally and to central point, potential to notify more than one person
Fixtures & furniture		Racking to be provided by BAS
Other Requirements		
Other pertinent information		

TEMPORARY REQUIREMENTS – AQUARIUM AND BIOLOGICAL SAMPLE STORAGE

Requirements:

Temporary facilities will need to be provided to allow the new facilities to be built. Please outline below what facilities will be needed to be provided, for 4-6 months duration:

Aquarium:

1 x Transport Aquarium (existing)

1 x Transport Aquarium to be fitted out for use by BAS

In the event of failure of either unit a spare must be available within 4 hours

Existing 3 phase & 110v supplies can be used for temporary Aquaria

Temporary storage for the current aquarium equipment.

Container for chilling sea water before it gets pumped into the transport aquariums & chiller.

Both containers will need audible alarm in case of refrigeration failure.

Both need the ability to be made secure i.e. locked

Foot baths at doors.

Container for waste water & disinfectant should existing waste tank not be available including suitable pumping arrangements and connection to foul drain.

Hoses & pumps for water movements

Biological CEF:

Temporary storage required for all existing samples within -25 and +4 cold stores. This must be on site due to licensing and transportation restrictions.

Potential to use existing cold room 253 SB2 to store +4°C samples during the build.