

Table 2-13 Required Floor Area for Packing Room

Item	Detail	Approximate Area (m ²)
Working space	Working table 1.8 × 0.75m Vacuum packing machine 1.3 × 0.6m (existing) Heat sealer 0.5 × 0.5m Working space 1.2m × (1.8+1.3+0.5)	7
Utensil table	1.8 × 0.75m	1
Corridor	Corridor and space needed for opening/closing the door	22
Total		30

The storage for packing material will be placed next to the packing room where materials could be carried in directly. The total floor area will be 15.5m² (2.5m × 6.2m).

Three (3) cabinets will be placed in the storage.

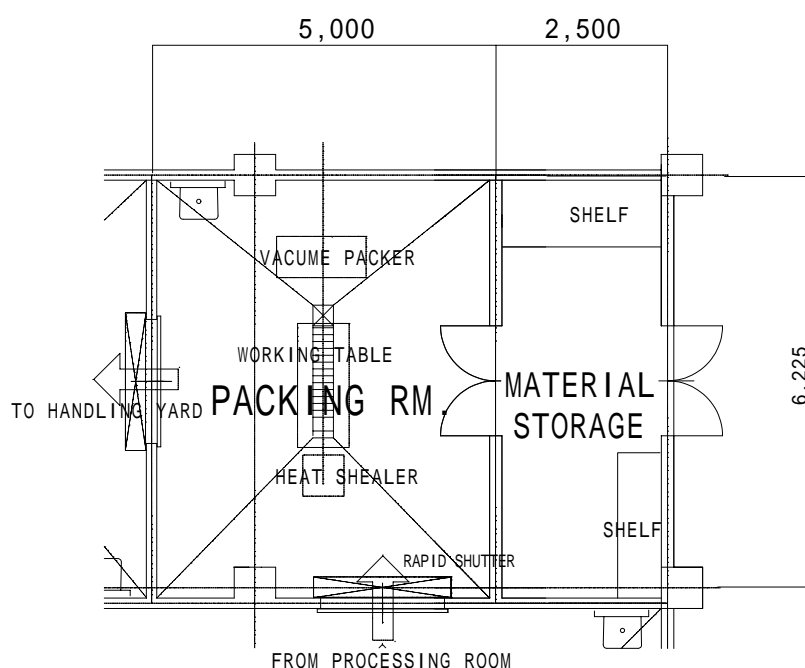


Fig. 2-11 Layout of Packing Room/Packing Materials Storage

d) Loading Room

The products packed in the packing room will be delivered to the sorting space where they will be sorted and sprinkled with flake ice for shipment or chilled storage. It is planned to have a space to sprinkle flake ice (3 × 3m), corridor and space for ice storage and refrigerator.

Table 2-14 Required Floor Area for Loading Room

Item	Detail	Approximate Area (m ²)
Flake ice sprinkling space	20kg Fish Box × 10 boxes 2m × 0.5	1
	Working Space 3 × 3m	9
Corridor		17
Total		27

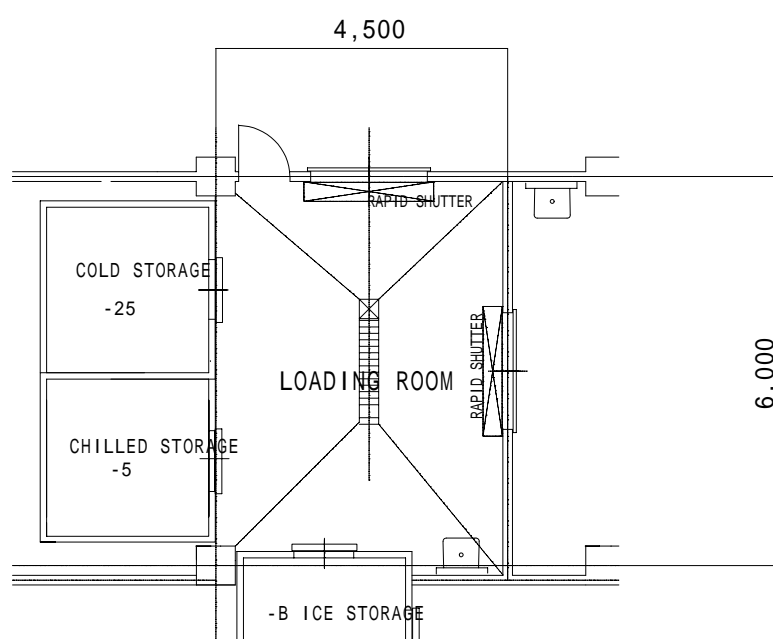


Fig. 2-12 Layout of Loading Room

e) Clean Access Room

For the maintenance of hygienic indoor conditions, the introduction of a clean access room through which people walk prior to their entry to such clean zones as the processing room and the packing room is necessary. In this clean access room, workers will change their outdoor shoes to working shoes, pass through an air shower, change into working clothes, wash their hands and check that they are properly dressed before entering the clean zones one at a time. The minimum required floor area is approximately 12m², incorporating a shoe shelf, air shower, clothing shelf, wash basin and full-size wall mirror together with passageways.

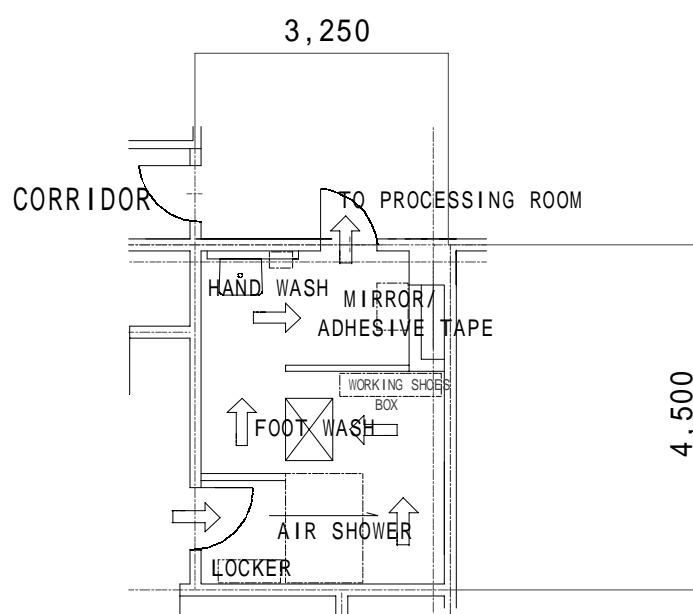


Fig. 2-13 Clean Access Room

f) Quality Control Room

The quality control room in the processing area will, in fact, be a laboratory designed to quickly judge the quality of raw fish and processed products in a simple manner instead of using specific equipment to check the product quality at the processing stage. The planned test items are the freshness, quality and water content of raw fish and products by means of functional tests and the level of hygiene of processing utensils, facilities and products using a simple testing kit. Since the simple test should be carried out promptly, the quality control room will be located next to the processing room with floor area of 10m².

g) Product Sales Area

Product sales area for the direct sale of highly value-added fish products which are processed by the processing facilities will be provided. This space will constitute a products sales area with one chilled display case and a desk. The planned floor area of this space facing the outside is approximately 16m².

Table 2-15 Required Floor Area for the Product Sales Room

Item	Detail	Approximate Area (m ²)
Working space	Desk and chair	4
Showcase	2.0 × 1.0m	2
Selling place	2 × 3m	6
Corridor	2 × 2m	4
Total		16

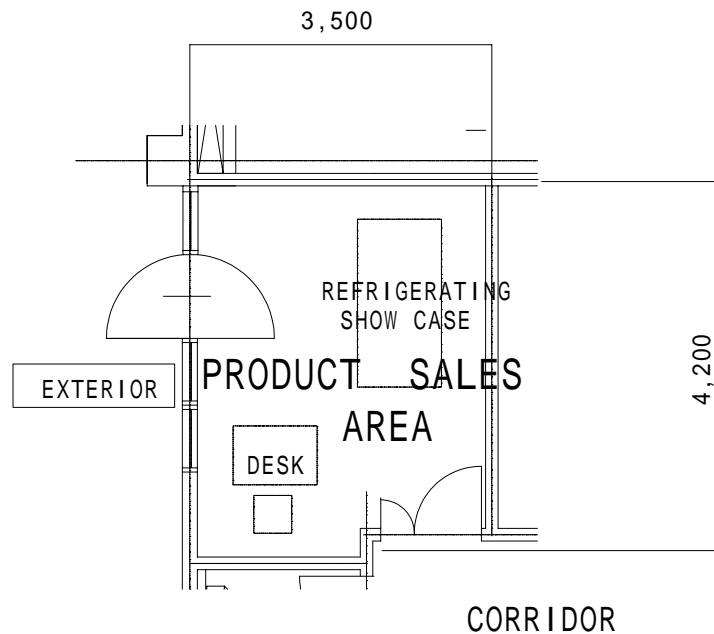


Fig. 2-14 Layout of Product Sales Area

h) Workers' Locker Rooms

Ten (10) workers, i.e. six (6) men and four (4) women, are expected to work at the planned new processing facilities. However, it is likely that the facilities will be visited by many people, including trainees from inland and abroad. In view of this likelihood, the provision of eight (8) steel lockers (30cm wide) is appropriate and the introduction of separate locker rooms of the minimum size (8m²) to allow the changing of clothes is planned for men and women.

i) Separate Toilets for Men and Women

Separate toilets for ten (10) men and six (6) women including trainees and visitors are planned to serve people directly working at the planned new processing facilities. The floor area of each toilet will be 11.42m², including booth for cleaning equipments.

For men : one (1) bowl and one (1) urinal

For women : two (2) bowls

j) Ice-making Machine and Ice Storage

Ice from non clean area (existing market area) cannot be used in processing room and the packing room to prevent contamination. One (1) unit of ice-making machine and ice storage is planed to be installed to supply flake ice to both processing and shipping area.

The required amount of ice is 1.0 ton/day which is 500kg each for processing and shipping. In

order to supply another 1.0 ton of ice during the high catch season, same type of automatic ice-making machine that is planned to be installed in the existing fish market, capacity of 2 ton/day, will be installed. The ice-making machine and ice storage will be placed where ice can be easily taken from both processing and handling area.

k) Chilled Room

Chilled room is planned 1.0 ton capacity to keep two (2) days products in Fish boxes.

l) Air Blast Freezer

Wagon loading type air blast freezer that can hold the freezing pan is planned to correspond for fish catch of 500 to 800kg/day during high catch season.

m) Cold Storage

Cold storage will be installed at the handling area to keep product for both inland and overseas.

-2 First Floor

a) Wet Laboratory with Anteroom

Bacteria tests to measure the level of contamination (hygiene) of food and facilities will be conducted in this room. Based on a layout plan where the main laboratory table with a sink (2.4m × 1.4m) is placed in the center of the room and a side laboratory table is placed on the window side with a some 60cm wide strip on the side of one wall to accommodate a cabinet for laboratory utensils and upright-type laboratory apparatus, the remaining work space on both sides of the main laboratory table will have a depth of 1.3 – 1.5m each. Compared to the some 1.5m for work space in research institutes in Japan, this depth is slightly narrower. However, as it is highly unlikely that many researchers/technicians will use this laboratory at the same time, it is judged that the planned layout will not cause any functional problems. Consequently, a floor area of 36m² (6m × 6m) is planned for the wet laboratory. The anteroom which will house a draft chamber and an autoclave to assist research work will have a minimum floor area of 6m² (2m × 3m).

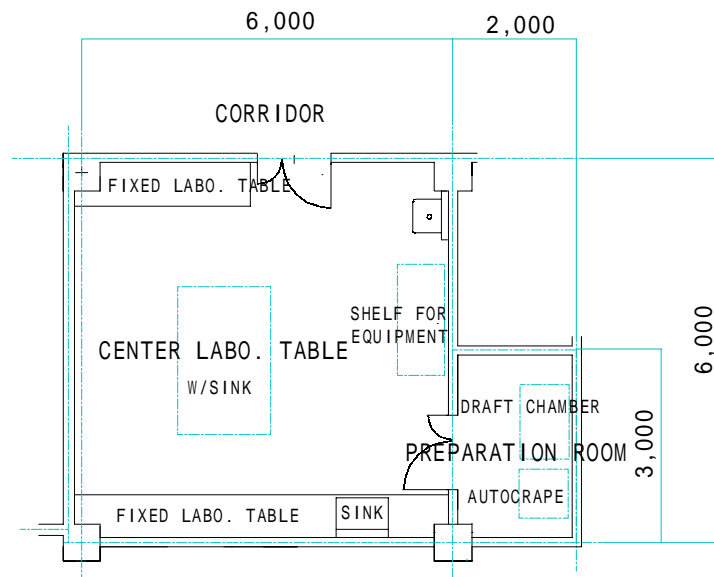


Fig. 2-15 Layout of Wet Laboratory

b) Dry Laboratory with Anteroom

This laboratory is designed to analyse the nutrients in food, such as water, salt, protein and fat, etc., and the hazardous constituents of food, such as histamine and heavy metals, in addition to water quality testing. To conduct such tests/analysis, a main laboratory table ($2.4\text{m} \times 1.5\text{m}$) will be placed in the center of the room while a sink ($1.2\text{m} \times 0.75\text{m}$) will be placed by a wall. A floor area of 24m^2 ($4\text{m} \times 6\text{m}$) is planned as the minimum space required to conduct research activities without hindrance. In addition, an anteroom ($6\text{m}^2 = 2\text{m} \times 3\text{m}$) with a draft chamber is planned for the preparation of samples for laboratory testing.

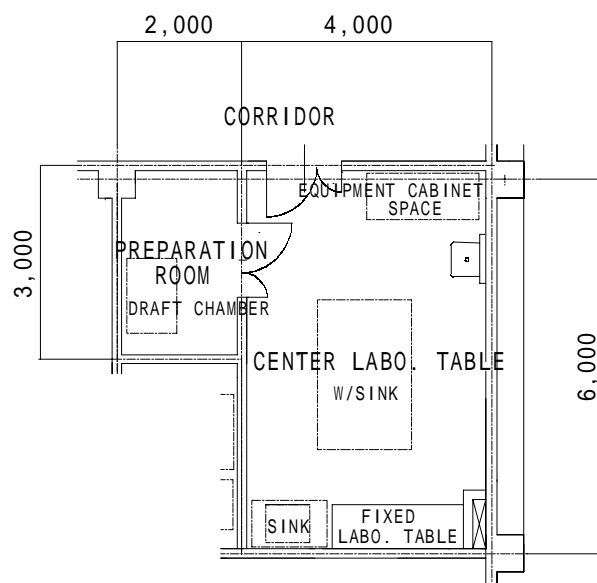


Fig. 2-16 Layout of Dry Laboratory

c) Data room

A library will be introduced to store reference materials and data relating to hygiene tests to allow people to refer to stored materials and data. A floor area of approximately 20m² is planned as a minimum and requires to introduce document shelves, a reading table and chairs.

Table 2-16 Required Floor Area for Data Room

Item	Detail	Approximate Area (m ²)
Reading table	Table and chair	6
Shelf	0.45 × 8m + 0.6 × 3m	5
Corridor		9
Total		20

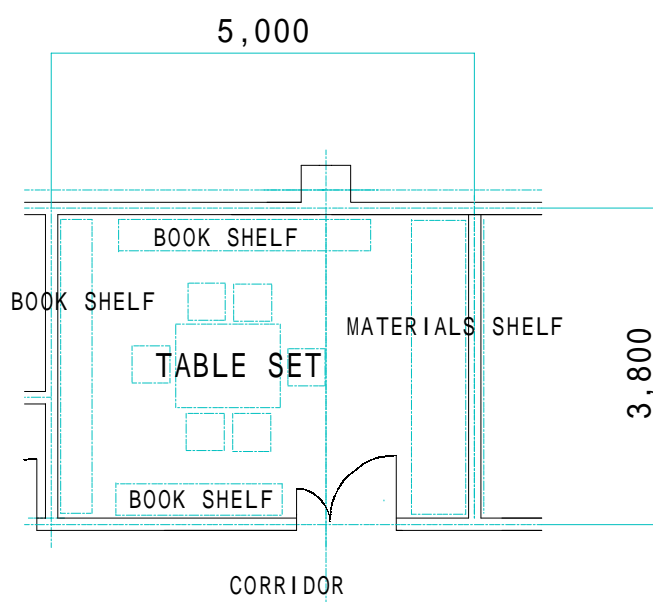


Fig. 2-17 Layout of Data Room

d) Chief Research Officer's Room

The planned chief laboratory officer's room will have a floor area of 17m² with reference to the recommended floor area of 15 – 25m² for a room with a comparable function (Architectural Institute of Japan, ed., Collection of Building and Design Data).

e) Researcher's Room

In view of the recommended floor area of 9 – 20m² for a comparable room (Architectural Institute of Japan as cited above), the planned floor area for the laboratory technician room will be 14m².

f) Meeting Room

The present Project plans the introduction of a meeting room to conduct educational, training and awareness activities for retailers, middlemen and fishermen and also for the organization of seminars on fisheries administration. The floor area of the meeting room is set at 72m² to accommodate up to 50 – 60 persons. In addition, a platform, 18 folding 3-seater tables and 54 stacking chairs are planned as minimum auxiliary equipment together with blackout curtains and a ceiling storage-type screen, both of which are associated with the use of AV equipment.

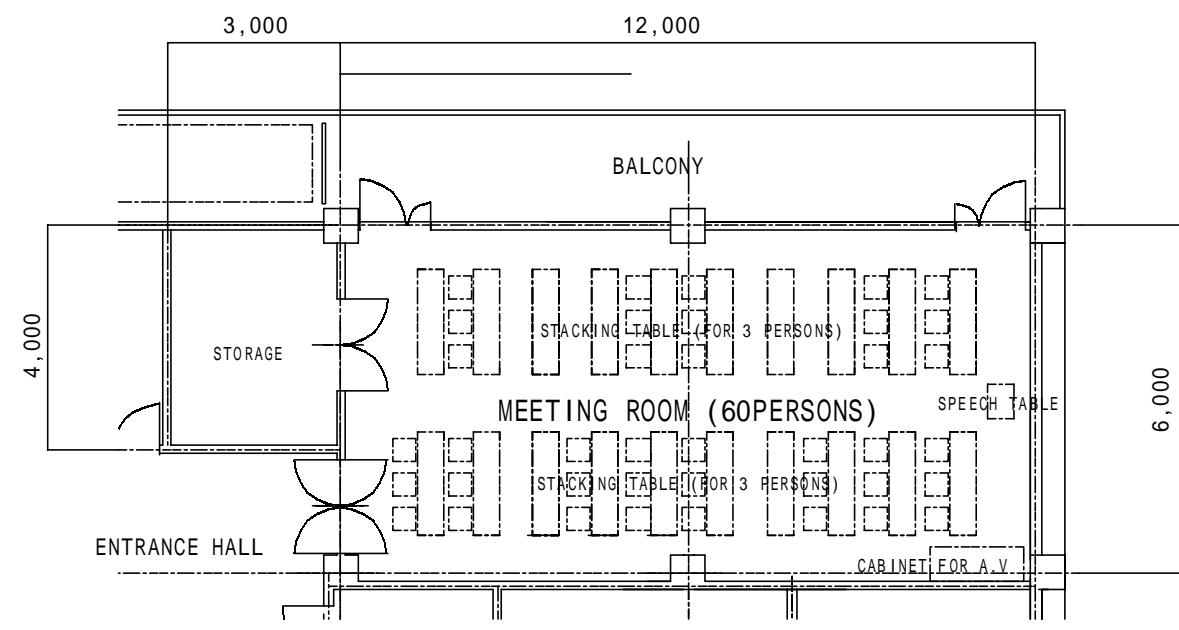


Fig. 2-18 Layout of Meeting Room

g) Kitchenette

A kitchenette, 4.5m² space, shall be provided for servicing to the laboratory personnel and attendants at gatherings at the meeting room. The kitchenette shall be equipped with a ready-made sink and a hanging shelf.

h) Machinery Room

The ice-making and ice storage machines are unified and the height is 6m. In order to place the machines only in the ground floor, the ceiling should be high enough and the cost for the construction will be expensive. For this point of view, to minimize the construction cost of the building, the ice storage in the ground floor and the ice making machine is planned to be installed on first floor. For these reasons the floor area to install the ice making machine is planned 6m². A double leaf steal door will be provided to the room from the view point of easiness of maintenance.

i) Separate Toilets for Men and Women

Five (5) or six (6) staff members will normally work at the first floor of the planned new building. For calculation of the required toilet size, the number of people (50 to 60) possibly using the meeting room is taken into consideration in addition to the above staff members. The resulting size of the separate toilets for men and women are as follows.

For men : two (2) bowls and two (2) urinals

For women : two (2) bowls

The required floor area is 12m² including space to keep cleaning equipments.

j) Entrance Hall and Passage

External stairway will be provided for the direct access from the meeting room. A connective corridor is planned to connect the office on the first floor of the existing market and the newly-built facility. There will be an entrance hall (25m²) at the top of the stairway, which 50 to 60 people could pass at once. Passage (20m²) will be provided to connect the facility and corridor.

Section Plan

The Section Plan is linked closely with ventilation, lighting, and insulation of the facilities. The proposed processing/hygiene testing facility is provided with an air conditioning system covering the whole building, and the intake of the rooms of the processing area on the ground floor, in particular, shall be taken after filtering from the hygienic viewpoint.

In planning, it is necessary to establish an appropriate height of each floor so that the filtering units may be installed and the exhaust ducts may not pass through the beams. Considering that the height of the ceiling of the food processing factory is 2.7m at least due to hygienic requirements, the height of the ground floor is established to be 3.7m, and the height of the first floor 3.5m.

Structural Planning

From the purpose and scale of the Project, the reinforced concrete structure, steel structure, and bonding structure are considered as a structural method. The structural planning shall be determined in accordance with the following points.

- In the processing/hygienic facility, the rooms related to processing and handling of fish will use a lot of water and be cleaned with water and steam. The laboratories on the first floor shall have a water-resistant structure due to handling chemicals.
- The structure suitable to the hot and humid climate and such natural conditions as salt-damage, soil and so on shall be applied.
- The structure shall be managed and maintained easily.

In SVG, the structure of the public facilities and commercial buildings is generally as follows; that is, the pillars, beams, and foundation are made of reinforced concrete, the wall is a concrete block structure, and the roof is steel- or asphalt-shingle roofing or clay-tile roofing on the concrete flat roof or wooden roof truss. In the Project, based on the site condition of the vicinity of the sea, possible salt-damage, and easiness of maintenance, the structure of the processing/hygiene testing facility shall be as follows; that is, the foundation and building frame are of reinforced concrete made, and the roof is clay-tile roofing on the steel wooden truss.

The attached buildings, a boat waiting house and a guardsman house, shall have the following structure; that is, concrete block construction on the reinforced concrete foundation, and the roof is asphalt-shingle roofing on the wooden roof truss as well.

a) Structural Standards

Since SVG has no standards concerning structural calculation, the environmental conditions such as wind load, earthquake load, etc, shall be calculated in accordance with the Caribbean Uniform Building Code (CUBC). The design shall be made in accordance with the Japanese Architectural Standard with reference to CUBC for the local conditions.

The Japanese Industrial Standard (JIS) is applied in principle for materials, but substitutes of ASTM or BS will be used due to local availability.

b) Design Load

- Live load : Office	500kg/m ²
Processing area	1,000kg/m ²
Toilet	1,000kg/m ²

- Wind load: In accordance with the code of the easy method of CUBC, a wind load corresponding to a wind speed of 35m/sec, 50 years expected value (an average for 10 minutes at a place 10m in height) is applied; that is,

$$q_{ref} = 0.73 \text{ kPa}$$

Since the Project site is near the beach, the exposure coefficient of 1.2 times of a general value shall be applied, that is,

$$C_{exp} = 1.2 \quad (5 \text{ to } 10\text{m in height})$$

Hence, the wind load against the wall surface or the roof in the case where a wind blows up is 200kg/m².

-Earthquake load

In SVG, a zone coefficient of 0.50 is applied in accordance with CUBC; that is, $Z = 0.50$

The structural coefficient (K) of 0.8 is applied due to reinforced concrete rigid frame structure, and the strength coefficient of building use (I) of 1.0 is applied as a general building.

Hence, using the values above, the story shear coefficient is calculated at almost 0.05 due to a lower stories building.

c) Foundation Structure

According to the results of previous soil surveying of site, the stratum of the Project site is considered to be uniform. The outline of soil composition is as follows.

Under the land surface	0 - 2.5m	:	25 ton/m ²
	2.5 - 6.0m	:	3 to 13 ton/m ²
	6.0 - 12.5m	:	23 to 57 ton/m ²

The ground from the surface to 2.5m below is very solid, and the soil between 2.5m and 6.5m under the surface and the lower soil have hard layers with soft layers inserting.

The proposed building requires a bearing power of soil of 7 ton/m² due to a 2-storied building. The spread foundation shall be applied to keep a base at the surface part.

d) Conditions of Structural Materials

The major structural materials are as follows.

Concrete	:	FC 180 - 210
Reinforcement	:	SD 30 - SD 40
Reinforcing plate	:	SS 41
Bolt	:	SS 41

Equipment Plan

a) Electrical Equipment

- Electric outlet

The luminous intensity control is very important from the viewpoint of the operation efficiency and hygiene control in the processing area. The luminous intensity of each room is planned as follows.

Preparation room, processing area, packing room	:	300 Lux
Handling area, general area (locker room, passage)	:	200 Lux
Office, general rooms	:	300 Lux

- Power equipment

Electrical power is supplied to the refrigeration/cold storage/ice-making facilities.

- Telephone

Telephone line laying work shall be conducted between the telephone switchboard in the fish market and the quality control room on the ground floor, the chief laboratory officer room, laboratory officers' room, meeting room on the first floor of the newly-built building.

b) Water Supplying Equipment

Water shall be supplied by pipes branched off the main pipe of the existing elevated water tank. Each room shall be provided with necessary water supplying apparatuses.

c) Drainage Equipment

The water way of the preparation room, processing area, packing room, and handling area shall be constructed with concrete, being covered with stainless steel grating lid, and the both ends of its bottom are curved with 30mm semi diameter to make cleaning easy. A stainless steel dust basket shall be placed on the catch basin, and a grease trap is installed before the drainpipe to reduce the load of the septic tank.

d) Air Conditioning/Ventilating Equipment

- Air Conditioning Equipment

The preparation room, processing area, packing room, and handling area on the ground floor and the meeting room on the first floor shall be provided with the separate type air conditioner for business use, while other rooms shall be provided with separate type air conditioner individually from the viewpoint of energy-saving.

- Ventilating Equipment

All rooms shall be provided with a ventilating fan respectively, however, the preparation room, processing area, packing room, and handling area shall install the air filtering equipment to upgrade the hygienic condition.

e) Fire-Fighting Apparatus

The heat sensing equipment and necessary wiring or piping shall be provided. Wiring work to connect with the fire detector in the fish market building shall be conducted.

f) Refrigeration / Cold Storage / Ice-Making Equipment

From the viewpoint of commonness, the refrigeration/cold storage/ice-making equipment shall be selected the ones of the same specifications as the fish market's. The equipment for this purpose is as follows.

Table 2-17 Refrigeration Equipment and Ice-making Machine

Facilities	Insulation Panel Size	Equipment	Cooler	Compressor	Evaporative Condenser & Receiver Unit
-A Ice-Making Machines	2tons /day Flake	Flake ice making machine 2 units Type : automatic flake ice-making machine Capacity : 2ton /day 0.4KW × 400V × 50Hz Raw water pump : 0.1KW × 400V × 50Hz Accessory : ice level meter, ice ducts		Compressor 1 unit Type : separate type single reciprocal compressor Motor : 11KW × 400V × 4P × 50Hz : 1,450Rpm Capacity : 10,550Kcal/HR (TC35 /TE-24) Accessories : Oil separator, Oil heater, Pressure switch, pressure meter, Thermometer	<div> Evaporative condenser & Receiver unit(1) 1 unit For Ice making machine and cold storage (Chilled) Capacity : 20RT Fan : φ500×0.75KW×4P 400V, 50Hz 2units Cooling water pump : φ500×0.75KW 2P400V×50Hz Receiver :300A×L1,500 Copper tube Accessories : Presser gauge & switch </div>
-B Ice Storage	W1,400 D3,200 H2,600		Cooler unit 1 unit Type: Ceiling hanging type Cooling coil : Aluminum fin Cooling area : 20m ² Fan unit 400 × 0.2KW 4P 400V 50Hz 2 units Defrost type : water spray 40lit/min	Compressor 1 unit Type : separate type single reciprocal compressor Motor : 7.5KW × 400V × 6P × 50Hz 970Rpm Capacity : 9,240Kcal/HR (TC35 /TE-20) Accessories : Oil separator, Oil heater, Pressure switch, pressure meter, Thermometer	
Cold Storage	W2,700 D2,700 H2,600		Cooler unit 1 unit Type: Ceiling hanging type Cooling coil : Aluminum fin Cooling area : 30m ² Fan unit 400 × 0.2KW 4P 400V 50Hz 2 units Defrost type : water spray 40lit/min	Share with	
Air Blast Freezer	W2,600 D3,200 H3,275	Blast Freezer 1 unit Capacity : approx 0.8 tons Pan with wagon type	Cooler unit 1unit type: Floor fix type Cooling coil : Aluminum fin Cooling area : 14.5m ² Fan unit 500 × 0.75KW 4P 400V 50Hz 3 units Defrost type : water spray Type : 150l/min	Compressor 1 unit Type : separate type double compression reciprocal compressor Motor : 15KW × 400V × 4P × 50Hz 1,450Rpm Capacity : 14,000Kcal/HR (TC35 /TE-40) Accessories : Oil separator, Oil heater, Pressure switch, pressure meter, Thermometer	
Cold Storage	W2,700 D2,700 H2,600		Cooler unit 1unit Type: Ceiling hanging type Cooling coil : Aluminum fin Cooling area : 30m ² Fan unit : 400 × 0.2KW 4P 400V 50Hz 2 units Defrost type : water spray 40lit/min	Share with	

Construction Materials Plan

a) Roof

The pyramidal roof of the existing fish market is a symbolic being, together with its ventilating tower, and has been familiar to the people of SVG. The roof of the proposed processing/hygiene testing facility is also planned the same shape as the existing fish market building, but the ventilating tower is not necessary because almost all of the spaces are provided with the air conditioning equipment. Instead, its hipped roof shall be provided with ventilation louvers on the gable side. The roof truss shall be of steel, and the roof shall be of the same clay-tile roofing as renovated fish market's, with asphalt roofing on 18mm plywood sheathing roof board.

b) Exterior Finish

The pillars, beams, and eaves are coated with synthetic resin emulsion paint on the backing as same as the fish market building. The wall surface corresponding to the stone hanging wall of the fish market building shall be coated with the same materials to keep the unification of design.

c) Interior Finish

- Floor

The floors of the preparation room, processing area, packing room, and handling area on the ground floor, and of the dry/wet laboratories on the first floor shall be coated with epoxy resin paint suitable to a foodstuff handling/testing facility. The connecting parts of the wall and the floor in the rooms and areas on the ground floor shall be curved with 30mm semi diameter. The floor of the general space will be generally coated with long vinyl sheet.

- Ceiling/wall finish

The ceiling and wall of the working rooms of the processing area shall be finished with water proof backing and paint that is hardly soiled.

Table 2-18 Finish Schedule for Processing/Q.C Building

Room	Floor	Base	Wall	Ceiling	Remarks
Preparation/Connecting passage/Processing/Packing/Material storage/Handling room	Epoxy resin paint/Concrete steel trowel	Epoxy resin Paint/Mortal steel trowel	Mortal steel trowel/Acrylic resin paint	Calcium silicate Board/Acrylic resin paint	Rapid shutter
Quality control room	Vinyl sheet/Concrete steel trowel	Vinyl sheet/Concrete steel trowel	Ditto	Acoustic board	Wall mounted Table (L=2,500)
Product sales room	Ditto	Ditto	Ditto	Ditto	Refrigerating Show case -20 1 set
Clean access room	Ditto	Ditto	Ditto	Ditto	Air shower unit Locker/shoe case
Locker room (m) (f)	Ditto	Ditto	Ditto	Ditto	Steel locker 15 sets
Toilet (m) (f)	50×50mm Mosaic tile	—————	150×150mm Ceramic tile	Cement board/Vinyl paint	
Staircase	Concrete steel trowel	Vinyl paint	Mortal steel trowel/Emulsion paint	Ditto	
Corridor	Vinyl sheet/Concrete steel trowel	Vinyl sheet/Concrete steel trowel	Ditto	Acoustic board	
Area of Refrigerating Facilities	Concrete steel trowel covering insulation panel	—————	—————	—————	
Wet lab./ Preparation Room	Epoxy resin Paint/Concrete steel trowel	Epoxy resin paint/Mortal steel trowel	Mortal steel trowel/Acrylic resin paint	Calcium silicate Board/Acrylic resin paint	Center lab table with sink Wall mounted table(6.3m)
Dry lab./ Preparation Room	Ditto	Ditto	Ditto	Ditto	Center lab table with sink Wall mounted table (2.5m)
Data room	Vinyl sheet/Concrete steel Trowel	Vinyl sheet/Mortar steel Trowel	Emulsion paint/Mortar steel Trowel	Acoustic board	Book shelf (6 steps, 3.5m(w)×2 sets, 3.5m(w)×1set) Meeting table (6 chairs)
Chief researcher's Room	Ditto	Ditto	Ditto	Ditto	Book shelf (6 steps, 3.5m(w)×2sets) Meeting table (4 chairs)
Meeting room	Ditto	Ditto	Ditto	Ditto	20 stacking tables for 3 persons, 60 stacking chairs / speech table ceiling mounted screen 2.5m/white board 2m
Storage	Ditto	Ditto	Ditto	Ditto	
Researcher's room	Ditto	Ditto	Ditto	Ditto	Book shelf (6 steps, 3.5m(w))
Machine room	Concrete steel trowel	Vinyl sheet /Mortal steel trowel	Emulsion paint/Mortar steel trowel	Concrete Fairdale	
Toilet (m) (f)	50×50mm Mosaic tile	—————	150×150mm Ceramic tile	Cement board/Vinyl paint	
Staircase/corridor	Vinyl sheet/Concrete steel trowel	Vinyl sheet/Mortar steel trowel	Emulsion paint/Mortar steel trowel	Acoustic board	

3) Other Facilities

Caves for Market Customers

The bus terminal which opened in 1990 has only seven (7) small umbrella-shaped sunshades and most of the some 700 people waits for buses at the peak time. They tend to enter the fish market to avoid strong sunshine or squalls.

Given the purpose of the Project to improve the state of hygiene at the NKFM, planed to make wall at retail area and all windows covered with insect nets and separate the area from the bus terminal.

Caves for bus passenger is planned at the north side of the fish market facing the bus terminal to prevent bus waiting people to enter NKFM. Post of the caves will be iron structure with asphalt single roof.

Boat Waiting Houses

In order to keep the hygiene in good condition, it is necessary to restrict people entering the measuring and handling area, except vendors and fishermen selling their fishes. However, these areas are used as avoiding sun and rain. Therefore, provision of a waiting house is necessary so that vendors and vendors' assistant can await the arrival of fishing boats at the jetty side of the project site in a sheltered area.

The boat waiting house capable of accommodating some ten (10) persons, 6m × 2.5m in size, shall be of concrete block structure, with a polygonal roof of asphalt shingle roofing.

Fencing and Gate

At present, the existing facility has a free access from the bus terminal and so, at the proposed construction site of the new facility, the outer wall of the back side of the existing fish market is extremely filthy. The newly-built building requires fence at the boundary between the Bay street on the north side and the bus terminal on the east side. One (1) guardsman house is necessary on both the north and the east side respectively for security. Both gates and fences shall be made of galvanized gas pipe frame with galvanized steel wire netting.

Guardsman House

There is an entrance to the jetty from the bus terminal at the seaward site of the fish market. Hence, it is necessary to provide a gate for separating the fish market site from the bus terminal and a guardsman house for security. The guardsman house shall be of concrete block, 2.4m × 2.4m in size.

Paving

As a result of changing the main entrance from the present west side to the north side so that the NKFM can be accessed from the Bay Street side to avoid congestion in the market, the construction of a

new access road from the main gate to the building entrance will be required to serve shoppers and others. In addition, a planting space will be introduced as a zone separating the access road and the newly planned processing/hygiene management building. The expense for the planting will fall on SVG side.

Outdoor Lighting

A number of outdoor lamps positioned in an appropriate manner will be required for the security of the NKFM premises and for the safe guidance of evening shoppers. Mercury lamps will be used for cost-saving. The lamp posts, 4m in height, will be installed with the space of 10m.

Septic Tank

At present, waste water in the existing fish market is led to the sewage pipe around the site, but the one produced from retailing, handling, processing area of fish and washing of the floor is not led to sewage but directly discharged to the sea in front of the site. The sewage office do not have a water-quality standard. This method that is contaminating directly the sea in the bay shall be discontinued, and entire waste water in the facility shall be led to the public sewerage after independent treatment.

The waste water to be expected in the Project facility is as follows;

- Rainwater : Discharge to the sea through the drain.
- Miscellaneous drainage
 - Miscellaneous waste water from the existing fish market
 - Washing water of fish
 - Washing water of the floor and equipment
- Miscellaneous waste water from the processing area on the ground floor of the new facility
 - Washing water of fish
 - Washing water of the floor and equipment
- Miscellaneous waste water containing chemicals from the laboratories on the first floor of the new facility
- Waste water
 - Washing water of the toilet facilities of the existing fish market and the new facility

The basic conditions for the independent treatment are as follows;

- No large treatment facility can be provided due to a limited space.
- Comparatively stable power supply can be expected.
- The carrying out system of surplus sludge is established.

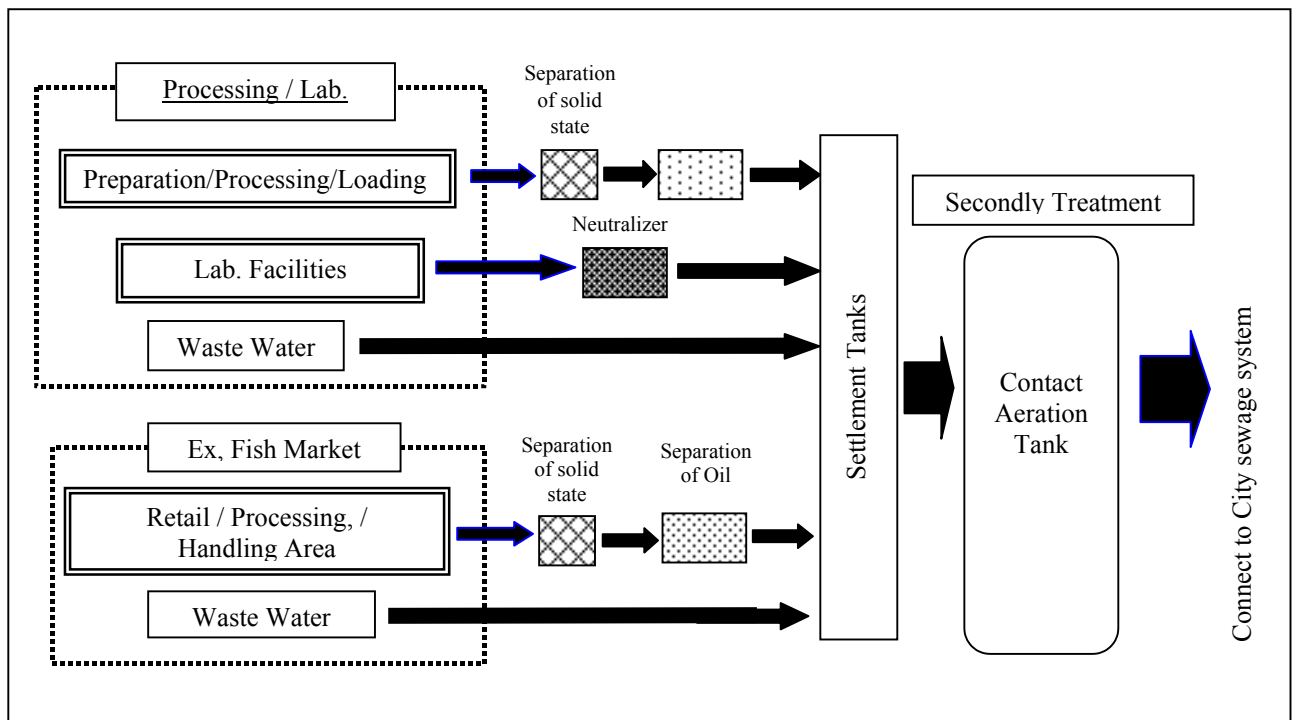


Fig. 2-19 Flow Chart of Drain Water

The conditions of the site are

Area for septic tank are limited,

Electricity supply condition is in good conditions,

And the sludge correcting system is established in the area.

Two (2) methods, the contact oxidation method and the rotatory separation activated sludge method, are examined as follows;

Table 2-19 Method of Treatment

	Principle	Features	Remarks
Contact Oxidation Method	Separation of solid state and liquid state is made in a septic tank, and then treatment by microorganism on the surface of contact agents is conducted in a contact aeration tank, and finally separation of supernatant liquid and settled sludge is made in the next precipitation tank.	<ul style="list-style-type: none"> - Operation is easy due to lack of necessity of returning sludge. - Treatment effect is stable. - Determination of attached organism quantity is difficult because contact agents are in the tank. - The necessary site is comparatively small. - Large aeration volume and high operation cost. 	Small site area but high operation cost.
Rotatory Separation Activated Sludge Method	Sewage is led to a single reaction tank, and the treatment is made through repeating aeration, precipitation, and separation	<p>Aeration hour can be established depending on the quality and quantity of sewage. Stability of separation of solid state and liquid state is good.</p> <ul style="list-style-type: none"> - Bulking of filamentous fungus can be controlled by the operating method (establishing aeration hour). - Management is easy. An operation for returning sludge is not necessary because functions of a reaction tank and of a precipitation tank are conducted in a single tank. - Scum is apt to occur in a reaction tank. 	Easy operation and lower running cost, but rather large site area.

The Project adopts the Contact Oxidation Method due to stable treatment effect, limited area, and expected stable power supply.

Design conditions

- Fish handling quantity per day of the newly built processing facility is 1.0 ton.
- Waste water quantity from both the existing fish market and the newly built facility is estimated at 40 tons/day in total.
- The peak coefficient of (intensive time) 3.5 hours is applied.
- Discharge is made to the public sewerage at BOD (Biochemical Oxygen Demand) of 200mg/L.
- Surplus sludge is taken out by vacuum truck.

In installation of the independent treatment tank suitable to the Contact Oxidation Method satisfying the design conditions above, two (2) ways were examined; that is, one is the method to transport the popular type in Japan, the monolithic type FRP septic tank in which the necessary equipment is built, from Japan and install it, and another is the method to construct the body of the septic tank at the site and to procure only the sewage disposal facilities from Japan. As a result, the latter was applied from the viewpoint of cost-saving and the easiness of maintenance.

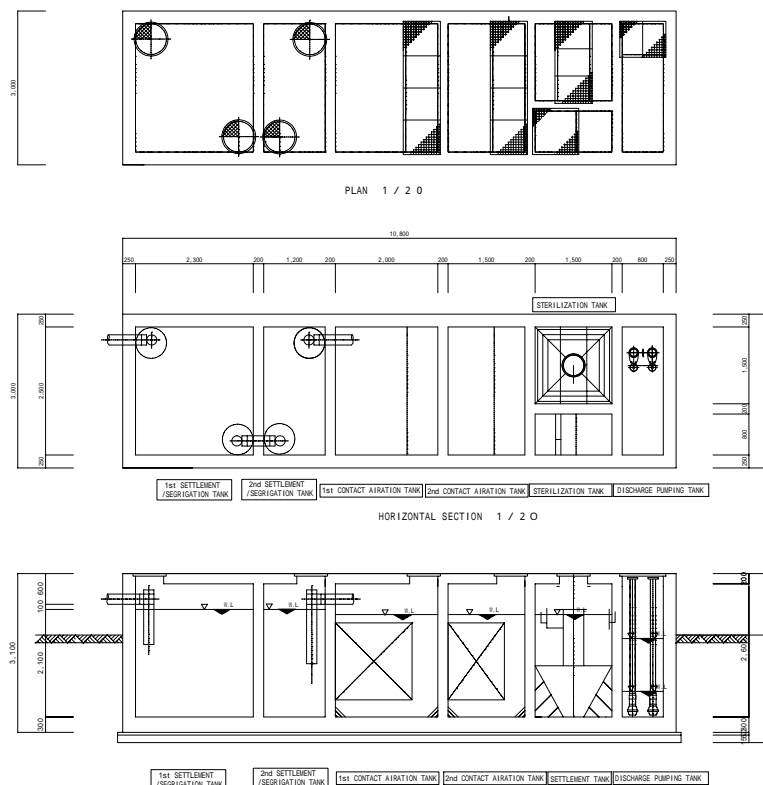


Fig. 2-20 Detail of Septic Tank

Water Receiving Tank

Both the existing 48 tons FRP receiving tank and six (6) tons elevated tank have leakage of water from the panel connections and piping connections due to 15 years superannuation. Since the existing water supply system has enough power for four (4) tons/day additional water from the newly-built processing/hygiene facility, the present system is still reliable. The new tanks shall be a stainless steel panel tank from the viewpoint of the easiness of maintenance, the durability against ultraviolet rays, and the sustainability of water quality.

2-2-2-6 Equipment/ Materials Plan

(1) Quality Control Equipment/Materials

- Wet laboratory

Apparatuses necessary for bacteriological examination to examine the state of contamination in the existing/newly built facilities and hygienic conditions of raw materials for processing and processed goods will be planned. Examination will be mainly conducted for SPC, a group of colon bacilli, and

coli bacillus, and, in addition to necessary apparatuses for ordinary examination a simple bacteriological examination kit for speedy countermeasure will be planned.

- Dry laboratory

Apparatuses necessary for general chemical analysis of foodstuff will be planned. Analysis apparatuses using the ELISA method will be applied for content analysis of protein and fat, typical nutritive elements of foodstuff, and for analysis of histamine, peculiar dangerous factor of red fish, due to the simplicity of examination method and easiness of procurement of chemical reagents.

-Common glassware of both laboratories

At present a good few of stock was confirmed, and additional apparatuses will be planned to provide for expected quality control and examination items.

(2) Apparatuses for Education/Data Management

The existing facility and new processing/hygiene testing facility are rehabilitated or newly built as a hardware that satisfies the HACCP requirements. Also the HACCP approach requires to store and manage data of each CCP, and, accordingly, a data management room equipped with the apparatuses necessary for data processing and data storage such as computers and printers will be provided.

In the meeting room, projectors and VTRs for meetings of the Fisheries Division officials or NKFM staff and for education/instruction of fishers and fish vendors will be provided.

(3) Processing Instrument

The Project does not envisage any high-degree processing, and instruments for only primary processing will be planned. Since the existing instruments for primary processing, which were granted before the Project, are used without trouble, only ancillary instruments will be provided.

Table 2-20 Main Equipment and Installation Place

Item	Specification	Purpose	Qty	Installation Place
Chemical analysis equipment				
Draft Chamber	Approx. 1,200 × 750 × 2,200mm	Exhaust of poison gas or odor	1	Dry laboratory
Cool centrifuge	Max revolution: 20,000rpm	Separation of sample	1	
Histamine analyzer	Chemical reagent analysis, measuring by absorption photometer	Inspection of Histamine	1	
Moisture meter	Automatic measuring	Inspection of moisture	1	
Water quality analyzer	Measuring system: absorption photometer	Inspection of metallic ion in water	1	
Pure water apparatus	Generate capacity: approx. 1.8L/h	Production of pure water	1	
Kjeldhal digester and auto titration unit	Digester: 4 ~ 6	Analysis of protein contents	1 set	
Hygiene test equipment				
Clean bench	Approx. 1,300 × 850 × 1,900mm	Protection of contamination and keeping clean condition	1	Wet laboratory
Incubator	Capacity: approx. 100L	Bacteria cultivation	1	
Autoclave	Capacity: approx. 40 ~ 50L	Sterilization of bacteria	1	
Refrigerator with freezer	Refrigeration capacity: approx. 340L Freezing capacity: approx. 80L	Storage of sample	1	
Stomacher (Homogenizer)	Capacity: approx. 400ml	Homogenize and crush of sample	1	
Glass apparatus				
Flask, Graduated cylinder, Pipette, Scalpel, Filter paper,			1set	For both laboratories
Data management and training equipment				
Videotape recorder	Multi-system	Education and training	1	Meeting room
Projector (LCD)	Slide projection	Education and training	1	
Projector screen	Size: 1,800 × 1,800mm	Education and training	1	
Computer	OS: Windows	Inspection data analysis and keeping	1	Data management room
Scanner	Color, A4 legal size	Digitize old data	1	
Printer	Laser monochrome and ink-jet color	Print of analysis data	Each 1	
Processing support equipment				
High pressure water cleaner	Expelling water volume: 700L/hour	Cleaning of facility	1	New processing building
Plastic basket	750 × 450 × 80mm, Material: PE or PP	Storage and transfer of raw materials	10 boxes	
Belt conveyer	Length: approx. 3m with cutting table	Transfer of products	1	
Wrapping machine	For plastic trays	Simple packing of products	1	

Item	Specification	Purpose	Qty	Installation Place
Plastic tray	Porous type, Capacity approx. 120 ~ 140L, Material: PE or PP	Storage of raw materials	10 boxes	
Fly catcher (Fixed tape type)	Hang on the ceiling	Protection of mingle fling insects to food	4	
Roller conveyer	Body: stainless steel, roller: plastic	Transfer of products	2	
Vacuum packing machine	Desktop type, Sealing width: approx.200mm	Vacuum packing for trial products	1	
Fish market				
Digital weighing system (with printer)	Max weight: 500 ~ 600Lb/0.1Lb Waterproof	Measuring of catches	2	Fish market
Digital weighing system (with printer)	Max weight: 5 ~ 10Lb/0.01Lb Waterproof	Weighing of small fish or products	1	
Carriage	Load capacity: 500kg	Transfer of catches or materials	2	
Spring scale (round type)	Display: pond, Weight range: 30Lb/4oz	Weighing of small fish or products	26	

Table 2-21 Equipment List

No.	ITEM	SPECIFICATION	PURPOSE	CLASSIFICATION	REQUEST QUANTITY FOR EACH ROOM						PRIORITY				REQUESTED	ASSESSED	INSTITUTIONAL	REMARK
					WET LAB	DRY LAB	COMMON	PROCESSES	METTING	HAND DENTAL	AA	A	B	C				
1	Laboratory table	Approx. 2,400×1,500×800mm	Exterminatal works	New	1	1					2				2	2		Basic equipment for laboratory
2	Sink Unit	Approx. 1,200×750×800mm, Sink: SUS 304 depth Approx.240mm with 3-way water cock	Washing of equipment	New		1					1				1	1		Basic equipment for laboratory
3	Cabinet	Approx. 1,800×750/400×1,800mm, Sliding door, clear glass with push type cylinder lock	Storage equipment	New	1	1					2				2	2		Basic equipment for laboratory
4	Draft chamber	Approx. 1,200×750×2,200mm, Interior: thermal and chemical resistance, Front door: reinforced glass, Gas cock –1, Water cock-goose neck type, Electric connection, Fluorescence lamp 20W×2	Exhaust of a poison gas or an odor	New		1					1				1	1		Basic equipment for laboratory
5	Cool centrifuge	Max revolution: 20,000rpm, 35,810 x g, digital type, Max volume: 2,000ml, Rotor: FN rotor (Angle rotor), Tube 10ml and 5ml (polypropylene)	Separation of a sample	New		1					1				1	1		Basic equipment for laboratory
6	Refrigerator for reagent	Capacity: approx. 300L, Sliding glass door type	Keeping a reagents under low temperature	New		1					1				1	1		Basic equipment for laboratory, keeping under the low temperature for reagents
7	Histamine analyzer	ELISA method	Inspection of Histamine	New		1					1				1	1		Indispensable equipment for quality control, choice of easy operation unit
8	Moisture meter	Auto measuring, Digital indication	Inspection of moisture	New		1					1				1	1		Basic equipment for laboratory, inspection of water contents
9	Water quality analyzer	Measuring item: acid, alkali, bromine, calcium, chloride, remained chlorine etc.Measuring system: absorption photometerPotable type	Inspection of water quality	New		1						1			1	1		Basic equipment for laboratory
10	Water tester	Test item: Pack test (50 times/pack)-NH4, NO2, COD, Fe, TH, S (Sulfide), PO4 (Phosphoric) Test paper (25 sheets/box)-SPC, E-coli	Inspection of water quality	New		1						1			1	1		Basic equipment for laboratory, choice easy inspection kits
11	Mixer	Revolution: approx. 11,500 ~ 15,000rpm Stainless steel vessel and cutter	Homogenize and crush of a sample	New		1						1			1	1		Basic equipment for laboratory, crush and mix of sample
12	Pure water apparatus with stand	Generate capacity: approx. 1.8L/h, Tank capacity: Approx. 20L, Ion exchange and distilled water	Production of pure water	New		1					1				1	1		Basic equipment for laboratory
13	Test tube mixer	Revolution: 0 ~ 2,500rpm, Plate diameter: approx. 70mm,	Homogenaze of a solution	New		1						1			1	1		Basic equipment for laboratory
14	Electric balance	Weight range: 600g/0.001g	Measuring of a sample or medicine	Exist		1					1				1	1		Basic equipment for laboratory
15	Kjeldhal digester and auto titration unit	Digester: 4 ~ 6	Inspection of protein contents	Exist		1						1			1	1		Basic equipment for laboratory, inspection of protein contents

No.	ITEM	SPECIFICATION	PURPOSE	C L A S S I F I C A T I O N	REQUEST QUANTITY FOR EACH ROOM						PRIORITY				R E Q U E S T	A S S E S S E D	I N S T I T U T I O N L A	REMARK
					W E T L A B	D R Y L A B	C O M M O N	P R O C E S S	M E T I N G	H A Z A R D O U T L I N G	AA	A	B	C				
16	Neutralization system	Volume : More than low limit	Neutriz discharge water from laboratory	New			1				1				1	1		Necessary equipment for laboratory
17	Electric balance	Weight range: 600g/0.01g	Measuring of a sample or medicine	New			1				1				1	1		Basic equipment for laboratory
18	Laboratory chair	With back and caster	Chair for inspection works	Exist	3	3					6				6	6		Basic equipment for laboratory
19	Clean bench	Approx. 1,300×850×1,900mm, Dust catching rate 99.99%, Light: 40W×2, Working table: SUS304, Gas burner connection, Electric connection	Protection of contamination and keeping clean condition	New	1						1				1	1		Basic equipment for laboratory, for protection of bacteria contamination
20	Incubator	Capacity: approx.100L, Temperature range: ambient temp+5 ~ 60 , Interior: SUS304, Thermo control by micro computer PID control	Bacteria cultivation	New	1						1				1	1		Basic equipment for laboratory, cultivation of bacteria under the constant temperature
21	Automatic autoclave	Capacity: approx 40 ~ 50L, Max pressure: approx. 0.12Mpa, with wire basket and sterilizing basket (stainless steel)	Sterilization of bacteria	New	1						1				1	1		Basic equipment for laboratory, sterilization of bacteria
22	Drying sterilizer with stand	Capacity: approx 70L, Temperature range: 50 ~ 260 with timer, Thermo control by micro computer PID	Sterilization of equipment	New	1						1				1	1		Basic equipment for laboratory, sterilization of equipments
23	Refrigerator with freezer	Refrigeration capacity: approx. 340L (temp: 2 ~ 14), Freezing capacity: approx. 80L (temp: -10 ~ -30)	Storage of a sample	Exist	1							1			1	1		Basic equipment for laboratory, keeping of sample under the low temperature
24	Stomacher (Homogenizer)	Pedal system, with bag and stand	Homogenize and crush of a sample	New	1						1				1	1		Basic equipment for laboratory, uniform of sample
25	Colony counter	Digital type	Measuring of bacteria colony	New	1						1				1	1		Basic equipment for bacteria inspection laboratory
26	Can for sterilizer	70×80×480mm, Stainless steel	Sterilization of equipment	New	2						1	1			2	1		Basic equipment for bacteria inspection laboratory
27	Bacteria check sheet	For SPC (50sheets/bag, 2bags/case)	Simple examination kit	New	1						1				1	1		Simple kit for bacteria inspection
28	Bacteria check sheet	For E-coliform (25sheets/bag, 2bags/case)	Simple examination kit	New	1						1				1	1		Simple kit for bacteria inspection
29	Bacteria check sheet	For Coliform (25sheets/bag, 2bags/case)	Simple examination kit	New	1						1				1	1		Simple kit for bacteria inspection
30	Submersible fluorometer	Measuring item: chlorophyll level, temperature, depth, conductivity and turbidityControl unit (LCD) with printer and memory	Inspection of environment	New	1							1			1	1		Inspection for environmental assessment, especisly effect of drain water
31	Glass Erlenmeyer flask	200mm	Make a chemical solution	Exist			12					12			12	12		Basic equipment for laboratory

No.	ITEM	SPECIFICATION	PURPOSE	CLASSIFICATION	REQUEST QUANTITY FOR EACH ROOM							PRIORITY				REQUEST	ASSESS	INSTITUTIONAL	REMARK
					WET LAB	DRY LAB	COMMON	PROCESS	MEETING	HANDLING	DATA	AA	A	B	C				
32	Glass Erlenmeyer flask	500mm	Make a chemical solution	Exist			12						12			12	12		Basic equipment for laboratory
33	Sample bottle	50m with screw cap (50pcs/box)	Stock of a sample	New			5						5			5	5		Basic equipment for laboratory
34	Graduated cylinder	50ml	measuring of a chemical solution	New			5					5				5	5		Basic equipment for laboratory
35	Graduated cylinder	100ml	measuring of a chemical solution	New			5					5				5	5		Basic equipment for laboratory
36	Micro pipette	0.5 ~ 10µl	measuring of a chemical solution	New			1					1				1	1		Basic equipment for laboratory
37	Micro pipette	2.0 ~ 20µl	measuring of a chemical solution	New			1					1				1	1		Basic equipment for laboratory, measuring small volume
38	Micro pipette	10 ~ 100µl	measuring of a chemical solution	New			1					1				1	1		Basic equipment for laboratory, measuring small volume
39	Micro pipette	20 ~ 200µl	measuring of chemical solution	New			1					1				1	1		Basic equipment for laboratory, measuring small volume
40	Micro pipette tip	0.5 ~ 10µl	Disposal tip	New			1					1				1	1		Basic equipment for laboratory
41	Micro pipette tip	2.0 ~ 20µl	Disposal tip	New			1					1				1	1		Basic equipment for laboratory
42	Micro pipette tip	10 ~ 100µl	Disposal tip	New			1					1				1	1		Basic equipment for laboratory
43	Micro pipette tip	20 ~ 200µl	Disposal tip	New			1					1				1	1		Basic equipment for laboratory
44	Polyethylene bottle (narrow mouth)	250ml	Stock of a chemical solution	New			50						50			50	50		Basic equipment for laboratory
45	Polyethylene bottle (narrow mouth)	500ml	Stock of a chemical solution	New			50						50			50	50		Basic equipment for laboratory
46	Polyethylene bottle (narrow mouth)	1,000ml	Stock of a chemical solution	New			50						50			50	50		Basic equipment for laboratory
47	Polyethylene wash bottle	500ml	Washing of glass apparatus	New			12					12				12	12		Basic equipment for laboratory
48	SB Vat (Polyethylene)	275×400×70mm	Recptacle of a sample or small apparatus	New			5						5			5	5		Basic equipment for laboratory
49	Latex glove	Size: L, 240mm	Protection of hand	New			2						2			2	2		Basic equipment for laboratory

No.	ITEM	SPECIFICATION	PURPOSE	C L A S S I F I	REQUEST QUANTITY FOR EACH ROOM						PRIORITY				R E Q U E S T	A S S E S S E D	I N S T I T U T I O N A L	REMARK
					W E T L A B	D R Y L A B	C O M M O N	P R O C E S S	M E T I N G	H A N D L I N G	AA	A	B	C				
50	Tweezers	SUS, 150mm	Pick a small apparatus	New			20						10	10		20	10	Basic equipment for laboratory
51	Tweezers	SUS, 180mm	Pick a small apparatus	New			20						10	10		20	10	Basic equipment for laboratory
52	Surgery scalpel	Straight sharp edge, SUS410 145mm	Cut of a sample	New			5						5			5	5	Basic equipment for laboratory
53	Surgery scalpel	Straight blunt edge, SUS410 145mm	Cut of a sample	New			5						5			5	5	Basic equipment for laboratory
54	Filter paper	Diameter: 90mm, No.2 (100sheets/box)	Clean up a sample or chemical solution	New			10					10				10	10	Basic equipment for laboratory
55	Filter paper	Diameter: 150mm, No.2 (100sheets/box)	Clean up a sample or chemical solution	New			10					10				10	10	Basic equipment for laboratory
56	Cover glass	18x18mm (1,000pcs/box)	Protect of an object lens	Exist			2					2				2	2	Basic equipment for laboratory
57	Box for slide glass	Wooden, capacity: 100 plates	Keeping a slide glass	New			10						10			10	2	Basic equipment for laboratory
58	Handy can	Capacity: 20L, polyethylene	Strage or transfer of pure water	New			3						3			3	3	Basic equipment for laboratory
59	Multi bottle	Capacity: 500ml (50pcs/box)	Stock of a sample or chemical solution	New			2						2			2	2	Basic equipment for laboratory
60	Brush (10pcs/box)	For test tube M size	Cleaning of a test tube	New			1						1			1	1	Basic equipment for laboratory
61	Brush (10pcs/box)	For flask	Cleaning of a flask	New			1						1			1	1	Basic equipment for laboratory
62	Wash basket	200×200×200mm Stainless square type	Recptacle of small apparatus	New			4						2	2		4	4	Basic equipment for laboratory
63	Kim wipe	(200 sheets/box, 72 box/case)	Wiping of lens or electric senser	New			3						3			3	2	Basic equipment for laboratory
64	PTFE magnetic stirring bar	7 ×20mm	Mixing of a sample or chemical solution	New			5						5			5	5	Basic equipment for laboratory
65	PTFE magnetic stirring bar	8 ×25mm	The same above	New			5						5			5	5	Basic equipment for laboratory
66	PTFE magnetic stirring bar	8 ×30mm	The same above	New			5						5			5	5	Basic equipment for laboratory

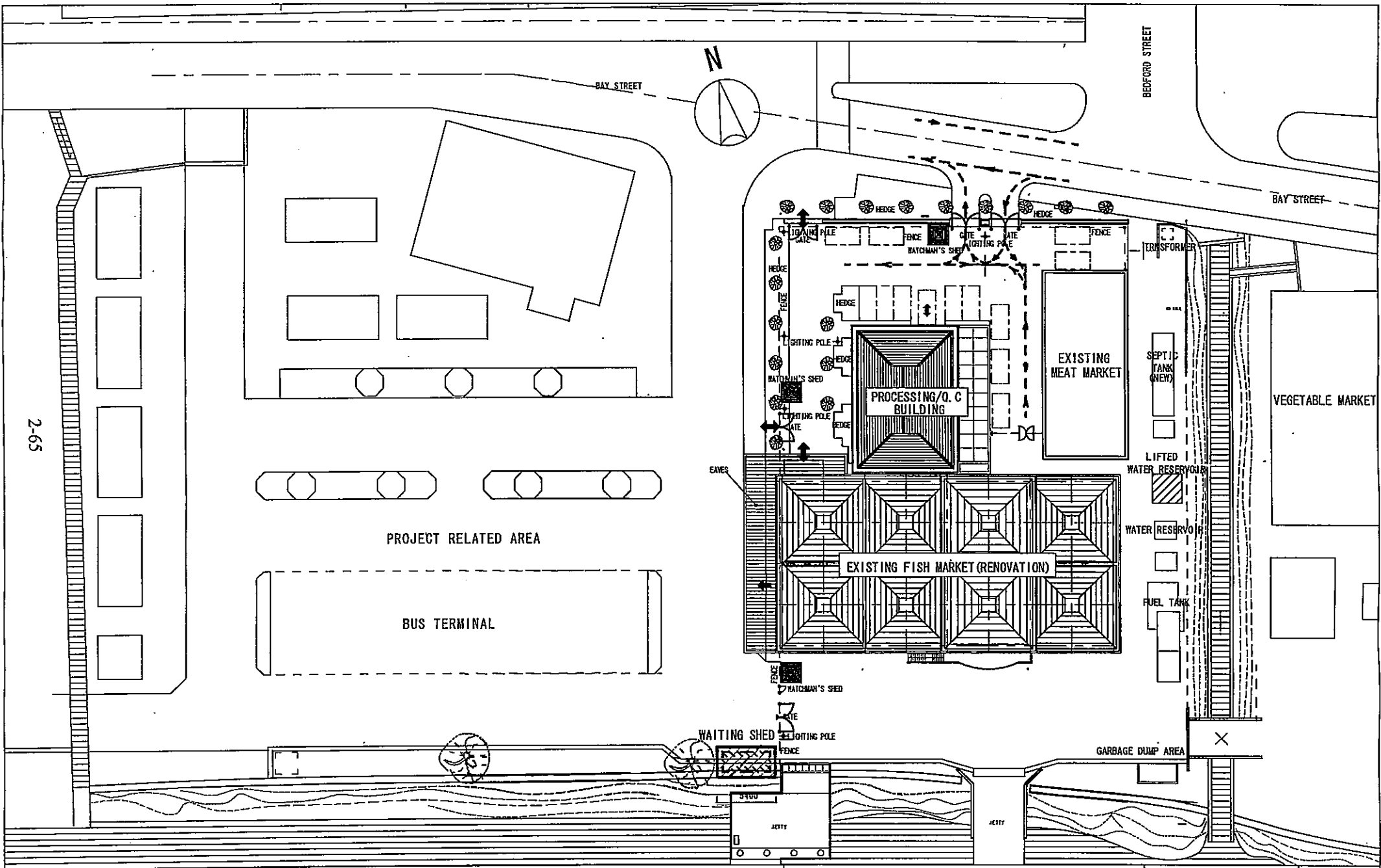
No.	ITEM	SPECIFICATION	PURPOSE	C C L A S S I F I C A T I O N	REQUEST QUANTITY FOR EACH ROOM						PRIORITY				R E Q U E S T	A S S E S S E D	I N S T O L L A	REMARK
					W E T L A B	D R Y L A B	C O M M O N	P R O C E S S	M E T I N G	H A N D L I N G	AA	A	B	C				
67	PTFE magnetic stirring bar	8 ×40mm	The same above	New			5					5			5	5		Basic equipment for laboratory
68	Pipette filler	~ 2ml	Adjustment of inhalation volume	New			2					2			2	2		Basic equipment for laboratory
69	Pipette filler	~ 10ml	The same above	New			2					2			2	2		Basic equipment for laboratory
70	Pipette filler	~ 25ml	The same above	New			2					2			2	2		Basic equipment for laboratory
71	VCR	Multi type	Video cassette recorder	New					1			1			1	1		For training and meeting
72	LCD projector	1,000ANSI lumen or more	Presentation data projector	New					1			1			1	1		For training and meeting
73	Projector screen	1,800×1,800mm	Display for projector	New					1			1			1	1		For training and meeting
74	Flip-chart stand	Board: 1,200×900mm, With caster	White board	New					1			1			1	1		For training and meeting
75	Computer	OS: Windows XP, Pentium 2.0GHz or more, 60 GB, HDD256MB, 17" TFT monitor	Data analysis and management	Exist						2	1	1			2	1		For data management
76	Scanner	Color, Legal size	Digitize an old data	New						1		1			1	1		The attached equipment to computer
77	Printer	White and black: laser type(1) Color: ink-jet type(1)	Print of analysis data	Exist						2	1	1			2	1		The attached equipment to computer
78	High pressure water cleaner	Expeling water volume: 700L/hour, Fuel: parafin oil	Cleaning of facilities	New				2			1	1			2	1		For washing of facility, can be used both new and old facility
79	Digital weighing system(with printer)	Max weight: 500 ~ 600Lb/0.1Lb	Weighing fish catches	New				3			3				3	2		Basic equipment for factory, measuring heavy weight, decrease, decrease supply number to 2
80	Digital weighing system(with printer)	Max weight: 5 ~ 10Lb/0.01Lb	Weighing a small fish and products	New				2			2				2	1		Basic equipment for factory, measuring light weight, decrease supply number to 1
81	Plastic basket	750×450×80mm, Material: PE or PP	Storage and transfer of raw materials	New				20			10	10			20	10		Basic equipment for factory
82	Wagon	Max load capacity: 200 ~ 300kg, Stainless steel	Transfer of products or raw materials	New				5			5				5	3		Basic equipment for factory
83	Conveyer	With cutting table, White belt, Caster and stopper	Transfer of products	New				1			1				1	1		Basic equipment for factory
84	Wrapping machine	For plastic trays	Simple packing of products	New				1			1				1	1		Basic equipment for factory

No.	ITEM	SPECIFICATION	PURPOSE	C C L A S S I F I C A T I O N	REQUEST QUANTITY FOR EACH ROOM							PRIORITY				R E Q U E S T	A S S E S S E D	I N S T O L L A	REMARK
					W E T L A B	D R Y L A B	C O M M O N	P R O C E S S	M E T I N G	H A N D L I N G	D A T A I N G	AA	A	B	C				
85	Plastic tray	Porous type, Capacity approx. 120 ~ 140L, Material: PE or PP	Storage of raw materials	New				20				20				20	10		Basic equipment for factory
86	Container carriage	For plastic basket, Material: resin or aluminum	Transfer of products or raw materials	New				10				5	3	2		10	5		Basic equipment for factory
87	Stainless steel tray	Shallow type, 500/600×300/400×90/100mm	Stock of products	New				20				20				20	10		Basic equipment for factory
88	Working wear	White: 5, Beige: 5	Keeping the sanitary condition	New				10				10				10	10		Basic equipment for factory, sanitary wear
89	Sanitary cap	White, free size, for men: 5, for women: 5	The same above	New				10				10				10	10		Basic equipment for factory, sanitary wear
90	Work glove	Work glove: rubber, non-slip type, inner cotton, size L	The same above	New				20				20				20	20		Basic equipment for factory
91	Stainless mesh glove	Size L	Hand protection	New				3				3				3	3		Hand protection from band-saw
92	NBR glove	NBR glove: Thickness approx. 0.1mm, powder free, free size, disposal type	Keeping the sanitary condition	New				10				10				10	10		Basic equipment for factory, sanitary wear
93	White rubber boots	Non-slip type,	The same above	New				10				10				10	10		Basic equipment for factory, sanitary wear
94	Hair net	Free size, washable type, nylon made	The same above	New				1				1				1	1		Basic equipment for factory, sanitary wear
95	Plastic container	Capacity: approx. 500L or more With caster, drainage cock and lid	Defrost of cold materials and transfer	New				5				3		2		5	2		Basic equipment for factory
96	Stainless steel work table	Fixed plastic cutting board on the top, 1,800×750×800mm	Table for processing works	New				2				2				2	2		Basic equipment for factory
97	Stainless steel work table	1,800×750×800mm	The same above	New				4				4				4	3		Basic equipment for factory
98	Stainless steel work table	900×900×800mm	The same above	New				2				2				2	2		Basic equipment for factory
99	Electric sprayer	For cleaning soup sprayer	Cleaning of facilities and equipment	New				2					2			2	2		Basic equipment for factory, for sterilization of facility
100	Fly catcher (Fixed tape type)	Hang on the ceiling	Keeping the sanitary condition	New				5				5				5	4		Basic equipment for factory, sanitary equipment
101	Shelf for freezer	Stainless steel : Approx.1,800×600×1,600 Capacity : 800kg	Frozen product	Exist				8					8			8	8		Necessary for freezer
102	Shelf for freezer	Stainless steel : Approx.1,100×600×1,500 Capacity : 450kg	To freeze fish	Exist				6					6			6	6		Necessary for freezer

No.	ITEM	SPECIFICATION	PURPOSE	C C L A S S I F I C A T I O N	REQUEST QUANTITY FOR EACH ROOM						PRIORITY				R E Q U E S T	A S S E S S E D	I N S T I T U T I O N A L	REMARK
					W E T L A B	D R Y L A B	C O M M O N	P R O C E S S	M E E T I N G	H A N D L I N G	AA	A	B	C				
103	Shelf for freezer	Stainless steel : Approx.1,100×600×1,500 Capacity : 450kg	Product block ice	New				6				6			6	6		Necessary for freezer
104	Carriage	Hydraulic lift type, Load capacity: 500kg	Transfer of fish catches	New				3			3				3	2		Basic equipment for factory
105	Roller conveyer	Body: stainless steel, roller: plastic	Transfer of products	New				2			2				2	2		Basic equipment for factory
106	Rubber apron	White	Keeping the sanitary condition	New				10			10				10	10		Basic equipment for factory, sanitary wear
107	Show case	Refrigerator for sample	Display of products	New				1				1			1	1		Basic equipment for factory
108	Floor brush	For cleaning on the floor	Cleaninf of facilities	New				10			5	5			10	5		Basic equipment for factory, sanitary equipment
109	Wiper	For wiping floor dry	Cleaninf of facilities	New				10			5	5			10	5		Basic equipment for factory, sanitary equipment
110	Stainless steel sink	With caster and stopper, Flexible water connection, Drain cook and hose	Washing of raw materials and equipment	Exist				3			3				3	3		Basic equipment for factory
111	Tool shelves	Stainless steel, with caster and stopper	Tidy up a procesing equipment	Exist				2				2			2	2		Basic equipment for factory
112	Heat sealer	Pedal system	Heat seal of a plastic bag	New				1				1			1	1		Basic equipment for packing
113	Heater and bags for vacuum packing machine	Heater: 2 Bag: 5 cases (100 sheets or more/case)	Spare parts for the vacuum packing machine	New				2			2				2	1		Spare parts of vaccum packing machine
114	Plastic tank and carriage	Round type for garbage, capacity approx. 50L with lid	Stock of garbage	New				10			5	5			10	5		Basic equipment for factory, sanitary equipment
115	Tray for producing block ice	Stainless steel tray	Produce block ice for retail	New				200				200			200	170		Necessary for freezer
116	UTS cart	900×460×920mm, with 125mm caster	Transfer of products	New				12				10	2		12	5		Basic equipment for factory
117	Spring scale (Round type)	Display: pond, Weight range: 30Lb/4oz	Weighing a small fish or products	New				26			26				26	26		Basic equipment for market
118	Vacuum packing machine	Desktop type, Sealing width: approx. 200mm	Vacuum packing for trial products	New				1			1				1	1		Basic equipment for factory

2-2-3 Basic Design Drawings

- Facility Layout Plan
- Rehabilitation Work: Ground Floor Plan
- Rehabilitation Work: First Floor Plan
- Demolition and Removal Work: Ground Floor Plan
- Demolition and Removal Work: First Floor Plan
- Processing/Laboratory Building: Ground and First Floor Plan
- Processing/Laboratory Building: Elevation and Cross-Section



2-65

PROJECT FILE

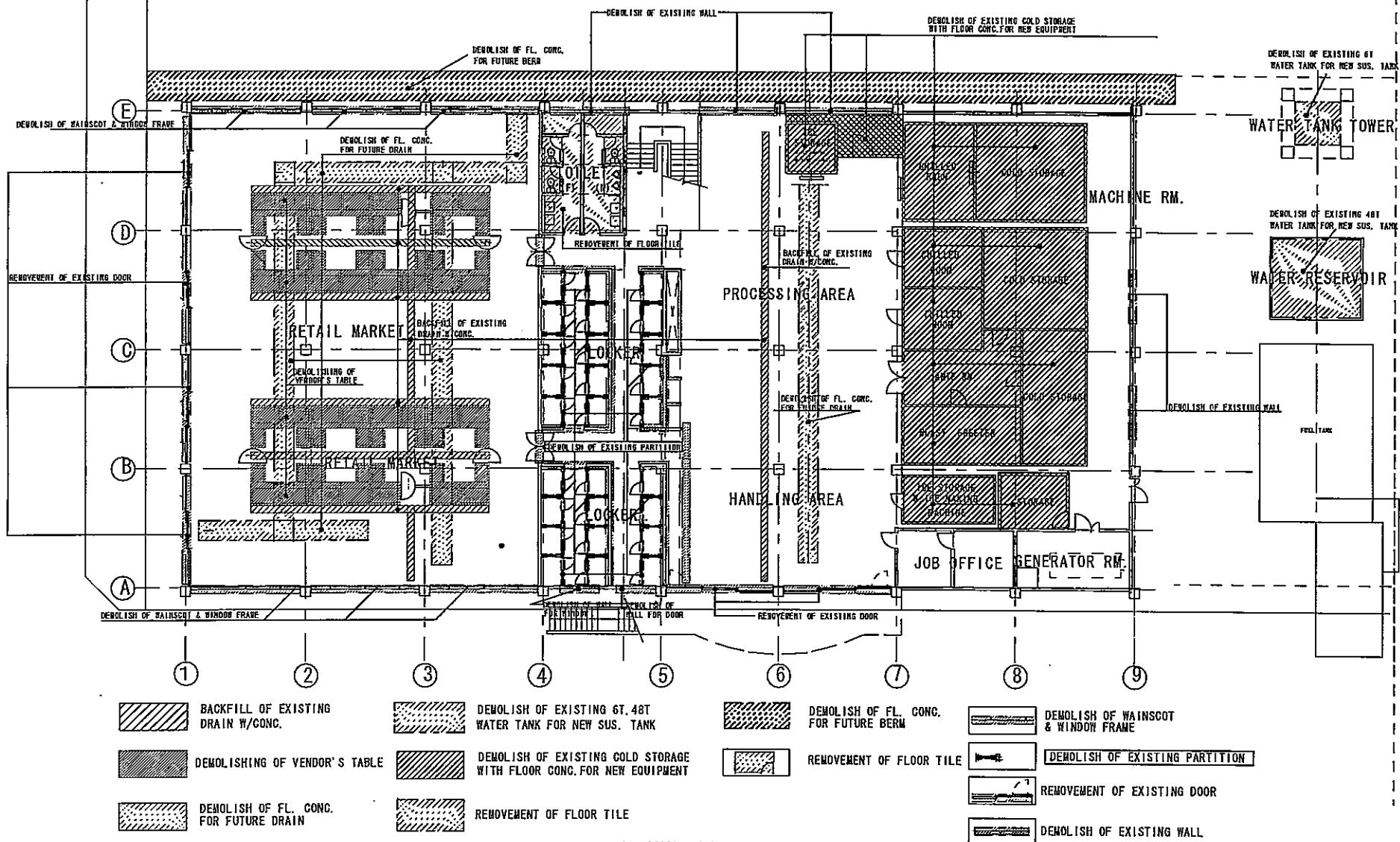
THE PROJECT FOR RE-MODELING OF NEW KINGSTOWN FISH MARKET IN ST.VINCENT AND GRENADINES

WORK FILE

PLOT PLAN / EXTERIOR WORKS

SCALE

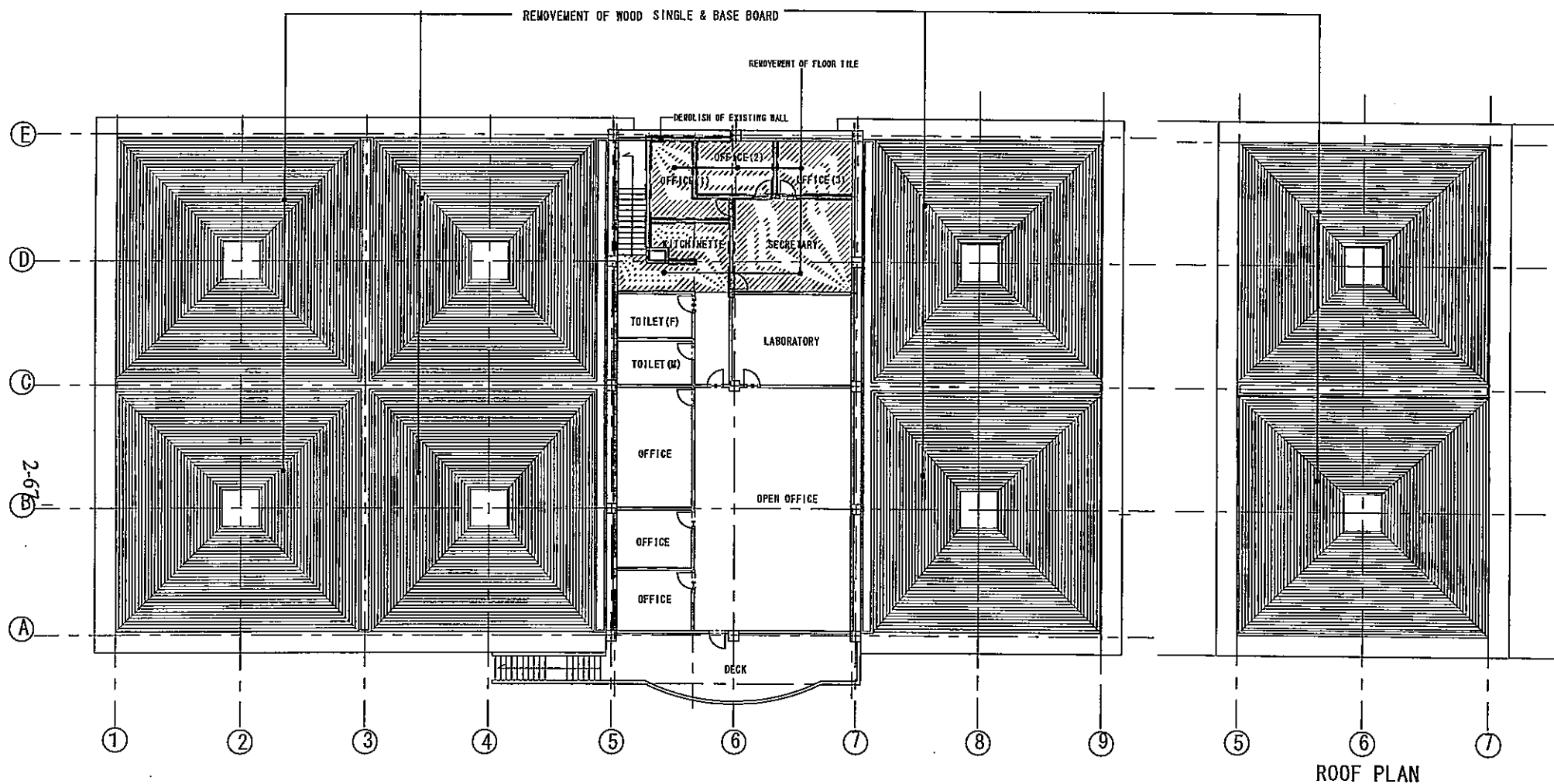
1



GROUND FLOOR PLAN

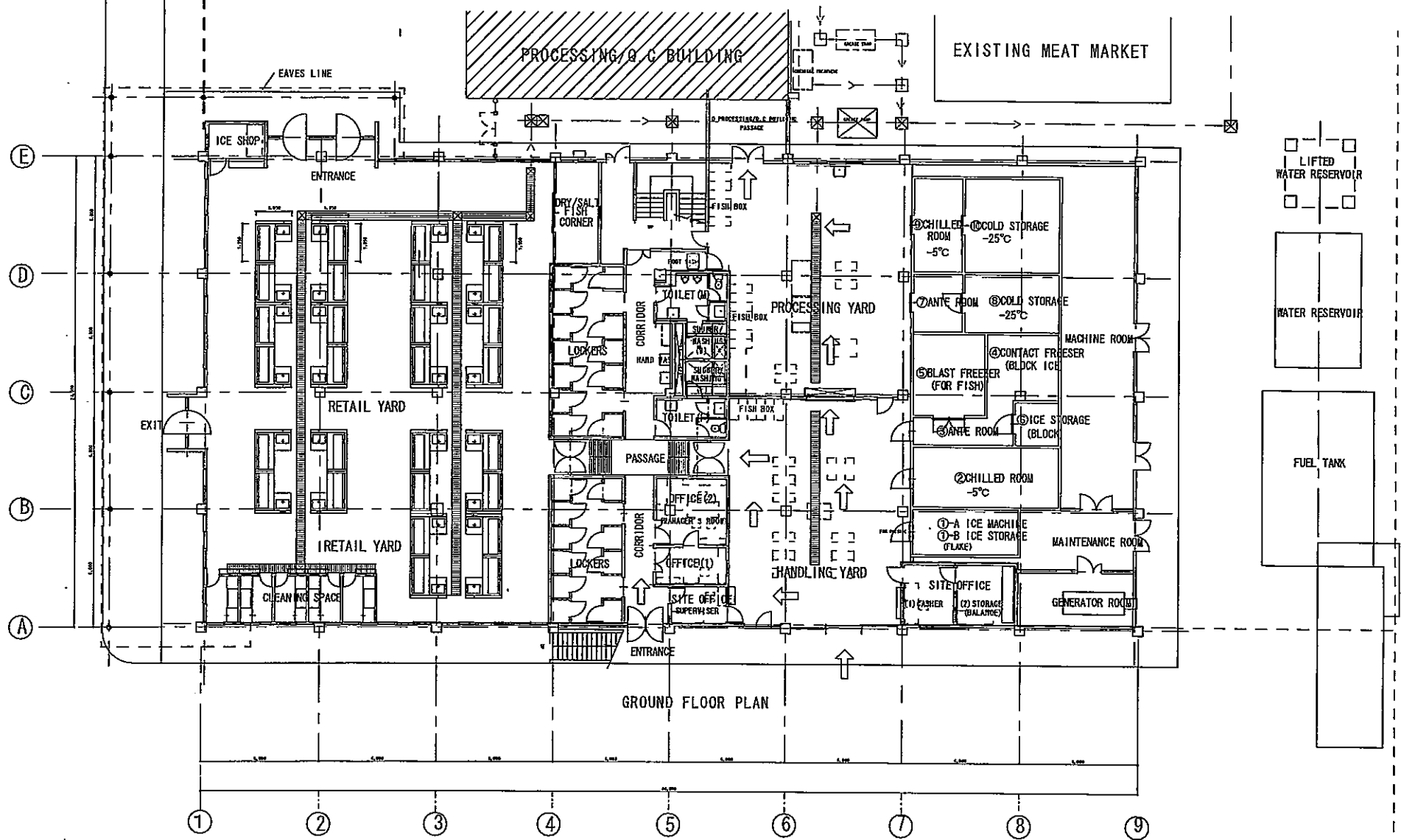
THE PROJECT FOR RE-MODELING OF NEW KINGSTOWN FISH MARKET IN ST. VINCENT AND GRENADINES

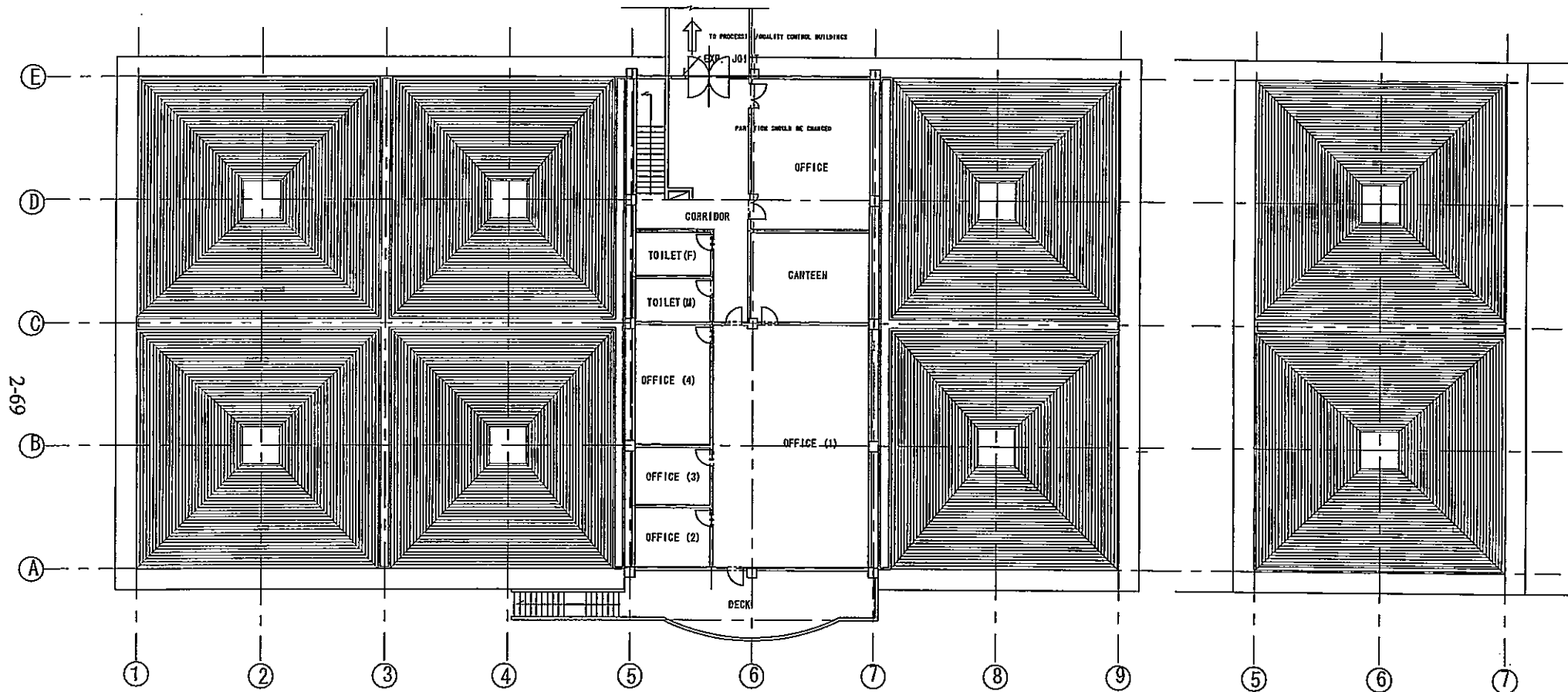
RENOVATION OF FISH MARKET
GROUND FLOOR DEMOLISH / REMOVAL PLAN



ROOF PLAN

2-68

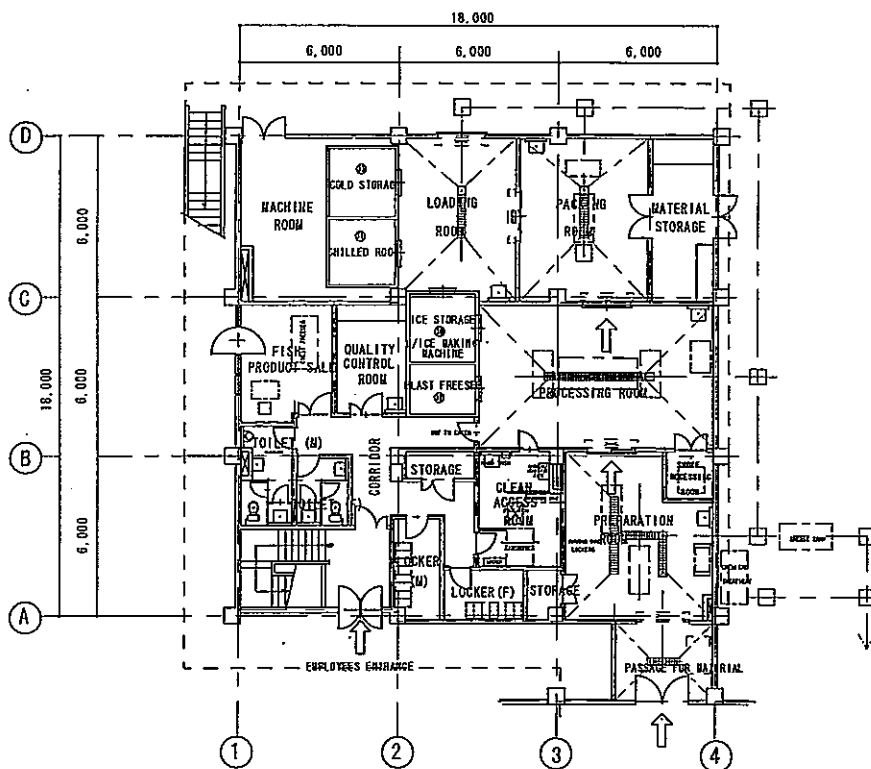




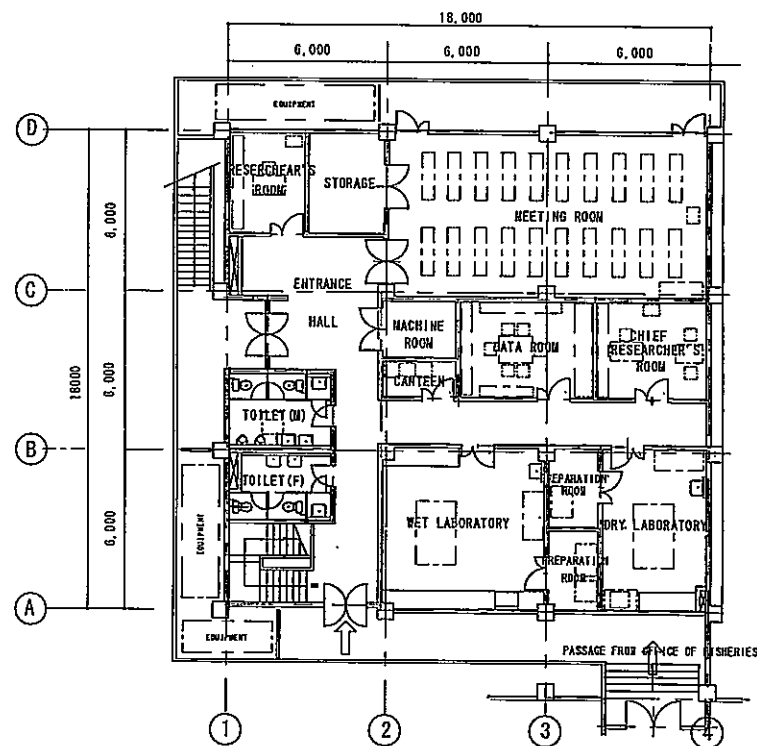
FIRST FLOOR PLAN

ROOF PLAN

2-70



GROUND FLOOR PLAN



FIRST FLOOR PLAN

1F 336m²
2F 324m²
660m²



WEST SIDE ELEVATION



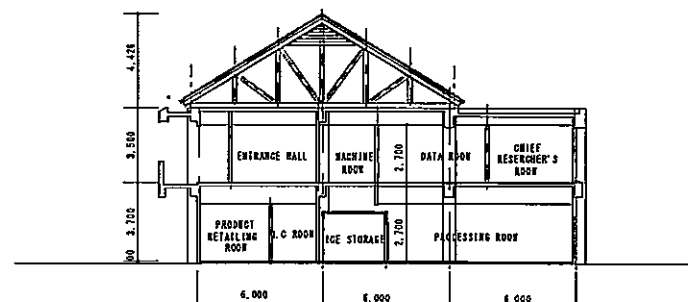
NORTH SIDE ELEVATION



EAST SIDE ELEVATION



SOUTH SIDE ELEVATION



SECTION