Food Protection Services

fish processing plants

Guidelines for Plan Approval and Structural Requirements

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BC Centre for Disease Control
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

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Fish Processing Plants

Purpose

These guidelines provide an overview of the licensing process, and highlight the construction standards as specified in the *Fish Inspection Regulations* (Reg 187/94).

Definitions

Fish

- includes all fin fish, shellfish, crustaceans, marine animals and any parts, products or by-products of them.

Processing

- includes cleaning, filleting, icing, packing, canning, freezing, smoking, salting, cooking, pickling, drying or preparing fish for market in any other manner.

Licensing and Registration

In British Columbia, the responsibility for monitoring food safety and public health in fish processing plants is shared by the Canadian Food Inspection Agency and Provincial and Regional Health Authorities. Processors having markets outside of BC must be registered and inspected by the Canadian Food Inspection Agency. Those plants having markets only within BC are referred to as *domestic plants* and are inspected by Regional Health Authorities. The *BC FISH INSPECTION ACT (RSBC 1996) 148* and *BC FISH INSPECTION REGULATIONS (Reg.187/94)* govern fish and shellfish harvested, processed and sold in British Columbia (exports outside of BC fall under federal regulations). Under this framework the BC Ministry of Agriculture and Lands (BCMAL) issues provincial licences for commercial fisheries, finfish and shellfish aquaculture, and fish processing plants. Applications for licensing of a fish processing plant are reviewed by the HA and a recommendation for licensing is sent to BCMAL once the application is complete and meets all requirements of the regulations. Food Protection Services, BC Centre for Disease Control assists in this process in a consultative capacity by acting as a scientific resource and providing guidance materials for Health Authorities and Processor applicants.

1. Domestic Plants

Fish processed in a *domestic plant* for sales only in the province of BC:

a) All domestic processing facilities must be approved and inspected by the local Environmental Health Officer (EHO). Plans submitted for approval for new construction or renovations of an existing facility are first reviewed by the EHO located at your Regional Health Authority office. When plans have been approved they may be forwarded to Food Protection Services' Food Safety Specialist for review. The final construction of the facility must also be approved before a *Fish Processing License* is issued.

b) Legislative requirements for construction and operation of a fish processing facility are in *Schedule A and B* of the provincial *Fish Inspection Regulations* (BC Reg 187/94). This regulation may be obtained from Crown Publications, 521 Fort St, Victoria BC V8W 1E7; Telephone: 250.386.4636.

c) A *Fish Processing License,* which is issued annually, is required by all facilities that wish to process fish. Once the constructed facility is approved and a completed application is received, the *Fish Processing License* will be issued. An application will be mailed to those who are actively involved in setting up a processing operation.

NOTE: A *Fish Processing License* is subject to annual fees as prescribed in the *Fisheries Act*.

Further information regarding the plan approval process and licensing requirements may be obtained from:

Food Safety Specialist
Food Protection Services
BC Centre for Disease Control
655 12th Ave W. Vancouver BC V5Z 4R4
Telephone: 604.707.2440
www.bccdc.ca

2. Federally Registered Plants

Fish processed for export outside the Province of British Columbia must be processed in a processing plant which is *registered* with the Canadian Food Inspection Agency. In a registered plant, all approvals and inspections are carried out by the Canadian Food Inspection Agency inspectors.

NOTE: A provincial *Fish Processing License* is still required even though the plant is registered with the Canadian Food Inspection Agency.

For further information, contact one of the following Canadian Food Inspection Agency district offices:

- Lower Mainland
- BC Interior
- Yukon
- Sechelt Peninsula

4321 Still Creek Dr
Burnaby BC V5C 6S7

Ph: 604.666.2438
Fx: 604.666.4440

- South Vancouver Island
- North Coast

103-4475 Viewmount Ave
Victoria BC V8Z 6L8

Ph: 250.363.3455
Fx: 250.363.0336

- North Vancouver Island
- Powell River & Central Coast

457 Standford Ave E
Parksville BC V9P 1V7

Ph: 250.248.4772
Fx: 250.248.6776

In addition to processing fish for export, the following fish processing operations may be conducted only at a federally registered facility:

a) All canning or retorting operations.

b) All initial processing of bivalve molluscs (clams, mussels, oysters and scallops) and aquaculture (farm) fish.

3. Requirements of other regulatory agencies should also be carefully considered.

For example:

a) Zoning bylaws (Municipal or Regional District).

b) Construction and/or occupancy permits (Municipal or Regional District).

c) Approved water supplies and sewage disposal permits (Local Health Authorities).

d) Permits to dispose of industrial wastes which include processing wastewater and offal wastes (BC Ministry of Water, Land and Air Protection, Regional Waste Manager).

e) When building on crown foreshore, permission is required from BC Assets and Land Corporation (formerly the Ministry of Environment).

f) The Canadian Food Inspection Agency should be consulted about packaging and labeling requirements. Within BC, consumer products offices are located in Burnaby (604.666.6038), Victoria (250.363.3455) and Kelowna (250.470.4484).

g) It is also recommended that WorkSafeBC and Revenue Canada be contacted to determine what requirements they may have.

Application for License

As previously mentioned a *Fish Processing License* for a domestic plant is subject to compliance with structural requirements listed in *Schedule A* of the *Fish Inspection Regulations*. Prior to any construction, the Regional Health Authority must recommend approval of the application for the proposed facility before issuance of the license by BCMAL.

Regional Health Authority Contacts:

Fraser Health Authority
300-205 Newport Dr
Port Moody BC V3H 5C9
Telephone: 604.949.7700
Facsimile: 604.949.7706

Interior Health Authority
519 Columbia St
Kamloops BC V2C 2T8
Telephone: 250.851.7340
Facsimile: 250.851.7339

Northern Health Authority
600-299 Victoria St
Prince George BC V2L 5B8
Telephone: 250.649.7063
Facsimile: 250.565.2640

Vancouver Coastal Health Authority
800–601 Broadway W
Vancouver BC V5Z 4C2
Telephone: 604.675.3800
Facsimile: 604.736.8651

Vancouver Island Health Authority
430–1900 Richmond Ave
Victoria BC V8R 4R2
Telephone: 250.592.0570
Facsimile: 250.592.0576

BC Ministry of Agriculture and Lands
License Application Forms and Information
can be found on their web-site at:

http://www.agf.gov.bc.ca/fisheries/licences/main.htm#seafood

or contact them directly at:

General Enquiries

Fisheries and Aquaculture Licensing and Compliance Branch
Access Centre
2500 Cliffe Ave
Courtenay BC V9N 5M6
Telephone: 250.897.7542
Facsimile: 250.334.1410

APPLICATION FOR LICENCE

On the last page of this guideline is a *Checklist* summarizing all requirements described in this guide. All items on the *Checklist* must be completed and addressed prior to submitting plans for review by the Environmental Health Officer or Food Safety Specialist. A health inspection must be conducted before a *Provincial Fish Processing License* will be issued by BCMAL. The plans and specifications should be submitted to the Regional Health Authority and include the following information:*

1. Legal information to include:

(a) full legal company name
(b) plant location
(c) mailing address
(d) company representative (name, official title, telephone number)

2. Site Layout -Attach a drawing indicating:

(a) the location of the establishment on the property;
(b) other buildings;
(c) offal handling area;
(d) drainage around the plant;
(e) road access;
(f) vessel/vehicle loading and unloading areas;
(g) ice machines and delivery points.

3. Complete details on the water supply. The source and proposed water treatment (when necessary) must be described.

Professionally engineered water systems may be required depending on source and type of fish products being processed.

4. Establishment's floor plan - attach a drawing of the floor plan (or blueprint) and indicate:

a) proposed use of each area;
b) location of walls, partitions, windows, doors, posts, plumbing fixtures, and all equipment to include exhaust fans, blast/contact freezing units, and refrigeration units, coolers, hand washing, toilet number and location, offal handling equipment, and dry storage;
c) location, construction and size of floor drains, curbing, slope of floors, floor/joint sealing materials, trough drains, sumps, screening devices, back flow prevention devices, hot and cold water outlets, including wash-down hose outlets;
d) ceiling heights in all processing areas;
e) a schedule of finishes for the floors, walls and ceilings in all rooms;
f) specifications for lighting including location, mounting height, type and model of fixtures, protective coverings.

5. Processing Information - indicate:

a) each type of fish to be handled.

b) process(es) to be used (e.g. filleting, smoking, etc).

c) written procedure for each ready-to-eat product (e.g. hot smoking, cold smoking, cooking of crabs, etc) Hazard Analysis Critical Control Point (HACCP) plan. A booklet showing how to develop a HACCP plan is available from BCCDC (see page 2 for contact info).

Each process description must include:

- quantities of all additives and ingredients;
- times and temperatures for each stage;
- known parameters for pH, salt content, water activity, etc, that occur due to the process;
- methods used to monitor critical control points listed above, i.e. salimeter, thermometer, laboratory results, etc.

d) approximate quantities to be handled daily for each process.

e) expected hours/days of operation:
Regular _____ Peak _____

f) expected staff requirements:
Regular _____ Peak _____

6. Process Layout - Using a copy of the floor plan drawing, indicate product flow for each process including:

a) shipping, receiving and storage of raw product and finished product and temporary storage of product being processed;

b) location of processing equipment, i.e. tables, vacuum packers, etc;

c) storage of ingredients and packaging materials;

d) packaging area.

7. Specifications of any other specialized equipment, including:

a) Live tanks

b) Smoking equipment

c) Freezing equipment

NOTE: Owners of existing licensed fish processing establishments who intend to make alterations to the establishment must also provide the above information, for all areas to be altered.

8. Employee Information, including:

a) how many employees, training requirements

b) safety policy, how employee hygiene and illness is handled

c) garments to be worn at work; foot wear, head wear, aprons, gloves etc.

9. Labeling, storage, packaging and shelf-life of product

a) labeling in compliance with provincial and federal law (product label always required; nutrition facts label sometimes required; date code or lot and shelf-life)

b) packaging of products (is modified atmosphere packaging required?), description of the storage temperature and shelf-life

10. Recall plan, can you identify who bought your product if a recall was required?

General Construction & Equipment Requirements

1. Design Considerations for "Ready-to-Serve" Products

When ready-to-serve fish products are manufactured, it is particularly important to have a well designed facility and product-flow which will help prevent any form of cross-contamination from raw to finished products. To accomplish this, all facilities which process a ready-to-serve product must allow for a separation of its equipment, working areas, and storage areas when handling raw and ready-to-serve fish products.

* Although less critical, a separation of raw fish from processed products which are still in a raw form is also an important food handling practice.

2. Floors

Concrete floors should be used in processing areas - a minimum floor slope of 2.5 cm (1 in) per 2.4 m (8 ft) is required. Outside concrete pads (sloped to a drain) are required for all receiving, shipping and storage areas.

3. Drains

a) Drains should be of a trough design. The trough drain should be a minimum of 15 cm (6 in) in width and depth, with a minimum slope of 2.5 cm (1 in) per 1.8 m (6 ft). The distance from the drain to any wall should not exceed 4.57 m (15 ft).

b) The concrete lip of the drain should be equipped with an L-shaped angle iron embedded and anchored into the concrete to protect the concrete when the gratings are being removed during plant clean up.

c) Circular drains may be acceptable, providing the grates are large enough to prevent clogging and there is at least one drain for each 37 sq m (400 sq ft) of floor area.

d) Drains must be equipped with traps or other devices to preclude the entry of gases or vermin into the building through the drain.

e) Wastewater should be discharged into a community sewerage system or to an approved onsite disposal system.

4. Walls

Wall surfaces (floor to ceiling) in processing areas must be durable and impervious to water.

1. Sealed concrete block walls are acceptable.
2. Good one-side plywood (1.2 cm [½ in] minimum) is acceptable for outside and interior walls provided the studs are located on a 15 cm (6 in) concrete curb (i.e. one layer of concrete blocks) to prevent rotting at the floor-wall joint. The bottom edge of the plywood should overlap the concrete curb and be liberally caulked to seal out moisture.
3. Barker board or similar plastic panels (1.2 cm [½ in] minimum) are acceptable.
4. Standard arborite, particleboard or drywall is not acceptable.

5. Wall Coating

a) Plywood and concrete surfaces must be sealed and then coated with a durable enamel or epoxy finish.

b) Walls must be light coloured and smooth so that dirt can easily be seen and easily removed.

6. Ceilings

a) Ceiling surfaces must be smooth, impervious and washable with no exposed pipes, joints, or open support beams.

b) Drywall is not acceptable, as it will not tolerate damp conditions.

7. Lighting

a) Safety shields should be installed on all light fixtures throughout the processing area to prevent shattered glass from falling into food products.

b) A minimum lighting intensity of 50-foot candles is required on all working surfaces in the processing areas. A minimum lighting intensity of 30-foot candles is required in all areas of a processing plant.

8. Processing Equipment

a) Processing equipment must be constructed of approved materials such as stainless steel, aluminum or plastic.

b) Galvanized metal, wood, mild steel, enamel and brick are not approved materials.

9. Water Supply

a) Water and ice must be of potable quality from an approved source (i.e. disinfected/treated municipal water supply).

b) The water supply must be tested for compliance with drinking water standards before a license can be issued.

c) An approved water treatment system may be required for a water supply, which utilizes a surface source or a shallow well.

d) An adequate supply of potable water under a minimum of 20 psi is required. Sufficient hot water at a minimum of 43°C (110°F) must also be available for cleaning purposes.

10. Refrigeration

Freezer and cold storage requirements will vary from one application to another. It is important that adequate refrigeration and freezer space is provided. For most operations, a *walk-in cooler* will be required. The freezing equipment must be able to maintain a minimum temperature of –18°C (0°F) and, where freezing of fresh fish occurs, blast-freezing capabilities must be provided. Domestic refrigerators or freezers are not acceptable. The interior of refrigerator units must be constructed and equipped so that all surfaces are smooth, durable, non-absorbent and easily cleanable. The floor of a walk-in cooler must be sloped (minimum 2.5 cm [1 in] every 2.4 m [8 ft]) to a drain. Floor insulation for walk-in coolers is highly recommended.

11. Toilet Facilities

Toilet facilities must be provided.

a) Toilet rooms must not have direct access from the processing area. An anteroom or a 90-degree turn into the toilet room is satisfactory. Toilet rooms shall be equipped with self-closing doors.

b) A floor drain should be provided in each toilet room.

c) Toilet rooms must be finished with durable and impervious materials and equipped with soap and towel dispensers.

12. Offal Disposal

A concrete pad sloped to a drain, and large enough to accommodate offal containers should be provided outside the plant. Offal containers must be water tight, constructed of approved materials and equipped with fitted covers.

13. Miscellaneous Requirements

a) *Hand-washing basins* equipped with hot and cold running water, liquid or powdered soap and single service towels must be installed within the processing area in sufficient numbers so that soiled hands can be conveniently washed before fish are handled. Sinks equipped with foot operated controls are preferred for this purpose.

b) *Double compartment sinks* equipped with hot and cold water are also required. These sinks must be of sufficient size to facilitate cleaning and sanitizing the equipment used to process fish.

c) A sufficient number of *hose bibs* and hoses must be provided to ensure convenient cleaning of the processing facility. Hoses should not be connected to a sink fixture.

d) All hoses and *plumbing fixtures* shall be provided with an air gap or shall be equipped with a back flow prevention device.

e) A general *ventilation system* is required to provide for regular air changes. Where smoking, cooking or blanching of fish takes place, a hood and exhaust system is necessary to exhaust any odours or smoke and to prevent condensation.

f) A *smoking unit* shall be located within the processing facility. Transportation of fish products from or through an outside environment into the preparation or storage area is not acceptable.

The smoking unit shall be designed such that:

i) the inside air temperature of the unit and internal fish temperatures can be monitored.

ii) the unit is constructed with approved materials so that it is durable and easily cleanable.

iii) an even distribution of heat and smoke is achieved (e.g. use of an air blower).

iv) a baffle or other system is included to allow for settling out smoke particles.

g) Areas where raw fish are dressed, filleted or cut, require a flushing or *spray system* so that during processing the working area is kept free of blood and slime.

h) A *dry storage* area shall be provided. Since the size requirements will depend on the needs of individual plants, this item will require site specific consideration. Where applicable, separate dry storage must be identified for:

i) Cleanup chemicals and materials

ii) Food additives

iii) Packing materials

iv) Oils, greases, etc.

v) Equipment not in use.

i) *Packaging materials* used in direct contact with fish shall be of a food-grade-contact packaging material. These materials must be stored in a clean, dry area.

j) All *window ledges* must be sloped inward to prevent ponding of water.

Provincial Fish Processing Plant Application Checklist

The items on this checklist are to be described, explained or addressed in your application. Use this checklist as a guideline to ensure all items are covered with your submission.

Carefully cut out this checklist and return it with your application to your Regional Health Authority.

A. FACILITIES

- ❒ Description of adjacent properties
- ❒ Description of structure integrity
- ❒ Current copy of plant plan
- ❒ Current copy of plan illustrating flow patterns for each process
- ❒ Description of ventilation system
- ❒ Description of waste disposal (location, type of containers, name of contractor, removal schedule)
- ❒ Description of sanitary facilities (number and location of washrooms, change rooms)
- ❒ Description of hand washing stations (number and location of stations, how equipped)
- ❒ Explanation of water/ice source

B. RAW MATERIALS

- ❒ List of source(s) of fish, crab, shellfish, and other ingredients
- ❒ Description of how product will be received and stored
- ❒ List of what tests will be conducted on raw products and the frequency of such tests (checklist to be included)
- ❒ List of ingredients that will be used

C. SANITATION

- ❒ Master cleaning schedule (frequency, preparation, chemicals used, person(s) responsible)
- ❒ Description of pest control system (company responsible, frequency)
- ❒ Explanation of how chemicals will be controlled

D. EMPLOYEES

- ❒ Description of training/experience required of employees
- ❒ Description of how staff illness, injuries, etc. will be addressed

E. PRODUCTION EQUIPMENT

- ❒ Description of types of equipment to be used
- ❒ Explanation of how preventative maintenance has been established
- ❒ Description of calibration of equipment, thermometers

F. PRODUCTION CONTROLS

- ❒ HACCP process flows (each process)
- ❒ Identify CCPs
- ❒ Explanation of established critical limits
- ❒ Description of monitoring measures (how often)

G. STORAGE AND DISTRIBUTION

- ❒ Temperature of fish storage units
- ❒ Schedule of the transport vehicle cleaning frequency
- ❒ Description of method of fish storage prior/during distribution
- ❒ Schedule of the length of time products will be safe to display

H. PRODUCT CONTROLS

- ❒ Product label sample (should include company name, address, weight, ingredients, packaged on/best before date)
- ❒ Explanation of product recall procedure
- ❒ Explanation of complaint follow-up procedure