

FISH RACEWAY OR TANK SPECIFICATIONS

ENGINEERING SPECIFICATIONS

Clearing. All trees, brush, logs, stumps, roots, loose boulders, or other debris shall be cleared from the raceway or tank construction area and from the area where fill is to be placed for dikes or levees. If needed to establish vegetation, the topsoil and sod shall be stockpiled and later spread on the completed surfaces.

Excavation. All excavation necessary for the construction of raceways, bulkheads, or tank foundation and footings shall be performed in a workmanlike manner to the lines and grades shown on the drawings or as staked in the field.

Fill placement. The material placed in the dikes or levees shall be free of sod, roots, frozen soil, boulders larger than 15 cm (6 in) in diameter, and other objectionable material. The placing and spreading of the fill material shall be started at the lowest point of the foundation, and the fill shall be brought up in approximately horizontal layers of such thickness that the required compaction can be obtained with the equipment used.

Compaction. The moisture content of the fill material shall be adequate for obtaining the required compaction. Construction equipment shall be operated over each layer of fill to ensure that the required compaction is achieved. Earth fill placed in close proximity to structures and pipelines shall be compacted using hand tampers or manually operated power tampers or vibrators.

Concrete. Concrete shall receive the detail in mix design and testing consistent with the size and requirements of the job. Mix requirements or necessary strength should be specified. Type of cement, air entrainment, slump, aggregate, or other properties are to be specified where necessary.

All concrete is to be placed, finished, and cured in an acceptable manner. Reinforcing steel is to be placed as indicated on the plans and held securely in place during concrete placement. Subgrades and forms are to be installed to line and grade as shown in the drawings, and the

forms are to be mortar tight and unyielding as the concrete is placed.

Concrete tanks shall have a minimum thickness of 15 cm (6 in) and shall be steel reinforced. They shall have concrete bottoms. All interior surfaces shall be smooth and treated with epoxy sealer or other suitable material to permit sterilization. Washing new concrete tanks with acetic acid is recommended.

Wood construction and metal fabrication. All untreated wood construction, metal fabrication, and other miscellaneous materials such as screens, flashboards, splashboards, and inlet structures that are used in small quantities and are readily replaceable shall be of durable quality. All fabrication of materials will have a good workmanlike appearance.

Metal tanks will be assembled or installed according to manufacturers recommendations. The interior surface will be painted or treated with an epoxy coating or other suitable material that will preserve the metal and be compatible with fish culture. Where the tank's interior surface is rough or contains fiberglass matting, it must be covered or sealed with an approved resin or sealer.

Overall quality and workmanship.

Construction operations shall be carried out in such a manner and sequence that erosion and air and water pollution are minimized and held within legal limits. All work will be conducted in a skillful and workmanlike manner.

The completed job shall present a workmanlike appearance. Fencing and vegetative cover to control erosion and pollution shall be established as needed. Appropriate safety measures such as warning signs, rescue facilities, guardrails, and fencing shall be provided as specified.

BIOLOGY SPECIFICATIONS GUIDE

The practice specifications shall include the minimum biological requirements of each aquaculture species that is to be grown under these types of culture systems. The limits of essential water quality parameters shall be defined for each cultured species.