



**WESTERN UPPER PENINSULA HEALTH DEPARTMENT  
Upper Peninsula Environmental Health Code  
Technical Manual**

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## **Introduction**

The Upper Peninsula Environmental Health Code was adopted to promote public health, safety and welfare of the people of the Upper Peninsula of Michigan. Within the Code are the specifications for construction of sewage systems. Due to the dynamic and complex nature of on-site sewage systems governed by the Code, an on-going technical guidance document is necessary. This Technical Guidance Manual has been prepared to provide guidelines, specifications and standard practices used to implement the code. This manual will be altered to accommodate new research and technology as frequently as necessary to provide current guidance.

### **Article 3.0: Licensing and Registration**

#### **Sewage System Installer Licensing Procedures**

Reference: Sections 3-2 of the Upper Peninsula Environmental Health Code

These sections state that the department shall have the authority to promulgate standards for licenses, registrations, renewals, and examinations. In developing minimum standards for licensing or registration, the department shall consider equivalency and proficiency testing and where appropriate, grant credit for past training, education, or experience in related fields.

1. The applicant shall complete a written exam proctored by an environmental health representative of the local health department.
2. The exam may be taken at any of the local health department jurisdictions.
3. Upon satisfactory completion of the exam, the results will be reviewed and incorrect answers discussed with the applicant.
4. A passing score is 70%. A retest can be scheduled at the contractor's request.
5. A separate license will be required for each local health department.
6. Licenses shall expire every three years. All licenses expire on April 30, 2026, and every three years thereafter. License fees will be prorated. If an application is made within a three-year license period; full fee for three-year license, 2/3 fee for 2-year period, 1/3 fee for applications received within one year of expiration date.

## **Article 3.0 – On-Site Treatment and Disposal**

### **Permits**

Reference: Section 3-6 of the Upper Peninsula Environmental Health Code

This section of the code states that an application to construct, alter, extend or replace a sewage system shall be submitted to the department by the property owner or his authorized representative. An application will not be acted upon unless the application is complete.

1. A conventional sewage permit application must be accompanied by a completed sewage system layout sheet (mound system layout, drainfield bed layout, or trench system layout) to be considered complete. Copies of these layouts are enclosed in the appendix.
2. A sewage permit application must be accompanied by a property tax ID # for the parcel on which the sewage system is to be built.
3. For the purposes of this code, the property owner or the licensed sewage installer are considered authorized representatives.
4. A well permit will not be issued by the department unless there is an approved sewage system on-site or both permits (sewage and well) are issued at the same time.

### **Alternative Sewage Systems**

Reference: 3-6.2 of the Upper Peninsula Environmental Health Code

This section of the code states that the health officer shall have the authority to issue a construction permit for an alternative sewage system if the site does not meet the minimum site requirements for a conventional system.

1. For the purposes of this code, a conventional sewage system includes: a bed system, a trench system, a gravity mound system, a pump to gravity mound system, and a mound system where pressure distribution is used solely for even distribution of effluent and no Code variances for sizing, isolation, or slopes greater than 12% are proposed.
2. Alternative systems include but are not limited to: Aerobic treatment units, sand filters, peat filters, etc.
3. Alternative sewage systems must comply with the “Western Upper Peninsula Health Department’s Alternative Technology Policy”, and/or the “Michigan Department of Environmental Quality, Technical Guidance for Pressure Mound Systems”. For further information on pressurized mound systems or alternative technology permitting, please reference these policies. Copies of these policies can be obtained from an Environmental Health Secretary or a Sanitarian.

### Minimum Test Excavations

Reference: Section 3-11.1 of the Upper Peninsula Environmental Health Code

This section of the code states that the health officer shall conduct site evaluations of parcels for completed applications submitted to the department. The depth, number and location of the test pits will be determined by the Sanitarian on-site. The site evaluation will be valid for no more than twenty-four months.

1. The department reserves the right to send back for completion or request more information for site evaluation applications it deems incomplete.
2. A backhoe or some other mechanical means of excavating test pits is required at all site evaluations with few exceptions.
  - a. A minimum of two backhoe (or other mechanical means) cuts per site to a total of depth of six feet are required. Backhoe cuts shall be dug on each end of the system, so that the system can go in between the test holes, over undisturbed soil. Wheeled equipment shall not drive over the proposed sewage system, especially when soils are wet.
  - b. Earthen pit privy site evaluations require a backhoe or some other mechanical means of excavating test pits to dig soil test pits.
  - c. Auger borings are acceptable for use for septic tank replacement only site evaluations. If there is no original permit on file for the OSTDS, a full site evaluation may be needed. The contractor may have to locate and expose the header of the existing absorption area for further evaluation at the time of the final construction inspection.
  - d. Auger borings are acceptable for use for vault privy or composting toilet site evaluations.
  - e. For an existing OSTDS inspection for "building department approval" when no permit is on record a backhoe or some other mechanical means of excavating test pits is required. The existing absorption system shall be located along with a soil evaluation.
  - f. For an existing OSTDS inspection for real estate transactions, an auger boring is acceptable.
3. All site evaluations expire after twenty-four months. After the expiration date, a re-evaluation of the site may be requested at the department's reduced fee under the following conditions:
  - a. The same test holes dug on-site during the original evaluation will be utilized for the sewage system.
  - b. The re-evaluation (without a backhoe) finds no major site activity has damaged the evaluated sewage system site. All isolation distances required by the code can be met.
  - c. The permit application clearly shows that the original site (where test holes were dug) is being used for the sewage system.

### **100 Year Floodplain Restrictions**

Reference: 3-14.1 A. 6. of the Upper Peninsula Environmental Health Code

This section of the code states that sewage systems shall not be located in a floodplain of less than one hundred (100) years, or in an area subject to seasonal flooding or ponding of surface waters.

The property owner shall demonstrate that the following criteria are met when installing sewage systems in or near one hundred (100) year floodplains:

1. The sewage system and the four (4) feet of soil located immediately beneath the soil-stone aggregate interface shall be located above the one hundred (100) year floodplain elevation.
2. Wells, which are installed within the 100-year floodplain by variance or deviation, must have elevated casings, which raise the wellhead and screened vents one foot above the 100-year flood level. Cement grout is required.

NOTE: Permits from EGLE, Land and Water Management Division may be required prior to placing fill for a conventional sewage system in a 100-year floodplain elevation.

### **Sewage System Requirements - Conventional Mound Systems**

Reference: Section 3-14.2 B of the Upper Peninsula Environmental Health Code

This section of the code states that the soil depth between the limiting zone or the seasonal high-water table and the aggregate/soil interface shall not be less than forty-eight inches (48") for an OSTDS that provides non-uniform distribution through gravity flow OR not less than thirty-six inches (36") for an OSTDS that provides uniform distribution through pressure distribution.

In many cases, forty-eight (48) or thirty-six (36") inches of native soil is not available on-site between a limiting layer or seasonal high-water table and original grade. In order to obtain this 48" or 36" for sewage treatment, fill material must be placed on-site. When effective soil depth as defined by Section 3-14.1 A. 2. exists, a conventional mound system may be permitted and is required to meet the following standard construction practices.

All OSTDS systems shall be constructed as such to minimize the hydraulic linear loading rate (gal/da/ft) by constructing absorption systems long and narrow.

### **Site Preparation and Construction**

Ultimate success or failure of a mound relies on a clear communication and understanding of basic site preparation and construction principles. Critical issues include:

1. Proper procedures must be followed to protect the mound area including a required greenbelt during and after construction. After establishing a suitable location for the mound and replacement area including greenbelt, it should be suitably fenced or otherwise unmistakably

identified to prevent further disturbance until actual construction can occur. Site planning resulting in a construction location for the mound which is isolated from other anticipated home construction activities is encouraged.

2. Soil smearing and compaction, which can reduce infiltration capacity, will occur if soils are worked when wet. Construction activities should be scheduled only when soils are sufficiently dry. Proper soil moisture content of the soils in the upper foot can be evaluated by rolling a sample of the soil between the hands. If the soil can be rolled into a ¼ inch or smaller “wire” it is considered to be too wet and should be allowed to dry before preparing.
3. Excess vegetation should be removed from the mound basal area. Trees should be cut flush to the ground and other vegetation over six inches in length should be mowed and cut vegetation removed.
4. Placement of fill material is to be accomplished from the end and upslope sides utilizing a tracked vehicle or equipment with adequate reach to minimize soil compaction. A minimum of six inches of fill material should be maintained below the tracks to minimize compaction. Wheeled vehicles should be prevented from traveling over the mound basal area and down slope green belt area.
5. Final grading of the mound area should divert surface water drainage away from the mound. Sod the entire area or seed and mulch.

### **Fill Material**

Clean medium sand with little or no fines is to be used to form a sand base to the elevation that is required on the permit and site evaluation. Sand fill is to be placed from the upslope side or ends to reduce site disturbance.

### **Sand Extension**

When constructing an OSTDS mound that provides non-uniform distribution through gravity flow, a five-foot sand extension around the bed is required. When constructing an OSTDS mound that provides uniform distribution through pressure, a two-foot sand extension around the bed is required. This sand extension prevents effluent from leaching out of the toe of slope.

### **Slope**

For OSTDS mound that provides non-uniform distribution through gravity flow, in addition to the five-foot sand extension and a 3:1 slope to natural grade is required. For OSTDS mounds that provide uniform distribution through pressure, in addition to the two-foot sand extension and a 4:1 slope to natural grade is required. It is recommended that a sand-based soil be used for this slope. This slope prevents effluent from leaching out the toe of slope while blending the system into the landscape.

Note: The toe of slope must be 10 feet from the property line. Refer to the Mound System Layout in the appendix.

### **Isolation Distances**

The toe-of-slope for Mound systems must meet all applicable isolation distances including distances to wells, property lines, foundation walls, building/storm/subsoil drains, water lines, embankments, surface water, etc.

### **Replacement, Use, or Repair of an Existing System**

Reference 3-7.1 (A., B.) and 3-7.2 (C.) of the Upper Peninsula Environmental Health Code

Section 3-7.1 states: No person shall connect any habitable structure or increase flow beyond the original design capacity to an existing OSTDS by greater than one bedroom for residential structures or 150 gallons per day in the projected sanitary flow for commercial structures except where permitted, in writing, by the Department.

Section 3-7.4 deals with Failing Existing Systems.

If during the course of an existing system inspection the sewage system has been determined to be failing or in substantial non-conformance with the requirements of the Upper Peninsula Environmental Health Code, the system will not be approved for continued use. In addition, if the system is already or will be in use, the department will require repair or replacement of the sewage system.

A failing system is defined as having any of the following conditions:

1. The sewage system fails to accept effluent at the rate of application
2. Sewage effluent seeps from, or ponds on or around the sewage system
3. The health officer has determined that the sewage system has contaminated the ground water or surface waters of the state.

Examples of substantial non-conformance with the requirements of the Upper Peninsula Environmental Health Code include:

1. Direct discharge of sewage to the ground surface or surface waters
2. The sewage system failing to accept effluent at the rate of application, observed as sewage backing up into the premises, or sewage backing up into the tank from the drainfield.
3. Seasonal water table is less than 24" below the drainfield or over the level of the drainfield.
4. Collapsed or non-water tight septic tank.
5. Septic tank less than 50% of the required capacity.
6. Drainfield less than 50 % of the required size.
7. Cesspool instead of a septic tank and drainfield.
8. Unpermitted holding tank.
9. System located on, or partly on the neighboring property.
10. Isolation distance less than 50% required by the Upper Peninsula Environmental Health Code.
11. Other circumstances as deemed in substantial non-conformance by the health officer.

The method and time frame for correction will be furnished in writing to the property owner.



## **Sewage System Abandonment**

Reference: Section 3-16 of the Upper Peninsula Environmental Health Code e

This section is provided to guide industry and regulators in the proper abandonment of a septic tank and/or absorption system. Regardless of the abandonment method chosen, a potential safety hazard must not be created.

### **Septic Tank**

Abandonment shall not proceed until the septic tank is pumped and the contents properly disposed of by a licensed septage waste hauler. Alternative methods of septage and tank disposal may be approved in writing by the health officer. Proper abandonment of a septic tank shall consist of one of the following methods:

1. Collapse tank when feasible; otherwise completely fill it with material approved by the health officer. Provide compaction during the filling process to eliminate the potential to develop a sinkhole or any other safety hazard.
2. Remove and haul the tank to a licensed Type II landfill. The tank shall be pumped by a licensed septage hauler prior to removal.

### **Absorption System**

When it is practical to do so, the absorption system should be left in place. When the area is needed for other purposes, the absorption system may be removed. The disposal method to be used shall be one of the following:

1. Remove and haul the contaminated material to a licensed Type II landfill. Containment of the contaminated material is required with particular attention paid to over-the-roadway hauling so as to avoid exposing the public to a health hazard.
2. A property owner may choose to bury the abandoned absorption system on their own premises, or the premises of another with that owner's permission. All components of the system shall be buried in a manner that does not create an environmental health hazard.

### **Aggregate/Filter Material**

Reference: 3-14.3 of the Upper Peninsula Environmental Health Code

Aggregate/filter material shall be washed stone or other material approved by the Health Officer that complies with all of the following specifications:

1. One hundred percent (100%) passing through a two and one-half inch $\frac{1}{2}$ " sieve.
2. No material shall pass a one-half inch ( $\frac{1}{2}$ " ) sieve except for fines. Fines are material that will pass through a number two hundred (200) sieve.

3. The total fines content passing through a number two hundred (200) sieve, as determined by a loss by wash method, shall not exceed one-half percent (½%).
4. Rate 3 or more on Moh's scale of hardness. Stone aggregate may be field evaluated for hardness acceptability by determining whether it can scratch a copper penny without leaving any rock residue.
5. Twelve inches in depth (6 inches below pipe and 2 inches above pipe for a non-uniform distribution OSTDS or 9 inches below pipe and 2 inches above the pipe for uniform distribution OSTDS).
6. Extend 2 feet beyond the pipe on all sides of the absorption field.

Aggregate shall be transported, stockpiled, and/or otherwise manipulated in a manner which will not contaminate it with fines exceeding one-half percent (½%) loss by wash method.

Chipped rubber, synthetics, concrete pavement, and other alternative aggregate may be approved in writing by the health officer.

### **Approved Piping and Distribution Products**

Reference: Section 3-14.4 of the Upper Peninsula Environmental Health Code

This section of the code states that all piping and distribution products shall be approved. A list of approved piping and distribution products is in the appendix.

### **Aggregate Cover**

Reference: Section 3-14.3 C of the Upper Peninsula Environmental Health Code

This section states that prior to backfilling the absorption system, the aggregate shall be covered with approved filter fabric or other approved materials.

Filter Fabric Specifications:

Strength: 25 psi  
Air Permeability: 500 cfm/sq. ft.  
Water Flow: 500 gpm/sq.ft. at 3 inches of head  
Opening Size: 70 to 100 sieves

Soils used to cover the drainfield shall be sand based topsoil, not clay based soils in order to maximize evapo-transpiration. The septic system shall be backfilled with a minimum of 6" and a maximum of 30" of cover.

The field area shall be seeded and mulched to provide grass growth and prevent erosion of the field. The area around the field shall be landscaped to drain surface runoff away from the field area. Trees should not be grown on or near the field area as the roots will eventually plug the laterals. Grass is the best cover for the drainfield.

The drainfield shall not have structures built upon it and vehicle traffic shall not be allowed to avoid compaction and breakage of drainfield materials.

### Septic Tanks

Reference: Section 3-14.5 of the Upper Peninsula Environmental Health Code

This section states: "Septic tanks shall be watertight and constructed of concrete or other materials approved by the health officer."

1. In order to provide technical guidance to meet the standard, the following specifications have been established:
  - Pre-cast concrete tanks shall have a minimum wall, compartment and bottom thickness of two- and one-half inches (2½") and shall be adequately reinforced. The top shall be at least four inches (4") thick and able to withstand the load for which it is intended.
  - Concrete block tanks are not permissible.
  - A cast-in-place concrete tank shall be approved by the health officer prior to construction and comply with all specifications listed in part a).
  - The use of polyethylene septic tanks or tanks manufactured with materials other than concrete shall be limited to sites where use of a concrete tank is not feasible. Polyethylene tanks are not appropriate for high water table locations.
2. Manufacturers shall demonstrate, upon request of the health officer, that the septic tanks which they manufacture are watertight. Testing procedures for determining if a tank is watertight can be found on the last page of the "Advisory for Pre-cast Septic Tank Installations and Inspections" located in the appendix.
3. Multiple compartment tanks shall comply with the following: As measured from the invert elevation of the outlet, the first compartment shall have at least (2/3) of the total required capacity
4. Each compartment within a tank shall have an access port situated above the effluent filter and outlet baffle.
5. The minimum liquid depth of any compartment shall be thirty-eight inches (38"). Liquid depths greater than seventy-eight inches (78") shall not be considered in determining working liquid capacity.
6. When a high-water table is present, septic tanks shall be weighted to prevent floating and shifting. The anchoring of components to counter buoyant forces due to saturated soil conditions can be determined using the following formula: Weight of the component plus the weight of the anchor = 1.5 times (volume of water the component displaces) times the (weight of water) (62.4 pounds/cubic foot at 39 degrees F).

7. Access ports shall be provided for maintenance. They shall be a minimum of twelve inches by twelve inches (12" x 12"), twelve inches (12") in diameter, or a maximum of twenty inches by twenty inches (20"x20"), or 20" in diameter. Each access port cover should be provided with corrosion resistant strap or handle to facilitate removal.
8. Inspection ports instead of access ports will not be accepted
9. The access ports for cleaning and maintenance purposes shall extend to the ground surface by a secure riser. Access port covers shall be adequately secured to prevent unauthorized access. Risers shall be installed with dual lids, leaving the concrete lid in place, or shall be equipped with other Department approved secondary safety device to preclude accidental tank entry. Existing tanks, which will be in continued use for a replacement system, will be required to be retrofitted with an approved riser.
10. A tank shall be located to assure accessibility for inspection and cleaning. No other obstruction or landscaping shall impede the tank's accessibility.
11. A tank should be located on the same side of a building that the sewer line exits the foundation wall. The building sewer shall be at least five feet (5') in length, as short as possible, and contain not more than (2) forty-five-degree (45) bends.
12. The inlet and outlet specifications are as follows:
  - The inlet shall have a minimum diameter of four inches (4"). Plumbing from the dwelling shall gravity flow into the septic tank to allow the septic tank to properly function in settling the waste prior to effluent dispersing to the drainfield. Whole house grinder pumps/sewage ejectors/macerating pumps shall not be used to pump waste under pressure directly into the septic tank.
  - The inlet and outlet shall be placed on opposite ends of the tank, unless otherwise specified by the health officer.
  - The invert elevation of the inlet shall be at least two inches (2") higher than the invert elevation of the outlet.
  - The outlet shall be equipped with an effluent filter and baffle extending below the tank's liquid level a distance equal to but not less than thirty-five percent (35%) or greater than fifty percent (50%) of the liquid level. The tank inlet and outlet should be installed with rubber or neoprene gaskets to provide watertight connections. The health department officer may approve in writing other watertight connections.
13. Tank ventilation shall be provided by means of a minimum of eight inches (8") of air space between the underside of the top of the tank and the top of the "tee" fitting.
14. A multiple compartment tank shall have a four inch (4") minimum diameter "tee" placed on each common wall, utilizing the same specifications as established for the effluent filter and outlet baffle in section 12.
15. Installers should assure that the septic tank is bedded properly, level, and does not have any major defects before installation. Refer to the "Advisory for Precast Septic Tank Installations and Inspections" in the appendix for this information.

16. If two dwellings are sharing a drainfield, each home shall have their own 1,000-gallon septic tank. They may share a pump/dosing tank.

### **Effluent Filters**

Reference: Section 3-14.5 of the Upper Peninsula Environmental Health Code

An effluent filter is required in all new and/or replacement septic system installations. The filter shall be installed and used in accordance with the manufacturer's recommendations. An effluent filter shall meet the following specifications:

- a. Be constructed of durable and corrosion-resistant materials.
- b. Be designed to prevent the escape of suspended solids during normal operation or maintenance.
- c. Retain all particles greater than one-eighth inch (1/8") in size.
- d. Be designed to accommodate the effluent discharge for the system it serves.

An effluent filter maintenance access riser shall extend from the top of the septic tank to the ground surface.

### **Pump Chamber/Dosing Tanks**

Reference: Section 3-14.5 of the Upper Peninsula Environmental Health Code

When gravity flow from the septic tank to the drainfield portion of the sewage system is not possible, a separate pump chamber of a two-compartment tank or a separate dosing tank is required to pump effluent to the drainfield.

1. The septic tank with effluent filter shall gravity flow into the pump chamber/ dosing tank.
2. The minimum size pump chamber/dosing tank is 300 gallons (2-bedroom dwelling); 500 gallons (3-bedroom dwelling); extended pumping distances and additional bedrooms require additional capacity.
3. The pump chamber/dosing tank shall be adequately sized to provide enough capacity to provide all of the following combined:
  - a. Permanent liquid depth for pump submergence, minimum 18 inches
  - b. Gallon capacity of the force main (effluent line) to allow weeping back to the tank
  - c. Minimum dose volume equal to one of the following:
    - i. 150 gallons per day per bedroom divided by 4 doses per day
    - ii. 50% distribution pipe (lateral) volume (gravity flow)
    - iii. The dose rate specified in the pressure distribution design
    - iv. Three (3) minute minimum pump run time (15 gallons per minute minimum pump flow rate)
  - d. Surge storage for peak hour flow = liquid capacity of at least 10 percent the total required septic tank capacity
  - e. Emergency storage volume above the alarm float, equal or greater than four hours of flow at the daily design flow rate

4. Anti-buoyance provisions must be adequate if there is a high-water table present.
5. A riser with a secure manhole cover is required to ground surface for access to the effluent pump and tank for maintenance purposes.
6. A quick disconnect coupler is required on the pump discharge line and shall be accessible from the manhole cover so that the pump can be removed from the pump chamber without entering the tank.
7. Floats must be positioned to turn the pump on and off at proper dosing volumes.
8. A separate high-water float is required. The high-water float shall be connected to an audio and/or visual alarm. The alarm must be installed in a conspicuous location.
9. A 1/4-inch weep hole, pointed downward, shall be provided at the elbow of the pump discharge line to allow drainage back into the dosing chamber from the force main (effluent line). Check valves are not allowed.
10. Pump shall be installed on a minimum 4-inch concrete block, unless not specified by the pump manufacturer.
11. The wiring to the pump must be approved for water contact. All wiring installed both inside and outside the dosing chamber must be in accordance with the Michigan Electrical Code.
12. The force main (effluent line) shall connect to the drainfield header in the center with a PVC "T" or a distribution box.

### **Privies**

Reference: Section 3-15 of the Upper Peninsula Environmental Health Code

Privies/outhouses can only be permitted on parcels meeting the Michigan Department of Consumer and Industry Services' Technical Bulletin "Requirements for Plumbing Fixtures in Remote Cabin". The "Remote Cabin" determination is made by the building inspector and written proof of a plumbing permit exemption must be provided to Western Upper Peninsula Health Department.

This section of the code states that the base of an earth pit privy shall be a minimum of forty-eight (48") inches above the limiting zone or the seasonal high-water table. Vault privies may be approved.

A soil test hole must be evaluated for the primary privy location. Sealed vaulted privies are required on sites that do not have at least 48 inches isolation between the base of the proposed pit and any limiting layer. Sealed vaulted privies must have a minimum tank size of one thousand (1000) gallons. Vaulted privies must abide by the construction and isolation distance requirements noted on the sealed vaulted privy diagram (see appendix).

### **Compost Toilets**

A composting toilet may be substituted for a sealed vaulted privy. It shall be used and operated according to manufacturers' instructions. Designs that incorporate a discharge to a pit or overflow are not approved.

### **Final Inspections**

Reference: Section 3-11.3 of the Upper Peninsula Environmental Health Code

This section of the code states that before any portion of the system has been covered and/or placed into operation, the installer shall notify the department. This notification shall occur at least three department working days prior to the completion of the system. The department shall inspect the installation within three working days to determine if it is in compliance with the code. The department shall reserve the right to extend the notification period for weekends and legal holidays.

1. For purposes of this code, the minimum components of a sewage system that must be installed for a full final inspection are as follows: septic tank, aggregate, sand fill (if required), drainfield piping network (header and footer connections), and five-foot sand extensions (if required).
2. If all components of a system are present except for the septic tank, a partial inspection will be conducted by the department. An affidavit will then be mailed to the installer. The installer must complete the affidavit and return it to the health department within 10 days. A copy of the affidavit form is included in the appendix.
3. If any other components of the sewage system are missing or there are deficiencies in construction, the system will be "red tagged" as not meeting permit/code requirements. Systems not approved will require corrections to be made in accordance with Article 14(Enforcement) of the code. Proof of correction will be required, most likely by a follow-up inspection by a sanitarian.

## Appendix

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