

STEUBEN LAKES REGIONAL WASTE DISTRICT

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Connection Requirements

To Whom It May Concern:

This is a very broad view of the National Electrical Code requirements as it pertains to the SLRWD sewer project. This will show the code section with description for reference.

1. **110.12 Mechanical Execution of Work.** Electrical equipment shall be installed in a neat and workmanlike manner
2. **110.12 (C.) Integrity of Electrical Equipment and Connections.** Internal parts of electrical equipment, including bus bars, wiring terminals, insulators, and other surfaces, shall not be damaged or contaminated by foreign materials such as paint, plaster, cleaners, abrasives, or corrosive residues. There shall be no damaged parts that may adversely affect safe operation or mechanical strength of the equipment such as parts that are broken; bent; cut; or deteriorated by corrosion, chemical action, or overheating.
3. **110.14(A) Terminals** connection of conductors to terminal parts shall ensure a thoroughly good connection without damaging the conductors and shall be made by means of pressure connectors (including set-screw type), solder lugs, or splices to flexible leads. ...
4. **110.26 Spaces About Electrical Equipment.** Sufficient access and working space shall be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment. ...
5. **110.26 (1) Depth of Working Space.** ... shall be minimum 3 feet
6. **110.26 (2) Wide of Working Space.** The width of the working space in front of the electric equipment shall be the width of the equipment or 750 mm (30 inches), whichever is greater. In all cases, the work space shall permit at least a 90 degree opening of equipment doors or hinged panel.
7. **110.26 (2) Outdoors.** Outdoor electrical equipment shall be installed in suitable enclosures and shall be protected from accidental contact by unauthorized personnel, or by vehicular traffic, or by accidental spillage or leakage from piping systems. The working clearance space shall include the zone described in 110.26(A). No architectural appurtenance or other equipment shall be located in this zone.
8. **200.6 Means of Identifying Grounded Conductors. (A) Sizes 6 AWG or Smaller.** An insulated grounded conductor of 6AWG or smaller shall be identified by a continuous white or gray outer finish or by three continuous white stripes on other than green insulation along its entire length...
9. **200.6 (B) Sizes Larger Than 6 AWG.** An insulated grounded conductor of 6AWG or smaller shall be identified by a continuous white or gray outer finish or by three continuous white stripes on other than green insulation along its entire length or at the time of installation by a distinctive white marking at its termination. This marking shall encircle the conductor or insulation.
10. **250.4 (2) Grounding of Electrical Equipment.** Non-current carrying conductive materials enclosing electrical conductors or equipment, or forming part of such equipment, shall be connected to earth so as to limit the voltage to ground on these materials.
11. **250.112 Fastened in Place or Connected by Permanent Wiring Methods (Fixed) – Specific.** Exposed, non-current-carrying metal parts of the kinds of equipment described in 250.112 (A) through (K), and non-current-carrying metal parts of equipment and enclosures described in 250.112 (L) and (M), shall be grounded regardless of voltage.
12. **250.112 (L) Motor-Operated Water Pumps.** Motor-operated water pumps, including the submersible type.
13. **250.119 Identification of Equipment grounding Conductors.** Unless required elsewhere in this Code, equipment grounding conductors shall be permitted to be bare, covered, or insulated. Individually covered or insulated equipment grounding conductors shall have a continuous outer finish that is either green or green with one or more yellow stripes except as permitted in this section.
14. **300.5 (D) Protections from Damage.** Direct-buried conductors and cables shall be protected from damage in accordance with (1) through (5).
15. **300.5 (D) (1) Emerging from Grade.** Direct-buried conductors and enclosures emerging from grade shall be protected by enclosures or raceways extending from the minimum cover distance required by 300.5(A) below grade to a point at least 2.5 m (8ft) above finished grade. In no case shall the protection be required to exceed 450 mm (18in.) below finished grade.

16. **300.5 (D) (4) Enclosure or Raceway Damage.** Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in rigid metal conduit, intermediate metal conduit, Schedule 80 rigid nonmetallic conduit, or equivalent.
17. **300.5(5) (G) Raceway Seals.** Conduits or raceways through which moisture may contact energized live parts shall be sealed or plugged at either or both ends.
18. **300.14 Length of Free conductors at Outlets, Junctions, and Switch Points.** At least 150 mm (6 in.) of free conductor, measured from the point in the box where it emerges from its raceway or cable sheath, shall be left at each outlet, junction, and switch point for splices or the connection of luminaries (fixtures) or devices. Where the opening to an outlet, junction or switch point is less than 200 mm (8 in.) in any dimension, each conductor shall be long enough to extend at least 75 mm (3 in.) outside the opening.
19. **352.24 Bends – How Made.** Bends shall be made so that the conduit will not be damaged and the internal diameter of the conduit will not be effectively reduced. Field bends shall be made only with bending equipment identified for the purpose. The radius of the curve to centerline of such bends shall not be less than shown in Table 344.24, column “Other Bends.”
20. **352.26 Bends – Number in One Run.** There shall not be more than the equivalent of four quarter bends (360 degrees total) between pull points, for example, conduit bodies and boxes.
21. **352.28 Trimming.** All cut ends shall be trimmed inside and outside to remove rough edges.
22. **352.30 Securing and Supporting.** RNC shall be installed as a complete system as provided in 300.18 and shall be fastened so that movement from thermal expansion or contraction is permitted. RNC shall be securely fastened and supported in accordance with 352.30 (A) and (B).
23. **352.30 (A) Securely Fastened.** RNC Shall be securely fastened within 900 mm (3ft.) of each outlet box, junction box, device box, conduit body, or other conduit termination. Conduit listed for securing at other than 900 mm (3 ft.) shall be permitted to be installed in accordance with the listing.
24. **352.46 Bushings.** Where a conduit enters a box, fitting, or other enclosure, a bushing or adapter shall be provided to protect the wire from abrasion unless the box, fitting, or enclosure design provides equivalent protection.
25. **430.102 Location. (B) Motor.** A disconnecting means shall be located in sight from the motor location and driven machinery location. The disconnecting means required in accordance with 430.102(A) shall be permitted to serve as the disconnecting means for the motor if it is located in sight from the motor location and the driven machinery.

Again, this is not intended to cover all NEC code for installations on the SLRWD sanitary sewer system.

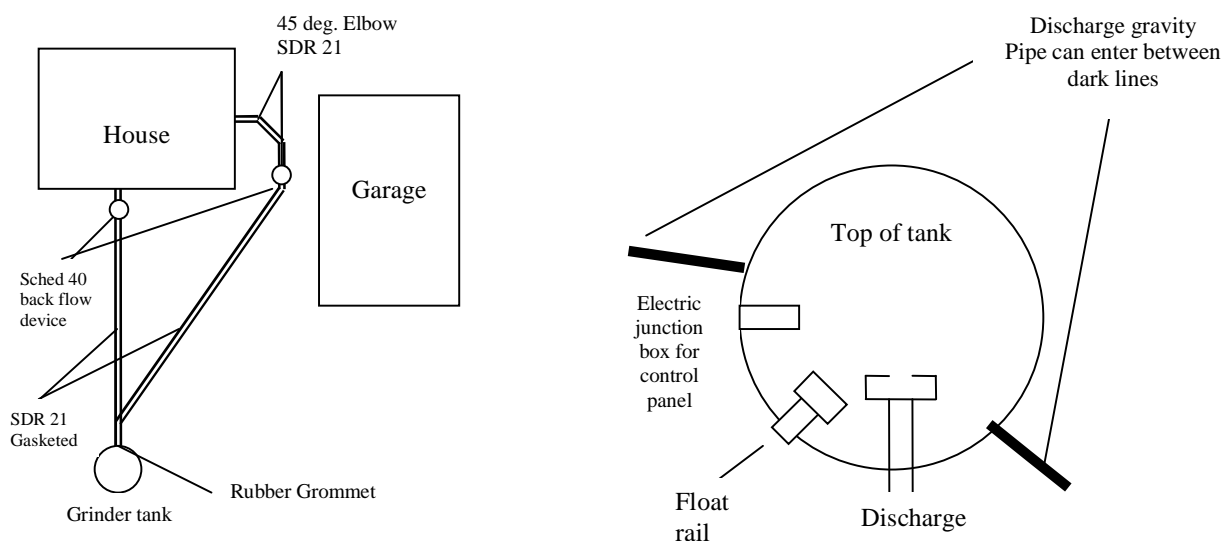
Sincerely,

Tim Frederick

STEUBEN LAKES REGIONAL WASTE DISTRICT

The Waste District does not endorse any particular brand.
Contractor and/or Homeowner to use brand of choice.

1. Grinder tanks must have a cement ballast on the bottom (2 cu ft per ft of tank - 16 cu ft for 8' tank)
2. Discharge gravity sewer pipe and fittings shall conform to Indiana Administration Code, 327 IAC, Article 3 and all local, state and federal codes. If the gravity sewer pipe is within the minimum well distance (see Wells), then the gravity sewer pipe and fittings shall be "Poly Vinyl Chloride (PVC) plastic pipe" Class 200 pressure pipe (minimum SDR-21 gasket pipe) in accordance with ASTM D-2241.
All PVC pressure pipe and fittings shall be rubber ring joints in accordance with ASTM D-1869. Joints for PVC pressure pipe shall be flexible elastomeric seals in accordance with ASTM D3139.
Wells: All sanitary sewer lines shall be no closer than 10 feet from wells. When sanitary sewer lines are within 50 feet of a private well, 100 feet of a transient or non-transient/non-community well, or 200 feet of a community well then the pipe shall be water main grade pressure rated pipe
3. Use 45 degree elbows – 90 degree not permitted. If two are used, must have 6" of separation.
4. Back flow device is required – may use schedule 40, four (4) inch. Must be 50' from any well. Place back flow device as close to structure or tank as possible. Back flow device can be used for clean out.
5. Schedule 40 Y's may be used, four (4) inch. Place Y as close as possible to grinder tank or main structure. Must be 50' from any well.
6. Rubber grommet will be used on invert pipe at grinder tank, five (5) inch hole saw required. Install grommet in tank, then install gravity pipe. Rubber grommets available for purchase if one does not come with tank.
7. Discharge gravity pipe shall be installed with a positive slope of not less than four (4) inches in twenty-five (25) feet and not more than thirty-six (36) inches in twenty-five (25) feet. 5/32 of an inch per foot minimum – 1 7/16 inches per foot maximum.
Indiana State Board of Health: 410.IAC 6-8. 1-36
8. Discharge gravity pipe must not enter deeper than forty-eight (48) inches from bottom of grinder tank.
9. Tank lid bolts will strip easily so tighten with care.
10. All garages will be allowed a maximum of two (2) traps, stool-sink, stool-shower. No sleeping quarters. No cooking facilities.
11. No floor drains, sump pumps, and/or gutters will enter system.
12. Shared grinder tanks – two (2) homes on one tank, same installation as above. Multiple lines need a minimum of a one (1) foot separation. No more than two holes in each tank.
13. Existing septic tanks must be cleaned out, and then can be removed, or four inch holes poked in the bottom in each chamber and filled with sand, pea gravel or flow-able fill. Caving-in of tank not recommended. Will cause voids and will settle at a later date.
14. Discharge gravity pipe can enter tank between dark lines per drawing.
15. All connections MUST be inspected prior to back fill by Waste District staff.



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1. All control boxes have been installed and wired from the control box to the grinder pump tanks by the Waste District contractors.
2. The control boxes have been mounted on the house, garage, or on a 4x4 post either at the structures or the grinder tank itself.
3. All electrical conduits above grade must be Schedule 80.
4. All wire must be 10-3 wire with ground or equivalent.
One Red wire – One Black wire – One White wire – One Green (or bare) wire
5. Each house and/or garage must have a two (2) pole 30 AMP circuit breaker.
6. The control box needs to be at a minimum of 3' to the bottom or 5' to the top of the box above grade and in unobstructed view from the grinder location.
7. All conduits must enter the bottom of the control box, not top or sides.
8. Wire may be direct burial or in electrical conduit. Electrical conduit recommended. Direct burial must be twenty-four (24) inches deep. Electrical conduit must be eighteen (18) inches deep.
9. Dual control boxes, two (2) homes on a shared grinder tank same installation as above. All dual control boxes MUST be wired in Phase. No voltage between L1 house #1 and L1 house #2. If there is voltage, switch L1 and L2 on house #2.
10. Shared panels also require the installation of a 5/8 x 10' (ten foot), copper ground rod with one continuous wire in a series for the control panel.
11. All installations will follow the (NEC) National Electric Code Requirements.
12. Any upgrades: 60 AMP panels to 100 AMP or 200 AMP will need to be permitted and inspected by the local County Building Department.
13. All installations MUST be inspected by the Waste District staff. A minimum of a 48-hour notice for inspection is required.