

**State of Vermont**  
**Department of Environmental Conservation**  
**Drinking Water & Groundwater Protection Division**  
1 National Life Drive, Main 2  
Montpelier, Vermont 05620-3521

*Agency of Natural Resources*

[www.anr.state.vt.us/dec/ww/wwwmd.cfm](http://www.anr.state.vt.us/dec/ww/wwwmd.cfm)

## **Innovative/Alternative System Approval**

General Use per §1-1001 of the  
Wastewater System and Potable Water Supply Rules, effective September 29, 2007

### **ECOFLO® BIOFILTER**

**2012 Renewal**  
**2002 Original Approval**  
**Approval Number 2002-02**

#### **Vendor Information**

Premier Tech Environment  
Head Office  
1, Avenue Premier  
Riviere-du-Loup, Quebec  
G5R 6C1 Canada  
PREMIERTECHAQUA.COM

#### **Technology Name**

Ecoflo® Biofilter

#### **Contact**

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#### **Technology Type**

Single Pass Peat Filter

#### **Expiration Date**

October 1, 2014

#### **Approval**

The Ecoflo® Biofilter Models STB-500B, STB -500BR (H1) and STB-650B, STB-650BR (H1, H2 and H3) may be used as part of a subsurface wastewater disposal system

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approved under the Wastewater System and Potable Water Supply Rules, effective September 29, 2007 (Rules), under the following conditions:

1. The treatment units may include a mixed medium filter comprised of a bottom section (15 ½ inches) composed of a natural material having a high fibrous and lignin content (coconut fibers), and a top section (15 ½ inches) of peat moss.
2. The treatment units must be installed and operated as described in the Innovative/Alternative System application packages filed with the Agency of Natural Resources (Agency) on April 9, 2002, on March 10, 2004, on July 12, 2005, on September 19, 2005, on September 7, 2012, and with the NSF® Evaluation Report, dated November 2005 and the BNQ Reliability and Performance Evaluation Report dated February 2006.
3. Unit sizing must be in accordance with the Rules and the manufacturer's recommendations. The sizing shall be based on the calculated design flow per §1-808 of the Rules. Models are approved for use with a hydraulic loading rate of 8.75 gallons per day/square foot of filter media.
4. The chamber and filter media together provide the needed integrated storage volume for a 24-hour storage capacity at the design flow rate. This is documented in the table entitled "Total Built-in Storage Capacity" in the Technical Appendix of the Vermont Installation Guide.
5. Ecoflo® Biofilter Model STB-650BR H3 is to be used as an alternate for residences of 5 bedrooms and greater.
6. This approval is based on treatment only of domestic wastewater of low and moderate strength as specified in §1-915(a)(1)(C) & (D) of the Rules.
7. The system may be used for both new and replacement systems.
8. All effluent from the Ecoflo® Biofilter shall be discharged to a filtrate disposal system that conforms to the requirements of §1-916 of the Rules. If the Rules are revised during the term of this approval, this approval may be revised as needed to conform to the revisions.
9. Detailed operating instructions including system care and use shall be provided in writing to the owner/operator.
10. The Vendor (*aka* Manufacturer) shall have an inventory of replacement parts available locally.
11. The Designer shall provide a copy of this approval letter to any landowner who is a prospective purchaser of an Ecoflo® Biofilter prior to the sale of the system and prior to the filing of any application for a site-specific approval by the Agency for

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the landowner's property. The application filed with the Agency shall include the landowner's written acknowledgement of this approval letter. Prior to any sale of the property or completion of a sales agreement to sell the property, a copy of the site-specific permit shall be provided to the prospective purchaser.

12. The owner of a property where an Ecoflo® Biofilter has been installed shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be performed or supervised by a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval. The annual inspection reports shall be provided electronically to the Agency's Central Office (Attention Innovative/Alternative Program Manager) and the Regional Office that issued the Wastewater System and Potable Water Supply Permit.

The inspection shall be performed in accordance with the manufacturer's Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling, a sample shall be collected and tested for BOD<sub>5</sub> and TSS. The results of any testing shall be submitted with the annual inspection report.

13. The first inspection shall be completed no later than 6 months after placing the system in service. The second inspection shall be completed no later than 12 months after placing the system in service. Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications. All reports shall be filed electronically with the Agency's Central Office (Attention Innovative/Alternative Program Manager), the appropriate Regional Environmental Office of the Agency, the Vendor and the landowner.
14. This approval is based on information submitted by the Vendor indicating that the specified models and treatment modes will routinely provide effluent with no more than 30 mg/l of BOD<sub>5</sub> and no more than 30 mg/l of TSS.
15. When the project is subject to the Rules, site specific permission for the use of this product is required in the form of a Wastewater System and Potable Water Supply Permit.

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16. A site-specific permit for the use of this system may be revoked if the system fails to function properly or if the property owner fails to have a valid contract for the required maintenance and inspection of the system. Revocation of the permit will require that the use of the building be discontinued unless another wastewater disposal system is installed based on prior written approval by the Agency.
17. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of an Ecoflo® Biofilter.

**Vendor Requirements**

1. The Vendor (*aka* Manufacturer) shall have an inventory of replacement parts available locally.
2. The Vendor (*aka* Manufacturer) shall submit an annual report electronically to both the Central Office (Attention Innovative/Alternative Program Manager) and Regional Offices of the Agency by April 1 of each year containing the following information for the 12 month period ending December 31 of the previous year:
  - a. New permitted systems installed in Vermont during the previous calendar year shall include:
    1. Assigned Wastewater Permit Number;
    2. Name of Current Landowner;
    3. Address of Current Landowner;
    4. Name of Designer Providing the Installation Certification;
    5. Name of Installer.
  - b. Existing Systems with known change in ownership shall include name and mailing address of the current landowner and the Wastewater System and Potable Water Supply Permit Number.
  - c. Each annual report shall include all known system problems, damages and/ or failures including:
    1. Description of Issues;
    2. Potential/Known Causes of Problems;
    3. System Operability;
    4. Recommended Repair/Remediation;
    5. Date(s) of Repair/Remediation;
    6. Effectiveness.

Note: Repairs that are not defined by Rule as “minor repair” require approval by the Division prior to making the repair.

- d. Names of Designers and Installers Trained by the Vendor and/or the Vendor’s representative.

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- e. The Vendor shall provide the Central Office of the Agency with the names of the VT distributor and the VT maintenance provider within 30 days of this approval and within 30 days of termination and/or hiring a new firm during the term of this approval.

**Design and Review Conditions**

The following conditions will be used by the Department in reviewing permit applications that include an Ecoflo® Biofilter:

Equipment

- Ecoflo® Biofilter Models STB-500, STB -500BR (H1) and STB-650B, STB-650BR (H1, H2, and H3). All Ecoflo® Biofilters may be used with the mixed medium. The Ecoflo® Biofilter Model STB-650BR H3 is to be used as an alternate for residences of 5 bedrooms and greater.

Design and Application

- The treatment unit shall be designed by a Licensed Class 1 Designer or a Licensed Class B Designer in accordance with the Rules and the manufacturer's recommendations. The designer shall assure that the system will properly function in all seasons.
- The designer must assess the structural needs of the unit for the specific application site and place the requirements on the design plans.
- The designer must determine the type of backfill required and any necessary placement specification.
- The designer must assess the ventilation path for the particular application and make any necessary provisions to assure proper flow and control of odor emissions.
- The designer shall include in the design a septic tank effluent filter with easy access for inspection and cleaning.
- The designer and owner must assure routine access to the unit as well as the septic tank effluent filter.
- The designer must address flotation issues if the seasonal high water table will be above the bottom of any of the tanks.

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**Installation Inspection**

- The treatment unit shall be set up under the instruction and guidance of an installer/inspector trained by the Vendor (*aka* manufacturer).
- The treatment unit shall be inspected by a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, after construction of the unit and installation of the tanks before backfilling, and after backfilling and grading is complete. The inspection shall include checking for an adequate structural foundation to support the unit, checking for levelness of the tanks, and inspecting for damage and proper assembly.
- Before backfilling, the unit and tankage shall be tested for watertightness in accordance with the manufacturer's recommendations. During the test the entire unit and tanks shall be inspected for visible leaks. Should the unit or tanks fail the test they may be repaired and retested. The testing and repairs shall be conducted under the direction and in the presence of the inspecting Licensed Class 1 Designer or Licensed Class B Designer.
- The Licensed Class 1 Designer or Licensed Class B Designer shall inspect all piping for proper installation and watertightness before backfilling.
- The Licensed Class 1 Designer or Licensed Class B Designer, approved by the Vendor to conduct the inspections, shall provide a letter certifying that the system is correctly installed as well as the results of watertightness testing. This letter shall be submitted electronically to the Vendor and both the Central (Innovative/Alternative Program Manager) and pertinent Regional offices of the Agency.

**Start-up**

- Start-up of the system and initial operational checks shall be conducted by an installer/inspector trained by the Vendor (*aka* manufacturer), who shall submit a report to the owner, and to the inspecting Licensed Class 1 Designer or Licensed Class B Designer indicating any problems encountered, their resolution, and affirmation that the system is operating as intended. A copy of the startup report shall be submitted electronically to the Agency's Central Office.

**Operational Maintenance and Inspection**

- The owner shall have a valid maintenance contract in force at all times. The minimum length of any contract shall be for a period of two years. A copy of the initial and each succeeding contract shall be submitted to the appropriate Regional Environmental Office of the Agency. Maintenance shall be

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performed by, or shall be supervised by, a Licensed Class 1 Designer or a Licensed Class B Designer, approved by the Vendor, who shall provide written inspection reports detailing the maintenance performed on the specific system, any problems that have occurred since the previous inspection, any modifications made to the system, the date of the inspection, and any work required to ensure the system operates in compliance with this approval.

The inspection shall be performed in accord with the Vendor's (*aka* manufacturer) Operation and Maintenance Manual submitted as part of the Innovative/Alternative System application package. If at any inspection the effluent is cloudy or pungent smelling a sample shall be collected and tested for BOD<sub>5</sub> and TSS. The results of any testing shall be submitted with the annual inspection report.

- The first inspection shall be completed no later than 6 months after placing the system in service.
- The second inspection shall be completed no later than 12 months after placing the system in service.
- Subsequent inspections shall be completed at least once per year based on the date when the system was first placed in service. More frequent inspections or additional testing, required by the manufacturer to ensure proper functioning of the system, shall be conducted in accordance with the manufacturer's specifications.
- All reports shall be filed with the Central Office and the appropriate Regional Environmental Office of the Agency, the Vendor and the landowner with the annual inspection report.

**Permitting**

- The permit shall run with the land.
- A copy of the permit shall be provided to any prospective buyers prior to the sale.
- Each new owner of the property shall inform the appropriate Regional Environmental Office of the Agency within 30 days of the transfer of the property and include the name and mailing address of the new owner.

Effective October 1, 2012

By



Ernest Christianson  
Engineering Manager