Building Materials Evaluation Commission
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Date of Authorization	January 25, 2001
BMEC Authorization	BMEC # 01-01-253
Bmec Application	# A2000-20
Date of Amendment	August 26, 2004
BMEC Application	#A2004-06

* denotes August 26, 2004 new or amended term
** denotes July 28, 2005 revisions

AUTHORIZATION REPORT- Equalizer® 36 Chamber System

1. Applicant

Infiltrator Systems Inc.
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CT 06475 USA

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2. Manufacturing Facilities

Infiltrator Systems Inc.
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Winchester, KY 40391 USA

1750 West 2450 South
Ogden, UT 84401 USA

3. Description

Infiltrator Equalizer® 36 Chambers are intended for use in a sewage system in lieu of absorption trenches constructed of stone and distribution pipe.

* The Infiltrator Equalizer® 36 Chambers are formed from injection molded polyolefin and connected end to end using a built-in latch. Chambers have a minimum bottom width of 570 mm and a minimum height of 320 mm. The louvered sidewalls have a minimum area of 0.65 m^2/m of length. The Equalizer® 36 Chamber is available in two length sizes: 2.54 m (8.33 ft), and 1.22 m (4 ft) with the latter referred to as the Quick 4 Equalizer® 36, and for the purposes of this Authorization both chamber lengths are referred to as the "Infiltrator Equalizer® 36 Chamber". The Equalizer® 36 Chambers are closed at the ends of a trench with snap-on end plates.

4. Authorization requested

The applicant sought authorization for use of the Equalizer® 36 Chamber System as an alternative to the construction of absorption trenches as required by Section 8.7 of the Building Code. The applicant requested that the Equalizer® 36 Chamber System be used to replace stone and distribution pipe in absorption trenches and filter beds that are:

i) gravity fed,
ii) "dosed" (non-pressurized distribution system), and
iii) pressurized.

Note: For the purposes of this authorization, "dosed" means a system in which effluent is pumped to the leaching bed either by pump or siphon, but the effluent is not pressurized within the leaching bed.

5. Assessment

Reports and assessments provided by the applicant show that if Infiltrator Equalizer® 36 Chambers are designed, performance tested, installed and maintained in accordance with the limitations in the manufacturer's instructions and the conditions stated in this authorization, a level of performance will be provided as required by the Building Code, for absorption trenches in soil, in leaching bed fill or in a filter bed, whether gravity fed, pressurized or "dosed".

Reports submitted and reviewed:

1. Infiltrator Systems Inc. - Environmental Onsite Wastewater Solutions (Promotional Brochure).

2. Final Report: Infiltrator Florida Side-by-Side Test Site - Nodarse & Associates (Geotechnical, Environmental Geotechnics & Material Engineers) - November 3, 1997.

3. Septic Installation Instructions For Equalizer® 36 Chambers.

4. Equalizer® 36 Detail Sheet.

5. Infiltrator Systems Inc. Aggregate-Free Chamber Systems Performance Research Summary - June 8, 2000.

6. The Longevity of Onsite Systems in Maine (Donald C. Hoxie and Stephen P. Dix) - Proceedings of the 2000 NOWRA Conference.

7. Request to Revise Application - November 16, 2000.

* 8. "Footprint Comparison Between Proposed Infiltrator Equalizer 36 Chamber and Conventional Leaching Bed in Ontario", Ontario Rural Wastewater Centre, March 2004.

* 9. Certificate of Registration, ISO 9001-2000, issued March 16, 2004.

* 10. Infiltrator Systems Inc, "Septic System Installation Instructions"

* 11. Excerpt from the EPA Onsite Wastewater Treatment System Manual.

6. Authorization

The use of the Infiltrator Equalizer® 36 Chamber System is authorized in sewage systems within the scope of Part 8 of the Building Code, as an alternative to stone and distribution pipes in absorption trenches and in filter beds, when installed in accordance with the manufacturer's recommendations and the Specific Terms and Conditions of this Authorization.

A. Specific Terms & Conditions

* 1. Except as permitted by Condition 2. below, when the Infiltrator Equalizer® 36 Chamber System is installed in lieu of distribution piping and stone, the length of the chamber system shall satisfy the requirements of Article 8.7.3.1. of the Building Code.

* 2. Except as provided by Condition 2.(a) below, when the Infiltrator Equalizer® 36 Chamber System is installed in lieu of distribution piping and stone in an absorption type trench leaching bed, the length of the chamber specified in Sentence 8.7.3.1.(2) of the Building Code, is permitted to be reduced such that it is calculated based on the formlua L = QT/300, where

L the total length of the Infiltrator Equalizer® 36 Chamber
Q the total daily design sanitary sewage flow
T the design percolation time

(a) A reduction to the chamber length is not permitted when,

(i) installed in soils with a percolation time of 6 min/cm or less,

(ii) combined with any other reduction, or

(iii) the width of the chamber bottom is less than 500 mm (20").

3. When the Infiltrator Equalizer® 36 Chamber System is installed in lieu of distribution piping and stone, the leaching beds must satisfy the general construction requirements specified in Articles 8.7.2.1., 8.7.4.2. and 8.7.5.3.

4. The minimum clearance distances required by Article 8.2.1.6. for distribution piping shall be met by the Infiltrator Equalizer® 36 Chamber System.

5. When installed in lieu of absorption trenches, the trenches for the Infiltrator Equalizer® 36 Chamber System shall be:

   a) approximately the same length and not more than 30 m in length,
   b) at least 600 mm and not more than 900 mm in depth,
** c) except as provided by 5.f, centred at least 1600 mm apart,
   d) at least 900 mm at all points on the bottom of the trench, above the high ground water table, rock or soil with a percolation time greater than 50 minutes, and
   e) backfilled, after installation of the Infiltrator Equalizer® 36 Chamber System, with leaching bed fill, so as to ensure that after the leaching bed fill settles, the surface of the leaching bed will not form any depressions.
* f) centred at least 2400 mm apart when the Infiltrator Equalizer® 36 Chamber is installed as an in-ground system at a reduced length, as it is permitted by Condition 2. of this Authorization.

6. When installed in lieu of distribution piping and stone in filter beds, the lines of Infiltrator Equalizer® 36 Chambers shall be evenly spaced over the surface of the filter medium to which the sewage effluent is applied, and the filter bed shall meet the following requirements:

   a) the filter medium shall have a minimum depth of 750 mm below the bottom of the Equalizer® 36 Chambers and shall be clean sand comprised of particles ranging in size between the limits of:

      i) an effective size of .25 mm with a uniformity coefficient not less than 3.5,
      ii) an effective size of 2.5 mm with a uniformity coefficient not greater than 1.5, and
      iii) having a uniformity coefficient not greater than 4.5.

   b) the surface of the filter bed shall be at least 900 mm above the high ground water table, rock or soil with a percolation time greater than 50 minutes.

   c) the other construction requirements of Sentences 8.7.5.3.(1) and (4) - (6).

7. When used in gravity fed conditions, the Infiltrator Equalizer® 36 Chamber System shall be installed in compliance with all the above-stated Specific Terms and Conditions and be:

   a) installed level over the length of the trench,

   b) securely connected, chamber to chamber, using the built-in latch,

   c) free of structural damage and used full length (not cut),

   d) equipped with end caps installed on both ends, and

   e) equipped with a built-in splash plate at the inlet end of each chamber line, to prevent soil scouring.

** 8. Where the sewage effluent is "dosed" to the leaching bed by pumps or a siphon to meet the requirements of 8.6.1.3.(1) (total trench length of 150 m or more), the Infiltrator Equalizer® 36 Chambers shall be installed to comply with all the above-stated Specific Terms and Conditions and:

   a) the effluent is pumped to a header line or distribution box prior to entering the chambers,

   b) a volume of effluent within the range of 3.5 - 8.0 litres per metre of Infiltrator Equalizer® 36 Chamber, must be pumped within a time period not exceeding 15 minutes, to meet the requirements of Sentence 8.6.1.3.(4)., and

** c) when the length of the Infiltrator Equalizer® 36 Chamber is reduced, as permitted by Condition 2. of this Authorization, the distribution pipe shall be installed in the chamber, according to the manufacturer's recommendations, and extended the total length of the trench.

9. Where the sewage effluent is distributed through a pressurized system, the Infiltrator Equalizer® 36 Chambers shall be installed:

   a) to comply with Specific Terms and Conditions numbers 1. through 6. above, and,

   b) with a minimum 1½ inch diameter pipe extending over the entire length of each trench, and such pipe:

      i) being specified by the manufacturer as acceptable for pressurized installations,

ii) having minimum 6 mm diameter orifices, spaced over its length to ensure even distribution of effluent,
iii) being supported in a manner as to ensure self-draining and prevent freezing of its contents,
iii) having clean-outs installed at the downstream end of each chamber line, to allow the system to be serviced, and
iv) receiving effluent from a treatment unit equipped with an effluent filter on the outlet, such effluent filter to be installed and sized in accordance with the manufacturer's recommendations.

B. General Conditions

1. The use of the Infiltrator Equalizer® 36 Chambers must comply with the *Building Code Act, 1992* as amended or re-enacted from time to time and except as specifically authorized herein, with the Building as amended or remade from time to time.

2. A copy of this Authorization shall accompany each application for a building permit and shall be maintained on the site of the construction with the building permit.

3. The Applicant named in Part 1 hereof shall promptly notify the BMEC of:

   (a) the failure of the Applicant, or of the material, system or building design that is the subject matter of this Authorization, to comply with any of the terms and conditions set out in 6. A. above; or

   (b) the occurrence of any of the events described in Conditions 6. B. 4. (a) and (b) (ii) below.

4. The BMEC may amend or revoke this Authorization where it determines that:

   (a) any change has been made to:

      (i) the material, system or building design that is the subject matter of this Authorization;

      (ii) the address of the applicant specified in Part 1 of this Authorization; or,

      (iii) the ownership of the applicant specified in Part 1 of this Authorization.

(b) the use of the material, system or building design authorized herein;

(i) does not comply with the *Building Code Act, 1992* or any relevant legislation as they may be amended or re-enacted from time to time; or

(ii) provides an unsatisfactory level of performance, in situ.

(c) the Applicant, or the material, system or building design that is the subject matter of this Authorization, has failed to comply with any of the terms and conditions set out in this Authorization; or

(d) any Building Code provision relevant to this Authorization has been amended or remade.

As Amended at Toronto this 26th day of August 2004.

BUILDING MATERIALS EVALUATION COMMISSION

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Rashmi Nathwani, Chair