
Date of Authorization	February 23, 2006
BMEC Authorization	06-02-322
BMEC Application	# A2005-23

Authorization Report - MaxLiner™ System

1. Applicant

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2. Manufacturing Facilities

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3. Description

The MaxLiner™ Non-destructive Pipe Rehabilitation System (the “MaxLiner™ System”) is intended for the rehabilitation of clay, poly vinyl chloride (PVC), and cast iron drainage pipes.

The MaxLiner™ System is an inversion system that allows the repair of drainage pipes by relining them in place. A custom designed liner tube made from either Max LinerTube™, Max FlexLiner™ or Max WovoLiner™, which is selected based on the existing pipe conditions, is impregnated with epoxy/resin, and is inverted through the existing pipes. The MaxLiner™ System may be installed by inserting the liner through basement drains, property line clean outs, small excavations, or roof drains.

The MaxLiner™ System can repair pipes from 75 mm (3”) to 250 mm (10”) in diameter, with lengths up to 60 m (200’), having a maximum bend up to 90°.

Upon completion, the performance level of the restored pipe is not less than that which existed prior to the MaxLiner™ System being installed.

4. Authorization requested

The applicant sought a Building Materials Evaluation Commission (BMEC) authorization for the MaxLiner™ System as an alternative to repairing clay, PVC, and cast iron drainage pipes in existing buildings, as required by Article 7.1.2.2. "Alteration or Repair", and Section 7.2. "Materials and Equipment" of the Building Code", as amended or remade from time to time.

5. Assessment

Reports and assessments provided by the applicant show that if the MaxLiner™ System is designed, performance tested and installed in accordance with the manufacturer's instructions and limitations and the specific terms and conditions stated in this authorization, the level of performance required by the Building Code will be provided.

The following is a list of the documents submitted, and reviewed, but are not limited to:

1. MaxLiner™ promotional DVD "Trench less Pipeline Rehabilitation", May 2004.
2. MaxLiner™ "Liner Technical Data".
3. MaxLiner™ "Specification for Lateral Relining Using the MaxLiner™ Systems".
4. MaxLiner™ "Static Tests", Deutsche Abwasser Reinigungs-Gesellschaft GmbH.
5. MaxLiner™ "Static Calculations", Prof. Ing.-Buro Siebert, Hamburg, Deutsche Abwasser Reinigungs-Gesellschaft GmbH.
6. MaxLiner™ "Influence on Ground Water After Sealing Repair", Ruhr-Universität Bochum Prof. Ing.-Buro Siebert.
7. MaxLiner™ "Environmental Protection" Hygiene-Insitut Gelsenkirchen.
8. MaxLiner™ "Pressure Tests on Renovated Pipes", Ruhr-Universität Bochum Prof. Ing.-Buro Siebert.
9. MaxLiner™ "Mechanical and Chemical Resistance of Repaired Sewers", Oesterreichisches Bauinstitut, Wein.
10. MaxLiner™ "Influence on Ground Water, Pressure Tests", Hygiene-Insitut Gelsenkirchen.
11. MaxLiner™ "Stiffness and Elasticity", Deutsche Abwasser Reinigungs-Gesellschaft GmbH.

12. MaxLiner™ “Quality Certification, Gutezeichen Kanalbau Gruppe S”, Guegemeinschaft.
13. MaxLiner™ “Hamburger Test, Abrasion Test”, Prof. Ing.-Buro Siebert, Hamburg.
14. NSF International “MaxLiner” Listing, May 2002, July 2003
15. IAPMO Research and Testing, Inc. “Certificate of Listing, October 2005.
16. Approval, Report No. 04-218, State of Rhode Island and Providence Plantations.
17. Approval, Case No. 1102-03, City of Philadelphia.
18. Approval, Commonwealth of Massachusetts.
19. Approval, No 1515-PA, Michigan Department of Consumer & Industry Services.
20. MaxLiner™ “Installation Responsibilities and Procedures” 2001 manual.
21. MaxLiner™ “Maintenance Instructions for the Max LinerGun™”.
22. MaxLiner™ “Recommendation for the Safe and Hygienic Use of Epoxy Products”.
23. MaxLiner™ “Curing Log”
24. MaxLiner™ “Checklist for Renovation of Residential Lateral Using the MaxLiner™ System.”
25. MaxLiner™ “Quality Assurance Manual for MaxLiner™, LLC”, issued 09-23-2000.
26. Manufacturer’s Marketing Literature.
27. “Specification for Lateral Reconstruction of Sanitary Sewers by MaxLiner”
28. “Structural Calculation Inliner Type: RS HouseLiner, DN 150, 250”, June 2001, Prof. Ing.-Buro Siebert.
29. Certificate “Development, Manufacture, and Distribution of Woolen Felts and Needed Felts for All Application in Industry, Production and Commerce”, December 2000.
30. Certificate, Vantico Ltd, CH-4002 Basel, registration number 10652-03, December 22, 2001.

6. Authorization

The use of the MaxLiner™ System is authorized as an alternative to repairing clay, PVC, and cast iron drainage pipes in existing buildings as required by Article 7.1.2.2. "Alteration or Repair", and Section 7.2. "Materials and Equipment" of the Building Code; all other requirements pertaining to the design, installation and construction are subject to the regulations of the Building Code, and to the following terms and conditions:

A. Specific Terms & Conditions

1. This authorization is valid only for MaxLiner™, LLC.
2. The MaxLiner™ System shall be installed by installers who are trained and approved by MaxLiner™, LLC.
3. The MaxLiner™ System may be used in single drainage pipe segments up to 60 m (200') in length.
4. The MaxLiner™ System may be used in pipes with bends up to 90 degrees.
5. Except as permitted in 6.A.6. of this authorization, the MaxLiner™ System shall only be used in pipe of 100 mm (4") to 200 mm (8") in diameter, having no side connection less than 100 mm (4") or greater than 200 mm (8") in diameter.
6. The MaxLiner™ System is permitted to be used in pipe of 75 mm (3"), and 250 mm (10") in diameter where there are no side connections.
7. The MaxLiner™ System shall not be installed in pipe that penetrates a fire separation.
8. The MaxLiner™ System shall not be used in a water supply system.
9. Materials, design and installation shall be in accordance with:
 - (a) "Specification for Lateral Reconstruction of Sanitary Sewers by MaxLiner™, and
 - (b) "Checklist for Renovation of Residential Lateral Using the MaxLiner™ System".
10. The MaxLiner™ System shall include a warranty certificate.

11. Non-removable stickers or labels, recording the following information, shall be posted in conspicuous locations at the cleanout(s) nearest to the repaired pipes:
 - (a) identifying MaxLiner™ System has treated the pipe(s),
 - (b) MaxLiner™ contact information,
 - (c) a warning that the pipe has been coated with a liner, and
 - (d) a warning not to torch, not to solder, and to use pressure fittings only.

B. General Conditions

1. The use of the MaxLiner™ System as described in 6. A. Specific Terms and Conditions No. 1. 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 Code 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.
- ©) 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.
5. Where the BMEC receives additional information concerning the material, system or building design authorized herein, the BMEC may review this Authorization and the BMEC may after the review amend or revoke this Authorization as in the opinion of the BMEC may be necessary.

Dated at Toronto this 23 day of February 2006.

BUILDING MATERIALS EVALUATION COMMISSION

Edward Link, P.Eng.
Vice-Chair, BMEC