

Certificate No: 1004

CERTIFICATE OF OCCUPANCY  
THE CITY OF NAPOLEON

ENGINEERING DEPARTMENT  
DIVISION OF INSPECTION

This is to certify that the Building or Land herin described complies with all the building and health laws and ordinance and with the provisions of the Zoning Ordinance.

Location of Occupancy: 642 BRIARHEATH AVE

Occupancy: SF

Owner of Property: SMITH, SHAWN

Address: 642 BRIARHEATH AVE

Issued to: SMITH, SHAWN

Zoning: R-4

Substantial qualifications of occupancy

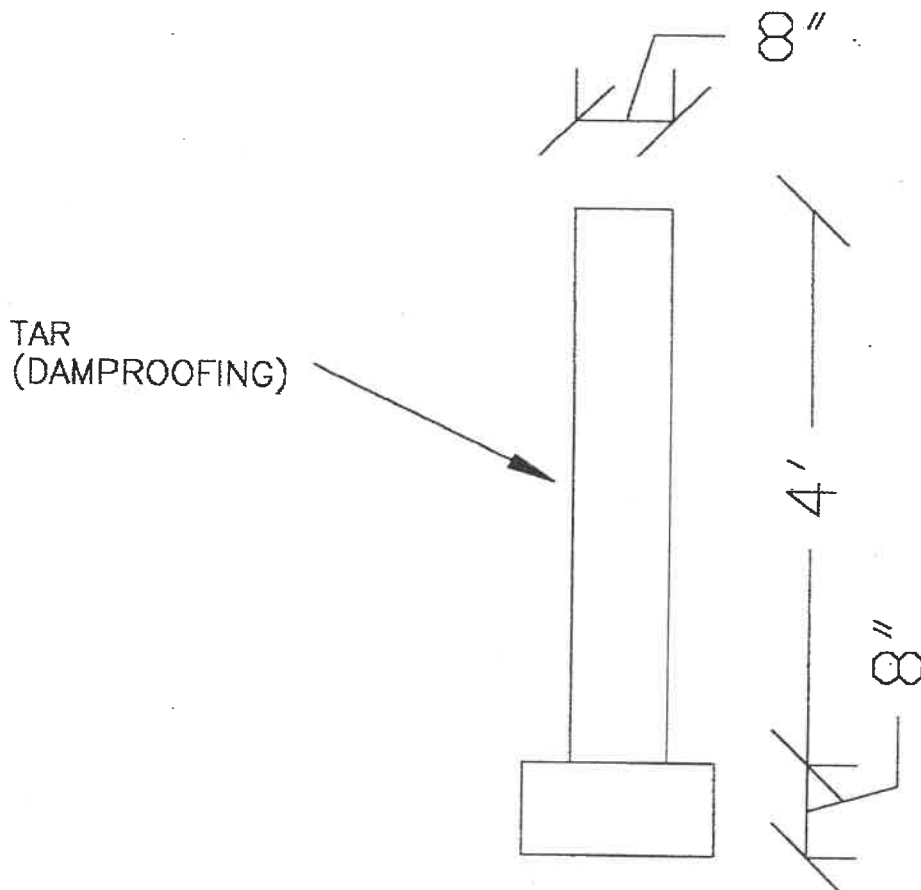
This certificate is issued by the City Building Inspector, as completed substantially in conformity with the approved plans and permission is hereby granted to occupy such building in compliance with such legal use and occupancy as authorized under the provisions of the ordinances of the City of Napoleon.

Issued: 12-3-03

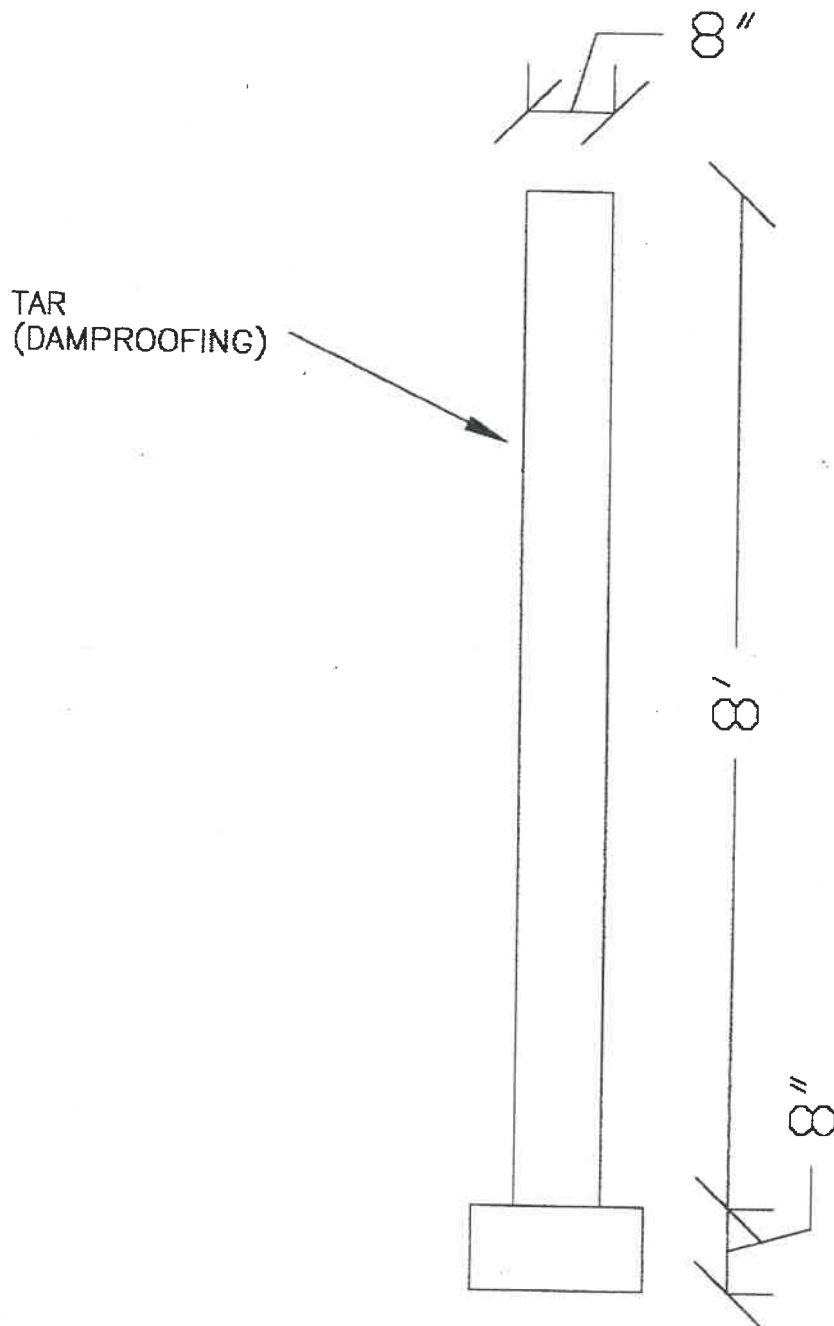
Signed   
City Building Inspector

This is a valuable record for owner or lessee and should be so preserved.

# POURED CONCRETE WALL NOT TO SCALE



# POURED CONCRETE WALL NOT TO SCALE



# MECcheck Compliance Report

MECcheck Software Version 3.0 Release 1a  
1995 MEC Edition

Permit Number

Checked By/Date

TITLE: b002s01 Standard

CITY: Bowling Green

STATE: Ohio

HDD: 6482

CONSTRUCTION TYPE: Single Family

DATE: 04/08/03

DATE OF PLANS: 04/07/03

## PROJECT INFORMATION:

Shawn & Shari Smith

Lot #62 Brairheath BLVD

Napoleon OH

## COMPANY INFORMATION:

Wayne Homes, LLC.

## NOTES:

Code Jurisdiction: Henry Co

Prepared By: Mike P

COMPLIANCE: Passes

Maximum UA = 491

Your Home = 457

6.9% Better Than Code

	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
Ceiling: All-Wood Joist/Rafter/Truss	1213	40.0	0.0		35
Cantilever: All-Wood Joist/Truss, Over Outside Air	64	30.0	3.0		2
Exterior Wall w/ OSB: Wood Frame, 16" o.c.	64	15.0	0.0		5
Exterior Wall w/ Dow: Wood Frame, 16" o.c.	1846	15.0	3.0		109
Windows: Vinyl Frame, Double Pane with Low-E	165			0.310	51
Front Door: Opaque	20			0.077	2
Patio Door: Glass	40			0.310	12
Garage/House Wall: Wood Frame, 16" o.c.	312	15.0	0.5		23
Fire Door: Opaque	18			0.077	1
Rim Joists: Wood Frame, 16" o.c.	240	19.0	3.0		13
Basement Walls: CMU with Empty Cells	666	0.0	10.0		39
Basement Windows: Metal Frame, Single Pane	8			0.521	4
crawl: CMU with Empty Cells	36	0.0	10.0		2
crawl: CMU with Empty Cells	170	0.0	10.0		12
Basement Wall: CMU with Empty Cells	264	0.0	0.0		147
Furnace 1: Forced Hot Air, 92 AFUE					

COMPLIANCE STATEMENT: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 1995 MEC requirements in MECcheck Version 3.0 Release 1a.

Builder/Designer \_\_\_\_\_

Date \_\_\_\_\_

# MECcheck Inspection Checklist

MECcheck Software Version 3.0 Release 1a

1995 MEC Edition

DATE: 04/08/03

TITLE: b002s01 Standard

Bldg.  
Dept.  
Use

## Roofs:

- [ ] 1. Ceiling: All-Wood Joist/Rafter/Truss, R-40.0 cavity insulation  
Comments/Location \_\_\_\_\_

## Above-Grade Walls:

- [ ] 1. Exterior Wall w/ OSB: Wood Frame, 16" o.c., R-15.0 cavity insulation  
Comments/Location \_\_\_\_\_
- [ ] 2. Exterior Wall w/ Dow: Wood Frame, 16" o.c.,  
R-15.0 cavity + R-3.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 3. Garage/House Wall: Wood Frame, 16" o.c., R-15.0 cavity + R-0.5 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 4. Rim Joists: Wood Frame, 16" o.c., R-19.0 cavity + R-3.0 continuous insulation  
Comments/Location \_\_\_\_\_

## Basement Walls:

- [ ] 1. Basement Walls: CMU with Empty Cells, 6.0' ht/6.0' bg/6.0' insul,  
R-10.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 2. crawl: CMU with Empty Cells, 4.0' ht/4.0' bg/4.0' insul, R-10.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 3. crawl: CMU with Empty Cells, 2.7' ht/2.7' bg/2.7' insul, R-10.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 4. Basement Wall: CMU with Empty Cells, 1.3' ht/0.0' bg/0.0' insul, R-0 (uninsulated)  
Comments/Location \_\_\_\_\_

## Windows:

- [ ] 1. Windows: Vinyl Frame, Double Pane with Low-E, U-factor: 0.310  
For windows without labeled U-factors, describe features:  
# Panes \_\_\_\_\_ Frame Type \_\_\_\_\_ Thermal Break? [ ] Yes [ ] No  
Comments/Location \_\_\_\_\_
- [ ] 2. Basement Windows: Metal Frame, Single Pane, U-factor: 0.521  
For windows without labeled U-factors, describe features:  
# Panes \_\_\_\_\_ Frame Type \_\_\_\_\_ Thermal Break? [ ] Yes [ ] No  
Comments/Location \_\_\_\_\_

## Doors:

- [ ] 1. Front Door: Opaque, U-factor: 0.077  
Comments/Location \_\_\_\_\_
- [ ] 2. Patio Door: Glass, U-factor: 0.310  
Comments/Location \_\_\_\_\_
- [ ] 3. Fire Door: Opaque, U-factor: 0.077  
Comments/Location \_\_\_\_\_

## Floors:

- [ ] 1. Cantilever: All-Wood Joist/Truss, Over Outside Air,  
R-30.0 cavity + R-3.0 continuous insulation

Comments/Location \_\_\_\_\_

Heating and Cooling Equipment:

- [ ] 1. Furnace 1: Forced Hot Air, 92 AFUE or higher  
Make and Model Number \_\_\_\_\_

Air Leakage:

- [ ] Joints, penetrations, and all other such openings in the building envelope that are sources of air leakage must be sealed.
- [ ] Recessed lights must be type IC rated and installed with no penetrations or installed inside an appropriate air-tight assembly with a 0.5" clearance from combustible materials and 3" clearance from insulation.

Vapor Retarder:

- [ ] Required on the warm-in-winter side of all non-vented framed ceilings, walls, and floors.

Materials Identification:

- [ ] Materials and equipment must be identified so that compliance can be determined.
- [ ] Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment must be provided.
- [ ] Insulation R-values, glazing U-values, and heating equipment efficiency must be clearly marked on the building plans or specifications.

Duct Insulation:

- [ ] Ducts in unconditioned spaces must be insulated to R-5.  
Ducts outside the building must be insulated to R-6.5.

Duct Construction:

- [ ] All ducts must be sealed with mastic and fibrous backing tape. Pressure-sensitive tape may be used for fibrous ducts. Duct tape is not permitted.
- [ ] The HVAC system must provide a means for balancing air and water systems.

Temperature Controls:

- [ ] Thermostats are required for each separate HVAC system. A manual or automatic means to partially restrict or shut off the heating and/or cooling input to each zone or floor shall be provided.

Circulating Hot Water Systems:

- [ ] Insulate circulating hot water pipes to the levels in Table 1.

Swimming Pools:

- [ ] All heated swimming pools must have an on/off heater switch and require a cover unless over 20% of the heating energy is from non-depletable sources. Pool pumps require a time clock.

Heating and Cooling Piping Insulation:

- [ ] HVAC piping conveying fluids above 120 °F or chilled fluids below 55 °F must be insulated to the levels in Table 2.

*Table 1: Minimum Insulation Thickness for Circulating Hot Water Pipes.*

Heated Water Temperature ( F)	Insulation Thickness in Inches by Pipe Sizes			
	Non-Circulating Runouts		Circulating Mains and Runouts	
	Up to 1"	Up to 1.25"	1.5" to 2.0"	Over 2"
170-180	0.5	1.0	1.5	2.0
140-160	0.5	0.5	1.0	1.5
100-130	0.5	0.5	0.5	1.0

*Table 2: Minimum Insulation Thickness for HVAC Pipes.*

Piping System Types	Fluid Temp. Range ( F)	Insulation Thickness in Inches by Pipe Sizes			
		2" Runouts	1" and Less	1.25" to 2"	2.5" to 4"
<b>Heating Systems</b>					
Low Pressure/Temperature	201-250	1.0	1.5	1.5	2.0
Low Temperature	120-200	0.5	1.0	1.0	1.5
Steam Condensate (for feed water)	Any	1.0	1.0	1.5	2.0
<b>Cooling Systems</b>					
Chilled Water, Refrigerant, and Brine	40-55	0.5	0.5	0.75	1.0
	Below 40	1.0	1.0	1.5	1.5

**NOTES TO FIELD** (Building Department Use Only)

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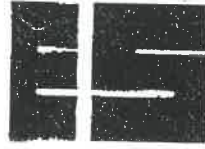


PRINTED APRIL, 1995

Editorial Revision: November, 1997

# BOCA EVALUATION SERVICES, INC.

# BOCA RESEARCH REPORT NO. 94-66 Page 1



TM

A Participating Member of the NES, Inc.



## DIVISION 07 - THERMAL AND MOISTURE PROTECTION

### SECTION 07100 - WATERPROOFING

#### HOUSE GUARD TRU-DRY

TERRY MATERIALS, INC.  
8600 BERK BLVD.  
HAMILTON, OH 45015

### 1.0 DESCRIPTION OF EVALUATION

House Guard Tru-Dry has been evaluated as an exterior wall waterproofing material for concrete or masonry subsurface foundation walls.

### 2.0 DESCRIPTION AND USE OF PRODUCT

#### 2.1 GENERAL DESCRIPTION

House Guard Tru-Dry is a polymer-modified, asphalt-based emulsion that is spray or brush applied to concrete or non parged unit masonry surfaces that are prepared as described in Section 4.0 of this report.

### 3.0 CODE ANALYSIS OF SUBMITTED INFORMATION

The following data were submitted by the proponent for demonstration of compliance with the respective code sections listed above each item of information. The basis is the *BOCA National Building Code/1993*.

#### 3.1 ALTERNATE MATERIALS

Code Section 1813.4.2.2 Wall waterproofing material: This code section requires that any proposed waterproofing material shall be capable of bridging non-structural cracks.

#### INFORMATION SUBMITTED

Project #TMI-04-03-01, *Laboratory Analysis and Product Evaluation*, dated February 25, 1994, prepared by PRI Asphalt Technologies, was submitted indicating that House Guard Tru-Dry showed no evidence of re-emulsification when applied to an unglazed ceramic tile base and tested in accordance with ASTM D466, *Resistance to Water Action*. Also, when applied to smooth

mortar block surfaces, House Guard Tru-Dry is capable of bridging nonstructural cracks while subjected to a hydrostatic pressure of 7.5 psig (51 kPa).

#### 3.2 SURFACE PREPARATION

Code Section 1813.3.2.1 Surface preparation of walls: This code section prescribes minimum surface preparation requirements for both concrete and unit masonry walls prior to the application of waterproofing. Among these, purging of the unit masonry wall is required unless the waterproofing material is approved for direct application to the unit masonry.

#### INFORMATION SUBMITTED:

\* Project #TMI-11-02-01, *Laboratory Analysis and Product Evaluation*, dated October 19, 1994, prepared by PRI Asphalt Technologies, was submitted. The water-resistive characteristics of House Guard Tru-Dry were determined when it was applied directly to unit masonry, including resistance to water action and resistance to hydrostatic pressure while bridging nonstructural cracks. House Guard Tru-Dry showed no evidence of re-emulsification or deterioration after exposure to identical water action resistance testing as described in Section 3.1 of this report. Also, when exposed to identical hydrostatic pressure resistance testing as described in Section 3.1, the House Guard Tru-Dry withstood a slightly greater hydrostatic pressure. These results indicate that the water-resistant properties of House Guard Tru-Dry are retained when the product is applied directly to unit masonry.

#### 4.0 INSTRUCTIONS TO THE CODE OFFICIAL

House Guard Tru-Dry has been evaluated for compliance with the 1993 editions of the *BOCA National Codes*. This report is limited to the applications and products as stated herein. This evaluation is based solely upon information provided to BOCA Evaluation Services, Inc., by Terry Materials, Inc., and has not been independently verified. BOCA-ES intends that this report be used by the code official to determine that House Guard Tru-Dry complies with the code requirements specifically addressed in Section 3.0 of this report, provided that this product is installed in accordance with the following limitations:

Please contact BOCA Evaluation Services, Inc., with any questions you may have regarding this report. Additionally, please contact us if you have any information on the performance of the product described herein which is contrary to this report. This report is subject to the limitations listed herein and to the specific product, data and test reports submitted by the applicant requesting this report. Independent tests were not performed by BOCA Evaluation Services, Inc., and BOCA Evaluation Services, Inc., specifically does not make any warranty, either expressed or implied, as to any findings or other matter in this report or as to any product covered by this report. Evaluation reports are not to be construed as representing aesthetics or any other attributes not specifically addressed nor as an endorsement or recommendation for the use of the subject of the report. This disclaimer includes, but is not limited to, merchantability.

4051 WEST FLOSSMOOR ROAD • COUNTRY CLUB HILLS, IL 60478-5795 • TELEPHONE (708) 799-3305

Research Report 94-66

Limitations

- 4.1 This report is subject to annual certification. Reports that are not certified shall not be used or referred to. In order to determine the status of certification of this report, contact BOCA Evaluation Services, Inc., or consult the latest edition of the *National Product Evaluation Listing* published periodically in the *BOCA Magazine*.
- 4.2 The application of House Guard Tru-Dry is limited to sub-surface walls of concrete or concrete masonry.
- 4.3 When applying House Guard Tru-Dry, ambient and surface temperatures shall be limited to a minimum of 0 degrees F. (-18 degrees C.) to a maximum of 100 degrees F. (38 degrees C.) for a minimum of 24 hours.
- 4.4 House Guard Tru-Dry shall be limited to installation where in service temperatures will be a maximum of 160 degrees F. (71 degrees C.).
- 4.5 The design and construction of the walls required to be waterproofed are not part of this evaluation.
- 4.6 Prior to the application of House Guard Tru-Dry, the surface to be waterproofed shall be prepared in accordance with Section 1813.3.2.1 of the *BOCA National Building Code/1993*.
- 4.7 Joints and penetrations within the wall to be waterproofed shall be made water tight in accordance with Section 1813.4.3 of the code.
- 4.8 The placement of backfill, site grading and erosion protection, with respect to the foundation wall waterproofing, shall be in accordance with Sections 1813.6, 1813.7 and 1813.8 of the code.
- 4.9 The installation of House Guard Tru-Dry, with respect to the elevation of the ground water table, shall be in accordance with Section 1813.4.2.2 of the code.
- 4.10 Contractors installing House Guard Tru-Dry shall be certified by Terry Materials Inc.
- 4.11 The application of House Guard Tru-Dry shall result in a cured film with a minimum thickness of 60 mils (1.5 mm).

4.12 House Guard Tru-Dry shall be installed in accordance with the manufacturer's installation instructions and this report. Application's utilizing installation instructions in conflict with this report are outside the scope of this report.

4.13 The installation of House Guard Tru-Dry on surfaces exposed to ultraviolet radiation is beyond the scope of this report and shall be substantiated utilizing approved methods.

5.0 INFORMATION REQUIRED ON CONSTRUCTION DOCUMENTS

To aid in the use of this report, the following represents the minimum level of information to be reflected on construction documents in order to determine compliance with this research report.

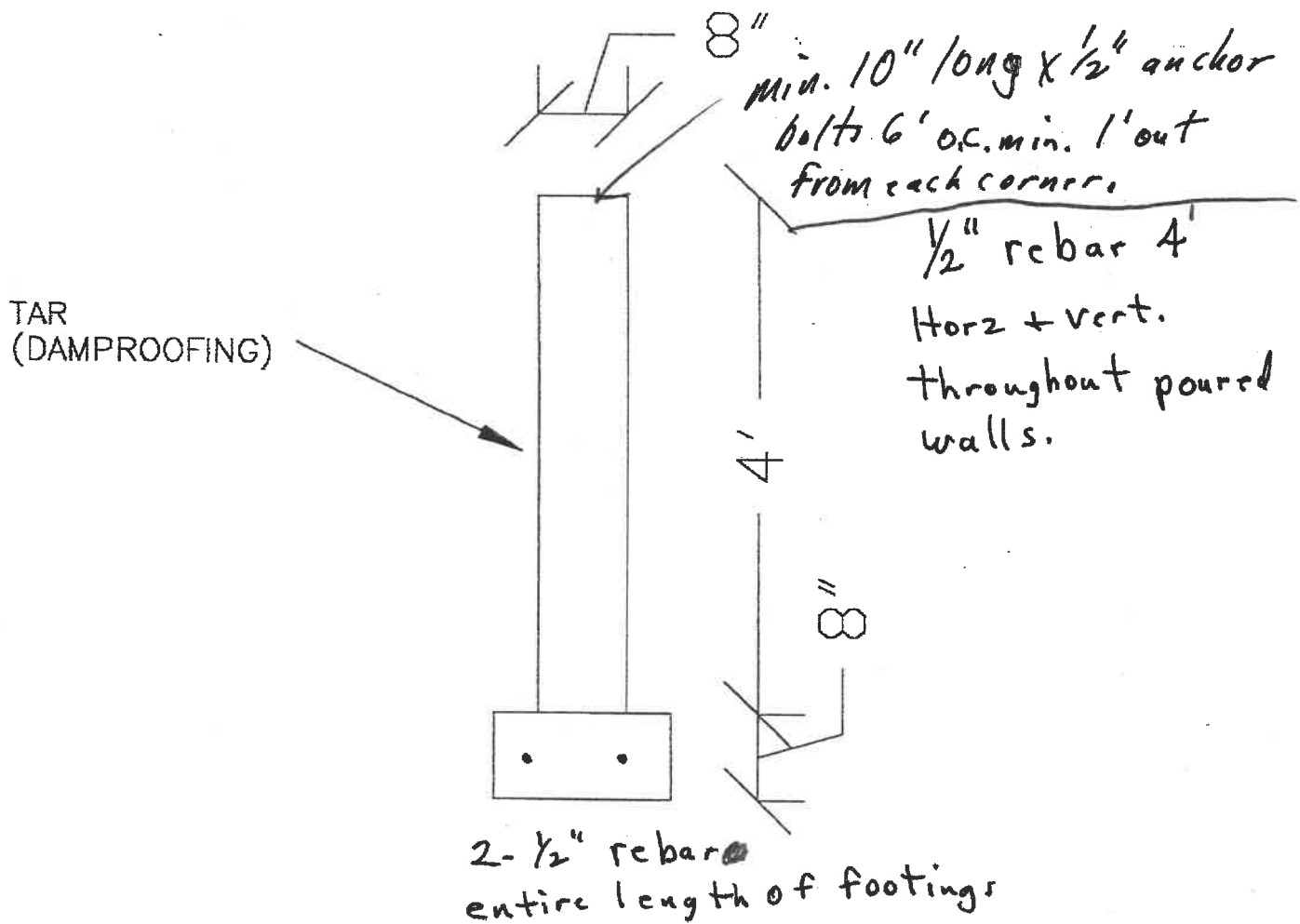
- 5.1 The language "See BOCA Evaluation Services, Inc., Research Report No. 94-66."
- 5.2 The designation of the subsurface material on which House Guard Tru-Dry is being applied.
- 5.3 The maximum elevation of the ground water table in relation to the structure being waterproofed.
- 5.4 The type of backfill material.
- 5.5 Details of joints and penetrations within the surface to be waterproofed.

6.0 IDENTIFICATION

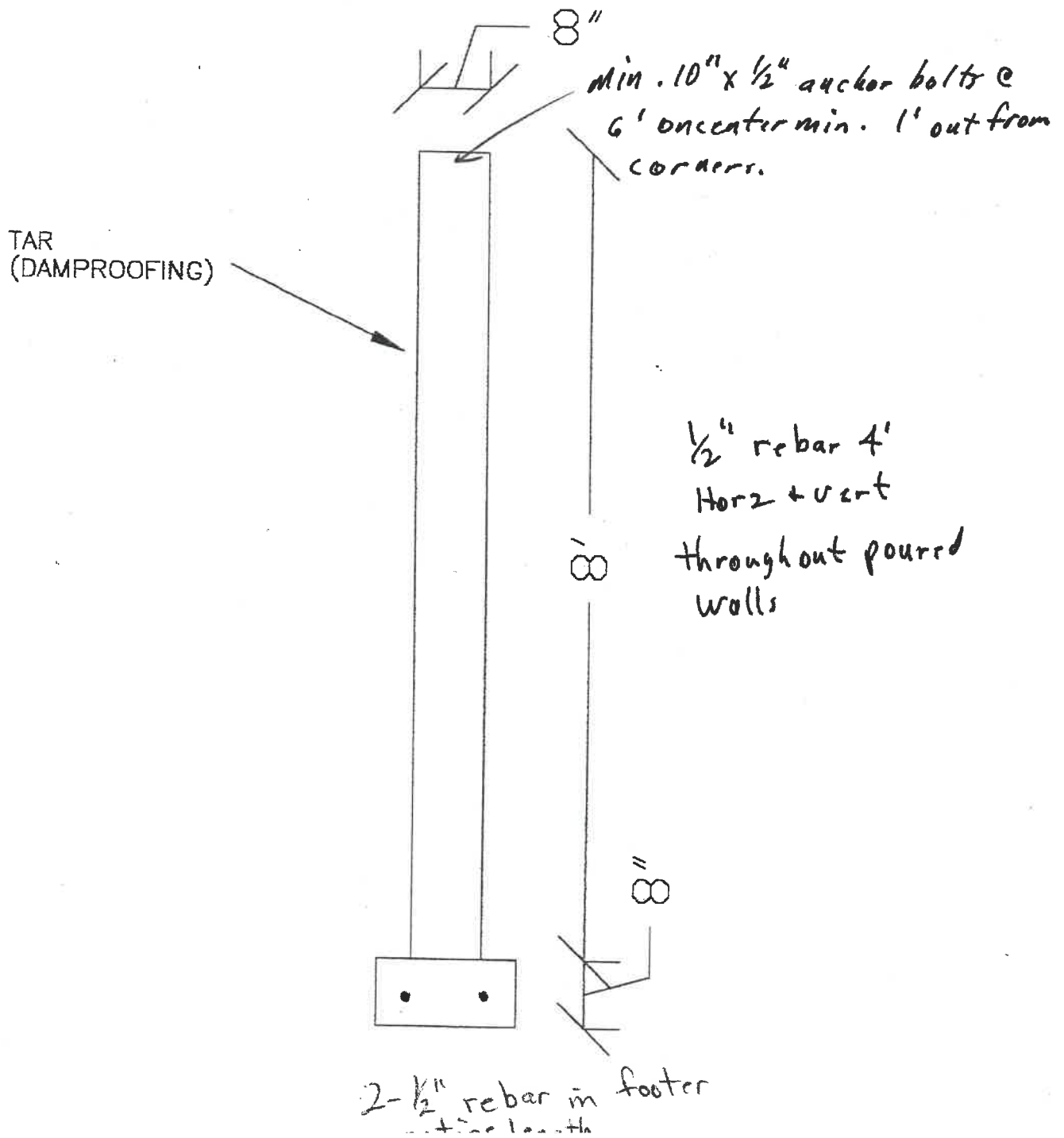
All containers of House Guard Tru-Dry manufactured in accordance with this research report shall be marked at the plant with the identifying language, "See BOCA Evaluation Services, Inc., Research Report No. 94-66."

Reference to this research report is limited to the identification as described herein.

# POURED CONCRETE WALL NOT TO SCALE



# POURED CONCRETE WALL NOT TO SCALE





CITY OF NAPOLEON - ENGINEERING DEPARTMENT  
255 W. Riverview Avenue, PO Box 151, Napoleon, OH 43545  
Phone: 419-592-4010 - Fax: 419-599-8393

City Engineer  
Joseph R. Kleiner, P.E.

Thursday, April 10, 2003

Senior Engineering Technician  
Mark B. Spiess

Wayne Homes, LLC  
6489 S. Dixie Hwy  
Cygnet, Ohio 43413

Construction Inspector  
Rex L. Moll

Re: 642 Briarheath Avenue not Briarheath Blvd.

Building & Zoning Div.  
Zoning Administrator  
Building Commissioner  
Brent N. Damman

To Whom It May Concern:

Please find enclosed a marked up set of your proposed construction plans. Before we issue your building permits, it will be necessary to make corrections and incorporate them into the subject plans and provide the additional information requested. Once corrections are made you will need to submit two (2) full sets to my office for final review.

The poured in place concrete foundation walls must be shown within the plan sheets. Foundation reinforcement rod indicated by markups must be incorporated into the footings and walls unless you submit an alternate design stamped by state of Ohio engineer along with soil tests proving adequacy of such alternate design. I have also enclosed the approved lot drainage plan, compliance is required.

Please note the enclosed site utility plan indicating the locations of all pertinent utilities and taps. The curbing along the roadway must be professionally cut for the driveway approach before any construction may commence. All construction equipment must enter and exit from this curb cut area during the construction process.

Inspections are required on all aspects of building construction before any covering, enclosing concealing, placing systems in service or placement of concrete. All contractors involved in the construction of the subject home must possess or have access to the 1993 OBOA Code Book before they may proceed. If this code book is no longer available you may substitute the 1995 CABO One & Two Family Dwelling Code.

If you have questions please contact me at 419-592-4010.

Sincerely,

Brent N. Damman  
Building Commissioner

Permit Number

## MECcheck Compliance Report

MECcheck Software Version 3.0 Release 1a  
1995 MEC Edition

Checked By/Date

TITLE: b002s01 Standard

CITY: Bowling Green

STATE: Ohio

HDD: 6482

CONSTRUCTION TYPE: Single Family

DATE: 04/08/03

DATE OF PLANS: 04/07/03

### PROJECT INFORMATION:

Shawn & Shari Smith

Lot #62 Brairheath BLVD

Napoleon OH

### COMPANY INFORMATION:

Wayne Homes, LLC.

### NOTES:

Code Jurisdiction: Henry Co

Prepared By: Mike P

COMPLIANCE: Passes

Maximum UA = 491

Your Home = 457

6.9% Better Than Code

	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
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Front Door: Opaque	20			0.077	2
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Basement Walls: CMU with Empty Cells	666	0.0	10.0		39
Basement Windows: Metal Frame, Single Pane	8			0.521	4
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Basement Wall: CMU with Empty Cells	264	0.0	0.0		147
Furnace 1: Forced Hot Air, 92 AFUE					

COMPLIANCE STATEMENT: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 1995 MEC requirements in MECcheck Version 3.0 Release 1a.

Builder/Designer \_\_\_\_\_

Date \_\_\_\_\_

# MECcheck Inspection Checklist

MECcheck Software Version 3.0 Release 1a

1995 MEC Edition

DATE: 04/08/03

TITLE: b002s01 Standard

Bldg.  
Dept.  
Use

- Roofs:
- [ ] 1. Ceiling: All-Wood Joist/Rafter/Truss, R-40.0 cavity insulation  
Comments/Location \_\_\_\_\_
- Above-Grade Walls:
- [ ] 1. Exterior Wall w/ OSB: Wood Frame, 16" o.c., R-15.0 cavity insulation  
Comments/Location \_\_\_\_\_
- [ ] 2. Exterior Wall w/ Dow: Wood Frame, 16" o.c.,  
R-15.0 cavity + R-3.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 3. Garage/House Wall: Wood Frame, 16" o.c., R-15.0 cavity + R-0.5 continuous insulation  
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- [ ] 4. Rim Joists: Wood Frame, 16" o.c., R-19.0 cavity + R-3.0 continuous insulation  
Comments/Location \_\_\_\_\_
- Basement Walls:
- [ ] 1. Basement Walls: CMU with Empty Cells, 6.0' ht/6.0' bg/6.0' insul,  
R-10.0 continuous insulation  
Comments/Location \_\_\_\_\_
- [ ] 2. crawl: CMU with Empty Cells, 4.0' ht/4.0' bg/4.0' insul, R-10.0 continuous insulation  
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For windows without labeled U-factors, describe features:  
# Panes \_\_\_\_\_ Frame Type \_\_\_\_\_ Thermal Break? [ ] Yes [ ] No  
Comments/Location \_\_\_\_\_
- [ ] 2. Basement Windows: Metal Frame, Single Pane, U-factor: 0.521  
For windows without labeled U-factors, describe features:  
# Panes \_\_\_\_\_ Frame Type \_\_\_\_\_ Thermal Break? [ ] Yes [ ] No  
Comments/Location \_\_\_\_\_
- Doors:
- [ ] 1. Front Door: Opaque, U-factor: 0.077  
Comments/Location \_\_\_\_\_
- [ ] 2. Patio Door: Glass, U-factor: 0.310  
Comments/Location \_\_\_\_\_
- [ ] 3. Fire Door: Opaque, U-factor: 0.077  
Comments/Location \_\_\_\_\_
- Floors:
- [ ] 1. Cantilever: All-Wood Joist/Truss, Over Outside Air,  
R-30.0 cavity + R-3.0 continuous insulation



Comments/Location

Heating and Cooling Equipment:

- [ ] 1. Furnace 1: Forced Hot Air, 92 AFUE or higher  
Make and Model Number \_\_\_\_\_

Air Leakage:

- [ ] Joints, penetrations, and all other such openings in the building envelope that are sources of air leakage must be sealed.
- [ ] Recessed lights must be type IC rated and installed with no penetrations or installed inside an appropriate air-tight assembly with a 0.5" clearance from combustible materials and 3" clearance from insulation.

Vapor Retarder:

- [ ] Required on the warm-in-winter side of all non-vented framed ceilings, walls, and floors.

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- [ ] Materials and equipment must be identified so that compliance can be determined.
- [ ] Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment must be provided.
- [ ] Insulation R-values, glazing U-values, and heating equipment efficiency must be clearly marked on the building plans or specifications.

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- [ ] Ducts in unconditioned spaces must be insulated to R-5.  
Ducts outside the building must be insulated to R-6.5.

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- [ ] Thermostats are required for each separate HVAC system. A manual or automatic means to partially restrict or shut off the heating and/or cooling input to each zone or floor shall be provided.

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- [ ] Insulate circulating hot water pipes to the levels in Table 1.

Swimming Pools:

- [ ] All heated swimming pools must have an on/off heater switch and require a cover unless over 20% of the heating energy is from non-depletable sources. Pool pumps require a time clock.

Heating and Cooling Piping Insulation:

- [ ] HVAC piping conveying fluids above 120 °F or chilled fluids below 55 °F must be insulated to the levels in Table 2.

*Table 1: Minimum Insulation Thickness for Circulating Hot Water Pipes.*

Heated Water Temperature ( F)	Insulation Thickness in Inches by Pipe Sizes			
	Non-Circulating Runouts		Circulating Mains and Runouts	
	Up to 1"	Up to 1.25"	1.5" to 2.0"	Over 2"
170-180	0.5	1.0	1.5	2.0
140-160	0.5	0.5	1.0	1.5
100-130	0.5	0.5	0.5	1.0

*Table 2: Minimum Insulation Thickness for HVAC Pipes.*

Piping System Types	Fluid Temp. Range ( F)	Insulation Thickness in Inches by Pipe Sizes			
		2" Runouts	1" and Less	1.25" to 2"	2.5" to 4"
<b>Heating Systems</b>					
Low Pressure/Temperature	201-250	1.0	1.5	1.5	2.0
Low Temperature	120-200	0.5	1.0	1.0	1.5
Steam Condensate (for feed water)	Any	1.0	1.0	1.5	2.0
<b>Cooling Systems</b>					
Chilled Water, Refrigerant, and Brine	40-55	0.5	0.5	0.75	1.0
	Below 40	1.0	1.0	1.5	1.5

**NOTES TO FIELD (Building Department Use Only)**

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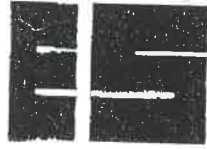
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# BOCA EVALUATION SERVICES, INC.

# BOCA RESEARCH REPORT NO.



## 94-66

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A Participating Member of the NES, Inc.

### DIVISION 07 - THERMAL AND MOISTURE PROTECTION

### SECTION 07100 - WATERPROOFING

### HOUSE GUARD TRU-DRY

TERRY MATERIALS, INC.  
8600 BERK BLVD.  
HAMILTON, OH 45015

mortar block surfaces, House Guard Tru-Dry is capable of bridging nonstructural cracks while subjected to a hydrostatic pressure of 7.5 psig (51 kPa).

### 3.2 SURFACE PREPARATION

Code Section 1813.3.2.1 Surface preparation of walls: This code section prescribes minimum surface preparation requirements for both concrete and unit masonry walls prior to the application of waterproofing. Among these, purging of the unit masonry wall is required unless the waterproofing material is approved for direct application to the unit masonry.

### 1.0 DESCRIPTION OF EVALUATION

House Guard Tru-Dry has been evaluated as an exterior wall waterproofing material for concrete or masonry subsurface foundation walls.

### INFORMATION SUBMITTED:

### 2.0 DESCRIPTION AND USE OF PRODUCT

#### 2.1 GENERAL DESCRIPTION

House Guard Tru-Dry is a polymer-modified, asphalt-based emulsion that is spray or brush applied to concrete or non parged unit masonry surfaces that are prepared as described in Section 4.0 of this report.

4 Project #TMI-11-02-01, Laboratory Analysis and Product Evaluation, dated October 19, 1994, prepared by PRI Asphalt Technologies, was submitted. The water-resistant characteristics of House Guard Tru-Dry were determined when it was applied directly to unit masonry, including resistance to water action and resistance to hydrostatic pressure while bridging nonstructural cracks. House Guard Tru-Dry showed no evidence of re-emulsification or deterioration after exposure to identical water action resistance testing as described in Section 3.1 of this report. Also, when exposed to identical hydrostatic pressure resistance testing as described in Section 3.1, the House Guard Tru-Dry withstood a slightly greater hydrostatic pressure. These results indicate that the water-resistant properties of House Guard Tru-Dry are retained when the product is applied directly to unit masonry.

### 3.0 CODE ANALYSIS OF SUBMITTED INFORMATION

The following data were submitted by the proponent for demonstration of compliance with the respective code sections listed above each item of information. The basis is the *BOCA National Building Code/1993*.

### 4.0 INSTRUCTIONS TO THE CODE OFFICIAL

House Guard Tru-Dry has been evaluated for compliance with the 1993 editions of the *BOCA National Codes*. This report is limited to the applications and products as stated herein. This evaluation is based solely upon information provided to BOCA Evaluation Services, Inc., by Terry Materials, Inc., and has not been independently verified. BOCA-ES intends that this report be used by the code official to determine that House Guard Tru-Dry complies with the code requirements specifically addressed in Section 3.0 of this report, provided that this product is installed in accordance with the following limitations:

#### 3.1 ALTERNATE MATERIALS

Code Section 1813.4.2.2 Wall waterproofing material: This code section requires that any proposed waterproofing material shall be capable of bridging non-structural cracks.

### INFORMATION SUBMITTED

Project #TMI-04-03-01, *Laboratory Analysis and Product Evaluation*, dated February 25, 1994, prepared by PRI Asphalt Technologies, was submitted indicating that House Guard Tru-Dry showed no evidence of re-emulsification when applied to an unglazed ceramic tile base and tested in accordance with ASTM D466, *Resistance to Water Action*. Also, when applied to smooth

Please contact BOCA Evaluation Services, Inc., with any questions you may have regarding this report. Additionally, please contact us if you have any information on the performance of the product described herein which is contrary to this report. This report is subject to the limitations listed herein and to the specific product, date and test reports submitted by the applicant requesting this report. Independent tests were not performed by BOCA Evaluation Services, Inc., and BOCA Evaluation Services, Inc., specifically does not make any warranty, either expressed or implied, as to any findings or other matter in this report or as to any product covered by this report. Evaluation reports are not to be construed as representing aesthetics or any other attributes not specifically addressed nor as an endorsement or recommendation for the use of the subject of the report. This disclaimer included, but is not limited to, merchantability.

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**Limitations**

- 4.1 This report is subject to annual certification. Reports that are not certified shall not be used or referred to. In order to determine the status of certification of this report, contact BOCA Evaluation Services, Inc., or consult the latest edition of the *National Product Evaluation Listing* published periodically in the *BOCA Magazine*.
- 4.2 The application of House Guard Tru-Dry is limited to sub-surface walls of concrete or concrete masonry.
- 4.3 When applying House Guard Tru-Dry, ambient and surface temperatures shall be limited to a minimum of 0 degrees F. (-18 degrees C.) to a maximum of 100 degrees F. (38 degrees C.) for a minimum of 24 hours.
- 4.4 House Guard Tru-Dry shall be limited to installation where in service temperatures will be a maximum of 160 degrees F. (71 degrees C.).
- 4.5 The design and construction of the walls required to be waterproofed are not part of this evaluation.
- 4.6 Prior to the application of House Guard Tru-Dry, the surface to be waterproofed shall be prepared in accordance with Section 1813.3.2.1 of the *BOCA National Building Code/1993*.
- 4.7 Joints and penetrations within the wall to be waterproofed shall be made water tight in accordance with Section 1813.4.3 of the code.
- 4.8 The placement of backfill, site grading and erosion protection, with respect to the foundation wall waterproofing, shall be in accordance with Sections 1813.6, 1813.7 and 1813.8 of the code.
- 4.9 The installation of House Guard Tru-Dry, with respect to the elevation of the ground water table, shall be in accordance with Section 1813.4.2.2 of the code.
- 4.10 Contractors installing House Guard Tru-Dry shall be certified by Terry Materials Inc.
- 4.11 The application of House Guard Tru-Dry shall result in a cured film with a minimum thickness of 60 mils (1.5 mm).

4.12 House Guard Tru-Dry shall be installed in accordance with the manufacturer's installation instructions and this report. Application's utilizing installation instructions in conflict with this report are outside the scope of this report.

4.13 The installation of House Guard Tru-Dry on surfaces exposed to ultraviolet radiation is beyond the scope of this report and shall be substantiated utilizing approved methods.

**5.0 INFORMATION REQUIRED ON CONSTRUCTION DOCUMENTS**

To aid in the use of this report, the following represents the minimum level of information to be reflected on construction documents in order to determine compliance with this research report.

- 5.1 The language "See BOCA Evaluation Services, Inc., Research Report No. 94-66."
- 5.2 The designation of the subsurface material on which House Guard Tru-Dry is being applied.
- 5.3 The maximum elevation of the ground water table in relation to the structure being waterproofed.
- 5.4 The type of backfill material.
- 5.5 Details of joints and penetrations within the surface to be waterproofed.

**6.0 IDENTIFICATION**

All containers of House Guard Tru-Dry manufactured in accordance with this research report shall be marked at the plant with the identifying language, "See BOCA Evaluation Services, Inc., Research Report No. 94-66."

Reference to this research report is limited to the identification as described herein.