

6 August 2003

## Rayner Vinyl Safety Pool Cover Certification

This document is to certify that on 16 May 2003, a *Rayner Safety Mesh Pool Cover* manufactured by Rayner Covering Systems, Inc. of South Elgin, Illinois was tested per ASTM F-1346-91, entitled: *Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs*.

The pool cover Classification and Minimum Qualification Criteria that were required of this cover is outlined in Section 4 of the ASTM F-1346-91 standard.

### COVER CERTIFICATION

#### ASTM-F-1346-91 Section 3: Terminology

##### 3.1 Definition of Terms Specific to This Standard:

- 3.1.14 *manual safety cover (MSC)* – a barrier which requires it to be placed over the water manually. Provides a high level of safety for children under the age of five by inhibiting their access to the water.

#### ASTM-F-1346-91 Section 4: Cover Classifications and Minimum Qualification Criteria

- 4.1 Not Applicable
- 4.2 *Manual Safety Cover (MSC)* – Provides a high level of safety for children under the age of five by inhibiting their access to the water. May require a longer period of time to be fully secured.
- 4.2.1 Must satisfy 5.1-5.3, 6.1-6.5, 7.1-7.4, 8.1, 8.2, 8.4-8.12, 9.1-9.4, and all subsections.

The results of these tests were as follows:

#### ASTM-F-1346-91 Section 5: Materials and Manufacture

- 5.1 Only materials not known to be harmful to health, within the intended application, shall be used.

**Meets Requirement:** The mesh panels used to construct the cover are manufactured from vinyl.

- 5.2 All materials and components shall be durable and satisfactory for the intended purpose under the conditions normally prevailing at the site.

**Meets Requirement:** The primary components of the pool cover system are vinyl, brass anchors, and stainless steel springs.

- 5.3 The cover shall be manufactured or fabricated, or both, in accordance with generally accepted, good manufacturing practices.

**Meets Requirement**

**ASTM-F-1346-01 Section E: General Requirements for Safety Covers**

- 6.1 *Installation/Use of safety covers* – Unless installed by the manufacturer, or responsible parties, or both, detailed instructions for installation shall be given in a form included in the packaging or a label, or both, attached to the cover.

**Meets Requirement**

- 6.2 Labels attached to the cover shall meet the general requirements described in 8.5.1 and 8.8-8.8.2

**Meets Requirements**

- 6.3 *Markings for safety covers shall include:*

6.3.1 The manufacturer's name,

**Meets Requirements**

6.3.2 Date manufactured or installed, and

**Meets Requirements**

6.3.3 Instructions to consumers to inspect the cover for premature wear or deterioration.

**Meets Requirements**

6.3.4 Labels attached to covers shall meet the general requirements described in 8.4.1, 8.7-8.8.1, and 8.9.

**Meets Requirements**

- 6.4 *Fastening mechanisms or devices* – Ties, attachment points, anchors, anchorage, and controls for automatic covers or other means of fastening a cover shall include provisions such as keys, combination locks, special tools, devices, or inaccessible

locations, and the like, to inhibit children under five years of age from removing or operating the cover. When subjected to the load and perimeter deflection tests described in 9.1 and 9.2, all fastening devices shall remain in their intended, secured, or closed, or both, positions. After the test, the intended performance of the device should not be impaired.

**Meets Requirements:** The attachment mechanism of the cover is sufficiently difficult to prohibit children less than five years of age from removing and operating the cover. An installation tool (rod) is required for proper installation. After all testing, all anchors and fastening devices remained secure and in operable condition.

- 6.5 Openings – The cover shall be designed in such a way that, when it is tested by the test method described in 9.4, any opening in the major component or between the edge of the cover and the top surface of the pool or spa does not allow the test object to pass through. The test object shall not gain access to the water, or be subject to entrapment.

**Meets Requirement:** Access to the pool was restricted in all tests.

#### ASTM-F-1346-91 Section 7: Performance Requirements for Safety Covers

- 7.1 Static Load – In the case of a pool with a width or diameter of greater than 8 ft, from the periphery, the cover shall be able to hold the weight of 485 lb. (2 adults and 1 child) to permit a rescue operation.

**Meets Requirement**

- 7.2 Perimeter Deflection – The cover shall be designed in such a way that, when it is tested by the test method described in 9.2, deflection of the cover does not allow the test object to pass between the cover and the side of the pool, or to gain access to the water.

**Meets Requirement**

- 7.3 Surface Drainage – The cover shall be so constructed, or incorporate a system, or have an auxiliary system provided, that when used in accordance to the manufacturer's instructions, shall drain substantially all the standing water from the cover within a period of 30 min. after cessation of normal rainfall. Compliance shall be determined by the test in 9.3.

**Meets Requirement**

- 7.4 Opening Test – The tests shall be conducted by the test method described in 9.4 to demonstrate that any opening in the major component or between the edge of the cover and the deck surface or coping wall, or both, and the top surface of the pool or the top surface of the spa is sufficiently small and strong to prevent the opening from being forced to a size that will allow the test object to pass through.

**Meets Requirement**

**ASTM F-1346-91 Section 8: Minimum Label Requirements for All Covers for Swimming Pools, Spas, and Hot Tubs**

- 8.1 **Product Label** - Required to identify manufacturer  
Shall meet requirements of 8.5.1 and 8.8-8.8.2

**Meets Requirement**

- 8.2 **Warning Labels** - Required of all covers

**Warning Label Meets Requirements**

- 8.2.1 **Signal Word: WARNING**

**Meets Requirement**

- 8.2.2 **Safety Alert Signal:** 

**Meets Requirement**

- 8.2.2.1 **Word Message: AVOID DROWNING RISK**

- Shall be the first message under the signal word.

**Meets Requirement**

- 8.2.2.2 **Additional Word Message Statement:** Required for the following hazards –

<b>if this hazard exists</b>	<b>Add this warning to label:</b>
Concealment, Entrapment- Drowning under cover	Remove cover completely before entry of bathers – entrapment possible.
General requirement for all covers	Non-secured or improperly secured covers are a hazard.
Option for Safety Covers	Failure to follow all instructions may result in injury or drowning.

Note: for above table - applicable 

**Meets Requirement**

- 8.3 **Not Applicable**

- 8.4 **Color** – for Safety Cover Warning Labels

- 8.4.1 **Signal and Message word panel** may be same color and contrasting with lettering

**Meets Requirement**

- 8.5 **Warning Labels** – Letter Size

- 8.5.1 Lettering shall be of a size that enables a person with normal or corrected vision to read the safety sign or label at a safe viewing distance from the hazard.

**Meets Requirement**

8.5.2 Signal Word

- Letter height shall be at least 50% greater than the selected height of the message panel wording.

**Meets Requirement**

8.5.3 Safety Alert Symbol

- Shall precede the signal word
- Shall have base on the same horizontal line as the base of the signal word.
- The height of the safety alert signal shall equal or exceed the signal word letter height.

**Meets Requirement**

8.5.4 Word message letter height shall be:

Safe Viewing Distance	Minimum Letter Height for FAVORABLE Reading Conditions	Minimum Letter Height for UNFAVORABLE Reading Conditions
Less than 24 in.	Height (in.) = $\frac{\text{View Distance}}{150}$	Height (in.) = $\frac{\text{View Distance}}{75}$
24 to 96 in.	Height (in.) = $\frac{\text{View Distance}}{300}$	Height (in.) = $\frac{\text{View Distance}}{150}$
Greater than 96 in.	Height (in.) = $\frac{\text{View Distance}}{400}$	Height (in.) = $\frac{\text{View Distance}}{300}$

**Meets requirement**

8.6 Letter Style

8.6.1 Signal Word

- Sans Serif – Upper case only

**Meets Requirement**

8.6.2 Message Panel

- Sans Serif – Upper case only

**Meets Requirement**

8.6.1 Acceptable Lettering Styles

- Medium Helvetica
- Bold Helvetica

- News Gothic Bold

**Meets Requirements**

- 8.7 Placement – Location shall be such that the message will:

8.7.1 – Be readily visible to the intended viewer, taking into consideration all possible viewing angles

**Meets Requirements**

8.7.2 – Alert the viewer to the potential hazard in time to take appropriate action

**Meets Requirements**

8.7.3 – Label must be so as not to be removed in the fitting process

**Meets Requirement**

- 8.8 Life Expectance – Label shall have a reasonable expected life with good color stability and word message legibility.

**Meets Requirement**

8.8.1 Protection - Placement of label should provide protection from foreseeable damage, fading, or visual obstruction caused by abrasion, ultraviolet light or substances such as chemicals or dirt.

**Meets Requirement**

8.8.2 Attachment - The label shall be attached permanently to the product so that it cannot be easily removed.

**Meets Requirements**

- 8.9 Replacement – Product/warning labels should be replaced by the product user when they no longer meet legibility requirements for safe viewing distances described in 8.5.1 and 8.7.1. In cases where products have extensive expected life or where exposed to extreme conditions, the product user should be able to obtain replacement labels from the manufacturer or responsible party.

**Meets Requirements**

- 8.10 Instruction/Use Label – Any product instructions or use labels not attached to the product, intended to be viewed by the consumer/user shall contain in its contents the same applicable warning label as set forth in 8.2-8.6.3.

**Meets Requirements**

- 8.11 Packaging Label – If packaging is intended for product display to the consumer/user, applicable warning label as described in 8.2-8.6.3 shall be placed on the printed side of

the package intended for display and/or consumer information. The label shall be printed on or affixed to the package and not easily removable.

**Meets Requirements**

- 8.12 Compliance Labeling -- All labels shall note the specific cover classification.

**Meets Requirements**

**ASTM F-1346-91 Section 3: Test Methods for Safety Covers**

9.1-9.4 These subsections describe the specific tests and test objects that are required to be performed in order to satisfy the requirements of Section 7. All of the tests were performed and the results are indicated in the Section 7 paragraph of this report.

**Overall Determination**

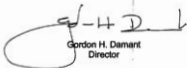
The tested Raynor Vinyl Safety Pool Cover **PASSES** all of the requirements of ASTM-F1346-91 General Requirements, as specified in Section 6, ASTM-F1346-91 Performance Requirements, as specified in Section 7, and ASTM-F1346-91 Minimum Label Requirements, as specified in Section 8.

Very truly yours,

**Inter-City Testing and Consulting**



R. Stephen Wortman  
Consulting Engineer



Gordon H. Damant  
Director

6 August 2003

## Rayner Vinyl Safety Cover with Mesh Drain Panels Certification

This document is to certify that on 16 May 2003, a *Rayner Safety Mesh Pool Cover* manufactured by Rayner Covering Systems, Inc. of South Elgin, Illinois was tested per ASTM F-1346-91, entitled: *Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs*:

The pool cover Classification and Minimum Qualification Criteria that were required of this cover is outlined in Section 4 of the ASTM F-1346-91 standard.

### COVER CERTIFICATION

#### ASTM-F-1346-91 Section 3: Terminology

##### 3.1 Definition of Terms Specific to This Standard:

- 3.1.14 *manual safety cover (MSC)* – a barrier which requires it to be placed over the water manually. Provides a high level of safety for children under the age of five by inhibiting their access to the water.

#### ASTM-F-1346-91 Section 4: Cover Classifications and Minimum Qualification Criteria

- 4.1 Not Applicable
- 4.2 *Manual Safety Cover (MSC)* – Provides a high level of safety for children under the age of five by inhibiting their access to the water. May require a longer period of time to be fully secured.
- 4.2.1 Must satisfy 5.1-5.3, 6.1-6.5, 7.1-7.4, 8.1, 8.2, 8.4-8.12, 9.1-9.4, and all subsections.

The results of these tests were as follows:

#### ASTM-F-1346-91 Section 5: Materials and Manufacture

- 5.1 Only materials not known to be harmful to health, within the intended application, shall be used.



**Meets Requirement:** The mesh panels used to construct the cover are manufactured from vinyl and polypropylene mesh.

- 5.2 All materials and components shall be durable and satisfactory for the intended purpose under the conditions normally prevailing at the site.

**Meets Requirement:** The primary components of the pool cover system are vinyl, polypropylene mesh, brass anchors, and stainless steel springs.

- 5.3 The cover shall be manufactured or fabricated, or both, in accordance with generally accepted, good manufacturing practices.

**Meets Requirement**

#### ASTM-F-1346-91 Section 6: General Requirements for Safety Covers

- 6.1 *Installation/Use of safety covers* – Unless installed by the manufacturer, or responsible parties, or both, detailed instructions for installation shall be given in a form included in the packaging or a label, or both, attached to the cover.

**Meets Requirement**

- 6.2 Labels attached to the cover shall meet the general requirements described in 8.5.1 and 8.8-8.8.2

**Meets Requirements**

- 6.3 *Markings for safety covers shall include:*

- 6.3.1 The manufacturer's name,

**Meets Requirements**

- 6.3.2 Date manufactured or installed, and

**Meets Requirements**

- 6.3.3 Instructions to consumers to inspect the cover for premature wear or deterioration.

**Meets Requirements**

- 6.3.4 Labels attached to covers shall meet the general requirements described in 8.4.1, 8.7-8.8.1, and 8.9.

**Meets Requirements**

- 6.4 *Fastening mechanisms or devices* – Ties, attachment points, anchors, anchorage, and controls for automatic covers or other means of fastening a cover shall include provisions such as keys, combination locks, special tools, devices, or inaccessible

locations, and the like, to inhibit children under five years of age from removing or operating the cover. When subjected to the load and perimeter deflection tests described in 9.1 and 9.2, all fastening devices shall remain in their intended, secured, or closed, or both, positions. After the test, the intended performance of the device should not be impaired.

**Meets Requirements:** The attachment mechanism of the cover is sufficiently difficult to prohibit children less than five years of age from removing and operating the cover. An installation tool (rod) is required for proper installation. After all testing, all anchors and fastening devices remained secure and in operable condition.

- 6.5 **Openings** – The cover shall be designed in such a way that, when it is tested by the test method described in 9.4, any opening in the major component or between the edge of the cover and the top surface of the pool or spa does not allow the test object to pass through. The test object shall not gain access to the water, or be subject to entrapment.

**Meets Requirement:** Access to the pool was restricted in all tests.

#### **ASTM-F-1346-01 Section 7: Performance Requirements for Safety Covers**

- 7.1 **Static Load** – In the case of a pool with a width or diameter of greater than 8 ft. from the periphery, the cover shall be able to hold the weight of 485 lb. (2 adults and 1 child) to permit a rescue operation.

**Meets Requirement**

- 7.2 **Perimeter Deflection** – The cover shall be designed in such a way that, when it is tested by the test method described in 9.2, deflection of the cover does not allow the test object to pass between the cover and the side of the pool, or to gain access to the water.

**Meets Requirement**

- 7.3 **Surface Drainage** – The cover shall be so constructed, or incorporate a system, or have an auxiliary system provided, that when used in accordance to the manufacturer's instructions, shall drain substantially all the standing water from the cover within a period of 30 min. after cessation of normal rainfall. Compliance shall be determined by the test in 9.3.

**Meets Requirement**

- 7.4 **Opening Test** – The tests shall be conducted by the test method described in 9.4 to demonstrate that any opening in the major component or between the edge of the cover and the deck surface or coping wall, or both, and the top surface of the pool or the top surface of the spa is sufficiently small and strong to prevent the opening from being forced to a size that will allow the test object to pass through.

**Meets Requirement**

**ASTM F-1346-91 Section 8: Minimum Label Requirements for All Covers for Swimming Pools, Spas, and Hot Tubs**

- 8.1 *Product Label* - Required to identify manufacturer  
Shall meet requirements of 8.5.1 and 8.8-8.8.2

**Meets Requirement**

- 8.2 *Warning Labels* - Required of all covers

**Warning Label Meets Requirements**

- 8.2.1 *Signal Word: WARNING*

**Meets Requirement**

- 8.2.2 *Safety Alert Signal:* 

**Meets Requirement**

- 8.2.2.1 *Word Message: AVOID DROWNING RISK*

- Shall be the first message under the signal word.

**Meets Requirement**

- 8.2.2.2 *Additional Word Message Statement:* Required for the following hazards -

<i>If this hazard exists:</i>	<i>Add this warning to label:</i>
Concealment, Entrapment-Drowning under cover	Remove cover completely before entry of bathers - entrapment possible.
General requirement for all covers	Non-secured or improperly secured covers are a hazard.
Option for Safety Covers	Failure to follow all instructions may result in injury or drowning.

Note: for above table - applicable 

**Meets Requirement**

- 8.3 *Not Applicable*

- 8.4 *Color* - for Safety Cover Warning Labels

- 8.4.1 *Signal and Message word panel* may be same color and contrasting with lettering

**Meets Requirement**

- 8.5 *Warning Labels* - Letter Size

- 8.5.1 Lettering shall be of a size that enables a person with normal or corrected vision to read the safety sign or label at a safe viewing distance from the hazard.

**Meets Requirement**

8.5.2 *Signal Word*

- Letter height shall be at least 50% greater than the selected height of the message panel wording.

**Meets Requirement**

8.5.3 *Safety Alert Symbol*

- Shall precede the signal word
- Shall have base on the same horizontal line as the base of the signal word.
- The height of the safety alert signal shall equal or exceed the signal word letter height.

**Meets Requirement**

8.5.4 Word message letter height shall be:

Safe Viewing Distance	Minimum Letter Height for FAVORABLE Reading Conditions	Minimum Letter Height for UNFAVORABLE Reading Conditions
Less than 24 in.	Height (in.) = $\frac{\text{View Distance}}{150}$	Height (in.) = $\frac{\text{View Distance}}{75}$
24 to 96 in.	Height (in.) = $\frac{\text{View Distance}}{300}$	Height (in.) = $\frac{\text{View Distance}}{150}$
Greater than 96 in.	Height (in.) = $\frac{\text{View Distance}}{400}$	Height (in.) = $\frac{\text{View Distance}}{300}$

**Meets requirement**

8.6 Letter Style

8.6.1 *Signal Word*

- Sans Serif – Upper case only

**Meets Requirement**

8.6.2 *Message Panel*

- Sans Serif – Upper case only

**Meets Requirement**

8.6.1 *Acceptable Lettering Styles*

- Medium Helvetica
- Bold Helvetica

- News Gothic Bold

**Meets Requirements**

- 8.7 Placement – Location shall be such that the message will:

8.7.1 – Be readily visible to the intended viewer, taking into consideration all possible viewing angles

**Meets Requirements**

8.7.2 – Alert the viewer to the potential hazard in time to take appropriate action

**Meets Requirements**

8.7.3 – Label must be so as not to be removed in the fitting process

**Meets Requirement**

- 8.8 Life Expectance – Label shall have a reasonable expected life with good color stability and word message legibility.

**Meets Requirement**

8.8.1 Protection - Placement of label should provide protection from foreseeable damage, fading, or visual obstruction caused by abrasion, ultraviolet light or substances such as chemicals or dirt.

**Meets Requirement**

8.8.2 Attachment - The label shall be attached permanently to the product so that it cannot be easily removed.

**Meets Requirements**

- 8.9 Replacement – Product/warning labels should be replaced by the product user when they no longer meet legibility requirements for safe viewing distances described in 8.5.1 and 8.7.1. In cases where products have extensive expected life or where exposed to extreme conditions, the product user should be able to obtain replacement labels from the manufacturer or responsible party.

**Meets Requirements**

- 8.10 Instruction/Use Label – Any product instructions or use labels not attached to the product, intended to be viewed by the consumer/user shall contain in its contents the same applicable warning label as set forth in 8.2-8.6.3.

**Meets Requirements**

- 8.11 Packaging Label – If packaging is intended for product display to the consumer/user, applicable warning label as described in 8.2-8.6.3 shall be placed on the printed side of

the package intended for display and/or consumer information. The label shall be printed on or affixed to the package and not easily removable.

**Meets Requirements**

- 8.12 Compliance Labeling - All labels shall note the specific cover classification.

**Meets Requirements**

**ASTM F-1346-91 Section 9: Test Methods for Safety Covers**

9.1-9.4 These subsections describe the specific tests and test objects that are required to be performed in order to satisfy the requirements of Section 7. All of the tests were performed and the results are indicated in the Section 7 paragraph of this report.

**Overall Determination**

The tested Raynor Vinyl Safety Cover with Mesh Drain Panels **PASSES** all of the requirements of ASTM-F1346-91 General Requirements, as specified in Section 6, ASTM-F1346-91 Performance Requirements, as specified in Section 7, and ASTM-F1346-91 Minimum Label Requirements, as specified in Section 8.

Very truly yours,

**Inter-City Testing and Consulting**



R. Stephen Wortman  
Consulting Engineer



Gordon H. Damant  
Director