SECTION 13 47 30

DENIOS POP-UP DOORWAY SPILL BARRIERS AND PASSIVE FLOOD BARRIERS

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\*\* NOTE TO SPECIFIER \*\* DENIOS, Inc.; flood and spill barriers, chemical storage lockers and buildings.
This section is based on the products of DENIOS, Inc., which is located at:1152 Industrial Blvd.Louisville, KY 40219Toll Free Tel: 877-388-0187Tel: 502-933-7272Email: [request info (drodriguez@denios-us.com)](https://arcat.com/rfi?action=email&company=DENIOS%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(13470den)%253A%2520&coid=48428&spec=13470den&rep=&fax=)
Web: <https://www.denios-us.com>
 [ [Click Here](https://arcat.com/company/denios-inc-48428) ] for additional information.
While we are inspired by nature and passionate about its protection, it was an environmental disaster that was the catalyst for our founding.
In the mid-1980s, run-off from an industrial fire at a Swiss chemical company contaminated the Rhine River. The devastating results of this disaster showed us there was a massive, unaddressed need for containment of hazardous materials. Those who saw this need not only got their hands dirty creating and welding the very first spill pallet, they also founded DENIOS.
With locations across the globe - like our 100,000-square-foot engineering, sales, and manufacturing facility in Louisville, KY - we design and produce everything from the original spill pallets to large capacity chemical storage lockers and buildings.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Automatic Doorway Spill Barriers.
		2. Manual Doorway Spill Barriers.
		3. Passive Flood Barriers.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 08 34 13 - Cold Storage Doors.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. FM Global:
			1. FM Class 2510 - Approval Standard for Flood Abatement Equipment.
			2. FM Class 4985 - Approval Standard for Doorway Spill Barriers.
		2. International Fire Code (IFC):
			1. IFC-2704.2.2.3 (2009) - Chapter 27 Hazardous Materials - General Provisions - Indoor Design.
		3. National Fire Protection Association (NFPA):
			1. NFPA-30 9.13.3 - Flammable and Combustible Liquids Code - Containment or drainage to an approved location shall be provided.
		4. Occupational Safety and Health Administration (OSHA):
			1. OSHA 1910.106 (e) (3) (iv) (a) - Flammable liquids.
			2. OSHA 1910.106 (d) (4) (i) - Flammable liquids.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if not applicable to product type or need.

* + 1. Approval Drawings: Include dimensional representation of product.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
	2. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	4. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	5. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: DENIOS, Inc., which is located at:1152 Industrial Blvd.Louisville, KY 40219Toll Free Tel: 877-388-0187Tel: 502-933-7272Email: [request info (drodriguez@denios-us.com)](https://arcat.com/rfi?action=email&company=DENIOS%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(13470den)%253A%2520&coid=48428&spec=13470den&rep=&fax=);Web: <https://www.denios-us.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE AND DESIGN REQUIREMENTS
		1. Standards Compliance:
			1. NFPA-30 9.13.3 Curbs, scuppers, special drains, or other suitable means shall be provided to prevent the flow of liquids under emergency conditions into adjacent building areas.
			2. IFC-2704.2.2.3 (2009) Secondary containment for indoor storage areas shall be designed to contain a spill from the largest vessel plus the design flow volume of fire-protection water calculated to discharge from the fire-extinguishing system over the minimum required system design area or area of the room. for a period of 20 minutes.
			3. OSHA 1910.106 (e) (3) (iv) (a) Emergency drainage systems shall be provided to direct flammable or combustible liquid leakage and fire protection water to a safe location. This may require curbs, scuppers, or special drainage systems to control the spread of fire.
			4. OSHA 1910.106 (d) (4) (i) Openings to other rooms or buildings shall be provided with non-combustible liquid-tight raised sills or ramps at least 4 inch (102 mm) in height.

\*\* NOTE TO SPECIFIER \*\* In cases of catastrophic spills or sprinkler releases, containing the spill to a single room or area can limit the costs associated with clean-up or facility damage. DENIOS US Automatic Doorway Spill Barrier provide the protection to contain those large spills by closing off any doorway or opening in the affected room at the first sign of flowing liquids. Delete article if not required.

* 1. AUTOMATIC DOORWAY SPILL BARRIERS
		1. Automatic Spill Barrier as manufactured by Denios.
			1. Regulatory Compliance: NFPA and OSHA.
			2. Design: Anchored and set in concrete slab.
			3. Automatic operation. No external power source or factory compressed air required
			4. Self-contained one-piece system design
			5. Construction: welded stainless steel.
			6. Installs in existing doorways. Stores horizontally in floor, permitting unobstructed vehicular and personnel traffic until a spill occurs.
				1. Doorway Size Range: Between 3 and 16 ft (914 and 4877 mm).

\*\* NOTE TO SPECIFIER \*\* 16 ft x 24 inches is not available. Delete options not required.

* + - * 1. Barrier Heights: 12 to 24 inches (305 to 610 mm).
			1. Capacity While Barrier is Flat: 6.5 tons (5897 kg) axle weight capacity.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model: R14-0312-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 40 inches (1016 mm).
			2. Model: R14-0318-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 40 inches (1016 mm).
			3. Model: R14-0324-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 40 inches (1016 mm).
			4. Model: R14-0412-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 52 inches (1321 mm).
			5. Model: R14-0418-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 52 inches (1321 mm).
			6. Model: R14-0424-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 52 inches (1321 mm).
			7. Model: R14-0612-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 76 inches (1930 mm).
			8. Model: R14-0618-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 76 inches (1930 mm).
			9. Model: R14-0624-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 76 inches (1930 mm).
			10. Model: R14-0812-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 100 inches (2540 mm).
			11. Model: R14-0818-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 100 inches (2540mm).
			12. Model: R14-0824-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 100 inches (2540 mm).
			13. Model: R14-1012-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 124 inches (3150 mm).
			14. Model: R14-1018-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 124 inches (3150 mm).
			15. Model: R14-1024-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 124 inches (3150 mm).
			16. Model: R14-1212-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 148 inches (3759 mm).
			17. Model: R14-1218-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 148 inches (3759 mm).
			18. Model: R14-1224-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 148 inches (3759 mm).
			19. Model: R14-1412-W. Opening Span: 168 inches (4267 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 172 inches (4369 mm).
			20. Model: R14-1418-W. Opening Span: 168 inches (4267 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 172 inches (4369mm).
			21. Model: R14-1424-W. Opening Span: 168 inches (4267 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 172 inches (4369 mm).
			22. Model: R14-1612-W. Opening Span: 192 inches (4877 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 196 inches (4978 mm).
			23. Model: R14-1618-W. Opening Span: 192 inches (4877 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 196 inches (4978 mm).
		1. Automatic Spill Barrier as supplied by DENIOS.
			1. Regulatory Compliance: NFPA and OSHA.
			2. Approval: FM Class 4985.
			3. Design: Anchored and set in concrete slab.
			4. Automatic operation. No external power source or factory compressed air required.
			5. Self-contained one-piece system design
			6. Construction: welded stainless steel.
			7. Installs in existing doorways. Stores horizontally in floor, permitting unobstructed vehicular and personnel traffic until a spill occurs.
				1. Doorway Size Range: Between 3 and 16 ft (914 and 4877 mm).

\*\* NOTE TO SPECIFIER \*\* 16 ft x 24 inches is not available. Delete options not required.

* + - * 1. Barrier Heights: 12 to 24 inches (305 to 610 mm).
			1. Capacity While Barrier is Flat: 6.5 tons (5897 kg) axle weight capacity.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model: R15-0312-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 40 inches (1016 mm).
			2. Model: R15-0318-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 40 inches (1016 mm).
			3. Model: R15-0323-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 40 inches (1016 mm).
			4. Model: R15-0412-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 52 inches (1321 mm).
			5. Model: R15-0418-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 52 inches (1321 mm).
			6. Model: R15-0423-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 52 inches (1321 mm).
			7. Model: R15-0612-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 76 inches (1930 mm).
			8. Model: R15-0618-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 76 inches (1930 mm).
			9. Model: R15-0623-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 76 inches (1930 mm).
			10. Model: R15-0812-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 100 inches (2540 mm).
			11. Model: R15-0818-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 100 inches (2540mm).
			12. Model: R15-0823-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 100 inches (2540 mm).
			13. Model: R15-1012-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 124 inches (3150 mm).
			14. Model: R15-1018-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 124 inches (3150 mm).
			15. Model: R15-1023-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 124 inches (3150 mm).
			16. Model: R15-1212-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 148 inches (3759 mm).
			17. Model: R15-1218-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 148 inches (3759 mm).
			18. Model: R15-1223-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 23 inches (584 mm). Sealed Width: 148 inches (3759 mm).

\*\* NOTE TO SPECIFIER \*\* The Manual Doorway Spill Barrier is great for sealing off doorways in low traffic areas. Designed to be always engaged, the barrier can easily be opened by an individual by loosening 2 clamps and lifting and moving door. Barriers can also be used on the exterior of doorways to prevent high water from storms or floods from entering critical areas and damaging expensive equipment or inventory. Delete article if not required.

* 1. MANUAL DOORWAY SPILL BARRIERS
		1. Manual Spill Barrier as supplied by DENIOS.
			1. Chemical-resistant gaskets maintain a tight seal in both hot and cold conditions.
			2. Rigid steel and aluminum design withstands extreme temperatures during a fire.
			3. Unique clamping mechanism secures the barrier in place between piers. Barriers clamp securely into preset piers mounted on either side of the opening.
			4. Eliminates need for ramps/berms at doorways or other openings.
			5. Deploys in seconds.
			6. Surface: Painted. Color: Red.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model: R12-0312-W. External Sealed Width: 36 inches (914 mm).
				1. Barrier Height: 12 inches (305 mm). Door Width: 36 inches (914 mm).
			2. Model: R12-0412-W. External Sealed Width: 48 inches (1219 mm).
				1. Barrier Height: 12 inches (305 mm). Door Width: 48 inches (1219 mm).
			3. Model: R12-0612-W. External Sealed Width: 72 inches (1929 mm).
				1. Barrier Height: 12 inches (305 mm). Door Width: 72 inches (1929 mm).
			4. Model: R12-0812-W. External Sealed Width: 96 inches (2438 mm).
				1. Barrier Height: 12 inches (305 mm). Door Width: 96 inches (2438 mm).
			5. Model: R12-1012-W. External Sealed Width: 120 inches (3048 mm).
				1. Barrier Height: 12 inches (305 mm). Door Width: 120 inches (3048 mm).

\*\* NOTE TO SPECIFIER \*\* DENIOS US FM Approved Passive Flood Barrier System (FM Approvals Class 2510, 2012) This barrier keeps floodwaters out of your facilities by providing a flood "wall" at your doorways. Provides all the durable construction and operational characteristics of our doorway spill barrier but is designed specifically for floodwaters. Delete article if not required.

* 1. PASSIVE FLOOD BARRIERS
		1. Passive Automatic Food Barrier as manufactured by Denios.
			1. Approval: FM Class 2510.
			2. Construction: One piece solid welded stainless steel construction.
			3. Fully automatic operation, no external power source or factory compressed air required
			4. Installs in existing doorways; stores horizontally in the floor, permitting unobstructed vehicular and personnel traffic until a spill occurs.
			5. Laying flat, barrier provides up to 6.5 tons axle weight capacity
			6. Barrier heights of 12, 18, and 24 inches (305. 457, and 610 mm). Door Widths from 3 to 12 ft (914 to 3658 mm).
			7. Flexible design allows installation either inside or outside exterior doors.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Model: R11-0312-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 40 inches (1016 mm).
			2. Model: R11-0318-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 40 inches (1016 mm).
			3. Model: R11-0324-W. Opening Span: 36 inches (914 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 40 inches (1016 mm).
			4. Model: R11-0412-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 52 inches (1321 mm).
			5. Model: R11-0418-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 52 inches (1321 mm).
			6. Model: R11-0424-W. Opening Span: 48 inches (1219 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 52 inches (1321 mm).
			7. Model: R11-0612-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 76 inches (1930 mm).
			8. Model: R11-0618-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 76 inches (1930 mm).
			9. Model: R11-0624-W. Opening Span: 72 inches (1929 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 76 inches (1930 mm).
			10. Model: R11-0812-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 100 inches (2540 mm).
			11. Model: R11-0818-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 100 inches (2540mm).
			12. Model: R11-0824-W. Opening Span: 96 inches (2438 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 100 inches (2540 mm).
			13. Model: R11-1012-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 124 inches (3150 mm).
			14. Model: R11-1024-W. Opening Span: 120 inches (3048mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 124 inches (3150 mm).
			15. Model: R11-1212-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 148 inches (3759 mm).
			16. Model: R11-1218-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 148 inches (3759 mm).
			17. Model: R11-1224-W. Opening Span: 144 inches (3658 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 148 inches (3759 mm).
			18. Model: R11-1418-W. Opening Span: 168 inches (4267 mm).
				1. Barrier Height: 18 inches (457 mm). Sealed Width: 172 inches (4369mm).
			19. Model: R11-1424-W. Opening Span: 168 inches (4267 mm).
				1. Barrier Height: 24 inches (610 mm). Sealed Width: 172 inches (4369 mm).
			20. Model: R11-1612-W. Opening Span: 192 inches (4877 mm).
				1. Barrier Height: 12 inches (305 mm). Sealed Width: 196 inches (4978 mm).
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturers recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION