SECTION 01 56 00

TEMPORARY BARRIERS AND ENCLOSURES

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\*\* NOTE TO SPECIFIER \*\* TuffWrap; Temporary Containment Systems.
This section is based on the products of TuffWrap, which is located at:2080 Detwiler Rd., Suite 2Harleysville, PA 19438Toll Free Tel: 800-995-4556Tel: 215-256-6953Fax: 215-256-6311Email: [request info (terry@tuffwrap.net)](https://arcat.com/rfi?action=email&company=TuffWrap&message=RE%253A%2520Spec%2520Question%2520(01562twp)%253A%2520&coid=44876&spec=01562twp&rep=&fax=215-256-6311)
Web: <https://www.tuffwrap.com>
 [ [Click Here](https://arcat.com/company/tuffwrap-44876) ] for additional information.
Since 1999, TuffWrap Installations has been transforming the dust and debris containment industry with its market-leading interior protection solutions. The purpose of TuffWrap products and services has been to protect a companytheir employees and their inventoryfrom contamination, dust, and debris. Since that time, TuffWrap has continued to lead the industry by inventing new products and services that not only contain debris but also solve other issues like foul weather and facility shutdowns. TuffWrap services have expanded to include suspended cover, interior walls, and exterior walls. With our engineered products like SmartSeam suspended cover, we minimize liability exposure. Through code compliance and FM certification, a facility manager can be confident that employees and products are safe, and operations are at maximum productivity.
TuffWrap focuses on the customer and meeting their needs. TuffWrap enables customers to avoid a complete shutdown of operation during construction. As companies run multiple shifts and even 24/7 production lines, the ability to minimize downtime is vitally important. The TuffWrap Project Team customizes its approach and creates solutions to address the specific requirements of each assignment. Experienced and knowledgeable about our industry and products, they solve issues that arise during construction projects. Safety, reliability, and best practices make the difference when it comes to protecting our clients' people, products, and property.
TuffWrap products enable a company's operations to stay functional during ongoing construction or renovation work. All TuffWrap materials are anti-static, antimicrobial, and fire-resistant. This makes TuffWrap products suitable for highly sensitive areas like data centers where anti-static properties are vitally important. While appropriate for many environments, the products' antimicrobial properties are important in the food and beverage and pharmaceutical industries. In addition, TuffWrap's patented Smart Seam suspended cover is 100% code compliant for installation below fire sprinklers. In case of a fire, SmartSeam keeps fire sprinklers operational. Engineered to be flexible and durable, TuffWrap products can be customized to handle any application. TuffWrap protects people, products, and property while safely keeping facilities operational.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Temporary Ceiling Construction Barriers: Used for interior protection.
			1. Suspended polyethylene sheeting protection barriers with factory sewn seams. Panelized sections are seamed with heat reactive thread to create a single monolithic sheet. Sheeting has antistatic capabilities and is infused with antimicrobial protection.
	1. RELATED SECTIONS

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

* + 1. Section 21 13 00 - Fire-Suppression Sprinkler Systems.
		2. Division 07 - Thermal and Moisture Protection - Roofing.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Refer to the following organizational publications for design and test standards referenced within specification. Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Society of Civil Engineers (ASCE):
			1. ASCE 7 - ???
		2. ASTM International (ASTM):
			1. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
			2. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
		3. International Association of Plumbing and Mechanical Officials (IAPMO):
			1. IAPMO UES EC043 - Evaluation Criteria for Temporary Ceiling Construction Barriers.
		4. International Code Council (ICC):
			1. International Residential Code (IRC)
			2. International Building Code (IBC)
			3. International Fire Code (IFC)
		5. International Organization for Standardization:
			1. ISO/IEC 17011:2017 - Conformity Assessment, General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies.
			2. ISO/IEC 17020:2012 - Conformity Assessment, Requirements for the Operation of Various Types of Bodies Performing Inspection.
			3. ISO/IEC 17025:2017 - General requirements for the Competence of Testing and Calibration Laboratories, International Organization for Standardization.
			4. ISO/IEC 17065:2012 - Confom1ity assessment - Requirements for Bodies Certifying Products, Processes and Services, International Organization for Standardization.
		6. FM Global (FM):
			1. FM 4651 - Approval Standard of Plastic Suspended Ceiling Panels.
			2. FM 4652 Approval Standard of Debris Barriers
		7. IAPMO UES Evaluation Report
			1. IAPMO ER-706- TuffWrap Installations- SmartSeam
		8. National Fire Protection Agency (NFPA):
			1. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
		9. Underwriters Laboratory (UL):
			1. UL 723 - Test for Surface Burning Characteristics of Building Materials - with Revisions through August 2013
			2. UL 723S - Outline of Investigation for Drop-out Ceilings Installed Below Automatic Sprinklers
	1. DEFINITIONS
		1. Definitions: For terms not defined in this section, applicable codes, or referenced standards shall have the ordinary accepted definition for the context for which they are intended.
		2. Barrier Type: Each Barrier material has a single formulation or chemical make-up and composition with identical raw material quantities including reinforcement.
		3. Barrier System: System that includes identical barrier seams, barrier seam material, membrane supporting methods, and installation.
		4. Temporary Ceiling Construction Barriers: A sheet type membrane used to mitigate dust and debris, when used to physically separate an area below the barrier from a work-zone located above the barrier.
		5. Evaluation Service Agency: Organization evaluating building products or finished construction for conformance to applicable codes and standards and publishing report or listing documents summarizing conclusions.
			1. Accredited for the applicable product scope in accordance with ISO/IEC Standard 17065.
			2. Accreditation must be issued by an accreditation body conforming to ISO/IEC 17011 and that is a signatory of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) or another approved agency.
	2. 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.
		3. System Description: A complete written description of the temporary ceiling construction barrier system. The description shall contain the methods of support and attachment.
		4. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction. System installation details when requested.
	3. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of ten years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience with projects of similar scope and complexity.
			1. Certified by the Manufacturer to be an installer of the products specified in this specification.
		3. Testing Agency Qualifications: Independent testing agency with proper accreditation and capable of conducting the testing indicated, as documented according to ISO 17025 Accreditation or equal.
		4. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. The intent of the mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. 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.
	2. 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.
	3. 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.
	4. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: TuffWrap, which is located at:2080 Detwiler Rd., Suite 2Harleysville, PA 19438Toll Free Tel: 800-995-4556Tel: 215-256-6953Fax: 215-256-6311Email: [request info (terry@tuffwrap.net)](https://arcat.com/rfi?action=email&company=TuffWrap&message=RE%253A%2520Spec%2520Question%2520(01562twp)%253A%2520&coid=44876&spec=01562twp&rep=&fax=215-256-6311);Web: <https://www.tuffwrap.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 the provisions of Section 01 60 00 - Product Requirements.
	1. TEMPORARY CEILING CONSTRUCTION BARRIERS
		1. Scope: Horizontally suspended membranes used as temporary ceiling construction barriers in the interior of a structure, from the supporting structure. The membrane is supported in sheets, with seams between membrane sheets, designed and manufactured to release in the event of a fire or sprinkler operation. Individual sheets are suspended from the supporting structure so that in the event of seam release (fire or sprinkler operation) the sheets do not interfere with egress and sprinkler performance.
		2. Performance and Design Requirements: Temporary ceiling construction barrier systems.
			1. Manufactured with factory sewn; heat activated seams and independent third-party quality assurance auditing.
			2. Length of Use: For temporary purposes only. To be used in structures for less than 180 days as defined by Section 3103.1 of the lBC unless otherwise approved by the building official.
			3. Standards Compliance:
				1. IBC EC 043-2020.
				2. IRC.
				3. IFC.
				4. NFPA 13.
				5. ASTM E84 Class A.
				6. FM-4652. Approval Identification: PR461123.
				7. UL 723S.
				8. IAPMO UES EC043 when installed below sprinkler systems.
			4. Strength Performance: When installed properly and tested for uniform pressure.
				1. Maximum Uniform Load Resistance: 23 psf (1.101 kPa)
				2. Minimum Design Pressure: 5 psf (0.239 kPa) in accordance with ASCE 7 Table 4.3.1 for membrane structures when tested in accordance with ASTM E330.
				3. Transverse Load: Tested in accordance with ASTM E330 Procedure A.
				4. Not intended for structural use.
			5. Surface Burning and Smoke Development:
				1. When Tested in Accordance with ASMT E84 or UL 723:

Barrier Classification: Class A interior finish.

Flame Spread Index: 25 or less

Smoke Developed Index: 450 or less

* + - 1. Flame Propagation of Textiles and Films: Meets criteria in NFPA 701, Test Method I as required in Section 3104 of the IFC and Section 3102 of the IBC.
			2. Melt-Out or Drop-Out Under Automatic Sprinklers: When tested in accordance with FM 4651 for before and after sprinkler operation.
				1. The installation location shall be noted as tested.
			3. Drop-out Ceiling Assemblies: Meets the requirements of UL 723S for use beneath sprinklers
				1. The installation location shall be noted as tested.
			4. Stability of Interior Finish Material: Meets requirements of Section 803.14 of the lBC.
			5. Egress: Drop-out or melt-out seam placement shall not be placed so as to impair the means of egress as required in Chapter 10 of the IBC or Section R311 of the IRC.
			6. Examination Standard for Debris Barriers- July 2022 FM approval - Dust Barrier Fire Exposure Test.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. PRODUCTS
		1. Basis of Design: SmartSeam as Manufactured by TuffWrap. Horizontally suspended membrane functioning as a temporary ceiling construction barrier in the interior of a structure, mounted to the supporting structure.
			1. Features:
				1. Code compliant and FM approved.
				2. Flame Resistant.
				3. Heat reactive seams.
				4. Protective dust cap; and additional flap of membrane.
				5. Antistatic.
				6. Antimicrobial.
				7. Strong 4-ply material.
				8. Scrim Design.
			2. Membrane: Supported in sheets, with heat-reactive seams between membranes.
				1. Functions as a suspended cover to capture falling dust and debris during overhead construction.
				2. Not intended for structural use.
			3. Seams: Made to release in the event of a fire or sprinkler operation.
			4. In the Event of a Seam Release, Fire or Sprinkler Operation: The opening sheets permit the sprinklers which are located above the cover to function uninterrupted. The sheets do not interfere with egresses and openings.
			5. For Temporary Permitting Purposes Only: For interior use in structures for a period of less than 180 days as defined by Section 3103.1 of the IBC.
		2. Material: Extruded polypropylene/polyethylene-scrim film.
			1. The finished sheets are composed of smaller individual sheets. Factory sewn together with a proprietary joining seam.
				1. Finished Dimensions: Each 5 x 6 ft (1524 x 1829 mm).
			2. The final finished sheet is sized based on project requirements.
		3. Accessories:
			1. Polyethylene Tape: Compatible with polyethylene sheeting and other substrates. Used for joints and locations of perforations. To be specified by the manufacturer.
			2. Other Accessories: As specified by manufacturer as needed.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until the 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.
			1. TuffWrap Installations, Inc. will furnish and install all materials specified in this section.
				1. Installation by others is not permitted.
			2. Wall Connections:
				1. Critical Areas: Attach sheeting to wall with combination of brackets and sealers.
				2. Non-Critical Areas: Minimum load rating for each tie off anchor 50 lbs.
			3. Mid Span Supports for Barrier System:
				1. Install suspended mid span supports 14 ft, maximum.
				2. Utilize appropriate existing structure, equipment or conduit to adequately support ta minimum of 30 lbs point load.
			4. Seams: Overlap Sheet to Sheet: 2 inches (51 mm) to create one continuous unit.
			5. Closing Penetrations: By seaming the sheet material as close as possible to the penetration and secure with 5 inch wide tape.
			6. Mid-Span Termination: Where interior protection is ended mid span in a building.
				1. Extend protection 5 ft beyond work area, unless directed otherwise.
		2. Installation Methods: Discuss the barrier system site line with the owner.
			1. Height Requirements: Must meet the owner's needs and code requirements.
			2. Membrane Penetrations: Ensure system will be installed with the least number of penetrations possible.
			3. Fastening and Support System: Prevent system displacement and/or collapse as it contains light dust and debris.
			4. Dust and Debris: To be controlled during installation barrier fastening and support systems when required.
			5. Remove all tape, support systems, plastic covering and debris with minimal disruption to existing equipment and personnel.
		3. Barrier System Removal:
			1. TuffWrap Installations, Inc. will implement any measures required to protect the building and its contents from debris contamination during system removal
				1. TuffWrap will conduct system removal and prevent interruption of owner's operations wherever possible.
				2. Plastic Sheeting, 4 mils Thick: Drape as necessary prior to removal, of product and equipment to provide additional protection.

Promptly remove plastic sheeting after removal of system.

* + - 1. High Structural Cleaning: To be completed and include the removal of dust and debris from surfaces above the barrier including roof structure, decking, piping equipment, ductwork, conduits, and other similar items.
				1. Debris is to be contained within the system for removal.
	1. 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