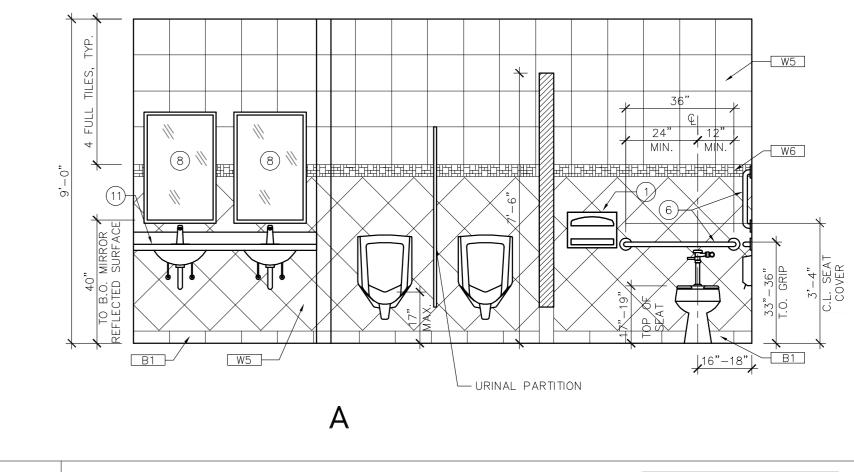
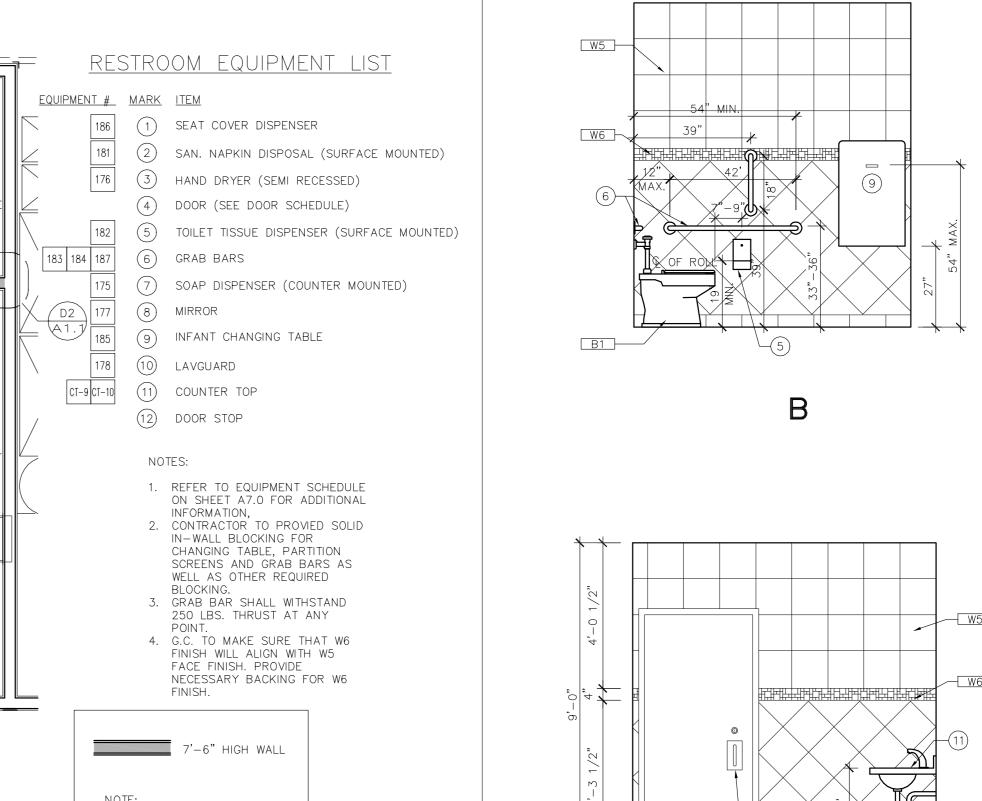
## Firestone Building Products Company F. Termination Bar: a. Description: 1.3" x 0.10" thick aluminum bar with integral caulk ledge. FIRESTONE ROOFING SYSTEMS G.Membrane Fasteners SECTION 07540 1. Description: Heavy duty threaded fastener with 3-coat waterborne fluorocarbon polymer coating and drill point tip capable of penetrating 20 gauge steel. Fastener shall meet minimum thread size of .260" and 13 threads per inch. Length shall be MECHANICALLY ATTACHED THERMOPLASTIC OLEFIN (TPO) ROOFING SYSTEM sufficient to penetrate deck a minimum of 3/4" for steel and 1" for wood and concrete. Structural concrete decks must be pre-drilled with a 7/32" carbide drill bit to a depth 1/2" deeper than the fastener engagement. PART 1 GENERA Reference Standard: SAE 1022. Heat Treated 1.01 GENERAL NOTES Product: A.Preceding job start up, contractor shall decide to his satisfaction that all specifications contained herein are workable. a. Heavy Duty (HD) fasteners. B. Contractor will perform all work by competent, trained, and properly equipped personnel in strict accordance with good H.TPO Cut Edge Sealant roofing practices and applicable industry standards. a. Polymeric sealant for use where exposed reinforcement is encountered. C. Contractor will observe all published safety prevention policies and practices relating to application of roofing system and I. TPO General Purpose Sealant related work. All federal, state, and local codes shall be followed. a. Polymeric one part general purpose sealant. D. Contractor will follow application, safety, etc. information as published in the most current edition of the Manufacturers TPO J. TPO Coated Metal Roofing System Technical Specification. a. Galvanized Steel with Manufacturers bonded TPO Coating. 1.02 WORK INCLUDED A. Work under this section covers the installation of a new MECHANICALLY ATTACHED FIRESTONE TPO roofing system. In a. Unreinforced TPO membrane Pre-Molded for a variety of flashing details (i.e.; Pipe Boots, Inside-Outside corners, etc.) addition contractor shall include all related items of work as noted herein or indicated on the drawings or otherwise required 2.06 METAL FLASHING to complete the specified elements of work and provide the necessary warranties for this work. A.Edge Metal and/or Coping B. Contractor will dispose of all materials properly. Any material removal shall comply with state and local codes and 1. Description: Provide prefabricated 24 gauge Steel with Kynar finish in manufacturers standard colors to be requirements and shall be disposed of in a legal manner. selected by specifier or 24 gauge galvanized as required and/or specified. C.If replacing an existing roof system, contractor shall remove the existing roof down to the roof deck. Contractor will dispose 2. Product/Producer: Firestone UnaClad Metal of all materials properly. Any asbestos removal shall comply with state and local codes and requirements and shall be 2.07 MISCELLANEOUS disposed of in a legal manner. A Roof Walkway Pads: 1.03 SECTION INCLUDES 1. Description: Non-reinforced TPO Walkway, .130" x 30" x 50' with Patterned traffic bearing surface. A. Substrate preparation NOTE: Walkway to be cut to fit around all mechanical units and at the point where access ladder terminates at roof B. Membrane installation edge. Walkway shall only be installed in these specific areas. C.Membrane flashing installation B, TPO molded inside corners 1.04 RELATED SECTIONS C.TPO Molded outside corners A. Section 07220 - Roof Insulation D. TPO Molded pipe boots B. Section 07600 - Sheet Metal, Flashing and Trim E. TPO T-Joint Covers C. Section 07700 - Roofing Specialties and Accessories D. Section 07800 - Skylights (If applicable) PART 3 INSTALLATION 3.01 EXAMINATION E. Section 07900 - Joint Sealers 1.05 DEFINITIONS A. Examine roof deck to determine that it is sufficiently rigid to support roofers and their mechanical equipment and that A. American Society for Testing and Materials (ASTM) deflection will no strain or rupture roof components or deform deck. B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with 1.06 SYSTEM DESCRIPTION A.Reinforced TERMOPLASTIC OLEFIN sheet roofing, laid loosely over acceptable substrate and held in place with roofing work. C.Examine roof substrate to verify that it is properly sloped to drains. mechanically anchored Barbed Seam Plates 1 07 SUBMITTALS D. Start work with sealants and adhesives at 60 ° - 80° F. E. Fumes from adhesive solvents may be drawn into the building during installation through rooftop intakes. Appropriate A.Product Data: Firestone TPO Technical Information Sheet including all accessory components. B. Samples: Firestone UltraPly TPO 80mil measures must be taken to assure that fumes from adhesive solvents are not drawn into the building through air intakes. C. Application Information: Firestone Mechanically Attached Application Guidelines F. For reroofing applications only: remove existing roof system components as specified. G. The surface must be clean, dry, smooth, free of sharp edges, fins, loose or foreign materials, oil, grease and other materials 1.08 QUALIFICATIONS A Manufacturer: that may damage the membrane, All roughened surfaces, which could cause damage, shall be properly repaired before 1. Company providing a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars. H. All surface voids of the immediate substrate greater than 1/4" wide must be properly filled with an acceptable insulation or 2. System supplier must have ISO 9002 certification. suitable fill material. 3. Manufacturing plant within 500 mile radius of project (LEED compliant). 3.02 PROTECTION OF OTHER WORK B. Applicator: A.Protect metal, glass, plastic, and painted surfaces from adhesives and sealants. Shall be a Manufacturers No Dollar Limit (NDL) Licensed Contractor. B. Protect neighboring work, property, cars, and persons from spills and overspray from adhesives, sealants and coatings and Shall have a fully staffed office within 100 miles of the job site. from damage related to roofing work. Shall have at least five years experience in installing heat welded system. C.Protect finished areas of the roofing system from roofing related work traffic and traffic by other trade. 1.09 REGULATORY REQUIREMENTS 3.03 MATERIAL STORAGE AND HANDLING A.Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition. A. Conform to applicable local building code requirements. B. Underwriters Laboratories, Inc. (UL): Class A Fire Hazard Classification. B. Consult container labels and material Safety Data Sheets (MSDS) for specific safety instructions. C.Factory Mutual Corporation (FM): Roof Assembly Classification, FM Construction Bulletin 1-28, meeting listed in minimum C.Deliver materials to job site in their original containers as labeled by the manufacturer. 3.04 MEMBRANE PLACEMENT AND ATTACHMENT 1.10 QUALITY INSPECTION/OBSERVATION A.Starting at the low point of the roof, place the membrane panels without stretching over the acceptable substrate. Position A.Inspection by Manufacturer: Provide a final inspection of the roofing system by a Technical Representative employed by subsequent membrane sheets in the same manner, overlapping the ends of adjoining sheets a minimum of 3" and side laps roofing system manufacturer a minimum of 6". Install panels to insure that laps shed water. 1. Technical representative shall not perform any sales functions. a. Where TPO Membrane has been cut to expose reinforcing membrane, TPO Cut Edge Sealant or TPO General Purpose Sealant must be used to encapsulate exposed edge. 2. Contractor shall complete any necessary repairs required for issuance of warranty I 11 PRE-INSTALLATION CONFERENCE C.Install each fastener so that it is properly engaged in the deck and not overdriven. A.Before start of roofing work, attend a conference to discuss the proper installation of materials. Attendees shall include all 3.05 MEMBRANE ATTACHMENT AT PERIMETER parties directly affecting work of this Section. Mechanically Attached Perimeter: I.12 DELIVERY, STORAGE AND HANDLING A.Deliver products in manufacturer's original containers dry, undamaged, seals and labels intact and legible. A.Layout perimeter attachment in the pattern designated by the project designer, and to comply with Manufacturers minimum B. Store all materials clear of ground and moisture with weather protective covering. requirements. B. Install the seam plates using Manufacturers Heavy Duty fasteners. C.Keep all combustible materials away from ALL ignition sources. 13 ENVIRONMENTAL REQUIREMENTS 3.06 MEMBRANE LAP SPLICING A.Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice. A.Lap splice areas that have been contaminated must be wiped down with a dry or damp (water only) clean cloth prior to heat B.Do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application. welding and allow to completely dry. B. All field and flashing splices on the horizontal surface shall be completed using an automatic heat welder that has been Consult Manufacturers Technical Specifications on cold weather application. designed for hot air welding of thermoplastic Olefin membranes. 1.14 WARRANTY A.Type/Term: C. Hand held welders are only to be used on vertical welds or where an automatic welder is not practical or cannot be used. 1. Provide 20-year Firestone Red Shield Warranty. Warranty shall include membrane, roof (and membrane D.Seams made with the automatic welder shall be a minimum of 1-1/2" wide. Seams made with hand welders shall be a accessories or membrane accessories, and metal edging and coping. minimum of 2" wide. Use 2" side silicone or silicone coated steel hand rollers to assure proper mating of surfaces a s hand B.Coverage heat welding proceeds. 1. Roofing System Warranty: E. Probe all completed welds using a slotted screwdriver or cotter pin puller type tool to verify seam integrity. Do not probe welds until they have had time to cool to ambient conditions. Any welds found to be insufficiently welded need to be repaired a. Limit of liability: No Dollar Limitation b. Scope of coverage on a daily basis. Repair any leak in the TPO Roofing System caused by the ordinary wear and tear of the elements, 3.07 MEMBRANE SECUREMENT manufacturing defect in materials, and the workmanship used to install these materials. A. Secure membrane at all locations where the membrane terminates or goes through an angle change greater than 1" in 12" 2. Insulation Warranty: except for round pipe penetrations less than 18" in diameter and square penetrations less than 4" square. a. Limit of liability: No Dollar Limitation 1. Mechanically fasten Seam Plates with Fasteners in accordance with Manufacturers Details. 2.02 MANUFACTURERS - MEMBRANE MATERIALS 2. Install TPO membrane as flashing. A.Firestone mechanically attached single-ply membrane system: Reinforced ULTRAPLY TPO sheet roofing, roll width 3.08 FLASHING - PENETRATIONS determined by roofing manufacturer and roofing contractor, securely attached to the roof deck with prefabricated Barbed Seam plates and heavy duty mechanical fasteners. 1. If project is retrofit or Tear-Off remove all existing flashings (i.e., lead, asphalt, mastic, etc.) 2. Flash all penetrations passing through the membrane. A.Description: Reinforced, ULTRAPLY TPO synthetic single-ply membrane composed of Thermoplastic Polyolefin 3. The flashing seal must be made directly to the penetration. 1. Flash with Pre-Molded TPO Pipe Flashings where practical 1. Membrane Type: .080 Reinforced TPO 2. Flash using TPO unsupported Flashing membrane when Pre-Molded Flashing is not practical. C.Structural Steel Tubing 1. Use a field fabricated pipe-flashing detail provided that the minimum corner radius is greater than 1/4" and the longest side of the tube does not exceed 12". When the tube exceeds 12: use a standard curb detail. D.Roof Drains 1. If project is Retrofit or Tear-Off remove all existing flashings, drain leads, roofing materials and cement from the existing drain in preparation for membrane Water Block Seal. 2. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl. 3. Taper insulation around the drain to provide a smooth transition from the roof surface to the drain. Use pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope. Slope shall not exceed Manufacturers recommendations. 4. Position the TPO membrane, then cut a hole for the food drain to allow 1/2" - 3/4" of membrane extending inside the clamping ring past the drain bolts. 5. Make round holes in the TPO membrane to align with clamping bolts. Do not cut the membrane back to the bolt holes. 6. Place Water Block Seal on top of drain bowl where the clamping ring seats below membrane. 7. Install the roof drain clamping ring and clamping bolts. Tighten the clamping bolts to achieve constant compression. E. Pipe Clusters and Unusual Shaped Penetrations 1. Fabricate penetration pockets to allow a minimum clearance of 1" between the penetration and all sides. Secure penetration pockets per Manufacturers Details. 3. Fill penetration pockets with Pourable Sealer, so as to shed water. F. Hot Pipes 1. Protect the TPO components from direct contact with steam or heat sources when the in-service temperature is in excess of 140°F. In all such cases flash to an intermediate insulated "cool" sleeve per Firestone details. G.Flexible Penetrations 1. Provide a weathertight gooseneck set in Water Block Seal and secured to the deck. Flash in accordance with Manufacturers Details. H.Scuppers 1. Remove existing scupper and provide a new welded watertight scupper or clean the existing scupper for reuse. 2. Set welded watertight scupper in Water Block Seal and secure to the structure. 3. Flash in accordance with Manufacturers Details. Elongation at break, min, % Expansion Joints PRFSE, min, % 1. Install as shown on roof drawings in accordance with Manufacturers details. 3.09 FLASHING - WALLS, PARAPETS, MECHANICAL EQUIPMENT CURBS, SKYLIGHTS, etc. Using the longest pieces practical, flash all walls, parapets, curbs, etc., a minimum of 8" high per Manufacturers Details. B. Reference Standards B. Evaluate Substrate: Evaluate the substrate and overlay per Manufacturers specifications as necessary. D 412 Test Methods for Vulcanized Rubber and Thermo-plastic Rubbers and Thermoplastic Elastomers—Tension C.If project is Retrofit or Tear-Off remove all flashings. D 471 Test Method for Rubber Property-Effect of Liquids D.Remove excessive asphalt to provide a smooth, sound surface for new flashings. E. Apply TPO Bonding Adhesive at about the same time to both the membrane flashing and the surface to which it is being D 573 Test Method for rubber--Deterioration in an Air Oven D 624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers bonded so as to allow approximately the same drying time. Apply Bonding Adhesive by rolling the adhesive on to the mating D 751 Test Methods for Coated Fabrics surfaces evenly, avoiding globs or puddles. F. Allow TPO Bonding Adhesive to flash off until tacky. Touch the Bonding Adhesive surface with a clean, dry finger to be D 1149 Test Method for Rubber Deterioration--Surface Ozone Cracking in a Chamber certain that the adhesive does not stick or string. As you are touching the adhesive, pushing straight down to check for D 1204 Test Method for linear Dimensional Changes of Non-rigid thermoplastic Sheeting or Film at Elevated Temperature D 1822 Test Method for Tensile-Impact Energy To Break Plastics and Electrical Insulating Materials stringing, also push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If D 2137 Test Methods for Rubber Property--Brittleness Point of Flexible polymers and Coated Fabrics either motion exposes wet or stringy adhesive when the finger is lifted, then it is not ready for mating. Flash off time will vary D 5538 Practice for Thermoplastic Elastomers Terminology and Abbreviations depending on ambient air conditions, G 155 Practice for Operating Light Exposure Apparatus (Xenon-arc Type) With and Without Water for Exposure of G.Roll the flashing into the adhesive evenly and carefully so as to minimize wrinkles. H. To ensure proper contact, compress the flashing to the substrate with a stiff push broom. non-metallic Materials G 154 Practice for Operating Light and Water-Exposure Apparatus (Fluorescent UV Condensation Type) for Exposure of I. Complete the splice between membrane flashing and the main roof sheet by hot air welding. Provide lap splices in Nonmetallic Materials accordance with Manufacturers Details. J. Provide termination directly to the vertical substrate as shown in Manufacturers Details. A. Firestone Polyisocyanurate Insulation (R=19 thickness 3.1") K. Install TPO T-Joint covers at field and flashing splice intersections as required by Manufacturer. L. Install intermediate flashing attachment as required by Manufacturers Specifications and Details. 3.10 FLASHING - GRAVEL STOPS OR ROOF EDGE METALS A.Reference Standards: A. Flash all gravel stops or roof edges using materials as outlined in Manufacturers Details. 1. FS HH-I-1972/Gen. 2. FS HH-I-1973/3. 3.11 TEMPORARY CLOSURE (NOT WARRANTED BY MANUFACTURER) A. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the 3. ASTM C 209 - Water Absorption: 4. ASTM E 96-Water Vapor Transmission of Materials. responsibility of the roofing contractor. Completion of flashings, terminations, and temporary closures shall be completed as 5. ASTM D 1621 - Compressive Strength. required to provide a watertight condition. 6. ASTM-D 1622 - Density 3.12 ROOF WALKWAYS 7\_ASTM D 2126 - Dimensional Stability A. Walkways may consist of TPO Walkway material. Heat weld the perimeters of the walkway material to the TPO membrane 8. ASTM E 84 - Flame Spread. per Manufacturers specifications. 3.13 SHEET METAL WORK A.Roof Membrane A. Field inspection and testing will be performed as required by the manufacturer 1. Description: .080mil TPO membrane B. Correct identified defects or irregularities B. TPO unsupported Flashing 3.14 FIELD QUALITY CONTROL 1. Description: Non-reinforced, TPO, ingle-ply flashing composed of Thermoplastic Polyolefin polymer, and A. Field inspection and testing will be performed as required by the manufacturer. Ethylene Propylene Rubber B. Correct identified defects or irregularities. a. Nominal Thickness: .080 mil 3.15 CLEAN-UP C. TPO Bonding Adhesive: A. Clean all contaminants from building and surrounding areas.

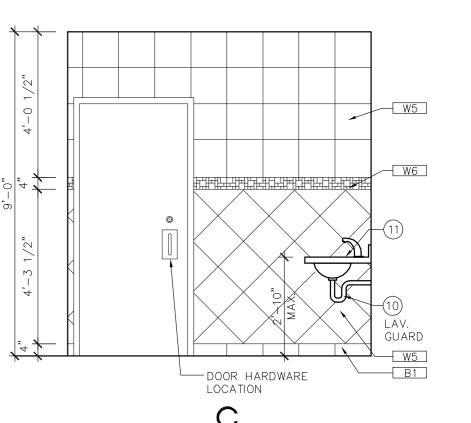
GUARD B1 — WOMEN'S RESTROOM ELEVATIONS 3/8" = 1'-0"- DOOR HARDWARE LOCATION WOMEN'S RESTROOM ELEVATIONS FOR FINISHES SEE SHT. A11.0 3/8" = 1'-0"3/8" = 1'-0"EQUIPMENT # MARK ITEM CLEARANCE CLEARANCE CLEARANCE CLEARANCE **FIXTURE** CLEARANCE CT-9 CT-10 WOMEN 104 ·60" MIN. D NOTES: CLEARANCE CLEARANCE FIXTURE CLEARANCE , (TYP)--RESTROOM SIGNAGE SEE DETAIL+A3/AS.1 (TYP.) AIR HAND DRYER TO BE 106 INSULATED TO NOT SHAKE WALLS DURING OPERATION. ENLARGED RESTROOM PLAN AND EQUIPMENT LIST 3/8" = 1'-0"

B1 FOR FINISHES SEE SHT. A11.0





MEN'S RESTROOM ELEVATIONS



C3 MEN'S RESTROOM ELEVATIONS 3/8" = 1'-0"

Irvine, CA 92612

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**ISSUE/REVISION RECORD** 

DESCRIPTION 02/28/2014 PERMIT/BID SET

**PROFESSIONAL SEAL** 

**PROFESSIONAL IN CHARGE** 

**PROJECT MANAGER** 

**QUALITY CONTROL** 

**PROJECT NAME** 

**CIRCLE K** 

STORES, INC.

**PFLUGERVILLE** 

**SEC WEST PECAN ST. &** 

CIRCLE K STORES INC.

PROJECT NUMBER

0140041.5

SHEET TITLE

**RESTROOM** 

PLANS AND

SHEET NUMBER

**ELEVATIONS AND** 

**ROOF SPECIFICATION** 

SARAH'S CREEK DR.

PFLUGERVILLE, TX

CHRIS CERBO

WARREN DRURY

DRAWN BY

**TEXAS** 

FOR FINISHES SEE SHT. A11.0

2.03 ULTRAPLY TPO SHEET ROOFING AND FLASHING MEMBRANE

**		
Testing	Minimum Values	Typical values (SI Units)
Thickness, min, mm (in.)		
Sheet-overall	1.0 (0.039)	0.080± 10%
Coating over scrim	0.381 (0.015)	0.018± 10%
Tensile strength, min, MPa (psi)	NA	
Breaking strength, min, kN (lbf)	1.0 (225)	300
Elongation, ultimate, min, %	NA	
Elongation at break, min, %	15A	25A
Tensile set, max, %	NA	
Tear strength, min, kN/m (lbf/in.)	NA	
Tearing strength, min, N (lbf)	245 (55)	245 (55)
Brittleness point, max, °C (°F)	-30 (-22)	-60 (-51)
Ozone resistance, no cracks	Pass	Pass
Properties after heat aging: (retained values	3)	
Tensile strength, % min	NA	
Breaking strength, % min	90%	90%
Elongation, ultimate, % min	NA	
Elongation at break, % min	90%A	90%
Tear strength ,% m <b>i</b> n	NA	
Tearing strength, % min	90%	90%
Weight Change (Mass), max %	±4B	±4B
Linear dimensional change, max, %	<u>+</u> 2	-1.0
Water absorption, max, mass %	±4B	+1.0B
Factory seam strength, min, kN/m (lbf/in.)	75% of Sheet strength	75% of Sheet strength
Weather resistance:		
Visual inspection	Pass	Pass
Tensile strength, % min	NA	
Breaking strength, % min	90%	90%
Elongation, Ultimate, % min	NA	
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2:04 ROOF SEPARATING COMPONENTS

2.05 TPO SHEET ROOFING SYSTEM COMPONENTS

1. Description: Formulated for compatibility with the ULTRAPLY TPO membrane and a wide variety of substrate materials, including masonry, wood, insulation facings.

a. TPO Water Based Bonding Adhesive. D.Pourable Sealer: 1. Description: 2-Part urethane, 2-color reliable mixing. E. Seam Plates:

1. Description: Steel with barbs and a Galvalume coating. Reference Standard: Corrosion-resistant to meet FM-4470 criteria.

B. Remove trash, debris, equipment from project site and surrounding areas. C.Repair or replace damaged building components or surrounding areas to the satisfaction of the building owner.

END OF SECTION