CHANGE ORDER

OWNER	**X**
ARCHITECT	**X**
CONTRACTOR	**X**

PROJECT: Hidalgo County Courthouse

Project 1830.007

CONTRACTORS CHANGE ORDER #: **030**

DATE: **July 9th, 2019**

CONTRACT DATE: **March 27th, 2018**

To County of Hidalgo, Texas:

This Change Order # 030 is entered into by and between Owner and Contractor for the purpose of commencing with the Price for additional services as listed below. All items will be fully funded based on the prices below.

The workorder is changed as follows per approved estimate for additional scope:

			Change Order #30 for TADCO Roofing for RFI #208 is for alternate TPO Option in lieu of Specified PVC. TADCO Roofing will Provide 60-mil TPO Fleece back Membrane with a 20-year warranty in Lieu of TPO SA. Add is for the CUP Building and all Roof Areas.	$143,820.00

Total Amount for Change Order $ 143,820

Not valid until signed by the Owner and Contractor.

The original (GMP Contract) was	$ 515,065
The Early Site/Foundation/Underground Utility Package (GMP AMENDMENT NO.1)	$ 8,950,855
The 50% CD 100% Structural GMP Package (GMP AMENDMENT NO.2)	$ 118,410,191
Amendment 3 GMP 3 Interest Earn	$ 4,195,867
Net change by previously authorized Change Orders.	$ 772,360
The (GMP Contract) will be Increased by this Change Order in the amount of	$ 143,820
The new (GMP Contract) including this Change Order and GMP Amendments will be	$ 132,988,158
The Contract Time for this Change Order will be increased by	0 Days
The Original date of Substantial Completion:	February 28, 2021
The Current Date of Substantial Completion	July 13, 2021

Contractor:	**Architect:**	**Owner:**
Morganti Texas, Inc.	HDR Architecture, Inc.	County of Hidalgo, Texas
10590 West Office Dr. Ste 150	8750 N. Central Expressway, Suite	2812 S. Business 281
Houston, TX 77042	Dallas, Texas 75231	Edinburg. TX 78539

07/09/2019

July 24, 2019

MORGANTI
A SOLID FOUNDATION

July 9, 2019

Jacobs

Change Order #30 for TADCO Roofing for RFI #208 is for alternate TPO Option in lieu of Specified PVC. TADCO Roofing will Provide 60-mil TPO Fleece back Membrane with a 20-year warranty in Lieu of TPO SA. Add is for the CUP Building and all Roof Areas.

Dear Mr. McIntyre,

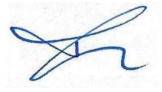
Listed below is the additional scope of work along with associated labor and materials to complete the work.

Description	**Amount**
Alternate Shop Drawings for TPO Option in lieu of Specified PVC. Alternate is for the CUP Building and all Roof Areas.	$ 135,170

	Sub-Total	$ 135,170
Clarifications:	**Bond**	$ 1,352
	Builder's Risk	$ 1,352
Ruquest for Information #208	**CCIP**	$ 1,757
	Fee	$ 4,189
	Sales Tax	
	Total	$ 143,820

Sincerely,

Paul Kummer



By signing this proposal, I agree to the change in scope and contract amount.

By: Date:

Jacobs

REQUEST FOR INFORMATION

MORGANTI TEXAS INC.
1830.007. - Hidalgo County Courthouse - Main Project

DATE: 7/02/2019
RFI#: 208

TO: MARIA SCURRY
ERO ARCHITECTS
300 S 8TH STREET
MCALLEN, TX 78501

PHONE: 956.661.0400
FAX:
EMAIL: MSCURRY@GOERO.COM
CC:

FROM: Alejandra Icazbalceta
MORGANTI TEXAS INC.
112 E CANO ST
EDINBURG, TX 78539,

PHONE: 281.448.1015
FAX: 281.448.8416
EMAIL: aicazbalceta@morganti.com

SUBJECT: Alternate Roofing Option

DRAWING #:
SPEC SECTION:

QUESTION

Please see the pages below for alternate TPO fleeceback option for consideration in lieu of specified PVC fleeceback.

Below is a breakdown of the 3 products (For Your Information):
1 - VE Option - 60-mil TPO non-fleeceback - 20 year warranty (See "1 - 60-mil TPO SA non-fleece - VE Option") - In current contract
2 - Original Specified Product - 50-mil PVC fleeceback - 15 year warranty (See "2 - 50-mil PVC fleeceback - Original Specified Item") - Cost $135,170
3 - Alternate TPO Fleeceback Product - 115-mil TPO fleeceback - 20 year warranty (See "3 - 115-mil fleeceback - TPO Option") - Cost $135,170

Tadco is recommending the alternate TPO Fleeceback for its 20 year warranty in comparison to the 15 year warranty on the specified PVC fleeceback. Please advise which option is accepted.

SUGGESTION:

RESPONSES

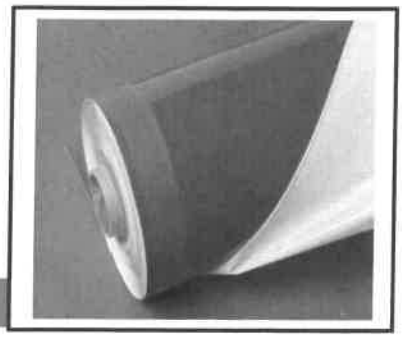
DATE	REPLY TYPE	FROM (FIRM)	FROM (CONTACT)	DATE REPLY REQUIRED

1- 60-mil TPO SA non-fleece - VE option

TECHNICAL INFORMATION SHEET

UltraPly™ TPO SA

Item Description	Item Number
.060" x 10' x 100' (1.5 mm x 3.05 m x 30.5 m) White	W56TSA3699
.060" x 10' x 100' (1.5 mm x 3.05 m x 30.5 m) Tan	W56TSAT699
.060" x 10' x 100' (1.5 mm x 3.05 m x 30.5 m) Gray	W56TSAG699



Product Information

Description:

UltraPly TPO SA with Secure Bond™ Technology is a heat weldable, flexible thermoplastic polyolefin (TPO) membrane with a factory applied pressure sensitive adhesive. Designed to be the next generation in fully adhered roof system application, Firestone's Secure Bond Technology helps ensure uniform adhesion across the entire membrane, creating a powerful bond. This advanced technology not only improves installation speed over traditional adhered application, but also widens the weather window with the ability to install down to 20 °F (-7 °C). With no VOC's, UltraPly TPO SA with Secure Bond Technology is an excellent solution for all your roofing needs. UltraPly TPO SA membrane meets or exceeds all the requirements for ASTM D6878-03. The membrane is reinforced with a 9 x 9, 1,000 denier polyester weft-inserted fabric. UltraPly TPO SA membrane is self-adhering. No primers or adhesives are required on horizontal surfaces, thus eliminating Volatile Organic Compounds (VOCs).

Membrane Preparation:

1. Substrates must be clean, dry and free of foreign material such as grease and any debris which could inhibit adhesion. This may require cleaning with a broom or blower.
2. Fasten insulation per current Firestone technical specifications to provide a proper substrate.
3. Install UltraPly TPO SA membrane only when ambient and substrate temperatures exceed 20 °F (-7 °C) and rising. Do not install UltraPly TPO SA below this minimum temperature.
4. Apply Single-Ply QuickPrime Primer or Single-Ply LVOC Primer to vertical surfaces before installing flashing membrane.
5. Unroll and position the membrane over the substrate to achieve the desired alignment and overlaps. Allow membrane to relax before positioning and adhering. **NOTE: Once membrane has fully relaxed, follow application methods below to adhere the membrane to the approved substrate.**

Method of Application:

Field Membrane Application (Steps 1-5):

1. Once the membrane has relaxed in place a minimum of 30 minutes (longer in colder weather), and the seam positions are aligned, carefully fold the sheet back approximately 10' (3.05 m) from one end to expose the release liner without disturbing the original position of the membrane. **NOTE: Fold the membrane back from the end, not from the side.**
2. Starting from the center split of the exposed release liner, remove the liner at a 45° angle from the center of the sheet back beyond the membrane edge. Be sure to pull enough of the release liner to hold below the membrane. Remove at least 5' (1.5 m) of release liner from one end of the sheet and adhere it to the substrate. The removed liner should extend at a 45° angle beyond the edges of the membrane.
3. Keeping the membrane flat and secured, and the seam overlap aligned, continue removing the release liner at a 45° angle along the entire length of the sheet; up to 100' (30.5 m). Pulling the release liner at a higher angle can cause the sheet to move and may trap air. The two halves of the release liner should be pulled out at the same time by two people. Keep the release liner as close to the roof surface as possible during removal. **NOTE: Removal of the liner and any handling of the exposed SA adhesive should be completed by two persons minimum.**

UltraPly™ TPO SA

Field Membrane Application (Steps 1-5) Continued:

4. To initiate adhesion, use a stiff bristled broom and apply downward pressure across the installed membrane. Broom the membrane from the center of the sheet working toward the edge.
5. Roll the installed membrane with a weighted roller (5 lb per lineal inch) across the width of the sheet to ensure full contact with the substrate. **NOTE: Do not roll membrane in place with a weighted roller if installed over ISOGARD™ HD or ISOGARD CG / Resista™.**

Roof Edge (Gravel Stop, Gutter Edge) Membrane Application (Steps 1-6):

1. Once the membrane has relaxed in place a minimum of 30 minutes (longer in colder weather), and it is positioned correctly along the roof edge, carefully fold the sheet back approximately 10' (3.05 m) from one end to expose the release liner without disturbing the original position of the membrane. **NOTE: Fold the membrane back from the end, not from the side.**
2. Starting with the outside (roof edge) portion of the release liner, carefully pull it beneath the membrane, toward the field of the roof at a 45° angle to expose the SA adhesive without disturbing the original position of the membrane. Next, pull the inside portion of the release liner beneath the membrane. Maintain a 12" (305 mm) wide minimum separation between the two sections of liner. Back-roll the 10' (3.05 m) exposed SA section into position onto the substrate without trapping any air beneath the sheet. **NOTE: Removal of the liner and any handling of the exposed SA adhesive should be completed by two persons minimum.**
3. Keeping the release liner as close to the roof surface as possible and maintaining a 10' (3.05 m) minimum space between the two liner halves, pull both halves of the liner at a 45° angle along the length of the roof edge. Pulling the release liner at a higher angle can cause the sheet to move and may trap air.
4. To initiate adhesion, use a stiff bristled broom and apply downward pressure across the installed membrane. Broom the membrane from the center of the sheet working toward the edge.
5. Roll the installed membrane with a weighted roller (5 lb per lineal inch) across the width of the sheet to ensure full contact with the substrate. **NOTE: Do not roll membrane in place with a weighted roller if installed over ISOGARD HD or ISOGARD CG / Resista.**

Seaming:

1. Follow current Firestone technical specifications for heat welding TPO membrane.
2. Side Laps are to be heat-welded. Each membrane panel has a 2" (51 mm) uncoated selvedge edge. Overlap side laps and heat weld the 2" (51 mm) uncoated area to create a minimum 1½" (38 mm) robotic welded seam.
3. End Laps – Because the pressure sensitive adhesive extends the entire length of the roll, all adjoining rolls must be stripped in. Butt end laps together, or prime lap area of bottom sheet and create a 3" (76 mm) overlap, then strip in the end lap with a minimum 8" (203 mm) wide UltraPly TPO membrane cover strip, centered on the end lap and heat-welded along all edges. (Do not allow primer to contaminate the area to be heat welded.)
4. Detailing – Install approved t-joint patches and apply UltraPly TPO Cut Edge Sealant as required by UltraPly TPO general specification.

Storage:

- Warehouse membrane in a clean dry location.
- Membrane stored on jobsite must be kept dry.
- Material must be a minimum of 20 °F (-7 °C) prior to installation.
- Store away from sources of physical damage.
- Make certain the structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
- Store away from ignition sources.

Shelf Life:

18 Months when stored between 60 °F (16 °C) and 80 °F (27 °C) out of direct sunlight

TECHNICAL INFORMATION SHEET

UltraPly™ TPO SA

Precautions:

- Take care when moving, transporting and handling to avoid physical damage.
- Removal of the plastic release liner from the adhesive backing may create a static electric charge; care should be used when removing and handling the release liner.
- Refer to Safety Data Sheets (SDS) for additional safety information.

LEED® Information:

Post-Consumer Recycled Content: 0%
Post Industrial Recycled Content: 3-5%
Manufacturing Location: Tuscumbia, AL
NOTE: LEED® is a registered trademark of the U.S. Green Building Council.

FM APPROVED

CLASSIFIED c UL us

Typical Properties

Property	Test Method	Performance Minimum	Typical Performance 60-mil
Overall Thickness	D 751	0.039" (0.54 mm)	0.060" (1.52 mm) ±10%
Coating over Scrim	D 7635	0.015" (0.39 mm)	0.021" (0.54 mm)
Breaking Strength	D 751 Grab Method	220 lbf (979 N)	390 lbf (1,735 N)
Elongation at Reinforcement Break	D 751 Grab Method	15%	30%
Tearing Strength	D 751	55 lbf (245 N)	156 (694)
Brittleness Point	D 2137	-40 °F (-40 °C)	Pass
Ozone Resistance, No cracks	D 1149	Pass	Pass
Retention of Breaking Strength	D 751 Grab Method	90%	>90%
Retention of Elongation at Break	D 751 Grab Method	90%	>90%
Retention of Tearing Strength	D 751 Grab Method	60%	>60%
Weight of Change	D 1204, 6h at 158 °F (70 °C)	±1% max	<0.02%
Linear Dimension Change	D 1204	<1%	<1%
Water Absorption	D 471	±3% max	<1.2%
Weather Resistance, 80 °C Black Panel, no cracking, crazing when wrapped around a 3" mandrel and inspected at 7x magnification	G 155	> 60,000 kJ/m²	> 60,000 kJ/m²
Puncture Resistance	FTM 101C, Method 2031	lbf (N)	300 lbf (1,334 N)
Dynamic Puncture Resistance MD	D 5635	Pass (20 J)	Pass (40 J)
Dynamic Puncture Resistance CD	D 5635	Pass (35 J)	Pass (50 J)
Static Puncture Resistance	D 5602	Pass (25 kg)	Pass (25 kg)
Air Permeance (Material)	E 2178*	< 0.004 ft³/ft² (0.02 L/(s·m²))	Pass

**1. The ASTM 2178 values listed above are for the air permeance of the UltraPly TPO Membrane component only.*
2. When system design includes an air barrier, please consult your Firestone Technical Services Advisor for additional roof system securement enhancements.
3. Consult the Designer / Architect, Code Agency or Authority having Jurisdiction (AHJ) for requirements regarding the selection and use of an appropriate air barrier material, and its installation into the building envelope.

TECHNICAL INFORMATION SHEET

UltraPly™ TPO SA

Typical Properties- Pressure Sensitive Adhesive

Property	Test Method	Units	Performance Minimum	Typical Values
Color	---	---	---	clear
Nominal Thickness	ASTM E 408-71	in (mm)	N/A	0.008 (0.18)
Weight	---	lbf (kg/m²)	---	0.04 (.020)
Permeability	ASTM E 96	Perms	N/A	0.6
Specific Gravity	ASTM D 71	---	N/A	0.93

Substrates

Acceptable Substrates	Primer Req'd	Acceptable Application Temperatures	Special Application Considerations / Notes
ISOGARD GL / ISO 95+™ GL	No	20 - 120 °F (-7 – 49 °C)	
ISOGARD HD	No	20 - 120 °F (-7 – 49 °C)	Do not roll in place with weighted roller
ISOGARD CG / Resista	No	20 - 120 °F (-7 – 49 °C)	Do not roll in place with weighted roller
Poured in Place or plank Gypsum	No	20 - 120 °F (-7 – 49 °C)	
Structural Concrete	No	20 - 120 °F (-7 – 49 °C)	Must be clean, dry and properly cured prior to application
Lightweight Concrete	No	20 - 120 °F (-7 – 49 °C)	Use on clean, dry and properly cured cellular lightweight concrete only, not acceptable with lightweight aggregate concrete
DensDeck*	No	20 - 120 °F (-7 – 49 °C)	
DensDeck Prime	No	20 - 120 °F (-7 – 49 °C)	
Securock**	No	20 - 120 °F (-7 – 49 °C)	
Plywood	No	20 - 120 °F (-7 – 49 °C)	Check local code for acceptance of direct application
OSB Board	No	20 - 120 °F (-7 – 49 °C)	Check local code for acceptance of direct application
CMU / Masonry and Vertical Substrates	No	20 - 120 °F (-7 – 49 °C)	Apply Firestone Single-Ply or Single-Ply LVOC Primer to all vertical substrates.

*DensDeck is a registered trademark of the G-P Gypsum Corporation
**Securock is a registered trademark of the USG Corporation

TECHNICAL INFORMATION SHEET

UltraPly™ TPO SA

Radiative Properties			
Cool Roof Rating Council (CRRC): Initial / 3 yr	**White**	**Tan**	**Gray**
Solar Reflectance	0.74 / 0.59	---	---
Thermal Emittance	0.84 / 0.84		
Solar Reflectance Index (SRI)	90 / 69		
Rated Product ID	0033		
Licensed Manufacturer ID	0608		
Classification	Production Line		
ENERGY STAR®: Initial / 3 yr	**White**	---	---
Solar Reflectance	0.74 / 0.59*		
Thermal Emittance	0.84 / 0.84		
* White membrane sample cleaned prior to age test.			
LEED®	**White**	---	---
Initial Solar Reflectance Index (SRI)	Pass (90)		
3 yr Aged Solar Reflectance Index (SRI)	Pass (69)		

CRRC COOL ROOF RATING COUNCIL ® CHARTER MEMBER

**ENERGY STAR is only valid in the United States*

ENERGY STAR

Firestone GREEN ONE TEAM. ONE PLANET.

Please contact Firestone Technical Services Department at 1-800-428-4511 for further information.

2 - 50-mil PVC fleeceback - Original Specified Item

EverGuard® PVC 50 mil Fleece-Back Membrane Data Sheet

Updated: 8/17

Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™

EverGuard® PVC
50 mil Fleece-Back Membrane

Applicable Standards
ASTM D4434 Type IV, UL Listed, FM Approved

Physical Properties	Test Method	ASTM Minimum	EverGuard® PVC 50 mil Fleece-back Membrane Typical Test Data
1. Certain data is provided in MD (machine direction) x CMD (cross machine direction) format. 2. Data is based upon typical product performance, and is subject to normal manufacturing tolerance and variance.			
Nominal Thickness	ASTM D751	.045" (1.14 mm)	0.05" (1.27 mm)
Thickness over Scrim	ASTM D7635	0.016" (0.40 mm)	0.02" (0.51 mm)
Breaking Strength	ASTM D751	200 lbf (298 kg/m) (MD & CMD)	>360 lbf (535.7 kg/m)
Elongation at Break	ASTM D751	15% (MD & CMD)	25%
Seam Strength	ASTM D751	75% (Percentage of tensile or breaking strength)	Pass
Tear Strength	ASTM D751	45 lbf (MD & CMD) (67 kg/m)	Pass
Low Temperature Bend	ASTM D2136	-40°C	Pass
Accelerated Weathering	ASTM G154[1]	Pass	>38,360 KJ/m^2
Dimensional Stability	ASTM D1204	≤0.50%	0.30%
Change in Weight after Water Immersion	ASTM D570	+/-3%	Pass
Static Puncture Resistance	ASTM D5602	Pass	Pass
Dynamic Puncture Resistance	ASTM D5635	Pass	Pass
Breaking Strength after Heat Aging	ASTM D3045	90%	Pass
Elongation at Break after Heat Aging	ASTM D3045	90%	Pass
Solar Reflective Index (SRI)	ASTM E903	N/A	110
Solar Reflectivity (White) Initial/Aged*	ASTM C1549	N/A	0.87/0.806
Emissivity (White) Initial/Aged*	ASTM E903	N/A	0.88/0.89

[1]At an irradiance level of 1.55 W/(m^2.nm) at 340 nm
*Using CRRC Rapid Ratings

Product Data

Roll Size	Note: Product sizes, dimensions, and widths are nominal values and are subject to normal manufacturing/packaging tolerance and variation.				
	Colors	Full Sheet	Full-Roll Weight	Half Sheet	Half-Roll Weight
	White	120" x 100' (3.05 m x 30.5 m)	382.5 lb. (191.6 kg)	60" x 100' (1.52 m x 30.5 m)	191.25 lb. (86.8 kg)
Storage	Note: Membrane rolls shipped horizontally on pallets, stacked in a pyramid.				
Safety Warning	Membrane rolls are heavy. Position and install by at least two people.				

Contact your local representative for details

RhinoBond® is a registered trademark of OMG.

GAF®
Quality You Can Trust...
From North America's
Largest Roofing Manufacturer!™

gaf.com

3 - 115-mil fleeceback - TPO Option

Firestone

Firestone Building Products

TECHNICAL INFORMATION SHEET

UltraPly™ TPO XR Membrane

Item Description	Item Number
UltraPly TPO XR 100 (45 mil)	
• White Membrane	W56TXR3099
• Tan Membrane	W56TXRT099
• Gray Membrane	W56TXRG099
UltraPly TPO XR 115 (60 mil)	
• White Membrane	W56TXR3699
• Tan Membrane	W56TXRT699
• Gray Membrane	W56TXRG699

Meets or exceeds ASTM D 6878

Product Information

Description:

Firestone UltraPly TPO XR Membrane is a flexible Thermoplastic Polyolefin (TPO) roofing membrane that is produced with polyester weft-inserted reinforcement and an 8-ounce polyester fleece backing. UltraPly TPO XR Membrane meets or exceeds all requirements for ASTM D 6878 Specification. This heat weldable UltraPly TPO membrane is available in 45 mil (1.14 mm) and 60 mil (1.52 mm) thicknesses. This membrane is ideal for a variety of new or re-roofing applications.

Method of Application:

1. Substrates must be clean, dry, smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the membrane.
2. All rough surfaces that can damage the membrane shall be repaired as specified to offer a smooth substrate.
3. All surface voids greater than ¼" (6.3 mm) wide shall be properly filled with an acceptable fill material.
4. UltraPly TPO XR membrane may be fully adhered using Firestone XR Bonding Adhesive, I.S.O.Spray™ R Insulation Adhesive or hot asphalt; or adhered in adhesive beads using XR Stick™ Adhesive. UltraPly TPO XR Membrane can also be mechanically attached.

Storage:

- Store away from sources of punctures and physical damage.
- Assure that structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
- Store away from ignition sources as membrane will burn when exposed to open flame.

Precautions:

- Review Safety Data Sheets (SDS) for safety information.
- Exercise caution when lifting, moving, transporting, storing or handling membrane rolls to avoid sources of punctures and possible physical damage.
- Contact your Firestone Technical Services Advisor at 1-800-428-4511 for specific recommendations regarding chemical or waste product compatibility with Firestone UltraPly TPO XR Membrane.

LEED® Information:

Post-Consumer Recycled Content: 0%
Post Industrial Recycled Content: 15%
Manufacturing Location: Tuscumbia, AL
*NOTE: LEED® is a registered trademark of the U.S. Green Building Council.

TECHNICAL INFORMATION SHEET

UltraPly™ TPO XR Membrane

Typical Properties (Meets or exceeds ASTM D 6878 Specification)

Property	ASTM Standard	Performance Minimum	Typical Performance XR 100: 45 mil	Typical Performance XR 115: 60 mil
Overall Thickness	D 751	0.039" (1.0 mm)	0.045" (1.14 mm) ± 10%	0.060" (1.52 mm) ± 10%
Coating Over Scrim	D 7635	0.015" (0.38 mm)	0.017" (0.43 mm)	0.021" (0.53 mm)
Breaking Strength	D 751, Grab Method	220 lbf (979 N)	340 lbf (1,512 N)	390 lbf (1,735 N)
Elongation of Reinforcement Break	D 751, Grab Method	15%	25%	25%
Tearing Strength	D 751	55 lbf (245 N)	120 lbf (534 N)	120 lbf (534 N)
Brittleness Point	D 2137	-40 °F (-40 °C)	Pass	Pass
Ozone Resistance, No Cracks	D 1149	Pass (No Cracks)	Pass	Pass
Properties After Heat Aging (Retained Values) ASTM D 573-5376 h (224 days or 32 weeks) at 240 °F (116 °C)				
Breaking Strength	D 751, Grab Method	90% Minimum	> 90%	> 90%
Elongation at Break	D 751, Grab Method	90% minimum	> 90%	> 90%
Tearing Strength	D 751	60% minimum	> 60%	> 60%
Weight of Change	---	± 1% maximum	< 1%	< 1%
Linear Dimension Change	D 1204, 6 h at 158 °F (70 °C)	± 1% maximum	< 1%	< 1%
Water Absorption	D 471	± 3% maximum	< 3%	< 3%
Weather Resistance, 176 °F (80 °C) Black Panel, no cracking, crazing when wrapped around a 3" (76.2 mm) mandrel and inspected at 7X magnification	G 155	10,800 kJ/m² Minimum	> 60,000 kJ/m²	> 60,000 kJ/m²
Puncture Resistance	FTM 101C, Method 2031	---	---	---
Dynamic Puncture Resistance MD	D 5635	---	Pass (60 J)	Pass (65 J)
Dynamic Puncture Resistance CD	D 5635	---	Pass (55 J)	Pass (65 J)
Static Puncture Resistance	D 5602	---	Pass (25 kg)	Pass (25 kg)
Air Permeance (Material)	E 2178*	<0.004 ft³/ft² (0.02 L/(s·m²))	Pass	Pass

*1. The ASTM 2178 values listed above are for the air permeance of the UltraPly TPO Membrane component only.
2. When system design includes an air barrier, please consult your Firestone Technical Services Advisor for additional roof system securement enhancements.
3. Consult the Designer / Architect, Code Agency or Authority Having Jurisdiction (AHJ) for requirements regarding the selection and use of an appropriate air barrier material, and its installation into the building envelope.

TECHNICAL INFORMATION SHEET

UltraPly™ TPO XR Membrane

Product Sizes

Membrane Thickness – TPO XR 100: 0.045" (1.14 mm) Membrane Weight: 0.27 lb/ft² (1.3 kg/m²)		Membrane Thickness – TPO XR 115: 0.060" (1.52 mm) Membrane Weight: 0.32 lb/ft² (1.6 kg/m²)	
Available Sizes	**Available Colors**	**Available Sizes**	**Available Colors**
10' x 100' (3.0 m x 30.5 m)	White, Tan, Gray	10' x 100' (3.0 m x 30.5 m)	White, Tan, Gray

Radiative Properties

Cool Roof Rating Council (CRRC): Initial / 3 yr	White	Tan	Gray
Solar Reflectance	0.79 / 0.68	0.61 / 0.55	0.34 / 0.34
Thermal Emittance	0.85 / 0.83	0.81 / 0.84	0.89 / 0.88
Solar Reflectance Index (SRI)	98 / 83	71 / 63	37 / 36
Rated Product ID	0008	0015	0032
Licensed Manufacturer ID	0608	0608	0608
Classification	Production Line	Production Line	Production Line
ENERGY STAR®: Initial / 3 yr	**White**	---	---
Solar Reflectance	0.79 / 0.68*		
Thermal Emittance	0.85 / 0.83		
* White membrane sample cleaned prior to age test.			
LEED®	**White**	**Tan**	**Gray**
Initial Solar Reflectance Index (SRI)	Pass (98)	---	---
3 yr Aged Solar Reflectance Index (SRI)	Pass (83)		

CRRC CHARTER MEMBER

ENERGY STAR

ENERGY STAR is only valid in the United States

Firestone GREEN

Please contact Firestone Technical Services Department at 1-800-428-4511 for further information.

TADCO ROOFING
Commercial Roofing Specialists
Office. 956.961.4736
Fax. 956.961.4737
902 E. Owassa Road, Edinburg, TX 78542

June 27, 2019

RE: Hidalgo County Courthouse
Edinburg, Texas

Proposal:

1. Furnish and install roof related wood blocking.
2. Furnish and install 1" insulation board over steel decking mechanically attached.
3. Furnish and install a full tapered system to allow proper water flow.
4. Furnish and install 60-mil TPO SA fully adhered over tapered insulation
5. Flash in all parapet walls up and over.
6. Flash in all roof curbs, pipes pitch pans, pipe drains etc.
7. Furnish and install 24-gauge pre manufacture metal cleat and coping.
8. Furnish and install roof hatches with guardrail.
9. Remove all roofing debris in contractors provided dumpster.
10. Use only manufacture's recommended details.
11. Provide a 20-year manufacturer's warranty.

Excludes:

1. Mechanical, electrical, structural, metal roofing, carpentry and plumbing.
2. Any item not specifically mention above.
3. All fixed ladders and all metal wall panels and canopies.
4. All standing seam metal roofs, all light weight insulated decking.
5. All roof coating over concrete.

Price complete: $1,056,480.00

Furnish and install 60-mil TPO fleece-back membrane with a 20-year warranty in lieu of TPO SA as described above.
ADD: $135,170.00 (CUP Building $8,458.00 plus $126,712.00 for all other roof areas.)

Javier Ramos
956-227-4339
HUB Certified Texas Corporation