

cityofnovi.org

CITY of NOVI CITY COUNCIL

Agenda Item 4
June 4, 2012

SUBJECT: Approval to award the Civic Center Roof Replacement Contract to CEI Michigan LLC, the low qualified bidder in the amount of \$224,650 subject to final approval of form of contract.

SUBMITTING DEPARTMENT: Facility Operations

CITY MANAGER APPROVAL: 

EXPENDITURE REQUIRED	\$224,650
AMOUNT BUDGETED	\$220,000
APPROPRIATION REQUIRED	\$ None due to cost savings from other projects.
LINE ITEM NUMBER	101-265.00-976.000

BACKGROUND INFORMATION:

The Civic Center roof is the original roof dating back to the construction of the building in 1987. The typical life of a commercial roof constructed in that time period was 15-25 years. The roof is now 25 years old and is showing its age.

The roof consistently leaks in several areas during rain events (Clerks, Parks and Recreation, theater, and IT). Facility Operations staff has been patching the roof leaks as they occur, however, these repairs are temporary fixes and new leaks are materializing. Failure to replace the roof will result in increasing damage and repair expenses as the roof continues to deteriorate.

The Invitation for Bids was posted on the Michigan Intergovernmental Trade Network (MITN) website which sent email notices to 213 firms. A mandatory pre-bid meeting/site visit was held on April 17, 2012 which was attended by eight firms.

We received 5 bids in response to the Invitation to Bid. The bids were evaluated based on contractor qualifications, experience, material, references, price, and project start/completion timeline. The bid tabulation is attached.

The new roof will be constructed with a 60-mil ThermoPlastic Olefin (TPO) membrane using the Rhinobond fastening system and includes a 25-year manufacturer guarantee for both labor and materials. The RhinoBond is an alternative insulation and membrane attachment system for TPO and Polyvinyl chloride (PVC) membranes. The system uses the same fastener and plate to secure both the insulation and the membrane to the deck without penetrating the roofing material. The result is a Factory Mutual-approved system that does not create any point of entry for moisture, requires fewer fasteners and provides superior wind uplift performance. The roofing system also promotes sustainability with its compatibility for both solar and vegetative applications that can be installed at future time. The work will minimally effect business operations as we will experience minor noise disturbance while the construction is taking place. Work will be scheduled to begin Mid-July and will be completed within 12 days, weather permitting.

RECOMMENDED ACTION: Approval to award the Civic Center Roof Replacement Contract to CEI Michigan LLC, the low qualified bidder in the amount of \$224,650 subject to final approval of form of contract.

	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Fischer				

	1	2	Y	N
Council Member Margolis				
Council Member Mutch				
Council Member Wrobel				

CITY OF NOVI
 CIVIC CENTER ROOF REPLACEMENT
 BID TABULATION

BID DUE 5/1/12

	UOM	CEI Michigan	LaDuke Roofing	Great Lakes Roofing	Single Ply International	Butcher & Butcher
A. Base Bid	LS	\$ 242,150	\$ 224,870	\$ 234,000	\$ 230,000	\$ 223,000
Alternate #1: RhinoBond Attachment	LS	\$ (17,500)	\$ 10,000	\$ 13,000	blank	will provide if low bidder
TOTAL BASE BID + ALTERNATE #1		\$ 224,650	\$ 234,870	\$ 247,000		
Field Measurement	SF	40,514	38,800	41,500	41,600	38,770
Days to complete		12 days	30 working days	20 days	12-14 working days	16 working days
Exceptions:						Bid is for Firestone 60 mil TPO
B. Optional Work						
2.0" ISO Remove/Repair	SF	2.50	2.50	2.25	1.50	1.45
5/8" Gypsum Type X Remove/Repair	SF	1.50	1.80	2.15	0.56	1.25
1/8" TPO Walkway installed (includes material)	LFT	18.00	5.00	16.00	15.00	16.00
Wood Nailer Replacement - 2" x 4"	LFT	2.25	1.80	2.50	1.25	3.50
Wood Nailer Replacement - 2" x 6"	LFT	2.50	2.20	3.00	1.50	3.75
Wood Nailer Replacement - 2" x 8"	LFT	3.00	2.60	3.50	2.00	4.00
Metal Deck Replacement	SF	5.25	6.00	6.75	4.25	4.25
Door/Hatch access Fabrication/install	LS	4,500	4,500	0	1,800	1,750
Green Roof option			\$ 15,700	\$ 21,000	\$ 6,800	\$ 7,500



CITY OF NOVI
BID FORM

CIVIC CENTER ROOF REPLACEMENT

We the undersigned as bidder, propose to furnish to the City of Novi, according to the terms, conditions, specifications, and instructions attached hereto and made a part thereof:

A. BASE BID \$ 242,150.00 Lump Sum

Field measurement 40,514 SFT

B. OPTIONAL WORK (To be determined by Owner)

Unit Cost 2.0" ISO Remove and Repair \$ 2.50 Sq. Ft.

Unit Cost 5/8" Gypsum Type X Remove and Replace \$ 1.50 Sq. Ft.

Unit Cost 1/8" TPO Walkway installed
(to include cost of material) \$ 18.00 Lineal Ft

Wood Nailer Replacement:

2"x 4" \$ 2.25 Lineal Ft

2" x 6" \$ 2.50 Lineal Ft.

2" x 8" \$ 3.00 Lineal Ft.

Metal Deck Replacement \$ 5.25 Sq. Ft.

Fabricate Door/Hatch Access through Chiller
Screen Wall at Owner's Reps determined location \$ 4,500.00 Lump Sum

C. ALTERNATE #1

RhinoBond Attachment ~~XXX~~ Deduct \$ 17,500.00

NOTE: REQUIRED WARRANTY GAF 25-YEAR NDL DIAMOND PLEDGE GUARANTEE

Days to complete 12 DAYS

We have included a letter from our bonding company indicating that we are able to obtain bonds with the language & format as specified in the bid documents.

Yes No

EXCEPTIONS TO SPECIFICATIONS (all exceptions must be indicated here):

N/A

COMMENTS:

We acknowledge receipt of the following Addenda: NONE
(please indicate numbers)

THIS BID SUBMITTED BY:

Company (Legal Registration) CEI MICHIGAN LLC

Address PO BOX 200, 2140 INDUSTRIAL ST.,

City HOWELL State MI Zip 48843

Telephone 517-548-0039 Fax 517-548-0182

Representative's Name (please print) G. ROBERT COOK

Representative's Title VICE PRESIDENT

Representative's Signature 

E-mail RCOOK@CEIGROUPLLC.COM

Date 5-1-2012



CITY OF NOVI
CONTRACTOR QUALIFICATIONS QUESTIONNAIRE
CIVIC CENTER ROOF REPLACEMENT

Failure to answer all questions could result in rejection of your bid.

Name of Firm CEI MICHIGAN LLC
 Address: PO BOX 200, 2140 INDUSTRIAL ST.,
 City, State Zip HOWELL, MI 48843
 Telephone 517-548-0039 Fax 517-548-0182
 Mobile 517-404-9774
 Agent's Name (please print) ROB COOK
 Agent's Title VICE PRESIDENT
 Email Address: RCOOK@CEIGROUPLLC.COM
 Website WWW.CEIGROUPLLC.COM

1. Organizational structure: Corporation, Partnership, etc. LLC
2. Has your firm filed for Chapter 7 or Chapter 11 within the last ten (10) years?
 No Yes Reason: _____
3. How many current full time employees? 80 Part time? _____
4. How many years' experience do you have in the roofing business? 43
5. Company is licensed by the State of Michigan to perform the work as specified. Please include a copy of your license with your bid. License # N/A
6. Your company is an authorized contractor for which manufacturer(s):

Manufacturer	Product
<u>SEE ATTACHED LIST</u>	_____
_____	_____
_____	_____
_____	_____

7. Are you able to provide insurance coverage as required by this bid? YES
8. List any professional licenses/certifications you/your employees have obtained that would be applicable to this contract. SEE ATTACHED PROJECT TEAM

9. Please provide details regarding your procedures for dealing with inclement weather (including how you would protect the building and the materials):

IF WEATHER IS FORECAST 30% CHANCE OF RAIN OR GREATER, CEI WOULD CANCEL WORK FOR THAT DAY.
ANY MATERIAL THAT DO NOT HAVE THEIR OWN WEATHERPROOF COVERS WILL BE TARP AND PROTECTED. DURING
THE ROOFING PROCESS, NO MORE ROOFING WILL BE REMOVED THAN CAN BE REPLACED THE SAME DAY.
NIGHTLY THE NEW ROOF SYSTEM WILL BE SEALED TO THE EXISTING ROOF IN ACCORDANCE TO INDUSTRY
STANDARDS.

10. References: Provide at least three (3) references that are comparable in scope to this bid that have been completed within the last 3 years.

Company CLARK CONSTRUCTION
Address LANSING, MI
Phone 517-223-1190 Contact JOE LORENZ

Company UNIVERSITY OF MI
Address ANN ARBOR, MI
Phone 734-647-1326 Contact WADE FIELDS

Company WALBRIDGE ALDINGER
Address DETROIT, MI
Phone 313-963-8000 Contact BILL LORELLI

11. Provide any additional information you would like to include which may not be included within this Questionnaire. You may attach additional sheets.

THE FOREGOING QUESTIONNAIRE IS A TRUE STATEMENT OF FACTS:

Signature of Authorized Company Representative: *Rob Cook*

Representative's Name (please print) ROB COOK

Date 5-2-2012

Installing Commercial Roofing Systems in Michigan and Around the World.

CEI and our team of roofing professionals are unique in the industry by being able to install almost every type of roofing system - with a particular emphasis on difficult and complex projects. CEI's in-house sheet metal shop is ES-1/ANSI-SPRI certified and helps expedite projects quickly. Some of the roofing systems include:

- New Roof Installations
- Re-Roofing Services
- Roofing Restorations
- Architectural Sheet Metal
- Slate & Tile Systems
- Multi-System Roofs
- Metal Siding
- Wall Panels (All Types)
- Phenolic Roof Remediation
- Coatings (Both Metal & Flat roofs)
- Waterproofing
- Green Roof Systems
- Historical Restoration
- Shingle Roofs
- Tectum Deck

Some of the manufacturers CEI is certified to install are listed below. If you do not see the roofing system that you are looking for please contact us.

- Firestone
- Johns Manville
- GAF
- Siemens Fibertite
- Rheinzinc
- Berridge
- Duro-Last
- Una-Clad/Firestone
- Soprema
- Genflex
- Peterson Metals
- Koppers
- VM Zinc
- Live Roof
- Dow Systems
- Carlisle
- Siplast
- Tremco
- Laurenco
- ER Systems
- Neo-Gard
- Englert
- Xero-Flor America

CEI MICHIGAN LLC

Experience - References:

Gilbane Clark Joint Venture
John Medina 734-769-0100
Project: Ross School of Business
Ann Arbor, MI
53,500 Sq.ft., Firestone/ Laurenco/ Fibertite
\$ 1,196,000.00
Completed: October, 2008

Clark Construction Company
Joe Lorenz 517-372-0940
Project: East Lansing High School
Lansing, MI
268,100 Sq. Ft., Firestone Building Products System
\$1,808,004.00
Completed: March, 2005

The University of Michigan
Wade Fields: 734-647-1326
Project: Martha Cook Residence
27,100 Sq. Ft. Firestone / Camara Slate / Revere Copper
\$1,492,900.00
Completed: August, 2008

The University of Michigan
Wade Fields: 734-647-1326
Various Projects

Walbridge Aldinger
Bill Lorelli: 313-963-8000
Project: North Quad University of Michigan
Ann Arbor, MI
85,500 Sq. Ft. Firestone / V.M. Zinc / Slate
\$2,421,600.00
Completed: May, 2010

CEI PROJECT TEAM

Eric Cook – President / Project Manager Estimator/ Project Manager 14 years of experience. Has project managed various roofing systems such as Slate, Tile, EPDM, BUR, PVC, Shingles etc from 1,000 sq.ft. to 150,000 sq.ft. He has managed for clients such as The University of Michigan – Various Projects, The Department of the Army – Lima Tank Plant, Ohio and the State of Michigan – Michigan Library and Historical Museum to name a few.

G. Robert Cook – Vice President of Sales and Estimating Main focus is on generating sales and managing estimating for the CEI companies, but he is also involved in project management. Rob joined CEI after earning a bachelors degree in earth science from Central Michigan University, Mt. Pleasant, Michigan in 1997. In his 14 years with CEI, Rob has also held the title of estimator, senior estimator and project manager.

George J. Cook – Senior Manager After graduating from Michigan State University with a bachelor's degree in sales and marketing in 1965 I went to work for Ed Schmitt Ford in Royal Oak, Michigan. In 1968 I started as an Expeditor at Pontiac Motor Division- General Motors Corporation. I manage approximately 300 small stamping parts until 1969 when I went to work for the Krolick Corporation a clothing wholesaler as a salesman. In 1969 my bother and I founded Cook Roofing Co. which later became Cook Enterprises, Inc. (CEI). I was Founder, Stockholder, and President of CEI for past 43 years concentrating on the overall management of the company and specializing in field operations.

John C. Cook – Senior Manager After graduating from Michigan State University in 1968 and receiving an Officers Commission in the US Army, I worked as a Credit Analyst at Detroit Bank and Trust until being stationed in Germany from 1969-1973. Upon leaving the Army, I returned to the United States and started CEI with my brother, George Cook. I have spent the last 35 years concentrating in the Sales/Estimating and General Business Administration for CEI growing helping grow the company from one location in Michigan to five offices throughout the United States. Since inception, CEI has installed in excess of 1 Billion square feet of all types of roofing. During the past five years I have managed our operations in Florida, South Carolina and International business with the US Department of State.

Daniel Outwater – Roofing Superintendent Foreman/ Journeyman/Superintendent. Has over 27 years of experience. Has been with CEI for 27 years. As foreman he ran jobs in this capacity for 15 years and has been a superintendent for 10 years. He is OSHA 30 hours Safety and Health Certified and is enrolled in the MUST safety and drug program.

Gary Delong – Field Superintendent Foreman/ Journeyman/Field Superintendent 25 years experience. Has been with CEI for 23 years. Systems: EPDM, PVC, BUR, Slate, Tile, Shingles, etc. Overseeing such projects as Lima Tank Plant, Ohio, U.S. Embassy Panama City, Panama, U.S. Prison Housing, Guantanamo Bay, Cuba. Certificates: DSS Top Secret Security Clearance, OSHA 30 hour Safety and Health Certified, NRCA Certified Torch Applicator, NRCA Authorized Certa Trainer, Heart-saver Aid Certified. He is enrolled in the MUST safety and drug program.

Eric Reid - Sheet Metal Operations Estimator/ Project Manager Field sheet metal installer 5 years, Fabrication 2 years and 3 year of Estimating and Project Management. He is enrolled in the MUST safety and drug program.

Joseph Fulton – Safety Director: Safety Director for the past 2 years. He has been with CEI for 11 years involved in all aspects of “roofing and sheet metal”. He is 30 hour OSHA certified along with; aerial lift and scissor lift instructor, CPR and AED certified, First Aid certified, 8 hour asbestos certified, DOT supervision trained, Drug Free Work Place Supervision certified. Joe is a member of the Ann Arbor Safety Council and Must programs.



ZERVOS GROUP, INC.
INSURANCE & BONDS



March 6, 2012

To Whom It May Concern:

RE: CEI Michigan, LLC
Bonding Qualifications

We have had a working relationship with CEI Michigan, LLC, for many years. We have them bonded with an "A+"-rated, Treasury-listed carrier and have written single bonds as large as \$3,000,000 with a \$7,000,000 aggregate work program. This credit line is meant to handle their routine needs and not meant to serve as a maximum limit.

All the principals of this organization are well-experienced and highly capable. It is our opinion that any project you are considering them for will be handled professionally, promptly and to your complete satisfaction.

Please do not hesitate to contact us if more information is needed.

Yours truly,

Holly Nichols
Bond Department

CEI MICHIGAN, LLC
(A Subsidiary of CEI GROUP, LLC)
2140 Industrial Street
Post Office Box 200
Howell, Michigan 48843
Telephone: 517/548-0039
Fax: 517/548-0182

FINANCIALLY RELATED REFERENCES

FEDERAL TAX IDENTIFICATION NUMBER - #20-3259536
INCORPORATED IN THE STATE OF MI 8-2005

OFFICE CONTACT

Eric C. Cook - President

G. Robert Cook - Vice President

Kristine Cook Lindsey - Vice President

John C. Cook – Senior Manager
George J. Cook – Senior Manager

INSURANCE AGENT:

Hartland Insurance Group
691 N. Squirrel Road, Ste 190
Auburn Hills, MI 48321
Contact: Dick Ferguson
248-377-9600

BONDING AGENT:

Zervos Group
24724 Farmbrook Road
Southfield, MI 48037
Contact: Gus Zervos
P:248-355-4411

BONDING COMPANY:

Westchester Fire Insurance Company
Philadelphia Pennsylvania

CONTRACTOR REFERENCES:

Clark Construction Company
Lansing, MI
Contact: Joe Lorenz
517-223-1190

University of Michigan
Ann Arbor, MI
Contact: Wade Fields
734-647-1326

Walbridge Aldinger
Detroit, MI
Contact: Bill Lorelli
313-963-8000

ARCHITECT REFERENCES:

Smith Group Inc., Detroit, MI
Contact: 313-983-3600

A3C Architect, Ann Arbor, MI
Contact: Dan Jacobs 734-663-1910

CREDIT REFERENCE:

Firestone Building Products Company
Carmel, IN
Contact: Kathryn Benedict - Fax request to: 317-575-7135

M.C. Gutherie Lumber Co
Livonia, MI
Contact: Ken Scrimger - Fax request to: 734-513-5785

ABC Supply Company
Warren, MI
Contact: Steve Yontz - Fax request to: 586-443-5033

BANK REFERENCE:

Ann Arbor State Bank
Ann Arbor, MI
Contact: Brad Johnson - 734-761-1475

D & B

CEI Michigan LLC #60-8472168
CEI Group LLC #60-2153632

SIC CODE: 1761

“Experienced in Commercial Roofing and Sheet Metal Since 1969”



CERTIFICATE OF LIABILITY INSURANCE

OP ID: HD

DATE (MM/DD/YYYY)

08/12/11

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Hartland Insurance Group 691 N. Squirrel Road, Ste 190 P. O. Box 215080 Auburn Hills, MI 48321-5080 Dick Ferguson	248-377-9600 248-377-0082	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #: CEIGR-1
INSURED CEI MICHIGAN LLC 2140 Industrial Howell, MI 48843	INSURER(S) AFFORDING COVERAGE	
	INSURER A: CNA	NAIC #
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC		U4022245725	08/15/11	08/15/12	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Eq occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS		U4022245546	08/15/11	08/15/12	COMBINED SINGLE LIMIT (Eq accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$ \$
A	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DEDUCTIBLE <input checked="" type="checkbox"/> RETENTION \$ 10,000		U4022245594	08/15/11	08/15/12	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000 \$ \$
A	<input type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY <input type="checkbox"/> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/> N/A	WC422245465	08/15/11	08/15/12	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Installation Float		U4022245725	08/15/11	08/15/12	Limit 1,500,000 Deductibl 2,500

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Project:

CERTIFICATE HOLDER

HOWELLC

Coverage Sample

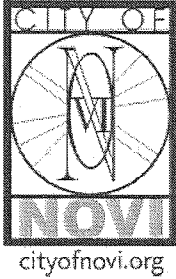
CANCELLATION

* SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Kerney A. Coffey

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CITY OF NOVI
CIVIC CENTER ROOF REPLACEMENT
SPECIFICATIONS

PART 1 GENERAL

SCOPE: This project will consist of a partial tear-off. The existing stone ballast and EPDM membrane will be completely removed and discarded at the contractors expense, leaving the existing 5/8" Gypsum and 2.0" Polyisocyanurate over the metal decking. There will be a unit cost to "remove and replace" any deteriorated, wet, or damaged existing ISO and/or 5/8" Type "X" Gypsum upon examination during the ballasted EPDM membrane removal phase. The new roof will consist of adding a new 2.0" Polyisocyanurate insulation board and a new mechanically fastened GAF 60 mil TPO Extreme membrane system. All existing metal copings will be removed and discarded. The new GAF TPO Extreme 0.60 membrane will be used as the flashing material, which shall be installed (fully adhered) up and over the parapet wall going down the face a minimum of 1.5" past the treated with appropriate fasteners wood nailer on the outside of the building covering the nailer/masonry joint. Then a New 20-GA galvanized **20-inch** cleated 24-GA Kynar "Snap-Lock" coping system shall be installed as manufactured by Metal Design and Manufacturing. The splice plates must be concealed and caulked. This coping system must be included as part of roofing manufacturer's 25 year NDL Guarantee covering both Labor and Materials being designed and installed per SMACNA details and ES1 Testing and Approval. The Upper roof Parapet will be bid using the MDM Detail #1 (coping + step extender) and the lower parapet coping will be the MDM "SC" Ultra Seam Detail. Both Coping details are attached for reference. The front face of the coping must cover the newly installed adhered membrane flashing, so the roofing contractor must insure that the proper dimension length on the outward side is used at all outside elevations. The color of Kynar coping shall be selected by owner's representative from the standard Metal Design & Manufacturing's (MDM's) color chart. Refer to drawings for additional tapered to be added to promote water drainage to sumps as noted. Tapered slope shall be 1/4" per foot. The screen wall around the chiller unit will also receive new coping to match new parapet wall copings. All manufacturer "TPO Extreme" factory supplied accessories shall be installed on this project vs. field fabrication, ie. Curb wraps, pipe boots, pitch pans etc. TPO walkway (Min. 1/8" thick) membrane shall be installed on a unit cost basis as determined by Owner's Representative upon completion of re-roofing.

Note 1: The two entrance-way door ballasted roofs shall be torn off to metal decking discarding all debris. A new layer of 2.0" polyisocyanurate shall be installed in GAF Olybond 500. A second layer of 1/4" Dens Deck Prime shall then be installed over the new 2.0" ISO also set in GAF Olybond 500. Then the new 0.60 TPO Extreme membrane shall be fully adhered to the Dens-Deck prime board per the latest manufacturer's details and specifications. New curved edge metal to match new kynar copings shall be provided to match existing radius.

***There will be add alternate to this section for the round door entrances to receive a GAF Garden roof application. The concentration of the plating will be 6 plugs per square foot on the selected sedum. The growing medium will be based on the GAF light weight version. The garden roof will follow the GAF specifications and details for the installing the GAF Garden Roof system.*

Note 2: All existing sump strainer shall be replace with cast aluminum strainer to fit existing sump rings. This price is included in base bid. (or GAF TPO Extreme Drain Insert Maybe Used instead).

Note 3: It will be the roofer responsibility to re-caulk all existing metal reglets in block walls that cover the new base flashings. This in the base bid pricing. The existing caulk shall be removed as needed and where ever loose or debonded.

Note 4: The smoke release vents and roof hatch shall be cleaned, primed, and coated using the GAF Topcoat Liquid Acrylic Membrane per the latest details and specifications. This price is in the base bid. The Topcoat Rusty Metal Primer shall be installed first before base and final coat applications. (Color = White).

Note 5: The roofing contractor shall fabricate a hinged access door through the screen wall surrounding chiller units as located and approved by owner's representative. The opening has to be large enough for large sized person to access this space. Also, and inside and outside door latch must be provided with this design. This is in base bid pricing.

Note 6: There will be a RhinoBond Plate Bonded line item alternate to the traditional mechanically fastened system. All other specification requirements, details, and installation notes will be the same and the roofing contractor must follow all items as noted in the following specification. This Add/Deduct Alternate will be asked for on the bid form.

1.01 SUMMARY

- A. Section Includes
 - 1. Thermoplastic Single-Ply Roofing
 - 2. Insulation
- B. Related Sections
 - 1. Section 06100: Rough Carpentry
 - 2. Section 07620: Sheet Metal Flashing and Trim
 - 3. Section 15430: Plumbing Specialties

1.02 REFERENCES

- A. Factory Mutual (FM Global) - *Approval Guide*
- B. Underwriters Laboratories (UL) - *Roofing Systems and Materials Guide (TGFU R1306)*
- C. American Society for Testing and Materials (ASTM) - *Annual Book of ASTM Standards*
- D. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - *Architectural Sheet Metal Manual*
- E. National Roofing Contractors Association (NRCA)
- F. American Society of Civil Engineers (ASCE)

1.03 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) *Roofing and Waterproofing Manual* for definitions of roofing terms related to this section.

1.04 PERFORMANCE REQUIREMENTS

- A. Provide an installed roofing membrane and base flashing system that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.
- B. GAFMC shall provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.05 SUBMITTALS

- A. Product Data: Provide product data sheets for each type of product indicated in this section.
- B. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the roof system specified.
- C. Samples: Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.
- D. Certificates: Installer shall provide written documentation from the manufacturer of their authorization to install the roof system, and eligibility to obtain the warranty specified in this section.

1.06 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: GAFMC shall provide a roofing system that meets or exceeds all criteria listed in this section.
- B. Installer's Qualifications:
 - 1. Installer shall be classified as a **Master or Master Select™** contractor as defined and certified by GAFMC.
- C. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary roofing manufacturer.
- D. Final Inspection & 2-Year Inspection:
Manufacturer's Technical Field Representative shall provide a comprehensive final inspection after completion of the roof system. All application errors must be addressed and final punch list completed. The manufacturer shall then re-inspect the roof again after 2 years at no additional cost to the owner. Any items found to be labor related at the 2-Year re-inspection shall be fixed by the installing roofing contractor of record at no charge to the owner. Any items found during the 2 year inspection not covered by the warranty, shall also be fixed at the owner's expense.

1.07 PRE-INSTALLATION CONFERENCE

- A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, GAFMC representative and any other persons directly involved with the performance of the work. The installer shall record conference discussions to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to roofing work.

1.08 REGULATORY REQUIREMENTS

- A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.
- B. Windstorm Classification: Provide a roofing system which will achieve a Factory Mutual 1-60 wind uplift rating, as listed in the current FM Approval Guide.
- C. UL Class "A" Rated Assembly.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Deliver all roofing materials to the site in original containers, with factory seals intact. All products are to carry either a GAFMC or BMCA® label.
- B. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range.
- C. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
- D. Remove or cut manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.
- E. Materials shall be stored above 55°F (12.6°C) a minimum of 24 hours prior to application.

1.10 PROJECT CONDITIONS

- A. Weather
 - 1. Proceed with roofing only when existing and forecasted weather conditions permit.
 - 2. Ambient temperatures must be above 45°F (7.2°C) when applying hot asphalt or water based adhesives.

1.11 WARRANTY

- A. Provide Manufacturers standard WeatherStopper® Diamond Pledge™ Guarantee with single source coverage and no monetary limitation where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in materials or workmanship.
 - 1. Duration: Twenty (25) years from the date of completion.

- B. EverGuard® TPO Reflectivity Limited Warranty: GAFMC warrants to the original building owner, that the EverGuard® TPO white roof membrane will meet or exceed the initial and "aged" ENERGY STAR® reflectivity requirements for low slope roofing membranes (65% initial, 50% aged) when installed and maintained in accordance with GAFMC's requirements. The aged reflectivity shall meet or exceed these requirements when measured after cleaning the membrane in accordance with GAFMC recommendations.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. BASIS of DESIGN: **EVERGUARD 60 MIL TPO "Extreme" Solar Ready Membrane** as manufactured by GAF Materials Corporation - 1361 Alps Road, Wayne, NJ 07470
- B. Substitutions Requests must be submitted to owner's representative 1 week prior to due date of bids for consideration. No substitution can change any specification requirements, heat aging or solar readiness, warranties, details, regulatory requirements, or any other items required or outlined items in the base bid specification as written. Any variance or changes to base specification will not be accepted. The physical Properties of them TPO Membrane must meet or exceed all listed of the GAF TPO Extreme Membrane as published.
- C. TPO membrane must be Guaranteed to function at 195 Degrees through out the life of the 25-Year Manufacturer's NDlwarranty as specified.
- D. Please note Specification Physical Data and ASTM standard listed below for GAF 60 Mil TPO Extreme Membrane:

Applicable Standards

UL Listed, FM Approved, ASTM D6878.

Physical Properties	ASTM Test Method	ASTM 6878 Minimum	EverGuard® Extreme™ 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 D-751	0.039" (min.)	0.060"
Breaking Strength	ASTM D-751 Grab Method	220 lbf/in.	330 lbf x 310 lbf
Factory Seam Strength	ASTM D-751	66 lbf	120 lbf (membrane failure)
Elongation at Break	ASTM D-751	15%	30%
Heat Aging	ASTM D-573	90% Retention of Breaking Strength and Elongation at Break	100%
Tear Strength	ASTM D-751 8" x 8" Sample	55 lbf	70 lbf x 150 lbf
Puncture Resistance	FTM 101C Method 2031	Not Established	380 lbs.
Cold Brittleness	ASTM D-2137	-40 C	-40 C
Permeance	ASTM E-96	Not Established	0.01 Perms
Dimensional Change	ASTM D-1204 @158 F, 6 hrs.	+/- 1%	0.4%
Water Absorption	ASTM D-471 @158 F, 1 week	+/- 3.0% (top coating only)	0.7%
Hydrostatic Resistance	ASTM D-751 Method D	Not Established	430 psi
Ozone Resistance	ASTM D-1149	Pass No visible deterioration @ 7 x magnification	No visible deterioration @ 7 x magnification
Reflectivity (white)	ASTM C1549	N/A	0.835
Emissivity (white)	ASTM C1371	N/A	0.84
Weather Resistance	ASTM G155	10,080 KJ/(m ² . nm) at 340 nm	>30,240 KJ/(m ² . nm) at 340

2.02 EXISTING INSULATION

- A. Gypsum
- B. Rigid polyisocyanurate board

2.03 INSULATION

- A. Rigid polyisocyanurate board, with a strong white or black fibrous glass facer conforming to or exceeding the requirements of ASTM C 1289 / FS HH-I-1972.
EnergyGuard™ Polyiso, with the following characteristics:
 1. Board Thickness: 2"
 2. Thermal Resistance (LTTR value) of: 12.1

2.04 MEMBRANE MATERIAL

- A. A smooth type, polyester scrim reinforced thermoplastic polyolefin membrane with a nominal 0.060 inch (60 mil) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-6878. UL Listed, FM Approved, Dade County Product Approval, Florida Building Code Approved. White membrane is CRRC Listed and Title 24 Compliant. Each full roll contains approximately 1000 sq.ft. of roofing material, 10' X 100', weighing 322 lbs. **EverGuard® TPO Extreme 60 mil** thermoplastic single-ply roofing membrane by GAFMC.

2.05 FLASHING MATERIALS

- A. A "Fully Adhered" smooth type, polyester scrim reinforced thermoplastic polyolefin membrane with a nominal 0.060 inch (60 mil) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-6878. UL Listed, FM Approved, Dade County Product Approval, Florida Building Code Approved. White membrane is CRRC Listed and Title 24 Compliant. Each full roll contains approximately 1000 sq.ft. of roofing material, 10' X 100', weighing 322 lbs. **EverGuard® TPO Extreme 60 mil** thermoplastic single-ply roofing membrane by GAFMC.

2.06 ADHESIVES, SEALANTS and PRIMERS

- A. Solvent-based Bonding Adhesive: Solvent based rubberized adhesive for use with EverGuard TPO membranes, **EverGuard TPO Bonding Adhesive**, by GAFMC.
- B. Water-based Bonding Adhesive: Water based rubberized adhesive for use with EverGuard TPO membranes, **EverGuard H₂O Bonding Adhesive**, by GAFMC.
- C. Solvent based liquid, required to protect field cut edges of EverGuard TPO membranes. Applied directly from a squeeze bottle, **EverGuard TPO Cut Edge Sealant**, by GAFMC.
- D. Solvent based primer for preparing surfaces to receive butyl based adhesive tapes, **EverGuard Primer**, by GAFMC.
- E. Solvent based seam cleaner used to clean exposed or contaminated seam prior to heat welding, **EverGuard TPO Seam Cleaner**, by GAFMC.
- F. One part butyl based high viscosity sealant suitable for sealing between flashing membrane and substrate surface behind exposed termination bars and for sealing between roofing membrane and drain flange. **EverGuard® Water Block**, by GAFMC.
- G. 100% solids epoxy based two-part sealant suitable for filling sealant pans at irregularly-shaped penetrations. Epoxy is part A. Polyamide is part B. **EverGuard® 2-Part Pourable Sealant**, by GAFMC or GAF Flex-Seal topped off over non-shrinking grout. *(Or GAF Flex-Seal One Part Quart Tubes Sealant is also acceptable in lieu of 2-Part Epoxy).*

2.07 ACCESSORIES

- A. Mechanical Fasteners
 - 1. **Drill•Tec™ Standard Screws:** Standard duty alloy steel insulation fastener with CR-10 coating with a .215" diameter thread. Factory Mutual

- Standard 4470 Approved, #3 Phillips head for use on steel and wood decks.
2. **Drill•Tec™ XHD Screws:** Heavy gauge alloy steel fastener with CR-10 coating with a .275" diameter thread. Factory Mutual Standard 4470 Approved, #3 Phillips truss head for use on heavy steel decks.
 3. **Drill•Tec™ Insulation Plates:** Galvalume®, 3" (7.6 cm) diameter, suitable for use with Drill•Tec™ Standard and HD screws, and Drill•Tec™ Spikes. Special design available for use with Drill•Tec™ Polymer Screws.
 4. **Drill•Tec™ XHD Plates:** Galvalume®, 2 3/8" (6 cm) diameter, with a barbed underside. Suitable for use with Drill•Tec™ Standard, HD, and XHD Screws, and Drill•Tec™ Spikes.
- B. Extruded aluminum termination bar with angled lip caulk receiver and lower leg bulb stiffener. Pre-punched slotted holes at 6" on center or 8" on center. 3/4" x 10' with 0.090" cross section, **EverGuard® Lip Termination Bar**, by GAFMC.
- C. A smooth type, unreinforced thermoplastic polyolefin based membrane for use as an alternative flashing/reinforcing material for penetrations and corners. Required whenever preformed vent boots cannot be used, available in White, Tan, Gray, Regal Red, Regal Blue, and Hartford Green, 0.055 inches (55 mils) nominal thickness, **EverGuard® TPO Extreme UN-55 Detailing Membrane**, by GAFMC.
- D. An 8 inch (20 cm) wide smooth type, polyester scrim reinforced thermoplastic polyolefin membrane strip for use as a cover strip over coated metal and stripping-in coated metal flanges and general repairs: 0.045 inches (45 mils) nominal thickness, available in White, Tan, Gray, Regal Red, Regal Blue, and Hartford Green **EverGuard® TPO Extreme Utility Flashing Strips**, by GAFMC.
- E. 24 gauge steel with 0.025" thick TPO based film. Factory supplied in sheets and required for fabrication into metal gravel stop and drip edge profiles, metal base and curb flashings, sealant pans, and scupper sleeves, available in White, Tan, Gray, Regal Red, Regal Blue, and Hartford Green. Sheet size 4' x 10', sheet weight 47 lbs., **EverGuard® TPO Coated Metal**, by GAFMC.
- F. 0.075" thick molded TPO membrane sized to accommodate most common pipe and conduits, (1" to 6" diameter pipes), including square tube. Hot-air welded directly to EverGuard TPO membrane, supplied with stainless steel clamping rings, **EverGuard® TPO Extreme Preformed Vent Boots** by GAFMC.
- G. 0.45" thick molded TPO membrane boots are split to accommodate most common pipes and conduits and available in three standard sizes, **EverGuard® TPO Extreme Preformed Split Pipe Boots**, by GAFMC.

- H. 0.060" thick molded TPO membrane designed to accommodate both inside and outside corners of base and curb flashing. Hot-air welds directly to EverGuard TPO membrane. Size 4" x 4" with 6" flange, **EverGuard® TPO Extreme Preformed Corners** by GAFMC.
- I. .055" thick smooth type, unreinforced thermoplastic polyolefin membrane designed for use as a conforming membrane seal over T-joints in 60 and 80 mil membrane applications. **EverGuard® Extreme UN-55 T-Joint Patches**, by GAFMC.
- J. Universal style expansion joint covers fabricated to accommodate both wall and field applications, made of .060" thick reinforced TPO membrane, available in 5 standard sizes for most applications, **EverGuard® TPO Preformed Expansion Joint Covers**, by GAFMC
- K. .045" thick reinforced TPO membrane fabricated corners. Available in four standard sizes to flash curbs that are 24", 36", 48", and 60" in size. Four corners are required to flash the curb, **EverGuard® Extreme Corner Curb Wraps**, by GAFMC.
- L. 8" diameter, nominal .050" unreinforced TPO membrane for use in flashing outside corners of base and curb flashings, **EverGuard® TPO Extreme Fluted Corner**, by GAFMC.
- M. 1/8" thick extruded and embossed TPO roll 30" x 50', heat welds directly to roofing membrane. Unique herringbone traction surface. Gray in color, **EverGuard® TPO Walkway Rolls**, GAFMC.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that the surfaces and site conditions are ready to receive work.
- B. Verify that the deck is supported and secured.
- C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.
- D. Verify that the deck surfaces are dry and free of ice or snow.
- E. Verify that all roof openings or penetrations through the roof are solidly set, and that all flashings are tapered.

3.02 SUBSTRATE PREPARATION

A. Steel Deck

1. Metal decks must be a minimum uncoated thickness of 22 gauge (0.8 mm) and shall have a G-90 galvanized finish on all panels. FM requirements may supersede those set forth in this section. Consult the current FM Guide for more information.
2. Decks must comply with the gauge and span requirements in the current Factory Mutual FM Approval Guide and be installed in accordance with Loss Prevention Data Sheet 1-28 or specific FM approval.
3. When re-roofing over steel decks, surface corrosion shall be removed, and repairs to severely corroded areas made. Loose or inadequately secured decking shall be fastened, and irreparable or otherwise defective decking shall be replaced.

B. Recover

1. Suitable roofs for recover shall be free of dust, dirt, debris, and any contaminants that may adversely affect the performance of the new roof. Areas of substantial deck deflection or membrane imperfections shall be corrected prior to installing any new roofing.
2. For recover installations over single-ply, fluid applied, coal tar and metal roofs, contact GAFMC Contractor Services for prior approval and technical requirements.
3. Taking test cuts to verify the existing roof construction and condition. Three test cuts should be made for roofs under 100 squares and one test cut per 100 squares above the minimum amount. It is highly recommended and in certain circumstances, required, that a moisture survey be made to determine the extent of wet insulation and moisture entrapment. Contact GAFMC Contractor Services for more information on moisture surveys.
4. Existing substrates and insulation (if applicable) must be dry over the majority of the roof area. Wet or deteriorated areas of insulation and substrate must be removed and replaced with new materials. When adhering insulation or new roofing directly to the existing roof surface, the existing roof system components must be well attached to each other and their substrate.
5. All applicable code requirements must be met for recover over an existing roofing system.
6. GAFMC does not recommend partial recover or re-roofing of a single roof area due to the potential for defects in the portion of the roof system not replaced or negatively affecting the performance of the new membrane. When required by project conditions or budget considerations, GAFMC requires full separation of the old and new roof areas by means of a full curb mounted expansion joint or area divider installed to provide a complete watertight seal or break between areas. Tie-in constructions, in which the old and new membranes are adhered directly to each other and stripped in are not acceptable for coverage under certain guarantees.

3.03 INSTALLATION - GENERAL

- A. Install GAFMC's EverGuard® TPO Extreme roofing system according to all current application requirements in addition to those listed in this section.
- B. GAFMC EverGuard® TPO Specification #: T-MA-T-I-60X
- C. Start the application of membrane plies at the low point of the roof or at the drains, so that the flow of water is over or parallel to, but never against the laps.

3.04 INSULATION - GENERAL

- A. Do not apply roof insulation or roofing until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing installation. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.
- B. Do not install wet, damaged or warped insulation boards.
- C. Install insulation boards with staggered board joints in one direction (unless taping joint).
- D. Install insulation boards snug. Gaps between board joints must not exceed ¼" (6 mm). All gaps in excess of ¼" (6 mm) must be filled with like insulation material.
- E. Wood nailers must be 3-1/2" (8.9 cm) minimum width or 1" (25 mm) wider than metal flange. They shall be of equal thickness as the insulation, and be treated for rot resistance. All nailers must be securely fastened to the deck.
- F. Do not kick insulation boards into place.
- G. Miter and fill the edges of the insulation boards at ridges, valleys and other changes in plane to prevent open joints or irregular surfaces. Avoid breaking or crushing of the insulation at the corners.
- H. Insulation should not be installed over new lightweight insulating concrete.
- I. Roof tape, if required over insulation joints, must be laid evenly, smoothly and embedded in a uniform coating of hot steep asphalt with 4" (10.2 cm) end laps. Care must be taken to assure smooth application of tape, and full embedment of the tape in the asphalt.
- J. Do not install any more insulation than will be completely waterproofed each day.

3.05 INSULATION

- A. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns. Factory Mutual requires fastener density increased in corner areas for FM 1-60 - Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
- B. Use only fasteners with a minimum 3 inch (7.6 cm) stress plate when mechanically attaching insulation. Do not attach insulation with nails. Supplemental fastener density equals 5 fasteners per 4' x 8' board and 4 fasteners per 4' x 4' board.
- C. Roofing contractor shall make sure to stagger all the joints of the new insulation boards.

3.06 MEMBRANE APPLICATION

- A. Mechanically Attached:
 - 1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane shall be mechanically fastened immediately after it is rolled out, followed by welding to adjacent sheets.
 - 2. Overlap roof membrane a minimum of 6" for side laps and 3" for end laps.
 - 3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
 - 4. All exposed sheet corners shall be rounded a minimum of 1".
 - 5. Use full width rolls in the field of roof and half width rolls in the perimeter and corner region of the roof and mechanically fastened in the side lap area to the roof deck.
 - 6. Membrane laps shall be heat-welded together. All welds shall be continuous, without voids or partial welds. Welds shall be free of burns and scorch marks.
 - 7. Weld shall be a minimum of 1-1/2" in width for automatic machine welding and a minimum 2" in width for hand welding.
 - 8. All cut edges of reinforced membrane must be sealed with EverGuard® TPO Cut Edge Sealant.
 - 9. The membrane shall be mechanically fastened in the side lap area to the roof deck with appropriate Drill-Tec™ fasteners and plates as required by roof system specification and/or Factory Mutual classification requirements.
 - 10. The metal plates must be placed within 1/4" to 1/2" of the membrane edge. Plates shall not be placed less than 1/4" from the membrane edge.
 - 11. In the corner regions, additional fasteners shall be installed through the perimeter membrane to form a grid pattern, with an 8" (40.5 cm) wide EverGuard® TPO reinforced membrane flashing-strip welded over the

additional fasteners. Corners include both outside and inside corners that measure 75 - 105 angle degrees.

12. Membrane attachment to the roof deck is required at locations of deck angle changes in excess of five (5) angle degrees (1" in 12").
13. Supplemental membrane attachment is required at the base of all walls and curbs, and where the angle of the substrate changes by more than ten (10) degrees (1" in 12"). Roofing membrane shall be secured to the structural deck with screws and plates of the same type and spacing used for in-lap attachment. The screws and plates must be installed no less than ½" from the membrane edge. Alternatively, the roofing membrane may be turned up the vertical plane a minimum of 3" and secured with screws and termination bar. Fastener spacing is the same as is used for in-lap attachment. The termination bar must be installed within 1-1/2" to 2" of the plane of the roof membrane, with a minimum of 1" of membrane extending above the termination bar.
14. Supplemental membrane attachment to the structural deck is required at all penetrations. Roofing membrane shall be secured to the deck with appropriate Drill-Tec™ screws and plates.
15. Fasteners must be installed to achieve the proper embedment depth. Install fasteners without lean or tilt.
16. Install fasteners so that the plate or termination bar is drawn down tightly to the membrane surface. Properly installed fasteners will not allow the plate or termination bar to move (underdriving), but will not cause wrinkling of the membrane (overdriving).

3.07 FLASHINGS

A. General:

1. All penetrations must be at least 24" (61 cm) from curbs, walls, and edges to provide adequate space for proper flashing.
2. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site condition.
3. All coated metal and membrane flashing corners shall be reinforced with preformed corners or non-reinforced membrane.
4. Hot-air weld all flashing membranes, accessories, and coated metal. A minimum 2" wide (hand welder) weld is required.
5. All cut edges of reinforced membrane must be sealed with EverGuard® TPO Cut Edge Sealant.
6. Consult the EverGuard® *Application and Specifications Manual* or GAFMC Contractor Services for more information on specific construction details, or those not addressed in this section.

B. Coated Metal Flashings:

1. Coated metal flashings shall be formed in accordance with current EverGuard construction details and SMACNA guidelines.
2. Coated metal sections used for roof edging, base flashing and coping shall be butted together with a ¼" gap to allow for expansion and

contraction. Hot-air weld a 6" wide reinforced membrane flashing strip to both sides of the joint, with approximately 1" on either side of the joint left un-welded to allow for expansion and contraction. 2" wide aluminum tape can be installed over the joint as a bond-breaker, to prevent welding in this area.

3. Coated metal used for sealant pans, scupper inserts, corners of roof edging, base flashing and coping shall be overlapped or provided with separate metal pieces to create a continuous flange condition, and pop-riveted securely. Hot-air weld a 6" wide reinforced membrane flashing strip over all seams that will not be sealed during subsequent flashing installation.
4. Provide a ½" hem for all exposed metal edges to provide corrosion protection and edge reinforcement for improved durability.
5. Provide a ½" hem for all metal flange edges whenever possible to prevent wearing of the roofing and flashing membranes at the flange edge.
6. Coated metal flashings shall be nailed to treated wood nailers or otherwise mechanically attached to the roof deck, wall or curb substrates, in accordance with construction detail requirements.

C. Reinforced Membrane Flashings:

1. The thickness of the flashing membrane shall be the same as the thickness of the roofing membrane.
2. Membrane flashing **must be fully adhered to the substrate** surface in accordance with "Construction Detail Requirements".
3. Where flashings are to be fully adhered, apply bonding adhesive at a rate resulting in 60 square feet/gallon of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 square feet/gallon of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 square feet per gallon (Solvent Based) and 250 square feet per gallon (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.
4. Apply the adhesive only when outside temperature is above 40°F. Recommended minimum application temperature is 50°F to allow for easier adhesive application.
5. The membrane flashing shall be carefully positioned prior to application to avoid wrinkles and buckles.

D. Roof Edges:

1. Roof edge flashings are applicable for gravel stop and drip edge conditions as well as for exterior edges of parapet walls.
2. Flash roof edges with metal flanges nailed 4" O.C. to pressure-treated wood nailers. Where required, hot-air weld roof membrane to coated metal flanges.

3. When the fascia width exceeds 4", coated metal roof edging must be attached with a continuous cleat to secure the lower fascia edge. The cleat must be secured to the building no less than 12" O.C.
4. Alternatively, roof edges may be flashed with a 2-piece snap on fascia system, adhering the roof membrane to a metal cant and face nailing the membrane 8" on center prior to installing a snap-on fascia.
5. Flash roof edge scuppers with a coated metal insert that is mechanically attached to the roof edge and integrated as a part of the metal edging.

E. Parapet and Building Walls:

1. Flash walls with EverGuard TPO Extreme 60 mil membrane adhered to the substrate with bonding adhesive or with coated metal flashing nailed 4" on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. Water Block shall be applied between the wall surface and membrane flashing underneath all exposed termination bars. Exposed termination bars shall be mechanically fastened 8" on center; termination bars that are counter flashed shall be fastened 12" on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:

Mechanically Attached Systems	Per in-lap on center spacing, with a 12" maximum
-------------------------------	--

4. All coated metal wall flashings must be provided with separate metal counterflashings, or metal copings.
5. Exposed termination bars must be sealed with EverGuard® caulking.
6. Flash wall scuppers with a coated metal insert that is mechanically attached to the wall and integrated as part of the wall flashing.

F. Curbs and Ducts:

1. Flash curbs and ducts with EverGuard TPO Extreme membrane adhered to the curb substrate with bonding adhesive, loose applied (Less than 18" in height) or with coated metal flashing nailed 4" on center to pressure-treated wood nailers.
2. Secure membrane flashing at the top edge with a termination bar. Water Block shall be applied between the curb/duct surface and membrane flashing underneath all termination bars. Exposed termination bars shall be mechanically fastened every 8" o.c.; termination bars that are counter flashed shall be fastened 12" on center.
3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:

Mechanically Attached
Systems

Per in-lap on center spacing, with a 12"
maximum

4. All coated metal curb flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.
5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with EverGuard® caulking.

G. Roof Drains:

1. Roof drains must be fitted with compression type clamping rings and strainer baskets. Original-type cast iron and aluminum drains, as well as retrofit-type cast iron, aluminum or molded plastic drains are acceptable.
2. Roof drains must be provided with a minimum 36" x 36" sump. Slope of tapered insulation within the sump shall not exceed 4" in 12".
3. Extend the roofing membrane over the drain opening. Locate the drain and cut a hole in the roofing membrane directly over the drain opening. Provide a ½" of membrane flap extending past the drain flange into the drain opening. Punch holes through the roofing membrane at drain bolt locations.
4. For cast iron and aluminum drains, the roofing membrane must be set in a full bed of water block on the drain flange prior to securement with the compression clamping ring. Typical water block application is one 10.5 ounce cartridge per drain.
5. Lap seams shall not be located within the sump area. Where lap seams will be located within the sump area, a separate roof membrane drain flashing a minimum of 12" larger than the sump area must be installed. The roof membrane shall be mechanically attached 12" on center around the drain with screws and plates. The separate roof drain flashing shall be heat welded to the roof membrane beyond the screws and plates, extended over the drain flange, and secured as above.
6. Tighten the drain compression ring in place.

3.08 TRAFFIC PROTECTION

- A. Install walkway rolls at all roof access locations and other designated locations including roof-mounted equipment work locations and areas of repeated rooftop traffic.
- B. Heat weld TPO Walkway rolls to the roof membrane with hot air and seal the outer edges with cut-edge sealant after checking seam welds during inspection.
- C. Walkway pads/rolls must be hot-air-welded to the roof membrane surface continuously around the perimeter of the pad/roll.

3.09 ROOF PROTECTION

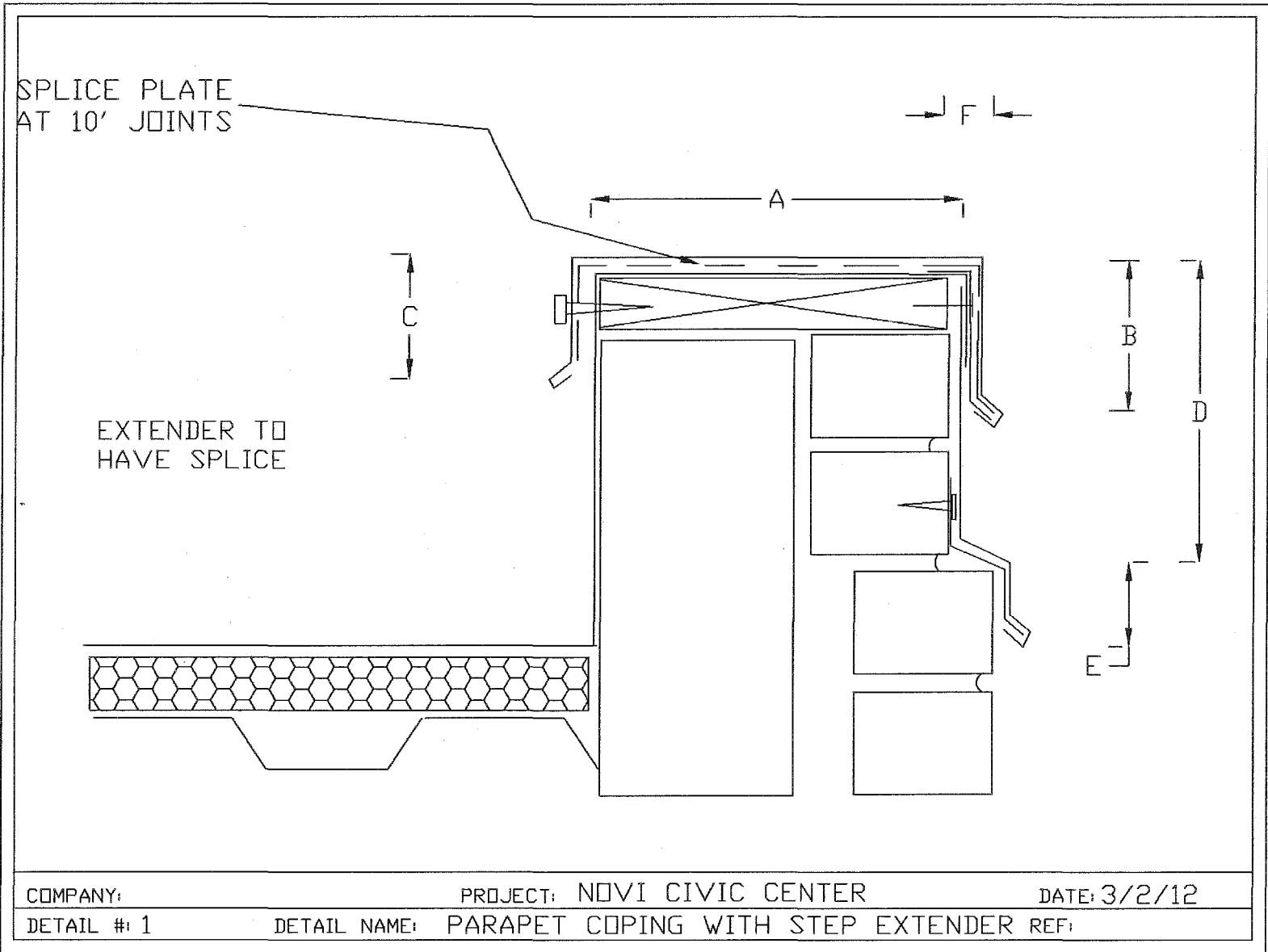
- A. Protect all partially and fully completed roofing work from other trades until completion.
- B. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed roof areas.
- C. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed roof areas from traffic and point loading during the application process.
- D. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

3.10 CLEAN-UP

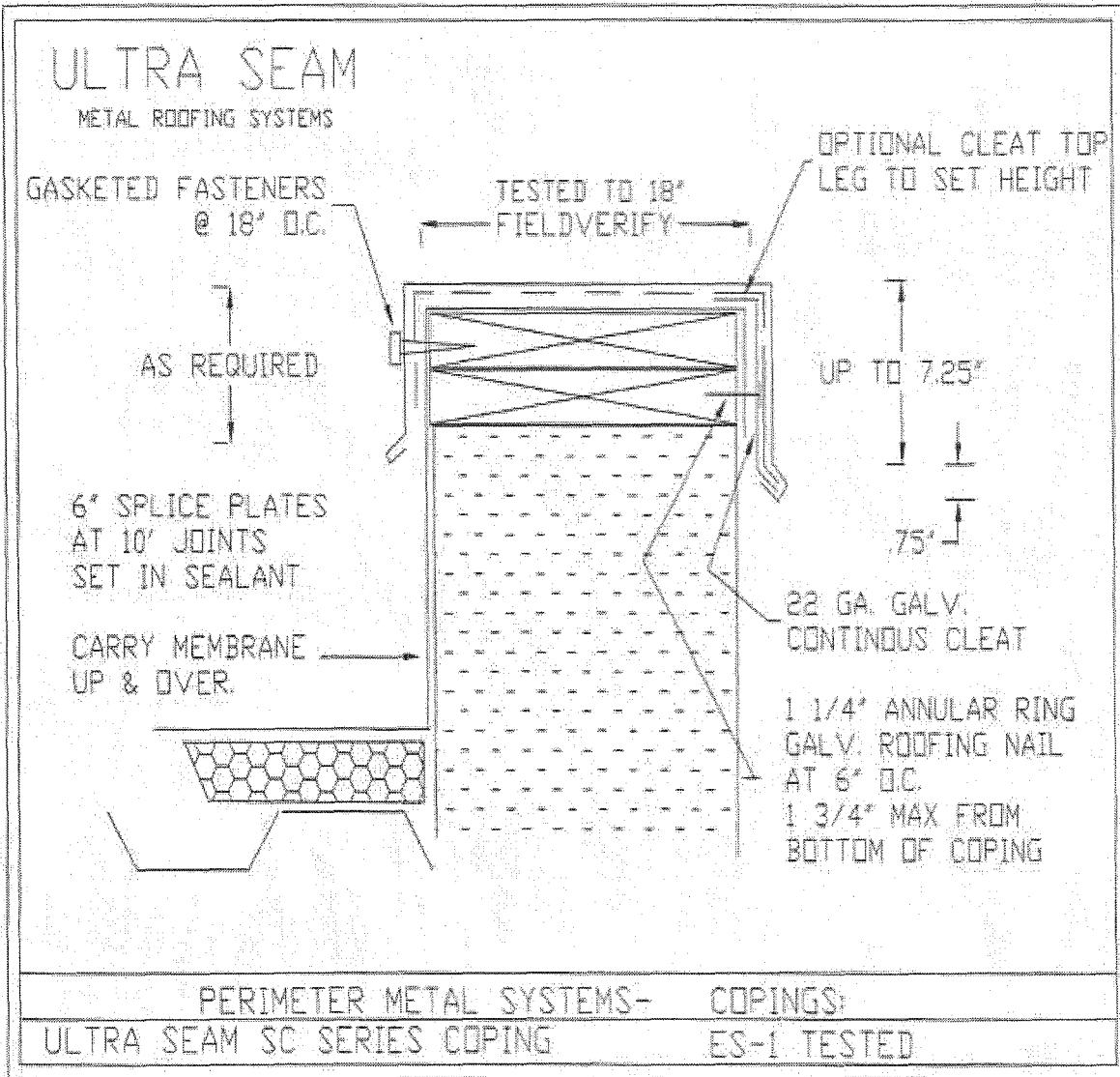
- A. All work areas are to be kept clean, clear and free of debris at all times.
- B. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.
- C. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.
- D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.
- F. Clean and restore all damaged surfaces to their original condition.

END OF SECTION

DETAIL FOR PARAPET METAL COPING HIGH ROOF



DETAIL FOR PARAPET COPING LOW ROOF



SAMPLE AGREEMENT

CONTRACT FOR CIVIC CENTER ROOF REPLACEMENT

This Agreement shall be considered as made and entered into as of the date of the last signature ("Effective Date"), and is between the City of Novi, a Michigan municipal corporation, whose address is 45175 W. Ten Mile, Novi, Michigan 48375, (hereinafter referred to as "Client"), and _____, whose address is _____, (hereinafter referred to as "Contractor").

THE CLIENT AND CONTRACTOR AGREE AS FOLLOWS:

Article I. Statement and Performance of Work.

For payment by the Client as provided under this Contract, Contractor shall provide the materials and perform the services described on and in Schedule A (the "Work"), which is attached hereto and made a part of this Contract by this reference, in a competent, accurate, efficient, timely, good, professional, thorough, complete and responsible manner, and in compliance with the terms and conditions set forth below.

Article II. Timing of Performance.

Performance of this Contract shall commence on _____, delivery of the materials and performance of the work shall be completed according to the timing set forth as part of Schedule A. The completion date for all services and delivery of all materials as described in Schedule A shall be _____, provided, however, that if delays in construction of the building delay contractor's performance, the completion date shall be extended for a period equal to the period of delay. The timing for performance of any such work may also be extended, if allowed in writing by the Client in its sole discretion.

Article III. Contract Price and Payment.

Subject to the terms and conditions of this Contract, the Client agrees to pay Contractor an amount not to exceed \$_____ for services and materials as specifically set forth in the completed Proposal attached which are part of the attached Schedule A. Such payments are in exchange for and consideration of the timely and satisfactory performance and completion of the work required under and pursuant to this Contract. The Client agrees to pay Contractor amounts due within thirty (30) days of receipt of an itemized billing/invoice from Contractor detailing all materials provided and work performed in connection with the billing and the hours and charges applicable to each such item. Such itemized billings shall be submitted and shall be paid only upon satisfactory completion of the work itemized in the billing.

All costs and expenses incurred by Contractor under this Contract are deemed to be included in the amounts set forth in Schedule A, unless specifically identified in Schedule A as reimbursable expenses and such expenses have been approved by the Client or its designee. Contractor will obtain written approval of the Client prior to proceeding with any work that is not stated on Schedule A; otherwise, the Client will not be billed for such extra/additional work.

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Payments shall be made upon verification of invoices received by the Client. All payments to Contractor shall be submitted by mail at Contractor's address first listed above, unless Contractor provides written notice of a change in the address to which such payments are to be sent.

Article IV: Termination.

A. 1. For cause: In the event that either party shall breach the terms and conditions of this Contract, the aggrieved party may notify the other party, in writing via certified mail, of such breach and demand that the same be remedied within ten (10) days. If the defaulting party fails to remedy the breach as demanded, the aggrieved party shall then have the right to terminate by giving the defaulting party thirty (30) days written notice. In addition, if at any time a voluntary petition in bankruptcy shall be filed against either party and shall not be dismissed within thirty (30) days, or if either party shall take advantage of any insolvency law, or if a receiver or trustee of any of a party's property shall be appointed and such appointments shall not be vacated within thirty (30) days, the other party shall have the right, in addition to any other rights of whatsoever nature that it may have at law or in equity, to terminate by giving thirty (30) days notice in writing of such termination.

2. For convenience: The Client may terminate the agreement, in whole or in part, without showing cause upon giving thirty (30) days written notice to the Contractor. The Client shall pay all reasonable costs incurred by the Client up to the date of notice of termination. The Contractor will not be reimbursed for any anticipatory profits that have not been earned up to the date of notice of termination.

B. In the event this Contract is terminated before completion, the Client shall not be responsible to make any further payments for work performed after the effective date of such termination, and shall pay Contractor for such materials as have been delivered and for such work as has been completed and is eligible for payment under the terms of this Contract through the date of such termination. In all events, the Client shall only be responsible to make the payments described in the preceding sentence if, at the Client's request, Contractor continues to fully perform its duties and obligations in full compliance with the terms of this Contract through the effective date of the termination.

Article V: Independent Contractor/Vendor Relationship.

A. In the performance of this Contract, the relationship of Contractor to the Client shall be that of an independent contractor and/or vendor and not that of an employee or agent of Client. Contractor is and shall perform under this Contract as an independent contractor and/or vendor, and no liability or responsibility with respect to benefits of any kind, including without limitation, medical benefits, worker's compensation, pension rights, or other rights or liabilities arising out of or related to a contract for hire or employer/employee relationship shall arise or accrue to either party as a result of the performance of this Contract.

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Contractor, as an independent contractor and/or vendor, is not authorized to enter into or sign any agreements on behalf of the Client or to make any representations to third parties that are binding upon the Client.

- B. Contractor represents that it will dedicate sufficient resources and provide all necessary personnel required to perform the work described in Schedule A in accordance with the terms and conditions of this Contract. Except as may be specifically stated and agreed to in Schedule A, Contractor shall perform all of the work under this Contract and no other person or entity shall be assigned or sub-contracted to perform the work, or any part thereof, unless approved by the Client in advance.

Article VI: Liability and Insurance.

- A. Contractor agrees to indemnify and hold harmless the Client, its elected and appointed officials and employees, from and against any and all claims, demands, suits, losses and settlements, including actual attorney fees incurred and all costs connected therewith, for any damages which may be asserted, claimed or recovered against the Client by reason of (i) personal injury, death and/or property damages which arises out of or is in any way connected or associated with the actions or inactions of Contractor in performing or failing to perform the work; or (ii) civil damages which arise out of any dispute between Contractor and its subcontractors, affiliates, employees or other private third parties in connection with this Contract. Contractor specifically agrees that it is Contractor's responsibility, and not the responsibility of the Client, to safeguard the property and materials used in performing this Contract. Contractor agrees to hold the City harmless from any loss of or damage to such property and materials used in connection with Contractor's performance of this Contract.
- B. Contractor shall provide evidence of adequate insurance coverage in the types and amounts set forth on Schedule B, which is attached hereto and incorporated herein by this reference. Such insurance shall be maintained at the specified level of coverage throughout the term of this Contract, including any extension of such term, and will cover all work, acts and omissions by and on behalf of Contractor in connection with this Contract, with the Client as named additional insureds, but with such coverage being primary and non-contributory as described in the attached Schedule B.

Article VII: Information.

It is expressly acknowledged and agreed that all reports, opinions, compilations, research work, studies, data, materials, artifacts, samples, documents, plans, drawings, specifications, correspondence, ledgers, permits, manuals, applications, contracts, accountings, schedules, maps, logs, invoices, billings, photographs, videotapes and all other materials generated by and/or coming into the possession of Contractor during the term of this Contract, and any extension thereof, that in any way relate to the performance of work by Contractor under this Contract or that are otherwise related or relevant to the work, belong exclusively to the Client and shall be promptly delivered to

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the Client upon the termination of this Contract or, at any time, upon the Client's request.

Article VIII: **General Provisions.**

- A. Entire Agreement. This instrument, together with the attached Schedules, contains the entire Contract between the Client and Contractor. No verbal agreement, conversation, or representation by or between any officer, agent, or employee of the parties hereto, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- B. Compliance with Laws. This Contract and all of Contractor's work and practices shall be subject to all applicable state, federal and local laws, ordinances, rules or regulations, including without limitation, those which apply because Client is a public governmental agency or body. Contractor represents that it is in compliance with all such laws and eligible and qualified to enter into this Contract.
- C. Governing Law. This Contract shall be governed by the laws of the State of Michigan.
- D. Assignment. Contractor shall not assign this Contract or any part thereof without the written consent of the Client. This Contract shall be binding on the parties, their successors, assigns and legal representatives.
- E. Dispute Resolution/Arbitration. The parties agree that any disputes regarding a claimed violation of this agreement shall first be submitted in writing to the other party in an attempt to settle the matter before pursuing other legal actions or notices provided for in this agreement. Such written communication shall clearly state the problem or concern, allow sufficient time for a written response from the other party, and culminate in a face-to-face meeting to determine if a remedial action is possible. In no event shall this process take more than thirty (30) days, unless a specific extended period of time is agreed to by both parties in writing as being necessary. The aforementioned initial written communications between the parties also shall indicate whether the party is willing to submit the dispute to binding arbitration, non-binding mediation or other form of alternate dispute resolution, and share equally the costs for same. Upon the parties agreeing to any such method of dispute resolution and a timetable for doing so, pursuit of other legal actions shall be deferred until the process has been completed. In any binding arbitration, the arbitrator shall provide a written statement of the reasons and basis for an award or decision, a judgment of the Oakland County Circuit Court may be entered based on the arbitration award or decision, and each party shall be responsible for their own costs and attorney fees.
- F. Third Parties. It is the intention of the parties hereto that this Agreement is not made for the benefit of any private third party. It is acknowledged that Client may receive a portion of the funding for the payments under this Contract from one or more private sources, and it is understood by Contractor that it is hired by Client to work exclusively for Client (and by extension for the Township should the work be

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accepted and implemented by the Township) and Contractor agrees that no private party or parties will be allowed to hold sway or influence, in any way, over Contractor's performance of the work.

G. Notices. Written notices under this Contract shall be given to the parties at their addresses contained in this Contract by personal or registered mail delivery to the attention of the following persons:

Client: City Manager Clay J. Pearson and City Clerk Maryanne Cornelius
Contractor:

H. Changes. Any changes in the provisions of this Contract must be in writing and signed by the Client and Contractor.

I. Waivers. No waiver of any term or condition of this Contract shall be binding and effective unless in writing and signed by all parties, with any such waiver being limited to that circumstance only and not applicable to subsequent actions or events.

J. Jurisdiction and Venue of Contract. This Contract shall be considered for all purposes, including the establishment of jurisdiction and venue in any court action between the parties, as having been entered into and consummated in the City of Novi, Oakland County, Michigan.

K. Conflict. In the event of any conflict or inconsistency between the above provisions of this Contract and either or both of the attached Schedules, the provisions in the above text shall govern.

IN WITNESS WHEREOF, the Client and the Contractor have executed this Contract in Oakland County, Michigan, as of the date first listed above.

WITNESS:

CITY OF NOVI

Date: _____

By: Robert J. Gatt
Its: Mayor

Date: _____

By: Maryanne Cornelius
Its: Clerk

CONTRACTOR

Date: _____

By:
Its:

SAMPLE AGREEMENT

SCHEDULE B

A. Insurance Requirements

The vendor will not commence work, nor will the City of Novi sign a contract, until vendor has obtained and delivered to the City of Novi the certificate of insurance required under this contract. All insurance carriers must be acceptable to the City of Novi and licensed and admitted to do business in the State of Michigan.

A new certificate of insurance will be provided to the City of Novi at the time of policy renewal any time during the entire length of the contract.

1. Coverage: The Vendor shall maintain at its expense during the term of this Contract, the following insurance:
 - a. **Worker's Compensation** insurance with the Michigan statutory limits and Employer's Liability insurance with minimum limits of **\$100,000** (One Hundred Thousand Dollars) each accident.
 - b. **Commercial General Liability Insurance** – The Contractor shall procure and maintain during the life of this contract, Commercial General Liability Insurance, Personal Injury, Bodily Injury and Property Damage on an "Occurrence Basis" with limits of liability not less than **\$1,000,000** (One Million Dollars) per occurrence combined single limit.
 - c. **Automobile Liability** insurance covering all owned, hired and non-owned vehicles with Personal Protection insurance to comply with the provisions of the Michigan No Fault Insurance Law including Residual Liability insurance with minimum bodily injury limits of **\$1,000,000** (One Million Dollars) each person and **\$1,000,000** (One Million Dollars) each occurrence and minimum property damage limits of **\$1,000,000** (One Million Dollars) each occurrence.
2. Deductibles: The Vendor shall be responsible for payment of all deductibles contained in any insurance required hereunder.
3. Insured: All policies shall name the Vendor as the insured.
4. Cancellation Notice: All policies shall include the following language: "Should any of the above policies be cancelled before the expiration date thereof, the issuing insurer will mail 30 days written notice to the certificate holder named on this certificate; alternately, contractor may agree to provide notice of such cancellation or reduction".
5. Additional Insured: All policies include the following language "The City of Novi, their officers, agents, employees and volunteers, all boards, commissions and/or authorities and board members, including employees and volunteers thereof are added as additional insured." Certificates of Insurance evidencing such coverage shall be submitted to Purchasing Manager, City of Novi, 45175 W. Ten

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Mile Rd., Novi, MI 48375 prior to commencement of performance under this Contract and at least 15 days prior to the expiration dates of expiring policies.

6. If any work is sublet in connection with this Contract, the Vendor shall require each subcontractor to effect and maintain at least the same types and limits of insurance as fixed for the Contractor.
7. The provisions requiring the Vendor to carry said insurance shall not be construed in any manner as waiving or restricting the liability of the Contractor under this contract.
8. The City of Novi has the authority to vary from the specified limits as deemed necessary.
9. If, during the term of this Contract, changed conditions or other pertinent factors should in the reasonable judgment of the City of Novi render inadequate insurance limits, the Vendor will furnish on demand such additional coverage as may reasonably be required under the circumstances. All such insurance shall be effected at the Vendor's expense, under valid and enforceable policies, issued by the insurers of recognized responsibility which are well-rated by national rating organizations and are acceptable to the City.
10. Hold harmless/Indemnity
 - a. The Vendor agrees to save harmless and defend the City of Novi against and from any or all liability, loss or damages (including without limitations, fees and expenses of attorneys, expert witnesses and other consultants) which the City of Novi may suffer as a result of claims, demands, costs, or judgments against it arising from , out of or in consequence of the performance of this agreement, excepting only such liability, loss or damage as shall have been occasioned by the sole negligence of the City of Novi, it's officers, agents, or employees.
 - b. The Vendor agrees that is it its responsibility and not the responsibility of the City of Novi to safeguard the property and materials used in performing this contract. Further, the Vendor agrees to hold the City of Novi harmless for any loss of such property and materials used pursuant to the Vendors performance under this contract.
 - c. The Vendor shall not discriminate against any employee, or applicant for employment who is qualified to perform the work required in the execution of this contract because of religion, race, color, national origin, age, sex, height, weight, handicap, ancestry, place of birth, sexual preference or marital status. The Vendor further covenants that it will comply with the Civil Rights Act of 1973, as amended; and the Michigan Civil Rights Act of 1976 (78. Stat. 252 and 1976 PA 453) and will require a similar covenant on the part of any consultant or subcontractor employed in the performance of this contract.