



PROJECT MANUAL

ROOF REPLACEMENT

**SOUTHERN NEVADA HEALTH DISTRICT
280 SOUTH DECATUR BLVD.
LAS VEGAS, NEVADA 89107
Project No. SNHD-9-RFP-17-006**

DESIGN CONSULTANT

**CURTAINWALL DESIGN AND CONSULTING
2400 SOUTH CIMARRON
LAS VEGAS, NEVADA 89117**

DATE: JUNE 16, 2017



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REQUEST FOR PROPOSALS

FOR

ROOF REPLACEMENT

SNHD-9-RFP-17-006

June 16, 2017

**280 S. DECATUR BLVD
LAS VEGAS, NEVADA 89107**

SECTION I: INTRODUCTION – INVITATION TO BID

The Health District seeks one experienced and qualified Nevada-licensed Roof Contractor (C-15 license) to provide a new roof at its main location, (the “Project”).

The successful firm selected by the Health District will ensure their Project Manager or Superintendent be available to meet with Health District weekly or as needed.

The project schedule includes plans for the demolition, construction and site clean-up, all of which are to be completed by the end of October 2017. Construction will commence on or about August 1st, 2017. These schedule assumptions are subject to change.

The Project must comply with OSHA requirements, and all applicable federal, state and county statutes, regulations, and codes. Health District will be the Project Owner and will take final acceptance.

The estimated budget for this construction project is \$1,080,000. Approximately 120,000 square feet is to be renovated. Health District estimates the Project will be completed in one phase and within ninety (90) days after the project start date.

A. Entity Information:

The Health District’s mission is, “To protect and promote the health, the environment and the well-being of Clark County residents and visitors.” Health District offers services and provides regulatory supervision that impact the public every day from the food they eat and the water they drink, to the public establishments they visit, the businesses they operate and the requirements they must meet in order to work in certain industries such as food service and child care.

The Health District employs approximately 500 people distributed across four divisions: Administrative Services, Community Health, Environmental Health, and Nursing and Clinics. The operations of human resources, information technology, finance, health cards, vital records (birth and death certificates) and public information fall under the umbrella of the administration division.

The community health services division includes emergency medical services, epidemiology (disease surveillance and control), chronic disease prevention and health promotion, public health preparedness, and the Southern Nevada Public Health Laboratory.

The environmental health division oversees plan review and inspection programs involving food and beverage establishments, public accommodations, subdivisions, child care facilities, body art facilities, public swimming pools, public water systems, septic tanks and solid waste facilities.

The nursing and clinics division provides more than 600,000 public health-related clinical services. The nursing and clinics division administers approximately 300,000 childhood and

adult immunizations each year and offers sexually transmitted disease treatment and control, tuberculosis treatment and control, kids' clinics, and HIV/AIDS case management.

The Health District is governed by a 14-member policy-making board composed of:

- Two elected officials each from the Board of County Commissioners and the largest city in Clark County (City of Las Vegas);
- One elected representative from each of the four remaining jurisdictions in the county (Boulder City, Henderson, Mesquite and North Las Vegas); and
- Six at-large members selected by the Board.

B. Definitions:

<i>Contract</i>	The contract Health District and Proposer may enter into as a result of Health District selecting Proposer to serve as its construction contractor pursuant to this RFP process.
<i>Contractor</i>	Proposer the Health District selects pursuant to this RFP.
<i>Project</i>	Construction of improvements, and any potential demolition or additions to the existing building.
<i>Proposal</i>	Proposer's written response to this RFP.
<i>Responsive Proposal</i>	A Proposal that complies with the requirements set forth in this RFP. The Health District reserves the right to waive technicalities and minor formalities in determining a Proposer's responsiveness.
<i>Sample Contract</i>	A non-binding reference document provided for the convenience of the parties that shall serve as a starting point for negotiations toward the Contract.
Health District	Project Owner and the Southern Nevada Health District.

C. **Anticipated Contract Type:** Health District will offer the successful Proposer a firm-fixed priced construction contract. The Health District and the successful Proposer will negotiate the Contract's final terms.

D. **Anticipated Contract Term:** The anticipated Contract duration is three (3) months. The Project's anticipated completion date is the end of October 2017. This RFP is not an offer, obligation, or agreement to award work to any individual, organization, or firm.

SECTION II: SCOPE OF SERVICES

A. **Project Description:**

The project description is contained within the plans and specifications. See Section 01 11 00 for Summary of Work.

Contractor will be required to use prevailing State Labor Wages on this project.

- B. Schedule:** Contractor will be ready to start work ten days after contract has been fully executed. The new roof must be completely installed by the end of October 2017.
- C. Project Team:** The Health District's representative is Sean Beckham, Facilities Manager and the roof consultant is Jon Belnap, Curtain Wall Design & Consulting Inc.
- D. Contractor Selection Method:** As a governmental entity, Nevada law requires the Health District to follow specific procedures in selecting a Contractor. The Health District will select the Contractor pursuant to the contract award procedures described in this RFP, or in the event of a conflict, in accordance with applicable laws and codes.

SECTION III – TIMETABLE

A. Timetable

Request for Proposals Posted.....	June 16, 2017
Mandatory Pre-Proposal Conference/Walkthrough.....	8:00 a.m. June 23, 2017
Final RFI/Questions Due	Noon, July 1, 2017
Question Responses Complete and Distributed.....	July 3, 2017
Proposals Due/Public Bid Opening	11 a.m. July 13., 2017
Contract Finalization/Award.....	July 28, 2017
Project Start (anticipated)	August 1, 2017
Project Completion (3 months after Project Start).....	October 31, 2017

B. Designated Point of Contacts/Questions:

Questions about this Request for Proposals (RFP) may be e-mailed to the Southern Nevada Health District (Health District) authorized agency contact person's e-mail address as listed below:

Health District Contact Persons: Loni Benard and Gabi Montaldo

E-Mail Address: benard@snhdmail.org and montaldo@snhdmail.org

Answers to all questions asked will be available on the Health District's website at <http://www.southernnevadahealthdistrict.org/public-notice.php>. A list of questions and answers will also be sent to everyone who officially requested a copy of the RFP.

CONTACT WITH Health District DURING THE RFP PROCESS: Communication with any person other than the designated contact concerning the selection or award of this contract is prohibited from the time the Request for Proposal is advertised to the time of the award. Questions concerning the Request for Proposal shall be directed only to the designated contact. All questions that are asked will be posted on Health District's web site under Public Notices. **Failure of a Proposer or any of its representatives to comply with this paragraph will result in the Health District rejecting its Proposal.**

C. Mandatory Pre-Proposal Conference:

A pre-Proposal conference will be held at the Health District, 280 S. Decatur Blvd, Las Vegas, Nevada on June 23, 2017 at 8:00 a.m. Please complete Attachment B and e-mail to Loni and Gabi (see paragraph B above). Please meet at main entrance and you will be escorted to the roof entrance. Attendees at this conference should consist of staff members proposed to work on this project (please limit attendees to no more than 3 per firm).

Attendance at the pre-Proposal conference is mandatory. Mandatory attendance will ensure Proposers understand the RFP requirements, will have an opportunity to ask questions, and will be familiar with the building interior.

While questions will be answered during the Mandatory conference, preliminary questions may be submitted in advance via e-mail with SNHD-9-RFP-17-006 in the subject line to benard@snhdmail.org and montaldo@snhdmail.org. All questions and responses will be posted as addenda on Health District's website so they are available to all respondents: <http://www.southernnevadahealthdistrict.org/public-notices.php>

D. Proposal Due Date, Time, and Location:

Date: July 13, 2017

Time: 11:00 a.m. pacific time

Submittal: Submit your Proposal in a sealed envelope marked:

“SNHD-9-RFP-17-006, Roof Replacement”

If Mailed: Finance Department, P.O. Box 3902, Las Vegas, NV 89127

If Hand-Carried: 280 S. Decatur Blvd, Finance Department, Las Vegas, NV 89107

E-mailed or faxed proposals will not be considered. It is the Proposer's responsibility to ensure that the proposal is received by Health District by the date and time specified above. You may mail your proposal in advance. The proposal will be opened and read during the public opening stated above.

- E. Proposal Submission:** The original Proposal and one (1) electronic copy on a flash drive must be submitted in a sealed envelope marked “SNHD-9-RFP-17-006, Roof Replacement” and received by Health District no later than time and date specified in paragraph D above. Hand delivered proposals will be accepted between 8:30 a.m. to 4:00 p.m. Monday through Friday. Please call 702.759.1244 or 702.759.1215 from the lobby.

It is the Proposer's responsibility to ensure their Proposal is received by Health District by the date and time specified above. Late proposals will not be considered.

- F. Late Proposals:** Proposals received and/or date stamped after the Proposal Due Date and Time are late and will not be considered by the Health District. Upon request the Health District will return unopened, late-received Proposals at the requester's expense. Proposer is responsible for ensuring third party deliveries conform to the delivery requirements set forth in this RFP.

- H. Public Opening of Proposals:** Proposals will be opened publicly and the name of the Proposers will be recorded at 280 S. Decatur Blvd, Las Vegas, Nevada on the date and time specified in paragraph D above. To maintain confidentiality of all responses, no other information will be revealed at the opening or during the evaluation process. Proposers, their authorized agents, and other interested parties are invited to attend the public opening.

SECTION IV. INSTRUCTIONS TO PROPOSERS

Please read this document carefully. Failure to comply with the RFP's requirements will cause the Health District to declare your submission void and non-responsive.

A. Preparation and Submission

1. Proposals must contain complete answers to each question. Failure to fully answer any question is grounds for rejection.
2. Pricing must be submitted in a separate sealed envelope and contain an original signature in blue ink. Any erasures or changes must be initialed by the person signing the Proposal. All figures must be written in ink or typewritten. The unit price will prevail in the event of a discrepancy between unit prices, quotes, and extensions.
3. By responding to this RFP, Proposer certifies that it has not communicated with any employee or member of Health District in a manner that might provide that Proposer an advantage over any other Proposer. A violation of the foregoing is cause for rejection of that particular Proposal without further consideration.
4. By submitting a Proposal, Proposer certifies that they understand, agrees with, and will abide by, the terms and conditions set forth in this RFP.
5. Health District reserves the right to contract for less than all of the services identified herein.
6. All costs incurred by the Proposer in the preparation of a Proposal responding to this RFP are the responsibility of the Proposer and will not be reimbursed by Health District.
7. **Proposals are not to contain confidential/proprietary information.** Health District is subject to Nevada Public Records statutes. Proposals must contain sufficient information to be evaluated without reference to any confidential or proprietary information. Any Proposal submitted that is marked "confidential" or "proprietary," or that contains materials so marked, may be returned to the Proposer and not be considered for award.

B. Submission Requirements: The Proposal must include the following information:

COVER LETTER AND PROPOSAL RESPONSE FORM

Clearly indicate the contact person who will serve as authorized representative (principal-in-charge) of the proposing firm, and provide his/her mailing address, telephone number, fax number, and e-mail address. The representative certifies that the information provided in response to this Request for Proposal is true and accurate. Include the Proposal Form (Attachment B) in tab 1. Address the cover letter to:

Southern Nevada Health District
Andrew J. Glass, FACHE, MS, Director of Administration
P.O. Box 3902
Las Vegas, NV 89107-3902

TAB 1. GENERAL REQUIREMENTS

By submitting a Proposal, Proposer certifies that it has not been terminated from any contract for breach of contract, or been identified as excluded from doing business with any federal or state governmental agency. Such prior termination will disqualify the Proposer from contracting with the Health District.

All Proposals must include the information requested and an answer to each question posed in the following numbered paragraphs:

1. Proof that Proposer possesses a valid State of Nevada Business License and Contractor's License.
2. Evidence of required Insurance as identified in Attachment C.
3. Has Proposer ever been terminated from a project before it was completed? If yes, concisely describe when, where, and the circumstances surrounding any such termination.
4. Has Proposer been disciplined or fined by the Nevada State Contractors' Board or another state or federal agency for conduct relating to the ability to perform the work discussed in this RFP?
5. Has Proposer ever been disqualified from being awarded a contract pursuant to NRS 338.017, 338.13895, 338.1475 or 408.333? If yes, concisely describe when, where, and the surrounding circumstances.

TAB 2. COMPANY DESCRIPTION AND QUALIFICATIONS

1. Description of Company
 - a. Company name. How many years has Proposer operated under its present name? Under what other or former names has Proposer operated?
 - b. Location of principal and branch offices.
 - c. Type of ownership:
 - i) If Proposer is a corporation, please provide the following:
Date of incorporation;
State of incorporation;
President's/Managing Member's name.

- ii) If Proposer is a partnership, please provide the following:
Date of organization;
Type of partnership (if applicable);
Names of all partners.
- iii) If Proposer is individually owned, please provide the following:
Date of organization
Name of owner.

If the form of Proposer is other than those listed above, please describe it and name all principals, members, partners, officers and/or owners.

- d. Length of time in business as a General Contractor.
- e. Within the last five (5) years, has any officer or principal of Proposer ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)
- g. List all jurisdictions and trade categories in which Proposer is legally qualified to do business, and indicate registration or license numbers.
- h. List all work the company is licensed to self-perform.

2. Surety

- a. Provide name of bonding company.
- b. Provide name and address of agent.
- c. Provide maximum bond amount available at this time.
- d. Provide your bond premium rate.

3. Insurance

- a. Provide name of insurance carrier or carriers.
- b. Provide name and address of agent and provide a Certificate of Insurance for every insurance policy.
- c. Provide total amount of excess liability insurance coverage in place.
- d. Provide general liability insurance rate.

4. Safety

- a. Describe, in detail, your firm's safety program.
- b. Provide the name of safety officer, contact information, resume.
- c. Identify any violations of OSHA regulations Proposer has been found guilty of by OSHA within the past five (5) years.
- d. Provide a summary of all safety violations that have occurred in the last 5 years.

5. Bonding Requirements. The successful Construction Contractor, upon notification of the award of the specific project shall deliver the required performance and materials/ payment bonds in the amount of 100% of the project to be furnished within 10 business days of notice of award. Bond must be to the Southern Nevada Health District, executed by a surety company authorized to do business in the state of Nevada. The bond shall stay in full force and effect until Health District has accepted all projects initiated under the Agreement. Performance and payment bonds are required for all work \$100,000 or more. Should any surety become insolvent or cease to do business in Nevada, Construction Contractor shall immediately provide a new surety satisfactory to Health District. No payment will be made under the contract until the new surety is qualified and bond accepted by Health District.

Bonding Information. Provide the following information with your proposal:

- a. Name of Bonding Company
- a. Evidence from the bonding company that verifies firms' current project specific bonding capacity
- b. Bond rate

TAB 3. PROJECT EXPERIENCE & REFERENCES

1. Explain the experience Proposer has with projects of similar size and scope in both the public and private sectors by any delivery method, whether or not that method was the use of a Construction Contractor at risk, and including, without limitation, design-build, design-assist, negotiated work or value-engineered work, and a concise explanation of the experience Proposer has in such projects in Nevada and/or another governmental agency.
2. List the categories of work Proposer normally performs with its own forces.
3. References.
 - a. Provide a minimum of three (3) references from owners, architects and/or engineers with whom you have worked on similar projects. Points of contact and/or references on projects provided in this section may be contacted and used as references. Proposer grants permission to Health District to contact all references identified.
 - b. Furnishing incorrect or incomplete reference information may lead to the Proposer's elimination from consideration for award at Health District's sole discretion of Health District and shall not be subject to appeal.
4. Experience
 - a. Describe the experience of proposed key personnel with construction projects of a similar nature. State the role each employee performed with listed projects and whether the project was negotiated or bid.

TAB 4. COST INFORMATION

Provide cost information on Attachment B.

Provide roofing manufacturers acknowledgement on Attachment

A. Proposer's Representations:

By submitting a Proposal, each Proposer represents:

1. They have read and understand the RFP, and that the Proposal is submitted in accordance therewith.
2. They are qualified to bid on public works projects pursuant to NRS 338.1379.
3. They will comply with the applicable portions of the Federal Civil Rights Act of 1964, the Equal Employment Opportunity Act, and regulations issued pursuant to those acts.
4. And certifies the prices submitted were arrived at independently and without collusion.

B. Ethics in Public Procurement: It is unlawful for any vendor to offer, or any employee of the Health District or their immediate family to solicit or accept a gratuity in connection with the solicitation, award, or administration of an RFP.

C. All or None Offers: Proposals restricting acceptance to the entire offer or a portion thereof will be rejected as nonresponsive.

D. Rejection: Health District reserves the right to reject any and/or all Proposals received in response to this RFP. Health District further reserves the right to make such investigations, as it deems necessary as to the qualifications of any and/or all Proposals submitted in response to this RFP. In the event all Proposals are rejected, or if Health District, at any time, deems the number of qualified proposals to be insufficient to meet its potential needs, Health District reserves the right to re-solicit proposals.

E. Withdrawal of Proposal: A Proposer may request that its RFP be withdrawn from consideration prior to the scheduled opening time. Requests for withdrawal must be in writing addressed as provided for herein.

F. Proposal Costs: Health District will not compensate Proposers for costs associated with responding to this RFP.

G. Modification, Correction or Withdrawal of Proposals: Proposers may modify, correct, withdraw or otherwise amend Proposals only by delivering a written request to the Health District prior to the Proposal Due Date and Time stated above.

H. Exclusivity: Nothing in this RFP or any resulting Agreement precludes Health District from obtaining services similar to those described herein from other sources.

SECTION V. PROPOSAL EVALUATION AND CONTRACT AWARD PROCEDURES

A. Evaluation Procedures

1. The Health District will initially check RFP's for compliance with the general requirements stipulated in this RFP. Next, an evaluation committee will evaluate Proposals based on the criteria listed below. Health District reserves the right to create a "short list" of Proposers to be interviewed. Proposers interviewed will be evaluated again using the same criteria, but the second scoring will be based on each Proposer's presentation and discussion. The evaluation committee will then select its preferred Proposer.
2. The Proposer agrees to a minimum of 90 days from the date of public opening as the acceptance period under this RFP.

B. Evaluation Criteria

Factors to be considered in evaluating this RFP include:

1. Firm Fixed Price, Base Bid (Attachment B)
2. Unit Cost (Attachment B)
3. Assessment of Proposer's overall capabilities with a particular focus on Proposer's experience, familiarity, and knowledge of Projects of this nature and scope.

ATTACHMENT A
MANDATORY PRE-BID CONFERENCE / WALK THROUGH

I will be attending the mandatory pre-bid conference / walk through at 8:00 a.m. on June 23, 2017 to ensure my firm is familiar with the scope of services required to complete the construction project described within this solicitation.

Company Name:		
Location:		
	NAME	TITLE
Persons(s) Attending Pre-Proposal Conference/site visit::		

Please e-mail this form to: benard@snhdmail.org AND montaldo@snhdmail.org

Name: _____

E-Mail Address: _____

Phone Number: _____

ATTACHMENT B
Pricing Proposal Form
SNHD-9-RFP-17-006
Roof Replacement

Bidder: _____

Date: _____

Base Bid

Low Slope Roofing Replacement

\$ _____

_____ Dollars

Unit Cost

Unit cost to repair/replace deteriorated WOOD DECK (cost per SF)

\$ _____

_____ Dollars

The total firm-fixed-price listed above will include all cost associated with completion of the construction project described herein, including, but not limited to, personnel (including construction workers, management, superintendent, etc., including benefits, overtime and all other associated costs, materials, shipping, **bond**, insurance, taxes, overhead, travel, fee, etc.)

Subcontractors: For any subcontract exceeding 5% of the base bid amount, list the subcontractor, a description of work to be performed by the subcontractor and the subcontractor's license number.

By signing below, the undersigned, as an authorized representative of the company named below, hereby proposes and agrees, if this bid is accepted, to enter into the Agreement with the Southern Nevada Health District to complete all Work as specified and included in the Contract Documents and this RFP for the bid amount specified above. The work is a prevailing wage public works project. In submitting this bid, the undersigned represents that they have examined the site and area where the Work is to be performed, the legal requirements (Federal, State and local laws, ordinances, rules and regulations) and the conditions affecting cost and progress of performance of the work and has made such independent investigations as the undersigned deems necessary. Firm hereby proposed to furnish all labor, materials, equipment and services necessary to complete the Work for the total firm fixed price provided above. Bidder acknowledges that they cannot withdraw their bid within 90 days without the consent of the Health District and the Health District has the right to reject or accept any or all bids.

Company Name: _____

Signature: _____ Date: _____

Printed Name and Title: _____

Address: _____

City/State/ZIP: _____

Phone No.: _____ E-Mail Address: _____

Federal Tax ID Number: _____

Business License Number: _____

Contractor License Number: _____

EXCEPTIONS: Any exceptions to any of the specifications or requirements of this RFP shall be noted in writing, and attached to the Proposal when submitted. By taking exceptions and clearly stating them in writing on a separate sheet of paper headed "EXCEPTIONS", and by offering alternates to replace the stated requirements, the Proposer may still compete in the solicitation. However, the Health District has the right to accept or reject any proposed exception(s).

Are there exceptions to this Proposal? Yes ____ No ____

ACKNOWLEDGMENT OF ADDENDA:

The signer of this form acknowledges receipt of the following addenda:

Addendum No. _____ Dated _____


Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Or

No Addenda were received in connection with this RFP. Date _____

ATTACHMENT C
Sample Insurance Certificate

		CERTIFICATE OF LIABILITY INSURANCE		DATE (MM/DD/YYYY)																																											
<p>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.</p> <p>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).</p>																																															
SAMPLE		PRODUCER		CONTACT NAME: PHONE (A/C, No. Ext): E-MAIL: ADDRESS:																																											
		INSURER(S) AFFORDING COVERAGE		NAIC #																																											
INSURED		INSURER A:		INSURER B:																																											
		INSURER C:		INSURER D:																																											
		INSURER E:		INSURER F:																																											
<div style="display: flex; justify-content: space-between;"><div>COVERAGES</div><div>CERTIFICATE NUMBER:</div><div>REVISION NUMBER:</div></div> <p>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.</p> <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>INSR LTR</th><th>TYPE OF INSURANCE</th><th>ADDITIONAL INSURER (INSR, WVD)</th><th>POLICY NUMBER</th><th>POLICY EFF (MM/DD/YYYY)</th><th>POLICY EXP (MM/DD/YYYY)</th><th>LIMITS</th></tr></thead><tbody><tr><td></td><td>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 type="checkbox"/> PROJECT <input type="checkbox"/> LOC</td><td>Y</td><td></td><td></td><td></td><td>EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPIOP AGG \$ 1,000,000</td></tr><tr><td></td><td>AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS</td><td></td><td></td><td></td><td></td><td>COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$</td></tr><tr><td></td><td>UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB DED <input type="checkbox"/> RETENTION \$</td><td></td><td></td><td></td><td></td><td>EACH OCCURRENCE \$ AGGREGATE \$</td></tr><tr><td></td><td>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below</td><td>Y/N N/A</td><td></td><td></td><td></td><td><input checked="" type="checkbox"/> W/C STATUTORY LIMITS E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> <p>DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)</p>						INSR LTR	TYPE OF INSURANCE	ADDITIONAL INSURER (INSR, WVD)	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		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 type="checkbox"/> PROJECT <input type="checkbox"/> LOC	Y				EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPIOP AGG \$ 1,000,000		AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS					COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$		UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB DED <input type="checkbox"/> RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A				<input checked="" type="checkbox"/> W/C STATUTORY LIMITS E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000							
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CERTIFICATE HOLDER Southern Nevada Health District 280 S. Decatur Blvd Las Vegas, NV 89107			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																																												

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ATTACHMENT D
ROOFING MANUFACTURERS ACKNOWLEDGEMENT

Base bid is based on roofing material supplied by_____.

_____ (roofing material manufacturer) has reviewed the plans and specifications for the Southern Nevada Health District roofing project and confirm that the specified roof system is acceptable and that upon completion and passing final inspection will issue the specified warranty.

_____Manufacturers Technical Representative

_____Signature

_____Date

ATTACHMENT E
Sample Draft Agreement

CONSTRUCTION AGREEMENT
BETWEEN
SOUTHERN NEVADA HEALTH DISTRICT
AND

C1800XXX

This Construction Agreement ("Agreement") is made as of the ____ day of ____, 2017

Between the Owner:

Southern Nevada Health District
280 S. Decatur Blvd
Las Vegas, NV 89107,
Owner's representative is Sean Beckham

and the Contractor:

XXXX
XXXX
XXXX

for the following project:

Health District Roof Replacement
280 S. Decatur Blvd
Las Vegas, Nevada 89106.

The Consultant:
Curtainwall Design and Consulting
2400 South Cimarron
Las Vegas, Nevada 89117.

Owner and Contractor (individually "Party," and collectively "Parties") agree as follows:

SECTION 1. CONTRACT DOCUMENTS

- A.** Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of:
- a. This Agreement signed by the Owner and Contractor;
 - c. Southern Nevada Health District Request for Proposals SNHD-9-RFP-17-006 dated June 16, 2017;
 - d. The specifications and drawings prepared by the Consultant, dated XXXXXX, and as enumerated as follows:

Specifications:

Drawings:
 - e. Written orders for changes in the Work issued after execution of this Agreement; and

- f. Other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Agreement, and are as fully a part of the Agreement as if attached to this Agreement or repeated herein. The Agreement represents the entire and integrated agreement between the Parties and supersedes prior negotiations, representations or agreements, either written or oral. A Modification is (1) a written amendment to the Agreement signed by both Parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by Owner Representative.

SECTION 2. DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

- A. The number of calendar days available to Contractor to substantially complete the Work is the Contract Time.
- B. Contractor shall substantially complete the Work no later than XX calendar days from the date of commencement, subject to adjustment as provided in Section 10 and Section 11.
- C. The date of commencement of the Work shall be XXX.

SECTION 3. CONTRACT SUM

- A. Subject to additions and deductions in accordance with Section 10, the Contract Sum is: \$XX.XX
- B. The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work.

SECTION 4. PAYMENT

Based on Contractor's Applications for Payment certified by Owner Representative, Owner shall pay Contractor, in accordance with Section 12, as follows:

- A. Based upon Applications for Payment submitted to the Owner Representative by the Contractor and Certificates for Payment issued by the Owner Representative, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.
- B. The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.
- C. Provided that an Application for Payment is received by Owner Representative not later than the twenty-fifth day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the thirtieth day of the following month. If an Application for Payment is received after the application date fixed above, payment shall be made by Owner not later than thirty (30) days after Owner Representative receives the Application for Payment.
- D. Each Application for Payment shall be based on the most recent schedule of values submitted by Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owner Representative may require. This schedule, unless objected to by Owner Representative, shall be used as a basis for reviewing the Contractor's Applications for Payment.
- E. Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.
- F. Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:
 - a. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of Five percent (5%). Pending final

determination of cost to Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 12.6;

- b. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of Five percent (5%);
 - c. Subtract the aggregate of previous payments made by the Owner; and
 4. Subtract amounts, if any, for which the Owner Representative has withheld or nullified a Certificate for Payment as provided in Section 12.3.
- G. The payment amount determined in accordance with Section 4.16 shall be further modified under the following circumstances:
1. Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Owner Representative shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
 2. If after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of Contractor or by issuance of Change Orders affecting final completion, and Owner Representative so confirms, Owner shall, upon application by Contractor and certification by Owner Representative, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Owner Representative prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
- H. Reduction or limitation of retainage, if any, shall be after fifty percent (50%) of the work required by the contract has been performed, Owner may pay to Contractor any of the remaining progress payments without withholding additional retainage; and any amount of any retainage that was withheld from progress payments if, in the opinion of Owner, satisfactory progress is being made in the work.
- I. Except with the Owner's prior approval, Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

SECTION 5. INSURANCE

- A. Contractor shall provide Contractor's general liability and other insurance as follows:

Type of Insurance or Bond	Limit of Liability or Bond Amount
Commercial General Liability	Each Occurrence: \$1,000,000 Damage to Rented Premises: \$50,000 Med. Ex.: \$5,000 Personal & Adv. Injury: \$1,000,000 General Aggregate: \$2,000,000 Products: \$1,000,000
Workers Compensation & Employers Liability	E.L. Each Accident: \$1,000,000 E.L. Disease/ Employee: \$1,000,000 E.L. Disease/ Policy Limit: \$1,000,000
Bond	xxxxxx

- B. Owner shall provide property insurance to cover the value of Owner's property, including any Work provided under this Agreement. Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by Owner's property insurance.
- C. Contractor shall obtain an endorsement to its general liability insurance policy to cover Contractor's obligations under Section 8.12. Contractor shall name Owner as Additional Insured.
- D. Each Party shall provide certificates of insurance showing their respective coverages prior to commencement of the Work.
- E. Unless specifically precluded by Owner's property insurance policy, Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents and employees, each of the other for damages caused by fire or other causes of loss to the extent covered by property insurance or other insurance applicable to the Work.

SECTION 6. GENERAL PROVISIONS

- A. The Agreement. This Agreement represents the entire and integrated agreement between the Parties and supersedes prior negotiations, representations or agreements, either written or oral. The Agreement may be amended or modified only by a written modification in accordance with Section 10.
- B. The Work. The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment and services provided, or to be provided, by Contractor to fulfill Contractor's obligations.
- C. Intent. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.
- D. Ownership and Use of Architect's Drawings, Specifications and Other Documents. Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. Architect shall retain all common law, statutory and other reserved rights, including the copyright. Contractor, subcontractors, sub-subcontractors, and material or equipment suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may be used by Owner for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

SECTION 7. OWNER

- A. Information and Services Required of the Owner
 - 1. If requested by Contractor, Owner shall furnish all necessary surveys and a legal description of the site.
 - 2. Except for permits and fees that are the responsibility of Contractor under the Contract Documents, Owner shall obtain and pay for other necessary approvals, easements, assessments and charges.
- B. Owner's Right to Stop the Work. If Contractor fails to correct Work which is not in accordance with the Contract Documents, Owner may direct Contractor in writing to stop the Work until the correction is made.
- C. Owner's Right to Carry out the Work. If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from Owner to commence and continue correction of such default or neglect with diligence and promptness, Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Contract Sum shall be adjusted to deduct the cost of correction from payments due Contractor.

D. Owner's Right to Perform Construction and to Award Separate Contracts

1. Owner reserves the right to perform construction or operations related to the Project with Owner's own forces, and to award separate contracts in connection with other portions of the Project.
2. Contractor shall coordinate and cooperate with Owner's own forces and separate contractors employed by Owner.
3. Costs caused by delays or by improperly timed activities or defective construction shall be borne by the Party responsible therefore.

SECTION 8. CONTRACTOR

A. Review of Contract Documents and Field Conditions by Contractor

1. Execution of the Agreement by Contractor is a representation that Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.
2. Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. Before commencing activities, Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies or omissions discovered to Owner Representative.

B. Contractor's Construction Schedule. Contractor, promptly after being awarded the Agreement, shall prepare and submit for Owner's information a Contractor's construction schedule for the Work.

C. Supervision and Construction Procedures

1. Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work.
2. Contractor, as soon as practicable after award of the Agreement, shall furnish in writing to Owner through the Owner Representative the names of subcontractors or suppliers for each portion of the Work. Contractor shall not contract with any subcontractor or supplier to whom Owner has made a timely and reasonable objection.

D. Labor and Materials

1. Unless otherwise provided in the Contract Documents, Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.
2. Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Agreement Work. Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

E. Warranty. Contractor warrants to Owner that: (1) materials and equipment furnished under the Agreement will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents.

- F. Taxes. Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Agreement is executed.
- G. Permits, Fees and Notices
1. Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work.
 2. Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, Contractor shall assume full responsibility for such Work and shall bear the attributable costs. Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.
- H. Submittals. Contractor shall promptly review, approve in writing and submit to Owner Representative, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents. Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents.
- I. Use of Site. Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents and Owner.
- J. Cutting and Patching. Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- K. Cleaning Up. Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.
- L. Indemnification

To the fullest extent permitted by law, Contractor shall indemnify and hold harmless Owner, Owner's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the

Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a Party indemnified hereunder.

SECTION 9. CONSULTANT

- A. Upon request by the Owner Representative, the Consultant will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. Upon request of Owner Representative, Consultant will visit the site to become generally familiar with the progress and quality of the Work.
- C. The Consultant will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Consultant will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.
- D. Upon written request of Owner Representative, Consultant will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

- E. Consultant will make interpretations and decisions consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Consultant will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.
- F. The Consultant's duties, responsibilities and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor and Consultant. Consent shall not be unreasonably withheld.

SECTION 10. CHANGES IN THE WORK

- A. Owner, without invalidating the Agreement, may order changes in the Work within the general scope of the Agreement consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly in writing. If Owner and Contractor cannot agree to a change in the Contract Sum, Owner shall pay Contractor its actual cost plus reasonable overhead and profit.
- B. If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

SECTION 11. TIME

- A. Time limits stated in the Contract Documents are of the essence of the Agreement.
- B. If Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond Contractor's control, the Contract Time shall be subject to equitable adjustment.

SECTION 12. PAYMENTS AND COMPLETION

- A. Contract Sum. The Contract Sum, including authorized adjustments, is the total amount payable by Owner to Contractor for performance of the Work under the Contract Documents.
- B. Applications for Payment
 - 1. At least ten days before the date established for each progress payment, Contractor shall submit to the Owner's Representative an itemized Application for Payment for Work completed in accordance with the values stated in the Agreement. Such Application shall be supported by data substantiating Contractor's right to payment as Owner may reasonably require. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.
 - 2. Based on the Owner Architect's observations and evaluations of Contractor's Applications for Payment, Owner Representative will advise Owner of any exceptions notes. Owner Representative has authority to reject Work that does not conform to the Contract Documents.

Contractor warrants that title to all Work covered by an Application for Payment will pass to Owner no later than the time of payment. Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from Owner shall, to the best of Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to Owner's interests.

- C. Certificates for Payment. Owner Representative will, within seven days after receipt of Contractor's Application for Payment, either issue a Certificate for Payment to Contractor, for such amount as the Owner Representative

determines is properly due, or notify Contractor in writing of Owner Representative's reasons for withholding certification in whole or in part.

D. Progress Payments

1. After Owner Representative has issued a Certificate for Payment, Owner shall make payment in the manner provided in the Contract Documents.
2. Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.
3. Neither Owner nor the Owner Representative shall have responsibility for payments to a subcontractor or supplier.
4. A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

E. Substantial Completion

1. Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so Owner can occupy or utilize the Work for its intended use.
2. When the Work or designated portion thereof is substantially complete, Owner Representative will make an inspection to determine whether the Work is substantially complete. When the Owner Representative determines that the Work is substantially complete Owner Representative shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish the responsibilities of Owner and Contractor, and shall fix the time within which Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

F. Final Completion and Final Payment

1. Upon receipt of a final Application for Payment, Owner Representative will inspect the Work. When Owner Representative finds the Work acceptable and the Agreement fully performed, Owner Representative will promptly issue a final Certificate for Payment.
2. Final payment shall not become due until Contractor submits to Owner Representative releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests or encumbrances arising out of the Agreement.
3. Acceptance of final payment by Contractor, a subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

SECTION 13. PROTECTION OF PERSONS AND PROPERTY

Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Agreement. Contractor shall take reasonable precautions to prevent damage, injury or loss to employees on the Work, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. Contractor shall promptly remedy damage and loss to property caused in whole or in part by Contractor, or by anyone for whose acts Contractor may be liable.

SECTION 14. CORRECTION OF WORK

- A. Contractor shall promptly correct Work rejected by Owner Representative as failing to conform to the requirements of the Contract Documents. Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.
- B. In addition to Contractor's other obligations including warranties under the Agreement, Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.
- C. If Contractor fails to correct nonconforming Work within a reasonable time, Owner may correct it in accordance with Section 7.3.

SECTION 15. MISCELLANEOUS PROVISIONS

- A. Assignment of Agreement. Neither Party to the Agreement shall assign the Agreement as a whole without written consent of the other.
- B. Tests and Inspections
 - 1. At the appropriate times, Contractor shall arrange and bear cost of tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.
 - 2. If the Owner Representative requires additional testing, Contractor shall perform those tests.
 - 3. Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Agreement is executed.
- C. Governing Law. The Agreement and the rights and obligations of the Parties shall be governed by, and construed according to the laws of the State of Nevada, notwithstanding conflict of laws principles, with Clark County, Nevada as the exclusive venue of any action or proceeding related to or arising out of this Agreement.

SECTION 16. TERMINATION OF THE AGREEMENT

- A. Termination by the Contractor. If Owner Representative fails to certify payment as provided in Section 12.3 for a period of 30 days through no fault of Contractor, or if Owner fails to make payment as provided in Section 12.4.1 for a period of 30 days, Contractor may, upon seven additional days' written notice to Owner, terminate the Agreement and recover from Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.
- B. Termination by the Owner for Cause
 - 1. Owner may terminate the Agreement if Contractor ceases Work or fails to adhere to the Contract Time for a continuous and uncorrected period of thirty (30) days; fails to perform any aspect of the Work in accordance with the Contract Documents, repeatedly refuses or fails to supply enough properly skilled workers or proper materials; fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between Contractor and the subcontractors; persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; performs the Work in a manner that is continuously rejected, without Contractor correction; files bankruptcy, assigns assets for the benefit of creditors, becomes insolvent, or is unable or fails to pay its obligations as they mature; or is otherwise guilty of substantial breach of a provision of the Contract Documents.
 - 2. When any of the above reasons exist, Owner may without prejudice to any other rights or remedies of Owner and after giving Contractor and Contractor's surety, if any, seven days' written notice, terminate employment of Contractor and may take possession of the site and of all materials thereon owned by Contractor, and finish the Work by whatever reasonable method Owner may deem expedient.

3. When Owner terminates the Agreement for one of the reasons stated in Section 16.2.1, Contractor shall not be entitled to receive further payment until the Work is finished.
 4. If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. This obligation for payment shall survive termination of the Agreement.
- C. Termination by the Owner for Convenience. Owner may, at any time, terminate the Agreement for Owner's convenience. Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead on the Work not executed.

SECTION 17. OTHER TERMS AND CONDITIONS

- A. Appropriation of Funds: The terms of this Agreement are contingent upon sufficient appropriations and authorizations being made by the Owner for the performance of this Agreement. If sufficient appropriations and authorizations are not made by the Owner, this Agreement shall terminate, without penalty or expense to the Owner of any kind whatsoever, upon written notice being given by the Owner to the Contractor. Upon receipt of such notice, the Contractor shall take immediate action to mitigate any damage or additional expense.
- B. Conflict of Interest: By submitting a Proposal, Proposer certifies it has had no contact with an employee or Board member of the Owner in any manner which would give Contractor any advantage over any other Proposer. Owner's employees and Board members shall not receive any compensation, in any manner or form, nor have any interest, direct or indirect, of any kind or nature inconsistent with loyal service to the public. A violation of any of the above is grounds for rejection without further consideration.
- C. Public Records: Pursuant to NRS 239, information or documents, including this Agreement, and any other documents generated incidental thereto may be opened by Owner to public inspection and copying. Owner will have a duty to disclose unless a particular record is made confidential by law or common law balancing of interests.
- D. Authority: Owner and Contractor each represent and warrant to each other that each respectively has the authority to execute and deliver this Agreement and perform their respective obligations there under and that the execution, delivery and performance of this Agreement have been duly authorized by all necessary action by each respective Party.
- E. Counterparts: This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same Agreement.
- F. Limited Liability: Owner will not waive and intends to assert available NRS Chapter 41 liability limitations in all cases. Agreement liability of Owner and/or Contractor shall not be subject to punitive damage. To the extent applicable, actual agreement damages for any breach shall be limited by NRS 353.260 and NRS 354.626.
- G. Non-Discrimination: During the performance of this Agreement, Contractor and its subcontractors shall not deny the Agreement's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, veteran status, age (over 40), gender, or gender identity or expression. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination.
- H. Contractor shall include the nondiscrimination and compliance provisions of Section 17.7 in all subcontracts to perform Work under the Agreement.
- I. Relationship of the Parties. The Parties agree that the contractual relationship of Contractor to Owner is one solely of an independent contractor in all respects and that this Agreement and/or any other Contract Documents

do not in any way create a partnership, joint venture, or any other relationship between Owner and Construction Manager other than the contractual relationship as specified in this Agreement.

This Agreement entered into as of the day and year first written above.

OWNER:
SOUTHERN NEVADA HEALTH DISTRICT

CONTRACTOR:
XXX

By _____
Andrew J. Glass, FACHE, MS
Director of Administration

Printed Name
Title:
License No:
Jurisdiction:

PREBID CONFERENCE LOG

Project: _____ Project No. _____

Location: _____ Date: _____

	Attendee / Company	Phone / Fax
1		P
	E-mail:	F
2		P
	E-mail:	F
3		P
	E-mail:	F
4		P
	E-mail:	F
5		P
	E-mail:	F
6		P
	E-mail:	F
7		P
	E-mail:	F
8		P
	E-mail:	F
9		P
	E-mail:	F
10		P
	E-mail:	F
11		P
	E-mail:	F
12		P
	E-mail:	F
13		P
	E-mail:	F
14		P
	E-mail:	F
15		P
	E-mail:	F
16		P
	E-mail:	F
17		P
	E-mail:	F



REQUEST FOR INFORMATION

RFI No.: _____ Date: _____

From: _____ To: _____

PROJECT IDENTIFICATION

Project Name: _____

Project Number: _____

Project Address: _____
Street address

City	State	ZIP Code
------	-------	----------

E-mail _____

Telephone () Fax ()

REQUEST

Specification Section: _____ Paragraph: _____

Drawing Reference: _____ Detail: _____

[illegible]

Signed By: _____

Signature	Name and title	Date
-----------	----------------	------

ADDENDUM

Addendum No: _____ Date: _____

Re: Project Name: _____
Project / Bid No. _____From: Consultant: _____
Address 1: _____
Address 2: _____
City, State, ZIP: _____
Phone: _____

To: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated _____ (month/day/year). Acknowledge receipt of this Addendum on the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of ____ pages.

Item	Section	Description
1		Clarifications from prebid meeting
2		Changes to prior Addenda
3		Changes to bidding requirements
4		Conditions of the Contract
5		Changes to specifications
6		Changes to drawings

End of Addendum



NOTICE OF AWARD

Date: _____

Contact: _____
Company: _____
Address 1: _____
Address 2: _____
City, State, ZIP: _____

Re. Notice of Intent to Award
Bid Number: _____
Project Name: _____
Project Location: _____

Dear _____,

As directed by the Owner, this Intent to Award Notice is sent to you regarding the above-referenced project for _____ (Project name) in accordance with your Bid dated _____ (month, day, year). The contract will be based on your Bid amount of _____ (\$_____).

The contract amount is based on the

___ Base Bid

___ Alternate Bid, Describe: _____

___ Other, Describe: _____

Please secure and forward to this office, as specified in the Contract Documents:

___ Performance Bond ___ Insurance Certificates
___ Payment Bond ___ Safety Plan

You must execute and return these Bonds and Insurance Certificates as soon as possible, but not later than 15 calendar days from the date of this Intent to Award notice. Failure to comply with these requirements may lead to rejection of your Bid in favor of the next lowest bidder.

Thank you for your cooperation in this matter. You may go ahead and schedule this job, but do not mobilize until the Notice to Proceed is issued.

Sincerely,

Contact name
Company



NOTICE TO PROCEED

Project: _____ Date: _____

Project Location: _____ Consultant Project Number: _____

To: _____

From: _____

You are hereby notified that the Contract time stated for the Project will commence on _____ (date). You are directed to start performing the obligations required by the Contract Documents on or before this date.

Before commencing Work at the Project Site, deliver the Certificates of Insurance to the Owner as required by the Contract Documents.

Also, before commencing Work at the Project Site, perform the following actions:

Authorized By: _____
(Owner)

(Authorized signature)

(Title)

Accepted By: _____
(Contractor)

(Authorized signature)

(Title)

(Date)

___ Attachments: _____

Copies: ___ Owner ___ A/E ___ Consultant _____



PAYMENT BOND

Know all men by these presents: That _____
_____, the Contractor ("Principal") whose principal place of business is located at _____ and
_____, ("Surety") are held and firmly
bound unto _____
_____, the Owner ("Obligee") in the amount of _____ dollars
(\$ _____) for the payment whereof Principal and Surety bind themselves, their heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, Principal has by written agreement dated _____ entered into a
contract with Obligee for _____
_____ which contract (the "Contract") is by reference expressly made a part
hereof.

Now therefore, the condition of this obligation is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect; subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both for use in the performance of the Contract. A "subcontractor" of the Principal, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Principal, but also any other contractor who undertakes to participate in the Work which the Principal is to perform under the aforesaid Contract, whether there are one or more intervening subcontractors contractually positioned between it and the Principal (for example, a subcontractor). "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.
2. Subject to the provisions of paragraph 3, any claimant who has performed labor or furnished material in accordance with the Contract documents in the prosecution of the Work provided in the Contract, who has not been paid in full therefore before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees, or expenses of any such suit.
3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal from whom the Principal has not required a subcontractor payment bond, but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.



4. No suit or action shall be commenced hereunder by any claimant.
 - a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - b. Other than in a state court of competent jurisdiction, with a venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof, is situated.
5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____

(Seal)

Contractor/Principal

By: _____
Signature in ink *Date*

Title: _____

(Seal)

Surety

By: _____
Attorney-in-fact *Date*

Name: _____
(Type)

My Power of Attorney is recorded in the Office of the Register of Deeds/the Clerk's Office of the Circuit Court
(select as appropriate for the local jurisdiction) of _____, state of _____,
and has not been revoked.

Attorney-in-fact



Affidavit and acknowledgment of attorney-in-fact

State of _____

City and/or county of _____ to wit:

I, the undersigned notary public, do certify that _____ personally appeared before me in the jurisdiction aforesaid and made oath that he/she is the attorney-in-fact of _____, the Surety, that he is duly authorized to execute on its behalf the foregoing Bond pursuant to the Power of Attorney noted above, and on behalf of said Surety, acknowledged the aforesaid Bond(s) as its act and deed.

Given under my hand this _____ day of _____ .

Notary Public: _____ (Seal)

My Commission expires: _____

Approved:

Owner/designee

Date



PERFORMANCE BOND

Know all men by these presents: That _____
_____, the Contractor ("Principal") whose principal place of business is located at _____ and _____
("Surety") are held and firmly bound unto _____
_____, the Owner ("Obligee") in the amount of _____
dollars (\$ _____)
for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas,

Principal has by written agreement dated _____ entered into a contract with Obligee for _____

which contract (the "Contract") is by reference expressly made a part hereof;

Now therefore, the condition of this obligation is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications, and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the Contract, or any other alterations, extensions, or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) completion of the Contract and all Work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty or guarantee if the action be for such.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the State in which the Work is being carried out.



Signed and sealed this _____ day of _____

(Seal)

Contractor/Principal

By: _____

*Signature in ink**Date*

Title: _____

(Seal)

Surety

By: _____

*Attorney-in-fact**Date*

Name: _____

(Type)

My Power of Attorney is recorded in the Office of the Register of Deeds/the Clerk's Office of the Circuit Court
(select as appropriate for the local jurisdiction) of _____, state of _____,
and has not been revoked.

*Attorney-in-fact***Affidavit and acknowledgment of attorney-in-fact**

State of _____

City and/or county of _____ to wit:

I, the undersigned notary public, do certify that _____ personally appeared
before me in the jurisdiction aforesaid and made oath that he/she is the attorney-in-fact of _____
_____, the Surety, that he is duly authorized to execute on its behalf the foregoing
Bond pursuant to the Power of Attorney Noted above, and on behalf of said Surety, acknowledged the aforesaid Bond(s) as
its act and deed.

Given under my hand this _____ day of _____.

Notary public: _____ (Seal)

My Commission expires: _____

Approved:

*Owner/designee**Date*

SUBMITTAL LOG

Project: _____

Owner: _____

Project Number: _____

Contractor: _____

[illegible]

PRECONSTRUCTION MEETING FORM

Preconstruction meeting minutes

Sign-in for those attending the meeting:

[illegible]

Project - _____

Owner - _____

Owner's Rep - _____

Building Envelope Consultant - _____

Contractor - _____

Date - _____

The following items were discussed during the meeting held at the jobsite.

1. General

- 1.1 The purpose of the preconstruction meeting is to establish the ground rules for communication and explain the administration process. We will discuss the use of the site and identify any critical items in the scope of work.

2. Bonds and insurances

- 2.1 Confirm that the Contractor has submitted all Bonds and Insurance Certificates to the Owner.

3. Construction schedule

- 3.1 Construction time will begin upon issuance of the written Notice To Proceed from the Owner and will end upon Substantial Completion as determined by the Building Envelope Consultant. The Notice To Proceed will be issued only after bonds, insurance, approved submittals, and signed contracts are in hand.

4. Construction documents/scope of work

- 4.1 The Contract Documents are defined in the Contract and include the General Conditions, Supplementary and Special Conditions, Bid Form, Addendum, Technical Specifications, and Construction Drawings.

5. Project management

5.1 Time is of the essence. The Contractor shall provide a Construction Schedule that will be updated for each progress meeting.

5.2 Authorities in the Project are as follows:

	Name	
Owner's rep		Office phone
		Cell phone
		E-mail
Consultant of record		Office phone
		Cell phone
		E-mail
Observer		Office phone
		Cell phone
		E-mail
Contractor project manager		Office phone
		Cell phone
		E-mail
Contractor foreman		Office phone
		Cell phone
		E-mail
Contractor emergency contact		Office phone
		Cell phone
		E-mail
Facility emergency contact		Office phone
		Cell phone
		E-mail
		Office phone
		Cell phone
		E-mail
		Office phone
		Cell phone
		E-mail
		Office phone
		Cell phone
		E-mail

6. Administrative procedures

6.1 The Owner's Rep shall be the Contract administrator and will approve Change Order Proposals after review by the Building Envelope Consultant, certify pay applications, make periodic jobsite visits to verify progress and safety compliance, etc.



- 6.2 The Building Envelope Consultant shall perform professional services including reviewing submittals, making decisions concerning design compliance, making periodic job visits to verify design compliance, chairing any meeting and issue minutes, performing final inspection of the Work, etc.
- 6.3 It is important that the building occupants have a clear understanding of how the Work may disrupt and affect their daily operations. The foreman is responsible for providing an ongoing schedule of the areas where construction will take place and coordinate the work in a way that allows continued operations in the building.
- 6.4 All questions regarding the specified scope of work are to be submitted as a written Request For Information to the Building Envelope Consultant. Questions regarding other scope of work items may be submitted to the appropriate party. Answers will be sent via e-mail to the entire distribution list.
- 7. Submittals**
- 7.1 The Contractor shall provide submittal items in accordance with the specified requirements. The submittal items are listed in Section 01300, and each specification section lists the required contractor submittal items.
- 8. Pay requests**
- 8.1. The Contractor will follow the Owner's procedures for payment. The Contractor shall send ____ copies with original signature.
- 8.2. Submit pay requests and the supporting attachments to: ____ Building Envelope Consultant ____ Owner's Rep
- 8.3 Each set of pay requests will include the following attachments:
- Construction Schedule adjusted to the pay period
- AIA G702 Application and Certificate for Payment
- AIA G703 Continuation Sheet
- Periodic Estimate, pages 1 and 2
- Periodic Estimate for Partial Payment, adjusted to the period of work
- Summary of Materials Stored
- Non-Influence Affidavit
- Statutory Affidavit
- 9. Changes to the work**
- 9.1 By Change Proposal Request: A Change Order Proposal will be submitted by the Contractor in sufficient detail to be analyzed by the Building Envelope Consultant and Owner's Rep. Line item breakdowns should identify quantities, material costs, actual labor costs without burden, equipment costs, taxes, labor burden as a percentage, bonds, and insurance.
- 9.3 Changes to the Work must be in the form of an approved Change Order before the work can be invoiced. The Contractor is not authorized to proceed with Change Order work until a signed acceptance is provided by the Owner. It is understood that the Owner has no responsibility to pay for work done without a signed Change Order.
- 10. Staging area**
- 10.1 The Contractor will keep the work area clean on a daily basis. Be aware that the building is occupied and that it is important for the foreman to notify the Owner's Rep when unusual work or activity will be done.
- 10.2 Materials and equipment may be stored at the construction site in the designate Staging Areas. The location of dumpsters and debris is limited to the designated location.



11. Delivery, storage, and handling

- 11.1 Deliver all materials in unopened boxes or uncut lengths and bundles. It is the Contractor's responsibility to receive and unload all deliveries of materials. The Owner is not responsible to accept and unload any deliveries of materials.
- 11.2 Weatherproof tarpaulins are required to cover materials stored out in the weather. These materials must be on pallets with all plastic wrappers removed to prevent condensation. Packaging labels shall indicate appropriate warnings, storage conditions, lot numbers, and usage instructions.

12. Safety

- 12.1 The Contractor is responsible for implementing its own safety program for construction of the Work. The Contractor shall maintain the site in a safe manner for the public, both during and after work.
- 12.2 Perimeter protection: OSHA Part 1926
1. The Contractor is responsible for OSHA safety compliance. The Contractor shall provide a competent person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.
 2. A warning line shall be required on all roofs with a height of 6 feet or greater or a slope of less than or equal to 4:12. A warning line shall not be required on any of the above-referenced roofs if such roofs are less than 50 feet in their least dimension.
 3. Guardrails shall be required at all edge areas where hoisting, piping, or other material handling equipment requires workers to work regularly at it.
 4. Eave protection shall be required on all roofs with a height of 6 feet or greater with a slope greater than 4:12 but less than 8:12. Eave protection is not required where workers are secured by safety belts and life lines.
 5. Roof openings shall be covered or provided with a guardrail on all exposed sides and shall be erected as soon as possible when work begins.

13. Conduct

- 13.1 The Owner intends this to be a drug-free and alcohol-free jobsite. Smoking is not allowed on the jobsite.

14. Use of the site

- 14.1 Working hours are limited to the standard hours _____ until _____, Monday thru Friday. If the Contractor desires to work outside the standard hours, the Owner's Rep will be contacted for approval.

15. Survey of existing conditions

- 15.1 The Contractor is advised to document by photographs or video tape the conditions of the entire site prior to proceeding with the Work. These documents shall be submitted to Owner's Rep prior to commencing the Work. The Contractor will immediately notify (within 24 hrs.) the Owner's Rep when damage from other trades occurs to their scope of work.

16. Miscellaneous

17. Project close-out

- 17.1 The final pay request must include:

- ___ Manufacturer's roof warranty
- ___ Finish warranty on sheet metal
- ___ Contractor's Warranty
- ___ Signed punch list completion statement
- ___ Non-Influence Affidavit (General Conditions)
- ___ Statutory Affidavit (General Conditions)
- ___ Consent of Surety Company to Final Payment (AIA G707)
- ___ Asbestos disposal records



18 Preconstruction minutes acceptance

- 18.1 The items listed above are not meant to be all-inclusive. They are a reminder to the Contractor of duties that are required in the Contract Documents. It is the Contractor's responsibility to read, follow, understand, and implement all requirements in the General Conditions, Supplementary and Special Conditions, Technical Specifications, and Construction Drawings.

Contractor's representative: _____ (Print name)

Contractor signature: _____ (Signature)



CHANGE ORDER

Project: _____ Change Order Number: _____
 _____ Date: _____
 To: _____ Contract Date: _____
 _____ Project Number: _____

This Change Order (CO) is addressed to the Contractor and requires the signature of the Owner, Consultant, and Contractor to be valid. It does not indicate changes in the Contract Amount or Contract Time that have been authorized by Construction Change Directive.

The Contract Is Changed as Follows:

- A. The original Contract Amount was: \$ _____
- B. The net change by previously approved Change Orders is: \$ _____
- C. The Contract Amount prior to this Change Order Proposal was (A+B): \$ _____
- D. The Contract Amount will be (increased) (decreased) (unchanged) by this CO in the amount of: \$ _____
- E. The New Contract Amount including this CO will be (A+B+D): \$ _____
- F. The Contract Time will be (increased) (decreased) (unchanged) by this CO in the amount of: _____
- G. The date of Substantial Completion as of the date of this CO therefore is: _____

	Owner	Consultant	Contractor
Address 1			
Address 2			
City, state, ZIP			
Signature (1)			
Date			

(1) The signature of the Contractor indicates agreement with the proposed adjustments in Contract Amount and Contract Time.

Copies: _____ Owner _____ A/E _____ Contractor _____



CONSTRUCTION CHANGE DIRECTIVE

Project: _____	Directive Number: _____
_____	Date: _____
_____	Project Number: _____
Contractor: _____	Contract for: _____
_____	Contract Date: _____

This document becomes immediately effective when signed by the Owner and Consultant and received by the Contractor. You are hereby directed to execute promptly this Change Directive, which interprets the Contract Documents, and make the following change(s) in this Contract.

Description of the Work:

Proposed Adjustments:

1. The basis for the adjustment in Contract Amount is:

☐ Lump sum (increase) or (decrease) in the amount of \$ _____
☐ Unit price in the amount of \$ _____ per _____
☐ Other _____ \$ _____

2. Contract Time is to be (increased) (decreased) (remain unchanged). The proposed change is (an increase of _____ days) (a decrease of _____ days).

	Owner	Consultant	Contractor
Address 1			
Address 2			
City, state, ZIP			
Signature (1)			
Date			

(1) The signature of the Contractor indicates agreement with the proposed adjustments in Contract Amount and Contract Time.

Copies: ☐ Owner ☐ A/E ☐ Contractor _____



SCHEDULE OF VALUES

Original Contract – Itemized Breakdown

Project Name and Address: _____

Project Number: _____

Owner: _____

Payment Number: _____

For Period: From _____ To _____

Item number	Item description	Category	Total value	Value of work completed			Percent complete
				Previous value to date	Value this report	Current value to date	
			A	B	C = D - B	D = A x E	E = D / A
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
		Mat'l					
		Labor					
Subtotal (this sheet only)							



CERTIFICATE FOR PAYMENT**Project Identification**

Project Name: _____
 Project Number: _____
 Owner: _____
 Payment number: _____
 For Period: From _____ To _____

Schedule of Values

Attach supporting detail sheets: - RCI Form 405 Schedule of Values	Total value	Value of work completed			Percentile complete
		Previous value to date	Value this report	Current value to date	
	A	B	C	D=B + C	E=D A
Original Contract (Sum of D004b Form)					
Approved Change Orders (Sum of D004a Form)					
Adjusted Contract total					
Less: retainage					
Net amount					

▲
Amount this Certification

Contractor Certification

The undersigned Contractor requests payment of that portion of the Contract price shown on the last line of this Schedule of Values, and represents and warrants to the Owner that: (1) the data shown on the Schedule of Values are accurate and correct; (2) the Work covered by this Certificate has been completed in accordance with the Contract Documents; (3) all previous progress payments received from the Owner on account of Work done under this Contract have been applied to discharge in full (except for allowable retainage) all obligations of the Contractor incurred in connection with Work covered by prior Certificates _____ through _____ inclusive; and (4) title to all materials and equipment for which payment is requested in this Certificate, whether or not incorporated in said Work, will pass to Owner at time of payment free and clear of all liens, claims, security interests, and encumbrances (except such materials and equipment that are covered by a bond previously accepted by the Owner).

FEIN #: _____ Contractor: _____
 Date: _____ By: _____
 Type name: _____

Consultant Certification

This is to certify that, in accordance with the Contract Documents, based on on-site observations and the information contained in this certificate, the Consultant certifies to the Owner that to the best of the Consultant's knowledge, the information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents and recommendation for payment to the Contractor is made in the amount of:

_____ dollars (_____).
 Consultant: _____
 By: _____ Type name: _____ Date: _____

Owner Action

Amount approved for payment this Certificate is: _____
 _____ dollars (_____)
 By: _____ Title: _____ Date: _____



STORED MATERIAL SUMMARY

Project: _____ Application Period: _____

Owner: _____

Application Number: _____

Project Number: _____ Application Date: _____

[illegible]

PARTIAL RELEASE OF LIEN AFFIDAVIT

The state of _____)
)
 County of _____) ss.

Before me, the undersigned authority, on this day personally appeared _____, known to me to be a credible person and officer of _____ ("Contractor") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Contractor, which has authorized me to make this affidavit, to enter into the agreements and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated _____, 20__ between Contractor and _____ ("Owner"), Contractor has supplied materials and performed labor in connection with construction of improvements upon certain real property in _____ County, _____, described as _____ of _____ Said improvements are more particularly described as _____.
3. Contractor has received total payments to date in the amount of _____ dollars (\$ _____) for all materials supplied and labor performed by Contractor in connection with the construction of the improvements during the period through _____, 20__ [Insert date of end of prior progress payment period.]
4. In consideration of and conditioned upon receipt from Owner of _____ dollars (\$ _____) [insert amount requested in present application for payment], Contractor hereby waives and releases any and all liens, rights, and interests (whether choate or inchoate and including, without limitation, all mechanic's and materialman's liens under the constitution and statutes of the state/commonwealth of _____ owned, claimed, or held by Contractor in and to the land and improvements, whether or not affixed or severable from the land or from any other portion of the improvements.
5. Contractor warrants that all costs incurred and bills owed by Contractor to others for materials supplied or labor performed in connection with the improvements through _____, 20__ [insert date of end of prior progress payment period] have been fully paid and satisfied.

Executed this _____ day of _____, 20__.

Contractor

By: _____

Title: _____

Subscribed and sworn to before me, the said _____ this _____ day of _____, 200__, to certify which witness my hand and seal of office.

Notary public in and for _____ County, _____

My commission expires on the _____ day of _____, 20__.



FINAL RELEASE OF LIEN AFFIDAVIT

The state of _____)
County of _____) ss.

Before me, the undersigned authority, on this day personally appeared _____, known to me to be a credible person and officer of _____ ("Contractor") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Contractor, which has authorized me to make this affidavit, to enter into the agreements, and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated _____, 20__ between Contractor and _____ ("Owner"), Contractor has supplied materials and performed labor in connection with the construction of improvements upon certain real property in _____ County, _____, described as _____. Said improvements are more particularly described as _____.
3. Contractor hereby certifies it has received _____ dollars (\$ _____), which constitutes payment in full for any and all materials supplied and labor performed by Contractor on the above-described Improvements. Contractor does hereby waive and release any and all liens, claims, rights, and interests (whether choate or inchoate and including, without limitation, all mechanic's and supplier's liens under the constitution and statutes of the state/commonwealth of _____) owned, claimed, or held by Contractor in and to the land and improvements or any part thereby by reason of materials supplied or labor performed on said project.
4. Contractor warrants that all costs incurred and bills owed by Contractor to others for materials supplied or labor performed in connection with the Improvements have been fully paid and satisfied, except for those bills set forth on Attachment A. Contractor certifies that within seven (7) days hereafter, Contractor shall pay all sums due for those bills set forth on Attachment A. Contractor further warrants that should any claim or lien be filed for material supplied or labor performed in connection with the Improvements, Contractor will immediately furnish a Bond for the release of such liens, obtain settlement of any such liens, and furnish Owner a written, full release of such liens. Should Contractor be unable to obtain such release, Contractor agrees to fully indemnify and hold harmless Owner from any and all costs it may incur by reason of such liens.

Executed this _____ day of _____, 20__.

Contractor

By: _____

Title: _____

Subscribed and sworn to before me, the said _____ this _____ day of _____, 20__, to certify which witness my hand and seal of office.

Notary public in and for _____ County, _____

My commission expires on the _____ day of _____, 20__.



NONCONFORMING WORK NOTICE

Project: _____ Report Number: _____

From: _____
To: _____ Date Observed: _____ Date Reported: _____

Project Number: _____
Re: _____

Consultant response

Specification Section: _____ Paragraph: _____ Drawing Reference: _____ Detail: _____

The Contractor is hereby notified of the following deficient work. Your immediate response is requested.

Signed by: _____ Date: _____ Date response needed: _____

Contractor response

Proposed correction (response):

Amount of time for correction: _____

___ Attachments

Response From: _____ To: _____ Date Rec'd: _____ Date Ret'd: _____

Signed by: _____ Date: _____

Copies: ___ Owner ___ A/E ___ Consultants ___ _____



CERTIFICATE OF SUBSTANTIAL COMPLETION

_____ Date

Owner: _____

Project No.: _____

Project Name: _____

Address: _____

In accordance with the requirements of the agreement between the Owner and the Consultant and based upon the knowledge gained in the performance of the professional services provided in said agreement and the reports of the Owner's Inspection and Testing entities, the undersigned Consultant states that the following portions of the Project named above are substantially complete in accordance with the requirements of the Contract Documents and are recommended for occupancy: *(Indicate portions that are recommended for occupancy.)*

All applicable tests, Certificates, and regulatory inspections required by the Client, which were the basis of the design of the Project, have been performed with respect to the substantially completed portions of the Project, and the Owner has been provided with a copy of each report, except for the following: *(Indicate items that are not completed.)*

A tentative list of unfinished Work and defective Work, referred to as the "punch list," is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of Contractor to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by Contractor within _____ days of the above date of Substantial Completion.

(Typed name of consultant)By: _____
(Signature in ink)_____
(Typed name and title)

The following documents are attached to and made a part of this Certificate:

Punch list containing page 1 through _____



CERTIFICATE OF FINAL COMPLETION BY CONTRACTOR

To: (Owner) _____

Project Identification

Project Name: _____

Project Number: _____

Site Address: _____

Street address

City State ZIP Code

() ()

Site telephone

Site fax

In accordance with the requirements of the Contract between the Owner and the Contractor, the undersigned Contractor hereby states that, as of _____, 20____, the above-named Project has been fully completed in accordance with the requirements of the Contract Documents as modified by approved change orders.

All applicable tests, Certificates, and regulatory inspections required by applicable laws and building codes and the Contract documents have been performed with respect to the completed project, and the Owner has been provided with a copy of each report.

As-built, marked-up prints of the completed project have been provided to the Design Team Lead and/or Consultant as required by the Contract Documents.

The Owner has been provided with a copy of all warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents.

All training, operating instructions, and maintenance manuals required by the Contract Documents have been provided to the Owner.

Typed contractor name _____ Date _____

By: _____
Signature

Typed name and title _____

The following documents are attached to and made part of this Certificate:

cc: _____
Design Team Lead and/or Consultant



SPECIFICATIONS

SECTIONS

- 01 11 00 - Summary of Work
- 01 33 00 - Submittal Procedure
- 01 78 36 - Warranties
- 02 41 00 - Roof Demolition and Cleanup
- 06 10 00 - Rough Carpentry
- 07 54 00 – PVC Thermoplastic Roofing
- 07 60 00 - Sheet Metal Flashing and Trim
- 22 14 00 – Roof Drains and Piping

SECTION 01 11 00

SUMMARY OF WORK

PART 1– GENERAL

1.1 SUMMARY

- A. This section is for the convenience of the Contractor only and shall not be construed as a complete accounting of all work to be performed. The extent of the Work is indicated on the drawings and by the requirements of each Specification Section.
- B. Drawings, Specification Sections, and general provisions of the Contract, including General and Supplementary Conditions and all other Division Specification Sections apply to this Section.

1.2 LOCATION OF WORK

- A. Project Name: Southern Nevada Health District – Roof Replacement
Address: 280 S. Decatur Blvd., Las Vegas, NV 89107
Owner: Southern Nevada Health District
Consultant: Curtainwall Design & Consulting, Inc. (CDC, Inc.)

1.3 SITE INVESTIGATION

- A. The Contractor shall examine the site and shall be responsible for verifying existing construction and conditions. Any failure by the Contractor to acquaint themselves with all the available information concerning existing conditions will not relieve them from responsibility of properly estimating the difficulty or cost of successfully performing the work. No extra payment will be considered for work additional to that shown or noted, if such work would have been apparent in an inspection of the premises, provided in project documents and / or part of typical work required to achieved the general work prescribed.

1.4 WORK UNDER THIS CONTRACT

- A. GENERAL REQUIREMENTS:
 - 1. The work shall include the furnishing of all labor, tools, materials, equipment, transportation, etc., and the performance of all operations required to provide construction as specified herein and shall include the cleanup and removal from site, all debris resulting from the operations performed. It shall also be the Contractor's responsibility to take all necessary safety precautions and to furnish safety measures as required.
 - 2. Take responsibility for all roofing, electrical, plumbing, mechanical, and other related trade work necessary to facilitate the Work. Contractor is responsible for relocating and raising conduits, HVAC units, curbs, gas lines, and or plumbing necessary to comply with the requirements of these documents. All work shall conform to the requirements of current building code and as described herein. As required by the State of Nevada, local building code and the State Contractor's Board, provide for Nevada Registered Design Professionals and / or properly licensed contractors to perform required Work.
 - 3. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Specific items listed herein (contract documents) may improve the standards required by the manufacturer and will take precedence where their compliance will not affect the manufacturers' warranty provisions.

4. No changes involving additional cost may be started without prior approval of the Owner.
5. Any damage including but not limited to landscaping, asphalt, concrete, etc. damaged by the Contractor will be repaired at the Contractor's expense. Contractor must notify the Owner of any pre-existing damaged areas prior to the start of each project.
6. Staging areas as identified by owner's representative, to be fenced and kept secure at all times.
7. Facility rules and policies must be followed by all persons at all times at the project site, including but not limited to drug and alcohol policy, weapon and firearm policy, safety and security policy, cell phone and electronics policy. Contractor and employees shall not interact with patrons in any manner. Policies are available upon request.
8. Contractor shall provide own utilities including but not limited to water, electricity, Port-O-John, waste removal, etc.
9. Owner shall provide internal access to the roof for contractor personnel. Contractor shall comply with all necessary SNHD security and badging requirements. Contractor shall sign in and sign out daily when the contractor arrives and departs the project site.
10. In the event unanticipated asbestos bearing materials are discovered to be present in the Work, Contractor is to stop all work in the affected area, notify the Owner and provide temporary protection as required. Owner shall provide further direction concerning the asbestos abatement.
11. If any existing expansion joint has a fire barrier system, that system shall be protected and to remain in place if possible or a new fire barrier system installed.

B. SCHEDULE

1. The Contractor will note that time is of the essence. The Contractor shall work closely with the Owner in coordinating and performing the work. Work hours shall be coordinated with the Owner. Unless approved otherwise by the Owner, work hours shall be as follows:
 - a. Monday through Friday. Owner is open to daytime or nighttime work.
 - b. Saturdays, Sundays, and Holidays – Require prior approval of the Owner.
 - c. Project shall be completed within 90 calendar days from Notice to Proceed.

C. CODE COMPLIANCE– State of Nevada

The completed Work shall comply with the following requirements:

1. Building Code: 2012 International Building Code (IBC).
2. Mechanical Code: 2012 Uniform Mechanical Code (UMC).
3. Plumbing Code: 2012 Uniform Plumbing Code (UPC).
4. Electrical Code: 2011 National Electrical Code (NEC)
5. Fire Code: 2012 International Fire Code (IFC)
 - a. NFPA Standards as referenced in the 2012 IFC and IBC.
6. Energy Code: 2012 International Energy Conservation Code (IECC).
7. Existing Building Code: 2012 International Existing Building Code (IBEC).
8. Residential Code: 2012 International Residential Code (IRC). As applicable.
9. All applicable provisions of the Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC), including:
 - a. Current regulations of the State Fire Marshal, Nevada Department of Public Safety (NAC Chapter 477, State Fire Marshal).
 - b. Current regulations of the Division of Industrial Relations, Nevada Department of Business and Industry (NAC Chapter 455C)
 - c. Current regulations of the Health Division, Nevada Department of Health and Human Services (NAC Chapter 446)
 - d. Current regulations of the Division of Environmental Protection, Nevada Department of Conservation and Natural Resources.

- e. Current edition of the Americans with Disabilities Act (ADA), United States Department of Justice.
 - f. ICC/ANSI A117.1
10. The completed roof shall meet the following requirements:
- a. External Fire Rating: UL or FM Class A
 - b. Roof System design wind load pressures:
 - i. Field: -25 PSF
 - ii. Perimeter: -42 PSF
 - iii. Corner -63 PSF
 - c. Coping and edge metal shall comply with ANSI/SPRI ES-1 design wind pressures:
 - i. Horizontal:
 - Perimeter -73 PSF
 - Corner -93 PSF
 - ii. Vertical:
 - Perimeter -120 PSF
 - Corner -187 PSF
11. In the event that test methods or standards used to verify or document compliance with specified codes/standards **change** for any reason during the duration of the Work, the newly implemented test methods or standards shall take precedence unless specifically accepted otherwise in writing by Owner or Consultant.
12. In the event that new codes or standards are adopted by the authority having jurisdiction during the duration of the Work, the Work shall comply with newly active codes and/or standards, unless approved in writing by authority having jurisdiction and Owner or Consultant.

D. PROPERTY INSURANCE COMPLIANCE:

- 1. Regardless of current property insurance carrier, Contractor shall comply with the following criteria.
- 2. Roof coverings, materials, decking, insulation, fasteners, adhesives, etc. shall be selected from the specified products to provide a roof assembly that is defined by an active RoofNav assembly Number, or by written acceptance by Property Insurer.
- 3. The Contractor shall complete and submit insurance company required pre-job submittals, if applicable.
- 4. As applicable, roof materials, insulations, fasteners, adhesives delivered to the job site shall bear FM Global approved labels on the product of packaging.
- 5. Wood nailer and roof related sheet metal fabrications and installation shall meet, at a minimum, the requirements of FM Loss Prevention Data Sheet 1-49.
- 6. Fastener placement in Perimeter and Corner zones shall comply with requirements of FM Loss Prevention Data Sheets 1-28 and 1-29.
- 7. The completed roof system shall meet the intent of the following FM Global Class: FM 1-90 Min.

E. QUALITY ASSURANCE BY ROOF SYSTEM MANUFACTURER

- 1. Roof systems manufacturer's technical representative (sales representatives are not acceptable), who shall be a full time employee of the manufacturer, shall provide quality assurance in conjunction with the roof system installation. During each visit, the manufacturer's technical representative shall check all work installed since the last visit, mark all defects for repair, and provide a written site visitation report listing any deficient work requiring correction by the Contractor. All reports and other correspondence associated with the site visit shall be provided to the Consultant/Owner within three (3) business days of the visit.
- 2. The manufacturer's technical representative shall coordinate all site visits with the Contractor and Consultant/Owner's Representative a minimum of three (3)

- business days in-advance.
3. The manufacturer's technical representative shall attend one preconstruction meeting and be present the first day that roofing material is being installed.
 4. The manufacturer's technical representative shall visit project site once a week during construction and conduct a final inspection.
 5. The manufacturer shall provide refresher training course for applicators personnel that will be utilized on this project. Training shall have been completed within 90 days prior to project start. At a minimum, training shall cover membrane installation and welding techniques.

1.5 WORK UNDER SEPARATE CONTRACT

- A. Separate Contract: No other work under other contracts is anticipated at the project site during the estimated construction duration. However, the Owner may award a separate contract for performance of certain construction operations at the Project site.
- B. Contractor shall fully cooperate with separate contractors so work on those contracts may be carried out smoothly, without interfering or delaying Work under this Contract.

PART 2- PRODUCTS

2.1 NO PRODUCTS ARE REQUIRED IN THIS SECTION

PART 3 - EXECUTION

3.1 SUBMITTAL PROCEDURE

- A. Provide complete set of submittals in accordance with Section 01 33 00 Submittal Procedure fully coordinated with the submittal section of each Section.

3.2 WARRANTIES

- A. Provide specified warranties in accordance with Section 01 78 36 and in accordance with the warranty section of each Section.

3.3 DEMOLITION AND ROOF PREPARATION

- A. As a general guideline, the overall project intent regarding each building / roof area is noted below. The items noted are a minimum requirement and the bidder shall fully examine the site and provide for all requirements of the manufacturer (one of the specified) they submit for installation in regards to that manufacturer's requirements to obtain the specified warranty and in concert with good practices and industry standards. The bidders shall recognize that existing conditions may not allow for a minimum of 8" base flashing heights at all areas among other existing conditions. These conditions shall not be excluded from the manufacturer's or installers warranties.
- B. Coordinate all aspects of demolition work with Owner.
- C. Provide protective measures in and around the building to protect the building and adjacent surfaces from being soiled or damaged and as directed by the Owner.
- D. Prior to tear-off, verify that all soil pipes, flues, steel members, and other similar penetrations are secured to the building structure. Coordinate removal or securement of all unsecured penetrations prior to the start of roof demolition.
- E. Remove the existing roof system(s) and associated flashings down to the existing wood deck as per the drawings and required to properly install the new roofing system.

- F. Remove all existing base flashings, metal flashings, counter-flashings, edge metal, fascia, etc. and properly dispose of.
- G. Remove debris from roof area and properly dispose of all materials off site. At the end of each day, clean site.
- H. Roof shall be sealed at the end of each work day. Roof shall not be left open overnight. Roof shall not be left open during inclement weather.

3.4 DETERIORATED WOOD DECK

- A. Remove and replace/repair deteriorated and/or damage wood deck as required to provide a suitable substrate prior to the installation of the new roof system.
- B. Properly prepare deck/substrate for installation of new roof system.

3.5 ROUGH CARPENTRY

- A. Install replacement wood nailers/plywood where deteriorated components were removed.
- B. Install nailers as shown on the drawings.
- C. Install nailers for curb extensions as required for minimum curb flashing height of 8".
- D. Install nailers where required to match height of new roof insulation/coverboard.

3.6 BARRIER BOARD:

- A. Install barrier board over wood deck in accordance with manufacturers recommendations.

3.7 TAPERED INSULATION

- A. Install tapered insulation system over barrier board to provide positive drainage.
- B. Sump tapered insulation at roof drains to provide additional slope and drainage.

3.8 COVERBOARD

- A. Install new coverboard (gypsum based) mechanically attached to the wood deck.
- B. Install new substrate board as specified over existing substrate at all vertical parapet walls, curbs, etc.

3.9 LOW SLOPE ROOFING SYSTEM/FLASHINGS

- A. Install 60 mil thermoplastic roof system induction welded and as specified and detailed.
- B. Install walkway at all access points and around all serviceable roof top equipment or as directed by Owner's Representative.
- C. Enhance fastening at perimeter and corner zones. Minimum width of enhancement at perimeter and corner zones shall be 8 feet.

3.10 ROOF RELATED SHEET METAL

- A. Install roof related sheet metal components as per drawings and specifications including but not limited to copings, counter-flashings, scuppers, collector heads, rain gutters etc.

- B. Provide all necessary sealant primers, sealant, sealant tapes, solder/weld joints, and fasteners to ensure a watertight installation.

3.11 PLUMBING WORK

- A. Raise, move and / or relocate any plumbing pipe penetrations that do not allow for the proper and recommended installation of the new roofing system.
- B. Extend any plumbing pipe as required to obtain 8" membrane flashing heights.
- C. Reset existing roof drains at deck level to coincide with new roof assembly as required.
- D. Install new secondary overflow roof drains adjacent to existing internal primary roof drains.
- E. Install new roof drain piping below deck and above drop ceiling exiting at exterior walls.
- F. Install new secondary overflow scuppers adjacent to existing external primary roof scuppers.

3.12 MECHANICAL/ELECTRICAL WORK

- A. Disconnect, reconnect and rebalance, units as required for lifting.
- B. Extend ducts as required for raising curbs to finished elevations.
- C. Raise, move and / or relocate any electrical penetrations that do not allow for the proper and recommended installation of the new roofing system.
- D. Raise move and/or relocate gas lines that do not allow for proper and recommended installation of the new roofing system.
- E. Raise, move and / or relocate any electrical conduits that do not allow for the proper and recommended installation of the new roofing system and related flashings.
- F. Prepare, prime and paint all gas lines yellow.

3.13 ROOFTOP UTILITIES

- A. The project will require the removal, relocation, raising, and modification or cleaning of existing rooftop utilities such as cell towers, conduits, pipes and cables, etc.
- B. Unless approved in advance by the Owner, all utilities shall remain in service during the course of the project. No service shall be disrupted without prior approval of the Owner.
- C. Prior to the start of any roof work, the Contractor shall ascertain the operational status of the rooftop utilities. After approval by the Owner all abandoned equipment and/or utilities shall be properly disconnected, terminated or capped and removed. Proper disposal of all abandoned utility materials shall be the responsibility of the Contractor.
- D. All modification to rooftop utilities shall meet applicable codes and Owner requirements.
- E. All rooftop utilities shall be verified and certified to be in proper working condition upon completion of the work.
- F. Cleaning or removal of the existing roofing shall be accomplished in such a manner so as to not damage the utility.
 - 1. Removal of existing roofing shall be accomplished to the extent required to perform

the flashing work indicated and/or as required to have clear space beneath the utility to install the specified roof system.

2. All damaged or removed pipe insulation shall be replaced.

- G. Relocation or raising of rooftop utilities shall be accomplished in such a manner as to meet the following requirements unless otherwise approved by the Owner and roofing system manufacturer and in concert with the proper installation of new roofing.

1. Mechanical system items shall be raised to provide clearance from top of finished roof surface as required by the roofing system Manufacturer in order to supply the specified roofing system warranty, no less than 8" minimum base flashing height regardless of what roofing system manufacturer will accept.

3.14 ROOFTOP MECHANICAL EQUIPMENT

- A. With the additional of tapered roof insulation and during the course of this project, some of the rooftop equipment will require lifting or modifications. The project intent is to provide a minimum 8" base flashing height at all penetrations. Contractor shall note that 8 inch minimum base flashing heights may not be achievable at all locations, however base flashing heights less than 8 inches shall not be excluded from roof manufacturer's warranty.
- B. The disconnection and connection of all ductwork and piping shall be accomplished by a properly licenses subcontractor.
- C. Prior to the start of any work, the operational status of the equipment shall be verified by the subcontractor. Any discrepancies shall be reported in writing to the Owner's representative.
- D. All modifications shall meet applicable codes and Owner standards.
- E. All rooftop mechanical equipment shall be verified and certified to be in proper working condition upon completion of the work

3.15 REMOVAL/INSTALLAION OF SECURITY CAMERAS/SECURITY LIGHTS/SPEAKER SYSTEMS

- A. Remove and reinstall security cameras/security lights/speakers/conduits as required to perform the work indicated and to meet the following requirements:
 1. Fixtures shall be mounted using approved supports and anchorage devices.
 2. Conduits and utility connections shall be modified as required to facilitate relocation of the fixture.
 3. Conduit supports shall be as detailed.
 4. Loose wires shall be tied to existing conduits no greater than 5' centers.
 5. Remove and reinstall conduits for proper installation of roofing system.
 6. Conduits attached to walls shall be attached to interior vertical surfaces using waterproofing clamps and spaced not more than 5' o.c.
- B. Relocation and modification to cameras, lights, conduits and speakers shall be accomplished by a properly licensed subcontractor approved by the owner.
- C. All modifications to cameras and lights shall meet applicable codes and owner requirements.
- D. Cameras and lights shall be in proper working condition upon completion of the work.
- E. Coordinate removal and reinstallation with Owners representative.

3.16 ROOFTOP SATELLITE EQUIPMENT/ANTENNAS

- A. Temporarily remove equipment as required to properly install the new roofing system.
- B. Coordinate all movement of such equipment with the Owner and re-install equipment in its proper location required to provide service to the owner.

3.17 WARRANTIES

- A. Provide manufacturers twenty (20) year no dollar limit total system warranty.
 - 1. Warranty shall include coverage for wind damage for wind speeds up to 90 MPH.
 - 2. Warranty shall include hail damage up ¾" diameter.
- B. Provide contractors five (5) year warranty.

3.18 MISCELLANEOUS

- A. Coordinate the work throughout the duration of the project as to minimize disruption of facility operations.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - a. Procedures for submittals required by the Contract Documents including, but not limited to the following:
 - i. Submittal Schedule
 - ii. Project Directory
 - iii. Product List
 - iv. Shop Drawings
 - v. Design-Build Engineering Design and Drawings
 - vi. Product Data
 - vii. Samples
 - viii. Delegated-Design Services
 - ix. Information Submittals
 - x. Colors, Finishes and Patterns Submittals
 - xi. Operating and Maintenance Manuals
 - xii. Field Samples and Mock-Ups
 - xiii. Composite Coordination Drawings
 - xiv. Sample and Final Warranties
 - xv. Request for Information (RFI'S)
 - b. Final Distribution of Submittals
- B. Related Requirements:
 - a. Documents affecting the work of this Section include, but not limited to:
 - i. Owner/Contractor Construction Agreement and General Conditions of the Contract.
 - b. Substitution Procedures
 - c. Construction Schedules
 - d. Closeout Procedures
 - e. Individual requirements for submittals are described in other Sections of these Specifications.
- C. Work Not Included:
 - a. Not required submittals will not be reviewed or processed by the Consultant unless requested to do so by the Owner.

1.2 DEFINITIONS

- A. Submittals: Shop Drawings, Product Data, Samples or other data pertaining to the construction of the Work which the Contractor is required by Contract Documents to submit to the Consultant or Owners Representative for review for the purpose of illustrating how the Contractor proposes to conform to the requirements and design concepts expressed in the construction drawings and specifications.
- B. Shop Drawings: Are drawings, diagrams, schedules and other data specifically prepared for the Work by the Contractor, Subcontractor, Manufacturer, Supplier or Distributor to illustrate some portion of the work.
- C. Product Data: Are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, data sheets, templates, patterns, reports, calculations, and other similar information furnished by the Contractor to illustrate materials, supplies or equipment for some portion of the Work.

- D. Samples: Are physical examples which illustrate materials, supplies, equipment, or workmanship (fabricated and un-fabricated) and establish standards by which the Work will be judged.
- E. Mock-Ups: Are a special form of samples, that are typically too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.
- F. Miscellaneous: Submittals relating directly to the work including, but not limited to, sample warranties, warranties, maintenance agreements, reports, work records, quality testing reports, certifying reports, performance reports, record drawings (as-builds), operating and maintenance manuals, field measurement data, and similar information, devices and materials applicable to the Work and not processed as a shop drawing, product data, samples, or mock-up.

1.3 GENERAL

- A. Do not commence any portion of the work requiring submittals until reviewed by Consultant. Any fabrication, erection, setting or other work done in advance of review by Consultant shall be done entirely at the Contractor's risk.
- B. Review of submittal by Consultant shall be made only for general arrangement, appearance, and conformity to the design intent as contained in the construction drawings and specifications. This review does not relieve the Contractor from responsibility for errors or omissions in designs for which the Contractor is responsible. The Contractor remains responsible for compliance with all requirements of the Contract Documents, and for its safe and successful completion of the Work.
- C. Consultant review does not include dimensions, or quantities nor does it consider means, methods, techniques, sequences, operations of construction, safety, precautions, or programs incidental thereto, which are the sole responsibility of the Contractor.
- D. Comments noted by Consultant apply to all similar conditions.
- E. Shop Drawings, Product Data, Samples, Mock-Ups shall in no case be considered Contract Documents but are to be treated only as instruments of convenience and facility to further the progress of the Work.
- F. Miscellaneous systems not specifically specified but installed to meet code requirements or for any other reason are subject to Consultants review prior to installation.
- G. Submittals and supporting data shall be prepared by the Contractor and shall be submitted to the Consultant as the instruments of the Contractor.
 - 1. Contractor shall check the drawings of its sub-contractors, suppliers, etc. as well as its own drawings before submitting them to the Consultant.
 - 2. Manufacturer standard details that do not reflect specific and actual project conditions will not be accepted.
 - 3. Contractor shall ascertain that submittals meet all requirements of the Contract Documents and also conform to the structural and space conditions. If submittals vary from Contract Documents, for any reason, Contractor shall make special mention thereof in its letter of transmittal and describe the reasons why there are variations.
 - 4. Prior to submittal to Consultant, each submittal submitted for review shall be stamped, dated, and signed by Contractor, verifying that it has been checked by the Contractor to be in accordance with the Contract Documents. Submittals not signed by the Contractor will be returned without review by the Consultant.
 - 5. Tabulate checklist by each Specification Section. Provide copy of checklist at beginning of submittals for each Specification Section.
- H. Maintain returned final set of reviewed submittals at project site, in suitable condition and available for quality control comparisons by Consultant, Owner and others. Each trade shall have final set of trade specific reviewed submittals at project site, in suitable condition and

available to supervisors, foreman, leaders, and responsible person in charge, staff, and employees, etc.

- I. Within five (5) days after award of Contract, Contractor shall provide to Consultant five copies of complete list of submittals as required in each Specification Section. Submittals that do not require color selection, color charts, mock-ups, textures, physical samples, etc. shall be transmitted electronically.
- J. Review comments of Consultant/Owner will be shown on one reproducible copy when it is returned to the Contractor. Contractor shall make and distribute additional copies as required for its purposes and as required within Construction Documents.
- K. Manufacturer's standard data sheets, shop drawings, details, etc. shall be modified to delete information which is not applicable and shall be supplemented to provide additional information where so required.
- L. If submittals are submitted electronically, submit as one file not as individual components.
- M. Manufacturer shall review and approve all shop drawings.

1.4 COORDINATION OF SUBMITTALS

- A. Prior to submittal, use all means necessary to fully coordinate all material, including but not limited to:
 - 1. Determine and verify all interface conditions, catalog numbers and other data.
 - 2. Coordinate with all trades as required.
 - 3. Clearly indicate deviations from requirements of the Contract Documents.
 - 4. Verify each item and corresponding submittal conforms to requirements of the Contract Documents in all respects.
- B. The following products must be provided but will not be reviewed except for interface within the Work, unless indicated otherwise:
 - 1. Material Safety Data Sheets for all materials, supplies, etc.
- C. By affixing the Contractor's signature to each submittal, the Contractor certifies that this coordination has been performed.

1.5 GROUPING OF SUBMITTALS

- A. Unless otherwise indicated, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
 - a. Provide submittals for each Section in its entirety as a group. Partial submittals will be rejected as not complying with the provisions of the Contract. The Contractor may be held liable for delays so occasioned.
- B. When resubmitting, resubmit entire submittal for each Section requiring resubmittal. Do not resubmit partial submittals. Partial submittal shall be not be reviewed by the Consultant and will be returned un-reviewed to the Contractor.

1.6 SUBSTITUTIONS/VARIATIONS

- A. Substitutions request shall be written, timely and submitted in accordance with the procedures specified.
- B. Any delay in construction caused by requests of the Contractor to substitute materials, items of equipment or assemblies of construction shall be the responsibility of the Contractor; the Owner will not entertain any requests for damages caused by such delays. Review by the Owner of substituted items shall not relieve the Contractor of its responsibilities under the Contract and the various guarantees/warranties provided therein.
- C. Contractor must validate that any substitutions/variations from Contract Documents are compatible and provide the specified guarantees/warranties.

1.7 IDENTIFICATION OF SUBMITTALS

- A. Consecutively number all submittals.
 - 1. When information is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
 - 2. On resubmittals, reference the original submittal number.
- B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking. Include a checklist of submittals for each Section.
- C. On at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly show the submittal number in which the item was included.
- D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Consultant for review weekly or upon request.
- E. Where Mock-ups and similar samples are indicated in individual work Sections and cannot be transmitted in standard fashion, process transmittal form to provide a record of activity.

PART 2 – SUBMITTALS

2.1 PROJECT DIRECTORY

- A. After execution of the Contract but prior to commencement of Work, Contractor shall submit to Consultant a "Project Directory" listing subcontractors, vendors, suppliers, etc. on the Project and giving a brief description of their scope of work, firm name, contact person, address, phone number, email address and fax number.

2.2 PRODUCT LIST

- A. Within five (5) days after award of Contract, Contractor shall provide to Consultant five copies of complete list of submittals as required in each Specification Section. Submittals that do not require color selection, color charts, mock-ups, textures, physical samples, etc. shall be transmitted electronically.
- B. Tabulate checklist by each Specification Section. Provide copy of checklist at beginning of submittals for each Specification Section.
- C. For products specified only by reference standard, include with listing of each product:
 - 1. Name and address of manufacturer.
 - 2. Trade name.
 - 3. Model or catalog designation.
 - 4. Manufacturer's data.
 - a. Performance and test data.
 - b. Reference standards.

2.3 SHOP DRAWINGS

- A. Shop drawings shall be accurately drawn to scale, completely dimensioned, and sufficiently large to show all pertinent aspects of the item and its method of connection to the Work (or as specifically indicated elsewhere in the other sections of these specifications).
 - 1. Show plan and section views as necessary to clearly show construction details and methods.
 - 2. Maximum sheet size permitted will be 36 inches by 48 inches. Minimum sheet size permitted will be 8.5 inches by 11 inches.
- B. Title shop drawings with the name of the Project and list the applicable divisions, sections, and details on each sheet.
- C. Submit separate items on separate sheets.

- D. The reproduction of any Contract Documents for use in a shop drawing submittal is not permitted.
 - 1. The Contractor may request drawings/backgrounds from the Consultant to use in his preparation of Shop Drawings. The Consultant will send drawings, via email, only after the following is completed:
 - a. Contractor to complete the "CAD Release and Indemnity Agreement" to be provided by the Owner; sign and return to the Consultant.
 - b. Requests for drawings prepared by Consultants shall be directed to Consultants office and be subject to their policies. Consultants and sub-consultants retain the right to issue/not issue their drawings to be used for Shop Drawing preparations.
- E. Contractor to assume in its agreed cost to the Owner that it will not receive any drawings from the Consultant to use for his preparation of Shop Drawings. The Contractor should assume in its agreed cost to the Owner that the Contractor will prepare custom Shop Drawings for each Specification Section.
- F. Manufacturer standard drawings/details that do not reflect specific and actual project conditions will not be accepted.
- G. Project specific shop drawings shall be submitted to manufacturer for review and acceptance prior to being submitted to Consultant. Shop drawings that do not bear the stamp and/or approval of the manufacturer shall be returned to the Contractor without being reviewed.
- H. Drawings shall show how multiple systems and interdisciplinary work will be coordinated.

2.4 PRODUCT DATA

- A. Manufacturer's standard data sheets, drawings, details shall be modified to delete information which is not applicable and shall be supplemented to provide additional information where so required.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data shall:
 - 1. Have each copy clearly marked to identify pertinent materials, products, models, finishes, etc.
 - 2. Show clearly standard options included.
 - 3. Show dimensions and clearances required.
 - 4. Show performance characteristics and capacities.
 - 5. Show wiring diagrams and controls and show necessary rough in requirements for utility services and connections, where applicable.
 - 6. Include manufacturer's installation instructions on 8.5 inch by 11.5 inch sheet size.
- C. Identify each item of product data by reference to sheet and detail of Contract Drawings and by specific reference to Division and Specification Section. At the end of each section provide data sheets for items required to meet code or complete Work that are not specifically referenced or specified.
- D. Where product data, as submitted, contains extraneous information, unmarked options, or is incomplete, it will be returned to the Contractor without review.
- E. When contract requires extended or special warranty terms, warranty sample must specifically state warranty language to address extended or special warranties.

2.5 SAMPLES

- A. Contractor shall forward, at its own expense, samples designated for use on the Project. Include material, equipment, textures, colors, and fabrics in sizes and quantities as required by the Drawings and Specifications or as requested by the Consultant. Where there is an expected range of color or texture variation for the specified item, submit sufficient number of samples to illustrate range.

- B. Submit and resubmit samples until accepted by Consultant/Owner.
- C. No review of sample shall be taken in itself to change or modify the Contract requirements.
- D. Finishes, materials and workmanship in the completed Project shall match accepted samples.
- E. No samples shall be incorporated into the Work, unless otherwise specified or specific approval is given by the Consultant and Owner.
- F. Samples shall not be returned to the Contractor.

2.6 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria
 - 1. Where professional design services or certifications by a design professional are specifically required by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 2. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to the Consultant.
- B. Delegated-Design Services Certification
 - 1. In addition to shop drawings, product data, and other required submittals, submit paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to the Contractor to be designed or certified by a design professional.
 - 2. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, load, and other factors used in performing these services.

2.7 COLORS & FINISHES

- A. Unless the color or pattern are shown or specified, whenever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the Consultant for review and selection.
- B. Completely describe the relative cost and capabilities of each color and pattern, unless available colors and patterns have identical costs and wearing capabilities.

2.8 FIELD SAMPLES AND MOCK-UPS

- A. Erect at project site at a location specified by Consultant. Comply with requirements herein.
- B. Provide field samples or mock-ups as required in Specification Sections.
- C. Mock-ups shall be size and shape as specified in individual Sections.
- D. Each sample shall be complete and finished and must be representative of final finished product. Do not start work until after Consultant has reviewed mock-ups.

2.9 COMPOSITE DRAWINGS

- A. Prepare drawings for the following to solve field conditions for equipment and systems to be installed in tight or restricted spaces and for equipment and systems intended to be exposed to view:
 - 1. Structural framing with openings and clearances.
 - 2. Electrical items and conduits located on or near the roof.
 - 3. Gas lines, plumbing lines and any other utilities located on or near the roof.
 - 4. Security items, satellite dish, etc. or similar items located on or near the roof.
 - 5. HVAC system and ducts located on or near the roof.
 - 6. Mechanical/screen walls and any other roof top mounted equipment or penetrations.

- B. Drawings shall consist of dimensioned plans and elevations. Provide complete information, particularly to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, and structural interferences.
- C. Shop drawings and field installation layouts shall be coordinated in the field by the Contractor and subcontractors for proper sequencing and relationship to Work of applicable trades based on field conditions and shall be checked and approved by them for submission to Consultant for final review.

2.10 REQUEST FOR INFORMATION (RFI'S)

- A. RFI's shall be submitted by the Contractor or by subcontractors to the Contractor who shall then assign the request an RFI Number and forward the request to the Consultant. RFI's from contractors under separate contract with the Owner, and performing work concurrently with the Work under this contract, shall submit RFI's through the Contractor for coordination.
- B. Subcontractors shall not submit RFI's directly to the Consultant. The Contractor shall make his best effort to answer and respond to a subcontractor's RFI before submitting it to the Consultant.
- C. Each RFI shall be given a discrete, conservative number such as 001, 002, 003 etc. Revisions or resubmittal of the same RFI shall maintain the original RFI number but be otherwise identified with a suffix such as 001A, for first revisions, or 001B for second revisions, etc.
- D. Contractor shall identify in the RFI the specific issue that the Contractor is requesting information on, where it is referred to in the Contract Documents, and what is the Contractor's proposed solution to the RFI. RFI's not addressing these three issues will be rejected.
- E. The Consultant's response to the RFI's will confirm a stated interpretation or otherwise interpret the design intent and may include furnishing an alternative conflict resolution.
- F. The Consultant will review and process RFI's within 10 working days. It is acknowledged and understood that some RFI's will take longer to review and respond than others.
- G. Contractor shall prepare and maintain a log and status of RFI's. Contractor shall provide copy of RFI log to Consultant weekly and upon request.

2.11 OPTIONS AND/OR CLARIFICATIONS

- A. If the Construction Documents have not detailed an item of work called for in the Contract, Contractor shall advise Consultant/Owner of "how to" recommendations on materials and methods for installation on project.
 - 1. The proposal shall be submitted to the Consultant/Owner by drawings and descriptive material, include a detailed, itemized cost breakdown, if any.
 - 2. The means of work recommended shall not create a hardship on the project schedule.
 - 3. Work as proposed shall not be started without written approval by Owner.

PART 3 - EXECUTION

3.1 TIMING OF SUBMITTALS

- A. Make submittals far enough in advance of scheduled dated for installation to provide all time required for reviews, necessary approvals, possible revisions, resubmittals, and for placing orders and securing delivery.
- B. In scheduling, allow for review by the Consultant in a timely manner, following the Consultant's receipt of the submittal.

- C. Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the Contract completion date.

3.2 PROCEDURES FOR ACTION SUBMITTALS

- A. Submit as specified in the General Conditions and Specifications Sections.
 - 1. Submittals shall be made to Consultant by mail, hand delivery and/or email. Submittal items requiring physical samples, etc. shall be submitted by mail or hand delivery. Submittals made only by fax shall not be reviewed.
 - 2. Subcontractors shall make submittals through Contractor. Only submittals submitted through Contractor and returned by Consultant through Contractor shall be considered as having been reviewed.
 - 3. If more than one resubmittal of the same items or its component is required, the Contractor will be billed for additional review time and materials at current billing rates of the Consultant.
- B. Unless otherwise agreed or requested, Owner shall be provided with a copy of transmittals only.
- C. Copies required in each submittal shall be as follows unless otherwise mutually agreed:
 - 1. Shop drawings, product data, etc.: Electronic copy in PDF format via email, FTP, or other secure file transfer protocol format, and one set of bound prints if requested by Consultant.
 - 2. Samples: Unless otherwise specified, submit samples in quantity which is required to be returned, plus 2 which will be retained by the Consultant and Owner.
 - 3. By prearrangement in specific cases, a single sample may be submitted for review, and when reviewed, be installed in the Work, at a location agreed upon by the Owner.
- D. Identification:
 - 1. Properly identify each submittal with name of Project, Contractor, subcontractor, and date.
 - 2. Accompany each submittal by an acceptable transmittal form referring to Project name and Specifications Section number, and paragraph number, for identification of each item.
 - 3. Consecutively number shop drawings for each Section of Work; retain numbering system throughout all revisions.
 - 4. Allow clear space on each drawing, product data, and sample for stamp of Contractor and Consultant. Where clear space is not available on samples, submit with tags or stickers attached.
- E. Stamp each shop drawing, product data sheet, and sample to certify that it has been coordinated and checked for completeness and compliance with requirements of Work, Project, and Contract Documents.
- F. Consultants Review:
 - 1. General:
 - a. Except for finish, color and other aesthetic matters left to the Consultants decision by Contract Documents, Consultant's review of shop drawings, product data, and samples is only for Contractor's convenience in following work and does not relieve Contractor from responsibility for deviations from requirements of Contract Documents.
 - b. Do not construe Consultant's review as a complete check or relief from responsibility for errors or omissions of any sort in shop drawings or schedules or from necessity of furnishing work as required by Contract Documents that may not have been shown on shop drawings.
 - c. Consultant's review of separate items does not constitute review of complete assembly in which it functions.

- d. Review comments of the Consultant will be shown when it is returned to the Contractor. The Contractor shall make and distribute copies as are required for its purposes.
 - 2. Submittals not stamped by the Contractor and submittals which, in the Consultant's opinion, are incomplete, contain numerous errors, or have not been checked or have only been checked superficially will be returned to the Contractor for resubmittal.
 - 3. Processing:
 - a. Consultant will review submittals in accordance with agreed upon "Submittal Schedule" and will return them to the Contractor with Consultants stamp.
 - b. Notations by Consultant which increase the Contract cost or time of completion shall be brought to the Consultants attention in writing before proceeding with work. Failure to do so will result in the increased cost being borne by the Contractor.
 - c. If for any reason the Contractor cannot comply with the notations, Contractor shall re-submit submittal. In the transmittal letter accompanying the re-submittal, clearly describe the reasons for not being able to comply with notations.
- G. Action and Distribution:
 - 1. Submittals shall be made directly to Consultant, with additional copy sent directly to Owner's Representative. Owner's Representative will forward review comments directly to Consultant for incorporation.
 - 2. Consultants reviewed submittal will be returned to the Contractor for distribution.
- H. Revisions:
 - 1. Make revisions pertinent to by comments on the submittal.
 - 2. If the Contractor considers any required revisions to be a change, they shall so notify the Consultant and Owner as provided in the General Conditions.
 - 3. Show each revision by number, date and subject in a revision block on the submittal.
 - 4. If for any reason the Contractor cannot comply with the notations, Contractor shall resubmit the submittal.
- I. Revisions after review: When a submittal has been reviewed by the Consultant, resubmittal for substitution of material or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary, or unless directed by the Owner.

3.3 PROCEDURES FOR INFORMATIONAL SUBMITTALS

- A. Provide informational submittals for each Specification Section.
- B. Copies required in each submittal shall be as follows unless otherwise mutually agreed:
 - 1. Shop drawings, product data, etc.: Electronic copy in PDF format via email, FTP, or other secure file transfer protocol format, and one set of bound prints if requested by Consultant.
 - 2. Samples: Unless otherwise specified, submit samples in quantity which is required to be returned, plus 2 which will be retained by the Consultant and Owner.
 - 3. By prearrangement in specific cases, a single sample may be submitted for review, and when reviewed, be installed in the Work, at a location agreed upon by the Owner.
- C. The following items shall be considered "Information Submittals" whether or not identified as such in the Specification Sections. Submit the following:
 - 1. Qualifications Data
 - 2. Certificates for or from the following:

- a. Installers
 - b. Manufacturers
 - c. Products and Materials
- 3. The following reports:
 - a. Material and Product test reports
 - b. ICC-ES Evaluation Reports
 - c. Preconstruction Test Reports
 - d. Compatibility Test Reports
 - e. Field Test Reports
- 4. Maintenance Data
- 5. Design Data
- 6. Manufacturer's Instructions
- 7. Manufacturers Field Reports are to be provided to the Consultant within 2 days of inspection.
- 8. Insurance Certificates and Bond
- 9. Photographic Documentation
- 10. Material Safety Data Sheets
- 11. Schedule of values for invoicing
- 12. Construction Schedule and work plan
- 13. Chain of command for project
- 14. List of all personnel on project

3.4 PROCEDURES FOR DEFERRED SUBMITTALS

- A. Deferred approval submittal shall first be submitted to Consultant. If the Consultant reviews the submittal with corrections noted, those corrections must be addressed and the submittal returned to the Consultant. Once the Consultant has no comments on a submittal, it will be returned and shall be resubmitted with the approval by all government authorities having jurisdiction.
- B. The Contractor shall then submit to these government agencies and make revisions required by these agencies until approved by all authorities having jurisdiction.
- C. When approval has been obtained by all governing agencies having jurisdiction, the approved submittal shall be resubmitted to the Consultant for final review. It is the Contractors responsibility to verify acceptability of government agency required revisions with the Consultant. If Consultant makes revisions to the government agency revisions, it is the responsibility of the Contractor to resubmit to the government agency for approval of Consultants noted corrections.

3.5 PROCEDURES FOR CLOSEOUT AND MAINTENANCE MATERIAL SUBMITTALS

- A. Comply with requirements specified in Closeout Procedures.
- B. Contractor shall submit all close out documents as required by the Contract Documents including but not limited to, warranties, certificates, affidavits, etc.
- C. Provide all close out submittals, warranties, maintenance manuals for all systems as specified within Contract Documents.
- D. Provide Record Drawings and As-built drawings.
- E. Coordinate all warranties to start on the same date, use date of substantial completion for the entire project as warranty start date.

3.6 FINAL DISTRIBUTION AFTER REVIEW

- A. In addition to copies of submittals required by the Contractor, subcontractors, suppliers, fabricators, etc., Contractor shall make distribution to:
 - 1. Contractor's jobsite file.

2. Project Record Documents file, see additional requirements specified here in "Project Record Documents".

END OF SECTION

SECTION 01 78 36

WARRANTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - a. Requirements and procedures for warranties required by the Contract Documents including but not limited to:
 - i. Contractor warranties
 - ii. Product and Services warranties
 - iii. Accessory warranties
 - iv. Manufacturers Inspections, punch lists, etc.
 - v. Maintenance and operations manuals
 - vi. Warranty Samples
 - vii. Special warranties

1.2 GENERAL

- A. Warranties required by Contract Documents shall commence on the date of Substantial Completion of the Work.
- B. If, within one year after the date of Substantial Completion of the Work or the date for the commencement of warranties established herein, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given a written acceptance of such condition.
 - 1. The period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.
 - 2. This obligation shall survive acceptance of the Work under the Contract and termination of the Contract.
- C. Nothing contained in this Section shall be construed to establish a period of limitation with respect to other obligations or warranty obligations within the Contract Documents and/or warranties specified in other specification sections.
- D. Establishment of the time period of one year as described herein relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, not to the time within which proceedings may be commenced to establish Contractor's liability with respect to Contractor's obligation other than specifically to correct the Work.
- E. All warranties shall contain written provisions stating that they are fully transferable any time during the warranty period.
- F. Contractor shall make all necessary notices for warranty purposes to primary manufacturers to secure timely inspections and issuance of warranty.
- G. Upon completion of the Work and prior to final payment, Contractor shall pay all fees, complete all inspections, and complete all items necessary to secure and deliver to the Owner all specified warranties.
- H. Warranties shall not contain any statements or clause(s) that limit or restrict the Owner's right to "trial by jury" in any way.
- I. Warranties shall not establish "venue" or "jurisdiction" anywhere other than the State and County where the property is located, unless agreed to in writing by Owner.
- J. Warranties requiring a signature from the Owner are not acceptable.

- K. Warranties shall not require the Owner to “indemnify” any party for any reason, unless agreed to in writing by the Owner.
- L. Provide all required warranties as specified within all technical specification sections.

1.3 CONTRACTORS WARRANTY

- A. Unless otherwise incorporated elsewhere in the Contract, all materials and equipment incorporated into any Work covered by the Contract shall be new and where not specified, of the most suitable grade of their respective kinds for their intended use and all workmanship shall be in accordance with construction practices acceptable to Owner.
- B. Contractor shall warranty all materials and workmanship for a period of one year (unless longer guarantees or warranties are provided for elsewhere in the Contract Documents in which case the longer periods shall prevail) from the date of acceptance of the completed Work by the Owner. Upon receipt of written notice from the Owner, the Contractor shall make good any defects (regardless of whether the same were furnished or performed by Contractor or by any of the Contractor’s subcontractors of any tier) in the materials or workmanship that may develop during the one-year period by replacing or repairing such defects at his own expense without cost to the Owner.
- C. Contractor shall perform tests as Owner may require to verify that repairs and replacements comply with the requirements of this Contract. All costs incidental to repairs, replacement, and testing including removal necessary to gain access shall be borne by Contractor.
- D. Contractor warrants repaired, replaced work against defective materials and workmanship for a period of 12 months from after date of acceptance.
 - 1. Contractor shall notify Owner in writing the status of warranty work within 3 days of making warranty corrections.
 - 2. Should Contractor fail to promptly make the necessary repairs, replacements, testing, Owner may perform or cause to be performed the same at the Contractor’s expense.
 - 3. Contractor and Contractor’s surety(s) shall be liable for the satisfaction and full performance of the warranties set forth herein. Any warranty work orders not completed within 7 days may be forwarded to the Surety Company.
 - 4. Owner reserves the right to schedule weekly warranty work sessions during the one year warranty period, where the Contractor shall attend.
 - 5. If provided, Contractor shall use Contractor warranty form provided in this Section.

1.4 PRODUCTS AND SERVICES WARRANTIES

- A. Contractor warrants to Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required by Contract Documents, that the work will be free from defects and that the work will conform to the requirements of the Contract Documents.
- B. Work not conforming to the Contract Documents, including substitutions not properly approved may be considered defective and require replacement at the Contractor’s expense.
- C. In addition to warranties specified within each Specification Section, Contractor shall pay all required fees, secure all required inspections and complete all items necessary to secure and deliver to the Owner the following warranties:
 - 1. Provide five (5) year contractors warranty against all workmanship defects whether they result in roof leaks or not.

PART 2 - PRODUCTS

2.1 FORM OF SUBMITTALS

- A. Bound in commercial quality three ring 8 ½" binders with front and back covers.
- B. Identify binder with typed or printed title, WARRANTIES, include the title of the Project, name, address and telephone number of the Contractor, Supplier, Manufacturer, etc. and the name of the responsible company principal.
- C. Include a table of contents, neatly typed in the sequence of the table of contents of the Project Manual, identify each item with a number and the title of the specification Section in which specified and the name of the Product or Work item.
- D. Separate each warranty with index tab keyed to the table of contents. Include a section for copies of all Manufacturers' punch lists and documentation of completion. Include a section for owner's operation and maintenance manuals.
- E. Submit 3 binders. One must include all the original warranties, the remaining two shall be copies.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, notarized and executed by responsible Contractors, subcontractors, suppliers, manufacturers, etc. within 10 days after completion of the applicable Work item. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the date of Substantial Completion is determined.
- B. Obtain manufacturer inspections, punch lists and verification of completion. Forward a copy within 3 days of receipt to the Consultant. Include copies of all inspections and punch lists and documentation of completion in "WARRANTIES" binder(s).
- C. Obtain and provide owner's operation and maintenance manuals.
- D. Verify that documents are in proper form, contain full and accurate information, and are notarized.
- E. Co-execute submittals when required.
- F. Retain warranties and bonds until time specified for submittal.

3.2 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owners permission, submit documents within 10 days of acceptance.
- B. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of Work which acceptance is delayed beyond the Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

END OF SECTION

SECTION 02 41 00
ROOF DEMOLITION AND CLEANUP

PART 1– GENERAL

1.1 DESCRIPTION

- A. Provide all labor, materials, equipment, and tools to remove the existing roofing system and all associated flashings for the specified Work as designated in the specifications and on the drawings. Remove the existing membrane down to the existing wood deck. Inspect wood deck and associated components and remove all wet, damaged and/or deteriorated wood decking, etc. in preparation for installation of new decking, etc.
- B. Provide all demolition as required to properly install new roof drains and associated piping, valves, etc.
- C. Provide for the proper disposal of all existing materials to be removed as designated in the specifications and on the drawings.
- D. Provide for the cleanup of excess materials, equipment, tools, construction debris, etc., as required to maintain the project site in a neat and orderly condition.

1.2 SCHEDULING

- A. Coordinate the roof preparation work with the new roofing work in such a manner as to keep the new insulation and roofing materials, building, and building interior unconditionally dry and watertight.
- B. Coordinate all work with the Owner to minimize any disruptions of the Owner's operations.

PART 2– PRODUCTS

2.1 CLEANERS

- A. Cleaners used in conjunction with surface preparation work shall meet local code requirements for runoff water quality.

PART 3 - EXECUTION

3.1 Protection of Surfaces

- A. Contractor shall take all precautions during roof removal to protect the building and adjacent surfaces from being soiled or damaged.
- B. Contractor shall restore to original condition any damage caused during the Work performed.
- C. Keep roof surface clean of any material or debris that might prevent proper drainage.
- D. At start of each workday, drains located within daily work area shall be temporarily plugged to prevent debris from entering into the drain. Plugs to be removed at the end of each workday. All drain plugs shall be removed prior to any rainfall or inclement weather. Do not allow water to build up or pond at any time for any reason.
- E. Prior to tear-off, verify that all soil pipes, flues, steel members, and other similar penetrations are secured to the building structure. Coordinate removal or securement of all unsecured penetrations prior to the start of roof demolition.
- F. Take measures to prevent odors, fumes or vapors of any kind from entering occupied spaces.
- G. Contractor shall provide interior protection, do not allow debris or materials to enter or fall into occupied or unoccupied spaces. Any dust or debris resulting from the Work shall be cleaned up at the Contractors expense.

- H. Organize work flow to prevent newly installed work from becoming soiled, damaged, or otherwise affected.

3.2 DEBRIS HANDLING

- A. No material shall be dropped to any point lying outside the exterior walls of the structure, unless otherwise approved in writing by the Owner's representative.
- B. Debris shall be transported externally using a fully enclosed receptacle that is mechanically lowered. Chutes are not allowed.

3.3 DISPOSAL

- A. Properly dispose of all debris on a daily basis.
- B. Do not store debris on roof unless otherwise directed by the Owner. Contractor shall not overstress the roof deck.
- C. All debris shall be stored in containers approved by the Owner's Representative, and removed from the roof on a daily basis.
- D. Keep Owner's property clean of any construction debris. Site shall be left broom clean on a daily basis.

3.4 PREPARATION OF SURFACES

- A. The extent of preparation of surfaces is listed in each Section and on the drawings. A summary of the Work is included in Section 01 11 00, Summary of Work.
- B. The existing roof deck shall be properly prepared and cleaned prior to installation of new roof. At a minimum, prepare all surfaces as required by the manufacturer of materials to be applied over the substrate. Contractor's commencement of work over substrate conditions is evidence of acceptance of substrate conditions.
- C. Damaged or deteriorated decks/substrates shall be properly replaced/repared to match existing construction prior to the installation of the new roof system.
- D. Allow existing deck to properly dry. Contractor shall not install new roof system over existing wet/damaged insulation and/or decking.

3.5 CLEANUP

- A. Throughout the duration of the project, retain all stored materials and equipment in an orderly arrangement allowing maximum access, not impeding drainage or traffic and providing the required protection of materials.
- B. Weekly, and more often if necessitated by job conditions, Contractor shall inspect all arrangements of materials stored on site and restack, tidy and resecure as required.
- C. Contractor shall clear the construction areas and shall provide for the removal of all construction debris from the site. Contractor shall not allow the accumulation of scrap, debris, waste material and other items not required for construction of the work. Contractor shall provide storage of all items awaiting removal from the project site, observing all requirements for fire protection and protection of the surrounding site.
- D. Daily and more often if necessitated by job conditions, Contractor shall inspect the site and pick up all scrap, debris and waste material. Contractor shall remove such items promptly, leaving the construction area and site clean daily. Debris shall not be left on the roof overnight.
- E. Contractor shall be responsible to assure that his subcontractors have properly removed and disposed of all debris relating to their contract.

- F. At least twice each month and more often if directed by the Owner, Contractor shall completely remove all scrap, debris and waste materials from the project site. Contractor shall maintain the site in a neat and orderly condition at all times.
- G. At the completion of the contract, Contractor shall remove from the project site all equipment, tools, excess materials, etc., related to his contract. Contractor shall be responsible to assure that his subcontractors have properly removed from the project site all equipment, tools, excess materials, etc., related to their contract.
- H. Contractor shall be responsible for returning all areas set aside for staging and storage to their original condition.
- I. Contractor shall repair damage and remove stains caused by work in this specification from walls, walkways and driveway.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division Specification Sections apply to this Section.

1.2 DESCRIPTION

- A. Work includes, but is not necessarily limited to:
1. Installing new wood nailers and/or plywood per the drawings and specifications.
 2. Refastening existing wood nailers and/or plywood in accordance with the specified standards, where existing nailers and/or plywood are suitable for reuse.
 3. Removal and replacement of existing deteriorated nailers and/or plywood.
 4. Repair/replacement of damaged or deteriorated existing wood decking to match existing.
 5. Refastening existing decking as required.
 6. Modification of decking prior to installation of roof drains and associated piping, etc.
- B. Related Sections:
1. Section 01 11 00 – Summary of Work
 2. Section 02 41 00 – Roof Demolition and Cleanup
 3. Section 07 54 00 - PVC Roofing -Adhered
 4. Section 07 60 00 – Sheet Metal Flashing and Trim.

1.3 QUALITY ASSURANCE

- A. Standards: Work shall comply with latest edition of standards specified in this section and as referenced below:
1. *Published installation instruction from manufacturers of selected products.*
 2. *Factory Mutual Property Loss Prevention Data Sheets FM 1-49*
 3. *APA Engineered Wood Construction Guide: Roof Construction*
 4. *AWC National Design Specification for wood construction.*
- B. Qualifications of Installers: Use adequate numbers of skilled workers who are trained and experienced in the necessary skills, and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- C. Where treated wood (ACQ or equal) is recommended, or required for use in concert with adjacent systems, provide for divorcing material between this wood and incompatible metal(s) such as steel decking. Provide for fasteners that are resistant to corrosion that they may be exposed to the preservative treated (many of which are copper based). Fasteners are recommended to be Stainless Steel 304 or 316. Hot dipped galvanized fasteners should meet ASTM A153 and Hot Dipped connectors or sheet products should meet ASTM A653 (coating designation G-185).

1.4 REFERENCES

- A. References: Materials used in this section shall be listed in the latest edition of the following:
1. *Roofing Materials and Systems Directory and Fire Resistance Directory – Underwriters Laboratories Inc.*

1.5 SUBMITTALS

- A. Product Data:

1. Complete material list of all items proposed to be furnished and installed under this Section.
 2. Incorporate all items in overall shop drawings that are fully coordinated, at a minimum, with Sections 07 54 00, and 07 60 00.
 3. Provide detailed fastening patterns (in concert with FM 1-49 and ANSI-SPRI ES-1 when applicable), fastening schedule, types and all other related data.
- B. Submit fastener pull tests for all fasteners proposed for use in this Section.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store materials up, off the roof or ground, and covered with weatherproofing tarps anchored sufficiently, so as to resist wind blow-off. Roof surfaces shall be protected from damages at all times.
- B. Keep all materials clearly identified with all grade marks legible. Keep all damaged material clearly identified as damaged and stored separately to prevent its inadvertent use.
- C. Do not allow installation of damaged or otherwise non-complying material.
- D. In the event of damage, immediately make all necessary repairs and replacements to the approval of and at no additional cost to the Owner.

PART 2- PRODUCTS

2.1 NAILERS

- A. All nailers shall be #2 or better, construction grade lumber.
- B. Size to be as indicated on the drawings.
- C. Minimum top nailer thickness shall be 1 ½" (nominal).
- D. Nailers shall extend ½" beyond metal flanges.

2.2 PLYWOOD

- A. All plywood is to be minimum ½" APA Rated Exterior, Structural 1. Only waterproof glue is acceptable.
- B. Refer to drawing for plywood thickness at each detail.
- C. Match existing type and thickness when removing and replacing.

2.3 MISCELLANEOUS LUMBER

- A. Match existing lumber when replacing damaged or deteriorated wood products.
- B. Match existing wood deck material when replacing damaged or deteriorated wood deck.

2.4 CARBON STEEL FASTENERS

- A. All fasteners must be carbon steel with corrosion-resistant coating. Fasteners shall meet FM 4470.
- B. Masonry/Concrete Fasteners
 1. Corrosion-resistant, threaded fastener with low profile head.
 2. Fasteners shall be a minimum of 3/16" diameter with a 1" minimum embedment.
 3. Fastener to be Factory Mutual approved.
 4. Approved Products
 - a. Tapcon Flat-Head Phillips with Blue Climaseal or White UltraShield by ITW Buildex.
 - b. Tapper Flat-Head Phillips with Perma-Seal Coating by Powers Fasteners, Inc.

- C. Steel/Wood Fasteners
 - 1. Corrosion-resistant, self-tapping, self-drilling screw with low profile head.
 - 2. Fastener to be Factory Mutual approved.
 - 3. Approved Products
 - a. Roof Grip by ITW Buildex with Climaseal Coating
 - b. Dekfast by SFS Intec, Inc., with Senti Coating
 - c. Standard roofing fastener by OMG, with CR-10 coating.
 - 4. Roofing fasteners to be #15 minimum and of sufficient length to penetrate into steel $\frac{3}{4}$ " and wood 1".
- D. Washers
 - 1. Round, carbon steel, Federal Specification FF-2-92. Minimum diameter 5/8".

PART 3 - EXECUTION

3.1 NAILERS

- A. Nailers are to be installed as per detail drawings including but not limited to the top of the parapet wall in preparation for the installation of the new sheet metal coping.
- B. Treated nailers (where specified) shall be divorced from incompatible metal surfaces. Install 3" wide duct tape as separator material on treated nailers. Install in multiple rows as required to accommodate width of nailer.
- C. Discard units of material with defects that might impair quality of work and units that are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- D. Set nailers to required levels and lines with members plumb and true.
- E. All perimeter nailers shall be of uniform height within a given roof section.
- F. Nailers shall be installed with $\frac{1}{4}$ " gap between ends of adjoining pieces.
- G. Nailers shall be fastened according to FM Global Loss Prevention Data Sheet 1-49, unless superseded by the requirements specified in this section.
- H. Nailers shall be fastened in accordance with the following schedule:
 - 1. Fasteners in 6" or wider (nominal) lumber shall be installed in two rows, staggered one-third of nailer width. Listed spacing indicates distance between fasteners in adjacent rows.
 - 2. Two fasteners shall be installed within 6" of each nailer end.
 - 3. Corner fastener spacing shall extend minimum 8' from all outside building corners.
 - 4. Where two or more nailers are installed, each nailer shall be fastened independently.
 - 5. Over all deck types, the bottom nailer shall be fastened using the specified fasteners and 5/8" diameter washers. Countersink washers and fasteners level with top of wood using spade bit or similar method. Fasten subsequent nailers, where specified, using the specified screws without washers.
 - 6. Nailer Attachment Schedule (unless noted otherwise on the drawing)

Attachment Substrate	Perimeter Fastener Spacing (maximum)	Corner Fastener Spacing (maximum)
Wood	12" o.c.	6" o.c.
Steel	12" o.c.	6" o.c.
Concrete	12" o.c.	6" o.c.

Other	Consult Designer	Consult Designer
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3.2 PLYWOOD

- A. Plywood is to be installed where detailed in drawings.
- B. Plywood joints must be true and well fitting, allowing for expansion and contraction. Allow 1/8" at end and edge joints.
- C. Plywood fasteners shall be installed in a uniform grid pattern, with a maximum spacing of 12" O.C. between adjacent fasteners in the field and 6" O.C. between adjacent fasteners along edges. Coordinate fastening requirements with existing substrate. Fasten into every rafter/truss at prescribed attachment rates.

3.3 ROOF DECK REPLACEMENT

- A. Remove previous damaged roof deck area. Inspect roof framing members below for deterioration or damage. Replace all damaged or deteriorated framing members.
- B. Provide a minimum 2" by 4" scab, fastened to existing framing member w/ 16d nails @ 4" O.C. staggered and extending 6" beyond new decking edges.
- C. Install additional 8d ring shank nails spaced a maximum of 6" O.C. on center of the scab.

3.4 CLEANUP

- A. Refer to Section 02 41 00 – Roof Demolition and Cleanup.

END OF SECTION

SECTION 07 54 00
POLYVINYL CHLORIDE ROOFING-INDUCTION WELD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division Specification Sections apply to this Section.

1.2 REFERENCES

- A. The following references apply, refer to the adopted version or the most current edition.
 - 1. International Code Council (ICC)
 - 2. National Roofing Contractors Association (NRCA)
 - 3. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
 - 4. ASTM International (ASTM)
 - 5. FM Global (FM)
 - 6. UL (UL)
 - 7. Single Ply Roofing Institute (SPRI)
 - 8. Nevada State Building Code with local amendments

1.3 SUMMARY

- A. The section includes the following:
 - 1. PVC THERMOPLASTIC INDUCTION WELDED ROOF SYSTEM
- B. Summary of Work:

The work associated with the new PVC roof membrane system includes, but is not limited to, removal of the existing roofing system(s), installation of new barrier board, tapered insulation, coverboard and installation of a complete 60 mil PVC single ply roof system – induction welded. Installation of new tapered crickets as required. Repair and / or replacement of deteriorated plywood roof deck as required. Installation of new wood blocking and sheathing as required. Installation of new sheet metal flashings, sheet metal coping and sealants. All other mechanical, electrical and plumbing work as required to install new thermoplastic roof system. Includes installation of new secondary roof drainage system(s).
- C. Related Sections:
 - 1. Section 01 11 00 – Summary of Work
 - 2. Section 02 41 00 – Roof Demolition and Cleanup
 - 3. Section 06 10 00 – Rough Carpentry
 - 4. Section 07 60 00 – Sheet Metal Flashing and Trim.

1.4 DEFINITIONS

- A. PVC: Polyvinyl Chloride Roofing.
- B. Roofing Terminology: See ASTM D 4434 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this section.

1.5 PERFORMANCE REQUIREMENTS

- A. Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. As roofing manufacturer's system installation requirements and tested assemblies vary, this specification is to provide the intent of the type of membrane and overall roofing

system. The noted performance and warranty requirements shall be met by the installed system. The contractor shall provide the manufacturer of their choice with all applicable project documents for review before the contractor shall develop and submit a bid. Whether specifically noted by the project documents or not, the contractor shall include all manufacturer requirements and recommendations (and including all project document related requirements when more stringent) in their bid.

- C. Material Compatibility: Provide roofing materials compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.
- D. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspection agency to resist uplift pressure calculated according to ANSI / SPRI's "Wind Design Standard Practice for Roofing Assemblies" whichever greater or more stringent and conforming to those pressures and calculations contained in Section 1609 of the International Building Code – 2006 (IBC-2006) including Southern Nevada Amendments. Per 1.08 / A / 3 the wind speed portion of the warranty shall meet or exceed 90 mph. All requirements and / or enhancements to a given manufacturer's standard roofing system shall be incorporated into the installation in order to meet or exceed the manufacturer's requirements to obtain the specified wind speed warranty.

The completed roof shall meet the following requirements (whichever is more stringent):

- 1. External Fire Rating: UL Class A
 - 2. Roof System design wind load pressures:
 - a. Field: -25 PSF
 - b. Perimeter: -42 PSF
 - c. Corner: -63 PSF
 - 3. Coping and edge metal ANSI/SPRI ES-1 design wind pressures (add safety factor of two):
 - a. OUTWARD
 - Perimeter: -73 PSF
 - Corner : -93 PSF
 - b. UPWARD
 - Perimeter: -120 PSF
 - Corner : -187 PSF
 - E. Factory Mutual Listing: Provide roofing membrane, base flashings and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify with FMG markings.
 - 1. Fire / Windstorm Classification:
 - a. Field: Min. FM 1-90
 - b. Perimeter: Min. FM 1-135
 - c. Corner: Min. FM 1-180
- Minimum FM requirements or as required per 1.04 / D (whichever is more stringent).
- 2. Hail Resistance: SH

1.6 SUBMITTALS

- A. Submit all submittal requirements and quality assurance requirements together as a complete submittal package. This should include submittal requirements from other specification sections that are directly related to the installation of the Membrane Roofing System. Organize information based on designations per the specifications.
- B. Submit copy of statement, in an approved form, signed by the Roofing Subcontractor and Manufacturer, certifying that the submitted products comply with these specifications and were the proper selection for this project. The statement shall also note that the installation methods complied with the manufacturer's printed instructions and their field

representatives' verbal instructions and were proper and adequate for the condition of installation and use.

- C. Submit copy of roofing manufacturers accepted "notice of award" or equal that confirms that the manufacturer is aware of the project and has reviewed the system to be installed and that it is acceptable to the manufacturer.
- D. Shop Drawings: Include scaled drawings showing plans, details and sections.
 - 1. Plans shall clearly show all adjacent materials for proper coordination including but not limited to plans, elevations, sections, details and attachments to other work.
 - 2. Provide fastening patterns and layout for membrane and insulation. Include field, perimeter and corner zones. Provide attachment rates and width of each zone on layout.
 - 3. Tapered insulation noting all slopes and elevations shall be incorporated into the overall shop drawings. R-values, materials and attachments shall be clearly noted.
 - 4. Details of drains, units, vent pipes and all other project specific detail items shall be included.
 - 5. Associated sheet metal flashing systems shall be included in shop drawings and clearly detailed in coordination with adjacent exterior finish materials. Sheet metal items shall be clearly noted regarding gauge, profile, fastening and compliance with applicable anticipated project specific wind uplift forces.
 - 6. Shop drawings to include all sheet metal flashings and pre-manufactured coping and edge assemblies that are part of this system.
 - 7. Calculations confirming project specific wind uplift conditions and associated attachment methods and materials, as required to comply with 1.04 of this section, shall also be noted on the shop drawings and / or submitted separately. Standard manufacturer "code" data sheets are NOT acceptable as the sole source of information in regards to these noted calculations. As applicable per project conditions and limits of use as noted by the NRCA, submission of completed NRCA "roof calculator" may be deemed acceptable in lieu of calculations.
- E. Installer Certificates: Signed by roofing manufacturer certifying that Installer is approved, authorized or licensed by manufacturer to install roofing system.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
- G. Research / Evaluation Reports: For components of membrane roofing system.
 - 1. Provide FM RoofNav Number and Assembly
 - 2. Provide ICC Evaluation Report
 - 3. Provide ANSI/SPRI ES-1 Notice of Compliance
- H. Maintenance Data: For roofing system to include in maintenance manuals.
- I. Warranties: Special Warranties specified in this section. Sample warranty shall state specified wind speed.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report(s) of completed roof installation.
- K. Documentation regarding fastener pull-out testing.
- L. All applicable items per 1.4, 1.5 and 1.6 including but not limited to calculations and / or other substantiating data in regards to 1.04 / D and ANSI-SPRI WD-1 "Wind Design Standard for Roofing Assemblies".

1.7 QUALITY ASSURANCE

- A. Coordinate as required and be totally responsible for the full and satisfactory compatibility and performance between all Thermoplastic Membrane Roofing materials used under this section with all other applicable and related sections which may be in direct contact with work of this section.
- B. A project specific QA / QC manual shall be submitted by the Installer before any work has begun. This manual shall be reviewed at the pre-installation meeting and copies shall be kept at roof level in the possession of the Installer's supervisory personnel. Approved shop drawings and all other pertinent submittal materials shall be kept at roof level in the possession of the Installer's supervisory personnel.
- C. Take required steps and precautions to properly isolate and prevent of incompatibility between this system and adjacent work, in accordance with manufacturer's specifications, recommendations and instructions.
- D. Installer Qualifications: Engage a single firm to assume undivided responsibility for installing all components of the Roofing System including all related sheet metal flashings and all other components. A qualified firm that (at time of bid) is approved, authorized or licensed by roofing system manufacturer to install manufacturer's products and that is eligible to receive and provide specified manufacturer's warranty. Installer shall provide evidence of at least five (5) similar and successful installations including contact names and numbers regarding those projects. Installer shall be properly licensed to provide the services noted by this section and the overall project. Installer shall have 10 years of documented experience (as the same entity / company) in regards to roofing services.
- E. Manufacturer Qualifications: Roofing membrane and all accessory products shall be provided by a single manufacturer with a minimum of 20 years experience in the direct production and sales of roofing systems. Manufacturer shall be capable of providing field service representation during construction and recommending appropriate installation methods.
- F. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing as indicated and as documented per ASTM E 548.
- G. Source Limitations: Obtain components for membrane roofing system from single roofing membrane manufacturer.
- H. Fire-Test Response Characteristics: Provide membrane roofing materials with the fire tested response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspection agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate marking of applicable testing and inspection agency.
 - 1. Exterior Fire Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
 - 2. Fire Resistance Ratings: ASTM E 119; for fire resistance rated roof assemblies which roofing system is a part.
- I. Pre-installation Meeting: Hold a pre-installation meeting prior to application of this system to ensure proper substrate and installation conditions; require attendance of the Contractor, sub-contractors and manufacturer's representative. The meeting shall, at a minimum, address the following.
 - 1. Meeting with Owner, owner's consultant, Owner's insurer if applicable, testing and agency representative, roof installer, roof system manufacturer, deck and all subcontractors.

2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, installer's personnel and equipment.
 4. Examine deck substrate conditions and finishes for compliance with requirements including flatness and fastening.
 5. Review structural loading limitations of roof deck.
 6. Review base flashings, special roofing details, roof penetrations, roof drainage, curbs and other conditions that may affect the roof systems.
 7. Review insurance requirements, certificates and governing regulations as applicable.
 8. Review temporary protection of roofing system during and after installation.
 9. Review roof observation and repair procedures.
- J. Manufacturer's technical representative shall make periodic site visits and complete inspection reports that are submitted to the owner. At least one visit per roof area not including final inspections. Final inspections by the roofing membrane manufacturer shall be coordinated at least two weeks in advance with the owner / owner's consultant so that their attendance can be properly coordinated. Final inspection reports and signed / completed punch list reports by the roofing membrane manufacturer shall be submitted to the owner. Submittal of the roofing warranty alone shall not be acceptable.
- K. The installation of pitch pockets is not acceptable. Whenever possible, a premanufactured flashing shall be installed over such items before "connections" are made. If "split" flashings are required then they shall be manufacturer's premanufactured type, installed, if possible, before field fabricated flashings are installed.
- L. All roofing related sheet metal flashings shall be supplied by the roof system manufacturer as applicable and installed by the roofing contractor. Premanufactured coping and edge systems shall be included by the roofing manufacturer in the roofing systems warranty.
- M. U.L Listing: Provide materials bearing UL markings on bundle, package or container indicating that materials have been produced under UL's classification and follow-up service.
- N. Comply with standards per the NRCA Roofing and Waterproofing Manual, Fifth Edition, 2006.
- O. Excessive patching or damage to the roof membrane shall be limited to a maximum of three patches on any 100-square foot area. Excessive patching shall be grounds for the entire roof system to be replaced at the contractor's expense.
- P. Excessive areas of blistering, un-adhered membrane, wrinkles, mole runs, as determined by Consultant shall be removed and replaced immediately.
- Q. Poor or inconsistent welds identified by the Consultant shall be repaired immediately. Re-welding of cold welds is not acceptable. Voids, skips, cold welds, inconsistencies, welds that do not meet the minimum weld width requirement shall be at a minimum patched (not reheated) or stripped in with appropriate membrane and hot air welded.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle Roofing Work materials so to prevent deterioration, contamination or damage at all times, per manufacturers recommendations.
- B. Deliver materials to project site in manufacturer's unopened containers with name, brand, type, grade and color, and expiration date fully indicated thereon.
- C. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.

- D. Outside storage of coverboard in manufacturing packaging is not acceptable. Roofing insulation, along with all other roofing materials, shall be properly protected including, but not limited to, the use of water resistant tarps.
- E. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.
- F. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weldability.
- G. As a general rule all adhesives shall be stored at temperatures between 40 degree F (5 degree C) and 80 degree F (27 degree C). Read instructions contained on adhesive canister for specific storage instructions.
- H. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
- I. Any materials which the Owner's representative or manufacturer determine to be damaged are to be removed from the job site and replaced at no cost to the Owner.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when current and extended forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Materials may be installed under certain adverse weather conditions but only after consultation with manufacturer as installation time and system integrity may be affected.
- C. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be cleaned and heat welded before leaving the job site that day. All penetrations and flashings shall be installed and welded each day.
- D. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
- E. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.
- F. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.
- G. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.
- H. The Applicator is cautioned that certain PVC membranes are incompatible with asphalt, coal tar, heavy oils, roofing cements, creosote and some preservative materials. Such materials shall not remain in contact with PVC membranes. The Applicator shall consult manufacturer regarding compatibility, precautions and recommendations.

- I. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A substantial protection layer consisting of plywood over felt or plywood over insulation board shall be provided for all new and existing roof areas that receive rooftop traffic during construction.
- J. Prior to and during application, all dirt, debris and dust shall be removed from surfaces by vacuuming, sweeping, blowing with compressed air or similar methods.
- K. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority having jurisdiction.
- L. All roofing, insulation, flashings and metal work removed during construction shall be immediately taken off site to a legal dumping area authorized to receive such materials.
- M. Hazardous materials, such as materials containing asbestos, are to be removed and disposed of in strict accordance with applicable City, State and Federal requirements.
- N. All new roofing waste material (i.e., scrap roof membrane, empty cans of adhesive) shall be immediately removed from the site by the Applicator and properly transported to a legal dumping area authorized to receive such material.
- O. The Applicator shall take precautions that storage and application of materials and equipment does not overload the roof deck or building structure.
- P. Installation of a PVC membrane over coal tar pitch or a resaturated roof requires special consideration to protect the PVC membrane from volatile fumes and materials.
- Q. Flammable adhesives and deck primers shall not be stored and not be used in the vicinity of open flames, sparks and excessive heat.
- R. All rooftop contamination that is anticipated or that is occurring shall be reported to manufacturer to determine the corrective steps to be taken.
- S. The Applicator shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages in writing to the Owner's Representative for corrective action prior to the installation of the roof system.
- T. Applicator shall immediately stop work if any unusual or concealed condition is discovered and shall immediately notify Owner of such condition in writing for correction at the Owner's expense.
- U. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the Owner's satisfaction.
- V. All landscaped areas damaged by construction activities shall be repaired at no cost to the Owner.
- W. The Applicator shall conduct fastener pullout tests in accordance with the latest version of the SPRI/ANSI Fastener Pullout Standard to verify condition of the deck/substrate and to confirm expected pullout values.
- X. Precautions shall be taken when using adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.
- Y. Protective wear shall be worn when using solvents or adhesives or as required by job conditions.

- Z. Single-ply membranes are slippery when wet or covered with snow, frost, or ice. Working on surfaces under these conditions is hazardous. Appropriate safety measures must be implemented prior to working on such surfaces. Always follow OSHA and other relevant fall protection standards when working on roofs.

1.10 WARRANTY

- A. Special Warranty: Manufacturers standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roof system that fail in materials or workmanship within specified warranty period. Failure shall include roof leaks.
1. Special Warranty shall include roof membrane, base flashings, roof membrane accessories, roof insulation, fasteners, cover board, substrate board, vapor retarder, walkway products, edge and coping systems and other components of membrane roofing system.
 2. Warranty Period: 20 years from Substantial Completion.
 3. Wind Speed: The wind speed portion of the warranty shall match or exceed Local Wind Speed per ASCE / SEI 7 (min. 90 mph).
 4. Hail Warranty: ¾" Hail Warranty Min.

PART 2 - PRODUCTS

2.1 POLYVINYL-CHLORIDE ROOFING MEMBRANE

- A. Polyester reinforced PVC membrane with a lacquer coating:
1. Available Manufacturers
 - a. Sika Sarnafil (Basis of Design) / 60 mil S327 Membrane.
 - b. Seaman Corp / Fibertite 60 Mil SM
 - c. Durolast Roofing Inc./ 60 mil Durolast Single Ply Roof Membrane
 - d. No other substitutions allowed.
 2. Thickness: 60 mils, nominal.
 3. Exposed Face Color: White
 4. Physical Properties
 - a. Meeting or exceeding criteria of ASTM D 4434, classification Type III.
 - b. NSF/ANSI Standard 347, "Sustainability Assessment for Single Ply Roofing Membranes". Certification Level: Platinum.
 5. Solar Reflective Index (SRI): 104
 6. Thermoplastic Polyolefin (TPO) shall not be considered equal to PVC membrane material.

2.2 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
1. Liquid type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of bareback membrane same material, type, reinforcement, 60 mil thickness and same color as PVC sheet membrane.
- C. Bonding Adhesive: Manufacturer's standard solvent-based bonding adhesive for membrane and standard solvent-based adhesive for base flashings.
- D. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate and acceptable to membrane roofing system manufacturer.
- E. Miscellaneous Accessories: Terminations bars, preformed cone and vent pipe flashings, preformed inside and outside corners, T-joint covers and other accessories.

- F. Expansion Assemblies: Fabricated in the field as detailed and in accordance with primary roofing manufacturer requirements.
- G. Felt Separator: Manufacturers standard felt used to separate incompatible materials from membrane.
- H. Polymer Clad Metal: A PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. 24 gauge, G90 galvanized metal sheet with a 20 mil (0.5 mm) unsupported membrane laminated on one side.
- I. Exposed Termination Bar- A heavy-duty, extruded aluminum flashing termination reglet used at walls and large curbs. Produced from 6063-T5, 0.10 inch to 0.12 inch (2.5 mm to 3.0 mm) thick extruded aluminum. Has a 2-1/4 inch (57 mm) deep profile, and is provided in 10 foot (3 m) lengths. Use prefabricated mitered inside and outside corners where walls intersect.
- J. Universal Pipe Boot Flashing- A 60 mil (1.5 mm) thick prefabricated stack/pipe boot injection molded.
- K. Premolded Inside Corners- A 60 mil (1.5 mm) thick prefabricated inside corner injection molded.
- L. Premolded Outside Corners- A 60 mil (1.5 mm) thick prefabricated outside corner injection molded.
- M. Open Post Flashing - A 60 mil thick prefabricated flashing using weld technology convenient to flash obstructed rooftop conduits and pipes. Open post flashings are fabricated with an open seam.
- N. Sikasil- A proprietary sealant used at wall, curb drain terminations, pipe penetrations, and under certain metals.
- O. Sarnacol 2170 Adhesive - A solvent-based reactivating adhesive used to attach membrane to flashing substrate.
- P. Sarnamatic 661 - 220 volt, self-propelled, hot-air welding machine used to seal membrane seams.
- Q. RhinoBond Induction Welder - A 110 volt induction welding device that creates a radio frequency that allows the membrane to be welded to a specially coated plate.
- R. Aluminum Tape - A 2 inch (50 mm) wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at Sarnaclad joints.
- S. Multipurpose tape: Used to seal edge of membrane at all perimeters and penetrations.

2.3 BARRIER BOARD

- A. Barrier board: Provide barrier board and install over existing wood deck. The barrier board shall be one recommended for use by the roofing membrane manufacturer and shall be part of a tested assembly per requirements of 1.5 and other related items of this section. Barrier board shall be Densdeck or Securerock or approved equal as listed below:
 - a. ASTM C 1177 – Georgia Pacific, Densdeck, 1/4" min.
 - b. ASTM C 1278 – USG, Securerock, 1/4" Min.
 - c. Or approved equal.

2.4 THERMAL INSULATION

- A. Insulation: Provide insulation (tapered) as part of a tested assembly and as recommended for use by the roofing membrane manufacturer. Insulation shall be part of a tested assembly per

requirements of 1.5 and other related items of this Section. Provide tapered insulation as noted below and on the plans:

- I. Tapered Expanded Polystyrene Insulation: ASTM C 578, Type II, Lightweight, closed cell, rigid insulation manufactured from expanded polystyrene(EPS). Provide thickness and slope as noted. Minimum 1/2" starting thickness. Minimum 1/8" per foot slope. Tapered EPS insulation shall be:
 - a.ASTM C578 - Star Foam, StarR Tapered
 - b.Or approved equal.

2.5 ROOF COVERBOARD - MECHANICALLY ATTACHED – INDUCTION WELD SYSTEM

- A. Coverboard and Base Flashing Sheathing Board: Even if not required by roofing membrane manufacturer, install a coverboard over the tapered EPS insulation. The overlay board shall be one recommended for use by the roofing membrane manufacturer and shall be part of a tested assembly per requirements of 1.5 and other related items of this section. Coverboard shall be Densdeck or Securerock or approved equal as listed below:
 1. ASTM C 1177 / Min. 1/4" Dens Deck by Georgia Pacific at over tapered insulation system and at walls and curbs.
 2. ASTM C1278 / Min 1/4" SecureRock by USG over tapered insulation system and at walls and curbs.
 3. Or approved equal.

2.6 COVERBOARD ACCESSORIES

- A. General: Coverboard accessories recommended by coverboard manufacturer for intended use and compatible with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate and acceptable to membrane roofing system manufacturer.
 1. Sarnafastener-XP A #15, heavy-duty, corrosion-resistant fastener used to attach to steel or wood roof decks.
 2. OMG #15 Roofing Fastener
- C. Insulation Plates: RhinoBond- A high strength plate with a polymer coating used with various fasteners to attach insulation boards to the roof deck and as a substrate to induction weld membrane, is a 3-inch (75 mm) round, 22-gauge corrosion resistant steel plate.

2.7 WALKWAYS

- A. Flexible Walkways: As indicated on drawings and as required by roofing membrane manufacturer. At a minimum, provide protection from foot traffic at entry and exit areas, and around serviceable rooftop equipment.
 1. Sarnatred or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas and conditions, with Installer present, for compliance with the following requirements and other conditions affecting the performance of the roofing system.
 1. Verify that roof openings and penetrations are in place and set and that roof drains are securely clamped in place.
 2. Verify that wood blocking, curbs and nailers (or metal studs) are securely anchored to roof deck at penetrations and terminations and that nailers match insulation thickness (if nailers are required and / or installed).

3. Perform fastener pull-out tests per ANSI-SPRI FX-1-2006 and / or another similar method as recommended by the roofing system manufacturer. Pull-out tests are to assist in determining pull-out values of fasteners to be used and compliance with manufacturer's pull-out resistance requirements. Provide written documentation of this testing to the owner.
4. Correct other unsuitable conditions before proceeding with installation.

3.2 PREPARATION

- A. Clean and prepare substrate according to manufacturer's recommendations. Provide clean, dust-free, and dry substrate for insulation and roofing application.
- B. Mask off adjoining surfaces not receiving roofing membrane material to prevent spillage or over spray affecting other construction.
- C. Prevent materials from entering or clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof drain plugs when no work is taking place or when rain is forecast. If proper protection is not performed and is documented then the roofing contractor may be required by, at their expense, to test all roof drains and unblock them if they are found to not drain properly.
- D. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of the roofing system at the end of each work day or when rain is forecast. Temporary seals shall be removed and discarded at the beginning of work at any roof area.
- E. All penetrations thru the roof deck and all other similar areas through the roof deck and between any walls and the edge of deck areas shall be completely sealed to eliminate air penetration into the structure.

3.3 BARRIER BOARD, TAPERED INSULATION AND COVERBOARD INSTALLATION

- A. Coordinate installing membrane roofing system so insulation is not exposed to precipitation or left exposed at the end of the workday. Roof shall be 100% watertight daily after each shift.
- B. Comply with membrane roofing system manufacturer's written instructions for installing barrier board, insulation and coverboard.
- C. Install barrier board over entire wood deck in accordance with manufacturers recommendations.
- D. Install tapered insulation over barrier board in accordance with manufacturers recommendations. Provide tapered crickets around curbs and penetrations as required to facilitate drainage.
- E. Install coverboard over tapered insulation in accordance with manufacturers recommendations.
- F. Install insulation in two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- G. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- H. Install insulation with long joints of coverboard in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4" with insulation. Cut and fit insulation within 1/4" of penetrations, nailers and projections.
- I. Barrier boards, tapered insulation and coverboards shall be installed according to manufacturer's instructions.
- J. Boards shall be neatly cut to fit around penetrations and projections.

- K. Do not install more boards than can be covered with membrane by end of day or onset of inclement weather.
- L. Boards shall be installed tightly against adjacent boards on all sides, unless recommended otherwise by manufacturer.
- M. Boards shall evenly on roof deck/substrate so that there are no significant and avoidable air spaces between boards and substrate.
- N. Mechanical Attachment of coverboard
 - 1. Coverboard shall be mechanically fastened to deck with #15 heavy duty fasteners and induction weld plates at a rate 1 plate and fastener per every four square feet in the field.
 - 2. Fasten coverboard per layout indicated on detail drawing. Fasteners must be tight enough so insulation plates do not turn, but not so tight as to deform them.
 - 3. Fasteners shall be installed consistently in accordance with fastener manufacturer's recommendations. Fasteners shall have a minimum penetration of 1 inch (25 mm) through structural deck.
 - 4. Use fastener tools with a depth locator and torque-limiting attachment as recommended or supplied by fastener manufacturer to ensure proper installation.
 - 5. Enhance perimeter and corner areas as identified on drawings. Perimeter zone shall be minimum 8' wide. Corner zone shall be a minimum 8' wide. Use 14 plates and fasteners per 4' x 8' board in the perimeter and use 20 plates and fasteners per 4' x 8' board in the corners.

3.4 MEMBRANE INSTALLATION

- A. Install roofing membrane over areas to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
- B. Start installation of roofing membrane in the presence of the membrane roofing system's technical personnel.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- E. Seams: Clean seams, overlap roofing membrane and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - 3. Repair tears, voids and laps that do not meet requirements.
- F. The surface of the insulation or substrate shall be inspected prior to installation of the roof membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness or contamination. Broken, delaminated, wet or damaged insulation boards shall be removed and replaced. Membrane shall be attached with #15 fasteners and induction weld plates according to wind uplift requirements.
- G. Induction Weld - Membrane Attachment to Structural Deck (Documented Pullout Tests Required)
 - 1. Full width rolls shall be placed over the installed boards. Membrane overlaps shall be shingled with the flow of water where possible. Seam overlaps may be placed over RhinoBond plate.

2. **Tack welding of the membrane for purposes of temporary restraint during installation is not permitted.**
3. Field - Over the properly prepared, installed and attached substrate surface following the 2 by 2 foot grid pattern, full-width rolls are to be installed so as to properly shed water. Enhance perimeter and corner areas as detailed and specified.
4. Securement Around Rooftop Penetrations
 - a. Around all perimeters, at the base of walls, drains, curbs, vent pipes, or any other roof penetrations, plates and fasteners shall be installed at 6" on center.
 - b. Membrane flashings shall extend 2-1/2 inches (63 mm) past plate and be hot-air welded to the deck membrane.

RHINO BOND INDUCTION WELDING

- A. General
 1. Welding equipment shall be provided by or approved by primary membrane manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a manufacturer Representative prior to welding.
 2. All membrane to be welded shall be clean and dry.
- B. Induction Welding
 1. Activate the weld between membrane and plate using approved portable induction device. The induction coil must be positioned over the center of the RhinoBond disc, +/- 1 inch (25 mm) Portable induction device must elevate the temperature of the RhinoBond disc from ambient to 400 – 500 degree F (204 – 260 degree C). Cycle time will be affected by available power, use a heavy gauge power cord, at a minimum 12 gauge by 100 feet.
 2. When the induction welding cycle is complete, immediately place a Cool & Clamp magnetic weight on the welded assembly. This device must be left in place for at least 60 seconds. Wipe clean magnetic clamp prior to setting down and between each plate.
- C. Quality Control of Induction Welding
 1. The Applicator shall check all induction welds each day.
 - a. Check welds by using an ordinary plunger centered over the welded plate and pull straight up.
 - b. Check welds by pulling the membrane from the plate.
 - c. Correct welds shall have no separation between the plate and membrane. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

HOT-AIR WELDING OF SEAM OVERLAPS

- A. General
 1. All seams shall be hot-air welded. Seam overlaps should be 3 inches (76 mm) wide for the RhinoBond System and 4 inches (100 mm) wide when hand-welding, except for certain details.
 2. Welding equipment shall be provided by or approved by manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a manufacturer prior to welding.
 3. All membrane to be welded shall be clean and dry.
- B. Hand-Welding
 1. Hand-welded seams shall be completed in two stages. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
 2. The back edge of the seam shall be welded with a narrow but continuous weld to

- prevent loss of hot air during the final welding.
3. The nozzle shall be inserted into the seam at a 45 degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow", the hand roller is positioned perpendicular to the nozzle and rolled lightly. For straight seams, the 1-1/2 inch (40 mm) wide nozzle is recommended for use. For corners and compound connections, the 3/4 inch (20 mm) wide nozzle shall be used.
- C. Machine Welding
1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, manufacturer's instructions shall be followed and local codes for electric supply, grounding and over current protection observed. Dedicated circuit house power or a dedicated portable generator is recommended. No other equipment shall be operated simultaneously off the generator.
 2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.
- D. Quality Control of Welded Seams
1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark gray material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator at locations as directed by the Owner's Representative. One inch (25 mm) wide cross-section samples of welded seams shall be taken at least two times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

3.5 BASE FLASHING INSTALLATION

- A. Install new 1/4" densdeck coverboard to vertical walls and curbs prior to installing new adhered membrane flashings.
- B. Install sheet flashings and preformed flashings and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- C. All base flashings shall be adhered.
- D. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: The Owner may engage a qualified independent testing and observation firm to perform roof tests and inspections and to prepare test reports.
- B. The Contractor shall perform the work to patch "membrane" that may be taken by the testing / observation firm at any given roof area.
- C. Remove or repair and replace components of membrane roofing system where test results or observations indicate that they do not comply with specified requirements.
- D. Additional testing, at the contractor's expense, will be performed to determine compliance of previous test samples that did not meet project requirements.
- E. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect the roofing system upon completion of all areas and submit a report to the Architect. The Owner shall be notified of this inspection two weeks in advance.
- F. Water Testing: All roof areas shall be water tested. Water testing may consist of "sprinklers" or "soaker hoses" and does not imply flood testing. Water shall be allowed to run across all roof areas to drainage units for at least 4 hours at all areas. The Owner

shall be notified 72 hours in advance of such testing. The Installer shall be responsible for interior observations of on-going testing to identify any water intrusion and to stop testing to minimize any interior damage.

- G. At time of water testing, if lack of positive drainage is noted, the Owner reserves the right to not accept the roofing membrane installation until such time that drainage issues are resolved.

3.7 CLEANING AND PROTECTION

- A. Clean adjacent surfaces free of materials resulting from this work as the work progresses. Use cleaning agent as recommended by roofing membrane manufacturer. Leave all finished work in a neat, clean condition.
- B. Protect the installed roof membrane from damage and wear during the remainder of construction period.
- C. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition that is free of damage and deterioration and at time of Substantial Completion and according to warranty requirements. The Owner reserves the right to accept "patches" at damaged or repair areas and / or require the installation of full width "sheets" of new membrane.
- D. Final cleaning shall be provided by the Contractor. The Owner reserves the right to not fully accept the roofing membrane system if the membrane is "dirty" and has not been cleaned.

END OF SECTION

SECTION 07 60 00
SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Requirements of other sections shall apply to this section.

1.2 SUMMARY/WORK INCULDED

- A. This Section includes, but is not limited to, the purchase and installation of the following sheet metal flashing and trim to provide a permanently watertight condition:
 - 1. Receivers, counterflashing and counterflashing extensions.
 - 2. Sheet metal parapet coping cap.
 - 3. Equipment curb, pipe and penetration covers / caps.
 - 4. Drip edge flashings.
 - 5. Metal flashings and counter flashings required in coordination with roofing systems.
 - 6. Polymer clad metal flashings.
 - 7. Scuppers, collector heads, rain gutters, downspouts and accessories.
 - 8. Flashings as required for installation of roof drain piping, etc.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.
- D. As applicable, meet ANSI/SPRI ES-1 and FM 1-49 compliance.
- E. National Roofing Contractors Association Roofing Manual(s).
- F. Architectural Sheet Metal Manual, Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
- G. Annual Book of ASTM Standards, ASTM International
- H. Manufacturer's published specifications, product data sheets, application instructions and technical bulletins.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, attachment /fastening rates, dimensions of individual components and profiles, and finishes.

- B. Provide custom shop drawings for each product including layout, profile, joinery, attachment, etc.
- C. Provide ANSI/SPRI ES-1 Certification for all low slope roof perimeter edge metal.
- D. Coordinate and provide nailer attachment schedule in accordance with FM 1-49.
- E. Provide sample metal warranty from primary manufacturer, to include provisions regarding, finish, weather tightness, and wind speed.
- F. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.
 - 1. Include similar Samples of trim and accessories involving color selection.
- G. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Sheet Metal Flashing: 12 inches (300 mm) long. Include specified joints, fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
 - 3. Accessories: Full-size Sample.

1.5 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" and the NRCA's Roofing and Waterproofing Manual in coordination with requirements of roofing and waterproofing systems (the more stringent shall apply). Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Qualification of Installers: Use skilled workers who are trained and experienced in the crafts and who are completely familiar with the specified requirements.
- C. In acceptance or rejection of the work of this section, the owner will make no allowances for lack of skill on the part of the workers.
- D. Warranties:
 - 1. Sheet metal flashings and associated components shall be included as part of the primary roofing manufacturer's warranty.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section.
 - 1. Meet with Owner, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials and roof-mounted equipment.
 - 2. Review methods and procedures related to sheet metal flashing and trim.
 - 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 - 4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling. Handle material in such a manner as to prevent damage and contamination with moisture or foreign matter. Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage. Store materials within areas

designated or approved by owner. Ensure materials remain dry, covered and not in direct contact with the ground.

- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
- D. Roof surfaces shall be protected from damage at all times. When storing materials on roof, do not overstress the deck.
- E. In the event of damage, immediately make all repairs and replacements to the satisfaction of the owner at no additional cost.
- F. Follow the manufacturers published recommendations for storing of temperature sensitive materials.

1.7 COORDINATION

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation. Fabricate flashings from materials noted below as most appropriate in regards to the system that the flashing is being integrated with and / or adjacent to and in coordination with the drawings and finish schedules. Concealed flashings may be mill finish.
- B. Coordinate all phases of work to allow continuity of work without delays.
- C. Protect building and its components from the elements at all times during the project.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Stainless-Steel Sheet: Minimum 24 ga., AISI Type 302 / 304 alloy, 2B finish.
- B. Aluminum: 3003-H14 alloy, meeting ASTM B209-02a. Minimum 0.040" thickness.
- C. Galvanized: G-90, Minimum 22 gauge. ASTM A653 / A653M., mill finish
 - 1. Cleat(s)
- D. Sheet lead: Minimum 4.0 lbs. / sq. ft.
- E. Polymer Clad Metal: Heat-weldable, 25 ga., G-90 galvanized steel sheet with a 20-mil unsupported PVC membrane coating laminated on one side. Polymer clad metal shall be manufactured by and included in the warranty of the primary roofing system manufacturer.
 - a) Manufacturers Standard Color as selected by Owner. Paint polymer clad metal flashings color selected by Owner.
- 1. Metal Drip Edge – Color to match adjacent membrane or as selected by Owner.
- 2. Flanges – Color to match adjacent membrane or as selected by Owner.
- 3. Sleeves – Color to match adjacent membrane or as selected by Owner.
- F. Pre-finished steel: 22-24 ga. G-90 galvanized, commercial steel, extra smooth, primed and finished on one side with Kynar/Hylar based fluoropolymer coating of 1.0 mil total dry film thickness, and on the reverse side, with a wash coat of .03 to .4 mil dry film thickness. A strippable plastic film should protect the finish during fabrication and installation.
 - a) Color to be selected by owner from standard color chart.
- 1. Slip flashing, 24 ga min.
- 2. Collector Head, 22ga min.
- 3. Counter flashing, 24 ga min.
- 4. Receiver Flashing, 22 ga min.
- 5. Sheet Metal Coping, 24 ga min.
- 6. Downspouts, 22 ga min.

2.2 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6-mil- (0.15-mm-) thick polyethylene sheet complying with ASTM D 4397.
- B. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- C. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).
- D. Self-Adhered Underlayments: ASTM D 1970 and HT (High Temperature) Grade.
- E. Roofing Membrane: Same mil and thickness as field sheet.
- F. Use only compatible materials in contact with roofing membrane.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Provide stainless (where applicable) steel wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Coordinate fastener type and material with metal flashing material.
 - 1. Exposed Fasteners: Self-drilling screws (sheet metal to sheet metal) or wood screws (sheet metal to wood) with hex heads and neoprene washers.
 - 2. Blind Fasteners: Stainless-steel rivets.
 - 3. Roofing nails: 11 or 12 ga. Stainless ring shank or annular threaded roofing nails with diamond point, 3/8" minimum diameter head and minimum 1 1/4" length.
 - 4. Screws: #12 stainless steel hex or pan head screws with lengths as required to penetrate substrate a minimum of 1 1/2"
 - 5. Washers: Stainless steel with neoprene gasket backing. Shall be 9/16" diameter for use with #12 screws and 5/8" diameter for use with 1/4" diameter concrete masonry anchors.
 - 6. Concrete and Masonry Anchors: 1/4" diameter metal based expansion anchor with stainless steel pin length as required to penetrate substrate a minimum of 1 1/2".
 - 7. Rivets: #44 stainless steel rivets with stainless steel mandrel. Length as required to properly fasten sheet metal components. Rivets shall be factory painted to match adjacent sheet metal.
- C. Solder for Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.
- D. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- E. Silicone Sealant: Type S, Grade NS, Class 25. SIKASIL, DOW 795 or equal. Color to match adjacent materials.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.
- G. Bituminous Coating: For separation of dissimilar materials. Cold-applied asphalt mastic, SSPC-Paint 12, compounded for minimum 30-mil dry film thickness. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- H. Aluminum Tape: Pressure sensitive, 2" wide aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond breaker at the PVC clad metal edge joints.

- I. Compressible insulation: Un-faced friction-fit fiberglass building insulation, cut to fit from batts.
- J. Backer Rod: Non-absorbent, non-staining and non-gassing. Must be 1.5 times the width of the joint.

2.4 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" and the NRCA's Roofing and Waterproofing Manual that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 1. Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
- F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- G. Dissimilar materials: Dissimilar materials or metals in contact that are subject to electrolysis shall be protected against such prior to installation. Protective materials shall not be visible after installation. Protect metals using coatings or separators as recommended by manufacturer.
- H. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
 - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and NRCA's Roofing and Waterproofing Manual for application but not less than thickness of metal being secured.

2.5 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Counterflashing and Counterflashing Extensions: Fabricate with length sufficient to lap base flashing fasteners 2 inches minimum. Fry Reglet, Co, SM and ST Type as applicable, or equal.
- B. Flashing Receivers: Fabricate in minimum 96-inch-long, but not exceeding 10-foot-long, sections. Lap, rivet and solder joints. Turn up back edge of reglet-mounter receivers 1/2 inch. Turn up end dams 4 inches. Form receiver for counterflashing along front edge.
- C. Curb Covers/ Cap Flashings: Fabricate with length sufficient to lap base flashing fasteners 2 inches minimum. Solder all joints.
- D. All other copings, metal edges, scuppers, collector heads, counter-flashings, downspouts, etc. as specified and detailed.

2.6 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Fluoropolymer Coating Finish: Two coat, shop-applied, baked-on fluoropolymer coating system based on minimum 70% resin, formulated by a licensed manufacturer and applied by manufacturer's approved applicator to meet AAMA 2605-98. Color (from manufacturer's standard color selection) as selected by Owner and / or noted on finish schedule.
- C. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
 - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Torch cutting of sheet metal flashing and trim is not permitted.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
 - 1. Coat side of stainless-steel and lead sheet metal flashing and trim with compatible coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of approved underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.
- E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Field verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion

provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

- G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for screws.
 - 1. Stainless Steel: Use stainless-steel fasteners.
- H. Seal non-soldered joints with compatible sealant as required for watertight construction.
 - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- I. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm) except where pretinned surface would show in finished Work.
 - 1. Do not solder prepainted, metallic-coated steel sheet.
 - 2. Pretinning is not required for zinc-tin alloy-coated stainless steel and lead.
 - 3. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

3.3 ROOFING FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual" and the NRCA's Roofing and Waterproofing Manual. Provide concealed fasteners unless otherwise indicated, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.
- B. Curb Flashing:
 - 1. Extend height of curb as shown in detail drawing.
 - 2. Terminate flashing membrane a minimum of 8" above the finished roof surface and apply sealant at the top of the flashing membrane.
 - 3. Fabricate metal flashing at curbs as shown in detail drawings in 10' lengths.
 - 4. Notch and lap ends of adjoining sections not less than 4"; apply sealant between sections.
 - 5. Secure flashing 12" on center and a minimum of two fasteners per side of the curb.
 - 6. Lap miters at corners a minimum of 1" and apply sealant.
- C. Two-Piece Receiver and Counter flashing:
 - 1. Fabricate receiver and counter flashing as depicted in drawings in 10' lengths.
 - 2. Terminate flashing membrane a minimum of 8" above the finished roof surface and apply sealant at the top of the membrane flashing.
 - 3. Counter flashing shall extend a minimum of 2" below the base flashing termination.
 - 4. Notch and lap ends of adjoining sections not less than 4"; apply sealant between sections.
 - 5. Apply sealant tape between receiver flashing and wall substrate and surface mount receiver flashing 12 inches on center.
 - 6. Install properly tooled sealant to ensure adhesion and slope to shed water.

7. Install counter flashing as indicated in drawings and secure receiver flashing 12 inches on center. Stagger receiver anchors with counter flashing anchors.
 8. Lap miters at corners a minimum of 1" and apply sealant.
- D. Counterflashing Extensions: Fasten counterflashing extensions to through-wall flashing, receivers and integral equipment caps/ counter flashings with stainless steel screws with neoprene washers, minimum 24 inches on center, and minimum 3 per side of curbs. Lap joints a minimum of 4 inches and bed with two rows of sealant.
1. Secure in a waterproof manner by means of stainless steel screws with neoprene washers a minimum of 12-inches on center.
- E. Pipe / Conduit Enclosures: Where mechanical, electrical or other grouped piping/ conduits penetrate the roofing system, install wood curbs constructed to provide 10 inches of vertical clearance above the roof insulation surface. Reroute existing or install new pipes/ conduits to configuration shown on the Drawing so pipes/ conduits slope away from curb. Field verify dimensions and fabricate enclosure as shown on Drawing. Solder all joints, except as noted. Reconnect mechanical equipment, and verify units function properly. Fill enclosure with insulation.
- F. Sheet Metal Parapet Cap
1. Install new nailers at top of parapet wall sloping to interior side.
 2. Extend roofing membrane up and over the parapet wall down the outside face approximately 1.5 inches below the nailer.
 3. Embed the edge of the membrane in two-sided multipurpose tape and fasten.
 4. Install continuous cleat and fasten.
 5. Install sheet metal parapet cap flashing in accordance with plans, specifications, industry standards and manufacturers requirements.
 6. Install nailer in accordance with FM 1-49.
 7. Install coping in accordance with ANSI/SPRI ES-1.
- G. Collector Head
1. Fabricate and install collector heads in accordance with specifications and details. Install in accordance with specified industry standards.
- H. Down Spouts
1. Fabricate and install downspouts in accordance with specification and details. Install in accordance with specified industry standards.
- I. Rain Gutter
1. Fabricate and install downspouts in accordance with specification and details. Install in accordance with specified industry standards.
- J. Polymer Clad Metal Edge:
1. Extend roofing membrane over eave edge and terminate as detailed.
 2. Fabricate metal edge as shown in detail in 10' lengths. Meet ANSI/SPRI ES-1. Install continuous cleat as indicated on drawings and fasten to substrate in accordance with ANSI/SPRI ES-1, with a minimum 6" on center. Locate fasteners no greater than 2" from the bottom hem.
 3. Lock polymer clad drip edge onto continuous cleat and fasten in accordance with ANSI/SPRI ES-1, with a minimum attachment rate of 4" on center through the metal flange, not within 1/2" from the inside edge and 3/4" from the outside edge.
 4. Strip flange of metal edge with hot-air welded stripping membrane. Stripping membrane shall be 4" greater than the flange width and shall fit closely to the lip of the metal edge.
 5. Metal Edge Joints:
 - a) Leave 1/4" opening between metal edge sections. Install two fasteners in the end of the flange, and one in the end of the vertical face of each metal edge section.
 - b) Center aluminum tape over entire joint opening(flange and face).

- c) Hot air weld 4" wide strip of stripping membrane over the entire joint.
- d) Strip in flange of metal edge as described.
- e) Follow manufacturer's instructions.

3.4 MISCELLANEOUS FLASHING INSTALLATION

- A. Install all other sheet metal flashings in accordance with specified industry standards and manufacturers recommendations.
- B. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment.

3.5 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Roof drains.
 - 2. Miscellaneous storm drainage piping specialties.
 - 3. Cleanouts.
 - 4. Through-penetration firestop assemblies.
 - 5. Flashing materials.
- B. Contractor shall install new secondary roof drain for every primary roof drain. Roof drain, piping, system, etc. shall meet or exceed primary roof drain system capabilities. New secondary roof drains shall be installed adjacent to primary roof drains and set approximately 2" higher than adjacent roof drain. Roof drain piping shall be installed below the roof deck and above the drop ceiling to match existing drainage system. New secondary system shall follow existing system and discharge externally in similar fashion and location as primary drainage.

1.3 ACTION SUBMITTALS

- A. **Deferred Engineered Submittal Requirement: New secondary roof drainage system shall be installed by a licensed plumbing contractor. Contractor shall provide engineered secondary roof drainage shop drawings stamped by a State of Nevada registered design professional.**
- B. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 METAL ROOF DRAINS

A. Cast-Iron, Large-Sump, General-Purpose Roof Drains:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn Plumbing Products Group; Specification Drainage Operation; Z100 or comparable product by one of the following:
 - a. Josam Company or equal.
2. Standard: ASME A112.6.4, for general-purpose roof drains.
3. Body Material: Cast iron.
4. Dimension of Body: Nominal 15-inch diameter.
5. Combination Flashing Ring and Gravel Stop: Required.
6. Flow-Control Weirs: Per manufacturer recommendation.
7. Outlet: Bottom
8. Extension Collars: Required.
9. Underdeck Clamp: Required
10. Expansion Joint: Per manufacturer recommendation.
11. Sump Receiver Plate: Per manufacturers recommendation.
12. Dome Material: Cast iron.
13. Perforated Gravel Guard: Not required.
14. Vandal-Proof Dome: Required.
15. Water Dam: 2 inches high.

2.2 MISCELLANEOUS STORM DRAINAGE PIPING SPECIALTIES

A. Downspout Adaptors – As Required:

1. Description: Manufactured, gray-iron casting, for attaching to horizontal-outlet, parapet roof drain and to exterior, sheet metal downspout.
2. Size: Inlet size to match parapet drain outlet.

B. Downspout Boots – As Required:

1. Description: Manufactured, ASTM A 48/A 48M, gray-iron casting, with strap or ears for attaching to building; NPS 4 (DN 100) outlet; and shop-applied bituminous coating.
2. Size: Inlet size to match downspout and NPS 4 (DN 100) outlet.

C. Conductor Nozzles - As required:

1. Description: Bronze body with threaded inlet and bronze wall flange with mounting holes.
2. Size: Same as connected conductor.

2.3 CLEANOUTS

A. Wall Cleanouts – As Required:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn Plumbing Products Group; Specification Drainage Operation; Z1441, Z1446 or comparable product by one of the following:
 - a. Josam Company.
 - b. Or Equal.
2. Standard: ASME A112.36.2M, for cleanouts. Include wall access.
3. Size: Same as connected drainage piping.
4. Body Material: Hubless, cast-iron soil-pipe test tee as required to match connected piping.
5. Closure: Countersunk or raised-head, cast-iron plug.
6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
7. Wall Access: Round, deep, chrome-plated bronze, flat, chrome-plated brass or stainless-steel cover plate with screw.
8. Wall Access: Round, nickel-bronze, copper-alloy, or stainless-steel wall-installation frame and cover.

2.4 BACKWATER VALVES

A. Cast-Iron, Horizontal Backwater Valves – As Required:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn Plumbing Products Group; Specification Drainage Operation; Z1088, Z1090, Z1095 or comparable product by one of the following:
 - a. Josam Company.
 - b. Or approved equal.
2. Standard: ASME A112.14.1, for backwater valves.
3. Size: Same as connected piping.
4. Body Material: Cast iron.
5. Cover: Cast iron with bolted or threaded access check valve.
6. End Connections: hubless.
7. Check Valve: Removable, bronze, swing check, factory assembled or field modified to hang closed or open for airflow unless subject to backflow condition.
8. Extension: ASTM A 74, Service class; full-size, cast-iron soil-pipe extension to field-installed cleanout at floor; replaces backwater valve cover.

2.5 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Firestop Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide ProSet Systems or comparable product by one of the following:

- a. ProSet Systems Inc.
 - b. Or approved equal.
3. Standard: ASTM E 814, for through-penetration firestop assemblies.
 4. Certification and Listing: Provide testing agency acceptable to authorities having jurisdiction for through-penetration firestop assemblies.
 5. Size: Same as connected pipe.
 6. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.
 7. Stack Fitting: ASTM A 48/A 48M, gray-iron, hubless-pattern, wye branch with neoprene O-ring at base and gray-iron plug in thermal-release harness. Include PVC protective cap for plug.
 8. Special Coating: Corrosion resistant on interior of fittings.

2.6 FLASHING MATERIALS

- A. Copper Sheet: ASTM B 152/B 152M, 12 oz./sq. ft. (3.7 kg/sq. m or 0.41-mm thickness).
- B. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch (1.01-mm) minimum thickness unless otherwise indicated. Include G90 (Z275) hot-dip galvanized, mill-phosphatized finish for painting if indicated.
- C. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil (1.01-mm) minimum thickness.
- D. Fasteners: Metal compatible with material and substrate being fastened.
- E. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.
- F. Solder: ASTM B 32, lead-free alloy.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install secondary roof drains adjacent to primary roof drains near low points of roof areas according to roof membrane manufacturer's written installation instructions.
 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 2. Install expansion joints, if indicated, in roof drain outlets.
 3. Position roof drains for easy access and maintenance.
 4. Install secondary roof drains approximately 2" above primary roof drain.
 5. At a minimum, meet and/or exceed roof drainage capabilities of primary roof drain system in accordance with deferred engineer submittal.

- B. Install piping(match existing) from roof drain to (below roof deck and above drop ceiling) and through exterior wall. Install conductors on outlet back of parapet. Repair exterior wall as required.
- C. Install conductor nozzles (cows tongue) at exposed bottom of conductors where they spill onto grade.
- D. Install cleanouts in aboveground piping and building drain piping according to the following instructions unless otherwise indicated:
 - 1. Use cleanouts the same size as drainage piping up to NPS 4 (DN 100). Use NPS 4 (DN 100) for larger drainage piping unless larger cleanout is indicated.
 - 2. Locate cleanouts at each change in direction of piping greater than 45 degrees.
 - 3. Locate cleanouts at minimum intervals of 50 feet (15 m) for piping NPS 4 (DN 100) and smaller and 100 feet (30 m) for larger piping.
 - 4. Locate cleanouts at base of each vertical soil and waste stack.
- E. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.
- F. Install drain-outlet backwater valves in outlet of drains.
- G. Install test tees in vertical conductors and near floor.
- H. Install wall cleanouts in vertical conductors. Install access door in wall if indicated.
- I. Install through-penetration firestop assemblies in plastic conductors at concrete floor penetrations.
- J. Install sleeve flashing device with each conductor passing through floors with waterproof membrane.

3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221413 "Facility Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

3.3 FLASHING INSTALLATION

- A. Fabricate flashing from single piece of metal unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:
 - 1. Lead Sheets: Burn joints of 6.0-lb/sq. ft. (30-kg/sq. m) lead sheets, 0.0938-inch (2.4-mm) thickness or thicker. Solder joints of 4.0-lb/sq. ft. (20-kg/sq. m) lead sheets, 0.0625-inch (1.6-mm) thickness or thinner.
 - 2. Copper Sheets: Solder joints of copper sheets.
- B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.

1. Pipe Flashing: Sleeve type, matching the pipe size, with a minimum length of 10 inches (250 mm) and with skirt or flange extending at least 8 inches (200 mm) around pipe.
 2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches (200 mm) around sleeve.
 3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches (200 mm) around specialty.
- C. Set flashing on floors and roofs in solid coating of bituminous cement.
- D. Secure flashing into sleeve and specialty clamping ring or device.
- E. Fabricate and install flashing and pans, sumps, and other drainage shapes.

3.4 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221423

END OF BID PACKAGE