



**STATE OF CONNECTICUT  
DEPARTMENT OF MENTAL RETARDATION  
WEST REGION**



**M. JODI RELL  
GOVERNOR  
Kathryn du Pree**

**Peter H. O'Meara**

**COMMISSIONER**

**DEPUTY COMMISSIONER**

*25 Creamery Road  
Cheshire, CT 06410  
203-806-8700*

February 13, 2007

*400 Main Street  
Danbury, CT 06810  
203-448-3500*

**RE: ADDENDUM 6 - BI-DMR 477, Stripping and Re-roofing Cottage 17 & 18**

*Ella Grasso Center  
300 Armory Road  
Stratford, CT 06614  
203-455-3100*

To Whom It May Concern:

**ADDENDUM 6 - ROOF SHINGLE INSTALLATION - COTTAGE 18**

*Lower Fairfield Center  
146 Silvermine Avenue  
Norwalk, CT 06854  
203-642-5000*

Cancel Addendum 1, dated 2/9/07  
Follow original specification to install plywood directly on gypsum deck.

*Northwest Center  
195 Alvord Park Road  
Torrington, CT 06790  
860-496-3000*

Note: Bid document must note that ADDENDUM # 6 has been received and is included in the bid.  
Note: Bid opening date has been changed to 2/22/07 at 10:00 am.

*Southbury Training School  
P.O. Box 872  
Southbury, CT 06488  
203-586-2000*

John Narowski, Director, Facilities Management

*250 Freight Street  
Waterbury, CT 06702  
203-805-7400*

C: J.Cyr, L. Marziarz



(vendor list attached)

February 9, 2007

**RE: ADDENDUM 1, 2, 3, 4, 5 – BI-DMR 477, Stripping and Re-roofing Cottage 17 & Cottage 18**

To Whom It May Concern:

**ADDENDUM 1 – ROOF SHINGLE INSTALLATION – COTTAGE 18**

After stripping of existing shingles, 1” high hat 22 gauge metal channels will be anchored 16” on center to the complete 3” gypsum roof deck. ¾” CDX plywood will be screwed to these strips in order to provide a minimum of 1” air gap between gypsum and plywood per GAF. Concrete anchors will be used to anchor these channels. Pull test required to confirm minimum 40 pound pull out strength. Anchor installation will be a maximum of 12” apart using pre-punched hat channel fastener holes. Anchors will be drilled and not hammered into place. Continuous L.C.C. vented drip edge to be used at eaves.

**ADDENDUM 2 – NEW BID FORM ATTACHED**

Unit price added to repair gypsum decking, at Cottage 18, if necessary.

**ADDENDUM 3 – CLARIFICATION – PART 1 SHINGLES**

Section 01010 item 1.03 F. New perforated soffit system – Cottage 17 replace only where they do not presently exist. Cottage 18 – all soffits.

**ADDENDUM 4 – PREVAILING WAGE SCHEDULE – ATTACHED**

If over \$100,000.00

**ADDENDUM 5 – BUDGET CONSTRAINTS**

Due to budget constraints, all Contractors are requested to provide separate prices for each building. Base Bid will include all work necessary for Cottage 18. Supplemental Bid No. 1 will include all work necessary for Cottage 17.

NOTE: Bid document must note that ADDENDUM #1, #2, #3, #4 & #5 have been received and are included in the bid.

John Narowski, Director, Facilities Management

C: Project File, J. Cyr, Lauren Marziarz

**BID FORM**

**(page 1 of 2)**

**\*\* REVISED \*\***

TO: Business Office – West Region  
Department of Mental Retardation  
25 Creamery Road  
Cheshire, Ct 06410

FOR: Project #: BI-DMR 477  
Project Title: Stripping & Re-Roofing Cottage 17 & Cottage 18  
Location: Southbury, CT

FROM: (Company Name) \_\_\_\_\_

In compliance with the Instruction to Bidders & Conditions of Bid (section I.B. 1.09), and subject to all conditions thereof, the undersigned offers and agrees to furnish all labor and materials and to complete work called for by the project's technical specifications within the allotted time of ( **35** ) **calendar days** for the Lump Sum of:

**BASE BID: All work necessary for Cottage 18 as specified**

WORDS \_\_\_\_\_ DOLLARS Figures:  
(\$ \_\_\_\_\_).

Supplemental bids listed below, if requested and if accepted by the Owner, will be taken in numerical order as follows:

**Supplemental Bid No. 1 (All work necessary for Cottage 17 as specified.)**

WORDS \_\_\_\_\_ DOLLARS  
Figures: (\$ \_\_\_\_\_).

#### Unit Prices

The undersigned agrees, in case of variation of quantities from those shown or specified, the following unit prices will be used in adjusting the Contract price. If quantities are authorized by the Owner, the following amount will be added to the Contract as required.

- 1.) Cost per square foot to replace concrete decking (2" depth)  
\$14.00/Sq.Ft.
- 2.) Cost per square foot to repair gypsum decking (3" depth)  
\$17.50/Sq.Ft.
- 3.) Cost per square foot to replace wood sheathing  
Add: \$2.63 Sq.Ft.  
Deduct: \$2.33 Sq.Ft.

Final Contract price will be adjusted at the completion of work to give Owner credit for any unused quantities of unit per price items. Credit shall be given at the same unit prices quoted above. Any additional quantities required, over and above quantities stated in this proposal, will be added to the Contract by change order, at unit prices quoted above.

## DMR/WEST REGION/SOUTHBURY TRAINING SCHOOL

# Engineering

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**DATE:** January 12, 2007  
**TO:** Lauren Marziarz, FAO  
**FROM:** John Narowski, DFM  
**RE:** BI-DMR 477, Roofing Cottage 17 & 18

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Please place the following information on the DAS portal for bid:

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**Scope:**

Department of Mental Retardation/West Region/Southbury Training School is soliciting bids for: Stripping and Re-roofing of Cottage 17 & Cottage 18, located on the grounds of Southbury Training School. Roofing includes: Shingle Roof, Flat Roof and Metal Roof. Cottage 17 – Flat Roof 348 sq. ft., Gable Roof 14,042 sq.ft., Cottage 18 Flat Roofs 7,840 sq.ft., Gable Roof 6,210 sq.ft., Alum. Roof 624 sq.ft.

Mandatory Pre-Bid Meeting will be held on:

February 1, 2007 at 10:00 A.M. at the Physical Plant/Engineering Conference Room at Southbury Training School.

**Second pre-bid meeting will be held on :**

**Thursday, February 8, 2007 at 10:00 am**

Bid Opening Date:

February 15, 2007 at: 10:00 A.M.

Department of Mental Retardation/West Region/Business Office, 25 Creamery Road, Cheshire, CT 06410

ALL CONTRACTORS MUST BE CERTIFIED AND BONDABLE TO BID ON THIS PROJECT.

Specifications and bid package will be distributed at the Mandatory Pre Bid Meeting.

Directions:

## Southbury Training School

- Interstate 84 to Exit 14.
- At the end of the exit ramp take a right (westbound) or a left (eastbound)
- Proceed (N) straight on Route 172.
- STS is 2.6 miles.
- Left off of 172 onto Hartford Hill. At (Y) Bear Right. Physical Plant/Engineering Conference Room on Left.

Thank-you.

H:\My Documents\XFER\COLELLA G\CURRENT\PROJECTS\BI.DMR477.Roofing.Cottage 18\Memo-post on portal.bi-dmr477.roofing.c17.c18.rtf

# DEPARTMENT OF MENTAL RETARDATION

# **SOUTHBURY TRAINING SCHOOL INVITATION TO BID**

## **PROJECT # and PROJECT TITLE:**

**BI-DMR 477, Stripping & Re-Roofing, Cottage 17 & Cottage 18**

Roofing includes: Shingle Roof, Flat Roof and Metal Roof

Cottage 17, Flat Roof 348 sq.ft., Gable Roof 14,042 sq.ft., Cottage 18 Flat Roofs 7,840 sq.ft.,  
Gable Roof 6210 sq.ft., Alum. Roof 624 sq.ft.

## **BID OPENING DATE AND TIME:**

**February 15, 2007 at: 10:00 a.m.**

## **PRE-BID MEETING TO BE HELD ON: (MANDATORY):**

**February 1 2007, at: 10:00 a.m.**

## **PRE-BID MEETING TO BE HELD AT:**

**DMR/WR/Southbury Training School/Engineering Conference Room**

**P.O. Box 872, Route 172**

**Southbury, CT 06488-0901**

## **DMR FACILITY REPRESENTATIVE:**

**John A. Narowski, Director, Facilities Management (203) 586-2535**

## **DMR BUSINESS OFFICE REPRESENTATIVE:**

**Lauren Marziarz, Fiscal Administrative Officer (203) 806-8819**

### **SEALED BIDS**

#### **MAIL or HAND DELIVER TO:**

DMR/West Region/Business Office

ATTN: Lauren Marziarz, FAO

25 Creamery Road

Cheshire, CT 06410

All bids will be received at the date, time, and place specified and thereafter publicly opened and read aloud. The Department of Mental Retardation is an Equal Employment/Affirmative Action Organization and will not knowingly do business with an organization/contractor that is or has been found to discriminate.

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## **BIDDING REQUIREMENTS - INSTRUCTIONS TO BIDDERS**

**Failure to complete and submit any of the required forms, documents, or information will result in rejection**

of your bid. Should this occur, your bid will be deemed non-responsive and it will be disqualified. DMR reserves the right to not award this contract. Conditional bids will be disqualified. A conditional bid is defined as one limiting or modifying any of the terms and conditions and/or specifications.

## **Forms REQUIRED to be submitted WITH all bids**

- BID FORM ((2 pages, attached))
- PRE-BID REPRESENTATIVE FORM ((1 page, attached))
- EXPERIENCE, REFERENCES, & SUB-CONTRACTORS FORM ((1 page, attached))

## **Required bond or check to be submitted WITH bids equal to or greater than \$50,000**

- BID BOND OR CHECK per section IB. 1.11

## **Additional form required to be submitted WITH all bids equal to or greater than \$100,000**

- CONTRACTORS WAGE CERTIFICATION FORM (Dept. of Labor prevailing wage requirements) per section IB 1.10 ((1 page, attached))

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**The following forms / documents are required to be submitted after bid opening, by lowest bidder only, before Purchase Order can be issued. These forms must be submitted along with your bid, or, within 5 business days of being informed you are the lowest bidder. If not received within 5 business days, your bid may be deemed non-responsive and may be disqualified. It is strongly encouraged to submit these forms / documents, along with your bid, to administratively accelerate the issuance of a Purchase Order.**

- BIDDER CONTRACT COMPLIANCE MONITORING REPORT ((2 pages, attached))
- PROOF OF INSURANCE per section IB. 1.12
- PROOF OF REQUIRED CERTIFICATIONS AND TRADE LICENCES
- VENDOR GIFT AFFIDAVIT ((1 page, attached)) (Required if this bid exceeds \$50,000, or, if this bid causes the sum total of your previous contracts with DMR, in a calendar or fiscal year, to exceed \$50,000).
- CONSULTING AFFADAVIT ((1 page, attached)) (Required if this bid exceeds \$50,000, or, if this bid causes the sum total of your previous contracts with DMR, in a calendar or fiscal year, to exceed \$50,000).
- PERFORMANCE, LABOR, & MATERIAL BONDS (Required for projects equal to or greater than \$50,000) (Note: this is the only form not required or suggested to be submitted with bid, but is required before issuance of PO).

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**BID FORM** (page 1 of 2)

TO: **Business Office – West Region**

Department of Mental Retardation  
25 Creamery Road  
Cheshire, Ct 06410

FOR: Project #: BI-DMR 477  
Project Title: Stripping & Re-Roofing Cottage 17 & Cottage 18  
Location: Southbury, CT

FROM: (Company Name) \_\_\_\_\_

In compliance with the Instruction to Bidders & Conditions of Bid (section I.B. 1.09), and subject to all conditions thereof, the undersigned offers and agrees to furnish all labor and materials and to complete work called for by the project's technical specifications within the allotted time of **( 35 )** calendar days for the Lump Sum of:

**BASE BID:**  
WORDS \_\_\_\_\_ DOLLARS Figures:  
(\$ \_\_\_\_\_).

Supplemental bids listed below, if requested and if accepted by the Owner, will be taken in numerical order as follows:

**Supplemental Bid No. 1 (Enter Description Here)**  
WORDS \_\_\_\_\_ DOLLARS  
Figures: (\$ \_\_\_\_\_).

**Supplemental Bid No. 2 (Enter Description Here)**  
WORDS \_\_\_\_\_ DOLLARS  
Figures: (\$ \_\_\_\_\_).

**Supplemental Bid No. 3 (Enter Description Here)**  
WORDS \_\_\_\_\_ DOLLARS  
Figures: (\$ \_\_\_\_\_).

Note: All prices shall remain valid for ninety (90) calendar days.

## **BID FORM** (page 2 of 2)

The General Contractor on this project will be required to perform not less than ( **50%** ) of the completed dollar value of the work with its own forces.

I (we), the undersigned, hereby declare that I am (we are) the only person(s) interested in this bid: That it is made without any connection with any other person making any bid for the same work: that no person acting for, or employed by, the State of Connecticut is directly or indirectly interested in this bid, or in any contract which may be made under it, or in expected profits to arise there from; that this bid is made without directly or indirectly influencing or attempting to influence any other person or corporation to bid or to refrain from bidding or to influence the amount of the bid of any other person or corporation: that this bid is made in



good faith without collusion or connection with any other person bidding for the same work; and that this bid is made with distinct reference and relation to the plans and specifications prepared for this contract.

I (we) further declare that in regard to the conditions affecting the work to be done and the labor and materials needed, this bid is based solely on my (our) own investigation and research and not in reliance upon any representations of any employee, officer or agent of the State.

I have carefully read, understand and will comply with all of the above Project Terms and Conditions, Security Regulations and Scope of Work. I have received and incorporated all Addendums (if any) posted on the DAS Web Portal and have incorporated these within the bid.

Contractor Owner/Officer \_\_\_\_\_ Date: \_\_\_\_\_

Title \_\_\_\_\_

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City, State Zip \_\_\_\_\_

Phone # \_\_\_\_\_ Fax # \_\_\_\_\_ FEIN# \_\_\_\_\_

Email Address: \_\_\_\_\_

Signature: \_\_\_\_\_  
Contractor Owner/Officer

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
Notary Public

\*\* END OF SECTION - BID FORM \*\*

**PRE-BID REPRESENTATIVE FORM**

\_\_\_\_\_ was represented at the pre-bid meeting  
(Company Name)

held on \_\_\_\_\_ by \_\_\_\_\_  
(date of meeting) (name of representative)

and, therefore, we are fully responsible for all information, site conditions, and other items discussed at the meeting.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

# EXPERIENCE, REFERENCES, & SUB-CONTRACTORS FORM

## EXPERIENCE / REFERENCES

\*\* Reference IB 1.06 (Contractor Qualification Requirement)  
List similar type installations/projects completed in the last 18 months (at least 2).

Customer Name (Company)	Contact Person	Phone #	Address of Job	Type of Work Performed
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____

## Sub-Contractors

List Sub-Contractors to be used on this project.

Sub-Contractor's Company Name	Contact Person	Phone #	% of Work by Sub-Contractor (Maximum 50%)	Type of Work to be Performed
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____

**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES  
CONTRACT COMPLIANCE REGULATIONS**

**NOTIFICATION TO BIDDERS**

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

- (a) the bidder’s success in implementing an affirmative action plan;
- (b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
- (c) the bidder’s promise to develop and implement a successful affirmative action plan;
- (d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
- (e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

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**INSTRUCTIONS AND OTHER INFORMATION**

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidders A good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

**1) Definition of Small Contractor**

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding ten million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

2) Description of Job Categories (as used in Part IV Bidder Employment Information)

<p><b>MANAGEMENT:</b> Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.</p> <p><b>BUSINESS AND FINANCIAL OPERATIONS:</b> These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.</p> <p><b>COMPUTER SPECIALISTS:</b> Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists</p> <p><b>ARCHITECTURE AND ENGINEERING:</b> Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.</p> <p><b>OFFICE AND ADMINISTRATIVE SUPPORT:</b> All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, payroll clerks, bill and account collectors, customer service representatives, files clerks, dispatchers, shipping clerks, secretaries and administrative assistants, computer operators, mail clerks, and stock clerks.</p>	<p><b>BUILDING AND GROUNDS CLEANING AND MAINTENANCE:</b> This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.</p> <p><b>CONSTRUCTION AND EXTRACTION:</b> This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category..</p> <p><b>INSTALLATION, MAINTENANCE AND REPAIR:</b> Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.</p> <p><b>MATERIAL MOVING WORKERS:</b> The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.</p>
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3) Definition of Racial and Ethnic Terms (as used in Part IV Bidder Employment Information)

<p><u>White</u> (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.</p> <p><u>Black</u>(not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.</p> <p><u>Hispanic</u>- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.</p>	<p><u>Asian or Pacific Islander</u>- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.</p> <p><u>American Indian or Alaskan Native</u>- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.</p>
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# Bidder Contract Compliance Monitoring Report

## PART I - Bidder Information

Company Name Street Address City & State Chief Executive	Bidder Federal Employer Identification Number _____ Or Social Security Number _____
Major Business Activity (brief description)	Bidder Identification (response optional/definitions on page 1)  -Bidder is a small contractor. Yes__ No__ -Bidder is a minority business enterprise Yes__ No__ (If yes, check ownership category) Black__ Hispanic__ Asian American__ American Indian/Alaskan Native__ Iberian Peninsula__ Individual(s) with a Physical Disability__ Female__
Bidder Parent Company (If any)	- Bidder is certified as above by State of CT Yes__ No__
Other Locations in Ct. (If any)	- DAS Certification Number _____

## PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes__ No__	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? Yes__ No__
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes__ No__	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes__ No__
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? Yes__ No__	9. Does your company have a mandatory retirement age for all employees? Yes__ No__
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes__ No__	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes__ No__ NA__
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes__ No__	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes__ No__ NA__
6. Does your company have a collective bargaining agreement with workers? Yes__ No__ 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes__ No__ 6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? Yes__ No__	12. Does your company have a written affirmative action Plan? Yes__ No__ If no, please explain.
	13. Is there a person in your company who is responsible for equal employment opportunity? Yes__ No__ If yes, give name and phone number. _____ _____

## Part III - Bidder Subcontracting Practices

1. Will the work of this contract include subcontractors or suppliers? Yes__ No__  1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)          1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above? Yes__ No__
--

PLEASE COMPLETE REVERSE SIDE

**PART IV - Bidder Employment Information**

Date:

JOB CATEGORY	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	male	female
Management											
Business & Financial Ops											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

**PART V - Bidder Hiring and Recruitment Practices**

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification  (X)		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination	
SOURCE	YES	NO	% of applicants provided by source				
State Employment Service					Work Experience		
Private Employment Agencies					Ability to Speak or Write English		
Schools and Colleges					Written Tests		
Newspaper Advertisement					High School Diploma		
Walk Ins					College Degree		
Present Employees					Union Membership		
Labor Organizations					Personal Recommendation		
Minority/Community Organizations					Height or Weight		
Others (please identify)					Car Ownership		
					Arrest Record		
					Wage Garnishments		

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)
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**STATE OF CONNECTICUT**  
**DEPARTMENT OF MENTAL RETARDATION**

Project #.:
-------------

Contract Specialist

Telephone Number

**Vendor Gift Affidavit to Accompany Bid for State  
Contracts Greater than or equal to \$50,000  
as defined in Public Act 04-245 Section 2**

I, \_\_\_\_\_ (name, title and company name), hereby swear that, during the two-year period preceding the submission of this bid that neither I nor any principals or key personnel of the submitting firm or corporation who participated directly, extensively and substantially in the preparation of this bid nor agent of the above (1) gave a gift, as defined in Conn. Gen. Stat. Section 1-79(e), including a life event gift as defined in Conn. Gen. Stat. Section 1-79(e)(12), or (2) provided any items of value for which full payment has not been made, except the gifts/items listed below:

<u>Name of recipient of gift/item</u>	<u>Value of Gift/Item</u>	<u>Date of Gift/Item</u>	<u>Description</u>
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

to (1) any public official or state employee of the state agency or quasi-public agency soliciting the bids who participated directly, extensively, and substantially in the preparation of the bid solicitation; or (2) to any public official or state employee who has supervisory or appointing authority over the state agency or quasi-public agency soliciting the bid.

Further, neither I nor any principals or key personnel of submitting firm or corporation who participated directly, extensively and substantially in the preparation of this bid know of any action to circumvent this vendor affidavit disclosure.

Sworn as true to the best of my knowledge and belief, subject to the penalties of false statement.

_____	_____	_____
Print name	Signature	Date

Sworn and subscribed before me on this \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_,

\_\_\_\_\_  
Commissioner of the Superior Court/  
Notary Public

**STATE OF CONNECTICUT**  
**OFFICE OF POLICY AND MANAGEMENT**  
**Policies and Guidelines**

**Consulting Agreement Affidavit**

*Consulting agreement affidavit to accompany state contracts for the purchase of goods and services with a value of \$50,000 or more in a calendar or fiscal year, pursuant to Section 51 of Public Act 05-287.*

*This affidavit is required if a bidder or vendor has entered into any consulting agreements whereby the duties of the consultant include communications concerning business of such state agency, whether or not direct contact with a state agency, state or public official or state employee was expected or made. Pursuant to Section 51 of P.A. 05-287, "consulting agreement" means any written or oral agreement to retain the services, for a fee, of a consultant for the purposes of (A) providing counsel to a contractor, vendor, consultant or other entity seeking to conduct, or conducting, business with the State, (B) contacting, whether in writing or orally, any executive, judicial, or administrative office of the State, including any department, institution, bureau, board, commission, authority, official or employee for the purpose of solicitation, dispute resolution, introduction, requests for information or (C) any other similar activity related to such contract. Consulting agreement does not include any agreements entered into with a consultant who is registered under the provisions of chapter 10 of the general statutes as of the date such affidavit is submitted in accordance with the provisions of this section.*

I, Type/Print Name, Title and Name of Firm or Corporation, hereby swear that I am the chief official of the bidder or vendor of the Contract or authorized to execute such Contract. I further swear that I have not entered into any consulting agreement in connection with such contract, except the agreements listed below:

Contractor's Name, Title and Firm or Corporation:

Terms of Consulting Agreement (Date of Execution, Amount, Expiration Date):

Brief Description of Services Provided (Purpose, Scope, Activities, Outcomes):

Yes  No      Is the Consultant a former state employee or public official?

*If yes, provide the following information about the former state employee or public official:*

- Former Agency:
- Date Such Employment Terminated:

**Attach additional sheets if necessary. This affidavit must be amended if Contractor enters into any new consulting agreements during the term of this Contract**

Sworn as true to the best of my knowledge and belief, subject to the penalties of false statement.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Sworn and subscribed before me on this \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_

\_\_\_\_\_  
Commissioner of the Superior Court  
Notary Public

STATE OF CONNECTICUT  
LABOR DEPARTMENT

WAGE & WORKPLACE STANDARDS DIVISION

**CONTRACTORS WAGE CERTIFICATION FORM**  
**Contracts Greater than or Equal to \$100,000**

I, \_\_\_\_\_ of \_\_\_\_\_  
*Officer, Owner, Authorized Representative* *Company Name*

do hereby certify that the \_\_\_\_\_  
*Company Name*

\_\_\_\_\_  
*Street*

\_\_\_\_\_  
*City*

and all of its subcontractors will pay all workers on the

\_\_\_\_\_  
**Project Name and Number**

\_\_\_\_\_  
**Street and City**

the wages as listed in the schedule of prevailing rates required for such project.

\_\_\_\_\_  
**Signed**

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

Send 1 copy to: Labor Department  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109

## INSTRUCTIONS TO BIDDERS

### IB 1.01 General

These instructions to bidders are for the complete project known as: **Stripping & Roofing, Cottage 17 & Cottage 18, BI-DMR 477**. The project will be bid in strict accordance with the specifications as prepared by the Connecticut Department of Mental Retardation and procedures set fourth by the Department of Public Works. The amount of each bid shall be deemed to include the entire cost and expense of every item of labor and material necessary to complete the work bid upon, in full detail, ready for use. The risk of all such costs and expenses shall be assumed by the successful bidder.

It is the intent of the specifications to call for finished work, tested, and ready for operation and use. Any incidental accessory necessary to make the work complete in all respects and ready for operation, even if not particularly specified, shall be provided without extra compensation. Minor products or items of work, which by custom are not usually shown or specified, but are necessary for proper installation and operation of the completed work, shall be provided in the same manner as if actually shown or specified.

During construction in a mental retardation facility, there may be delays due to various safety or security issues. This needs to be taken into consideration in your submitted bid. The Department of Mental Retardation will not authorize extra compensation for these delays. The department will assign a facility representative to work with the selected contractor as liaison.

#### **Facility Representative:**

**John A. Narowski**

**Director, Facilities Management**

**Tel. (203) 586-2535**

**Fax #(203) 586-2702**

**Email Address: [john.narowski@po.state.ct.us](mailto:john.narowski@po.state.ct.us)**

#### **Agency Representative:**

**Jeffrey Cyr**

**Director of Engineering Services**

**Tel. #860-418-6031**

**Fax #860-418-6001**

**Email Address: [jeff.cyr@po.state.ct.us](mailto:jeff.cyr@po.state.ct.us)**

### IB 1.02 Bid Form and Acceptance

1. All bids must be *received* by the date and time specified at the office of **Lauren Marziarz, FAO** at the following address:

**Telephone # 203-806-8819**

**DMR/West Region**

**Business Office**

**25 Creamery Road**

**Cheshire, CT 06410**

It is recommended that you call prior to the bid opening to verify that your bid has been received.

2. Bid envelopes must clearly indicate the project number as well as the date and time of bid opening. Any correspondence shall include the project number and project title.
3. Enclosed with this specification is a BID FORM on which bids must be submitted.
4. The project shall be bid on the enclosed BID FORM as follows:
  - a. Base Bid - complete as described herein.
  - b. Supplemental Bid (if any) - complete as described herein. (Supplemental Bids may be accepted or not accepted by the agency, however if accepted the low bid will be determined by the total of the base bid and the supplemental bid(s).)
  - c. All BID FORMS shall be signed by a person duly authorized to sign bids on behalf of the bidder. Unsigned bids will be rejected.
5. If you do not wish to submit a bid, return the BID FORM with the indication "No Bid Submitted," as well as a brief indication why.
6. The contract will be awarded to the lowest qualified bidder within the Agencies budget figure.
7. The Department of Mental Retardation shall have the right to accept or reject the bids within ninety (90) calendar days of the bid opening date. All bid prices must be firm for this ninety (90) day period.

#### **IB 1.03 Phasing Plan**

Please refer to phasing plan within technical specifications.

#### **IB 1.04 Scope of Work**

Furnish all required labor, equipment, services, and materials necessary to complete all work as specified in the technical specifications section. Remove all debris created by this contract.

#### **IB 1.05 Location and Examination of Site**

1. The work will be performed at: **Southbury Training School, Cottage 17 & Cottage 18**
2. All contractors bidding for this project are required to visit and examine the site before bidding, and to verify job conditions and dimensions. Time, date, and location of pre-bid meeting are as noted on bid package cover sheet. **Bids received from non-attending contractors will not be honored.**  
This meeting is intended to review the project requirements and answer any questions that interested

contractors may have about this project. Failure to attend this meeting will result in the rejection of your bid.

**IB 1.06 Contractor Qualification Requirement**

The contractor shall demonstrate capability to execute this contract by submitting evidence of the following:

1. Valid Connecticut license(s), if required, to perform the required work.
2. Listing of two projects of similar scope and size that were performed within the last 18 months. Include the name, address and telephone number of a contact at each job that can be contacted and who is familiar with the project.

**IB 1.07 Protection of Work and Property**

1. All building equipment, furnishings, grounds landscaping, etc., shall be protected from damage of every description and any such damage thereto shall be repaired or otherwise made good at no expense to the State and to the satisfaction of the Facility Representative.
2. Supply and install any and all protective coverings and barricades necessary to protect at all times the public and building personnel from injury.
3. The contractor shall be held responsible for, and must make good at his own expense, any water damage or any other cause of damage due to improper protection.
4. Due to the nature of this institution, it is mandatory that all rules and regulations be strictly adhered to and the necessary precautions taken.
5. The contractor shall, during the progress of the construction, assume all responsibilities for loss or damage by fire to the work included in his contract until completion of the contract. No flammable material shall be stored in the structure in excess of the amounts allowed by the authorities.
6. The contractor is responsible to assure that all work is performed in accordance with all current State regulations including, but not limited to, OSHA, State Fire Codes, and the Basic Building Code of the State of Connecticut.
7. The contractor will at all times keep the premises free from the accumulation of waste materials or rubbish caused by his employees or work. All accumulated material shall be removed from the site daily at the contractors expense.

**IB 1.08 Form of Guarantee--Warranty**

The General Contractor will furnish the foregoing documents in the following manner:

1. Address to:

**DMR/West Region/Southbury Training School**

**Engineering**  
**P.O. Box 872, Route 172**  
**Southbury, CT 06488-0901**  
**ATTN: John A. Narowski, DFM**

2. Provide project name and number of project.
3. I (we) hereby guarantee, (or warranty), the work on the referenced project for a period of one (1) year from the Facility's approved completion date, against failures of workmanship and materials, unless otherwise noted on specifications. The completion date shall be the date of final payment is received by the contractor.
4. All guarantees supplied by subcontractors, suppliers or manufacturers will be countersigned by the General Contractor.

#### **IB 1.09 Time of Completion**

The contractor shall complete the project within the number of calendar days identified on page 1 of the BID FORM. Calendar days begin on the day of issuance of purchase order. Once on site, the contractor's work force shall remain mobilized until work is completed unless otherwise is specifically approved by the facility representative, in writing. Crews and material deliveries are to be scheduled to meet the completion date. If due to unforeseeable circumstances the work is not complete at the specified completion date, the contractor must obtain written permission from the facility representative and a new mutually agreed upon completion date must be established, or, liquidated damages, as described in section IB 1.17 will become effective. Working days for this project shall be Monday through Friday, exclusive of State or National Holidays. No Saturday or Sunday work shall be allowed without special written permission by the facility representative. Upon completion of the contract, the contractor shall make a request to the Facility Representative to schedule a final inspection of the work.

#### **IB 1.10 Wage Rates**

Prevailing wage rates are applicable if the submitted bid exceeds the sum of \$400,000.00 (for new construction) or \$100,000.00 (if renovation/alteration/ repair or improvement). New construction is defined as building an entire "brand new" building. The contractor is responsible for assuring that the payment of wages are as published by the Connecticut State Labor Department for the area where the job is being performed.

In accordance with the provisions of Section 31-53 of the General Statutes of Connecticut, the following applies "The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in subsection (h) of this section (31-53 of the General Statutes), shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day."

All contractors must submit weekly to Department of Mental Retardation, Facility Representative, a certified payroll and compliance statement. A copy of this statement will be kept on file at the facility and a copy will be forwarded to the Department of Labor. The certified payroll shall be considered a public record, and every

person shall have the right to inspect and copy such records in accordance with the provisions of section 1-15, Connecticut General Statutes.

**IB 1.11 Bonds**

1. A bid surety of not less than 10% of bid amount is required to accompany bid in the form of a bond or certified check made out to the Comptroller of the State of Connecticut if bid exceeds \$50,000.
2. A performance, and labor and material payment, surety of not less than 100% of bid amount is required of low bidder in the form of a bond made out to the Comptroller of the State of Connecticut if bid exceeds \$50,000. It is to be submitted to the Department of Mental Retardation business office representative prior to award of contract and issuance of purchase order.
3. Such checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining checks or bid bonds will be returned promptly after the awarding authority and the accepted bidder have executed contract, or, if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder so long as he/she has not been notified of the acceptance of his/her bid.

**IB 1.12 Insurance**

1. The Contractor shall not start work under this contract until he has obtained the following insurance and until the insurance has been approved by the owner nor shall the contractor allow any subcontractor to start work until insurance required by the subcontractor has been obtained and approved. The contractor shall send certificate for the insurance to the business office representative.
2. The Contractor shall take out and maintain during the life of the contract, workers' compensation insurance for all employees working at the site and, in case any work is sublet, the Contractor shall require the subcontractor to provide workers' compensation insurance for all of the latter's employees. In case any class of employees engaged in hazardous work under this Contract is not protected under the workers' compensation statute, the Contractor shall provide, and shall cause each subcontractor to provide, insurance for those employees.
3. The Contractor shall take out and maintain during the life of a contract, public liability and property damage insurance to protect him/her and the owner's interest as their interests may appear. Each subcontractor shall take out and maintain insurance to protect him/her from claims for damage for injury, including accidental death and from claims for property damage which may arise from operations under this contract, whether such operations be by himself/herself or by any subcontractor or by any employee unless such employees are covered by the protection afforded by the Contractor. Types and amounts of insurance required shall be as follows:



<b>DESCRIPTION</b>	<b>COVERAGE</b>	<b>SINGLE LIMIT</b>	<b>EACH ACCIDENT</b>	<b>AGGREGATE</b>
Protective Liability	BI	\$1,000,000		
Protective Liability	PD (for and in the name of the State of Connecticut)	\$100,000		\$500,000

<b>DESCRIPTION</b>	<b>COVERAGE</b>	<b>SINGLE LIMIT</b>	<b>EACH ACCIDENT</b>	<b>AGGREGATE</b>
Contractor's Liability	BI	\$1,000,000		
Contractor's Liability	PD	\$100,000		\$500,000
Contractor's Protective Liability	BI	\$1,000,000		
Contractor's Protective Liability	PD	\$100,000		\$500,000

- Coverage for damage or loss resulting from Type C - Collapse or Structural Injury, Type U - Underground Damage, Type X - explosion or blasting, ordinarily excluded from coverage, shall be provided in the amounts and manner specified in this article if required in the bid for the specified project. Builders Risk insurance, not ordinarily required, shall be provided in accordance with the amount and manner specified in the bid for the specified project if such insurance is required in the bid.

**IB 1.13 Licenses**

It is the responsibility of the contractor to secure all licenses, permits, approvals, or other documents necessary to complete this project.

**IB 1.14 Security**

The contractor must abide by all security regulations as described in or attached to this documentation.

**IB 1.15 Start of Work**

The contractor will not start work or order materials before receipt of a fully executed and approved purchase order. Within two (2) working days after receipt of the purchase order and prior to the start of construction, the contractor shall schedule a pre-construction meeting with the facility representative and at that time a start date

will be established. The contractor shall begin construction within ten (10) working days. Working days shall be considered as Monday through Friday.

**IB 1.16 Payment**

- a. Projects under \$25,000.00 - A single invoice shall be submitted by the prime contractor following the acceptance of the completed project.
- b. Projects \$25,000.00 or greater - Three invoices shall be submitted by the prime contractor; one when all material or equipment is on site or the project is 50% completed (which ever occurs first), two when the project is substantially complete, and three when the project is totally complete and accepted.
- c. The invoice shall contain the State Purchase Order number and project number. Invoices received without reference to a valid State Purchase Order number and project number will result in delay of payment

**IB 1.17 Liquidated Damages**

It is hereby declared and agreed by and between the contractor and the owner that the date of commencement, rate of progress, and time of completion of the work are essential provisions, conditions and that it would be impracticable and impossible to determine and ascertain the actual damages the owners would incur by reason of a delay in the completion of the work. It is, therefore, covenanted and agreed by and between the contractor and owner that the contractor shall and does hereby agree to pay the owner as liquidated damages (and not as a penalty) the sum of two hundred dollars (\$200.00) for each and every working day that the contractor shall be in default, hereunder for failing to complete the project within the time of completion specified above except as such date shall be extended, in writing upon request of the contractor, for the period of an excusable delay. Any such payments due to the owner by the contractor may be deducted by the owner from any sums due to the contractor.

**IB 1.18 RECEIPT OF BIDS**

BIDS SHALL BE PLACED IN SEALED ENVELOPES MARKED "SEALED BID OPENING, PROJECT #BI-DMR 477" AND DELIVERED/RECEIVED PRIOR TO THE BID OPENING DATE AND TIME LISTED ON THE COVER SHEET.

DELIVER TO:

**DMR/West Region  
Business Office  
25 Creamery Road  
Cheshire, Ct 06410  
ATTN: Lauren Marziarz, FAO**

End of Section

Revised Date: 5/2006

## **GENERAL CONDITIONS**

### **GC 1.01 General**

In addition to the conditions in the Instructions to Bidders, the following General Conditions shall apply and form an equal part of the contract documents.

### **GC 1.02 Use of the Premises**

1. Nothing contained in the Specifications shall be interpreted as giving the Contractor exclusive use of the premises where the work is performed.
2. The Contractor shall be held solely responsible for any damage to the existing structures, systems, equipment and site caused by them or by their employees and shall repair or replace same to their original condition as directed by the facility representative at no additional cost to the owner.
3. The work of the contract shall not interfere with the normal conditions and safe operation of the building and site. If such interference appears possible because of construction to existing work or other reasons, the work involved must be done at a time and in a manner directed by the facility representative as a part of the contract.
4. The contractor shall supply and install any and all protective coverings and barricades necessary to protect at all times the clients, public and building personnel from injury and the building from damage. The contractor shall provide and install all plastic sheeting, and other materials, which he/she may require to protect all open, unfinished work at the end of each and every day.
5. The contractor shall secure unfinished work areas at the close of business each day to preclude passage by any and all unauthorized persons.
6. No flammable material shall be stored in the structure in excess of the amounts allowed by the fire codes and authorities. No gasoline shall be stored within the building.
7. Protection of building, building occupants and visitors.
  - a. Construct barriers to prevent dust from construction areas from entering client areas. Barriers must be impermeable to fungal spores and in compliance with local fire codes.
  - b. Seal off and block return air vents if rigid barriers are used for containment.
  - c. Implement dust control measures on surfaces and divert pedestrian traffic away from work zones.
  - d. If necessary, create negative air pressure in work zones adjacent to client care areas and insure that required engineering controls are maintained. Monitor negative airflow.

- e. Direct pedestrian traffic away from construction zones.
- f. Provide construction crews with: Designated entrances, corridors and elevators if possible,
- g. Contractor shall clean work zones and their entrances daily.
- h. Contractor shall cover and secure debris prior to removal from the construction area.
- i. In client care areas, for major repairs that include removal of walls and disruption of the space within, the contractor shall use plastic sheets or prefabricated plastic units to contain dust and a HEPA (High Efficiency Particulate Air) filter machine to clean the air.

**GC 1.03 Storage or Equipment and Materials**

1. All deliveries of material, equipment, etc., shall be made to the contractor and accepted only by him/her and only during working hours. Department of Mental Retardation personnel will not receive or accept any materials or equipment, etc. at any time.
2. The contractor shall secure instructions from the facility representative's as to available space for storing materials, tools, etc. If adequate space is not available, he/she shall provide his/her own storage facilities and in all cases be responsible for its protection.
3. All materials used throughout work shall be neatly stacked so as not to obstruct traffic, or the progress of the work.
4. All materials delivered to the job site will be protected by the contractor from weather damage, loss, or vandalism.

**GC 1.04 Codes, Rules, Ordinances and Approvals**

1. All materials furnished and all work installed shall comply with the rules and recommendations of the State of Connecticut; and must comply with all applicable State and local code, laws, ordinances, rules and regulations, with all requirements of local utility companies, and with the recommendations of the Insurance Rating Organization having jurisdiction.
2. It is intended that the technical specifications not violate any of the above. Where violations occur, such codes, laws, rules, ordinances, regulations and recommendations shall be complied with. The contractor must call any such violations to the attention of the Department of Mental Retardation facility representative before making any changes to the specifications or proceeding with the work.
3. The Contractor shall, at his expense, give all notices, obtain all permits, licenses, approvals, fees and other costs in connection with the work and obtain all required certificates of inspection for the work and deliver same to the Department of Mental Retardation facility representative before requesting acceptance and final payment.
4. All apparatus, equipment, such as ladders, scaffolding, chutes, etc., shall comply with the

recommendations of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, OSHA, and approved revisions.

5. The contractor must at all times maintain a fire safe environment. Fire extinguishers are to be provided by the contractor, at all work sites, of the size and type required for the work being performed. Sprinkler and alarm systems are not to be shut down or impaired without the approval of the facility representative. Welding will only be performed by certified welders. When welding is being performed there is to be a fire watch provided with extinguishing equipment at his or her immediate access.

#### **GC 1.05 Salvage and Disposal**

1. All removed materials that are deemed salvageable by the facility representative are the property of the facility (State of Connecticut). The facility's representative will direct which materials the facility will retain and which material the contractor shall retain and/or dispose of. Facility retained material is to be relocated by the contractor to an area designated by the facility's representative at the contractor's expense.
2. All debris resulting from the performance of this contract will be the property of the contractor and will be completely removed from the facility daily. All permits, manifests, fees or other requirements for the proper disposal of such debris is the sole responsibility of the contractor. If a hazardous material is involved, copies of manifest slips must be provided to the facility representative.
3. Chutes and dumpster type containers designed to keep dust and spillage to a minimum will be supplied and used by the contractor at his/her own expense.

#### **GC 1.06 Maintenance of Utilities**

1. The Department of Mental Retardation has the responsibility for the operation of the entire utility distribution system. Any operation or function in relation to the work which could render said system(s) inoperable shall be coordinated, upon notification by the contractor, by the facility representative. All operational changes shall be made in this manner.
2. When installation of new work requires the temporary shutdown of an existing operating system, the connection of the new work shall be performed at such time as designated by the facility representative. The facility representative reserves the right to limit the shutdown time to a specified number of net hours and set the date and time of each occasion of complete shutdown. Notify facility representative of the estimated duration of the shutdown period at least seven (7) days in advance of the date the work is to be performed.
3. Any shutdown to the service which will interrupt critical operations shall be protected by the provision of a safe and adequate temporary means of service replacement, supplied at the contractor's expense, which shall be removed when no longer required. The contractor shall insure all tools, supplies, equipment and labor is on hand and in position to start the moment the shutdown period is made available to him.

## **GC 1.07 Change Orders**

1. No additional compensation or time shall be granted beyond that noted on the original purchase order, unless approved in writing by the **Agency Representative**.
2. The Department of Mental Retardation's **Agency Representative** is identified on the invitation to bid section. Changes, proceeds, or approvals from others will not be honored.

## **GC 1.08 Shop Drawings**

1. Shop drawings shall be submitted as required to the facility representative and/or as noted on the plans and technical specifications.
2. The contractor shall make any corrections required by the facility representative at no additional cost to the state and submit 2 corrected copies to the facility representative.
3. It is the contractor's responsibility to flag deviations from the contract documents. An approval will not be considered an acceptance of the deviation unless it has been explicitly and clearly identified in writing.

## **GC 1.09 Substitutions**

If substitutions are permitted, it is the responsibility of the contractor to provide the necessary documents to prove that the product is equal to that specified. These documents must be received by the facility representative for his approval/disapproval prior to use.

## **GC 1.10 Quality Control**

1. Comply with manufacturer's recommendations and association or trade instructions and specifications for storage, use, and installation of their products. All materials and equipment shall be installed in strict accordance with the manufacturer's recommendations. This shall include any and all steps, treatments, or maintenance required before placing into use or placing into service.
2. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with contract documents, request clarification from facility representative before proceeding.
3. When instructed by facility representative, submit manufacturer's data sheets, including instructions and recommendations.
4. If substitutions are permitted, it is the responsibility of the contractor to provide the necessary documents to prove that the product is equal to what is specified. These documents must be received by the facility representative for his approval/disapproval prior to use.

## COMPLIANCE WITH EXECUTIVE ORDERS

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this contract may be cancelled, terminated or suspended by the State Labor Commissioner for violation of or non compliance with said Executive Order No. Three, or any state or federal law concerning nondiscrimination, notwithstanding, that the Labor Commissioner is not a party to this contract.

The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive order and agree that the State Labor Commission shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The contractor, agrees as part consideration hereof, that this contract is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner.

This contract is also subject to provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be cancelled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the Labor Commissioner may not be a party to this contract.

The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

## EXECUTIVE ORDER No. 7B

This Agreement is subject to **Executive Order No. 7B of Governor Jodi M. Rell, promulgated on November 16, 2005**. The Parties to this Agreement, as part of the consideration hereof, agree that :

(a.) The State Contracting Standards Board ("the Board") may review this contract and recommend to the state contracting agency termination of the contract for cause. The state contracting agency shall consider the recommendations and act as required or permitted in accordance with the contract and applicable law. The Board shall provide the results of its review, together with its recommendations, to the state contracting agency and any other affected party in accordance with the notice provisions in the contract no later than fifteen (15) days after the Board finalizes its recommendation. For the purposes of this Section, "for cause" means:

- (1.) a violation of the State Ethics Code (Conn. Gen. Stat. Chapter 10) or Section 4A-100 of the Conn. Gen. Statutes or
- (2.) wanton or reckless disregard of any state contracting and procurement process by any person substantially involved in such contract or state contracting agency.

(b.) For the purposes of this Section, "contract" shall not include real property transactions involving less than a fee simple interest or financial assistance comprised of state or federal funds, the form of which may include but is not limited to grants, loans, loan guarantees, and participation interests in loans, equity investments and tax credit programs. Notwithstanding the foregoing, the Board shall not have any authority to recommend the termination of a contract for the sale or purchase of a fee simple interest in real property following transfer of title.

(c.) Effective January 1, 2006, notwithstanding the contract value listed in Conn. Gen. Stat. §§ 4-250 and 4-251, all procurements between state agencies and private entities with a value of \$50,000 (fifty thousand dollars) or more in a calendar or fiscal year shall comply with the gift affidavit requirements of said Sections. Certification by agency officials or employees required by Conn. Gen. Stat. § 4-252 shall not be affected by this Section.



# **TECHNICAL SPECIFICATIONS**

## **SCOPE OF WORK**

**State of Connecticut  
Department of Mental Retardation  
Southbury Training School  
Route 172  
Southbury, CT 06488-0901**

**Project Number: BI-DMR 477  
Project Title: Stripping & Re-Roofing Project – Cottage 17 & Cottage 18**

Prepared By:

John A. Narowski, Plant Facilities Engineer II

August, 2006

**Part 1**  
**SHINGLES**

Division 1  
General Requirements  
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Supplementary General Conditions

**PART 1 GENERAL**

SUMMARY OF WORK

1.01 The Contract in connection with Project NO. 477  
Includes the complete Roof Replacement work designated at Southbury Training School

1. Cottage 17 & Cottage 18

1.02 The Contractor awarded the contract shall be responsible for the entire project.

The nature of this project requires the work of various trades including but not limited to: Demolition, Roofing, Carpentry, Sheet Metal, Painting, Electrical, and related trades as may be required to complete the project. The Contractor shall provide the services of any and all trades as may be required to complete the work. All such costs shall be included in the Contractor's bid.

1.03 The work includes:

- A. Removal of: existing roofing systems down to decking
- B. Preparation of decking for new roofing systems, installation of plywood to gypsum roof deck.
- C. Installation of New GAF TimberLine Ultra Roofing Systems on Main Roofs and Shed Roofs.
- D. Installation of a New GAF membrane system on low slope roofs
- E. Installation of new GAF Ridge Vent System on main roofs.
- F. As indicated in Roof Schedule: Removal of existing aluminum / vinyl soffit and wood soffit and installation of new perforated soffit system to equalize air flow at ridge vent in accordance with GAF installation manual.
- G. Installation by GAF Master Elite® Contractor
- H. Contractor to provide Agency with a FIFTY (50) Year Golden Pledge Warranty for materials and labor.

Division 1  
General Requirements  
Section 01010  
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**PART 2 PRODUCTS**

- 2.01 Manufacturer GAF Materials Corporation
- 2.02 Accessories – manufactured by or approved by GAF to be compatible with roofing system and roofing system warranty.

**PART 3 EXECUTION**

- 3.01 Demolition and installation of roofing and ventilation systems shall be in strict conformance to GAF Materials Corporation installation manuals.
- 3.02 Provide a copy of all installation manuals to Agency Representative prior to Pre-construction meeting.
- 3.03 Remove existing roofing systems to decking including: ALL Existing vent boots, flashings, counter flashings and accessories at all existing roof penetrations and wall/ roof flashings, chimney flashing and counter flashings.
- 3.04 Provide and install new vent boots, flashings, counter flashings and accessories at all existing roof penetrations and wall/ roof flashings, chimney flashing and counter flashings and Roofing System.
- 3.05 The Contractor shall be responsible to remove existing siding, and building materials as may be required to provide for proper installation of flashings and counter flashings.

**NOTICE:**

**SOME EXISTING FLASHING FELTS AT COTTAGE 18 CONTAIN ASBESTOS MATERIAL.**

**THE CONTRACTOR AWARDED THE CONTRACT SHALL BE RESPONSIBLE TO REMOVE AND DISPOSE OF ALL ASBESTOS CONTAINING MATERIALS AS REQUIRED AND AS NECESSARY TO COMPLETE THE WORK. REMOVAL SHALL BE IN A MANNER, WHICH CREATES NO HAZARD TO THE WORKERS, THE BUILDING OCCUPANTS OR THE ENVIRONMENT IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND ORDINANCES PLUS THE REQUIREMENTS SPECIFIED HEREIN. REMOVAL OF ASBESTOS CONTAINING MATERIALS SHALL BE PERFORMED BY A STATE OF CONNECTICUT APPROVED CONTRACTOR.**

**A LISTING OF APPROVED FIRMS MAY BE OBTAINED BY CONTACTING THE DEPARTMENT OF PUBLIC WORKS ASBESTOS SECTION (860) 566-4500 TEST REPORT IDENTIFYING LOCATION OF FELTS AND QUANTITY OF MATERIAL IS LOCATED AT END OF SPECIFICATION. PART 4**

Division 1  
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3.06 The Contractor shall be responsible to provide and install new siding and building materials to match the existing at areas that receive new flashings. Installation shall be in strict conformance to material manufacturer's installation manual.

3.07 ALL WORK SHALL BE COMPLETED TO ENSURE A WATERTIGHT AND WEATHER TIGHT INSTALLATION.

3.08 PROTECTIVE COVERINGS

The Contractor must have at the work site a sufficient amount of moisture-proof covering and fasteners to provide quick temporary protection to any roof in the event of a rapid change in weather.

THE CONTRACTOR SHALL FULLY PROTECT ALL PARTS OF THE ROOFS AGAINST DAMAGE UNTIL FINAL ACCEPTANCE BY THE AGENCY REPRESENTATIVE. ALL WATER DAMAGE DUE TO ANY AND ALL LEAKS, OR ANY OTHER TYPE OF DAMAGE SHALL BE REPLACED WITH NEW WORK BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.

This includes but not limited to: replacement of building materials, finishing the same with appropriate finish to match the surrounding areas including paint and trim.

The Contractor shall be responsible to repair or replace as directed by the Agency Representative any other damage of all descriptions including but not limited to: damaged furniture, carpeting, wall paper, personal property and related items.

Repairs and replacement of damaged items shall be made by the Contractor at no expense to the Agency. As a condition of payment, the Contractor shall complete all such repairs or replacement to the satisfaction of the Agency Representative.

3.09 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall provide for the use of all personnel, where directed, adequate temporary sanitary facilities, service and maintenance, such as chemical toilets, temporary wash basins, and water supply, toilet tissue, soap and paper towels.

3.10 OSHA REGULATIONS FALL PROTECTION

It is understood that the Contractor shall comply with all OSHA regulations including but not limited to 29

END OF SECTION

DIVISION 6  
CARPENTRY  
SECTION 06000  
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**PART 1 GENERAL**

1.01. The work under this section consists of the furnishing of all labor, materials, services and equipment to properly complete all items of work described in the specifications, plans or reasonably implied.

1.02 DESCRIPTION OF WORK

Work includes carpentry and related work through out the project. Carpentry is performed for coordination of the work, to uncover work for access or inspection, to permit alterations to be performed or for other similar purposes. Do all cutting, patching and related work necessary for installation of items and completion of the work.

**PART 2 PRODUCTS**

- A. General - Except as otherwise noted, use materials for cutting and patching that are identical to existing materials or specified by latest code.
- B. Fasteners: Standard items of sufficient strength for intended use. Fasteners subjected to moisture shall be hot-dip galvanized, stainless steel or other non-corrosive material.

**PART 3 EXECUTION**

- A. Verify all dimension and conditions in the field. Be responsible for the correctness of all fitting and the proper attachment of all carpentry, and provision for proper attachment of work, and related work of other trades.
- B. Perform all carpentry required for temporary work.
- C. As directed by the Plant Facilities Engineer, provide temporary enclosure consisting of temporary walls and doors to protect building exterior and or to prevent access to the structures.
- D. All temporary work and protection shall be removed from the job at its completion.
- E. Nailers, and blocking - Furnish and install all necessary blocking, nailers, etc., of sizes and shape required to bring finished work to proper position and to afford good solid fastenings for all work and equipment of all trades, including but not limited to; Sheet Metal, Mechanical and Electrical.

F. Provide related work as required

G. CLEANING

1. The contractor shall at all times keep the premises free from surplus material and rubbish. At the completion of the work, the contractor shall remove his entire plant and equipment and shall remove all rubbish, waste, and surplus materials. He shall leave the premises broom clean.

END OF SECTION

DIVISION 7  
MOISTURE PROTECTION  
SHINGLES  
SECTION 07310  
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**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Asphalt roofing shingles
- B. Leak barrier and deck protection.
- C. Metal flashing associated with shingle roofing.
- D. Attic Ventilation.

1.02 RELATED WORK

- A. Rough Carpentry: Framing, wood decking and roof sheathing.
- B. Flashing and Sheet Metal: Sheet metal flashing not associated with shingle roofing; gutters and downspouts.

1.03 REFERENCES

- A. ASTM D 3018 – Standard Specifications for Class A Asphalt Shingles Surfaced with Mineral Granules.
- B. ASTM D 3161 – Standard Test Method for Wind Resistance of Asphalt Shingles (Fan-Induced Method.)
- C. ASTM D 3462 – Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
- D. ASTM D 4586 – Standard Specification for Asphalt Roof Cement, Asbestos –Free.
- E. UL 790 – Tests for Fire Resistance of Roof Covering Materials.
- F. UL 997 Wind Resistance of Prepared Roof Covering Materials.

G. Asphalt Roofing Manufacturers Association (ARMA)

H. National Roofing Contractors Association (NRCA)

#### 1.04 SUBMITTALS

A. Submit copies of GAFMC's product data sheets, detail drawings and samples for each type of roofing product.

B. Submit two (2) copies of manufacturer's installation manual for each product.

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#### 1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier and ventilation by a single manufacturer.

B. Installer Qualifications:

1. Installer must be approved for installation of all roofing products to be installed under this section.
2. Installer must be a GAF Master Elite® Contractor as defined and certified by GAFMC.

#### 1.06 REGULATORY REQUIREMENTS

A. Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.

B. Install all roofing products in accordance with all federal, state and local building codes.

C. All work shall be performed in a manner consistent with current OSHA guidelines.

#### 1.07 PREINSTALLATION MEETING

A. A Pre-Installation Meeting will be scheduled by the Agency Representative.

B. Timing: The meeting shall take place prior to the start of the roofing installation.

C. Attendees: Meeting to be called for by the Manufacturer's certified Contractor. Meeting's mandatory attendees shall include the certified Contractor and the Manufacturer's representative, Agency Representative.



- D. Topics: Certified Contractor and Manufacturer’s Representative shall review all pertinent requirements for the project, including but not limited to; scheduling, weather considerations, project duration and requirements for the specified warranty.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Store all products in manufacturer’s unopened, labeled packaging until they are ready for installation.
- B. Store products in a covered, ventilated area, at room temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators or in direct sunlight.
- C. Store bundles on a flat surface. Maximum stacking height shall not exceed GAFMC’s recommendations. Store all rolls on end.
- D. Store and dispose of solvent based materials in accordance with all federal, state and local regulations.

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SECTION 07310  
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1.09 WEATHER CONDITIONS

- A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with GMAC’s recommendations.

1.10 WARRANTY

- A. Provide to the Agency a GAFMC **Golden Pledge®** Fifty (50) Year Warranty.

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: GAF Materials Corporation, 1361 Alps Road, Wayne, NJ 07470. Tel. 1-973-628-3000.

2.02 SHINGLES

- A. Super-Heavyweight, granule surfaced, self-sealing asphalt shingle with a strong fiberglass reinforced Micro Weave® core and a mineral granule surfacing. Architectural laminate styling provides a wood shake appearance with a 5” or 5 5/8” exposure. Meets ASTM D 3018, ASTM d 3161, and ASTM D 3462; UL 790 Class A rated with UL 997 Wind Resistance Label. **Timberline® Ultra® Shingles**, by GAFMC.

- 1. Color: As selected from manufacturer’s full range.

2.03 HIP AND RIDGES SHINGLES

- A. High profile self-sealing hip and ridge cap shingle matching the color of selected roof shingle. Each bundle covers approximately 20 linear feet. **Timbertex®** Distinctive Ridge Cap Shingles, by GAFMC.

2.04 STARTER STRIP

- A. Self-sealing starter course. Each strip measures 7” tall by 36” wide. One bundle covers approx. 33 linear feet. **Weatherstop™ Starter Strips**, by GAFMC.

2.05 LEAK BARRIER

- A. Self-Adhering, self-sealing, bituminous leak barrier surfaced with fine, skid-resistant granules. Each roll contains approx. 150 sq. ft, 65 lbs (29.9 kg), 36” x 50’ or 200 sq. ft, 85 lbs (38.6 kg), 36” x 66.7’ .58 mils thick. **WeatherWatch®**, by GAFMC.

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2.06 SHINGLE UNDERLAYMENT

Water repellent, breather type cellulose/glass fiber composite roofing underlayment. **Shingle-Mate®**, by GAFMC.

2.07 ROOFING CEMENT

- A. General-purpose asphalt roofing cement meeting the requirements of ASTM D 4586, Type I or II. **Leak Buster Matrix Standard Wet/Dry Roof Cement #204**, by BMCA.

2.08 ATTIC VENTILATION

- A. Rigid plastic ridge ventilator designed to allow the passage of hot air from attics while prohibiting snow infiltration. For use in conjunction with eave/ soffit intake ventilation products. Provides 18.5 sq in NVPA per linear foot. Each package contains 48 linear feet of vent. **Cobra® Snow Country™**, by BMCA.

- B. Perforated Soffit Ventilation – manufactured by GAF to match existing.

2.09 NAILS

- A. Standard round wire, zinc coated steel or aluminum; 10 to 12 gauge, barbed or deformed shank, with heads 3/8 inch (9.5 mm) to 7/16 in. (11mm) in diameter. Length must be sufficient to penetrate into solid wood at

least ¾ in. (19mm) or through plywood or oriented strand board by at least 1/8 in.

B. Copper nails shall be used at all locations where contact with fiber flashing is present.

## 2.10 METAL FLASHING

A. 20 oz. Copper sheet, complying with ASTM B 370 chimney flashing, counter flashing, valley flashing.

B. Aluminum flashing and counter flashing per roofing material manufacturer's installation manual.

C. Vent Boots – to comply with roof manufacturer's recommendation to insure warranty.

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## PART 3 EXECUTION

### a. EXAMINATION

A. Do not begin installation until the roof deck has been properly prepared.

### b. PREPARATION

A. Remove all existing roofing down to the roof deck.

B. Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves and projections. Cover with sheet metal, all holes over 1 inch (25mm) in diameter, cracks over ½ inch (12mm) in width, loose knots and excessively resinous areas.

C. Replace damaged deck with new materials.

D. Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.

### c. UNDERLYMENT APPLICATION

A. General:

1. Install using methods recommended by GAFMC, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take

precedence.

2. After stripping of existing shingles, ¾" CDX plwood will be anchored to the complete 3" gypsum roof deck.
3. Tapcon or Rawl Tapper, concrete anchors, with a minimum length of 2 ¼", (1/4 x 2 ¼" PFH) will be used to anchor this plywood.
4. Pull test required to confirm minimum 40 pound pull out strength.
5. Anchor installation will be 16" on center 8" apart. Anchors will be drilled and not hammered into place.

#### B. Eaves

1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches (50mm) and seal with plastic cement; nail at the top of the flange.
2. Install eaves protection membrane up the slope from eaves edge a full 36 inches or to at least 24 inches (610mm) beyond the interior "warm wall". Lap ends 6 inches (150mm) and bond.

#### C. Valleys:

1. Install eaves protection membrane at least 36 inches wide and centered on the valley. Lap ends 6 inches (150mm) and seal.
2. Where valleys are indicated to be "open valleys" install metal flashing over eaves protection membrane before roof deck underlayment is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 inches (457mm) on center just beyond edge of flashing so that the nail heads hold down the edge.

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#### D. Roof Deck

1. Install one layer of roof deck underlayment over the entire area not protected by eaves or valley membrane. Install sheets horizontally so water sheds and nail in place.
2. On roofs sloped at more than 4 in 12, lap horizontal edges at least 2 in. (50mm) and at least 2 in (50mm) over eaves protective membrane.
3. On roofs sloped between 2 in 12 and 4 in 12, lap horizontal edges at least 19 inches (480mm) and at least 19 inches (485mm) over eaves protective membrane.
4. Lap ends at least 4 inches (100mm) Stagger end laps of each layer at least 36 inches (915mm)
5. Lap underlayment over valley protection at least 6 inches (150mm)

#### E. Penetrations

1. Vent pipes: install a 24 inch (610mm) square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install eaves protection membrane from under the built-in counterflashing and 12 inches (305mm) on to the roof surface lap the membranes over the roof deck underlayment.
3. Skylights and roof hatches: Install eaves protection membrane from under the built-in

counterflashing and 12 inches (305mm) on to the roof surface lapping over roof deck underlayment.

4. Chimneys: Install eaves protection membrane around entire chimney extending at least 6 inches (150mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over roof deck underlayment.
5. Rake edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (50mm) and seal with plastic cement; secure with nails.

#### d. INSTALLATION OF SHINGLES

##### A. General:

1. Install in accordance with GAFMC's instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge of bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

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##### B. Placement and Nailing:

1. Secure with 4,5 or 6 nails per shingle per GAFMC's instructions or local codes.
2. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle details.
3. Nails must be driven flush with the shingle surface. Do not overdrive or underdrive the nails.
4. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
5. Cottage 18 has a Gypsum Roof Deck. Utilize appropriate fasteners as required by Manufacturer securing to this type of material. Repair to Gypsum Deck caused by use of incorrect fasteners or incorrect installation is the Contractor's responsibility.

##### C. Valleys Copper

1. Install copper valleys using the "open valley" method:

- a.) Snap diverging chalk lines on the metal flashing, starting at 3 inches (75mm) each side of top of valley, spreading at 1/8 inch per foot (p mm per meter) to the eaves.
- b.) Run shingles to chalk line.
- c.) Trim last shingle in each course to match the chalk line; do not trim shingles to less than 12 inches (305mm) wide.
- d.) Apply a 2-inch (50mm) wide strip of plastic cement under ends of shingles, sealing them to the metal flashing.

#### D. Penetrations

1. All penetrations are to be flashed according to GAFMC, ARMA and NRCA application instructions and construction details.
2. Reserved.

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SHINGLES  
SECTION 07310  
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#### e. VENTILATION

##### A. Ridge/ Soffit Ventilation

1. Install ridge vent along the entire length of ridges:
2. Cut continuous vent slots through the sheathing, stopping 6 inches (150mm) from each end of the ridge.
3. On the roofs without a ridge board, make a slot 2 inches (50mm) wide, centered on the ridge.

4. On roofs with a ridge board, make two slots 1 ¾ inches (42mm) wide, one on each side.
5. Install ridge vent material along the full length of the ridge, including uncut areas.
6. Butt ends of ridge vent material and join using roofing cement,
7. Install eaves vents in sufficient quantity to equal or exceed the ridge vent area. Remove existing soffit as required, remove wood soffit in sufficient quantity to equal or exceed the ridge vent area. Provide and install new perforated soffit in sufficient quantity to equal or exceed the ridge vent area.

f. PROTECTION

- A. Protect installed products from foot traffic until completion of the project.
- B. Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION

**DIVISION 7**  
**SIDING – SOFFITS – FASCIA – RAKES – CORNICE – TRIM**  
**SECTION 07400**  
**Page 1 of 2**

**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Siding – Cornice -Soffits – Fascias – Rakes - Trim and Accessories.
- B. Custom trim shapes made on project site.

1.2 REFERENCES

- A. Manufacturer's installation manuals and product specifications.

1.4 SUBMITTALS

- A. Submit Manufacturer's data sheets on each product to be used, showing compliance with requirements.
- B. Selection Samples: Two complete sets of color cards representing manufacturer's full range of available colors.
- C. Two complete sets of Manufacturer's installation instructions, and manuals showing required preparation and installation procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Store boxes on flat surface to maximum height recommended by manufacturer.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:  
  
Vinyl Siding – Trim – Fascias – Rakes – Soffits – Accessories:  
CertainTeed Corporation 1.800.233.8990  
  
Weatherside Purity Fiber cement siding and accessories: GAF Corporation
- B. Requests for substitutions will be considered in accordance with provisions of project specifications.



**DIVISION 7**  
**SIDING – SOFFITS – FASCIA – RAKES – CORNICE – TRIM**  
**SECTION 07400**  
Page 1 of 2

**2.2 MATERIALS**

- A. Siding: Match existing
  - 1. Color: match existing.
  - 2. Siding Accessories: match existing.
- B. Fascia: Aluminum sheet, painted before forming; size to match existing – grain embossed, .024 inch (.06 mm) thickness with two coat acrylic finish.
  - Color: match existing.
  - Accessories: match existing.
- C. Aluminum Sheet For Custom Trim Shapes: Tension-leveled aluminum sheet coil, suitable for brake bending in the field.
  - Finish Coating: PVC Striated two coat solvent-based PVC, 3.3 to 3.7 mils (0.084 to 0.094 mm) thick. Sheet thickness 0.021 inch (0.056 mm), nominal.

**2.3 ACCESSORIES**

- A. Fasteners: Galvanized nails or other corrosion-resistant fasteners, as recommended by manufacturer for specific application.
- B. Joint Sealers: As specified per material manufacturer's specifications.

**PART 3 EXECUTION**

**3.1 EXAMINATION** - surfaces on which products are to be installed are weather tight and ready for installation.

- A. Do not begin installation until surfaces have been properly prepared; notify Agency Representative of unsatisfactory preparation before proceeding.

**3.2 INSTALLATION**

- A. Install siding, soffit/trim and accessories in strict accordance with manufacturer's instructions and applicable building codes.
- B. Install products level, plumb and true.
- C. Securely attach products using methods and materials recommended by manufacturer for wind load conditions at project site.

**3.3 CLEANING**

- A. Clean dirt from surface of installed products, using mild soap and water.
- B. Upon completion of installation, remove from project site excess materials and debris caused by the project.

**3.4 PROTECTION**

- A. Protect installed products until completion of project.

- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

**DIVISION 7**  
**MOISTURE PROTECTION**  
**SEAMLESS GUTTERS & DOWNSPOUTS**  
**SECTION 07460**  
**Page 1 of 3**

**PART 1 GENERAL**

1.01. The work under this section consists of the furnishing of all labor, materials, services and equipment to properly complete all items of work described in the specifications, plans or reasonably implied.

1.02 DESCRIPTION OF WORK

- a. Per Roofing Schedule: Remove all existing gutters, downspouts and accessories from buildings and site.
- b. Per Roofing Schedule: Furnish all labor, materials and equipment for a complete new commercial grade seamless gutter and downspout system.

1.03 SUBMITTALS

- a. Submit two (2) copies of all manufacturers' installation manuals.
- b. Shop Drawings: Submit line drawing indicating gutter and downspout layout.
- c. Submit certificates of conformance with current Connecticut Basic Building Code: Gutters are sized to meet code requirements for roof size. Downspouts are sized and in sufficient number and locations to meet code requirements.
- d. Submit documentation that system meets or exceeds manufacturer specifications and recommendations: Gutters are sized to meet requirements for roof size. Downspouts are sized and in sufficient number and locations to meet requirements. Gutter Hangers and Downspout brackets are sized and installed to meet manufactures specifications.
- e. Submit samples of all materials and accessories.

**DIVISION 7**  
**MOISTURE PROTECTION**  
**SEAMLESS GUTTERS & DOWNSPOUTS**  
**SECTION 07460**  
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**PART 2 PRODUCTS**

2.01

- a. All materials and accessories provided by one manufacturer.  
The following manufacturers establish a level of acceptable quality  
Alcoa  
Englert  
or Agency approved alternate.
- b. Gutters, downspouts, hangers and accessories shall be of commercial grade.
- c. Finish: Interior – corrosion resistant finish; exterior primer plus baked on acrylic topcoat by manufacturer. Color to match existing facility system.
- d. Hangers: Commercial grade hanger system shall be secured with screws approved by manufacturer. Gutter spikes or nails are not permitted.
- e. Gutter Guard: Provide and install commercial grade gutter guard system manufactured or approved by gutter manufacturer.
- f. Downspout brackets: Commercial grade bracket system shall be secured with screws approved by manufacturer. Strap system not permitted. Spikes or nails are not permitted.
- g. Splash blocks: Provide and install commercial grade splash blocks for each downspout manufactured or approved by gutter manufacturer.

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**MOISTURE PROTECTION**  
**SEAMLESS GUTTERS & DOWNSPOUTS**  
**SECTION 07460**  
**Page 3 of 3**

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- a. Verify all dimension and conditions in the field. Be responsible for the correctness of all fitting and the proper attachment of work; clean and repair adjoining work upon which proper installation work is dependent.
- b. Install system in strict conformance to manufacturer's installation manual and specifications.
- c. All gutter hangers and downspout brackets to be fastened to solid lumber with screws. Type, size and spacing shall be in accordance to manufacturer's installation manual. Nails or gutter spike type fasteners are not permitted.

**3.02 CLEANING**

- a. The contractor shall at all times keep the premises free from surplus material and rubbish.
- b. Provide and use drop cloths to protect grounds and plantings from debris, nails, screws and materials. Provide and use magnetic brooms, rakes and equipment to ensure all materials are removed from the site.
- c. At the completion of the work, the contractor shall remove the entire plant and equipment and shall remove all rubbish, waste, and surplus materials. Contractor shall leave the premises broom clean.
- d. Any damage to the site shall be repaired by the Contractor to the satisfaction of the Agency Representative.

**3.03 WARRANTY**

Contractor shall provide 20-year warranty for labor and materials.

END OF SECTION

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MOISTURE PROTECTION  
ROOFING MEMBRANE  
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**GENERAL**

**1.01 REFERENCES**

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

**1.02 DEFINITIONS**

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

**1.03 PERFORMANCE REQUIREMENTS**

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

**1.04 SUBMITTALS**

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

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**1.05 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications:** GAF shall provide a roofing system that meets or exceeds all criteria listed in this section.
- B. Installer's Qualifications:**
  - 1. Installer shall be classified as a GAF Master Elite Contractor as defined and certified by GAF.
  - 2. **Source Limitations:** All components listed in this section shall be provided by a single manufacturer or approved by the primary roofing manufacturer.
- C. Final Inspection:** Manufacturers representative shall provide a comprehensive final inspection after completion of the roof system. All application errors must be addressed and final punch list completed.

**1.06 PRE-INSTALLATION CONFERENCE**

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

**1.07 REGULATORY REQUIREMENTS**

- A. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes.**
- B. Exterior Fire Test Exposure: Provide a roofing system achieving an Underwriters Laboratories (UL) Class A rating for roof slopes indicated.**
- C. Windstorm Classification: Provide a roofing system that can achieve a Factory Mutual 1-90 wind uplift rating, as listed in the current FM Approval Guide.**

**1.08 DELIVERY, STORAGE AND HANDLING**

- A. Deliver all roofing materials to the site in original containers, with factory seals intact. All products are to carry either a GAF or BMCA<sup>®</sup> label.**
- B. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range.**

- C. Store roll goods on end on pallets in a clean, dry, protected area. Take care to prevent damage to roll ends or edges. Do not double stack modified bitumen products.

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- D. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
- E. Remove manufacturer supplied plastic covers from materials provided with such. Use “breathable” type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each workday. Do not remove any protective tarpaulins until immediately before the material will be installed.
- F. Materials shall be stored above 55°F (12.6°C) a minimum of 24 hours prior to application.

#### 1.11 PROJECT CONDITIONS

##### A. Weather

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

#### 1.12 WARRANTY

- A. Provide Manufacturers standard **Diamond Pledge™** Guarantee with single source coverage and no monetary limitation where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in materials or workmanship. Duration: minimum **Twenty (20)** years from the date of agency acceptance.

#### PART 2 PRODUCTS

##### 2.01 MANUFACTURERS

- A. GAF Materials Corporation - 1361 Alps Road, Wayne, NJ 07470 [www.gaf.com](http://www.gaf.com) Toll Free Tel: (800) ROOF-411. Tel: (973) 628-3000. Fax: (973) 628-3451. Email: [TechnicalQuestions@gaf.com](mailto:TechnicalQuestions@gaf.com). Web: [http:// www.gaf.com](http://www.gaf.com).

##### 2.02 FLASHING MATERIALS

- A. As specified by Material Manufacturer's installation manual.

## **2.03 ACCESSORIES**

### **A. Mechanical Fasteners**

**As specified by Material Manufacturer's installation manual.**

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## **PART 3 EXECUTION**

### **a. EXAMINATION**

- A. Verify that the surfaces and site conditions are ready to receive work.**
- B. Verify that the deck is supported and secured.**
- C. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.**
- D. Verify that the deck surfaces are dry and free of ice or snow.**

### **b. SUBSTRATE PREPARATION**

**As specified by Material Manufacturer's installation manual.**

### **c. INSTALLATION – GENERAL**

**As specified by Material Manufacturer's installation manual.**

### **d. MEMBRANE APPLICATION**

**Self-Adhered Membrane: As specified by Material Manufacturer's installation manual.**

### **e. FLASHINGS**

- A. General: Provide and install flashings and counter flashings in strict conformance to material manufacturer's installation manual.**

### **f. CLEAN-UP**

**All work areas are to be kept clean, clear and free of debris at all times.**

- A. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.**
- B. All tools and unused materials shall be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.**



- C. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.**
- D. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.**
- E. Clean and restore all damaged surfaces to their original condition.**

**END OF SECTION**

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ELECTRICAL  
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**PART 1 GENERAL**

**1.01** The work under this section consists of the furnishing of all labor, materials, services and equipment to properly complete all items of work.

**1.02 DESCRIPTION OF WORK**

Provide electrical services as may be required to complete the Project such as but not limited to: Removal and re-installation of all existing electrical fixtures, conduit, wiring and associated electrical items as required to proceed with and complete the Project.

**1.03 CODES AND STANDARDS**

**1.04** Only Electrician(s) licensed to perform work of this scope in the State of Connecticut shall perform the work. Submit a copy of license(s) prior to start of work.

**1.05** Electrical materials and their installation shall comply in all respects with:

- a. State of Connecticut Building Codes
- b. State of Connecticut Fire Safety Codes
- c. National Electrical Codes

**PART 2 PRODUCTS**

**2.01** Re-Install all materials removed during the course of the work

**2.02** Provide ALL miscellaneous materials and accessories as may be necessary to complete the work.

**PART 3 EXECUTION**

**3.01** Extent of electrical work shall include all labor, equipment and services required to complete, ready for correct operation all electrical work as may be required to complete the project, including but not limited to the following:

1. Removal of existing electrical work as required.
2. Re-working of existing electrical items as required.
3. Re-Installation of existing electrical items. Test electrical work for proper operation.
4. Installation and removal of protective coverings at electrical service lines.

**3.02 CLEANING**

1. The contractor shall at all times keep the premises free from surplus material and rubbish and he shall not have undue surplus material for which there is no immediate use which may delay and hinder other contractors employed on the work.
2. At the completion of the work, the contractor shall remove his entire plant and equipment and shall remove all rubbish, waste, and surplus materials. He shall leave the premises broom clean.

**END OF SECTION**

Part 2

**FLATROOFS**

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SCHEDULE OF DRAWINGS

Roof Plan

Roof Details

Notes To Details

## UNIT PRICES

The undersigned agrees, in case of variation of quantities from those shown or specified, the following unit prices will be used in adjusting the Contract Price. If quantities are authorized by the Owner, the following amount will be added to the Contract as required.

- 1) Cost per square feet to replace concrete decking (2" depth)

\$\_\_\_\_\_ / s.f.

- 2) Cost per square foot to replace wood sheathing

Add: \$ 2.63 \_\_\_\_\_ / s.f.

Deduct: \$ 2.33 \_\_\_\_\_ / s.f.

Final Contract price will be adjusted at the completion of work to give Owner credit for any unused quantities of unit price items. Credit shall be given at the same unit prices quoted above. Any additional quantities required, over and above quantities stated in this proposal, will be added to the Contract by change order, at unit prices quoted above.

## **DIVISION 1**

### **SECTION 01010- SUMMARY OF WORK**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Project Identification
- 1.03 Contractor Documents
- 1.04 Contractor Use of Premises
- 1.05 Scope of Work

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

Not Applicable

## SECTION 01010- SUMMARY OF WORK

### PART I- GENERAL

#### 1.01 Related Documents Sections

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Project Identification

The Work name is "**Roof Replacement - SOUTHBURY TRAINING CENTER - BUILDING 18**" as shown on Contract Documents.

#### 1.03 Contract Documents

Indicate the Work of Contract, and related provisions of Work which may include but are not necessarily limited to the following:

- A. Existing site conditions and restrictions.
- B. Other Work prior to Work of Contract.
- C. Alterations and coordination with existing work.

#### 1.04 Contractor Use of Premises

General: This facility will be occupied during the life of this Contract. The work shall be done and temporary facilities furnished so as not to interfere with safe access to the building and shall provide adequate protection for interior and exterior finishes, tenants, employees, visitors, equipment, personal property and vehicles.

The Contractor shall confine his activities to the roof work area, storage areas and assigned routes thereto, provided by the Owner.

Keep driveways, sidewalks and parking areas cleared of materials and debris at all times.

Isolate areas designated for loading and off loading of materials and debris. Do not use building entranceways or stairs for transporting materials. Access to the roof shall be via assigned routes only. Dispose of all debris resulting from this work on a regular basis. Do not stockpile debris on the roof or facility grounds. Debris may be stored in a container on the site, provided the container is emptied regularly.

Access to this facility is limited. The Contractor shall confine his activities to ground level areas and an access route to the roof. There shall be no unauthorized access to interior hallways or tenant spaces. Arrange for on-site materials and equipment storage with the Owner's representative. Damage to the structure, interior and exterior finishes, landscaping and vegetation shall be made good to the Owner's satisfaction at no cost to the Owner.

## 1.05 Scope of Work - **BID ITEM #1**

The roofing work at SOUTHBURY TRAINING CENTER - BUILDING 18 shall consist of but is not limited to the following:

### A. Replacement Bids

1. Removal of the existing roof assembly down to exposed decking.
2. Removal of selected rooftop units and other sheet metal flashing.
3. Identification and repair of damaged deck (in kind).
4. Install 1/4"/ft Tapered polyisocyanurate insulation system with minimum 1" base layer and a layer of 1/2" High Density Fiberboard in hot asphalt directly to the deck.
5. Install two(2) plies of Type II glasbase in WeatherKing Cold Adhesive.
6. Install One ply of Stressply "E" Mineral Surfaced Modified Membrane in WeatherKing Cold Adhesive.
7. Install new Metal Edge System.
8. Install new metal vent caps, counterflashings, drains, and other accessories.

### B. Deck Replacement.

1. Remove damaged concrete decking and properly discard.
2. Install new decking in kind.

## **PART II-PRODUCTS**

Not Applicable

## **PART III-EXECUTION**

Not Applicable

**END OF SECTION 01010**



## **DIVISION 1**

### **SECTION 01040- COORDINATION**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Coordination and Meetings
- 1.03 Delivery and Storage of Materials

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

- 3.01 General
- 3.02 Manufacturer's Inspection
- 3.03 Cleaning and Protection

## **SECTION 01040- COORDINATION**

### **PART I- GENERAL**

#### 1.01 Related Documents

The provisions of the contract, the General Conditions, the Supplementary Conditions, and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Coordination and Meetings

The Contractor shall submit a listing of subcontractors involved with the Work at the pre-construction meeting. The Contractor shall be responsible for scheduling and coordination of these subcontractors so as to maintain the Work schedule and adherence to the specifications.

The Contractor shall coordinate his work with the Owner regarding disconnecting, movement and reconnecting of HVAC equipment and communication towers or equipment.

The Owners and their representative shall inform the Contractor of a time and date for a pre-construction meeting at which time the Contractor shall present representatives of all subcontractors and the materials manufacturer's technical representative.

The Contractor shall be prepared to submit the name(s) of site supervisory personnel at the time to the pre-construction meeting as well as the telephone numbers to be used in the event of an emergency.

The Contractor shall be prepared to attend meetings at the site as required by the Owner and their representatives.

#### 1.03 Delivery and Storage of Materials

At the pre-construction meeting, sites will be determined and designated for on-site storage of material and equipment.

This site shall be maintained by the Contractor during the life of the Contract and restored to their original condition prior to Final Payment.

The Contractor shall provide for the acceptance of materials delivered to the site in an efficient manner and in such a way as to prevent exposure to materials to moisture, heat, ultra-violet radiation, as required.

### **PART II- PRODUCTS**

Not Applicable

## **PART III-EXECUTION**

### **3.01 General**

The Contractor, subcontractor(s) and manufacturer's representative shall attend a pre-construction meeting to be held prior to Work start up to discuss the Work, Drawings and Specifications.

Manufacturer's recommendations will be discussed and coordinated. A complete set of the selected manufacturer's literature shall be provided.

### **3.02 Manufacturer's Inspection**

- A. The roofing system manufacturer will provide, when the project is in progress, the following:
1. Keeping the Owner's representative informed as to the progress and quality of the work as observed.
  2. Provide jobsite inspections a minimum of 4 times a week while work is in progress.
  3. Provide weekly written reports to the Owner's representative, along with digital photographs of work in progress. These Progress reports shall also be available via internet.
  4. Reporting to the Owner's representative in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
  5. Confirming, after completion of the project and based on manufacturers observations and tests, that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported.
- B. The roofing system manufacturer will provide an annual inspection of the roofing system for the duration of the delivered warranty period. The inspections will include:
1. A thorough visual inspection, with photos taken for the Owner's permanent records.
  2. An interior and exterior examination will be made and all interested parties can attend the inspection.

3. Examination of all roof-related flashings, sheet metal, parapets, copings, roof membrane, decking system, and all through roof penetrations will be made.
4. Perimeter metal edge details, HVAC units, and expansion joints (IFAPPLICABLE) will be examined.
5. The annual inspection report will be issued to the Owner as to the current condition of the roof system, noting any maintenance work that should be performed to secure the integrity of the roof system. There will be no charge for this service to the Owner from the manufacturer.

### 3.03 Cleaning and Protection

While the work is underway, the new roof membrane shall be kept clean and free of contaminants. Avoid the trafficking of men and materials over the new membrane surface. Provide adequate protection of the new membrane system while storing materials and traversing.

Damage to the existing roofing and finishes shall be repaired immediately. Interior ~~damage~~ determined to be the result of the Contractor's damage of the existing roof system shall be repaired by the Contractor to the satisfaction of the Owner at no cost to the Owner.

**END OF SECTION 01040**

## **DIVISION 1**

### **SECTION 01090- STANDARDS**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Industry Standards
- 1.03 Overlapping and Conflicting Requirements

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

Not Applicable

## **SECTION 01090- STANDARDS**

### **PART I- GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and Division I Specifications Sections, apply to the work in this section.

#### 1.02 Industry Standards

Applicable standards of the construction industry have the same force and affect (and are made a part of the contract Documents by reference) as if copied directly or bound herewith.

AIA	American Institute of Architects 1735 New York Avenue, N. W. Washington, D.C. 29996
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, Pennsylvania 19103
FM	Factory Mutual Engineering Corporation 1151 Boston-Providence Turnpike Norwood, Massachusetts 02062
NRCA	National Roofing Contractor's Association 8600 Bryn Mawr Avenue Chicago, Illinois 60631
SMACNA	Sheet Metal and Air Conditioning Contractors National Association P.O. Box 70 Merrifield, Virginia 22116
UL	Underwriters Laboratories 333 Pfingsten Road North Brook, Illinois 60062

### 1.03 Overlapping and Conflicting Requirements

Where compliance with two (2) or more industry standards, or sets of requirements are specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement (which is generally recognized to be also most costly) is intended and will be enforced, unless specifically detailed language written into contract documents (not be way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to the Consultant for a decision before proceeding.

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

Not Applicable

**END OF SECTION 01090**

## **DIVISION 1**

### **SECTION 01200- PROJECT MEETINGS**

#### **PART 1- GENERAL**

- 1.01 Related Documents
- 1.02 General
- 1.03 Quality Assurance
- 1.04 Submittals

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

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- 3.02 Meeting Location
- 3.03 Pre-Bid Meeting
- 3.04 Pre-Construction Meeting
- 3.05 Pre-Job Conference
- 3.06 Project Meetings



## **SECTION 01200- PROJECT MEETINGS**

### **PART I- GENERAL**

#### **1.01 Related Documents**

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specifications Sections, apply to the work in this section.

#### **1.02 General**

To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Owner shall conduct project meetings at the request of the Owner's Representative. In addition to specific coordination and pre-installment meetings for each element of work, and other regular project meetings for other purposes, hold general progress meetings as required, with time coordinated with preparation of payment request. Require each entity then involved in planning, coordination or performance of work to be properly represented at each meeting. Review each entity's present and future needs including interface requirements, time sequences, deliveries, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, change orders and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule, on time, or behind in relation with updated progress schedule. Determine how for behind schedule work will be expedited.

#### **1.03 Quality Assurance**

Persons designated by the Owner to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

#### **1.04 Submittals**

A. Agenda Items: To the maximum extent practicable, advise any Consultant at least 24 in advance of project meetings regarding all items to be added to the agenda.

B. Minutes: The Contractor will compile minutes of each project meeting and will furnish three copies to the Owner's Representative. The Owner may make and distribute such other copies as he wishes.

## **PART II- PRODUCTS**

Not Applicable

## **PART III- EXECUTION**

### 3.01 Meeting Schedule

Except as noted below for Pre-Construction Meeting, project meetings will be held at the discretion of the Owner. Coordinate as necessary to establish mutually acceptable schedule for meetings.

### 3.02 Meeting Location

To the maximum extent practicable, meetings will be held at the job site.

### 3.03 Pre-Bid Meeting

A pre-bid meeting will be conducted to review the Work. Date, time and location shall be as indicated in Invitation to Bid.

### 3.04 Pre-Construction Meeting

A. Pre-Construction Meeting will be scheduled within fifteen (15) days after the Owner has issued Notice to Proceed. Provide attendance by authorized representative of the Contractor.

B. Minimum agenda: Distribute data on, and discuss:

- 1 Organizations arrangement of Contractor's and personnel, and those of subcontractors, materials suppliers.
2. Channels and procedures for communications.
3. Construction schedule, including sequence of critical work. Which will include Representatives cellular phone numbers.
4. Contract Documents, including distribution of required copies of original Documents and revisions.
5. Manufacturer design review and comments.
6. Processing of Shop Drawings and other data submitted to the Owner's Representative for review.
7. Processing of field decisions and Change Orders.
8. Rules and regulations governing performance of the Work.

9. Procedures for safety and first aid, security, quality control, housekeeping and other related matters.
10. The area will be toured and proposed installation schedules will be established. Work, storage areas will be designated. Requirements (Contract Documents) and statues of coordinating work will be reviewed. Roofing systems protection requirements for construction period beyond roofing installation will be discussed. All decisions, agreements, and disagreements will be recorded for the job record. Inspection and testing requirements will be reviewed.
11. Pre requisite to starting roofing work: The following must be done prior to starting roofing work. The Roof System Manufacturer's Representative, Contractor, Owner's Representative and/or a trained servicemen provided by the Owner, are to be present. A formal report will be issued and all parties are to have input/accept the report.
  - a. Inspection of roof top equipment: any air handlers (mechanical or gravity) or other roof top ventilators or similar devices that are to remain in service, are to be verified as to their waterproofing integrity prior to their removal. Without such prior acceptance of an unusable condition, the Owner will not fund any operation necessary to stop water entry. All roof top equipment including but not limited to: HVAC units mechanical air handlers, venting or intake services or other such devices/equipment that are to remain in place, are to be inspected to determine their operational status.
  - b. Walk-thru of building: All existing water related damaged materials, loose items or other items are to be listed that could be conceived to have been damaged during the roofing operation are to be listed.
  - c. Inspection of grounds: The ground condition, plants, etc., sidewalk conditions, and other areas of interest to the Owner shall be noted. Prior to close out of the project, these areas will be restored.

### 3.05 Pre-Job Conference

A pre-job conference shall be held with the Contractor, Owners Representative, and Roofing Manufacturer to review the job prior to commencement of work.

**END OF SECTION 01200**

## **DIVISION 1**

### **SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

#### **PART I - GENERAL**

- 1.01 Related Documents
- 1.02 Requirements
- 1.03 Submittal Procedure

#### **PART II - PRODUCTS**

Not Applicable

#### **PART III - EXECUTION**

Not Applicable

## **SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

### **PART I - GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Requirements

This section refers to non-administrative submittals such as shop drawings, product samples, data and other related items. These submittals are in addition to such administrative items as, Permits, Schedule of Values, Payment Applications, Performance and Payment Bonds, Insurance Certificates, Listing (Subcontractors, Suppliers and Fabricators).

#### 1.03 Submittal Procedure

Schedule and coordinate submittals to correspond to the progress of the work and with sufficient time to allow for review and processing by the Owner's Representative.

No extensions of time will be allowed because of the Contractor's failure to transmit submittals in a timely fashion.

### **PART II - PRODUCTS**

Not Applicable

### **PART III- EXECUTION**

Not Applicable

**END OF SECTION 01340**

## **DIVISION 1**

### **SECTION 01600 - MATERIALS**

#### **PART I - GENERAL**

- 1.01 Related Documents
- 1.02 Products
- 1.03 General Product Requirements
- 1.04 Transportation and Handling
- 1.05 Storage and Protection
- 1.06 Substitutions
- 1.07 Work Related Submittals
- 1.08 Guaranty/Warranty

#### **PART II - PRODUCTS**

Not Applicable

#### **PART III - EXECUTION**

Not Applicable

## **SECTION 01600 - MATERIALS**

### **PART I - GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Products

- A. For products specified only by Reference Standards, select any product meeting standards, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any product and manufacturer named.
- C. For products specified by naming one or more products, but indicating the option of selecting equivalent products e.g., by stating "or approved equal" after specified product, Contractor must submit request as required for substitution, for any product not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option, and substitutions will be allowed by approval prior to bidding only. The products specified shall be the minimum standard for the purposes of establishing equality of proposed material substitutes.

#### 1.03 General Product Requirements

Provide products which comply with requirements in new unopened containers, clearly marked from the Manufacturer.

#### 1.04 Transportation and Handling

- A. Deliver products to site with seals and labels intact.
- B. Deliver materials in manufacturer's original containers, dry, undamaged.
- C. Store all materials delivered to the site in enclosed trailers.
- D. Stand roll materials on end.

## 1.05 Storage and Protection

- A. During execution of work covered by these specifications, the Contractor shall provide protection for equipment, materials, and personnel inside building against falling debris, sparks, and water. Protection shall be provided in a manner to minimize interference, interruption, and inconvenience to any ongoing activities.
- B. The contractor shall protect from damage, all existing mechanical, electrical and plumbing equipment.
- C. Protect building surfaces against damage from roofing work.
- D. All workmen shall wear clean, soft rubber-soled shoes for any application work where they may be walking on the in-place roofing material. Precautions shall be taken to protect the system and to maintain a clean appearance.

## 1.06 Substitutions

- A. During bidding, Contracts will consider written requests from prime bidders for substitutions, received at least **7 DAYS PRIOR TO BID DATE**; requests received after that time will not be considered. In the event a substitution is accepted, all bidders shall be notified of the acceptable alternate within (3) three days prior to the bid opening.
- B. Submit five copies of request for substitution, include in request:
  - 1. Complete data substantiating compliance of proposed substitution with Contract Documents.
  - 2. For products:
    - a. Product identification, including manufacturer's literature and manufacturer's name and address.
    - b. Current certificate from an accredited testing laboratory comparing the physical and performance attributes of the proposed material with those of the specified materials.
    - c. A five gallon sample of any adhesive, coating, mastic or sealant and a 3'x 5', sample of any sheeting goods as may be specified. Manufacturer's labels must be on containers, smaller containers may be submitted if manufacturer's labels are attached.
    - d. Material Safety Data Sheets providing all



pertinent data as to flammability, combustibility, toxicity, etc.

- e. List of at least (5) five local jobs, where the proposed alternate material was used under similar conditions. These jobs must be available for inspection by the Owner's Representative. Names and phone numbers are required for verification.
- f. Notarized statement from the Roofing System Manufacturer, signed by a corporate officer of the Corporation with the Corporate Seal affixed thereto stating in writing that;
  - 1. All Bidding Documents have been reviewed and approved of.
  - 2. The Project site has been inspected.
  - 3. The Roofing System Manufacturer will provide field inspections no less than 4 days per week, on during, and until all construction work is completed and accepted by the Owner. Inspections shall be performed by a full time employee of the manufacturer. These inspections shall be provided to the Owner at no additional cost, or charge to the Contractor.
- 3. For construction methods:
  - a. Detailed description of proposed method.
  - b. Drawings illustrating methods.
- 4. Itemized comparison of proposed substitution with product or method specified.
- 5. Data relating to changes in construction schedule.
- 6. Relation to separate contracts.
- 6. Accurate cost data on proposed substitution in comparison with product or method specified, including presenting credits to the Owner, where applicable.

C. In making request for substitution, Bidder/Contractor represents:

- 1. He has personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
- 2. He will provide the same guarantee for substitution as for product or method specified.
- 3. He will coordinate installation of accepted substitution in work, making such changes as

may be required for work to be completed in all respects.

4. He waives all claims for additional cost related to substitution which consequently become apparent.
5. Cost data is complete and includes all related cost under his contract or other contracts which may be affected by the substitution.
6. He will reimburse the Owner for all redesign cost by the Engineer for accommodation of the substitute.

D. Substitutions will not be considered if:

1. Product or method to be considered does not have a minimum of (10) ten years of successful performance in roofing and re-roofing applications in the United States.
2. Any discrepancies in the test data, or if the tests or submittals are incomplete.
3. They are indicated or implied on Shop Drawings or Project Data Submittals without formal request.
4. Acceptance will require substantial revision of Contract Documents.

NOTE: THESE REQUIREMENTS ARE NOT INTENDED TO LIMIT COMPETITION. THE INTENTION OF THESE REQUIREMENTS IS TO ESTABLISH THE EQUALITY OF ANY SUBSTITUTE PRODUCT OR METHOD WITH THE STANDARD PRODUCT/METHOD SPECIFIED. ALSO, IT WILL GIVE AN EQUAL OPPORTUNITY TO ALL CONTRACTORS TO BID AN APPROVED SUBSTITUTE PRODUCT/METHOD IF ANY SUBSTITUTE IS APPROVED.

#### 1.07 Work-Related Submittals

Contractor's submittal of shop drawings, product data or samples which relate to work not complying with requirements of Contract Documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

#### 1.08 Guaranty/Warranty

- A. Provide one manufacturer's 30 year warranty for materials and installation at no added cost to the Owner or Contractor.
- B. Manufacturer's Warranty: Cover all cost of repairs to the built-up roof membrane system necessary to stop any leaks which occur during the warranty period. The material manufacturer shall warrant and guarantee all work against defects in materials, equipment or workmanship, or as a result of the following:
  1. Deterioration of the roofing membrane or flashing system resulting from ordinary wear

and tear by the elements.

2. Workmanship on the part of the roofing contractor in the application of the roofing system.
3. Splits or breaks in the membrane not caused by structural movement or failure or any movement of material underlying the roofing membrane or base flashing.
4. Blisters, wrinkles, ridges, fish-mouths, or open laps in the roofing membrane.
5. Slippage of the roofing membrane or base flashing.

**END OF SECTION 01600**

## **DIVISION 2**

### **SECTION 02070- SELECTIVE DEMOLITION**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Work Included
- 1.03 Coordination
- 1.04 Job Conditions
- 1.05 Permits
- 1.06 Sequence of Operations

#### **PART II- PRODUCTS**

Not Applicable

#### **PART III- EXECUTION**

- 3.01 Protection
- 3.02 Removal
- 3.03 Pollution Control
- 3.04 On-Site Storage
- 3.05 Repair of Damages
- 3.06 Clean-Up

## **SECTION 02070- SELECTIVE DEMOLITION**

### **PART I- GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Work Included

Demolition work shall include, but is not limited to the following:

- A. Removal of the existing roof system, related flashing, sheet metal and any related roofing products.
- B. Identification and repair of existing damaged decking.

#### 1.03 Coordination

It is the responsibility of the Contractor to coordinate the work of this section with all other work on the Project.

#### 1.04 Job Conditions

- A. The Contractor shall inspect the premises prior to the submittal of his bid for conditions which may affect his work.
- B. Demolition, storage of materials, removal of debris and construction operations shall not interfere with the Owner's use of the property.

#### 1.05 Permits

The Contractor shall obtain, at his expense, all permits required by governing authorities, including any required for disposal of demolition debris or for use or blockage of streets or sidewalks.

#### 1.06 Sequence of Operations

The Contractor shall submit for approval the complete sequence of operations for demolition and show how this work is coordinated with all other aspects of the Project. Work shall not begin until such a schedule has been approved by the Owner or his authorized representatives.

### **PART II- PRODUCTS**

Not Applicable

## **PART III- EXECUTION**

### **3.01 Protection**

- A. Before starting demolition, the Contractor shall be solely responsible for making the necessary arrangements and for performing the necessary work involved in connection with the discontinuance or interruption of public and private utilities or services or components of said utilities or services under the jurisdiction of the Owner, utility companies or corporations, Police Department, Fire Department and Public Works Department including but not limited to gas, electricity, telephone, police signal, fire alarm, water, sanitary sewer, storm drainage and other systems which will be affected by the work to be performed under this Contract.
- B. The Contractor shall preserve in operating condition active utilities traversing the Work site and shall protect manholes, catch basins, valve boxes and other apparatus. He shall repair damage to any such utility, due to work under this Contract, to the satisfaction of the Owner or his authorized representatives.
- C. Adequate protection of persons and property shall be provided at all times. The work shall be executed in a manner to avoid interference with the use of adjacent buildings, areas or properties, and to avoid interruption of free passage to or from such buildings, areas or properties.
- D. Investigate and comply with any rules or regulations relative to providing and paying for uniformed Police to regulate or control traffic on existing streets which are affected by the Contractor's operation.
- E. Furnish signs, lights, barricades and other equipment as may be necessary for the safe execution of the work.

### **3.02 Removal**

- A. Remove the existing roof membranes, membrane flashing and sheet metal. Carefully inspect and repair exposed surfaces, utilities, roof penetrations, etc., for damage and repair or replace as required.
- B. Removal shall result in a smooth, consistent substrate for application of wood blocking, membrane and membrane flashing.
- C. A thorough inspection of the existing substrate and adjoining materials shall be made to determine if any repairs are required. If conditions are uncovered or created that would be detrimental to the application of specified work, immediately notify the Owner's Representative of such conditions for determination of treatment.

### **3.03 Pollution Control**

- A. The Contractor shall be aware that the facility must remain in use throughout the course of construction and that any disruption or inconvenience sustained by the Owner, employees, visitors and patrons must be kept to an absolute minimum. To this end, the Contractor shall provide, if

necessary, a water spray and impermeable barrier to minimize dust and debris infiltration. Also the Contractor shall select equipment and procedures to mitigate noise discomfort.

- B. Debris shall be considered the property of the Contractor and shall be removed for the site in its entirety on a daily basis and be legally disposed. On site storage of discarded material will only be permitted when stored in a covered container.

### 3.04 On-Site Storage

- A. Equipment or materials stored on the roof shall be distributed in such a manner that no structural building components are over stressed.
- B. Ground level storage areas, if available, will be provided adjacent to the facility for equipment and new materials. Size and location of area shall be coordinated with the Owner.
- C. No debris or waste material shall be stored on or within the building, unless otherwise designated.

### 3.05 Repair of Damages

- A. The Contractor shall provide a list of damaged or deteriorated elements of the building and adjacent areas to the Owner prior to demolition and shall be responsible for repair or replacement of damaged or deteriorated items not on that list when the operations of the Contractor are substantially complete.
- B. Damage to any portion of the building which results in disruption of or inconvenience to the Owner, employees or patrons shall be immediately repaired or replaced by the Contractor. If such restitution is not promptly made, the Owner shall have the necessary work performed by an outside agency at the Contractor's expense. Such work shall be completed to the satisfaction of the Owner prior to the release of final payment.

### 3.06 Environmental Requirements

- A. Do not apply roofing membrane during inclement weather or when a 20% chance of precipitation is expected.
- B. Do not apply roofing insulation or membrane to damp deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

### 3.07 Clean-Up

- A. The building and adjacent areas shall be left in a broom clean condition at the end of each day.

- B. On completion of the work of this section and after removal of debris, the site shall be left in a clean and safe condition, satisfactory to the Owner or his authorized representative.

**END OF SECTION 02070**



## **DIVISION 6**

### **SECTION 06100 - ROUGH CARPENTRY**

#### **PART I - GENERAL**

- 1.01 Related Documents
- 1.02 Related Sections
- 1.03 Delivery Storage and Handling
- 1.04 Quality Assurance

#### **PART II - MATERIALS**

- 2.01 Dimensional Lumber and Plywood

#### **PART III - EXECUTION**

- 3.01 Examination
- 3.02 Protection
- 3.03 Installation

## SECTION 06100 - ROUGH CARPENTRY

### PART I - GENERAL

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Related Sections:

- A. Section 07550 - Modified Membrane
- B. Section 07565 - Preparation for Re-Roofing
- D. Section 07600 - Flashing and Sheet Metal

#### 1.03 Delivery Storage and Handling

- A. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work. Keep materials dry during delivery
- B. Store lumber and plywood in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces.
- C. Protect exposed materials against water and wind. Remove damaged or unsuitable material from the job site.

#### 1.04 Quality Assurance

- A. Comply with governing codes and regulations. Use experienced installers.
- B. Lumber Standards: American Softwood Lumber Standard PS 20-70 by the U.S. Department of Commerce.
- C. Plywood Standards: U.S. product Standard PSI-74/ANSI A 199.1 or latest APA Performance Standards for American Plywood Association.
- D. Factory Marking: Mark each piece of lumber or plywood to indicate type, grade, agency providing inspection service.

**E. Size and Shape: Dress lumber 4 sides (S4S) and work to shapes and patterns shown. Nominal sizes shown and specified refer to undressed lumber dimensions.**

Detailed dimensions show actual lumber size required.

#### 1.05 Scope of work

- A. Replace all damaged wood blocking, sleepers in kind.  
(IF APPLICABLE)

### **PART II - PRODUCTS**

#### 2.01 Dimensional Lumber and Plywood

- A. Construction Lumber: Standard Grade Douglas Fir, Western Larch, Western Hemlock (WWPA or WCLB) or No. 2 dimension Southern Pine (SPIB).
- B. Exterior Type Plywood: APA Rated sheathing, EXT.
- C. Bucks, Nailers, Blocking, Etc.: No. 2 common grade of any WWPA or WCLA species or No. 2 Southern Pine (SPIB).
- D. Anchorage and Fastenings: Proper type, size material and finish for each application.
- E. Quality: Sound, seasoned, well manufactured materials of longest practical lengths and sizes to minimize joints. Free from warp which cannot be easily corrected by anchoring and attachment. Discard material with defects which would impair quality of work.

### **PART III - EXECUTION**

#### 3.01 Examination

- A. Verify measurements and dimensions shown before proceeding with carpentry work.
- B. Examine supporting structure and conditions under which carpentry work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Correlate location of nailers, blocking and similar supports for attached work.
- D. Scribe and cope as required for accurate fit of carpentry work to other work.

#### 3.02 Protection

- A. Protect installed work from damage by other trades until acceptance of work.

#### 3.03 Installation

- A. Provide all nailers, blocking and sleepers where shown on the drawings or required for attachment of other work. Minimum flashing height of eight (8) inches is required. Coordinate with location with other work involved; refer to shop drawings of such work.
- B. Attach to substrate securely as required to support applied loading. Countersink bolts and nuts flush with surfaces.
- C. Securely attach wood nailers to substrates in accordance with Factory Mutual Loss Prevention Data Sheet 1-49 and as required by recognized standards.
- D. Provide washers under bolt heads and nuts in contact with wood.
- E. Do not wax or lubricate fasteners that depend on friction for holding power.
- F. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish material.
- G. Make tight connections between members. Install fasteners without splitting of wood; predrill as required. Do not drive threaded friction type fasteners; turn into place. Tighten bolts and lag screws at installation and retighten as required for tight connections prior to closing in or at completion of work.

**END OF SECTION 06100**

**PREPARATION FOR RE-ROOFING**

**PART 1 - GENERAL**

**1.1 SCOPE OF WORK**

- A. Remove existing roof assemblies, base flashings, sheet metal, vent stack flashings down to the concrete deck. Sweep or clean all debris off of the deck

**1.2 PRE-INSTALLATION CONFERENCE**

- A. Refer to Section 1039
- B. Review installation procedures and coordination required with related work.

### 1.3 ENVIRONMENTAL REQUIREMENTS

- A. Do not remove existing roofing system or damaged decking when weather conditions threaten the integrity of the building contents or intended continued occupancy. Maintain continued temporary protection prior to installation of the new roofing system.

### 1.4 PROTECTION

- A. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. A four (4) hour time limit shall be given from the time of notification of emergency conditions. In the event of water penetration during rain or a storm, the Contractor shall provide for repair or protection of the building contents and interior. If the Contractor does not respond or cannot be contacted, the Owner will effect repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.

### 1.5 SCHEDULING

Schedule work to coincide with commencement of installation of new roofing system.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Temporary protection: Sheet Polyethylene. Provide weights or fasteners to retain sheeting in position.

Base Sheet: ASTM D-4601 Type II. Provide weights or fasteners to retain sheeting in position.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

The Roofing Contractor is to verify existing site conditions, including roof dimensions.

- B. The Roofing Contractor must verify that the existing roof surface is clear and ready for work of the section.

### 3.2 MATERIALS REMOVAL

- A. Remove all roofing debris. In addition, complete removal of all nails and other debris is required to leave a smooth, even surface for re-roofing.
- B. All debris dumped from the roof shall be transported from the roof into dumpsters or trucks

and this debris shall be removed from the premises when vehicles are full at the Contractors cost. No debris shall be transported from the area being worked on over a previously finished roof without an underlayment of 3/4" plywood.

- D. All roof equipment not in use or left filled will be parked on the column lines on 3/4" plywood.
- E. Building and/or ground damage caused by the removal or installation of the roof system will be the sole responsibility of the Contractor.

### 3.3 TEMPORARY PROTECTION

- A. Provide temporary protective sheeting over uncovered deck surfaces.
- B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights or temporary fasteners.
- C. Provide for surface drainage from sheeting to existing drainage facilities.
- D. Do not permit traffic over unprotected deck surface.

END OF SECTION

## SECTION 07220

### ROOF DECK AND INSULATION

#### PART 1 - GENERAL

##### 1.1 SCOPE OF WORK

- A. Provide all labor, equipment, and materials to install roof insulation over the properly prepared deck substrate.

##### 1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections apply to this section.
- B. Related work specified elsewhere:

1. Division 7 Section "Modified Bitumen Roofing."
2. Division 7 Section "Flashing and Sheet Metal."

### 1.3 REFERENCES

ASTM A-167-94a	Specification for Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet and Strip
ASTM A-653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process
ASTM B-29	Pig Lead
ASTM B-32	Solder Metal
ASTM C-165-95	Test Method for Measuring Compressive Properties of Thermal Insulation
ASTM C-208-95	Specifications for Cellulosic Fiber Insulating Board
ASTM C-209-92	Test Method for Cellulosic Fiber Insulating Board
ASTM C-272-91	Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
ASTM C-36	Specification for Gypsum Wallboard
ASTM C-518-91	Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C-578-92	Specification for Rigid, Cellular, Polystyrene Thermal Insulation
ASTM C-728-91	Specification for Perlite Thermal Insulation Board
ASTM D-5	Test Method for Penetration of Bituminous Materials
ASTM D-36	Test Method for Softening Point of Bitumen (Ring and Ball Apparatus)
ASTM D-312	Specification for Asphalt Used in Roofing
ASTM D-412-92	Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension
ASTM D-1621-94	Test Method for Compressive Properties of Rigid Cellular Plastics
ASTM D-1622	Test Method for Apparent Density of Rigid Cellular Plastics
ASTM D-1863	Specification for Mineral Aggregate Used on Built-Up Roofs
ASTM D-2126-94	Test Method for Response of Rigid Cellular Plastics to Thermal Humid Aging
ASTM D-2178	Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing
ASTM D-4601-94	Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
ASTM D-5147	Sampling and Testing Modified Bituminous Sheet Material
CISPI	Cast Iron Pipe Institute, Washington, D.C.
FM	Factory Mutual System, Norwood, Massachusetts
NRCA	National Roofing Contractors Association, Chicago, IL
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SDI	Steel Deck Institute, St. Louis, Missouri
SPIB	Southern Pine Inspection Bureau, Pensacola, Florida
UL	Underwriter's Laboratories, Inc., Northbrook, Illinois
FS HH-I-1972	Insulation Board, Polyisocyanurate
FS LLL-1-535B	Insulation Board, Thermal (Fiberboard)
WH	Warnock Hersey International, Inc., Middletown, Wisconsin

## 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300 - Submittals.
- B. Product Data: Provide manufacturer's specification data sheets for each product in accordance with Section 01300.
- C. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- D. Provide a sample of each insulation type.

### Shop Drawings

Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain locations, roof slopes, thicknesses, crickets and saddles.

Shop drawing shall include: Outline of roof, location of drains, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.

### Certification

Submit roof manufacturer's certification that insulation fasteners furnished are acceptable to roof manufacturer.

Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.

Submit certification that insulation and fastening system furnished is Tested and Approved by Factory Mutual for 1-90 Wind Up-Lift Requirements.

## 1.5 QUALITY ASSURANCE

- A. Fire Classification, ASTM E-108

Submit certification that the roof system furnished is approved by Factory Mutual, Underwriters Laboratories or Warnock Hersey for external Fire E-108 Class 1A.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.



- B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).
- D. Store materials off the ground. Any warped, broken or wet insulation boards shall be removed from the site.

## PART 2 - PRODUCTS

### 2.1 APPROVED EQUIVALENT

- A. Contractor must submit any product or design not specified a minimum five days before the bid date to the DMR Representative in order for product to be considered for approval. The DMR Representative will notify Contractor in writing of decision to accept or reject request.

### 2.2 INSULATION MATERIALS

Provide thicknesses of insulation as indicated, provide combination of types and thicknesses to provide a complete system.

#### 1. TAPERED RIGID POLYISOCYANURATE ROOF INSULATION

- a. Qualities: Rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.

Minimum Thickness: 1.0 in.  
 R-Value: Minimum 10.0  
 Slope: ¼ “ per foot  
 Crickets: ½” per foot

#### Source

Hunter Panels.  
 Ultra Gard Gold II by Schuller Roofing Systems  
 GAFTEMP Isotherm R by GAF  
 Approved Equivalent

Insulation board shall meet the following requirements  
 UL, WH or FM listed under Roofing Systems  
 Federal Specification HH-I-1972, Class 1

#### Physical Properties

Dimensional Stability ASTM D-2126	2% max.
Compressive Strength ASTM D-1621	25 psi min.

Vapor Permeability	ASTM E-96	1 perm max.
Foam Core Density	ASTM D-1622	2.0 pcf min.
Water Absorption	ASTM C-209	<1%
R-Factor HR per inch Thickness	ASTM C-518	5.6 (Design Value)

## 2. HIGH DENSITY FIBERBOARD ROOF INSULATION

Qualities: Rigid, composed of interlocking fibers factory blended treated with asphalt on the top side.

Board Size: 4' x 8'  
Thickness: Minimum ½ in.

### Source

Celotex  
Temple Inland  
GAF Building Materials Corporation  
Approved Equivalent

Insulation board shall meet the following requirements  
UL, WH, FM listed under Roofing Systems.  
Federal Specification LLL-I-535-B.

### Physical Properties

Dry Density	ASTM C-208	17.5 pcf.
Compressive Strength	ASTM C-165	45 psi min.
Linear Expansion	ASTM C-208,209	0.5% max.
Foam Core Density	ASTM C-1622	2.0 pcf min.
Water Absorption	ASTM C-208	10% max.
R-Factor HR per inch Thickness	ASTM C-518	2.5 (Design Value)

## 2.3 RELATED MATERIALS

Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer.

### Acceptable Manufacturers

The Garland Company, Inc.  
Celotex  
Schuller Roofing Systems  
International Permalite, Inc.  
Approved Equivalent

Protection Board: Premolded semi-rigid asphalt composition board ½ in.

Roof Board Joint Tape: 6” wide glass fiber mat with adhesive compatible with insulation board facers or duct tape.

Insulation Adhesive: Insul-Lock II

## PART 3 - EXECUTION

### 3.1 INSPECTION OF SURFACES

Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.

Verify that work which penetrates roof deck has been completed.

Verify that wood nailers are properly and securely installed.

Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.

Do not proceed until defects are corrected.

Do not apply insulation until substrate is sufficiently dry.

Broom clean substrate immediately prior to application.

**Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.**

Verify that temporary roof has been completed.

### 3.2 INSTALLATION

#### A. Attachment on Concrete Deck

Over the entire deck surface, clean deck surface, install Insul-Lock II onto deck at a rate of 1 gallon per 150 s.f. in a “S” Pattern. Set new insulation board in the Insulation adhesive.

**Embed additional layers of rigid insulation board in Insul-Lock II at the rate of. Stagger end joints of boards so all open joints will be eliminated. Walk in each piece of insulation and leave boards completely adhered to base layers. Each insulation board shall be butt firmly against adjoining panels. All open joints shall be eliminated.**

Embed second layer of insulation board in solid moppings of hot asphalt after first layer has been attached as recommended by insulation manufacturer. Stagger end joints of boards so all open joints will be eliminated. Walk in each piece of insulation and leave boards completely adhered to base felt or deck. Each insulation board shall be butt firmly against adjoining panels. All open joints shall be eliminated.

**Approved insulation shall be tapered around roof drains and scuppers. Tapered insulation sump shall start with a thickness of one-half at drain bowl to the specified dimension of three feet from the center line of the drain. Install tapered insulation sump in such a way to provide proper slope for runoff. Shape insulation with tool as required so completed surface is smooth and flush with ring of drain. Under no circumstances will the membrane be left unsupported in an area greater than 1/4".**

Install no more insulation at one time than can be roofed on the same day.

Install temporary water cut-offs at completion of each day's work and remove upon resumption of work.

Cant Strips/Tapered Edge Strips: Install preformed 45-degree cant strips at junctures of vertical surfaces. Provide preformed, tapered edge strips at perimeter of edges of roof that do not terminate at vertical surfaces and/or indicated on the drawings. Tape joints of insulation as per manufacturer's requirements.

### 3.3 CLEANING

Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane.

**END OF SECTION**

**SECTION 07550  
MODIFIED BITUMEN ROOFING**

**PART 1 - GENERAL**

**1.1 SCOPE OF WORK**

- A. Provide all labor, equipment, and materials to install the roof system over the properly prepared substrate.

**1.2 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections apply to this section.
- B. Related work specified elsewhere:
  - 1. Division 6 Section "Rough Carpentry" for wood blocking and nails.
  - 2. Division 7 Section "Preparation for Roofing."
  - 3. Division 7 Section "Roof and Deck Insulation."
  - 4. Division 7 Section "Flashing and Sheet Metal."
  - 5. Division 7 Section "Roof Specialty and Accessory Items."

**1.3 REFERENCES**

ASTM D-41	Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing
ASTM D-312	Specification for Asphalt Used in Roofing
ASTM D-451	Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products
ASTM D-1079	Terminology Relating to Roofing, Waterproofing and Bituminous Materials
ASTM D-1227	Specification for Emulsified Asphalt Used as a Protective Coating for Roofing
ASTM D-1863	Specification for Mineral Aggregate Used as a Protective Coating for Roofing
ASTM D-2178	Specification for Asphalt Glass Felt Used as a Protective Coating for Roofing
ASTM D-2822	Specification for Asphalt Roof Cement
ASTM D-2824	Specification for Aluminum-Pigmented Asphalt Roof Coating
ASTM D-4601	Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing
ASTM D-5147	1991 Test Method for Sampling and Testing Modified Bituminous Sheet Materials
ASTM D-6162	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
ASTM D-6163	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM E-108	Test Methods for Fire Test of Roof Coverings
FM	Factory Mutual
NRCA	National Roofing Contractors Association
UL	Underwriters Laboratories

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300-Submittals.
- B. Submit certification that the roof system furnished is approved by Factory Mutual, Underwriters Laboratories, or Warnock Hersey for external fire E-108 Class 1A.
- C. Product Data for each type of product specified including manufacturer's technical product data, installation instructions and recommendations for each type of roofing product required. Include data substantiating that materials comply with specified requirements.
- D. For all modified bituminous sheet roofing, include independent test data according to ASTM designation D-5147-91 "Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material", substantiating that materials comply with specified requirements.
- E. Any material submitted as an equal to specified material must also submit a list of three jobs where the proposed material has been used in a similar roofing system as that which is specified and within one hundred mile radius from the location of the specified job. In addition, the three jobs must be at least three years old and be available for the Owner's Representative to inspect.
- F. Show evidence that the products and materials are manufactured in the United States and that materials provided conform to all requirements specified herein, and are chemically and physically compatible with each other and are suitable for inclusion within the total roof system specified herein.
- G. Show evidence that the Installer specializes in modified bituminous roof application with a minimum 5 years experience and who is certified by the roofing system manufacturer as qualified to install manufacturer's roofing materials.
- H. Provide a sample of each product.
- I. Unexecuted Manufacturer's warranty.
- J. Certified copy of ISO 9001 compliance.
- K. Any deficiencies in performance, warranty terms or improper submittal procedure will constitute grounds for immediate rejection of alternate.

#### 1.5 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Roofing system manufacturer shall have a minimum of 12 years experience in manufacturing bitumen roofing products in the United States and be ISO 9001 certified.
- B. **Installer Qualifications:** Installer (Roofer) shall be specializing in modified bituminous roof application with minimum 5 years experience and who is certified by the roofing system

manufacturer as qualified to install manufacturer's roofing materials.

- C. It is the intent of this specification to provide a roof system with an external fire rating. The descriptions given below are general descriptions. The insulation, recovery board, and other components shall be required by the membrane manufacturer to provide a Class A fire resistance rating.
- D. Installer's Field Supervision: Require Installer to maintain a full-time Supervisor/Foreman on job site during all phases of bituminous sheet roofing work and at any time roofing work is in progress, proper supervision of workmen shall be maintained. A copy of the specification shall be in the possession of the Supervisor/Foremen and on the roof at all times.
- E. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. If the contractor does not respond within 24 hours, the Owner has the right to hire a qualified contractor and backcharge the original contractor.
- F. Disqualification of Bidders: A bidder can be disqualified by the Architect or Owner for any of the following reasons, but not limited to:
  - 1. The failure to attend the Pre-Bid conference at the time and place so described under Bidding Dates.
  - 2. Incorrect use of the "Proposal" as provided by the Agency Representative. Any changes in said format shall be accepted by the Agency Representative only when requested and approved in writing prior to the bid opening. Changes in the Proposal after the opening of the bids will not be accepted.
  - 3. Lack of proficiency as shown by past work or incomplete work under other contracts which, in the judgement of the Agency Representative might hinder or prevent the prompt completion of additional work if so awarded or any involvement in any legal actions which relate to past or present performance. This includes, but is not limited to lawsuits, court appointed actions, and/or ongoing litigation.
- G. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- H. Pre-application Roofing Conference: Approximately 2 weeks before scheduled commencement of modified bitumen roof system installation and associated work meet at project site with installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in the around roofing must precede or follow roofing work (including mechanical work if any), University Representative, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, test agencies and governing authorities.

Objectives to include:

- 1. Review foreseeable methods and procedures related to roofing work.
- 2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by other

- trades.
3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
  4. Review roofing system requirements (drawings, specifications and other contract documents).
  5. Review required submittals both completed and yet to be completed.
  6. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
  7. Review required inspection, testing, certifying and material usage accounting procedures.
  8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).
  9. Record (contractor) discussion of conference including decisions and agreements (or disagreements) reached and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
  10. Review notification procedures for weather or non-working days.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).
- C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.
- D. It is the responsibility of the contractor to secure all material and equipment on the job site. If any material or equipment is stored on the roof, the contractor must make sure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the contractor will be the sole responsibility of the contractor and will be repaired or replaced at his expense.

#### 1.7 MANUFACTURER'S INSPECTIONS

- A. When the project is in progress, the Roofing System Manufacturer will provide the following:
  1. Keep the DMR Representative informed as to the progress and quality of the work as observed via internet sever with photos and reports..
  2. Provide job site inspections a minimum of four days a week.
  3. Report to the DMR Representative in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.



4. Confirm after completion of the project and based on manufacturer's observation and tests that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

## 1.8 PROJECT CONDITIONS

- A. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or when a 20% chance of precipitation is expected.
- B. Do not apply roofing insulation or membrane to damp deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.

All slopes of greater than 1-1/2:12 do require back-nailing to prevent slippage of the ply sheets. Ring or spiral shank 1" cap nails, or screws and plates should be utilized at a rate of one fastener per ply (including the modified) at each insulation stop. Insulation stops should be placed 16' o.c. for slopes less than 3:12 and 4' o.c. for slopes greater than 3:12. On non-insulated systems, nail each ply directly into the deck at the rate specified above. When slope exceeds 1:12, strapping the plies is recommended to help prevent slippage. Four additional fasteners should be installed at the upper edge of modified bitumen sheet when strapping the plies.

## 1.9 SEQUENCING AND SCHEDULING

Sequence installation of modified bituminous sheet roofing with related units of work specified in other sections to ensure that roof assemblies including roof accessories, flashing, trim and joint sealers are protected against damage from effects of weather, corrosion and adjacent construction activity.

All work must be fully completed on each day. Phased construction will not be accepted.

## 1.10 WARRANTY

- A. Upon completion of installation, and acceptance by the Owner and the DMR Representative, the manufacturer will supply to the Owner the appropriate 20 year NDL warranty.
- B. Contractor will submit a minimum of a two-year warranty to the membrane manufacturer with a copy directly to Owner.
- C. Membrane manufacturer will provide an annual inspection for the life of the warranty.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. When a particular trade name or performance standard is specified it shall be indicative of a standard required.
- B. Provide products as manufactured by The Garland Company or approved equal. Bidders proposing substitutes shall submit all required information under Sections 01600 and 07550 to the DMR Representative at least 7 days prior to bid due date.
- C. Any item or materials submitted as an alternate to the manufacturer specified must comply in all respects as to the quality and performance of the brand name specified. The DMR Representative shall be the sole judge as to whether or not an item submitted as an equal is truly equal. Should the contractor choose to submit on the equal basis, he shall assume all risk involved, monetary or otherwise should the Owner find it unacceptable.

## 2.2 DESCRIPTION

- A. Modified bituminous sheet roofing work including but not limited to:

Two plies of approved ASTM D-4601 Type II glass fiber base sheet bonded to the prepared substrate with bitumen. Approved base sheets must weigh at least twenty-five pounds per square.

1. The standard bitumen will consist of a V.O.C. compliant, non-asbestos containing cold applied adhesive for roof slopes up to ½:12.
2. All flashings will be set in bitumen and will be one ply of SBS base flashing ply covered by an additional layer of modified bitumen membrane.
3. All flashings will be set in bitumen and will be one ply of Polyester-Fiberglass-Polyester base sheet double coated with special oxidized asphalt and covered by an additional layer of modified bitumen membrane.
4. The modified membrane will be:

### **STRESSPLY “E” MINERAL -**

#### **Environmentally Friendly**

135 mil SBS and SEBS

(Styrene-Butylene-Styrene and Styrene-Isoprene-Styrene) mineral surfaced, rubber modified roofing membrane incorporating recycled rubber and reinforced with a dual polyester/fiberglass scrim.

## 2.3 BITUMINOUS MATERIALS

- A. Asphalt Primer: V.O.C. compliant, ASTM D-41.

Asphalt Roofing Mastic: V.O.C. compliant, ASTM D-2822, Type II.

Standard Cold Applied Membrane Adhesive: V.O.C. compliant ASTM D-3019.

Performance Requirements:

1. Non-Volatile Content	ASTM D-4479	70%
2. Density	ASTM D-1475	7.89 lb./gal.
3. V.O.C.	ASTM D-3960	300 g/l. max.
4. Viscosity Stormer Special Blade	ASTM D-562	16-20 sec.
5. Flash Point	ASTM D-93	100°F min.
6. Slope		¼":12 max.

D. Brush Grade Flashing Adhesive

Performance Requirements:

1. Non-Volatile Content	ASTM D-4479	70 min.
2. Density	ASTM D-1475	8.6 lb./gal.
3. V.O.C.	ASTM D-3960	295 g/l max.
4. Flash Point	ASTM D-93	100°F

2.4 SHEET MATERIALS

A. Base Plies

1. Fiberglass Base Sheet: ASTM D-4601, Type II

B. Base Flashing Ply

1. SBS modified membrane with woven fiberglass scrim reinforcement with the following minimum performance requirements according to ASTM D-5147.

Properties: FINISHED MEMBRANE

**Tensile Strength** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F MD 500 lbf/in CMD 550 lbf/in

**Tear Strength** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F MD 900 lbf CMD 950 lbf

**Elongation at Maximum Tensile** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F MD 5.5% CMD 5.50%

C. HPR Modified Flashing Ply

STRESSPLY "E" MINERAL

HPR Modified Membrane

1. **STRESSPLY "E" MINERAL**

## ASTM D-6163 Type III G

### **Tensile Strength** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F

MD 500 lbf/in  
CMD 500 lbf/in

### **Tear Strength** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F

MD 900 lbf    CMD 950 lbf

### **Elongation at Maximum Tensile** (ASTM D-5147)

2 in/min. @ 73.4 ± 3.6°F

MD 6.0%    CMD 6.0%

### **Low Temperature Flexibility** (ASTM D-5147)

Passes -30°F (-34°C)

## 2.5 SURFACINGS

- A. Loose Roofing Granules shall meet requirements of ASTM D-451 and be recommended by the membrane manufacturer. Color shall match color of granulated membrane sheet. Size shall match size of granules on the membrane.

## 2.6 RELATED MATERIALS

- A. Roof Insulation: Reference Section 07220 - Roof and Deck Insulation for requirements.
- B. Roof Insulation Fasteners: Reference Section 07220 - Roof and Deck Insulation for requirements.
- C. Base Sheet: shall meet the requirements of ASTM D-4601 Type II and be recommended, approved and furnished by the membrane manufacturer.
- D. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Fasteners shall be self-clinching type of penetrating type as recommended by the manufacturer of the deck material. Nails and fasteners shall be flush-driven through flat metal discs of not less than 1-inch diameter. Metal discs may be omitted when one-piece composite nails or fasteners with heads not less than 1-inch diameter are used.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrate surfaces to receive modified bitumen sheet roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Roof System

Manufacturer.

### 3.2 GENERAL INSTALLATION REQUIREMENTS

Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the modified bitumen sheet system.

Insurance/Code Compliance: Where required, install and test the bituminous roofing system to comply with governing regulation and specified insurance requirements.

Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of the bituminous roofing system work.

Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each day's work to cover exposed ply sheets and insulation with two (2) plies of #15 organic roofing felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work.

Cold applied membrane adhesive coverage rates for interply application (2 to 2-1/2 two to two and a half gallons per 100 square feet (plus or minus 25% on total job average basis.)

Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building or damaging roofing system components or adjacent building construction.

Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction. Complete application of roofing plies, modified sheet and flashing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.

Cut-Offs: At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation. Provide temporary covering of two (2) plies of #15 organic roofing felt set in full moppings of bitumen with joints and edges sealed.

Broadcast minerals into the bleed out of bitumen to achieve uniform color throughout.

### 3.3 VAPOR RETARDER INSTALLATION (NOT APPLICABLE)

### 3.4 BASE PLY INSTALLATION

- A. Fiberglass Plies: Install (2) two fiberglass felts in 2 to 2-1/2 gallons per ply per square of bitumen shingled uniformly to achieve two plies throughout over the prepared substrate. Shingle in proper direction to shed water on each large area of roofing. Prior to installation, cut sheets into 18' lengths and allow to relax.
- B. Install base flashing ply to all perimeter and projection details. Extend plies two inches

beyond top edges of cants at wall and projection bases.

Lap ply sheet ends eight inches. Stagger end laps twelve inches minimum

- C. Allow the two plies of base sheet to cure at least thirty minutes before installing the modified membrane. However, the modified membrane must be installed the same day as the base plies.

### 3.5 HPR MODIFIED MEMBRANE APPLICATION

- A. The modified membrane shall then be solidly bonded to the base layers with specified cold adhesive at the rate of 2 to 2-1/2 gallons per 100 square feet.
- B. The roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.
- C. Subsequent rolls of modified shall be installed across the roof as above with a minimum of 4" side laps and 8" end laps. The end laps shall be staggered. The modified membrane shall be laid in the same direction as the underlayers but the laps shall not coincide with the laps of the base layers.
- D. For best results, allow the cold adhesive to set for five to ten minutes before installing the top layer of modified membrane.
- E. Extend membrane 2" beyond top edge of all cants in full moppings of the cold adhesive as shown on the drawings.

### 3.6 FLASHING MEMBRANE INSTALLATION (GENERAL)

- A. All curb, wall and parapet flashings shall be sealed with an application of mastic and mesh on a daily basis. No condition should exist that will permit moisture entering behind, around or under the roof or flashing membrane.
- B. Prepare all walls, penetrations and expansion joints to be flashed and where shown on the drawings with asphalt primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.
- C. All plies will be adhered with Flashing Bond Mastic or Weatherking Flashing Adhesive, unless otherwise specified. The modified membrane will be used as the flashing and nailed off 8" O.C. at all vertical surfaces.
- D. The entire sheet of flashing membrane must be solidly adhered to the substrate.
- E. Seal all vertical laps of flashing membrane with a three-course application of Flashing Bond and fiberglass mesh.
- F. Counter flashing, cap flashings, expansion joints, and similar work to be coordinated with roofing work are specified in other sections.

- G. Roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices to be coordinated with modified bituminous roofing system work are in other sections.

### 3.7 FLASHING MEMBRANE INSTALLATION (SPECIFIC)

#### .1 METAL EDGE DETAIL

- A. Inspect the nailer to assure proper attachment and configuration.
- B. Run all plies over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails 8" O.C.
- C. Install continuous cleat, fasten 6" O.C.
- D. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailer every 3" O.C. staggered.
- E. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
- F. Strip in flange with base flashing ply covering entire flange with 6" on to the field of roof in Flashing Bond or Weatherking Flashing Adhesive. Assure ply laps do not coincide with metal laps.
- G. The second ply shall be a modified flashing ply installed over the base-flashing ply, 9" on to the field of roof in Flashing Bond Mastic or Weatherking Flashing Adhesive.

#### .2 RAISED METAL EDGE DETAIL

- A. Inspect the nailer to assure proper attachment and configuration.
- B. Run all plies over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails 8" O.C.
- C. Install continuous cleat, fasten 6" O.C.
- D. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailer every 3" O.C. staggered.
- E. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
- F. Strip in flange with base flashing ply covering entire flange with 6" on to the field of roof in Flashing Bond Mastic or Weatherking Flashing Adhesive. Assure ply laps do not coincide with metal laps.
- G. The second ply shall be a modified flashing ply installed over the base-flashing ply, 9" on to field of roof in Flashing Bond Mastic or Weatherking Flashing Adhesive.

.3 ROOF EDGE WITH SCUPPER

- A. Inspect the nailer to assure proper attachment and configuration.
- B. Run all plies over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails 8" O. C.
- C. Install SCUPPER.
- D. Install continuous cleat, fasten 6" O.C.
- E. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailer every 3" O.C. staggered.
- F. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
- G. Strip in flange with base flashing ply covering entire flange with 6" onto the field of roof in Flashing Bond Mastic or Weatherking Flashing Adhesive. Assure ply laps do not coincide with metal laps.
- H. The second ply shall be a modified flashing ply installed over the base flashing ply 9" on to field of roof in Flashing Bond Mastic or Weatherking Flashing Adhesive.

.4 CURB DETAIL/AIR HANDLING STATION

- A. Minimum curb height is 8". Prime vertical at a rate of 100 square feet per gallon and allow to dry.
- B. Set cant in Flashing Bond Mastic. Run all field plies over cant a minimum of 2".
- C. Install base flashing ply covering curb with 6" on to field of roof set in Flashing Bond Mastic or Weatherking Flashing Adhesive.
- D. The second ply shall be a modified flashing ply installed over the base flashing ply 9" on to field of roof set in Flashing Bond Mastic or Weatherking Flashing Adhesive. Attach top of membrane to top of three-course application of Flashing Bond and mesh allowed to cure and aluminize.
- E. Install premanufactured counterflashing with fasteners and neoprene washers or per manufacturer's recommendations.
- F. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

.5 EXHAUST FAN DETAIL

- A. Minimum curb height is 8". Prime vertical at a rate of 100 square feet per gallon and allow to dry.



- B. Set cant in Flashing Bond Mastic. Run all plies over cant a minimum of 2”.
- C. Install base flashing ply in Flashing Bond Mastic or Weatherking Flashing Adhesive covering curb with 6” on to field of roof.
- D. The second ply shall be a modified flashing ply installed in Flashing Bond Mastic or Weatherking Flashing Adhesive over the base flashing ply 9” on to field of roof. Attach top of membrane to top of curb and nail 8” O.C. All vertical seams will receive a three-course application of Flashing Bond and mesh allowed to cure and aluminize.
- E. Place metal exhaust fan over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer’s recommendation.

#### .6 ROOF DRAIN

- A. Plug drain to prevent debris from entering plumbing.
- B. Taper insulation to drain minimum of 24” from center of drain.
- C. Run roof system plies over drain. Cut out plies inside drain bowl.
- D. Set lead/copper flashing (30” square minimum) in 1/4” bed of mastic. Run lead/copper into drain a minimum of 2”. Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.
- E. Install base flashing ply (40” square minimum) in Flashing Bond Mastic or Weatherking Flashing Adhesive.
- F. Install modified membrane (48” square minimum) in Flashing Bond Mastic or Weatherking Flashing Adhesive.
- G. Install clamping ring and assure all plies are under the clamping ring.
- H. Remove drain plug and install strainer.

#### .7 PLUMBING STACK

- A. Minimum stack height is 12”.
- B. Run roof system over the roof. Seal the base of the stack with elastomeric sealant.
- C. Prime flange of new sleeve. Install properly sized sleeves set in 1/4” bed of roof cement.
- D. Install base flashing ply in Flashing Bond Mastic or Weatherking Flashing Adhesive.
- E. Install modified membrane in Flashing Bond Mastic or Weatherking Flashing Adhesive.

- F. Caulk the intersection of the membrane with elastomeric sealant.
- G. Turn sleeve a minimum of 1” down inside of stack.

### .8 PITCH POCKET

- A. Run all plies up to the penetration.
- B. Pitch pans shall be 24 gauge galvanized steel and at least 4” deep. The pitch pocket should extend at least 1” beyond the penetration in all directions. All corners and seams should be welded tight and watertight.
- C. Place the pitch pocket over the penetration and prime all flanges.
- D. Strip in flange of pitch pocket with one ply of base flashing ply with Flashing Bond Mastic or Weatherking Flashing Adhesive. Extend 6” onto field of roof.
- E. Install second layer of modified membrane in Flashing Bond Mastic or Weatherking Flashing Adhesive extending 9” onto field of roof.
- F. Fill pitch pan half full with non-shrink grout. Let this cure and top off with pourable sealant.
- G. Caulk joint between roof system and pitch pan with roof cement.

### 3.8 APPLICATION OF SURFACING

#### A. Mineral Surfaced Membrane System

- 1. While side and end laps are still wet, hand broadcast minerals into bleed out for a monolithic appearance. Any areas of improper adherence of minerals will be aluminized and minerals rebroadcast while still wet.

### 3.9 CLEANING

- A. Remove drippage of bitumen from all walls, windows, floors, ladders and finished surfaces.
- B. In areas where finished surfaces are soiled by bitumen or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

### 3.10 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Installer, installer of associated work, Owner, roofing system manufacturer’s representative, and other

representatives directly concerned with performance of roofing system.

- B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party attending.
- C. The Roofing System Manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor at a negotiated price.
- D. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.
- E. Repair or replace (as required) deteriorated or defective work found at time above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- F. The Contractor is to notify the Owner upon completion of corrections.
- F. Following the final inspection, acceptance will be made in writing by the material manufacturer.

END OF SECTION  
**SECTION 07600**

**FLASHING AND SHEET METAL**

**PART 1 - GENERAL**

1.1 SCOPE OF WORK:

- A. Provide all labor, equipment, and materials fabricate and install the following.
  - 1. Edge strip and flashing.
  - 2. Fascia, scuppers, and trim.
  - 3. Counterflashings over bituminous base flashing.
  - 4. Counterflashings for roof accessories.
  - 5. Counterflashings at roof mounted equipment and vent stacks.
  - 6. Base flashing coverings.
  - 7. Fascia and edge metal.
  - 8. Scuppers .
  - 9. Counterflashings at walls and penetrations.
  - 10. Other components.

1.2 RELATED SECTIONS

- A. Drawing and general provisions of the Contract, including General Supplementary

Conditions and Division 1 Specification Sections, Apply to this Section.

**B. RELATED SECTIONS**

1. Section 06100 - Rough Carpentry
2. Section 07550 - Modified Bitumen Roofing

**1.3 REFERENCES**

ASTM A-446 Specification for steel sheet  
ASTM B-209 Specification for aluminum sheet  
ASTM B-221 Specification for aluminum extruded shape  
FS QQ-L-201 Specification for Lead Sheet  
ASTM A792 Steel Sheet, Aluminum-Zinc Alloy-Coated, by the Hot-Dip Process  
ASTM B32 Solder Metal  
ASTM B209 Aluminum and Alloy Sheet and Plate  
ASTM B486 Paste Solder  
ASTM D226 Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing  
ASTM D486 Asphalt Roof Cement, Asbestos-free  
FS O-F-506 Flux, Soldering, Paste and Liquid  
WH Warnock Hersey International, Inc. Middleton, WI.  
FM Loss Prevention Data Sheet  
NRCA National Roofing Contractors Association - Roofing Manual  
SMACNA Architectural Sheet Metal Manual

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01300 - Submittals.
- B. Product Data: Provide manufacturer's specification data sheets for each product in accordance with Section 01300.
- C. Provide approval letters from metal manufacturer for use of their metal within this particular roofing system type.
- D. Submit two samples, 12 x 12 inch in size illustrating typical external corner, internal corner, valley, junction to vertical dissimilar surface, material and finish.
- E. Shop Drawings
  1. For manufactured and shop fabricated gravel stops, fascia, scuppers, and all other sheet metal fabrications.
  2. Shop drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashing, termination's, and installation details.
  3. Indicate type, gauge and finish of metal.
- F. Certification

1. Submit roof manufacturer's certification that metal fasteners furnished are acceptable to roof manufacturer.
2. Submit roof manufacturer's certification that metal furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.
3. Submit certification that metal and fastening system furnished is Tested and Approved by Factory Mutual for I-90 Wind Up-Lift Requirements.

B. Manufacturer's Product Data

1. Metal material characteristics and installation recommendations.
2. Submit color chart prior to material ordering and/or fabrication so that equivalent colors to those specified can be approved.

1.5 QUALITY CONTROL

A. Reference Standards

1. Comply with details and recommendations of SMACNA Manual for workmanship, methods of joining, anchorage, provisions for expansion, etc.
2. Factory Mutual Loss Prevention Data Sheet 1-49 windstorm resistance 1-90.

B. Manufacturer's Warranty

1. Pre-finished metal material shall require a written 20-year non-prorated warranty covering fade, chalking and film integrity. The material shall not show a color change greater than 5 NBS color units per ASTM D-2244 or chalking excess of 8 units per ASTM D-659. If either occurs material shall be replaced per warranty, at no cost to the Owner.

C. Contractor's Warranty

1. The Contractor shall provide the Owner with a notarized written warranty assuring that all sheet metal work including caulking and fasteners to be watertight and secure for a period of two years from the date of final acceptance of the building. Warranty shall include all materials and workmanship required to repair any leaks that develop, and make good any damage to other work or equipment caused by such leaks or the repairs thereof.

1.6 QUALIFICATIONS

- A. Fabricator and Installer: Company specializing in sheet metal flashing work with 5 years experience.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
- B. Stack pre-formed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials which may cause discoloration or staining.

## PART 2 - PRODUCTS

### 2.1 APPROVED EQUIVALENT

- A. Contractor must submit any product not specified a minimum five days before the bid date to the DMR Representative in order for product to be considered for approval. The DMR Representative will notify Contractor, in writing, of decision to accept or reject request.

### 2.2 MATERIALS

Aluminum

### **Aluminum, ASTM B209, alloy 3105-H14, in thickness of .040" nom.**

Minimum gauge of steel or thickness of Aluminum to be specified in accordance with Architectural Sheet Metal Manual, Sheet Metal and Air Conditioning Contractor's National Association, Inc. recommendations.

Steel Finishes: fluorocarbon finish. Epoxy primer baked both sides, .2-.25 mils thickness as approved by finish coat manufacturer. Weathering finish as referred by National Coil Coaters Association (NCCA).

<u>Property</u>	<u>Test Method</u>	<u>Fluorocarbon*</u>
Pencil Hardness	ASTM D-3363 NCAA II-2	HB-H
Bend	ASTM D-4145 NCAA II-19	O-T
Cross-Hatch Adhesion	ASTM D-3359	no loss of adhesion
Gloss (60° angle)	ASTM D-523	25+/-5%

Reverse Impact	ASTM D-2794	no cracking or loss of adhesion
Nominal Thickness	ASTM D-1005	
primer		0.2 mils
topcoat		0.8 mils
TOTAL		1.0 mils

\*Subject to minimum quantity requirements

Colors shall be as specified Regal White

#### Miscellaneous Metals and Flashings:

1. Zinc-Coated Steel Sheet: ASTM A526, 0.20% copper, 26 gage (0.0179"); designation G90 hot-dip galvanized, mill phosphatized.
2. Stainless Steel Sheet: Type 302/304, ASTM A167, 28 gage, (0.015"), annealed except dead soft where fully concealed by other work, 2D (dull) finish.
3. Copper Sheet: ASTM B370, 16 oz. (0.0216), temper H00 (cold-rolled).
4. Lead-Coated Copper Sheet: ASTM B101. Type I, Class A (12-15 1 lb. of lead coating per 100 sq. ft.), 17.1 oz. (0.022").
5. Zinc Alloy Sheet: Zinc with 0.6% copper and 0.14% titanium; 0.27" thick (21 gauge); standard (soft) temper, mil finish.

### 2.3 RELATED MATERIALS

- A. Metal Primer: Zinc chromate type.
- B. Plastic Cement: ASTM D 4586
- C. Sealant: Specified in Section 07900 or on drawings.
- D. Lead: Meets Federal Specification QQ-L-201, Grade B, four pounds per square foot.
- E. Solder: ANSI/ASTM B32; 95/05 type.
- F. Flux: FS O-F-506.
- G. Underlayment: ASTM D2178, No15 asphalt saturated roofing felt.
- H. Slip Sheet: Rosin sized building paper.
- I. Fasteners:

1. Corrosion resistant screw fastener as recommended by metal manufacturer. Finish exposed fasteners same as flashing metal.
  2. Fastening shall conform to Factory Mutual 1-90 requirements or as stated on section details, whichever is more stringent.
- J. Termination Bars:
1. Shall be aluminum unless otherwise recommended by membrane manufacturers.
  2. Material shall be .125" x 1" (minimum) aluminum conforming to ASTM B-221, mill finish. Bar shall have caulk cup as required.
- K. Scupper Anchorage Devices: Type recommended by fabricator.

#### PART 3 - EXECUTION

### 3.1 PROTECTION

- A. Protect contact areas of dissimilar metals with heavy asphalt or other approved coating, specifically made to stop electrolytic action.

### 3.2 GENERAL

- A. Install work watertight, without waves, warps, buckles, fastening stress, or distortion, allowing for expansion and contraction.
- B. Fastening of metal to walls and wood blocking shall comply with SMACNA Architectural Sheet Metal Manual, Factory Mutual I-90 wind uplift specifications and/or manufacturer's recommendations whichever is of the highest standard.
- C. All accessories or other items essential to the completeness of sheet metal installation, whether specifically indicated or not, shall be provided and of the same material as item to which applied.
- D. Metal fascia and copings shall be secured to wood nailers at the bottom edge with a continuous cleat. Cleats shall be at least one gauge heavier than the metal it secures.

### 3.3 INSPECTION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets are in place, and nailing strips located.
- B. Verify membrane termination and base flashings are in place, sealed, and secure.
- C. Beginning of installation means acceptance of existing conditions.



- D. Field measure site conditions prior to fabricating work.

### 3.4 MANUFACTURED SHEET METAL SYSTEMS

- A. Installing Contractor shall be responsible for determining if the sheet metal systems are in general conformance with roof manufacturer's recommendations.
- B. Furnish and install manufactured sheet metal systems in strict accordance with manufacturer's printed instructions.
- C. Provide all factory-fabricated accessories including, but not limited to, fascia extenders, miters, scuppers, joint covers, etc.

### 3.5 SHOP FABRICATED SHEET METAL

- A. Installing Contractor shall be responsible for determining if the sheet metal systems are in general conformance with roof manufacturer's recommendations.
- B. Metal work shall be shop fabricated to configurations and forms in accordance with recognized sheet metal practices.
- C. Hem exposed edges.
- D. Angle bottom edges of exposed vertical surfaces to form drip.
- E. All corners for sheet metal shall be lapped with adjoining pieces fastened and set in sealant.
- F. Joints for gravel stop fascia system, cap flashing, and surface-mount counterflashing shall be formed with a 1/4" opening between sections. The opening shall be covered by a cover plate or backed by an internal drainage plate formed to the profile of fascia piece. The cover plate shall be embedded in mastic, fastened through the opening between the sections and loose locked to the drip edges.
- G. Install sheet metal to comply with Architectural Sheet Metal manual, Sheet Metal and Air Conditioning Contractor's National Associations, Inc.

### 3.6 FLASHING MEMBRANE INSTALLATION

- A. METAL EDGE DETAIL
  1. See details for scuppers. For manufactured edge metal, scuppers shall be factory fabricated.
  2. Accessories: Joint covers, corners, supports, strip flashing at joining, fastenings and other accessories shall be included.
  3. Install continuous cleat fasten 6" O.C. Fasten flange to wood nailer every 6" staggered.

4. Install new metal edge hooked to continuous cleat.
5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.

**B. RAISED METAL EDGE DETAIL**

1. See details for scuppers. For manufactured edge metal, scuppers shall be factory fabricated.
2. Accessories: Joint covers, corners, supports, strip flashing at joining, fastenings and other accessories shall be included.
3. Install continuous cleat fasten 6" O.C. Fasten flange to wood nailer every 6" staggered.
4. Install new metal edge hooked to continuous cleat.
5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.

**C. ROOF EDGE WITH SCUPPER**

1. Install scupper for overflow.
2. Accessories: Joint covers, corners, supports, strip flashing at joining, fastenings and other accessories shall be included.
3. Install continuous cleat fasten 6" O.C.
4. Install new metal edge hooked to continuous cleat.
5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.

**D. SURFACE MOUNTED COUNTERFLASHING**

1. Counterflashing shall be provided with watertight accessories such as miters, transitions, end caps, etc. and finished to match counterflashing.
2. Accessories: Joint covers, corners, fasteners, strip flashing at joinings, fastening, and other accessories shall be included.
3. Apply butyl tape to wall behind flashing. Secure termination bar through flashing butyl tape and into wall.
4. Secure new counterflashing set on a butyl tape above flashing 8" O.C., caulk top of counterflashing.

**E. EQUIPMENT SUPPORT**

1. Covers shall be provided with watertight accessories such as miters, transitions, end caps, etc. and finished to match.
2. Accessories: Joint covers, corners, fasteners, strip flashing at joinings, fastening, and

other accessories shall be included.

3. Install pre-manufactured expansion joint cover. Fasten sides 24" O.C. with fasteners and neoprene washers. All joint cover laps will have butyl tape in between metal covers.
4. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

F. CURB DETAIL/AIR HANDLING STATION

1. Counterflashing shall be provided with watertight accessories such as miters, transitions, end caps, etc. and finished to match.
2. Accessories: Joint covers, corners, fasteners, strip flashing at joinings, fastening, and other accessories shall be included.
3. Install pre-manufactured expansion joint cover. Fasten sides 8" O.C. with fasteners and neoprene washers.
4. Set equipment on neoprene pad and fasten as required by equipment manufacturer.

G. ROOF DRAIN

1. Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.
2. Set lead/copper flashing (30" square minimum) in a 1/4" bed of mastic.
3. Install clamping ring and strainer assure all plies are under the clamping ring.

H. PLUMBING STACK

1. Prime flange and sleeve at a rate of 100 square feet per gallon and allow to dry.
2. Install properly sized sleeves in a 1/4" bed of elastomeric sealant.
3. Turn sleeve a minimum of 1" down inside of stack.
4. Caulk intersection of the membrane and flange with elastomeric sealant.

END OF SECTION

## **DIVISION 15**

### **SECTION 15100- TEMPORARY MECHANICAL DISCONNECTS AND RECONNECTS**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Work Included
- 1.03 Special Provisions
- 1.04 Testing

#### **PART II- PRODUCTS**

- 2.01 Replacement Parts

#### **PART III- EXECUTION**

- 3.01 Job Conditions

## **SECTION 15100- TEMPORARY MECHANICAL DISCONNECTS AND RECONNECTS**

### **PART I- GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Work Included

Temporarily remove roof mounted HVAC equipment, as required. Install wood blocking, curbs, sleepers, roofing and flashing as required, and reinstall equipment.

#### 1.03 Special Provisions

- A. Roofing Contractor shall employ HVAC Contractor proficient and/or licensed if applicable, in the trades involved.
- B. HVAC Contractor shall disconnect mechanical equipment only when performing roofing work in the immediate area of the equipment.
- C. Each unit shall be fully operational immediately after reinstallation. Shut down time for each unit shall be limited to an eight (8) hour period unless otherwise agreed by Owner's Representative.
- D. Prior to commencing any disconnects, the Owner shall be given forty-eight (48) hours notice. Notification shall be through.

#### 1.04 Testing

- A. Prior to commencing roof work, Contractor shall test mechanical units in the presence of the Owner's Representative.
- B. Deficiencies in operation including unusual noises, will be noted in writing and shall become a matter of record.
- C. Upon completion of the reinstallation of each unit, it shall be retested by Contractor and witnessed by Agency Representative.
- D. Any deficiencies which were not noted in the initial testing shall be corrected at Contractor's expense .

## **PART II- PRODUCTS**

### 2.01 Replacement Parts

Any replacement parts or additional materials needed due to changes in curb or sleeper heights shall be as recommended by the manufacturer of the mechanical unit, or as required by governing codes, and shall match the existing materials as to type, size, thickness and quality.

## **PART III- EXECUTION**

### 3.01 Job Conditions

- A. After disconnection, move units a sufficient distance to permit the installation of roofing and flashing materials.
- B. After new roofing is installed, reinstall units as shown, modifying conduit and cable as necessary. Units are to be reinstalled immediately upon completion of new roofing installation at each area that existing units are in place.
- C. Provide plywood traffic ways for moving units. If mechanical contrivance of wheeled "A" frame-type hoists are used, plywood shall be placed under the equipment for its full route of movement. Plywood shall be a minimum of 5/8" thick.

**END OF SECTION 15100**

## **DIVISION 16**

### **SECTION 16100- TEMPORARY ELECTRICAL DISCONNECTS AND RECONNECTS**

#### **PART I- GENERAL**

- 1.01 Related Documents
- 1.02 Work Included
- 1.03 Special Provisions
- 1.04 Testing

#### **PART II- PRODUCTS**

- 2.01 Replacement Parts

#### **PART III- EXECUTION**

- 3.01 Job Conditions

## **SECTION 16100- TEMPORARY ELECTRICAL DISCONNECTS AND RECONNECTS**

### **PART I- GENERAL**

#### 1.01 Related Documents

The provisions of the Contract, the General Conditions, the Supplementary Conditions and other Division I Specification Sections, apply to the work in this section.

#### 1.02 Work Included

- A. Temporarily disconnect electrical feed to each roof top HVAC unit and other necessary equipment including satellite antenna.
- B. Inspect and repair existing power lines.
- C. Fabrication, installation and flashing of equipment supports.
- D. Reconnection of electrical feed upon completion of new roofing and related sheet metal.

#### 1.03 Special Provisions

- A. SOUTHBURY TRAINING SCHOOL shall employ mechanics licensed in the electrical trade.
- B. SOUTHBURY TRAINING SCHOOL shall disconnect electrical equipment or feeds only when performing roofing work in the immediate area of the equipment or feed.
- C. Each feed or unit shall be fully operational immediately after reinstallation. Shut down time for each unit shall be limited to an eight (8) hour period unless otherwise agreed by Owner's Representative.
- D. Prior to commencing any disconnects, the Owner shall be given forty-eight (48) hours notice. Notification shall be given through



#### 1.04 Testing

- A. Prior to commencing roofing work, SOUTHBURY TRAINING SCHOOL shall test circuits in the presence of the Owner's Representative.
- B. Deficiencies in operation will be noted in writing and shall become a matter of record.
- C. Upon completion of the reconnection of each item or circuit, it shall be retested by SOUTHBURY TRAINING SCHOOL in the presence of the Owner's Representative.
- D. Any deficiencies which were not noted in the initial testing shall be corrected by SOUTHBURY TRAINING SCHOOL at his expense.

### **PART II- PRODUCTS**

#### 2.01 Replacement Parts

Any replacement parts or additional materials shall be as recommended by the manufacturer of the unit, or as required by governing codes, and shall match the existing materials as to type, size, thickness and quality.

### **PART III- EXECUTION**

#### 3.01 Job Conditions

- A. Do not disconnect electricity without permission of the Owner's representative.
- B. Disconnection shall be performed only after new roof and flashing materials are available to complete the operation.
- C. Locate penetrations in roof system such that tripping hazards are minimized.

**END OF SECTION 16100**

## GENERAL NOTES

1. The Contractor should fully understand that the Work includes the use of manufacturer's certified/approved installers (roofers) in order to obtain long term manufacturer's guaranty.
2. The division of Work among the various trades or subcontractors (if any) necessary and the coordinating of the total Work is the Contractor's responsibility.
3. The Contractor shall field verify existing dimensions and conditions as indicated on drawings.
4. Confine movements on Owner's property to areas designated at the pre-construction conference.
5. Materials are shown layered for clarity. Treatments are continuous. Materials are new unless otherwise indicated.
6. Principle openings through roof may not be shown. Contractor shall provide new flashings, curbs, etc., throughout to complete roof system.
7. Once a particular treatment is noted on a Detail or Roof Section, it will not be repeated on subsequent Details and Roof Sections.
8. New curbs shall be wood-faced.
9. Curb heights shall be 8" minimum from top of membrane to top of curb. Provide additional nailers to curbs under 8". Curb tops shall be level.
10. Fasteners to be mechanical fasteners or as indicated. Fasteners used in the work are to provide 1 " penetration into the substrate or as required by the fastener manufacturer.
11. Flashings are to be provided in a water-shedding fashion.
12. Should conditions exist that are not adequately detailed, inform the Owner's Representative and additional details/directions will be provided. Do not proceed without direction from the Owner's Representative.

# **PART 3**

## **MANUFACTURED ROOF PANELS**

SECTION 07410

MANUFACTURED ROOF PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work described in this section includes pre-formed metal roof system complete with perimeter and flashing details.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections apply to this section.
- B. Related Work:
  - 3. Roof Decks and Insulation

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM A792-96: Specifications for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
- B. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
  - 1. 1993 Ed. Architectural Sheet Metal Manual, 5<sup>th</sup> edition.
- C. National Coil Coaters Association (NCCA):
- D. Underwriters Laboratories (UL):
  - 1. UL-790

Tests for Fire Resistance of Roof Covering Materials.

- E. Factory Mutual Research (FM):
  - 1. FM 4470 Approval Standard for Class 1 Panel Roofs.

1.4 SUBMITTALS

- A. Shop Drawings showing layout of every roof panel and structural supporting member required in the installation with side laps and end laps marked within 1% deviation of their actual location. Details shall also be provided for edge conditions, seams, joints, corners, panel profiles, assembly anchoring techniques, round and square flashings and counterflashings.
- B. Samples illustrating thickness, finish, color and textures of materials.
- C. Mill production reports showing that the steel thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.
- D. Product Data: Include manufacturer's detailed material and system description, panel and field seam installation instructions, engineering performance and finish specifications. Indicate hat channel and fastener spacing.
- E. Design and Test Reports: Provide certified test reports from an independent testing laboratory. Each of the following test reports must be submitted.
  - 1. Independent laboratory testing report for system design load and seam integrity.
  - 2. Professional engineer's documentation that system incorporates sufficient allowance for stress and movement.
  - 3. A letter from an officer of the manufacturing company certifying that the materials furnished for this project are the same as represented in tests and supporting data.
  - 4. Manufacturer's verifications that the panels are factory roll formed.
  - 5. UL 1897: Test report must be submitted for windstorm rating no less than that specified in article 1.8. The proposed roof system must have approval over specified substrate with steel framing spaced no further apart than as specified.
  - 6. FM 4470: Test report must be submitted for windstorm rating no less than that specified in article 1.8. The proposed roof system must have approval over specified substrate with steel framing spaced no further apart than as specified.
  - 7. ASTM E-108 or similar evidence of Class A Fire Resistance

## 1.5 QUALITY ASSURANCE

- A. Contractor shall demonstrate written proof that he/she has completed the manufacturer's Approved Roofing Contractor course and is formally certified for the installation of this roof system.
- B. If required, fabricator/installer shall submit work experience and evidence of adequate financial Responsibility. The owner's representative reserves the right to inspect fabrication facilities in determining qualifications.
- C. Successful contractor must obtain all components of roof system from a single manufacturer including any roll good materials if required. Any secondary products that are required which cannot be supplied by the specified manufacturer must be recommended and approved in writing by primary manufacturer prior to bidding.
- D. Manufacturer shall have direct authority and control over all fabrication of steel components as well as the raw materials used in their fabrication.
- E. Manufacturer shall have in place a documented, standardized method for maintaining quality control such as ISO-9001 approval.
- F. The designer shall conduct all required periodic inspections of work in progress as described herein and shall furnish written documentation of all such inspections.

## 1.6 DELIVERY, STORAGE, AND HANDLING

### A. Manufacturer's responsibility:

1. All roof panels shall be shipped from the manufacturer with polystyrene or similar cushioned packaging material separating the individual panels to minimize flexing, stressing, scratching or otherwise damaging the material during transit to the job.
2. All steel shall be fully covered during transit by tarpaulins or similar protective cover to prevent dirt and debris from coming in contact with the finished goods.

### B. Installer's responsibility:

1. Stack prefinished materials to prevent twisting, bending, abrasion and denting and elevate one end to facilitate moisture run-off.
2. Unload roof panels using a boom or crane, supporting the panels in at least two locations during lifting, and never lift more than three panels at a time.
3. Cover all materials that are moisture sensitive to keep completely protected from the weather.
4. Protect water-based materials from inclement weather.
5. Inspect materials upon delivery. Reject and remove physically damaged or marred material from project site.

## 1.7 JOB CONDITIONS

### A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage and protection requirements for pre-formed metal roofing system.

#### 1. Protection:

- a. Provide protection or avoid traffic on completed roof surfaces.
- b. Do not overload roof with stored materials.
- c. Support no roof-mounted equipment directly on the roofing system.

### B. Ascertain that work of other trades which penetrates the roof or is to be made watertight by the roof is in place and approved prior to installation of roofing.

## 1.8 DESIGN AND PERFORMANCE CRITERIA

### A. Thermal Expansion and Contraction

1. Completed metal roofing and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, fasteners, or reducing performance ability.
2. The design temperature differential shall be not less than 200 degrees F.
3. A framing system shall be used separating panel seams from the deck so that fasteners anchoring panel seams together may not thermally bridge between interior and exterior temperatures.

### B. System shall be capable of accommodating all expected, normal building movement without any transmittal of expansion or contraction through or along the seam.

- C. System shall be capable of installation with all seam and flashing sealants in continuous, full compression.
- D. System shall meet all design and performance criteria that is consistent with the Class 1 Roof Covering Section of the Factory Mutual Research Corporation (FMRC) Approval Guide.
- G. Factory Mutual Research (FM), wind uplift resistance classification: Roof assembly shall be classified as FM 1-60, as defined by FM 4470. The steel framing spacing as specified for this project in article 3.3 shall not be greater than the steel framing specified in the FM listing.

## 1.9 WARRANTIES

- A. Owner shall receive one (1) warranty from manufacturer of roof panels covering all of the following criteria. Multiple warranties are not acceptable.
  1. Manufacturer's 30 year watertight warranty, including coverage for all trim, flashings, and penetrations associated with the roof area.
  2. 20 year coverage on finish including checking, crazing, peeling, chalking, fading and/or adhesion.
  3. 20 year material coverage.
  4. Warranty shall commence on date of substantial completion or final payment, whichever is agreed by contract.
  5. Installer shall provide manufacturer with 2 year warranty covering roofing system installation and watertightness.
  6. One manufacturer shall provide a single warranty for standing seam roof areas, membrane roof areas, and transitions between the two material types.

## PART 2 PRODUCTS

### 2.1 FLAT SEAM ROOFING SYSTEM

#### A. General

1. Whenever a particular make of material, trade name and/or manufacturer's name is specified herein, it shall be regarded as being indicative of the minimum standard of quality required. Additionally, all manufacturer and contractor/fabricator guidelines and performance criteria must be met as specified in article 1.4, 1.5, 1.6, 1.7, and 1.8.
2. Product names for the metal roof panel system and waterproofing materials used in this section shall be based on performance characteristics of the R-MER LITE System manufactured by the Garland Company, Cleveland, OH, and shall form the basis of the contract documents.

#### B. Materials

1. Panel Material: Steel sheet, Aluminum-Zinc Alloy Coated, ASTM A792, Coating Designation AZ-50, in thickness of .0157 for field panel, 36 in. by coil, chemically treated, commercial, lock-forming quality.
2. Steel Framing System: Aluminum-Zinc Alloy Coated, ASTM A792, Coating Designation AZ-50 .0336 by min. chemically treated, commercial, lock-forming quality.
3. Accessory Components: Aluminum-Zinc Alloy Coated, ASTM A792, Coating Designation AZ-50 .0336 or .0217, chemically treated, commercial, lock-forming quality.

#### C. Steel Finishes

1. Siliconized modified polyester, epoxy primer baked both sides, as approved by finish coat manufacturer.

<u>Property</u>	<u>Test Method</u>	<u>SMP</u>
Pencil	ASTM D-3363 NCCA II-2	F-H
Bend	ASTM D-4145 NCCA II-19	2-T
Cross-Hatch Adhesion	ASTM D-3359	no loss of adhesion
Gloss (60° angle)	ASTM D-523	90±5%
Reverse Impact	ASTM D-2794	no cracking or loss of adhesion
Nominal Thickness	ASTM D-1005	
primer		0.2 mils
topcoat		0.8 mils
TOTAL		1.0 mils

D. Accessories:

1. Job Installed In-Seam Sealant: Modified polyisobutylene tape, 1/8" thick by 1-1/2" wide, minimum.
  - a. Seaming material shall be a comprised of a pre-formed, non-hardening polyisobutylene rubber based elastic compound designed for use where space tolerance is limited.
  - b. Material shall be furnished in a two-sided, moisture-proof, self-adhering tape form that shall accommodate compression, extension, elongation in a form fitting profile without exhibiting memory tendency in order to allow for permanent or semi-permanent surface irregularities or structural expansion/contraction within the system.
  - c. Elongation: 25% Maximum
  - d. Recovery: 2% Maximum
  - e. Solids: 100% Maximum
  - f. Odor: None
  - g. Cure Time: Non-Curing
  - h. Flow: Slight
  - i. Color: Black or white
  - j. Adhesion (Metal): Peel: 151 lbs./lin.in.  
Shear: 55 lbs./in.
  - k. Seamability: 100% cohesion of mating surfaces
  - l. Cold Temperature: Passes -30°F. Flex over 1" Mandrel
  - m. Softening Point: 200°F.
2. Factory Applied Sealant:
  - a. Sealant must consist of a specified hot melt (100% solids thermoplastic material) in a 100% consistent application to affect a permanent, water-tight seal in a full compression configuration.



3. One component urethane meeting FS TT-S-00230C and ASTM C-920-79.
4. One component acrylic terpolymer meeting FS TT-S-00230.
5. Framing System Fasteners:
  - a. Metal Deck: FM 4470 Pinch point, fluorocarbon coated #14 fastener.
6. Seam Screws: Sheet Metal Fastener size #10 or #12 by 3/4" or 1" supplied by roof system manufacturer.
7. Wood Nailers, Curbs and Sleepers: California Redwood, #2 grade. No treated wood utilizing salt-base preservatives shall be allowed. Material safety Data Sheets must be provided to the roofing manufacturer for verification of preserving agents prior to the installation of any pressure treated wood.
8. Miscellaneous Fasteners:
  - a. TEK #1 or #4 screws
  - b. Expanding fasteners 1/4" min.
9. Prefabricated Stack Flashings: Flexible pre-fabricated round stack flashings with integrated pressure ring shall be used for all round pipe flashings as furnished by roof system manufacturer.
10. Temporary Night Sealant: Self-contained, two-component urethane foam.
11. Unitized Vents: Spun-aluminum, one way moisture vapor relief vents as furnished by roof system manufacturer.

## 2.2 FABRICATION

- A. In order to maximize quality control and conform to inorganic coating manufacturers' warranty limitations, all roll forming processes shall be done at the manufacturer's factory. Absolutely no roll forming will be permitted on the job site.
- B. Exercise careful compliance with specified requirements for fabricated profile, dimensional, and structural requirements.
- C. Provision shall be made for the roof system to self-ventilate and breathe according to ASTM E241 guidelines.
  1. Ventilation shall be shown to be free-flowing between panels in each contiguous roof area.
- D. Roofing system shall be designed to resist capillary action of water at any slope.
- E. Tolerances:
  1. Roof system shall be designed to accommodate normal building dimension tolerances without panel distortion or weaving.
  2. Panels shall not be shimmed to straighten an out-of-line structure.
  3. Follow the correct published panel alignment recommendations of the manufacturer without variation.

## 2.3 SOURCE QUALITY CONTROL

- A. Manufacturer shall furnish written documentation that all roof panels, flashing, trim, seam attachment devices, framing members, weather-exposed accessories, tape, caulking and sealants were furnished by this single-source company.

- B. Manufacturer shall furnish mill production documentation of specifications for steel coil stock used in the fabrication of the roof system, without organic coating per ASTM A446, ASTM A525, ASTM A527 or ASTM A792.
- C. Manufacturer shall furnish all other documentation as required herein.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. System shall be designed so that the panel installation may be started and/or terminated at any given point in the area. It is understood that the ongoing operations of the Owner are of a critical nature as to leak sensitivity. Do not work on more roof area than can be restored completely watertight in one day.
- B. Remove all existing loose material, dirt and debris from the roof area. All accumulations of asphalt or other repair materials shall be removed to provide a relatively level substrate.
  - 1. Existing metal details and other metal accessories specified for re-use that interfere with the installation of the new roof system shall be carefully removed and set aside for re-use.
  - 2. Any metal described above that will come in contact with the new roof shall be checked for type and replaced or protected if galvanic action may be a problem.
- C. Existing contaminating material must be stripped from all metal components that are indicated to be re-utilized. Care must be taken to protect these metal components and any damaged shall be replaced with new of similar type and dimension.
- D. All wood blocks and/or sleepers are to be replaced as part of this project with new treated wood or redwood. Any treated wood shall not contain salt based preservatives or materials corrosive to steel. Material Safety Data Sheets must be provided to the roofing manufacturer for verification prior to installation.
- E. Any pipes, conduits or equipment that the Owner determines to be no longer needed shall be removed under this contract.
- F. All curbs, soil stacks, and other interior flashing surfaces shall be extended to a minimum of 8" above the new horizontal roof surface or shall be pressure sealed at the top edge.

### 3.3 INSTALLATION

- A. The roof system shall be installed when the atmospheric dry bulb temperature is minimum 40 degrees Fahrenheit and rising.
- B. Install all components of the roof system in exact accordance with the manufacturer's standard published procedures as applicable to these project conditions and substrates.
- C. The expressed and implied intent of all specifications contained herein shall prevail and take precedent over the manufacturer or any other specifying or associated authority.
- D. At any time during the installation, should manufacturer's procedures and these specifications come into unworkable conflict, all work shall be stopped, interested parties notified, and no work shall take place until a resolution is reached.
- E. Install all required vapor retarders, air seals and preliminary tapered, insulating substrates required per enclosed specifications.
- F. Lay out and anchor all roof framing sections or purlins according to the approved roof plan.
- G. Steel framing system installation

1. The steel framing system shall be installed around the entire perimeter of the roof, all curbs and boxes and as closely to the existing edge and vertical walls as possible.
  2. The entire roof area shall then be measured and laid out to determine the designed or practical use of the furnished panels. The framing system shall be installed to the roof surface so that the framing system may be fastened through the existing roof and into the roof deck or structured supports with the entire perimeter of all steel panels covering the fastening flange of the metal framing system. Steel framing sections shall be installed every 6 ft as specified by the UL 580 Class 90 wind uplift approval.
  3. A pre-fabricated drain or ridge line framing system shall be installed along the bottom of all valleys, including along the leading edge of crickets and saddles and along the ridges formed by adjoining slopes in excess of 2" in 12" or as specified.
  4. All steel frames, as described above, shall be anchored to the roof deck with appropriate fasteners. Frames shall be fitted with thermally specified insulation stripes on non-insulated decks.
  5. The adjoining ends of framing sections shall be overlapped. All overlapped adjoining ends shall be fastened to the substrate together. Ends that adjoin or abut the sides of frames shall be lap cut so that there are no gaps between adjoining sections.
- H. Install rigid board insulation as specified in Section 07220 - Roof Deck and Insulation.
- I. Steel roof membrane installation
1. All panels and other components of the work shall be installed and anchored to the framing supports, making provision for the critical concerns specified below:
  2. Seam tape shall be applied to the tops of all framing sections occurring in secondary framing systems, or along leading edge of crickets or saddles, centered along the top of the framing sections. The paper seam tape backer shall be removed
  3. The steel roof membrane shall be applied over the framing sections, beginning at the valley or lowest point of the roof, assuring that the panels completely cover the tops of the steel framing sections. The steel panel shall be aligned so that it overlaps the preceding panel by approximately 1-1/2" but does not extend beyond the edge of the top of the underlying framing section.
  4. Seam fasteners may be placed at any point along the steel panels to temporarily anchor them in place, but these fasteners may require removal during the final anchoring process to allow all slack to be removed from the panel.
  5. Seam tape shall be applied to the underside of the overlapping portion of adjoining pieces of metal so that approximately 1/8" of tape extends beyond the edge of the metal. End-lap seam tape 2" where necessary. Walk in the seam tape so that tape adheres well to underside of top panel.
  6. The paper seam tape backer shall be carefully removed from the seam tape, and the panels pressed together.
  7. With the installer using 2" X 8" (min.) wood planks to kneel or stand on, the seam fasteners shall be placed approximately 18" O.C., beginning at the middle of the panel and working towards the ends, so that all slack is distributed throughout the length of the panels.
  8. Final seaming shall be completed by installing seam fasteners every 1-1/4" O.C. between the stabilizing fasteners. Fastener guns with adjustable clutch shall be used on all fastening panels and accessories. Final seaming is to occur, for all panels installed, at the end of each day.

- a. All seam fasteners shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. The head of each seam fastener shall be set with its leading edge approximately 1/8" to 1/4" from the edge of the steel panel, but never extending beyond the edge of the seam nor occurring greater than 1/4" away from the edge of the seam.
  - c. Final seaming shall not be completed at the walls or vertical surfaces until the wall flashing system is installed.
  - d. A seam fastener shall be placed in the corner of every panel.
  - e. A seam fastener shall be placed directly on either side of every factory seam.
9. Blind seams shall be completed after all panels are in place.
- a. All seam screws shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. Using the marks placed on the panels as a guide to the location of the underlying steel framing section, the installer shall snap a chalk line the entire length of the valley, ridge, or secondary framing section.
  - c. The paper backer shall be carefully removed from the seam tape prior to fastening the panel.
  - d. The final blind seaming shall be completed by installing seam fasteners as specified between the stabilizing fasteners, assuring that the fasteners penetrates the underlying sealant.

J. Steel flashings installation at curb and wall

- 1. Factory fabricated wall flashing pieces shall be installed so that the leading edge of the deck flange lines up with the top of the underlying framing section.
- 2. Seam tape shall be applied to the underside of the wall flashing metal so that approximately 1/8" of tape extends beyond the edge of the metal.
- 3. The wall flashing piece shall press against the vertical wall with a spring tension action.
- 4. The final seaming shall be completed by installing seam fasteners every 1-1/4" O.C.
  - a. All seam fasteners shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. The heads of the seam fasteners shall never extend beyond the edge of the seam nor occur greater than 1/4" away from the edge of the seam. The adjoining sections of metal shall be seamed together with an overlap a minimum of 2".
- 5. The final seaming along the vertical portion of the metal flashing shall be completed by installing seam fasteners every 1-1/4" O.C.
  - a. Seam tape shall be applied to the underside of the overlapping piece, allowing approximately 1/8" of tape to be exposed beyond the leading edge. The paper seam tape backer shall be removed.
  - b. The seamed area of metal shall be pressed onto the underlying section at appropriate overlap, beginning at the vertex of the angle, so that there is no gap where the two pieces adjoin.

- c. The first seam fastener shall be installed directly into the angle, securely anchoring this spot, to the underlying flashing.
- d. All seam fasteners shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
- e. The heads of the seam fasteners shall never extend beyond the edge of the seam nor occur greater than 1/4" away from the edge of the seam. The adjoining sections of metal shall be seamed together with an overlap a minimum of 2".
- f. The inside and outside corners shall be mitered and shall be installed with seam tape and seam fasteners as described above.

L. Counterflashing installation

- 1. Prefabricated counterflashings shall be installed as required along all perimeter walls and over all interior flashings that do not have a protective flange covering the top of the baseflashing
- 2. Seam tape or sealant shall be applied to the back side of the fastening flange of the counterflashing piece. The paper seam tape backer shall be removed.
- 3. The counterflashing shall be installed in place with appropriate, required fasteners placed 6"-12" O.C. through the center of the fastening flange and anchored so that the flange is secured in place in a spring compression situation. The adjoining sections of metal shall overlap a minimum of 1/2" and a seam fastener shall be installed through both pieces of metal to anchor them to the wall or substrate.
- 4. A bead of urethane sealant shall be applied to the top edge of the metal, centered over the edge, and tooled to shed water.

M. Metal edge installation

- 1. If the roof system has been designed for water to drain away from the edge, the metal edge shall be installed after the roof membrane has been installed; if the roof system has been designed for water to flow over the metal edge, the metal edge shall be installed before the roof membrane is installed.
- 2. If necessary the steel roof membrane shall be cut to be even with the outside edge of the perimeter steel framing section.
- 3. The metal edge shall be installed with seam tape in place between it and the roof membrane, with the tape exposed approximately 1/8". The open bottom hem of the metal edge shall be used as the outside anchoring cleat. The paper seam tape backer shall be removed.
- 4. Deck flange on metal edge shall terminate evenly with the inside edge of the top portion of the steel framing section.
- 5. The final seaming shall be completed by installing seam fasteners every 1-1/4" O.C. around the base.
  - a. All seam fasteners shall be set so that the seam tape is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. The heads of the seam fasteners shall never extend beyond the edge of the seam nor occur greater than 1/4" away from the edge of the seam.
- 6. Metal edge pieces shall be overlapped a minimum of 2", or butted at ends with internal drainage plate or sealed batten cover.

N. Vent installation

- 1. One-way, moisture vapor relief vents shall be installed on the roof area.

2. One vent shall be installed in a central location of every major roof panel, over 200 square feet, and aligned for a consistent appearance.
3. A 4" round hole shall be cut at each vent location.
4. Seam tape shall be applied to the underside of the prefabricated vent, allowing approximately 1/8" to extend beyond the edge of the metal. The paper seam tape backer shall be removed.
5. The vent shall be pressed to the roof surface and centered over the 4" hole.
6. The final seaming shall be completed by installing seam fasteners every 1-1/4" O.C. around the base.
  - a. All seam fasteners shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. The heads of the seam fasteners shall never extend beyond the edge of the seam nor occur greater than 1/4" away from the edge of the seam.

O. Drain flashing installation

1. Fabricated metal sump pan with integral framing sections shall be installed.
2. Steel roof membrane shall be cut evenly with the inside edge of the top section of the integral framing section.
3. Seam tape shall be installed to the underside of the roof membrane so that 1/8" shows beyond the leading edge. Paper seam tape backer shall be removed, and tape pressed in place.
4. The final seaming shall be completed by installing seam fasteners every 1-1/4" O.C. around the base.
  - a. All seam fasteners shall be set so that the seam is fully compressed, with caution being taken not to over-torque or under-torque the fasteners.
  - b. The heads of the seam fasteners shall never extend beyond the edge of the seam nor occur greater than 1/4" away from the edge of the seam.
5. The adjusting nuts on the backflow prevention device shall be adjusted to expand the urethane seal against the inside of the drain leader.
6. The drain strainer shall be installed.

Q. Protective coating installation

1. All excess seam tape shall be trimmed away even with the edge of the lap, using a piece of discarded sheet metal rounded-off as a knife (do not use utility knives).
2. After all work is complete and the roof has been inspected and approved by the material manufacturer and the owner, a protective coating shall be applied to all seam areas.
3. Protective coating shall be applied to all inside and outside corner seams, along the tops of seams in projections, and around all sump pan and through wall scupper seams, etc.
4. Protective coating shall be applied to all field seam, blind seam and other mechanically fastened areas, and over all caulking applications.
5. Protective coating is to be applied within 72 hours of completion of seam areas.

END OF SECTION