

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>		1. SOLICITATION NO. F22600-01-R-0109	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 10-Sep-2002	PAGE OF PAGES 1 OF 24	
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.						
4. CONTRACT NO. F22600-02-D-0012		5. REQUISITION/PURCHASE REQUEST NO.		6. PROJECT NO. MAHG 01-2208		
7. ISSUED BY 81ST CONTRACTING SQUADRON JAMIE DAVIS 310 M STREET, RM 102 KEESLER AFB MS 39534-2147 TEL:228-377-1821 FAX: 228-377-3298		CODE FA3010	8. ADDRESS OFFER TO <i>(If Other Than Item 7)</i> See Item 7 TEL: FAX:			CODE
9. FOR INFORMATION CALL:		A. NAME JAMIE J. DAVIS		B. TELEPHONE NO. <i>(Include area code) (NO COLLECT CALLS)</i> 228-377-1821		
SOLICITATION						
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".						
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS <i>(Title, identifying no., date):</i> Requirements Replace/Repair Roofing REQUIREMENTS REPLACE/REPAIR ROOFING 1. See bid schedule and specifications. 2. This Acquisition is being issued as a NON-COMPETITIVE 8(a) SET ASIDE. 3. ENTER PRICES IN SECTION B. 4. NOTE: ALL AMENDMENTS TO THIS SOLICITATION (IF ANY) MUST BE ACKNOWLEDGED. 5. IN CLAUSE 52.232-27, PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS-NOTE FOR PURPOSES OF THIS CLAUSE THE BLANK(S) ARE COMPLETED AS FOLLOWS: (a)(1)(i)(A) 30; (a)(4)(i) 14						
11. The Contractor shall begin performance within _____ calendar days and complete it within _____ calendar days after receiving <input type="checkbox"/> award, <input checked="" type="checkbox"/> notice to proceed. This performance period is <input checked="" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. <i>(See 52.211-10 _____ .)</i>						
12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				12B. CALENDAR DAYS 10		
13. ADDITIONAL SOLICITATION REQUIREMENTS: A. Sealed offers in original and <u>1</u> copies to perform the work required are due at the place specified in Item 8 by <u>03:00:00</u> <i>(hour)</i> local time <u>09/09/2002</u> <i>(date)</i> . If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. B. An offer guarantee <input type="checkbox"/> is, <input checked="" type="checkbox"/> is not required. C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference. D. Offers providing less than <u>120</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.						

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*
CROWN ROOFING SERVICES INC
RAY PALMER
5 EAST THIRD STREET
KENNER LA 70062

15. TELEPHONE NO. *(Include area code)*
504-464-4644

16. REMITTANCE ADDRESS *(Include only if different than Item 14)*

See Item 14

CODE
0X9A8

FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS

SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*

20B. SIGNATURE

20C. OFFER DATE

AWARD (To be completed by Government)

21. ITEMS ACCEPTED:
SEE SCHEDULE

22. AMOUNT
\$498,033.00

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)* 1

ITEM
Block 26

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO
 10 U.S.C. 2304(c) 41 U.S.C. 253(c)

26. ADMINISTERED BY CODE FA3010

81ST CONTRACTING SQUADRON
JAMIE DAVIS
310 M STREET, RM 102
KEESLER AFB MS 39534-2147

27. PAYMENT WILL BE MADE BY CODE F60700

DFAS-SAVFVD
500 MCCULLOUGH AVE
SAN ANTONIO TX 78215-2100

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return 1 copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.

29. AWARD *(Contractor is not required to sign this document.)*
Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*

31A. NAME OF CONTRACTING OFFICER *(Type or print)*
ROBERT F. WINLAND / FLIGHT A, TEAM A LEADER

30B. SIGNATURE

30C. DATE

31B. UNITED STATES OF AMERICA
BY

31C. AWARD DATE
30-Sep-2002

SECTION B Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	ESIMATED QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
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0001	Replace/Repair Roofing FFP - Replace/Repair Roofing Requirements-basic year and two one- year options. See attached Section B schedule of pricing for the list of line items. Line items from this list will be chosen for each individual delivery order. The period of performance is to be negotiated for each individual delivery. order. NSN Z199-04-000-000000 SIGNAL CODE A	50	Lump Sum		
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ESTIMATED
NET AMT

ITEM NO	SUPPLIES/SERVICES	ESIMATED QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
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1001	Replace/Repair Roofing FFP - First Option Year NSN Z199-04-000-000000 SIGNAL CODE A	1	Lump Sum		
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ESTIMATED
NET AMT

SECTION C Descriptions and Specifications

**PART I - THE SCHEDULE
SECTION C
DESCRIPTION/SPECIFICATIONS/WORK STATEMENT**

DESCRIPTION/SPECS/WORK STATEMENT

APR 1991

Specifications that are applicable are listed below and are attached at the end of the solicitation/contract:

TITLE: REPLACE/REPAIR ROOFING
PROJECT: MAHG-01-2208
PREPARED: MAY 2001
PAGES: 103 pages

SECTION F Deliveries or Performance

DELIVERY INFORMATION

CLINS	DELIVERY DATE	UNIT OF ISSUE	QUANTITY	FOB	SHIP TO ADDRESS
0001	17-SEP-03	Lump Sum	50	Dest.	F7CERQ 81 CES RESOURCES FLIGHT PATRICIA KRATZER / COST CENTER MANAGER 508 L STREET KEESLER AFB MS 39534-2115
1001	POP 18-SEP-03 TO 17-SEP-04	Lump Sum	1	Dest.	Same as CLIN 0001

**PART I -- THE SCHEDULE
SECTION F
DELIVERIES OR PERFORMANCE**

PERIOD OF PERFORMANCE

a. The contract will be effective from 03 Sep 02 or date of award, whichever is later, through 02 Sep 03 for the basic period (12 months) and one option period, as follows, unless sooner terminated under the terms of the contract.

OPTION PERIOD ONE (12Mos.): 03 Sep 03 through 02 Sep 04

b. Performance of tasks under item(s) **SEE BID SCHEDULE, PART, SECTION B** will be as specified on SF 1449 orders. Performance will be specified in each task order issued under the terms of this contract. Orders issued prior to the expiration date of the contract will be carried to completion provided sufficient monies are available and performance does not normally exceed **120** calendar days beyond the period of contract. In the event completion of the order cannot be completed within the established time period, the order may be extended to a time and terms agreeable to both parties.

52.211-12 **LIQUIDATED DAMAGES – CONSTRUCTION** **SEP 2000**

For the purposes of this clause the blank(s) are completed as follows:

(a) the sum of **\$138.20** for each day of delay (applicable to each day of delay for the delivery order) and the sum of \$69.10 for each day of delay (for each additional delivery order that is also delinquent at the same time (in addition to the delivery order that is being accessed the \$138.20 rate per day of delay)).

52.211-13 **TIME EXTENSIONS** **SEP 2000**

5352.211-9000 **ALLOTTED WORK TIME** **SEP 1996**

The Contractor shall have the required performance time based on the dollar amount of the work request as indicated below, from the date the work requests are received by the Contractor (either by mail or in person). These performance periods include material submittals, approval of materials submittal, mobilization time, and performance time.

AMOUNT OF DELIVERY ORDER

\$0.00 to \$5,000.00

\$5,000.01 to \$10,000.00

\$10,000.01 to \$50,000.00

\$50,000.01 to \$100,000.00

Greater than \$100,000.01

PERFORMANCE PERIOD

9 calendar days

17 calendar days

60 calendar days

90 calendar days

30 additional calendar days for each \$50,000.00 or
Portion/fraction there of

SECTION G Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

CONTRACT FUNDING DATA

COST CODE

CLAUSES INCORPORATED BY FULL TEXT

5352.232-9000 REMITTANCE ADDRESS (MAY 1996)

If the remittance address is different from the mailing address, enter the remittance address below. Failure to provide this information may impact payment.

SECTION H Special Contract Requirements

**PART I - THE SCHEDULE
SECTION H
SPECIAL CONTRACT REQUIREMENTS**

REQUIRED INSURANCE

(IAW FAR 28.306(b))

Reference FAR clause entitled "**Insurance** . . ." the Contractor shall, at its own expense, procure and thereafter maintain the following kinds of insurance with respect to performance under the contract.

- a. Workmen's Compensation and Employers Liability Insurance as required by law except that if this contract is to be performed in a State which does not require or permit private insurance, then compliance with the statutory or administrative requirements in any such State will be satisfactory. The required Workmen's Compensation insurance shall extend to cover employer's liability for accidental bodily injury or death and for occupational disease with a minimum liability limit of **\$100,000**.
- b. General Liability Insurance. Bodily injury liability insurance, in the minimum limits of **\$500,000** per occurrence shall be required on the comprehensive form of policy.
- c. Automobile Liability Insurance. This insurance shall be required on the comprehensive form of policy and shall provide bodily injury liability and property damage liability covering the operation of all automobiles used in connection with the performance of the contract. At least the minimum limits of **\$200,000** per person and **\$500,000** per occurrence for bodily injury and **\$20,000** per occurrence for property damage shall be required.

5352.214-9000 SMOKING IN AETC FACILITIES (AETC)

JUL 1993

(IAW AETC FARS 5314.201-2(h))

Contractors are advised that the Commander has placed restrictions on the smoking of tobacco products in AETC facilities. Contractor employees and visitors are subject to the same restrictions as are Government personnel. Smoking is permitted only in designated smoking areas. **SEE AFI 400-102 FOR FURTHER GUIDANCE**

SECTION I Contract Clauses

CLAUSES INCORPORATED BY REFERENCE:

52.202-1	Definitions	DEC 2001
52.202-1 Alt I	Definitions (Dec 2001) --Alternate I	MAY 2001
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 1997
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.211-15	Defense Priority And Allocation Requirements	SEP 1990
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-17	Waiver of Facilities Capital Cost of Money	OCT 1997
52.219-8	Utilization of Small Business Concerns	OCT 2000
52.219-14	Limitations On Subcontracting	DEC 1996
52.222-3	Convict Labor	AUG 1996
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	SEP 2000
52.222-6	Davis Bacon Act	FEB 1995
52.222-7	Withholding of Funds	FEB 1988
52.222-8	Payrolls and Basic Records	FEB 1988
52.222-9	Apprentices and Trainees	FEB 1988
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	FEB 1988
52.222-12	Contract Termination-Debarment	FEB 1988
52.222-13	Compliance with Davis-Bacon and Related Act Regulations.	FEB 1988
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	FEB 1988
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-30	Davis-Bacon Act--Price Adjustment INone or Separately Specified Pricing Method)	DEC 2001
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era and Other Eligible Veterans	DEC 2001
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	APR 1998
52.223-6	Drug Free Workplace	MAY 2001
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice And Assistance Regarding Patent And Copyright	AUG 1996

	Infringement	
52.227-4	Patent Indemnity-Construction Contracts	APR 1984
52.228-1	Bid Guarantee	SEP 1996
52.228-2	Additional Bond Security	OCT 1997
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-11	Pledges Of Assets	FEB 1992
52.228-12	Prospective Subcontractor Requests for Bonds	OCT 1995
52.228-14	Irrevocable Letter of Credit	DEC 1999
52.228-15	Performance and Payment Bonds--Construction	JUL 2000
52.229-4	Federal, State And Local Taxes (Noncompetitive Contract)	JAN 1991
52.229-5	Taxes--Contracts Performed In U S Possessions Or Puerto Rico	APR 1984
52.230-2	Cost Accounting Standards	APR 1998
52.230-3	Disclosure And Consistency Of Cost Accounting Practices	APR 1998
52.230-6	Administration of Cost Accounting Standards	NOV 1999
52.232-5	Payments under Fixed-Price Construction Contracts	MAY 1997
52.232-17	Interest	JUN 1996
52.232-19	Availability Of Funds For The Next Fiscal Year	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-23 Alt I	Assignment of Claims (Jan 1986) - Alternate I	APR 1984
52.232-27	Prompt Payment for Construction Contracts	FEB 2002
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	MAY 1999
52.233-1	Disputes	JUL 2002
52.233-3	Protest After Award	AUG 1996
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-14	Availability and Use of Utility Services	APR 1984
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	AUG 1987
52.244-5	Competition In Subcontracting	DEC 1996
52.246-21	Warranty of Construction	MAR 1994
52.248-3	Value Engineering-Construction	FEB 2000
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	SEP 1996
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (Sep 1996) - Alternate I	SEP 1996
52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	MAR 1999

252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.205-7000	Provisions Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7000	Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate Range Nuclear Forces (INF) Treaty	NOV 1995
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	OCT 1998
252.223-7001	Hazard Warning Labels	DEC 1991
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.225-7012	Preference For Certain Domestic Commodities	APR 2002
252.225-7031	Secondary Arab Boycott Of Israel	JUN 1992
252.231-7000	Supplemental Cost Principles	DEC 1991
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.236-7005	Airfield Safety Precautions	DEC 1991
252.242-7000	Postaward Conference	DEC 1991
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998

CLAUSES INCORPORATED BY FULL TEXT

5352.217-9000 Option Clause Limitation Notice.

As prescribed in 5317.208, insert the following clause in Section I of solicitations and contracts:

Option Clause Limitation Notice (AETC) (Jul 1994)

This contract contains two option provisions, (i) Option to Extend Services, and (ii) Option to Extend the Term of the Contract (see FAR 52.217-8 and FAR 52.217-9). Either or both may be exercised unilaterally by the government. The clause entitled "Option to Extend the Term of the Contract" will not be exercised after any exercise of the "Option to Extend Services" clause.

5352.223-9000 ELIMINATION OF USE OF CLASS I OZONE DEPLETING SUBSTANCES (ODS) (MAY 1996)

(a) It is Air Force policy to preserve mission readiness while minimizing dependency on Class I Ozone Depleting Substances (ODS), and their release into the environment, to help protect the Earth's stratospheric ozone layer.

(b) Unless a specific waiver has been approved, Air Force procurements:

(1) May not include any specification, standard, drawing, or other document that requires the use of a Class I ODS in the design, manufacture, test, operation, or maintenance of any system, subsystem, item, component, or process; and

2) May not include any specification, standard, drawing, or other document that establishes a requirement that can only be met by use of a Class I ODS;

(c) For the purposes of Air Force policy, the following are Class I ODS:

(1) Halons: 1011, 1202, 1211, 1301, and 2402;

(2) Chlorofluorocarbons (CFCs): CFC-11, CFC-12, CFC-13, CFC-111, CFC-112, CFC-113, CFC-114, CFC-115, CFC-211, CFC-212, CFC-213, CFC-214, CFC-215, CFC-216, and CFC-217, and the blends R-500, R-501, R-502, and R-503; and

(3) Other Controlled Substances: Carbon Tetrachloride, Methyl Chloroform, and Methyl Bromide.

(d) The Air Force has reviewed the requirements specified in this contract to reflect this policy. Where considered essential, specific approval has been obtained to require use of the following substances:
Substance Application/Use Quantity (lbs)



(e) To assist the Air Force in implementing this policy, the offeror/contractor is required to notify the contracting officer if any Class I ODS not specifically listed above is required in the performance of this contract.

5352.236-9000 Availability of Utilities Services.

As prescribed in 5336.514, insert the following clause in Section I of construction solicitations and contracts when the government will furnish utilities to the contractor at no cost and FAR 52.236-14 is used:

Availability of Utilities Services (AETC) (Jul 1993)

Notwithstanding the provisions of contract clause FAR 52.236-14, Availability and Use of Utility Services, all reasonable required amounts of water, gas, electricity, etc., essential to contract performance shall be made available, at no cost to the contractor, from existing systems, outlets, and supplies. All temporary connections, outlets, and distribution lines as may be required will be installed by the contractor at the contractor's own expense.

5352.237-9001 Preperformance Conference.

As prescribed in 5337.110(b), insert the following clause in Section I of service solicitations and contracts when a preperformance conference may be required:

Preperformance Conference (AETC) (Jul 1993)

Offerors/bidders are hereby advised that if they are awarded a contract as a result of this solicitation, they may be required to appear at the 81st Contracting Squadron, Building Number 4605, 310 M Street Keesler AFB, MS 39534-2147, to attend a preperformance conference prior to commencement of any work on the military installation.
5352.242-9000 CONTRACTOR ACCESS TO AIR FORCE INSTALLATIONS (MAY 1996)

(a) The contractor shall obtain base identification and vehicle passes for all contractor personnel who make frequent visits to or perform work on the Air Force installation(s) cited in the contract. Contractor personnel are required to wear or prominently display installation identification badges or contractor-furnished, contractor identification badges while visiting or performing work on the installation.

(b) The contractor shall submit a written request on company letterhead to the contracting officer listing the following: contract number, location of work site, start and stop dates, and names of employees and subcontractor employees needing access to the base. The letter will also specify the individual(s) authorized to sign for a request for base identification credentials or vehicle passes. The contracting officer will endorse the request and forward it to the issuing base pass and registration office or security police for processing. When reporting to the registration office, the authorized contractor individual(s) should provide a valid driver's license, current vehicle registration, valid vehicle insurance certificate, and  to obtain a vehicle pass.

(c) During performance of the contract, the contractor shall be responsible for obtaining required identification for newly assigned personnel and for prompt return of credentials and vehicle passes for any employee who no longer requires access to the work site.

(d) When work under this contract requires unescorted entry to controlled or restricted areas, the contractor shall comply with AFI 31-209, the Air Force Resource Protection Program, and AFI 31-501, Personnel Security Program Management, as applicable.

(e) Upon completion or termination of the contract or expiration of the identification passes, the prime contractor shall ensure that all base identification passes issued to employees and subcontractor employees are returned to the issuing office.

(f) Prior to submitting an invoice for final payment, the prime contractor shall obtain a clearance certification from the issuing office which states all base identification passes have been turned in, accounted for, or transferred to a follow-on contract. This certification shall be submitted to the contracting officer prior to submission of the final invoice for payment.

(g) Failure to comply with these requirements may result in withholding of final payment.

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

For the purposes of this provision the blank(s) are completed as follows:

(a) within **10** calendar days after receipt of initial delivery order; **5** calendar days after receipt of subsequent orders.

(c) not later than : Contract shall become effective on the date of award and shall remain in effect for two years from that date if the option is exercised. The contractor will be required to prosecute the work and to complete each separate delivery order as specified in Contract Clause 5352.211-9000 – “Allotted Work Time” in Section F.

(End of clause)

52.216-18 ORDERING. (OCT 1995)

For the purposes of this clause the blank(s) are completed as follows:

(a) issued from the date of award through one year from that start date. If the First Option Period is exercised, orders may be issued accordingly for one year based on the original award date. (End of clause)

52.216-19 ORDER LIMITATIONS. (OCT 1995)

For the purposes of this clause the blank(s) are completed as follows (for the Building Wage Rate Delivery Orders):

(a) \$2,000.00

(b)(1) \$1,000,000.00

(b)(2) \$1,000,000.00

(b)(3) 14 days

(d) 5 days

For the purposes of this clause the blank(s) are completed as follows (for the Residential Wage Rate Delivery Orders):

(a) \$2,000.00

(b)(1) \$400,000.00

(b)(2) \$400,000.00

(b)(3) 14 days

(d) 5 days

(End of clause)

52.216-21 REQUIREMENTS (OCT 1995)

(a) This is a requirements contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies or services specified in the Schedule are estimates only and are not purchased by this contract. Except as this contract may otherwise provide, if the Government's requirements do not result in orders in the quantities described as "estimated" or "maximum" in the Schedule, that fact shall not constitute the basis for an equitable price adjustment.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. Subject to any limitations in the Order Limitations clause or elsewhere in this contract, the Contractor shall furnish to the Government all supplies or services specified in the Schedule and called for by orders issued in accordance with the Ordering clause. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(c) Except as this contract otherwise provides, the Government shall order from the Contractor all the supplies or services specified in the Schedule that are required to be purchased by the Government activity or activities specified in the Schedule.

(d) The Government is not required to purchase from the Contractor requirements in excess of any limit on total orders under this contract.

(e) If the Government urgently requires delivery of any quantity of an item before the earliest date that delivery may be specified under this contract, and if the Contractor will not accept an order providing for the accelerated delivery, the Government may acquire the urgently required goods or services from another source.

(f) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after 120 calendar days of expiration date.

(End of clause)

52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in contract. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 15 days.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 15 days provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 30 months.

(End of clause)

52.225-9 BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIALS (FEB 2002)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site

preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Domestic construction material means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Domestic preference. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the construction material or components listed by the Government as follows:
NONE

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent. For determination of unreasonable cost under the Balance of Payments Program, the Contracting Officer will use a factor of 50 percent;

(ii) The application of the restriction of the Buy American Act or Balance of Payments Program to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act or Balance of Payments Program. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including--

- (A) A description of the foreign and domestic construction materials;
- (B) Unit of measure;
- (C) Quantity;
- (D) Price;
- (E) Time of delivery or availability;
- (F) Location of the construction project;
- (G) Name and address of the proposed supplier; and
- (H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act or Balance of Payments Program applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act or Balance of Payments Program applies, use of foreign construction material is noncompliant with the Buy American Act or Balance of Payments Program.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1			
Foreign construction material....
Domestic construction material...
Item 2			
Foreign construction material....
Domestic construction material...

Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at <http://www.ccr.gov>.

(End of clause)

252.219-7009 SECTION 8(A) DIRECT AWARD (MAR 2002)

(a) This contract is issued as a direct award between the contracting office and the 8(a) Contractor pursuant to the Partnership Agreement dated February 1, 2002, between the Small Business Administration (SBA) and the Department of Defense. Accordingly, the SBA, even if not identified in Section A of this contract, is the prime contractor and retains responsibility for 8(a) certification, for 8(a) eligibility determinations and related issues, and for providing counseling and assistance to the 8(a) Contractor under the 8(a) Program. The cognizant SBA district office is:

(To be completed by the Contracting Officer at the time of award)

(b) The contracting office is responsible for administering the contract and for taking any action on behalf of the Government under the terms and conditions of the contract; provided that the contracting office shall give advance notice to the SBA before it issues a final notice terminating performance, either in whole or in part, under the contract. The contracting office also shall coordinate with the SBA prior to processing any novation agreement. The contracting office may assign contract administration functions to a contract administration office.

(c) The Contractor agrees that--

(1) It will notify the Contracting Officer, simultaneous with its notification to the SBA (as required by SBA's 8(a) regulations at 13 CFR 124.308), when the owner or owners upon whom 8(a) eligibility is based plan to relinquish ownership or control of the concern. Consistent with Section 407 of Pub. L. 100-656, transfer of ownership or control shall result in termination of the contract for convenience, unless the SBA waives the requirement for termination prior to the actual relinquishing of ownership and control; and

(2) It will not subcontract the performance of any of the requirements of this contract without the prior written approval of the SBA and the Contracting Officer.

(End of Clause)

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;
- (4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and
- (5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

- (1) Large-scale drawings shall govern small-scale drawings; and
- (2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings . Note: No drawings.

Specification for Keesler Air Force Base MS, Project MAHG 01-2208, Requirements Replace/Repair Roofing, May 2001 (End of clause)

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAY 2002)

(a) Definitions. As used in this clause --

- (1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.
- (2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.
- (3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.
- (4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.
- (5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Maritime Administration, Office of Cargo Preference, U.S. Department of Transportation, 400 Seventh Street SW., Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information:

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(f) The Contractor shall provide with its final invoice under this contract a representation that to the best of its knowledge and belief--

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY
---------------------	------------------------	----------

TOTAL _____

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) In the award of subcontracts for the types of supplies described in paragraph (b)(2) of this clause, the Contractor shall flow down the requirements of this clause as follows:

(1) The Contractor shall insert the substance of this clause, including this paragraph (h), in subcontracts that exceed the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(2) The Contractor shall insert the substance of paragraphs (a) through (e) of this clause, and this paragraph (h), in subcontracts that are at or below the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor --

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause; including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

SPECIFICATION
FOR
KEESLER AIR FORCE BASE, MS
PROJECT: MAHG 01-2208
REQUIREMENTS
REPLACE/REPAIR ROOFING

MAY 2001

BY
KEESLER AIR FORCE BASE
CIVIL ENGINEER

For Government Use Only

PROJECT: MAHG XX-XXXX
INDEFINITE DELIVER QUANTITY
REPLACE/REPAIR ROOFING

I-N-D-E-X

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SECTION I

STATEMENT OF WORK

1.01 SCOPE: The work performed under this contract shall consist of providing all plant, labor, transportation, materials, equipment, and the performance of all work necessary to repair built-up roofs, sheet metal roofs, fiberglass shingle roofs and flashing, and install complete new roofing of various types as required on various buildings or structures and incidental related work located on Keesler Air Force Base, Mississippi. All work shall be performed in strict accordance with the specifications and subject to the terms and conditions of the contract.

1.02 GENERAL:

A. Material Delivery: The Contractor shall have all materials for his work delivered during normal working hours or he shall have a representative present to receive shipments which arrive after normal working hours. Materials shall be stored in locations indicated by the Contracting Officer.

B. Working Conditions:

(1) The unit will be occupied throughout the duration of this contract. Work shall be performed in such a manner as to cause minimum disruption to the regular routine of the adjacent areas.

(2) Normal base working hours follow the Compressed Work Schedule. For the purposes of this contract, the normal base working hours are described in the table below. The two week cycle is repetitious with the non-work Friday coinciding with the normal Federal civilian payday.

Sunday -	non-work day	Sunday -	non-work day
Monday -	7:00 am to 4:45 pm	Monday -	7:00 am to 4:45 pm
Tuesday -	7:00 am to 4:45 pm	Tuesday -	7:00 am to 4:45 pm
Wednesday -	7:00 am to 4:45 pm	Wednesday -	7:00 am to 4:45 pm
Thursday -	7:00 am to 4:45 pm	Thursday -	7:00 am to 4:45 pm
Friday -	non-work day	Friday -	7:00 am to 3:45 pm
Saturday -	non-work day	Saturday -	non-work day

The following are Federal Holidays:

New Year's Day	Martin Luther King, Jr.'s Birthday - Third Monday in January
President's Day - Third Monday in February	Memorial Day - Last Monday in May
Independence Day	Labor Day - First Monday in September
Columbus Day - Second Monday in October	Veterans Day
Thanksgiving Day	Christmas Day

No work shall be accomplished outside of normal base working hours, weekends or Federal holidays without prior written approval by the Contracting Officer at least ten days in advance of the unusual hours.

(3) Care shall be taken to minimize the spread of dust and flying particles. At all times during the course of construction, the premises shall be kept free from accumulations of waste materials or debris.

C. Protection of Existing Facilities: Adequate precautions shall be taken by the Contractor to protect existing facilities from damage resulting from work on this contract. Damage to existing facilities resulting from work on this contract shall be satisfactorily repaired, replaced, and left in their original state by the Contractor at no additional cost to the Government. The Contractor shall be responsible for restoring to its original condition all property affected by work on this contract.

D. Interruption of Existing Utilities Services: The Contractor shall perform the work under this contract with a minimum of outage time for all utilities. In some cases, the Contractor may be required to perform the work while the existing utility is in service. The existing utilities services may be interrupted only when approved by the Contracting Officer in writing at least seven (7) days in advance of the time he desires the existing service to be interrupted.

E. Clean Up:

(1) The Contractor shall be responsible for:

(a) Removal of all dunnage, refuse and debris from site resulting from their operations. This shall be done at the close of each work day. Contractor shall protect area not under restoration from the spread of any dirt, dust, or other debris caused by the work in the contract.

(b) Cleaning droppings, etc., from finished work.

(2) The Contractor shall at the close of each day of work, execute cleaning work, so no hazards are left in the general construction area.

F. Recycled Materials: The Contractor shall comply with Executive Order 12873, Federal Acquisition, Recycling and Waste Prevention and the Environmental Protection Agency's Comprehensive Procurement Guide (CPG), as published in the Federal Register on May 1, 1995. This means that if there is a product called for in the performance of this contract for which a product on the market with recycled content exists, then the contractor shall furnish the recycled product, so long as it meets the quality standards in the specifications at a reasonable price (i.e. if the cost of the recycled-content product exceeds the cost of a non-recycled item then it is considered unreasonable). The contractor will identify recycled products approved for use to the Contracting Officer once the submittals have been approved and will comply with the reporting procedures at Contract Clause I-296C.

1.03 TEMPORARY SANITATION: The contractor will be responsible for providing sanitation facilities to his employees. All portable sanitation units used during execution of this contract shall be supplied by the Contractor. This includes maintenance, transportation to and from job site, secure placement of unit as not to obstruct normal public activity, and unit clean-out as needed. The facility location(s) shall be as approved by the Contracting Officer.

1.04 UTILITIES: All reasonable amounts of electricity and water required for the completion of this project will be furnished to the Contractor without charge from existing system outlets and supplies. If electricity is not available on the site, the Contractor shall provide and install a temporary service pole. The government will provide power to the pole and it shall be the Contractor's responsibility to provide the lines from the pole to a convenient location on the site. If water is not available on the site, it shall be the Contractor's responsibility to connect into an existing line and provide a carrying system to the site. All connection locations, methods, and material shall be at the direction of the Contracting Officer. The Contractor shall be further responsible for the removal of any temporary utility system upon contract completion. The government will provide disconnection service from the pole.

1.05 HAZARDOUS MATERIALS: Hazardous materials are required for this contract. Among these are bituminous products, adhesives, thinners, sealers, and solvents. Because of the general nature of requirements, other similar materials may be encountered by the contractor. Because of the potentially dangerous nature of these materials, the Contractor shall take adequate precautions to protect personnel and property from injury or damage from these and all other hazardous materials used on this contract.

1.06 SUBMITTALS: Within 10 days after award and before starting material installation, the Contractor shall submit to the Contracting Officer for approval submittals as specified in each section.

1.07 COORDINATION WITH OTHER ACTIVITIES: Coordination of all activities shall be performed by the Government at no additional cost to the Contractor, provided that the contractor has properly submitted his schedule.

1.08 SAFETY: The Contractor shall observe all security and fire regulations as presently enforced at Keesler AFB.

1.09 PROTECTION OF PERSONS AND PROPERTY: Adequate protection of all persons shall be provided at all times. All construction equipment shall have back-up beepers to warn anyone in the construction areas that a vehicle is in the process of backing.

1.10 DEBRIS: All debris generated as a result of work on this project shall become the property of the Contractor unless specifically exempt in the specifications and/or drawings, and shall be disposed of by the Contractor outside the limits of Keesler AFB. It shall be the Contractor's responsibility to dispose of said debris in a manner meeting the minimum requirements of federal, state, and local regulations with respect to environmental protection.

1.11 SPECIFICATIONS: All accessories or incidental items not specifically shown and detailed in the specifications herein, which are necessary and/or required to complete the work within the intent of the specifications, shall be included by the Contractor without additional cost to the Government.

1.12 WORK CONDITIONS: Adequate precautions shall be taken by the contractor to protect existing underground utilities, and adjacent structures, pavements and walks from damage resulting from work on this contract. Damage to existing utilities or adjacent structures, pavements, and walks resulting from work on this contract, shall be satisfactorily repaired by the contractor at no additional cost to the Government, provided the approximate location has been made know to the contractor prior to construction.

1.13 MAINTENANCE OF TRAFFIC: Streets are in use, and the Contractor shall coordinate his work schedule with the Contracting Officer and Security Police prior to commencing work so that interference with traffic will be held to a minimum during accomplishment of the contract. The Contractor shall be responsible for erecting and dismantling barricades, flashing lights, and other traffic control equipment necessary for the proper control of traffic. The Contractor shall notify the Contracting Officer prior to blocking any street or section of street. Streets shall not be blocked until approved by the Contracting Officer. All signs and barricades shall conform to the "Manual of Uniform Traffic Control Devices for Streets and Highways", 1971 Edition.

1.14 MEASUREMENT AND PAYMENT: Quantities for payment shall be measured and paid using the specified unit of measurement at the correct unit price as shown on the Bid Schedule

1.15 CONTINUED USE OF FACILITIES: The buildings involved in this project will be occupied during the work. Work shall be performed in an orderly manner with minimum disturbance and inconvenience to the occupants. The contractor shall confine and limit his personnel to only those areas required to perform the work. The buildings, occupants, and occupant's belongings shall be protected from damage.

1.16 PROTECTION OF PROPERTY: Should rain occur during the performance of this contract, the contractor shall take proper cognizance of the fact that he is responsible for any damage to the building and the building contents due to water and/or wind because of failure on the part of the contractor to afford protection to prevent such damage. Building and building contents damaged by weather as a result of contractor's lack of protection shall be replaced at no additional cost to the Government. This precaution is supplemental to the statements of similar nature in the contract clause of the contract. The contractor shall at a minimum comply with the following:

a. No roofing shall be removed and no new roofing shall be installed while there is precipitation in any form.

b. The contractor shall have on hand at the job site, waterproof tarpaulins, rope and sandbags of a size, type and quantity sufficient to provide adequate protection from water and wind damage.

c. The contractor shall supply, to the Contracting Officer, a telephone number or numbers where responsible parties may be reached during emergencies outside of regular working hours or anytime the contractor does not have a responsible representative on the job. Compliance with these provisions does not, in any way, relieve the Contractor of responsibility outlined in subparagraphs above.

1.17 NOTIFICATION: The contractor shall submit to the Contracting Officer in writing, his proposed work plan. In addition the contractor shall notify the Contracting Officer in writing a minimum of three days in advance of when work will start.

1.18 STORM PROTECTION: Should warnings of wind of gale force or stronger be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work, and to adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and equipment from exposed locations, and removing or securing scaffolding and other temporary work.

*** * *END OF SECTION* * ***

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the test by basic designation only.

A. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC):

AITC-01 (1985) Timber Construction Manual

B. AMERICAN PLYWOOD ASSOCIATION (APA):

APA-01 (1979; Rev. Sep. 1987) Design/Construction Guide, Residential and Commercial

APA-PRP-108 (Jun. 1988) Performance Standards and Policies for Structural-Use Panels

C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

D 2103-86 (7 Aug 1987) Standard Specification for Polyethylene Film and Sheeting

D. AMERICAN WOOD PRESERVERS' ASSOCIATION (A WP A):

AWPA C2 (1987) Lumber, Timbers, Bridge Ties and Mine Ties--Preservative Treatment by Pressure Processes

AWPA M4 (1984) The Care of Preservative-Treated Wood Products

G. FEDERAL SPECIFICATIONS (FS):

FS FF-N-105 (23 Aug 1977) (Rev. B; Am. 3; Int. Am. 4) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought

FS UU-B-790 (22 Sep 1976) (Rev. A: Int. Am. 1) Building Paper, Vegetable Fiber: Kraft, Waterproofed, Water Repellent and Fire Resistant

H. NATIONAL FOREST PRODUCTS ASSOCIATIONS (NFOPA):

NFOPA-01 (1986) National Design Specification for Wood Construction and Supplement - Design Values for Wood Construction

NFOPA-02 (1988) Manual for Wood Frame Construction

I. NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA):

NHLA-01 (Jan. 1982) Rules for the Measurement and Inspection of Hardwood and Cypress Lumber

J. NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION, INC. (NELMA):

NELMA-01 (1986) Standard Grading Rules for Northeastern Lumber

K. REDWOOD INSPECTION SERVICE (RIS):

RIS-02 (Jan. 1987) Standard Specifications for Grades of California Redwood Lumber

L. SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION (SCMA):

SCMA-01 (1986) Standard Specifications for Grades of Southern Cypress

M. SOUTHERN PINE INSPECTION BUREAU (SPIB):

SPIB-01 (1977; Incl. Supplements 1 thru 12) Grading Rules

O. US DEPARTMENT OF COMMERCE, NATIONAL BUREAU OF STANDARDS (NBS), PRODUCT STANDARD:

NBS PS 1 (1983) Construction and Industrial Plywood

P. WESTERN WOOD PRODUCTS ASSOCIATION (WWPA):

WWPA-01 (1970; Rev. 1988) Western Lumber Grading Rules

Q. WEST COAST LUMBER INSPECTION BUREAU (WCLB):

WCLB No.16 (1988) Standard Grading and Dressing Rules for Douglas Fir, Western Hemlock, Western Red Cedar, White Fir, Sitka Spruce Lumber

1.3 SUBMITTALS:

Certificates of Compliance:

Manufacturer's certificates attesting that lumber and material not normally grade-marked or exempt from being grade-marked meets the specified requirements are required. Certificate shall be submitted to and be approved by the Contracting Officer. The acceptance of label or marking shall in no way jeopardize the governments right to have lumber graded by an independent inspector when determined necessary to assure compliance.

1.4 DELIVERY AND STORAGE: Materials shall be delivered to the site in undamaged condition, stored off ground in fully covered, well ventilated areas, and protected from extreme changes in temperature and humidity.

PART 2 - PRODUCTS

2.1 LUMBER AND SHEATHING:

2.1.1 Grading and Marking: Materials shall bear the grade, mark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade species used. Except for structural laminated members, plywood, and lumber; bundle marking will be permitted in lieu of marking each individual piece. Surfaces that are to be architecturally exposed to view shall not bear grade-marks, stamps, or other types of identifying marks.

2.1.2 Sizes: Lumber and material sizes shall conform to requirements of the rules or standards under which produced. Unless otherwise specified, lumber shall be surfaced on four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

2.1.3 Moisture Content: At the time lumber and other materials are delivered and when installed in the work their moisture content shall be as follows:

a. Treated and Untreated Lumber, Except Roof Planking:

4 inches or less, nominal thickness	19 percent maximum
5 inches or more, nominal thickness	23 percent maximum

b. Roof Planking: 15 percent maximum

c. Materials Other Than Lumber: In accordance with standard under which product is produced.

2.1.5 Sheathing: Wall and roof deck sheathing shall be plywood or wood and shall be as follows:

2.1.5.1 Plywood: Plywood shall conform to NBS PS 1, Grade C-D with exterior glue. Sheathing for roof and walls without corner bracing of framing shall have a span rating of 16/0 or greater for supports 16 inches on center and a span rating of 24/0 or greater for supports 24 inches on center. Minimum thickness shall 1/2-inch or match existing, which ever is greater.

2.1.5.2 Wood: Species and grade shall be in accordance with TABLE I at the end of this section; center-matched, shipplapped, or square edge. Wall sheathing shall be one-inch thick for supports 16 or 24 inches on center without corner bracing of framing provided sheathing is applied diagonally. Roof sheathing shall be one-inch thick for supports 16 or 24 inches on center.

2.2 PRESERVATIVE TREATMENT: Lumber not over five inches thick and plywood when specified to be painted or used in roofing systems, AWPAC2 for water borne preservatives; and AWPAC2 for all other above ground use. Except as otherwise specified, lumber over five inches thick shall be pressure preservative treated in accordance with AWPAC2. Wood and properly seasoned for use in building construction. Wood treated with water-borne preservatives shall be air-dried or kiln-dried to the moisture content specified for lumber and marked with the word "Dry". Creosote or coal-tar solutions shall not be used. Surfaces of lumber that will be exposed shall not be incised. Oil-borne preservative shall not be used on lumber and woodwork to be in contact with plaster or gypsum board. Preservatives containing

water repellents shall not be used on wood to be painted. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M4. Items of all-heart material of cedar, cypress, or redwood will not require preservative treatment, except when in direct contact with soil. Unless otherwise specified for all-heart material of the previous mentioned species, the following items will always be treated:

-All wood members used in built-up roofing systems.

-All wood members set into concrete regardless of location, including flush-with-deck wood nailers for roofs.

-Nailing strips or nailers used in conjunction with roof systems.

2.3 ACCESSORIES AND NAILS: Accessories and nails shall conform to the following:

2.3.1 Bolts: Lag, Toggle, and Miscellaneous Bolts and Screws: Type, size, and finish best suited for intended use.

2.3.2 Joist Hangers: Steel or iron, zinc-coated, size to fit members where used, sufficient strength to develop the full strength of supported member, complete with any special nails required.

2.3.3 Nails and Staples: FS FF-N-105, size and type best suited for purpose. For sheathing and sub-flooring, length of nails shall be sufficient to extend one- inch into supports. In general, 8-penny or larger nails shall be used for nailing through one-inch thick lumber and for toe nailing two-inch thick lumber; 16-penny or larger nails shall be used for nailing through two-inch thick lumber. Nails used with treated lumber and sheathing shall be galvanized.

2.4 VAPOR RETARDER: Vapor retarder shall be building paper conforming to FS UU-B- 790, Type I, Grade D, style optional; asphalt-saturated felt conforming to ASTM D 2103, four-mil thick.

PART 3 - EXECUTION

3.1 INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS

3.1.1 General: Members shall be closely fitted, accurately set to required lines and levels, and rigidly secured in place. Nailing shall be in accordance with the recommended Nailing Schedule as contained in NFOPA-02. Where detailed nailing requirements are not specified, nail size and nail spacing shall be sufficient to develop an adequate strength for the connection without splitting the members. Installation of timber connections shall conform to applicable requirements of NFOPA-01. Members shall be framed for passage of ducts and pipes shall be cut, notched, or bored in accordance with applicable requirements of NFOPA-02. Rafters, purlins, and joists shall be set with crown edge up. Framing shall be kept at least two inches away from chimneys and four inches away from fireplace backwalls.

3.1.2 Roof Framing or Rafters: Tops of supports or rafters shall form a true plane. Valley, ridge, and hip members shall be of depth equal to cut on rafters where practicable, but in no case less than depth of rafters. Valleys, hips, and ridges shall be straight and true intersections of roof planes. Necessary crickets and watersheds shall be formed. Rafters, except hip and valley rafters, shall be (spiked to wall plate and to ceiling joists with no less than three 8-penny nails) bolted by angles. Rafters shall be toenailed to ridge; valley, or hip members with at least three 8-penny nails. Rafters shall be braced to prevent movement until permanent bracing, decking or sheathing is installed. Hip and valley rafters shall

be secured to wall plates by clip angles. Openings in roof shall be framed with headers and trimmers. Unless otherwise indicated, headers carrying more than two rafters and trimmers supporting headers carrying more than one rafter shall be double. Hip rafters longer than the available lumber shall be butt jointed and scabbed. Valley rafters longer than the available lumber shall be double, with pieces lapped not less than four feet and well spiked together.

3.1.3 Furring Strips: Furring strips shall be provided at the locations shown. Furring strips shall be installed at 16 inches on center unless otherwise shown, run in lengths as long as practicable, butt jointed and rigidly secured in place.

3.1.4 Rough Bucks and Frames: Rough bucks shall be set straight, true, and plumb, and secured with anchors near top and bottom of each wood member and at intermediate intervals of not more than three feet. Anchors for concrete shall be expansion bolts, and anchors for masonry shall be 3/16-inch by 1-1/4 inch steel straps extending not less than eight inches into the masonry and turned down two inches into the masonry.

3.1.5 Bridging: Wood bridging shall have ends accurately bevel-cut to afford firm contact and shall be nailed at each end with two nails. Metal bridging shall be installed as recommended by the manufacturer. The lower ends of bridging shall be driven up tight and secured after sub flooring or roof sheathing has been laid and partition framing installed.

3.1.6 Blocking: Blocking shall be provided as necessary for application of siding, sheathing, sub flooring, wallboard, and other materials or building items, and to provide fire stopping. Blocking shall be cut to fit between framing members and rigidly nailed thereto.

3.2 INSTALLATION OF SHEATHING:

3.2.1 Plywood and Structural-Use Panels: Sheathing shall be applied with edges 1/8-inch apart at side and end joints, and nailed at supported edges at six inches on center and at intermediate supports 12 inches on center. Nailing of edges shall be 3/8-inch from the edges. Wall sheathing shall extend over top and bottom plates, and if applied horizontally the vertical joints shall be made over supports and staggered. Wall sheathing over which wood shingles are to be applied shall be applied horizontally. Roof sheathing shall be applied with long dimension at right angles to supports, end joints made over supports, and end joints staggered.

3.2.2

TABLE I. SPECIES AND GRADE

Sub-flooring, Roof Sheathing, Wall Sheathing, Furring

<u>Grading Rules</u>	<u>Species</u>	<u>Standard</u>	<u>Cons. Comm</u>	<u>No.2 Board</u>	<u>No.2 Comm</u>	<u>No.3 Comm</u>
NHLA-01	Cypress				X	
NELMA-01	Northern White Cedar					X
	Eastern White Pine	X				
	Northern Pine	X				
	Balsam Fir					X
	Eastern Hemlock					X
	Tamarack	--	--	--	--	--
RIS-02	Redwood		X			
SCMA-01	Cypress				X	
SPIB-01	Southern Pine			X		
WCLB No.16	Douglas Fir-Larch	X				
	Hem-Fir	X				
	Sitka Spruce	X				
	Mountain Hemlock	X				
	Western Cedar	X				
WWPA-01	Douglas Fir-Larch	X				
	Hem-Fir	X				
	Idaho White Pine	X				
	Lodgepole Pine				X	
	Ponderosa Pine				X	
	Sugar Pine				X	
	Englemann Spruce				X	
	Douglas Fir Spruce				X	
	Mountain Hemlock				X	
	Subalpine Fir				X	
	Western Cedar				X	

TABLE II. SPECIES AND GRADE

<u>Grading Rules</u>	<u>Species</u>	<u>No. 1</u>	<u>No. 2</u>
NHLA-01	Red Oak	X	
NELMA-01	Northern Pine		X
	Eastern Hemlock- Tamarack		X
SPIB-01	Southern Pine	X	
WCLB No. 16	Douglas Fir-Larch		X
	Hem-Fir		X
WWPA-01	Douglas Fir-Larch		X
	Hem-Fir		X
	Douglas Fir-South		X

*****END OF SECTION*****

SECTION 07220A

ROOF INSULATION

PART 1 - GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A208.1 (1989) Wood Particleboard

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 208 (1972; R 1982) Insulating Board (Cellulose Fiber). Structural and Decorative

ASTM C 552 (1988) Cellular Glass Thermal Insulation

ASTM C 578 (1987; Rev. a) Preformed. Cellular Polystyrene Thermal Insulation

ASTM C 726 (1981) Mineral Fiber and Mineral Fiber. Rigid Cellular Polyurethane Composite Roof Insulation Board

ASTM C 728 (1982) Perlite Thermal Insulation Board

ASTM D 41 (1985) Asphalt Primer Used in Roofing. Damp-proofing, and Waterproofing

ASTM D 226 (1989) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing

ASTM D 312 (1989) Asphalt Used in Roofing

ASTM D 2178 (1988; Rev. a) Asphalt Glass Felt Used in Roofing and Waterproofing

ASTM D 2822 (1975; R 1988) Asphalt Roof Cement

ASTM D 3672 (1986) Venting Asphalt-Saturated and Coated Inorganic Felt Base Sheet Used in Roofing

FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM)

FM-01 (1989~ Supplies. I and II) Approval Guide: A Guide to Equipment Materials and Services Approved by Factory Material Research for Property Conservation

FEDERAL SPECIFICATIONS (FS)

FS HH-I-1972/GEN. (7 Feb 91) (V Notice 1) Insulation Board. Thermal, Faced Polyurethane or Polyisocyanurate

FS HH-I-1972/2 (7 Feb 91) (V Notice I) Insulation Board. Thermal, Polyurethane or Polyisocyanurate Faced with Asphalt/Organic Felt, Asphalt/ Asbestos Felt or Asphalt/Glass Fiber Felt on Both Sides of the Foam

FS HH-I-1972/3 (7 Feb 91) (V Notice I) Insulation Board. Thermal, Polyurethane or Polyisocyanurate Faced with Perlite Insulation Board on One Side and Asphalt/Organic Felt or Asphalt/Glass Fiber Felt on the Other Side of the Foam

UNDERWRITERS LABORATORY (UL)

UL-01 (1989) Building Materials Directory

1.3 SUBMITTALS: The following shall be submitted:

SD-44, Manufacturer's Instructions

Insulation manufacturer's recommendations shall be submitted for the installation of insulation

1.3.1 Certified Test Reports: Before delivery of materials and equipment, certified copies of the reports of all tests specified herein shall be submitted and approved. Test reports shall be accompanied by certificates from the manufacturer certifying that the tested material and equipment is of the same type, quality, manufacture, and make as that proposed to be supplied.

1.3.1.1 Test Reports: Required for the following:

Fire Hazard: Test reports indicating compliance with the fire hazard requirements of Factory Mutual Engineering Corporation Class I roof deck assembly, or other proof of equivalent fire classification as specified under MATERIALS in paragraph "Fire Classification."

1.3.2 Data: Manufacturer's Certificate of Conformance and Catalog Data will be required for each type of insulation and other material proposed for use, and shall include printed application instructions, detailed fastening instructions, and other details, as appropriate.

1.3.3 Samples: One sample of insulation and insulation fastener shall be approved before materials are delivered to the work site. Insulation sample shall be no larger than 12 by 12 inches. Samples shall accompany other applicable documentation specified herein above.

1.4 STORAGE OF MATERIALS: Insulation base sheet, and felt shall be kept dry at all times, before, during, or after delivery to the site and if exposed to moisture, shall be permanently removed from the site. Felts shall be stacked on end one level high. Felt rolls shall be maintained at a temperature above 50 degrees Fahrenheit for 24 hours immediately before installing.

1.5 FIRE CLASSIFICATION: Insulation shall have been tested as part of a roof construction assembly of the type used in this project and the construction shall be listed as Fire-Classified in the UL-01 or Class I in FM-01, except for installation on poured concrete decks or pre-cast concrete roof deck panels.

1.6 ENVIRONMENTAL CONDITIONS: Air temperature shall be above 40 degrees Fahrenheit and there shall be no visible ice, frost, or moisture on the roof deck when the insulation and roofing are installed.

PART 2 - PRODUCTS

2.1 BITUMINOUS MATERIALS: Bituminous materials shall conform to the following requirements:

2.1.1 Asphalt Bitumen: ASTM D 312, Type III or IV

2.1.2 Asphalt Cement: ASTM D 2822, Type I

2.1.3 Asphalt Primer: ASTM D 41

2.2 INSULATION: Insulation shall be a standard product of the manufacturer and shall be factory marked with the manufacturer's name or trade mark, the material specification number, the R-value at 75 degrees Fahrenheit, and the thickness. Minimum thickness shall be as recommended by the manufacturer. Boards shall be marked individually. The thermal resistance of insulation shall be not less than the R-value shown on the drawings. Insulation shall be one of the following materials:

2.2.2 Composite Board Insulation: FS HH-I-1972/GEN or FS HH-I- 1972/3. Perlite, in composite board, may be replaced with ANSI A208 1 wood particleboard, 7/16-inch minimum thickness, provided that the composite board meets all physical requirements of FS-HH-I-1972/3.

2.2.3 Expanded-Perlite Insulation Board: ASTM C 728.

2.2.4 Fiberboard: ASTM C 208, roof-insulating board, treated with sizing, wax or bituminous impregnation. Bituminous impregnation shall be limited to four percent by weight when used over steel decks.

2.2.5 Polyisocyanurate: FS HH-I-1972/GEN or FS HH-I-1972/2, Class 1.

2.2.6 Mineral-Fiber Insulation Board: ASTM C 726.

2.2.9 Polystyrene: ASTM C 578, Type I, II, IV, or X.

2.3 NAILS AND FASTENERS: Nails and fasteners shall conform to insulation manufacturer's recommendations.

2.4 VENTING INORGANIC BASE SHEET: ASTM D 3672, Type II, Un-perforated, with spot mopping holes where specified.

2.5 GLASS ROOFING FELT: ASTM D 2178, Type IV

PART 3 - EXECUTION

3.1 INSTALLATION: Insulation shall be installed in accordance with recommendations of manufacturer or the National Roofing Contractor's Association.

3.2 INSULATION: The insulation shall be kept dry at all times. Insulation boards shall not be kicked into position. Exposed edges of the insulation shall be protected by cutoffs at the end of each workday or whenever precipitation is imminent. Cutoffs shall be two layers of bituminous-saturated felt set in plastic bituminous cement. Cutoffs shall be removed when work is resumed. Edges of insulation at open spaces between insulation and parapets or other walls and spaces at curbs, scuttles, and expansion joints, shall be protected until permanent roofing and flashing is applied. Storing, walking, wheeling, or trucking directly on insulation or on roofed surfaces will not be permitted. Smooth, clean board or plank walkways, runways, and platforms shall be used, as necessary to distribute weight.

3.3 INSULATION THICKNESS: Shall be as specified by the Contracting Officer except that for application over steel decks the insulation underlayment thickness shall satisfy both the specified thickness and the minimum thickness for rib coverage.

*** * *END OF SECTION* * ***

SECTION 7

ROOFING SHINGLES

7.01 APPLICABLE PUBLICATIONS: The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

A. Federal Specifications (Fed. Spec.):

FF-N-105B	27 Apr 87	Nails, Brads, Staples, and Spikes: Wire, Cut and Wrought
SS-C-153C	13 Dec 74	Cement, Bituminous, Plastic
SS-R-630D(2)	12 Nov 71	Roofing Felt (Roll, Asphalt-Prepared, Mineral Surfaced)
TT -P-19C(2)	7 Feb 85	Paint, Acrylic Emulsion: Exterior
TT -P-25E(2)	23 Jun 77	Primer Coating, Exterior Undercoat for Wood, Ready Mixed, White and Tints

B. American Society for Testing and Materials (ASTM) Specifications:

A 361-85	1994	Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process for Roofing and Siding
D 3018-90	1990	Class A Asphalt Shingles Surfaced with Mineral Granules
D 226-89	1989	Asphalt-Saturated Organic Felt used in Roofing and Waterproofing

7.02 DELIVERY AND STORAGE OF MATERIALS: Deliver the materials to building site in manufacturer's unopened bundles and containers with the manufacturer's brand and name marked clearly thereon. Keep materials dry, covered completely and protected from the weather.

7.03 SAMPLES AND DESCRIPTIVE DATA: Before delivery of any shingle roofing materials to building site, submit the following samples for approval.

- a. Asphalt Shingles: Two (2) samples of each type and color.
- b. Asphalt Saturated Felt: Width of roll by 12 inches; three pieces.
- c. Mineral-Surfaced Roll Roofing: Width of roll by 12 inches; three pieces.
- d. Nails and Fasteners: Three of each type and size.
- e. Plastic Bituminous Cement: One quart.
- f. Flashing, Gutter, Downspout, and Drip-Edge: Two samples 12 inches long of each indicating material properties and color.

7.04 ASPHALT SHINGLE ROOFING MATERIALS: Materials shall conform to the following specifications and requirements.

a. Mineral Surfaced Asphalt Strip Shingles: Shingles shall have a glass fiber mat base with a mineral granule surface and shall be normal weight, approximately 210 Lbs/square. They shall be in conformance with ASTM D 3018, Type I-Self Sealing and be finished with a white mineral surface. Provide square butt style shingles of uniform thickness, or thick butt type. Shingles shall be three-tab type, 12 by 36 inches, except for hips and ridges or as otherwise specified. All shingles shall be self-sealing type, with a factory applied adhesive for sealing. Shingles shall meet requirements for Class A Wind-Resistant Shingles; label of UL will be accepted as evidence of conformity to this requirement. In lieu of this label, a test report from a nationally recognized and adequately equipped laboratory, competent to perform such services, certifying that the shingles have been tested and the tested shingles conform to the standards of the UL, including the Standard for Wind Resistance of Prepared Roof Covering Materials, may be submitted. Colors of shingles will be selected by the Contracting Officer from contractor's submittals of manufacturer's standard colors.

b. Asphalt-Saturated Felt shall conform to ASTM D 226, No 15. It shall be cellulose fiber building paper, water repellent, breathable, and un-perforated.

c. Mineral-Surfaced Asphalt Roll Roofing shall conform to Fed. Spec. SS-R-630, Class 2. Color shall match the required shingles.

d. Nails for Applying Shingles and Asphalt-Saturated Felt: Nails for shingles shall be hot-dipped galvanized steel with sharp points and flat heads 3/8-inch to 7/16-inch in diameter. Steel nails shall be at least 0.105-inch and not more than 0.135 inch outside diameter. Nails for fastening asphalt-saturated felt shall conform to Fed. Spec. FF-N-105, Type II, Style 20. Length shall be sufficient to penetrate shingles, felts, and wood deck.

e. Plastic Bituminous Cement shall conform to Fed. Spec. SS-C-153, Type I (Asphalt Base). It shall be asphaltic-type with mineral fiber components, free of toxic solvents, and capable of setting within 24 hours at temperatures of approximately 75 degrees Fahrenheit and 50% relative humidity.

7.05 PREPARATION OF SURFACES: All existing roofing materials except metal drip shall be removed down to the plywood. Do not apply any roofing on decks that will prevent a satisfactory application. Damaged decking and deteriorated drip shall be replaced as directed by the Contracting Officer. Contractor shall ensure that roof surfaces are smooth, clean, firm, dry, and free from loose boards and knots, large cracks, roofing nails, and projected ends that might injure the roofing. Vents and other projections through roofs shall be properly flashed and secured in position, and projecting nails shall be driven firmly home. Roof jacks or abandoned stacks shall be removed below sheathing and these holes and any other cracks or knot holes shall be patched with #22-gauge galvanized steel.

7.06 FLASHING:

a. Form flashing to protect roof assembly and shed water. Form sections square, true, and accurate to profile, in maximum possible lengths, free from distortion and other defects detrimental to appearance or performance. Apply bituminous cement on concealed surfaces of flashing.

b. Weather Lap-joints a minimum of two inches and seal weather-tight with plastic cement. Secure in place with nails and conceal fastenings.

c. Flash and seal vents projecting through or mounted on roofing with plastic cement. Provide weather-tight installation at all perforations and flashing. Projecting vents shall have vent caps attached to the top to keep moisture out. The contractor shall replace these to match the dimensions and configurations of those that are existing to remain. The material shall be as specified in paragraph 7.04.f, and the vent caps shall be installed in a manner matching methods employed in adjacent, similar situations.

7.07 APPLICATION OF ASPHALT SHINGLE ROOFING ON SLOPES:

a. Apply one layer of asphalt saturated felt underlayment specified herein before over the roof deck. Felt shall be laid parallel to eaves, perpendicular to the slope. The first full course shall completely overlap the starter course and 17 inches of deck above it. Continue laying full width courses up the slope with ends and edges weather lapped a minimum of four inches. End laps of consecutive layer shall be staggered and felts shall be nailed sufficiently to deck to hold them in place until shingles are applied. Hips and ridges shall have a full course of underlayment centered over them. Weather lap and seal all items projecting through or mounted on the roofs with felts and plastic cement. Apply the metal edge flashing on the gable roof rake edges over the underlayment.

b. Apply shingle starter strips at the eaves; they shall consist of one full course of strip shingles laid with the cutout reversed, at the higher side. The starter strip shall be projected 3/4-inch beyond the projecting edge of the eave edge flashing to form a drip. Fasten the starter strip in place with one row of nails located 1-1/2 inches above the lower edge and spaced three inches on centers. The next course of shingles shall be laid directly on top of the starter course, flush with the drip edge, and extending 3/4-inch beyond the projecting edge of the metal edge flashing at the gable roof rake edges. Continue up the slope of the roof with additional courses, placing shingles in straight courses, properly aligned, centering cutouts on tabs of courses below them, with weather exposure to produce a double thickness over the entire roof area, nailing each shingle from the end adjoining the previously applied shingle and in accordance with nailing method previously specified. Provide a two-inch head-lap and after nailing, press each tab firmly in place into the factory-applied sealant over its entire area.

7.08 HIPS AND RIDGES: Form hips and ridges with 9-inch and 12-inch individual shingles, with 12-inch by 12-inch shingles cut from 12-inch by 36-inch strip shingles, or with 10-inch by 12-inch shingles cut from 10-inch by 36-inch strip shingles. Bend shingles lengthwise down the center with equal exposure on each side of hip or ridge. Lap shingles to provide not more than five-inch exposure from butt, and nail in unexposed area 5-1/2 inches from the butt and one-inch vertically from the edge. Reuse existing sheet metal valley flashing.

7.09 VALLEYS: Furnish and install for the full length of valley, a 36-inch wide strip of mineral surfaced asphalt roll roofing, of color to match and blend with the asphalt shingles being used. Center the strip in the valley and lay it with the granular strip exposed, over the underlayment specified herein before. Nail the strip at 18 inches on center and one-inch from each edge to hold it in place smoothly. As nailing along the second side proceeds, press the strip firmly into the valley. As shingles are applied, create a closed valley by lapping the courses on the intersection surfaces over one another in the valley. The end shingle from each surface shall project a minimum of 12 inches beyond the valley centerline onto the intersecting surface. When nailing shingles in this closed valley system, no nail may be driven within six inches of the valley centerline and an extra nail shall be driven at the extended end, halfway up the shingle.

7.10 GUTTERS, DOWNSPOUTS, AND DRIP-EDGE: Damaged, missing, or deteriorated gutters, downspouts, and drip-edges shall be replaced as directed by the Contracting Officer. That which is existing on eave edges and is not damaged or deteriorated may be reused if they conform to the material

specified herein. All end caps, joints, splice's, straps, hangers, elbows, and strainers shall be included with the gutters. All required metal gutters, downspouts, and accessories shall be aluminum 0.040 inches thick and shall match existing in size, shape and finish color; required drip edges shall be #24-gauge thick steel with a minimum of 1.25 oz/sq-ft galvanized coating; and all components shall match the existing cross-sectional configurations, and be approved by the Contracting Officer. Payment for gutters, downspouts, and drip-edges shall be made in accordance with the contract bid schedule. All loose gutters and downspouts shall be re-secured in a manner that is equal to the existing method and to the satisfaction of the Contracting Officer.

7.11 FASCIA, SUB-FASCIA, SOFFITS, DRIP-CAPS, AND TRIM: Damaged, missing, or deteriorated fascia, sub-fascia, soffits, drip-caps, and trim shall be replaced and painted to match the existing materials, dimensions, and configurations, and as directed by the Contracting Officer. Some of these materials are covered by gutters or other adjacent members, and some are not; both situations shall be repaired by the contractor. In addition to painting the new materials that he installs, the contractor shall paint any of these items that are existing to remain; that are, or become, exposed during the course of this contract; and that will remain exposed to the weather at the termination of this contract. He shall not be required to remove materials that are existing to remain for the sole purpose of painting behind them. Painting shall include one coat of primer to conform to TT-P-25 and two coats of oil base exterior paint to conform to TT-P-19. The color shall match the existing and be approved by the Contracting Officer. Payment for all of these required materials, their installation, and painting shall be made in accordance with the Contract Bid Schedule. A separate Bid Item exists for the painting of materials existing to remain. When calculating square footage, adjacent materials requiring paint shall be calculated as one surface, and any area narrower than 12 inches wide shall be calculated using a 12-inch width.

7.12 DECK AND RAFTERS: Damaged or deteriorated roof deck and miscellaneous wood members shall be replaced by the contractor to match the existing materials and methods of installation and as directed by the Contracting Officer. Some of the materials may be deteriorated but undetected until the existing shingles and underlayment are removed; the contractor shall replace these materials regardless of when they are discovered. Payment for decks and rafters shall be in accordance with the contract bid schedule.

*** * *END OF SECTION* * ***

SECTION 07415

METAL ROOFING AND SIDING FACTOR Y -COLOR-FINISHED

PART 1 - GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ALUMINUM ASSOCIATION (AA)

- AA-01 (Aug. 1980, 3rd Ed.) Aluminum Construction Manual Series - Section 5, Specifications for Aluminum Sheet Metal Works in Building Construction
- AA-02 (Dec. 1984, 8th Ed.) Aluminum Standards and Data
- AA-04 (Dec. 1986, 5th Ed.) Aluminum Construction Manual Series - Section 1, Specifications for Aluminum Structures

AMERICAN IRON AND STEEL INSTITUTE (AISI)

- AISI-01 (1987) Cold-Formed Steel Design Manual

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 446 (1989) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
- ASTM A 463 (1988) Steel Sheet, Cold-Rolled, Aluminum-Coated, Type I and Type 2
- ASTM A 792 (1989) Steel Sheet, Aluminum Zinc Alloy-Coated, by the Hot-Dip Process
- ASTM B 117 (1990) Salt Spray (Fog) Testing
- ASTM B 209 (1990) Aluminum and Aluminum Alloy Sheet and Plate
- ASTM C 518 (1985) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM D 659 (1988) Evaluating Degree of Chalking of Exterior Paints
- ASTM D 714 (1987) Evaluating Degree of Blistering of Paints
- ASTM D 968 (1981; R 1986) Abrasion Resistance of Organic Coatings by Falling Abrasive
- ASTM D 1654 (1979; Rev. a; R 1984) Evaluation of Painted or Coated Specimens Subjected to Corrosive Apparatus

ASTM D 1737	(1987) Elongation of Attached Organic Coatings with Cylindrical Mandrel Environments
ASTM D 2244	(1989) Calculation of Color Differences from Instrumentally Measured Color Coordinates
ASTM D 2247	(1987) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D 2794	(1990) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1990) Measuring Adhesion by Tape Test
ASTM E 1042	(1985) Acoustically Absorptive Materials Applied by Trowel or Spray
ASTM G 23	(1990) Operating Light -Exposure Apparatus (Carbon-Arc Type) with and without Water for Exposure of Nonmetallic Materials

FEDERAL SPECIFICATIONS (FS)

FS HH-I-558	(24 Aug 1976) (Rev B; Am. 3) Insulation, Blocks, Boards, Blankets, Felts, Sleeving (Pipe and Tube Covering), and Pipe Fitting Covering, Thermal (Mineral Fiber, Industrial Type)
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UNDER WRITERS LABORATORIES, INC. (UL)

UL 580	(May 17, 1988, 3rd Ed.) Uplift Resistance of Roof Assemblies
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1.3 DESIGN REQUIREMENTS

Each delivery order will indicate extent and general assembly details of the metal roofing and siding. Members and connections not indicated on the drawings shall be designed by the Contractor. All roofing and siding panels, components, transitions, and assemblies shall be the products of the same manufacturer. Roofing and siding shall be designed to provide the minimum section properties shown. Roof system shall comply with UL wind uplift Class 90 requirements as defined in UL 580. Steel covering shall be designed in accordance with AISI.01. Aluminum covering shall be designed in accordance with AA.01, AA.02, and AA.04.

1.4 SUBMITTALS

1.4.1 Detail Drawings: Detail drawings shall consist of catalog cuts, design and erection drawings, shop coating and finishing specifications, and other data as necessary to clearly describe design, materials, sizes, layouts, construction details, fasteners, and erection. Detail drawings shall be accompanied by engineering design calculations for the structural properties of roofing and siding units. Section modulus and moment of inertia of steel sheet shall be determined in accordance with AISI-01. Section modulus and moment of inertia of aluminum sheet shall be determined for actual cross section dimensions by the conventional methods for actual design stresses and by effective width concept for deflection in accordance with AA.04.

1.4.2 Samples: The following are required for approval:

a. Accessories: One sample of each type of flashing, trim, closures, caps and similar items. Size shall be sufficient to show construction and configuration.

b. Covering: Roof and Wall: One piece of each type to be used, nine inches long, full width, accompanied by certified laboratory test reports showing that the sheets to be furnished are produced under a continuing quality control program and that a representative sample has been tested and has met the quality standards specified for factory color finish in paragraph "ROOF AND WALL PANELS."

c. Fasteners: Two samples of each type to be used with statement regarding intended use.

d. Insulation: One piece of each type to be used, and descriptive data covering installation.

e. Gaskets and Insulating Compounds: Descriptive data.

f. Sealant: One sample, approximately one pound, and descriptive data.

g. Wall Liner: One piece, nine inches long, full width.

1.4.3 Certificates of Compliance: Certificates attesting that the panels and accessories furnished conform to the requirements specified are required. Certificate for the roof assembly furnished shall certify that the assembly complies with the material and fabrication requirements specified and is suitable for the installation at the indicated design slope. Certified laboratory test reports showing that the type of panels being delivered has been tested and conforms to applicable provisions specified herein are required.

1.5 DELIVERY AND STORAGE: Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weather-tight coverings and kept dry. Storage accommodations for roof and wall covering shall provide good air circulation and protection from surface staining.

PART 2 - PRODUCTS

2.1 ROOF AND WALL PANELS: Roof and wall panels shall be either steel or aluminum and shall have a factory color finish meeting the requirements specified below. Panels shall have configurations for overlapping adjacent sheets or interlocking ribs for securing adjacent sheets. System for securing the roof covering to structural framing members shall be as specified, fastening system with non-penetrating fasteners or exposed, penetrating fastener type. Concealed clip-fastened roof covering shall be mechanically field crimped standing seam type. Roof covering using concealed clip fastener system shall have no fasteners penetrating the panels except at the ridge, eave and end laps. The ridge shall not have exposed fasteners. Wall covering shall be fastened to framework using exposed fasteners as specified. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope or the entire height of any unbroken wall surface when such slope or height is 30 feet or less. When length of run exceeds 30 feet, each sheet in the run shall extend over two or more spans. Sheets longer than 30 feet may be furnished if approved by the Contracting Officer. Width of sheets with overlapping configurations shall provide not less than 18 inches of coverage in place; width of sheets with interlocking ribs shall provide no less than 12 inches of coverage in place. Height of all corrugations and standing ribs of interlocking panels for adjacent roof sheets shall be as specified. Design provisions shall be made for expansion and contraction at either ridge or eave, or both, consistent with the type of system to be used.

All sheets shall be either square cut or miter-cut except gable end wall sheets may be cut in the shop or field to correspond to the roof slope and may have a horizontal joint at the eave line.

2.1.1 Steel Panels: Steel panels shall be zinc-coated steel conforming to ASTM A 446, G 90 coating designation, aluminum-zinc alloy coated steel conforming to ASTM A 792, AZ 50 coating, or aluminum coating steel conforming to ASTM A 463, Type 2, coating designation T2 65. Roof and wall panels shall be 0.023-inch thick minimum.

2.1.2 Aluminum Panels: Aluminum panels shall be aluminum alloy conforming to ASTM B 209, temper as required for the forming operation, minimum 0.023-inch thick.

2.2 FACTORY COLOR FINISH: Roof and wall panels shall have a factory color finish on the exposed side. The exterior finish shall consist of either a synthetic resin base coating applied to a cleaned, pretreated and primed surface, or a dry film coating bonded by adhesive to a cleaned metal substrate. Color shall be as selected from the manufacturer's standard color. The dry film thickness of the exterior coating shall be not less than 0.8-mil, exclusive of the primer. The interior color finish shall, consist of a backer coat with a dry film thickness of 0.5-mil. The exterior color finish shall meet the test requirement specified below. The manufacturer shall have conducted tests on previously manufactured sheets of the same type and finish as proposed for the project. The term "appearance of base metal" refers to the metal coating on steel or the aluminum base metal.

2.2.1 Salt Spray Test: A sample of the sheets shall withstand a salt spray test for a minimum of 1000 hours in accordance with ASTM B 117, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of "10", no blistering, as determined by ASTM D 714; and rating of "7", 1/16-inch failure at scribe, as determined by ASTM D 1654.

2.2.2 Formability Test: When subjected to a 180-degree bend over a 3/8-inch or 3t mandrel, whichever is greater diameter, in accordance with ASTM D 1737 exterior coating film shall show no evidence of fracturing to the naked eye.

2.2.3 Accelerated Weathering, Chalking Resistance and Color Change: A sample of the sheets shall withstand a weathering test a minimum of 2000 hours in accordance with ASTM G 23 using a Type D apparatus, without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating that can be readily removed from the base metal with tape in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. After the 2000-hour weather-o-meter test, exterior coating shall not chalk greater than No. 8 rating in accordance with ASTM D 659 test procedures. After the 2000-hour weather-o-meter test, exterior coating color change shall not exceed two NBS units in accordance with ASTM D 2244.

2.2.4 Humidity Test: When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1500 hours, a scored panel shall show no signs of blistering, cracking, creepage, or corrosion.

2.2.5 Impact Resistance: Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 equal to 1.5 times metal thickness in mils, expressed in inch-pounds, with no loss of adhesion.

2.2.6 Abrasion Resistance Test: When subjected to the falling sand test in accordance with ASTM D 968 the coating system shall withstand a minimum of 100 liters of sand before the appearance of the base metal.

2.3 ACCESSORIES: Accessories shall be compatible with the covering furnished. Flashing, trim, molded closure strips, caps, and similar metal accessories shall be not less than the minimum thickness specified for covering. Exposed metal accessories shall have a factory color finish to match the panels furnished. Molded closure strips shall be closed cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride pre-molded to match configuration of the covering and shall not absorb or retain water. Thermal spacer blocks and other thermal barriers at concealed clip fasteners shall be as recommended by the manufacturer.

2.4 FASTENERS: Fasteners shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Aluminum or corrosion resisting steel fasteners shall be used only with aluminum sheets or aluminum zinc alloy coated sheets. Exposed fasteners shall be gasketed or have gasketed washers on the exterior side of the covering to waterproof the penetration. Washer material shall be compatible with the covering; have a minimum diameter of 3/8-inch for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 1/8-inch thick. Fasteners used for structural connectors may be the same fasteners used for holding laps, except that they shall provide both tensile and shear strength of not less than 750 pounds per fastener. Exposed wall fasteners shall be color finished or provided with plastic color caps to match the covering. Non-penetrating fastener system using concealed clips shall be manufacturer's standard for the system provided.

2.4.1 Screws: Screws shall be not less than No. 14 diameter if self-tapping type and not less than No. 12 diameter if self-drilling and self-tapping type.

2.4.2 Automatic End-Welded Studs: Automatic end-welded studs shall be shouldered type with a shank diameter of not less than 3/16-inch and cap or not for holding covering against the shoulder.

2.4.3 Rivets: Blind rivets shall be aluminum with 3/16-inch nominal diameter shank or stainless steel with 1/8-inch nominal diameter shank. Rivets shall be threaded steel type if used for other than the fastening of trim. Rivets with hollow stems shall have closed ends.

2.4.4 Bolts: Bolts shall be not less than 1/4-inch diameter, shouldered or plain shall as required, with proper nuts.

2.5 INSULATION: Thermal resistance of insulation shall be not less than the R-values specified per delivery order. R-values shall be determined at 75 degrees Fahrenheit in accordance with ASTM C 518. Insulation shall be a standard product of a manufacturer, factory-marked or identified with manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages.

2.5.1 Rigid or Semi-rigid Board Insulation: Rigid or semi-rigid board insulation shall conform to FS HH-I-558, Form A, Class 1 or Class 2. Exposed insulation shall have a white non-dusting and non-shedding finish.

2.5.2 Blanket Insulation: Blanket insulation FS HH-I.558, Form B, Type I, Class 6, faced.

2.6 INSULATION RETAINERS: Insulation retainers shall be type, size, and design necessary to hold the insulation adequately and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.7 SEALANT: Sealant shall be an electromeric-type containing no oil or asphalt. Exposed sealant shall cure to a rubber-like consistency. Concealed sealant may be the non-hardening type. Sealant for standing seam panels shall be factory applied and shall conform to the manufacturer's recommendations.

2.8 GASKETS AND INSULATING COMPOUNDS: Gaskets and insulating compounds shall be non-absorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be non-running after drying.

PART 3 - EXECUTION:

3.1 INSTALLATION: Installation shall be as specified and in accordance with the approved erection instructions and drawings. Finished structure shall be proven weather-tight. Dissimilar materials, which are not compatible when contacting each other, shall be insulated from each other by means of gaskets or insulating compounds. Improper or mis-located drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign materials. Stained, discolored, or damaged sheets shall be removed from the site.

3.1.1 Lap Type Panels with Exposed Fasteners: End laps shall be made over framing members with fasteners into framing members approximately two inches from the end of the overlapping sheet. Side laps shall be laid away from the prevailing winds. Side and end lap distances and fastening and spacing of fasteners shall be in accordance with TABLE I at the end of this paragraph. Side-laps and end-laps of roof and wall covering and joints at accessories shall be sealed. Fasteners shall be installed in valleys or crowns as recommended by the covering manufacturer. Fasteners shall be installed in straight lines within a tolerance on 1/2-inch in the length of a bay. Fasteners shall be driven normal to the surface and to a uniform depth to seat the gasketed washers properly.

TABLE I. SHEET LAP AND FASTENER SPACING

<u>Sheet Lap</u>	<u>Roofing</u>	<u>Siding</u>
Ends (inches)	(6) (9)	(4) (6)
Sides (corrugations)	(1-1/2) (2-1/2)	(1) (2)
<u>Fastener Spacing</u>		
Plain ends (inches o.c.)	8	8
Lapped ends (inches o.c.)	8	8
Lapped sides (inches o.c.)	12	12
Intermediate supports (inches o.c.)	8	8
Flashings (inches o.c.)	12	12

Lapping and fastener requirements listed in the table are based on standard corrugated sheets and providing protection against leakage. Sheets of configurations other than standard corrugated shall have laps and fastener spacing providing an equivalent installation.

3.1.2 Concealed Fastener Wall Panels: Panels shall be fastened to framing members with concealed fastening clips or other concealed devices standard with the manufacturer. Spacing of fastening clips and fasteners shall be in accordance with the manufacturer's written instructions insofar as the maximum fastener spacing specified are not exceeded and provided such standard practice will result in a structure which will be free from water leaks and meet design requirements. Spacing of fasteners and anchor clips along the panel interlocking ribs shall not exceed 12 inches on center except when otherwise approved. Fasteners shall not puncture covering sheets except as approved for flashing, closures, and trim; exposed fasteners shall be installed in straight lines. Interlocking ribs shall be sealed with factory-applied sealant. Joints at accessories shall be sealed.

3.1.3 Concealed Clip, Standing Seam Roof Panels: Roof and fascia panels shall be fastened to framing members with concealed fastening clips or other concealed devices standard with the manufacturer. Spacing of clips and fasteners shall be in accordance with the manufacturer's written instructions. End laps, when approved by the Contracting Officer, shall be made over framing members. Fasteners shall not puncture covering sheets except as approved for flashing, closures, and trim. Exposed fasteners shall be installed in straight lines. Interlocking ribs shall be sealed if standard with or recommended by the manufacturer. End laps of covering sheets and joints at accessories shall be sealed.

3.2 INSULATION INSTALLATION: Insulation shall be installed as indicated and in accordance with manufacturer's instructions. Joints shall be tight and sealed as required by the manufacturer. Final appearance of installed insulation shall be free of unsightly sags and wrinkles.

3.3 WALL LINER: Wall liner shall be installed where indicated and shall be securely fastened into place in accordance with the manufacturer's recommendation and in a manner to present a neat appearance.

*** * *END OF SECTION* * ***

SECTION 07511

BUILT-UP ROOFING REPAIR/REPLACEMENT

Part 1 - GENERAL

1.1. DESCRIPTION OF WORK: Furnish the administration, facilities, materials, labor, equipment, and quality control (QC) necessary to integrate the work into the total building system so that leakage into the Built-Up Roof System (BURS) or the building does not occur. The BURS is an assembly of components including the underlayment and insulation as applicable, and roofing membrane, final surfacing, bituminous and metal flashings, and all related parts necessary to complete the assembly. The BURS manufacturer is the roofing membrane manufacturer, who may or may not manufacture and market the other components of the BURS. Complete the work to assure that the BURS satisfies the quality control standards of the BURS manufacturer's 20-year warranted system. The BUR Manufacturer Contractor's Certification, (**Submittal # 1**), is a qualification for this contract. The contractor shall have the BURS manufacturer of the proposed roofing system execute **Submittal #1** prior to contract award. The submittal may be included in the bid proposal submitted to the Air Force. QC procedures, tolerances and testing are specified in these contract documents. Nonconforming work will be rejected as a violation to these specifications.

1.2. STORAGE OF MATERIALS: Roofing materials such as insulation, felts, roll roofing, and so forth, shall be stored under cover (building, van trailers or water proof canvas tarpaulin) to protect them from rain or snow. Materials must be stored on raised platforms or pallets. Vinyl or polyethylene sheets or insulation shipping wrappers are not suitable covering and material so stored will be marked, rejected and removed from the site. Materials shall remain on the original shipping pallets or placed on raised platforms to keep them off the ground or storage surface. All rolled goods shall be stored on pallets or raised platforms ON END and not laid flat on the storage surface. Damaged or "flattened" rolls will be rejected and removed from the job site. All cants and tapered edge strips shall be protected from the weather at all times. Packaged asphalt shall be stored in a protected area to prevent contamination during storage. Wet materials shall not be used. Surfacing aggregate shall be maintained as defined by ASTM D 1863. Make sure materials are covered by the night of delivery.

1.3. COORDINATION REQUIREMENTS: Roofing operations shall be coordinated with sheet metal work so that flashings are installed to permit continuous roof surfacing operations the same day felts are installed where practical. If gravel stops or perimeter flashings are not installed on the same day as roof completion, the roof membrane at perimeters shall be nailed with large-headed nail eight inches on-center to perimeter wood-nailers and sealed against water entry with glass fabric set in roofing cement. Roofing operations shall be coordinated with roof insulation work so that all insulation applied each day is waterproofed the same day with the complete roofing system. Graveling-in may be delayed for designated roof areas where specified.

1.4. MATERIALS: Materials to be installed shall conform to applicable ASTM standards as specified. Certificates of compliance may be required from each respective material manufacturer at the discretion of the contracting officer. Certification shall be provided for all bitumen, bulk or packaged, delivered to the construction site. All materials to be installed shall be delivered to the job site bearing product labels of their manufacturer.

1.5 SUBMITTALS: **Submittals #2 and #3** are included at the end of this specification. **Submittals #1 and Submittal #4** are to be the manufacturer's standard format. Additional submittal forms shall be obtained from the contracting officer if required. Submit requests for all changes (including resolution for variances) in writing. Do not proceed with any changes without written authorization of the

contracting officer. Approvals of submittals, which do not conform to the contract, shall not be construed as a change unless such nonconformance is a challenge specifically so indicated on the submittal and approved by the contracting officer. Specifier/Contracting Officer: Text for each required numbered submittal is located at the end of the specification; do not alter the text or format of these submittal. Some contractors cannot obtain these submittal and are therefore unacceptable. Bids that do not contain **Submittal #1** or where **Submittal #1** is not executed prior to award shall be considered non-responsive.

1.5.1. **Submittal #1:** Built-Up Roofing System Manufacturer's Certification (Submittal #1). Submittal #1 is a qualification for award of this contract. It must be submitted as part of the bid, or executed prior to contract award, and be accepted by the contracting officer.

1.5.2. **Submittal #2:** System Summary Sheet. It must be signed by both the perspective contractor and BUR manufacturer, and submitted to the contracting officer prior to contract award. This document is tailored to present BUR project requirements to the system manufacturer who can then ascertain the technical aspects of the project and the acceptability of tile design to their 20-year warranty system.

1.5.3. **Submittal #3:** Designation of Roofing Quality Control Controller. The most effective means to evaluate quality installation is by thorough, continuous visual examination at the time of installation, conducted by a person who is knowledgeable in roofing technology and good workmanship practices. The contractor shall designate a person to be in charge of roofing quality control. The quality controller shall have at least five years experience in the supervision and inspection of BUR construction and shall not be a Principal or officer of the roofing contractor's company. The Air Force inspector will audit the quality control process on a daily basis. (See Paragraph 3.11, CONTRACTOR QUALITY CONTROL), for specific quality control requirements. The contractor must furnish Submittal #3 as required herein, modified as necessary, to identify the person in charge of roofing quality control. The Contracting Officer must approve this submittal before the Notice To Proceed (NTP) is issued.

1.5.4 **Submittal #4:** Built-Up Roof System 20-Year Labor and Material Warranty/Guaranty. The manufacturer shall provide an executed copy of the 20-Year Warranty/Guaranty (Submittal #4) upon satisfactory completion of the roofing system. The warranty is to be provided to the contracting officer prior to final acceptance of the project.

1.5.5 **Materials Approval:** Within 10 days after award of contract, the contractor shall submit to the contracting officer, certifications from the insulation and fastener manufacturers/suppliers that the materials to be used conform to specified standards as applicable to produce the BURS manufacturer's 20-year warranted system.

1.5.6 **Manufacturer Publications:** Four (4) copies of the following must be submitted before start of roofing work:

1.5.6.1 Latest edition of each DURS manufacturer's published general requirements and applicable literature for each roofing system to be used on the buildings included in this contract.

1.5.6.2 Latest editions of all other applicable materials, manufacturer's products and installation literature.

1.5.7 **Contractor Reporting:** The following shall be submitted:

1.5.7.1 Quality Control Record (AF Form 1063). See paragraph 3.11 and Part Four. (Daily)

1.5.7.2 Suppliers certification for bitumen in hot bulk and truck-loads of aggregate. (As required)

1.5.8 End of Job Submittals: Before final acceptance the contractor shall submit:

1.5.8.1 A Plan view drawing of each roof showing location, size and date of each day's work; Location where each membrane sample was cut to include sample identification number, date sample was taken, and size of sample.

1.5.8.2 **Submittals #2 and #4**. The manufacturer shall provide the executed 20-Year BUR system warranty prior to final acceptance, along with an as-built system summary sheet.

1.6 APPLICATION REQUIREMENTS: Surfaces will be inspected and approved by the contracting officer or representative immediately prior to application of roofing and flashings; said inspection to be coordinated by the Contractor. The roofing or flashing shall be applied to a smooth and firm surface free of ice, frost, moisture, dirt, projections, and foreign materials. Application of roofing shall not be performed under damp or wet conditions or excessive wind conditions as determined by the contracting officer.

1.7 ROOF PROTECTION: When wheeled or other traffic over the partially or fully completed roofing is unavoidable, use adequate plank or plywood protection for the roofing. Mechanical application devices shall be mounted on pneumatic-tired wheels, and shall be designed and maintained to operate without damaging the insulation or the roofing membrane.

1.8 FIRE PROTECTION: Provide 15-pound minimum size fire extinguishers, using ammonium phosphate fire-fighting agent. Locate two at each kettle, tanker, and site of hot bitumen application on the roof.

1.9 DAILY CLEANUP: Remove all debris daily from the roof. Use enclosed chute, crane and bucket or construction hoist to reduce amount of dust, dirt, and noise.

1.10 ACCEPTANCE OF COMPLETED WORK: Acceptance of completed work will be based on its conformance to the contract. Nonconforming work will be rejected. The Air Force is not obligated to accept nonconforming work at a reduced price. The contractor shall start replacement or correction of rejected work within 10 calendar days after receipt of the rejection notice. A QC program not in compliance with Part Four is considered nonconforming work. Contractor receipt of a final acceptance certificate, signed and dated by the contracting officer, will constitute Air Force acceptance of roofing work.

1.11 OPERATIONAL PROCEDURES: Confine operations, movement of workmen and equipment, storage, materials and debris within limits as directed by the contracting officer. Do not load the deck or any part of the building structure or permit to be loaded with a weight which will cause excessive deflection or endanger safety or cause damage. Do not put kettles on the roof deck or roofing systems. Protect the building and surrounding area from damage or injury. The contractor must determine the nature of these operations and provide proper protection. Repair all damage caused by lack of such protection to the contracting officer's satisfaction. If repairs are not made, or if the contracting officer determines that repairs are beyond the contractor's ability, the Air Force will have the work done by others, and will charge the cost to the contractor.

Part 2 - PRODUCTS

2.1 MATERIALS: Materials shall conform to the following requirements or equivalent 20-year warranted system:

2.1.1 Applicable Over All Decks: for the indicated slopes:

2.1.1.1 Slopes 1/8-inch per foot and less: Aggregate-surfaced, with four plies of coal tar compatible fibrous glass felt with ASTM D 312 Type II asphalt.

2.1.1.2 Slopes 1/8-inch to 1/2-inch per foot:

2.1.1.2.1 Aggregate-surfaced, with four plies of asphalt-coated fibrous glass felts and asphalt, ASTM D 312 Type II or Type III.

2.1.1.2.2 Mineral-surfaced, with four Plies of asphalt-coated fibrous glass felts and an additional glass fiber cap sheet and asphalt, ASTM D 312 Type II or Type III.

2.1.1.3 Slopes 1/2-inch to 3 inches per foot: Same as 2.1.1.2 except use Type III or IV asphalt.

2.1.1.4 Slopes over 3 inches per foot.

2.1.1.4.1 Smooth (emulsion) surfaced, with four plies of asphalt impregnated glass felts and asphalt.

2.1.1.4.2 Mineral-surfaced with three plies of asphalt impregnated glass felts and a glass fiber-base cap sheet and asphalt.

2.1.2 Over Steel Decks:

2.1.2.1 Underlayment: None

2.1.2.2 Insulation: Two layers (minimum).

2.1.2.3 Insulation attachment:

2.1.2.3.1 First layer: Full mechanical fasteners as required by Factory Mutual Loss Prevention Data Bulletin 1-28, current edition, Windstorm Rating Class I-90.

2.1.2.3.2 Second layer or additional layers: Asphalt Type III or as recommended by manufacturer.

2.1.2.4 Membrane: 4-Ply roofing system.

2.1.3 Over Concrete Decks:

2.1.3.1 Underlayment: One ply of asphalt-coated fibrous glass felt or heavy-duty base sheet amended by the manufacturer.

2.1.3.2 Underlayment attachment: Asphalt or coal tar as recommended by manufacturer.

2.1.3.3 Insulation: Two layers (minimum).

2.1.3.4 Insulation attachment: Asphalt Type III or as recommended by manufacturer.

2.1.3.5 Membrane: 4-ply roofing system.

2.1.4 Over Gypsum Decks:

2.1.4.1 Underlayment: One ply asphalt-coated fibrous glass felt or heavy-duty base sheet as recommended by manufacturer.

2.1.4.2 Underlayment attachment: Mechanical fasteners.

2.1.4.3 Insulation: Two layers (minimum).

2.1.4.4 Insulation attachment: Asphalt Type III or as recommended by manufacturer.

2.1.4.5 Membrane: 4-ply roofing system.

2.1.5 Over Wood Decks:

2.1.5.1 Underlayment: Five-pound resin-sized sheathing paper overlaid with one ply of asphalt glass fiber felt or heavy duty fibrous glass base sheet as recommended by the manufacturer.

2.1.5.2 Underlayment attachment: Nails

2.1.5.3 Insulation: Two layers (minimum).

2.1.5.4 Insulation Attachment:

2.1.5.4.1 First Layer: Full mechanical fasteners as required by FM I-90.

2.1.5.4.2 Second Layer or Additional Layers: Asphalt Type III or as recommended by manufacturer.

2.1.5.5 Membrane: 4-ply roofing system.

2.2 BITUMEN

2.2.1 Primer: ASTM D 41 Asphalt Primer.

2.2.2 Asphalt: ASTM D 312 type as specified herein or as determined by the slope requirements of the BURS manufacturer.

2.3 FELTS, FABRICS, MATS AND WALKWAYS

2.3.1 ASTM D 1668 Treated Glass Fabric:

2.3.1.1 Type I, for asphalt systems.

2.3.1.2 Type II, for coal tar bitumen systems.

2.3.2 ASTM D 2178 Type IV or Type VI Asphalt Glass Felt used in roofing and waterproofing as recommended by the manufacturer.

2.3.3 ASTM D 4601 Type II Asphalt Coated Glass Fiber Base Sheet.

2.3.4 ASTM D 3909 Asphalt Roll Roofing (Glass Felts) surfaced with mineral granules.

2.3.5 Organic felts for envelopes and water cutoffs.

2.3.5.1 ASTM D 226 Asphalt-Saturated Organic Felt Type 2 (30-16)

2.3.5.2 ASTM D 227 Coal Tar-Saturated Organic Felt.

2.3.6 ASTM D 517 Asphalt Plank for Walkways.

2.3.7 Flashing: Base flashings to be standard product of the manufacturer. Modified Bitumen Flashing (APP or SBS modified) membranes may be used IAW manufactures' instructions.

2.4 CEMENTS

2.4.1 Asphalt Base Roofing Cement: ASTM D 2822 Asphalt Roof Cement, Type II.

2.4.2 Coal Tar Base Roofing Cement: ASTM D 4022 Coal Tar Roof Cement.

2.4.3 Flashing Cement: BURS manufacturer's standard.

2.4.4 Plastic Cement: Shall conform to FS SS-C-153 Type I Class A

2.5 INSULATION: Shall conform to requirements of SECTION 07220A ROOF INSULATION.

2.6 AGGREGATE: ASTM D 1863 Mineral Aggregate used on built-up roofs, graduation size 57 or 67.

2.7 CANT AND TAPERED EDGE STRIPS

2.7.1 ASTM C 208 Insulating Board (Cellulose Fiber), Structural and Decorative, ASTM C 726 Mineral Fiber and Mineral Fiber, Rigid Cellular Polyurethane Composite Roof Insulation Board, or as recommended by the BURS manufacturer.

2.7.2 Size:

2.7.2.1 Cants: 4-inch by 4-inch or as required by conditions. In high wind areas, install cants in compliance with FM I-90.

2.7.2.2 Tapered Edge Strips: 1-1/2 inch by 18 inches or as required by conditions.

2.8 FASTENERS

2.8.1 Nails: Nonferrous or galvanized steel

2.8.2 Bolts and Nuts: ASTM A 307 Carbon Steel Externally and Internally Threaded Standard Fasteners, hot-dip galvanized.