

| AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT | | | 1. CONTRACT ID CODE | PAGE OF PAGES | |
|---|----------------------------------|---|--|---|---|
| | | | J | 1 | 2 |
| 2. AMENDMENT/MODIFICATION NO. 0002 | 3. EFFECTIVE DATE 27-Nov-2002 | 4. REQUISITION/PURCHASE REQ. NO. W22W9K-2280-0982 | | 5. PROJECT NO.(If applicable) | |
| 6. ISSUED BY USA ENGINEER DISTRICT, LOUISVILLE ATTN: CELRL-CT 600 DR. MARTIN LUTHER KING PLACE ROOM 821 LOUISVILLE KY 40202 | CODE DACA27 | 7. ADMINISTERED BY (If other than item 6) CONTRACT ADMINISTRATION BRANCH ATTN: JENNIFER J. ANDERSON P. O. BOX 59 LOUISVILLE KY 40201-0059 | | CODE DACA27 | |
| 8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) | | | X | 9A. AMENDMENT OF SOLICITATION NO. DACA27-03-B-0001 | |
| | | | X | 9B. DATED (SEE ITEM 11) 10-Oct-2002 | |
| | | | | 10A. MOD. OF CONTRACT/ORDER NO. | |
| | | | | 10B. DATED (SEE ITEM 13) | |
| CODE | FACILITY CODE | | | | |
| 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS | | | | | |
| <input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified. | | | | | |
| 12. ACCOUNTING AND APPROPRIATION DATA (If required) | | | | | |
| 13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14. | | | | | |
| A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. | | | | | |
| B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B). | | | | | |
| C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: | | | | | |
| D. OTHER (Specify type of modification and authority) | | | | | |
| E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office. | | | | | |
| 14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Solicitation DACA27-03-B-0001, Battalion Dining Facility, Ft. McCoy, Wisconsin is hereby amended as follows: a. The number of construction days is increased from 365 calendar days to 455 calendar days (Spec. Section 00800, Section 1.1) b. Modification to the specifications and drawings are attached and made a part of this amendment. c. The bid opening date is changed to December 10, 2001, 2:30 pm (local time). d. ALL AMENDMENTS MUST BE ACKNOWLEDGED. | | | | | |
| Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect. | | | | | |
| 15A. NAME AND TITLE OF SIGNER (Type or print) | | | 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) | | |
| | | | TEL: _____ EMAIL: _____ | | |
| 15B. CONTRACTOR/OFFEROR | 15C. DATE SIGNED | 16B. UNITED STATES OF AMERICA | | 16C. DATE SIGNED | |
| _____ (Signature of person authorized to sign) | | BY _____ (Signature of Contracting Officer) | | 27-Nov-2002 | |

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

(End of Summary of Changes)

AMENDMENT # 2

BATTALION DINING FACILITY
Fort McCoy, Wisconsin
PN11065 IFB # DACA27-03-B-0001

The Contract Drawings and Specifications dated October 31, 2002 for the above stated project are modified as noted in this Amendment #2. This Amendment and all attachments included shall become a part of the Contract Documents the same as if originally incorporated therein.

A. MODIFICATIONS TO THE SPECIFICATIONS:

1. Table of Contents
 - a. Delete: Table of Contents in it's entirety
 - b. Add: New "Table of Contents" in it's entirety
2. Bid Form
 - a.Delete: "Bid Schedule" in it's entirety
 - b.Add: New "Bid Schedule" in it's entirety
3. Section 11400A - Food Service Equipment
 - a.Delete: Section 11400A in it's entirety
 - Add: New "Section 11400A- Food Service Equipment" in it's entirety.
 - b.Add- the new "Appendix to 11400A – Food Service Equipment" in it's entirety.
4. Section 08331A – Metal Rolling Counter Doors
 - a.Delete: Section 08331A in it's entirety.
 - b.Add: New "Section 08331A – Metal Rolling Counter Doors" in it's entirety.
5. Section 13110A – Cathodic Protection System (Sacrificial Anode)
 - a. Add: New "Section 13110A – Cathodic Protection System (Sacrificial Anode)" in it's entirety.
6. Section 02714 – Drainage Layer
 - a. Add: New "Section 02714 – Drainage Layer
7. Section 00800 – Special Contract Requirements
 - a. Section 00800, Paragraph 1.1, Completion time is changed from 365 days to 455 days.

B. MODIFICATIONS TO THE DRAWINGS:

1. Drawing Sheet A 3.2 – Building Sections
 - a. Delete: Sheet A3.2 in it's entirety

Add: Sheet A3.2 in it's entirety

2. Drawing Sheet EQ.1- Kitchen Equipment Plan
 - a. Delete: Sheet EQ.1 in it's entirety
 - Add: New sheet EQ.1 in it's entirety
3. Drawing Sheet EQ.2 – Kitchen Equipment Schedule
 - a. Delete: Sheet EQ.2 in it's entirety
 - Add: New sheet EQ.2 in it's entirety
4. Drawing Sheet EQ.3 – Equipment Plumbing Plan
 - a. Delete: Sheet EQ.3 in it's entirety
 - Add: New sheet EQ.3 in it's entirety
5. Drawing Sheet EQ.4 – Equipment Electric Plan
 - a. Delete: Sheet EQ.4 in it's entirety
 - Add: New sheet EQ.4 in it's entirety
6. Drawing Sheet EQ.5 – Washing Equipment Layout
 - b. Delete: Sheet EQ.5 in it's entirety
 - Add: New sheet EQ.5 in it's entirety
5. Drawing Sheet EQ.6 – Cooler/Freezer Details
 - c. Delete: Sheet EQ.6 in it's entirety
 - Add: New sheet EQ.6 in it's entirety

Site Visit Questions/Answers
15 Nov 02

1. Clarify asbestos and lead base paint requirements. *See Spec 2090.*
2. Who is local Electric Power supplier? *Excel Energy for power and gas*
3. What is the percentage of work required to be Hub-zone set requirement or goal?
See Spec 00700, Section 52.219-3
4. Can bid be extended? *Yes, new bid date is 10 Dec 02.*
5. Concerns about NTP being issued during mid-winter when actual construction cannot begin until mid April. *We will extend the number of construction days to account for this.*
6. What is the casting type for manhole structures?
Sanitary cover & frame – 02531A – Par. 2.5
Storm cover & frame – 02630A- Par. 2.3.7
Details – Sheet 2.2, Detail 10
7. What is the size of entrance pipe?
Pipes entering manholes – C1.5
Driveway entrances – C1.3 and C1.5
8. What is groundwater elevation at the site? *See Sheets X1.3 and X1.4*
9. Are faxed bids acceptable? *No*
10. Is there a hazardous material removal allowance in this contract? *No*
11. Verify that furniture is not part of this contract. *That is correct – furniture plans for information only.*

PROJECT TABLE OF CONTENTS

DIVISION 00 - CONTRACT REQUIREMENTS (TO BE PROVIDED BY LOUISVILLE DISTRICT)

00100 SOLICITATION, OFFER, AND AWARD
00100 BIDDING, SCHEDULE/INSTRUCTION TO BIDDERS
00600 REPRESENTATION & CERTIFICATIONS
00700 CONTRACT CLAUSES
00800 SPECIAL CONTRACT CLAUSES
00800 SPECIAL CONTRACT REQUIREMENTS (INCLUDED HERE)
WAGE RATES
SUBMITTAL REGISTER (FORM)
NOTICE OF INTENT - INDUSTRIAL STORMWATER DISCHARGE GENERAL PERMIT (STATE OF WISCONSIN) (INCLUDED HERE)
NOTIFICATION OF DEMOLITION AND/OR RENOVATION AND APPLICATION (STATE OF WISCONSIN) FORM 4500-IT3 REV 2-02 (INCLUDED HERE)

DIVISION 01 - GENERAL REQUIREMENTS

01040 AS-BUILT DRAWINGS
01200 WARRANTY OF CONSTRUCTION
01320a PROJECT SCHEDULE
01330 SUBMITTAL PROCEDURE
01355a ENVIRONMENTAL PROTECTION
01400 SPECIAL SAFETY REQUIREMENTS
01415 METRIC MEASUREMENTS
01420 SOURCES FOR REFERENCES PUBLICATIONS
01451a CONTRACT QUALITY CONTROL
01500a TEMPORARY CONSTRUCTION FACILITIES
01563 (WISCONSIN) NPDES PERMIT REQUIREMENTS FOR STORM WATER DISCHARGES FROM CONSTRUCTION SITES
01780a CLOSEOUT SUBMITTALS

DIVISION 02 - SITE WORK

02090 DEMOLITION OF BUILDINGS WITH LEAD CONTAINING PAINT
02220a DEMOLITION
02230a CLEARING AND GRUBBING
02300a EARTHWORK
02315a EXCAVATION, FILLING AND BACKFILLING FOR BUILDINGS
02316a EXCAVATION, TRENCHING AND BACKFILLING FOR UTILITIES SYSTEMS
02510a WATER DISTRIBUTION SYSTEM
02531a SANITARY SEWERS
02630a STORM-DRAINAGE SYSTEM
2 **02714 DRAINAGE LAYER**
02721a SUBBASE COURSES
02741a HOT-MIX ASPHALT (HMA) FOR ROADS
02754a CONCRETE PAVEMENTS FOR SMALL PROJECTS
02763a PAVEMENT MARKINGS
02770a CONCRETE SIDEWALKS AND CURBS
02821a FENCING
02921a SEEDING
02930a EXTERIOR PLANTING
02935a EXTERIOR PLANT MATERIAL MAINTENANCE
GEOTECHNICAL EXPLORATION REPORT

DIVISION 03 - CONCRETE

03100a STRUCTURAL CONCRETE FORMWORK
03101a FORMWORK FOR CONCRETE
03150a EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS
03200a CONCRETE REINFORCEMENT
03300 CAST-IN-PLACE STRUCTURAL CONCRETE

DIVISION 04 - MASONRY

04200a MASONRY

DIVISION 05 - METALS

05090a WELDING, STRUCTURAL
05120a STRUCTURAL STEEL
05210a STEEL JOISTS
05300a STEEL DECKING
05400a COLD-FORMED STEEL FRAMING
05500a MISCELLANEOUS METAL

DIVISION 06 - WOODS & PLASTICS

06100a ROUGH CARPENTRY
06200a FINISH CARPENTRY

DIVISION 07 - THERMAL & MOISTURE PROTECTION

07212N MINERAL FIBER BLANKET INSULATION
07214N BOARD AND BLOCK INSULATION
07220a ROOF INSULATION
07240 EXTERIOR INSULATION AND FINISH SYSTEMS
07412a NON-STRUCTURAL METAL ROOFING
07600a SHEET METALWORK, GENERAL
07840a FIRESTOPPING
07900a JOINT SEALING

DIVISION 08 - DOORS & WINDOWS

08110 STEEL DOORS AND FRAMES
08120 ALUMINUM DOORS AND FRAMES
08210 WOOD DOORS
08300 SPECIAL DOORS
2 **08331a METAL ROLLING COUNTER DOORS**
08520a ALUMINUM WINDOWS
08710 DOOR HARDWARE
08810a GLASS AND GLAZING

DIVISION 09 - FINISHES

09250 GYPSUM BOARD
09310a CERAMIC AND QUARRY TILE
09510a ACOUSTICAL CEILING
09546 LINEAR METAL CEILING
09900 PAINTS AND COATINGS
09915 COLOR SCHEDULE

DIVISION 10 - SPECIALTIES

10160a TOILET PARTITIONS
10260a WALL AND CORNER PROTECTION
10350R FLAGPOLE
10430a EXTERIOR SIGNAGE
10440a INTERIOR SIGNAGE
10508R METAL WARDROBE LOCKERS
10522R FIRE EXTINGUISHERS & CABINETS
10753R WALL-MOUNTED TELEPHONE ENCLOSURES
10800a TOILET ACCESSORIES

DIVISION 11 - EQUIPMENT

11165R DOCK BUMPERS
2 **11400a FOOD SERVICE EQUIPMENT**
2 **APPENDIX TO 11400a FOOD SERVICE EQUIPMENT**

DIVISION 12 - FURNISHINGS

12490a WINDOW TREATMENT
12670 RECESSED ENTRY MATS

DIVISION 13 - SPECIAL CONSTRUCTION

13100a LIGHTING PROTECTION SYSTEM
2 **13110a CATHODIC PROTECTION SYSTEM (SACRIFICIAL ANODE)**
13280a ASBESTOS ABATEMENT
13851a FIRE DETECTION AND ALARM SYSTEM, ADDRESSABLE
13930a WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION
13935a DRY PIPE SPRINKLER SYSTEM, FIRE PROTECTION
13965a WET CHEMICAL FIRE EXTINGUISHING SYSTEM

DIVISION 14 - CONVEYING SYSTEMS (NOT USED)

DIVISION 15 - MECHANICAL

15050N BASIC MECHANICAL MATERIALS AND METHODS
15070N MECHANICAL VIBRATION CONTROL
15080a THERMAL INSULATION FOR MECHANICAL SYSTEMS
15190a GAS PIPING SYSTEMS
15400a PLUMBING, GENERAL PURPOSE
15700a UNITARY HEATING AND COOLING EQUIPMENT
15720N AIR HANDLING UNITS
15895a AIR SUPPLY, DISTRIBUTION, VENTILATION AND EXHAUST SYSTEM
15950N HVAC TESTING/ADJUSTING/BALANCING
15951a DIRECT DIGITAL CONTROL FOR HVAC
15990a TESTING, ADJUSTING AND BALANCING OF HVAC SYSTEMS
15995a COMMISSIONING OF HVAC SYSTEMS

DIVISION 16 - ELECTRICAL

16415a ELECTRICAL WORK, INTERIOR
16528a EXTERIOR LIGHTING INCLUDING SECURITY AND CCTV APPLICATIONS
16710a PREMISES DISTRIBUTION SYSTEM
16711a TELEPHONE SYSTEM, OUTSIDE PLANT

-- End of Project Table of Contents --

BID FORM Amendment 2**PROJECT: Battalion Dining Facility****PROJECT NO. PN CAR 03-11065****LOCATION: Fort McCoy, Wisconsin****BASE BID**

| <u>ITEM NO.</u> | <u>DESCRIPTION</u> | <u>UNIT</u> | <u>AMOUNT</u> |
|----------------------------|--|--------------------|----------------------|
| 0001 | Construction of the Dining Facility <hr/> | lump sum | \$ _____ |
| 0002 | Site Work <hr/> | lump sum | \$ _____ |
| 0003 | Demolition (Bldgs. #2670 & 2671) <hr/> | lump sum | \$ _____ |
| 0004 | Kitchen Equipment & Shelving <hr/> | lump sum | \$ _____ |
| 0006 | WPDES Permit & Application <hr/> | lump sum | \$ <u>200.00</u> |
| TOTAL BASE BID | | | \$ _____ |

SECTION 01000

Description of Bid Items

- (1) The general outline of the principal features of each item as listed above does not in any way limit the responsibility of the bidder for making a thorough investigation of the drawings and the specifications to determine the scope of work including each item of the bidding form.

Description of the Base Bid items are supplemented as follows:

Item No. 0001 “Construction of the Dining Facility”, includes all work required, within the Building Limit Line 1.500 meters outside the Dining Facility building lines.

Item No. 0002 “Site Work”, includes all work required, between the 1.500 Building Limit Line and the Contract Limit Line.

Item No. 0003 “Demolition of Bldgs. #2670 & #2671”, includes all work required, as indicated on Drawing Sheet C1.2.

Item No. 0004 “Kitchen Equipment & Shelving”, includes all work required to furnish and install items indicated as “Bid Item #4” on the drawing EQ.2.

Item No. 0005 “WPDES Permit & Application”, all costs associated with the Contractor applying and submitting for the WPDES (Wisconsin Pollutant Discharge Elimination System) Permit.

SECTION 00800

SPECIAL CONTRACT REQUIREMENTS
5/00, Rev 9/01

PART 1 GENERAL

Attachments:

General Wage Decision Nos.WI020011

1.1 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall commence work under this contract within ten (10) calendar days after the date of receipt by him of Notice to Proceed, prosecute said work *2diligently, and complete the entire work ready for use not later than 455 calendar*2 days after receipt of Notice to Proceed. The time stated for completion shall include final cleanup of the premises. (FAR 52.211-10)

1.1.1 Start Work

Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. Therefore, work need not be commenced at the construction site within ten (10) calendar days.

1.2 NOT USED

1.3 NOT USED

1.4 NOT USED

1.5 LIQUIDATED DAMAGES-CONSTRUCTION

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$790.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause. (FAR 52.211-12)

1.6 NOT USED

1.7 EXCEPTION TO COMPLETION AND LIQUIDATED DAMAGES

In case the Contracting Officer determines that seeding, and planting is not feasible during the construction period, such work will be exempted from the completion time and liquidated damages. This work shall be accomplished during the first seeding, and planting period following the completion date.

1.8 NOT USED

1.9 NOT USED

1.10 NOT USED

1.11 ORDER OF WORK

****Safety Pays****
BATTALION DINING FACILITY Fort McCoy, Wisconsin

Access to Fort McCoy for personnel, equipment and materials shall be through the Main Gate off of Highway 21. See paragraph: SECURITY REQUIREMENTS for additional information.

1.12 NOT USED

1.13 NOT USED

1.14 CONTRACT DRAWINGS AND SPECIFICATIONS

1.14.1 SETS FURNISHED

The Contractor shall be responsible for making copies of specifications including amendments. The bid drawings as amended shall be utilized in the performance of the work until contract drawings (i.e., bid drawings that have been posted with all amendment changes) are mailed to the Contractor. The work shall conform to the contract drawings, set out in the drawing index, all of which form a part of these specifications. The work shall also conform to the standard details bound or referenced herein.

1.14.2 DRAWING REPRODUCTION AND DISTRIBUTION

The contractor shall reproduce multiple hard copy sets of contract drawings from government provided CD-ROM containing read-only CAL file drawings. Within 21 calendar days from receipt of CD-ROM, contractor shall forward reproduced documents to addresses contained in the Distribution List for Project to be provided by the Contracting Officer. No progress payments will be processed prior to receipt of the contract drawings by the Area Office. After receipt of documents, the Area Office shall provide the contractor with a CD-ROM containing editable CAD file drawings. The contractor shall edit CD-ROM containing CAD files drawings to prepare as-built drawings. See Section 01040 As-Built Drawings for drawings being furnished to the Contractor.

1.14.2 NOTIFICATION OF DISCREPANCIES

The Contractor shall check all drawings furnished him immediately upon their receipt and shall promptly notify the Contracting Officer of any discrepancies. Dimensions marked on drawings shall be followed in lieu of scale measurements. Enlarged plans and details shall govern where the same work is shown at smaller scales. If any other size drawings are furnished or plotted the contractor shall adjust the scales accordingly. The contractor shall also advise his sub-contractors of the above. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

1.14.3 OMISSIONS

Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

1.15 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Equipment Room Drawings; G-AE.

1.16 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractors' information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

a. The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys and borings. The data shown graphically and by symbol for each respective boring represents the actual geologic features observed and logged at the location given on the drawings. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations characteristic of the subsurface materials of this region could occur.

b. Weather conditions shall have been investigated by the Contractor to satisfy himself as to the hazards likely to arise therefrom. Complete weather records and reports may be obtained from the local U.S. Weather Bureau.

c. Transportation facilities shall have been investigated by the Contractor to satisfy himself as to the existence of access highways and railroad facilities. (FAR 52.236-4)

1.17 NOT USED

1.18 NOT USED

1.19 PAYMENT

1.19.1 PROMPT PAYMENT ACT

Pay requests authorized in CONTRACT CLAUSES clause: "Payments Under Fixed-Price Construction Contracts", will be paid pursuant to the clause, "Prompt Payment for Construction Contracts". Pay requests will be submitted on ENG Form 93 and 93a, "Payment Estimate-Contract Performance" and "Continuation". All information and substantiation required by the identified contract clauses will be submitted with the ENG Form 93, and the required certification will be included on the last page of the ENG Form 93a, signed by an authorized contractor official and dated when signed. The designated billing office is the Office of the Area Engineer.

1.19.2 PAYMENTS FOR MODIFICATIONS

Payments may be made for cost bearing change orders within the scope of the contract only to the extent funds are authorized in the order on a two-part modification. Contractor pricing proposed must be submitted at the earliest possible time after the change order is issued, or at a specific time as directed by the Contracting Officer. At the discretion of the Contracting Officer, any and all payments may be withheld on the modification until the Contractor has submitted a qualifying price proposal, in as much detail as required by the Contracting Officer, and the final price has been agreed.

1.19.3 PAYMENT FOR MATERIALS DELIVERED OFFSITE (MAR 1995)

a. Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2)

****Safety Pays****
BATTALION DINING FACILITY Fort McCoy, Wisconsin

materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

b. Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. Payment for materials delivered off-site includes petroleum products. (List additional items for which payments will be made for off-site delivery.) (EFAR 52.232-5000)

1.20 NOT USED

1.21 NOT USED

1.22 NOT USED

1.23 AVAILABILITY OF UTILITY SERVICES

All reasonably required amounts of domestic water and electricity will be made available to the Contractor by the Government from existing system outlets and supplies. The Contractor shall, at his own expense, make all temporary connections and install distribution lines. The Contractor shall furnish to the Contracting Officer a complete system layout drawing showing type of materials to be used and method of installation for all temporary electrical systems. The Contractor shall make arrangements with the Using Service, through the Contracting Officer, as to the method of determining the amount of water and electricity to be used by him and the method of payment therefore. All temporary lines shall be maintained by the Contractor in a workmanlike manner satisfactory to the Contracting Officer and shall be removed by the Contractor in like manner prior to final acceptance of the construction. Normal quantities of electricity and water used to make final tests of completely installed systems will be furnished by the Government.

1.24 NOT USED

1.25 UTILITY SERVICE INTERRUPTIONS

The Contractor shall submit written notification not less than 15 calendar days in advance of each interruption of each utility and communication service to or within existing buildings and facilities being used by others. No single outage will exceed 4 hours unless approved in writing. The time and duration of all outages will be coordinated and approved with the Using Agency by the Contracting Officer.

1.26 DIGGING PERMITS AND ROAD CLOSINGS

The Contractor shall allow 14 calendar days from date of written application to receive permission to dig and to close roads. Roads shall only be closed one lane at a time and vehicular traffic shall be allowed to pass through the construction area. Work on or near roadways shall be flagged in accordance with the safety requirements in Safety and Health Requirements Manual EM 385-1-1, which forms a part of these specifications. Work located along the alert force route shall not cause blockage and the Contractor shall maintain unobstructed access for alert force traffic at all times.

1.27 NOT USED

1.28 NOT USED

1.29 NOT USED

1.30 NOT USED

1.31 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

****Safety Pays****
 BATTALION DINING FACILITY Fort McCoy, Wisconsin

a. This clause specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed-Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
 WORK DAYS BASED ON (5) DAY WORK WEEK

| | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|
| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| (22) | (16) | (06) | (07) | (07) | (07) | (06) | (07) | (04) | (06) | (05) | (17) |

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b. above, the contracting officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)". (ER 415-1-15)

1.32 NOT USED

1.33 INSURANCE REQUIRED

In accordance with CONTRACT CLAUSES clause: "Insurance Work on a Government Installation," the Contractor shall procure the following minimum insurance:

| Type | Amount |
|---|--|
| Workmen's Compensation and Employer's Liability Insurance | \$100,000 |
| General Liability Insurance | \$500,000 per occurrence |
| Automobile Liability Insurance | |
| Bodily injury | \$200,000 per person and \$500,000 per occurrence |
| Property damage | \$ 20,000 per occurrence |

(Coverages per FAR 28.307-2)

1.34 NOT USED

1.35 SECURITY REQUIREMENTS

The Contractor shall provide the Contracting Officer an Entry Authorization List of individuals that will require access to Fort McCoy. The Entry Authorization List for each individual shall include the name of the Contractor, name of individual and social security number. Only those individuals on the Entry Authorization List will be granted access to Fort McCoy.

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display such identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon release of any employees. When the contract involves work in restricted security areas, only employees who are U.S. citizens will be permitted to enter. Proof of U.S. citizenship is required prior to entry. When required by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project.

1.36 NOT USED

1.37 CONTRACTOR QUALITY CONTROL (CQC)

See Section 01451A Contractor Quality Control.

1.38 NONDOMESTIC CONSTRUCTION MATERIALS

The List of non-domestic construction materials or their components included in the list set forth in paragraph 25.104 of the Federal Acquisition Regulation does not apply to the requirements of the contract clause entitled "Buy American Act Construction Materials".

1.39 NOT USED

1.40 DAILY WORK SCHEDULES

In order to closely coordinate work under this contract, the Contractor shall prepare a written agenda/meeting minutes and attend a weekly coordination meeting with the Contracting Officer and Using Service at which time the Contractor shall submit for coordination and approval, his proposed daily work schedule for the next two week period. The Contractor shall provide a copy of modifications (MODs), Serial Letters, Requests for Information (RFIs) and any other information that is needed in the minutes of the meeting. Required temporary utility services, time and duration of interruptions, and protection of adjoining areas shall be included with the Contractor's proposed 2-week work schedule. At this meeting, the Contractor shall also submit his schedule of proposed dates and times of all preparatory inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for each activity anticipated to be performed during the next 2-week period. Coordination action by the Contracting Officer relative to these schedules will be accomplished during these weekly meetings. Daily reports shall be completed and given to the Contracting Officer or Representative within 24 hours of work<ADD>.</ADD>

1.41 NOT USED

1.42 AS-BUILT DRAWINGS

See SECTION 01040 - AS-BUILT DRAWINGS

1.43 SIGNS

On commencement of work on this project, the Contractor shall furnish and erect all signs as shown on Sheet C1.3 and A8.1 in locations selected by the Contracting Officer near the project site. The Contractor shall maintain the signs in good condition through the project construction period. Upon completion of the project, the Contractor shall remove the signs from the premises. The Project signs shall conform to requirements shown on the drawings.

1.44 NOT USED

1.45 EQUIPMENT ROOM DRAWINGS

Prior to construction, the Contractor shall prepare and submit room plans for all mechanical, electrical, and communication rooms or similar areas. The plans shall be consolidated for all trades, shall be to scale, and shall show all pertinent structural features. In addition, other items such as doors, windows, and cabinets required for installation and which will affect the available space, will be shown. All mechanical and electrical equipment and accessories shall be shown to scale in plan and elevation and/or section in their installed positions. All duct work and piping shall be shown.

1.46 CONTRACTOR FURNISHED EQUIPMENT DATA

See Section 01200 Warranty of Construction for Contractor Furnished Equipment Data to be submitted as part of the Warranty Equipment Booklet.

1.47 ACCOMMODATIONS FOR GOVERNMENT INSPECTORS

The Contractor shall furnish a temporary office facility approximately 3048 mm X 6096 mm with a minimum of 60,960 square millimeters of floor space. It shall be located where directed and shall be reserved for Government personnel only. Drinking water facilities, adequate lighting, local commercial telephone service, air-conditioning, heating equipment, and a partition enclosed chemical toilet shall be furnished and maintained by the Contractor. The office shall be furnished with one legal size filing cabinet with four drawers, one drafting table with stool, one plan rack, one desk, and three chairs. Used furniture, in good condition, will be acceptable. Entrance doors shall be equipped with a substantial lock. The Contractor shall provide janitor service, fuel for the heating facilities, electricity, telephone and water, all at no cost to the Government, except the Contractor will not be liable for Government long-distance calls. The entire facility, including furniture, will remain the property of the Contractor and shall be removed from the site after completion of the work.

1.48 NOT USED

1.49 NOT USED

1.50 NOT USED

1.51 PERFORMANCE OF WORK BY CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty (20) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government. (FAR 52.236-1)

1.52 ASBESTOS AND LEAD

a. The Contractor is warned that inhalation of asbestos and lead has been associated with health hazards.

****Safety Pays****
 BATTALION DINING FACILITY Fort McCoy, Wisconsin

b. Asbestos-containing materials have been identified in area(s) where contract work is to be performed. All contract work activities where the potential exists for worker exposure to airborne asbestos fibers shall be performed in accordance with the requirements set forth in SECTION 13280 ASBESTOS ABATEMENT.

c. Lead has been determined to be present in some painted surfaces which are scheduled for demolition. See SECTION 01400 SPECIAL SAFETY PROCEDURES and SECTION 02090 - DEMOLITION OF BUILDINGS WITH LEAD CONTAINING PAINT for locations and proper procedures.

1.53 NOT USED

1.54 NOT USED

1.55 PROFIT

a. Weighted guidelines method of determining profit shall be used on any equitable adjustment change order or modification issued under this contract. The profit factors shall be as follows:

| Factor | Rate | Weight | Value |
|-----------------------------|------|-----------|-------|
| Degree of Risk | 20 | See Item | |
| Relative difficulty of work | 15 | b. below. | |
| Size of Job | 15 | | |
| Period of performance | 15 | | |
| Contractor's investment | 5 | | |
| Assistance by Government | 5 | | |
| Subcontracting | 25 | | |
| | 100 | | |

b. Based on the circumstances of each procurement action, each of the above factors shall be weighted from .03 to .12 as indicated below. The value shall be obtained by multiplying the rate by the weight. The value column when totaled indicates the fair and reasonable profit percentage under the circumstances of the particular procurement.

(1) Degree of Risk. Where the work involves no risk or the degree of risk is very small, the weighting should be .03; as the degree of risk increases, the weighting should be increased up to a maximum of .12. Lump sum items will have, generally, a higher weighted value than the unit price items for which quantities are provided. Other things to consider: the portion of the work to be done by subcontractors, nature of work, where work is to be performed, reasonableness of negotiated costs, amount of labor included in costs, and whether the negotiation is before or after performance of work.

(2) Relative Difficulty of Work. If the work is most difficult and complex, the weighting should be .12 and should be proportionately reduced to .03 on the simplest of jobs. This factor is tied in to some extent with the degree of risk. Some things to consider: the nature of the work, by whom it is to be done, where, and what is the time schedule.

(3) Size of Job. All work not in excess of \$100,000 shall be weighted at .12. Work estimated between \$100,000 and \$5,000,000 shall be proportionately weighted from .12 to .05.

(4) Periods of Performance. Jobs in excess of 24 months are to be weighted at .12. Jobs of lesser duration are to be proportionately weighted to a minimum

****Safety Pays****
BATTALION DINING FACILITY Fort McCoy, Wisconsin

of .03 for jobs not to exceed 30 days. No weight where additional time not required.

(5) Contractor's Investment. To be weighted from .03 to .12 on the basis of below average, average, and above average. Things to consider: amount of subcontracting, mobilization payment item, Government furnished property, equipment and facilities, and expediting assistance.

(6) Assistance by Government. To be weighted from .12 to .03 on the basis of average to above average. Things to consider: use of Government-owned property, equipment and facilities, and expediting assistance.

(7) Subcontracting. To be weighted inversely proportional to the amount of subcontracting. Where 80 percent or more of the work is to be subcontracted, the weighting is to be .03 and such weighting proportionately increased to .12 where all the work is performed by the Contractor's own forces.

1.56 NOT USED

1.57 NOT USED

1.58 LABOR CONDITIONS APPLICABLE TO TEMPORARY FACILITIES

It is the position of the Department of Defense that the Davis-Bacon Act, 40 U.S.C. 276a is applicable to temporary facilities such as batch plants, sandpits, rock quarries, and similar operations, located off the immediate site of the construction but set up exclusively to furnish required materials for a construction project on the site of the work. Clause "Payrolls and Basic Records" of the CONTRACT CLAUSES is applicable to such operations.

1.59 NOT USED

1.60 DRAWING SCALES

All scales shown are based on a metric drawing size of 841 mm x 541 mm. If any other size drawings are furnished or plotted, the contractor shall adjust the scales accordingly. The Contractor shall also advise his sub-contractors of the above.

1.61 NOT USED

1.62 AGE RATE APPLICATION

Applicable to all work.

1.62.1 Building Schedule

Applicable to all work required within 5 feet outside the building lines.

1.62.2 Heavy and Highway Schedule

Applicable to all work required beyond 5 feet outside the building.

1.63 NOT USED

1.71 FEDERAL HOLIDAYS

The following Federal legal holidays are observed by this installation:

| | |
|-------------------------------|--------------------------|
| New Year's Day | 1 January |
| Martin Luther King's Birthday | Third Monday in January |
| President's Day | Third Monday in February |
| Memorial Day | Last Monday in May |
| Independence Day | 4 July |

****Safety Pays****
BATTALION DINING FACILITY Fort McCoy, Wisconsin

| | |
|------------------|-----------------------------|
| Labor Day | First Monday in September |
| Columbus Day | Second Monday in October |
| Veterans Day | 11 November |
| Thanksgiving Day | Fourth Thursday in November |
| Christmas Day | 25 December |

If a wage determination applies the number of holidays specified on it, it has priority over this clause.

1.72 BASE HOURS

Base operation hours are 6:00 a.m. to 6:00 p.m. daily (Monday through Friday), excluding federal holidays. Access to the base during other times must be requested in writing from the Contracting Officer and will be granted only for extenuating circumstances.

PART 2 PRODUCTS

2.1 TECHNOLOGY COMPLIANCE

In accordance with FAR 39.106, the contractor shall ensure that with respect to any design, construction, goods or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically to perform, maintain and provide an inventory of all major components to include structures, equipment, items, parts and furnishings under this contract.

PART 3 NOT USED

-- End of Section --

AMENDMENT #2

SECTION 02714

DRAINAGE LAYER (ADDED SECTION)

12/97

PART 1 GENERAL

1.1 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 ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

- | | |
|--------------|---|
| AASHTO M 43 | (1988) Size of Course Aggregate |
| AASHTO T 102 | (1983; R 1996) Spot Test of Asphaltic Materials |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- | | |
|-----------------|---|
| ASTM C 29/C 29M | (1997) Bulk Density ("Unit Weight") and Voids in Aggregate |
| ASTM C 88 | (1999a) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |
| ASTM C 117 | (1995) Materials Finer Than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing |
| ASTM C 131 | (1996) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C 136 | (1996a) Sieve Analysis of Fine and Coarse Aggregates |
| ASTM C 150 | (1999a) Portland Cement |
| ASTM C 595 | (1998) Blended Hydraulic Cements |
| ASTM C 595M | (1997) Blended Hydraulic Cements (Metric) |
| ASTM D 5 | (1997) Penetration of Bituminous Materials |
| ASTM D 75 | (1987; R 1997) Sampling Aggregates |
| ASTM D 140 | (1998) Sampling Bituminous Materials |
| ASTM D 946 | (1999) Penetration-Graded Asphalt Cement for Use in Pavement Construction |

| | |
|-------------|--|
| ASTM D 1250 | (1980; R 1997el) Petroleum Measurement Tables |
| ASTM D 1856 | (1995a) Recovery of Asphalt From Solution By Abson Method |
| ASTM D 2172 | (1995) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures |
| ASTM D 2487 | (1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System) |
| ASTM D 2922 | (1996el) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D 3017 | (1988; R 1996el) Water Content of Soil and Rock In Place by Nuclear Methods (Shallow Depth) |
| ASTM D 3381 | (1999) Viscosity-Graded Asphalt Cement for Use in Pavement Construction |
| ASTM D 4791 | (1999) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregates |
| ASTM E 548 | (1994el) General Criteria Used for Evaluating Laboratory Competence |

1.3 SYSTEM DESCRIPTION

The Contractor shall build a drainage layer under the roadsand parking lot pavements as indicated and in accordance with the following subparagraphs:

1.3.2 Bituminous Stabilized Drainage Layer

A drainage layer consisting of size #57 coarse aggregate stabilized with asphalt cement and a choke stone layer of size #9 coarse aggregate.

1.4 MEASUREMENT AND PAYMENT

Drainage layer will not be measured or paid for separately, but shall be considered incidental to the contract.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-09 Reports

Sampling and Testing.

Copies of field test results within 24 hours of completion of tests.

Approval of Materials; G.

Material sources and material test results prior to field use.

Evaluation.

Test section construction report.

SD-18 Records

Waybills and Delivery Tickets.

Certified waybills and delivery tickets for all aggregates and bituminous materials actually used.

1.5 FIELD COMPACTION

Field compaction requirements shall be based on the results of a test section constructed by the Contractor, using the materials, methods, and equipment proposed for use in the work. The test section shall meet the requirements of paragraph TEST SECTION.

1.6 EQUIPMENT

1.6.1 General Requirements

All plant, equipment, and tools used in the performance of the work will be subject to approval before the work is started and shall be maintained in satisfactory working condition at all times.

1.6.2 Placement Equipment

An asphalt paving machine shall be used to place drainage layer material. Alternate methods may be used if it can be demonstrated in the test section that these methods obtain the specified results.

1.6.3 Compaction Equipment

A dual or single smooth drum roller which provides a maximum compactive effort without crushing the drainage layer aggregate shall be used to compact drainage layer material.

1.6.4 Bituminous Mixing Plant

The bituminous mixing plant shall be an automatic or semiautomatic controlled, commercially manufactured unit capable of producing a bituminous stabilized aggregate mixture consistent with the job-mix formula (JMF) determined by the Government. Drum mixers shall be prequalified at the production rate to be used during full scale operations. The prequalification tests shall include extraction methods in accordance with ASTM D 2172 and recovery of the asphalt cement in accordance with ASTM D 1856. The penetration of the recovered asphalt binder shall not be less than 60 percent of the original penetration in accordance with ASTM D 5.

1.7 WEATHER LIMITATION

Drainage layer material shall be placed when the atmospheric temperature is

above 2 degrees C. Areas of completed drainage layer or underlying courses that are damaged by freezing, rainfall, or other weather conditions or by contamination from sediments, dust, dirt, or foreign material shall be corrected by the Contractor to meet specified requirements.

1.8 SAMPLING AND TESTING

1.8.1 General Requirements

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by an approved commercial testing laboratory, or by the Contractor subject to approval. If the Contractor elects to establish testing facilities of his own, approval of such facilities shall be based on compliance with ASTM E 548, and no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved. The first inspection of the facilities will be at the expense of the Government and any subsequent inspections required because of failure of the first inspection shall be at the expense of the Contractor. Such costs will be deducted from the total amount due the Contractor. Drainage layer materials shall be tested to establish compliance with the specified requirements.

1.8.2 Sampling

Aggregate samples shall be taken in accordance with ASTM D 75. Bituminous samples shall be taken in accordance with ASTM D 140. Bituminous stabilized mixture samples shall be taken using methods approved by the Contracting Officer.

1.8.3 Test Methods

1.8.3.1 Sieve Analyses

Sieve analyses shall be made in accordance with ASTM C 117 and ASTM C 136.

1.8.3.2 Density Tests

Field density tests shall be made in accordance with ASTM D 2922. When using this method, ASTM D 3017 shall be used to determine the moisture content of the aggregate drainage layer material. The calibration curves furnished with the moisture gauges shall be checked along with density calibration checks as described in ASTM D 3017. The calibration checks of both the density and moisture gauges shall be made by the prepared containers of material method, as described in paragraph "Calibration" of ASTM D 2922, on each different type of material being tested at the beginning of a job and at intervals as directed by the Contracting Officer.

1.8.3.3 Soundness Test

Soundness tests shall be made in accordance with ASTM C 88.

1.8.3.4 Los Angeles Abrasion Test

Los Angeles abrasion tests shall be made in accordance with ASTM C 131.

1.8.3.5 Flat or Elongated Particles Tests

Flat and/or elongated particles tests shall be made in accordance with ASTM D 4791.

1.8.3.6 Fractured Faces Tests

When aggregates are supplied from crushed gravel, approved test methods shall be used to assure the aggregate meets the requirements for fractured faces in paragraph AGGREGATES.

1.8.3.7 Bitumen Extraction

Bitumen extraction tests shall be made in accordance with ASTM D 2172.

1.8.4 Testing Frequency

1.8.4.2 Stabilized Layer

Sieve analyses shall be performed on aggregates prior to addition of asphalt, at a rate of at least one test for every 250 metric tons of production and not less than one test for each days production. Extraction tests on bituminous stabilized material shall be made at the same frequency. Soundness tests, Los Angeles abrasion tests, fractured faces tests, and flat and/or elongated particles tests shall be performed at the rate of one test for every 10 sieve analyses tests. Field density tests shall be performed at a rate of at least one test for every 1000 square meters of completed area and not less than one test for each days production.

1.8.5 Approval of Materials

1.8.5.1 Aggregate

The aggregate source shall be selected at least 60 days prior to field use in the test section. Tentative approval of the source will be based on certified test results to verify that materials proposed for use meet the contract requirements. Final approval of both the source and the material will be based on test section performance and tests for gradation, soundness, Los Angeles abrasion, flat and/or elongated particles tests and fractured faces tests. For bituminous stabilized drainage layer material, these tests shall be performed on aggregate samples taken prior to addition of bituminous material and subsequent placement in the test section.

1.8.5.2 Bituminous Materials

Bituminous source and certified material test results shall be submitted for approval not less than 60 days prior to field use in the test section.

PART 2 PRODUCTS

2.1 GOVERNMENT APPROVAL

Asphalt stabilized material will require Government notification and delivery of approved materials in accordance with paragraph BITUMINOUS STABILIZED JOB-MIX FORMULA.

2.2 AGGREGATES

Aggregates shall consist of clean, sound, hard, durable, angular particles of crushed stone or crushed gravel which meet the specification requirements. The aggregates shall be free of silt and clay as defined by ASTM D 2487, vegetable matter, and other objectionable materials or coatings.

2.2.1 Aggregate Quality

The coarse aggregate shall be Grade A or B, conforming to the requirements of Section 203 of the Virginia Department of Transportation (VDOT) Metric Road and Bridge Specifications for quality. The percentage of flat and/or elongated particles shall be determined by ASTM D 4791 with the following modifications. The aggregates shall be separated into 2 size fractions. Particles greater than 12.5 mm sieve and particles passing the 12.5 mm sieve and retained on the 4.75 mm sieve. The percentage of flat and/or elongated particles in either fraction shall not exceed 20. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than 3.

When the aggregate is supplied from more than one source, aggregate from each source shall meet the specified requirements. When the aggregate is supplied from crushed gravel it shall be manufactured from gravel particles, 90 percent of which by weight are retained on the maximum-size sieve listed in TABLE I. In the portion retained on each sieve specified, the crushed gravel shall contain at least 90 percent by weight of crushed pieces having two or more freshly fractured faces with the area of each face being at least equal to 75 percent of the smallest midsectional area of the face. When two fractures are contiguous, the angle between planes of the fractures must be at least 30 degrees in order to count as 2 fractured faces.

2.2.2 Gradation Requirements

Drainage layer aggregates shall be well graded within the limits specified in TABLE I.

TABLE I. GRADATION OF DRAINAGE LAYER MATERIAL
 Percentage by Weight Passing Square-Mesh Sieve

| Sieve Designation | Open Graded Material (size #57) | Choke Stone (size #9) |
|----------------------|------------------------------------|--------------------------|
| 37.50 mm | 100 | --- |
| 25.00 mm | 90-100 | --- |
| 19.00 mm | --- | --- |
| 12.50 mm | 26-60 | --- |
| 9.50 mm | --- | --- |
| 4.75 mm | 0-7 | 86-100 |
| 2.36 mm | 0-3 | 10-40 |
| 1.18 mm | --- | 0-10 |
| 300 um | 0-5 | |

NOTE 1: Particles having diameters less than 0.02 mm shall not be in excess of 1.5 percent by weight of the total sample tested.

NOTE 2: The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves may require appropriate correction by the Contracting Officer when aggregates of varying specific gravities are used.

NOTE 3: Choke stone and asphalt cement will be required to stabilize the drainage layer. Choke stone shall be made up of hard, durable, crushed aggregate having 90 percent of the stone with fractured faces.

2.3 BITUMINOUS MATERIALS

Asphalt cement to be mixed with aggregates shall conform to ASTM D 3381, Grade AC-20. In addition, the asphalt cement shall show a negative spot when subjected to the spot test in accordance with AASHTO T 102, using the standard naphtha specified.

2.5 BITUMINOUS STABILIZED JOB-MIX FORMULA

The bituminous stabilized mix shall consist of a mixture of VA #57 coarse aggregate and a minimum of 2 percent asphalt cement by weight. Tolerances for bituminous stabilized material shall be maintained for field production at plus or minus 0.25 percent for asphalt cement and plus or minus 14 degrees C for mixing temperatures. Based on the test section performance, the Contractor shall be responsible for adjustments (increases) in asphalt cement quantities to ensure the stabilized drainage layer will not rut or be disturbed by the Contractor's proposed paving method. The Contractor shall submit a job-mix formula (JMF) with the test section report for Contracting Officer approval.

PART 3 EXECUTION

3.1 STOCKPILING AGGREGATES

Aggregates shall be stockpiled at locations designated by the Contracting Officer. Stockpile areas shall be cleared and leveled prior to stockpiling aggregates. Aggregates shall be stockpiled to prevent segregation and contamination. Aggregates obtained from different sources shall be stockpiled separately.

3.2 TEST SECTION

3.2.1 Data

A test section shall be constructed to evaluate the ability to carry traffic and the constructability of the drainage layer including required mixing, placement, and compaction procedures. Test section data will be used by the Contracting Officer to determine the required number of passes and the field dry density requirements for full scale production.

3.2.2 Scheduling

The test section shall be constructed a minimum of 30 days prior to the start of full scale production to provide sufficient time for an evaluation of the proposed materials, equipment and procedures including Government QA testing.

3.2.3 Location and Size

The test section shall be placed outside the production paving limits in an area with similar subgrade and subbase conditions approved by the Contracting Officer. The underlying courses and subgrade preparation, required for the pavement section, shall be completed, inspected and approved in the test section prior to constructing the drainage layer. The test section shall be a minimum of 30 m long and one full paving lane wide.

Once the test section is no longer required, the Contractor shall remove the test section.

3.2.4 Initial Testing

Certified test results, to verify that the materials proposed for use in the test section meet the contract requirements, shall be provided by the Contractor and approved by the Contracting Officer prior to the start of the test section.

3.2.5 Mixing, Placement, and Compaction

Mixing, placement, and compaction shall be accomplished using equipment meeting the requirements of paragraph EQUIPMENT. Compaction equipment speed shall be no greater than 2.4 km/hour.

3.2.6 Procedure

3.2.6.2 Bituminous Stabilized Drainage Layer

Density tests shall be conducted at the surface and at intervals of 50 mm of depth for the total layer thickness in accordance with ASTM D 2922. A composite sample representing the total layer thickness, shall be taken adjacent to each density test location. Visual examination of each composite sample shall be made to determine if and when crushing of aggregate occurs. One density test and composite sample shall be taken before compaction and after each subsequent compaction pass at three separate locations as directed by the Contracting Officer. Compaction passes and density readings shall continue until the difference between the average total densities of any two consecutive passes is less than or equal to 8 kg per cubic meter (0.5 pcf).

3.2.7 Evaluation

Within 10 days of completion of the test section, the Contractor shall submit to the Contracting Officer a Test Section Construction Report complete with all required test data and correlations. The Contracting Officer will evaluate the data and provide to the Contractor the required number of passes of the roller, the dry density for field density control during construction, the depth at which to check the density, and the need for a final static pass of the roller.

3.3 PREPARATION OF UNDERLYING COURSE

Prior to constructing the drainage layer, the underlying course shall be cleaned of all foreign materials. During construction, the underlying course shall contain no frozen material. The underlying course shall conform to Section 02721 SUBBASE COURSES. Ruts or soft yielding spots in the underlying courses having inadequate compaction and deviations of the surface from the requirements set forth herein shall be corrected by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line, and grade, and recompacting to specified density. The finished underlying course shall not be disturbed by traffic or other operations and shall be maintained by the Contractor in a satisfactory condition until the drainage layer is placed.

3.4 TRANSPORTING MATERIAL

3.4.2 Bituminous Stabilized Material

Bituminous stabilized material shall be transported from the mixing plant to the site in trucks having tight, clean, smooth beds lightly coated with an approved releasing agent to prevent adhesion of the stabilized material

to the truck beds. Excessive releasing agent shall be drained prior to loading. Each load shall be covered with canvas or other approved material of ample size to protect the stabilized material from the weather and to prevent loss of heat. Loads that have crusts of cold, unworkable material or have become wet will be rejected. Hauling over freshly placed material will not be permitted.

3.5 PLACING

3.5.1 General Requisites

Drainage layer material shall be placed on the underlying course in lifts of uniform thickness using equipment meeting the requirements of paragraph EQUIPMENT. When a compacted layer 180 mm or less in thickness is required, the material shall be placed in a single lift. When a compacted layer in excess of 180 mm is required, the material shall be placed in lifts of equal thickness. No lift shall exceed 180 mm or be less than 75 mm when compacted. The lifts when compacted after placement shall be true to the grades or levels required with the least possible surface disturbance. Where the drainage layer is placed in more than one lift, the previously constructed lift shall be cleaned of loose and foreign material.

Such adjustments in placing procedures or equipment shall be made to obtain true grades and minimize segregation and degradation of the drainage layer material. Choke stone used to stabilize the surface of the OGM shall be spread in a thin layer no thicker than 13 mm.

3.5.2 Placement of Bituminous Stabilized Material

Bituminous stabilized material having temperatures less than 80 degrees C when dumped into the asphalt paving machine will be rejected. The paving machine shall be adjusted so that the surface of the lift being laid will be smooth and continuous without tears and pulls. Irregularities in alignment of the lift left by the paving machine shall be corrected by trimming directly behind the machine. Immediately after trimming, the edges of the lift shall be thoroughly compacted by a method approved by the Contracting Officer. Distortion of the lift during tamping will not be permitted. If more than one lift is required, the longitudinal joint in one lift shall offset that in the lift immediately below by at least 300 mm; however, the joint in the top layer shall be at the centerline of the pavement. Transverse joints in one layer shall be offset by at least 600 mm from transverse joints in the previous layer. Transverse joints in adjacent strips shall be offset a minimum of 3 meters.

3.5.3 Placing Adjacent Bituminous Stabilized Strips

The bituminous stabilized material shall be placed in consecutive adjacent strips having a minimum width of 3 meters, except where edge lanes require strips less than 3 meters to complete the area. In placing adjacent strips, the screed of the paving machine shall overlap the previously placed strip 75 to 100 mm and shall be sufficiently high so that compaction will produce a smooth, dense joint. The stabilized material placed on the edge of the previously placed strip by the paver shall be pushed back to the edge of the strip being placed. Excess stabilized material shall be removed and wasted.

3.5.4 Hand Spreading

In areas where machine spreading is impractical, drainage layer material shall be spread by hand. The material shall be spread uniformly in a loose

layer to prevent segregation. The material shall conform to the required grade and thickness after compaction.

3.6 COMPACTION REQUIREMENTS

Compaction shall be accomplished using rollers meeting the requirements of paragraph EQUIPMENT and operating at a rolling speed of no greater than 2.4 km per hour. Each lift of drainage material, including shoulders when specified under the shoulders, shall be compacted with the number of passes of the roller as specified by the Contracting Officer. In addition, a minimum field dry density, as specified by the Contracting Officer, shall be maintained. If the required field dry density is not obtained, the number of roller passes shall be adjusted in accordance with paragraph DEFICIENCIES. Excessive rolling resulting in crushing of aggregate particles shall be avoided. Choke stone used to stabilize the surface of the drainage layer shall be worked into the surface of the drainage layer by two passes of a vibratory roller and wetting. Compaction of bituminous stabilized material shall begin immediately when the material has cooled to 77 degrees C. Not more than 30 minutes shall elapse between the start of moist mixing of cement stabilized material and the start of field compaction and field compaction shall be completed within 60 minutes. In all places not accessible to the rollers, the drainage layer material shall be compacted with mechanical hand operated tampers.

3.8 FINISHING

The top surface of the drainage layer shall be finished after final compaction as determined from the test section. Adjustments in rolling and finishing procedures shall be made to obtain grades and minimize segregation and degradation of the drainage layer material.

3.9 EDGES OF DRAINAGE LAYER

Shoulder material shall be placed along the edges of the drainage layer course in a quantity that will compact to the thickness of the layer being constructed. When the drainage layer is being constructed in 2 or more lifts, at least a 300 mm width of the shoulder shall be rolled and compacted simultaneously with the rolling and compacting of each lift of the drainage layer.

3.10 SMOOTHNESS TEST

The surface of the top lift shall not deviate more than 10 mm when tested with a 3.66 m straightedge applied parallel with and at right angles to the centerline of the area to be paved. Deviations exceeding 10 mm shall be corrected in accordance with paragraph DEFICIENCIES.

3.11 THICKNESS CONTROL

The completed thickness of the drainage layer shall be within 13 mm of the thickness indicated. Thickness shall be measured at intervals providing at least one measurement for each 500 square meters of drainage layer. Measurements shall be made in test holes at least 75 mm in diameter. Where the measured thickness is more than 13 mm deficient, such areas shall be corrected in accordance with paragraph DEFICIENCIES. Where the measured thickness is 13 mm more than indicated, it will be considered as conforming to the requirements plus 13 mm, provided the surface of the drainage layer is within 13 mm of established grade. The average job thickness shall be the average of all job measurements as specified above

but within 8 mm of the thickness shown on the drawings.

3.12 DEFICIENCIES

3.12.1 Grade and Thickness

Deficiencies in grade and thickness shall be corrected so that both grade and thickness tolerances are met. Thin layers of material shall not be added to the top surface of the drainage layer to meet grade or increase thickness. If the elevation of the top of the drainage layer is more than 13 mm above the plan grade it shall be trimmed to grade and finished in accordance with paragraph FINISHING. If the elevation of the top surface of the drainage layer is 13 mm or more below the required grade, the surface of the drainage layer shall be scarified to a depth of at least 75 mm, new material shall be added, and the layer shall be blended and recompacted to bring it to grade. Where the measured thickness of the drainage layer is more than 13 mm deficient, such areas shall be corrected by excavating to the required depth and replaced with new material to obtain a compacted lift thickness of at least 75 mm. The depth of required excavation shall be controlled to keep the final surface elevation within grade requirements and to preserve layer thicknesses of materials below the drainage layer.

3.12.2 Density

Density shall be considered deficient if the field dry density test results are below the dry density specified by the Contracting Officer. If the densities are deficient, the layer shall be rolled with 2 additional passes of the specified roller. If the dry density is still deficient, work will be stopped until the cause of the low dry densities can be determined by the Contracting Officer.

3.12.3 Smoothness

Deficiencies in smoothness shall be corrected as if they are deficiencies in grade or thickness. All tolerances for grade and thickness shall be maintained while correcting smoothness deficiencies.

-- End of Section --

AMENDMENT # 2

SECTION 08331A

METAL ROLLING COUNTER DOORS

09/98

PART 1 GENERAL

1.1 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | |
|-------------------|--|
| ASTM A 240/A 240M | (1999b) Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels |
| ASTM A 653/A 653M | (1999a) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process |
| ASTM B 209 | (1996) Aluminum and Aluminum-Alloy Sheet and Plate |
| ASTM B 209M | (1995) Aluminum and Aluminum-Alloy Sheet and Plate (Metric) |
| ASTM B 221 | (1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes |
| ASTM B 221M | (1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) |

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

| | |
|---------|------------------------------------|
| NFPA 80 | (1999) Fire Doors and Fire Windows |
|---------|------------------------------------|

1.2 GENERAL

Rolling counter doors shall be of the type, size, and design indicated on the drawings, and shall be the standard product of a manufacturer regularly engaged in the production of rolling counter doors. Each door shall be provided with a permanent label showing the manufacturer's name and address and the model number of the door.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office

that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Approved Detail Drawings; G

Drawings showing elevations of each door type, details of anchorage, details of construction, location and description of hardware, shape and thickness of materials, details of joints and connections, and details of guides and fittings. A schedule showing the location of each counter door shall be included with the drawings.

SD-03 Product Data

Rolling Counter Doors; G

Manufacturer's descriptive data and catalog cuts.

Installation; G

Cleaning; G

Manufacturer's preprinted installation and cleaning instructions.

SD-10 Operation and Maintenance Data

Operation; G

Six (6) complete copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, troubleshooting guides, and simplified diagrams for the equipment as installed. Spare parts data for each different item of material and equipment specified shall be supplied not later than 60 days prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, and a list of the parts recommended by the manufacturer to be replaced after 1 year of service.

1.4 DELIVERY AND STORAGE

Rolling counter doors shall be delivered to the jobsite wrapped in a protective covering with the brands and names clearly marked thereon. Rolling counter doors shall be stored in accordance with the manufacturer's instructions in a dry location that is adequately ventilated and free from dust, water, or other contaminants, and in a manner that permits easy access for inspecting and handling. Doors shall be handled carefully to prevent damage. Damaged items that cannot be restored to like-new condition shall be replaced.

1.5 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period shall be provided.

PART 2 PRODUCTS

2.1 BASIC COMPONENTS

#1 2.1.1 Curtain

The curtain shall be fabricated of 22 gauge Type 304 stainless steel slats conforming to ASTM A 240/A 240M, Type 304 or Type 430. Thickness of slat material shall be as required by width of opening or as required by specified fire-rating. Slats shall be approximately 32 to 38 mm wide with a depth of crown of 13 mm. Alternate slats shall be fitted with end locks to maintain curtain alignment. Bottom of curtain shall be provided with angle or tubular bar reinforcement matching the curtain, and fitted with a resilient bottom seal.

2.1.2 Jamb Guides

Guides shall be of 13 gauge minimum thickness stainless steel conforming to ASTM A 240/A 240M, Type 304 or Type 430.

2.1.3 Counterbalance Shaft Assembly

The curtain shall be coiled around a steel tube of sufficient thickness and diameter to prevent deflection exceeding 2.5 mm per meter. The barrel shall contain oil tempered helical steel torsion springs capable of sufficient torque to counterbalance the weight of the curtain. Springs shall be calculated to provide a minimum of 7,500 operating cycles (one complete cycle of door operation will begin with the door in the closed position, move to the full open position and return to the closed position).

2.1.4 Brackets

Brackets shall be a minimum 12 gauge thickness steel if flat plate, or 16 gauge thickness if there are a minimum of 3 returns of 19 mm width.

2.1.5 Hood

The hood shall be of 24 gauge stainless steel conforming to ASTM A 240/A 240M, Type 304 or Type 430.

2.1.6 Locks

The curtain shall be locked at each side of the bottom bar by an integral slide bolt suitable for padlocks by others. Lock shall be on the lobby side of the counter door. Pad locks shall conform to Section 08710 DOOR HARDWARE.

2.2 ROLLING COUNTER DOOR (NON-RATED)

Rolling counter doors shall conform to the requirements specified herein and shall be constructed of stainless steel curtains, guides and hood components.

2.3 NOT USED

#1 2.4 NOT USED

2.5 OPERATION

#1 2.5.1 Manual Operation

The curtain shall be operated by means of manual push-up with lift handles.

#1 2.5.2 NOT USED

#1 2.6 NOT USED

#1 2.7 FINISH

Exposed parts of the counter door, including the curtain, bottom rail, guides, and hood shall be of uniform finish and appearance. Stainless steel shall have a No. 4 finish. All other steel parts shall be given a shop coat of primer paint standard with the manufacturer. Factory coated color shall be in accordance with manufacturer's standard color to be selected by the Contracting Office.

PART 3 EXECUTION

#1 3.1 INSTALLATION

Doors shall be installed in accordance with approved detail drawings and manufacturer's instructions. Anchors and inserts for guides, brackets, hardware, and other accessories shall be accurately located. Upon completion, doors shall be free from warp, twist, or distortion. Doors shall be lubricated, properly adjusted, and demonstrated to operate freely.

3.2 NOT USED

3.3 CLEANING

Stainless steel doors shall be cleaned in accordance with manufacturer's approved instructions.

#1 3.4 NOT USED

-- End of Section --

AMENDMENT # 2

SECTION 11400A

FOOD SERVICE EQUIPMENT

01/02

PART 1 GENERAL

1.1 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 CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-2092 (1998) Industrial Ventilation: A Manual of Recommended Practice (24th ed)

ACGIH-2092M (1998) Industrial Ventilation: A manual of Recommended Practice (24th ed) (Metric)

AMERICAN GAS ASSOCIATION LABORATORIES (AGAL)

AGAL Directory (1996) Directory of AGA and CGA Certified Appliances and Accessories

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123/A 123M (2001) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A 167 (1999) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

ASTM A 240/A 240M (2000) Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels

ASTM A 269 (2000) Seamless and Welded Austenitic Stainless Steel Tubing for General Service

ASTM A 36/A 36M (2000a) Carbon Structural Steel

ASTM B 32 (1996) Solder Metal

ASTM D 520 (2000) Zinc Dust Pigment

AMERICAN WELDING SOCIETY (AWS)

AWS A5.8 (1992) Filler Metals for Brazing and Braze Welding

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-110 (1996) Ball Valves Threaded,
Socket-Welding, Solder Joint, Grooved and
Flared Ends

MSS SP-72 (1999) Ball Valves with Flanged or
Butt-Welding Ends for General Service

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250 (1997) Enclosures for Electrical Equipment
(1000 Volts Maximum)

NEMA ICS 6 (1993) Industrial Control and Systems,
Enclosures

NEMA LD 3 (1995) High-Pressure Decorative Laminates

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 54 (1999) National Fuel Gas Code

NFPA 70 (1999) National Electrical Code

NFPA 96 (1998) Ventilation Control and Fire
Protection of Commercial Cooking Equipment

NSF INTERNATIONAL (NSF)

NSF 2 (1996) Food Equipment

NSF 35 (1999) Laminated Plastics for Surfacing
Food Service Equipment

NSF 7 (1999) Commercial Refrigerators and
Storage Freezers

NSF-01 (1994) Listings of Food Equipment and
Related Products, Components, and Materials

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)

SMACNA HVAC Duct Const Stds (1995; Addenda Nov 1997) HVAC Duct
Construction Standards - Metal and Flexible

UNDERWRITERS LABORATORIES (UL)

UL 1046 (1979) Grease Filters for Exhaust Ducts

UL 197 (1993; Rev thru Jan 2000) Commercial
Electric Cooking Appliances

UL 207 (1993; Rev thru Oct 1997)
Refrigerant-Containing Components and
Accessories, Nonelectrical

UL 471 (1995; Rev thru Apr 1998) Commercial
Refrigerators and Freezers

| | |
|-------------------|--|
| UL 489 | (1996; Rev thru Dec 1998) Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures |
| UL 710 | (1995; Rev thru Apr 1999) Exhaust Hoods for Commercial Cooking Equipment |
| UL Elec Equip Dir | (1999) Electrical Appliance and Utilization Equipment Directory |

1.2 GENERAL REQUIREMENTS

Food service equipment shall be of the sizes and types shown. Equipment, materials, and fixtures required for use in conjunction with the items to be furnished by the Government shall be furnished and installed by the Contractor. Equipment, materials, and fixtures indicated on the drawings and schedules shown as Contractor furnished and installed, shall be furnished and installed by the Contractor.

1.2.1 Mechanical, Electrical, and Plumbing Work

Plumbing systems, including final connections, shall be in accordance with Section 15400A PLUMBING, GENERAL PURPOSE. Electrical equipment, motors, wiring, and final connections shall be in accordance with Section 16415A ELECTRICAL WORK, INTERIOR. Gas piping and accessories, including final connections, shall be in accordance with Section 15190A GAS PIPING SYSTEMS.

Duct work and accessories shall be in accordance with Section 15895A AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEM. Painting shall be in accordance with Section 09900 PAINTS AND COATINGS. Air-conditioning systems shall be in accordance with Section 15720N. Air Handling Units

1.2.2 Kitchen Fire Protection Systems

Each exhaust hood system that serves cooking equipment, associated exhaust hood system ducts, and all cooking equipment served by the exhaust hood system shall be protected with a wet chemical fire extinguishing system. The wet chemical fire extinguishing systems shall be in accordance with Section 13965A WET CHEMICAL FIRE EXTINGUISHING SYSTEM. Grease extracting type hoods that have an internal hood fire protection system do not require wet chemical fire extinguishing protection for those components of the exhaust system, and for cooking equipment protected by a UL listed internal hood fire protection system complying to NFPA 96. Associated exhaust hood system ducts shall be protected with a wet pipe sprinkler system in accordance with section 13930A - Wet Pipe Sprinkler System Fire Protection.

Associated exhaust hood system ducts running in attic space shall be protected with a dry pipe sprinkler system in accordance with Section 1395A.

1.2.3 National Sanitation Foundation Standards

Food service equipment shall meet the requirements set forth by the National Sanitation Foundation (NSF). Acceptable evidence of meeting the requirements of the applicable NSF standards shall be either the equipment listed in NSF-01 displaying the NSF seal for the year the equipment was manufactured, a certification issued for special or specific food service equipment by NSF under their special one time contract evaluation and certification, or a certified test report from an independent testing laboratory, approved by the Office of the Surgeon General, indicating that the specific food service equipment has been tested and conforms to the

applicable NSF standards.

1.2.4 Verification of Dimensions and Coordination of Project Data

The Contractor shall become familiar with all details of the work and shall advise the Contracting Officer of any discrepancy before performing any work. The Contractor shall perform the following:

- a. Horizontal and vertical dimensions shall be field verified.
- b. Contract drawings and submittal data shall be reviewed for accuracy and completeness.
- c. The installed utility capacity and location shall be field checked.
- d. Critical systems/components shall be reviewed for application and capacities such as for exhaust hoods, refrigeration systems, fire suppression systems, gas, water, and steam/condensate line sizes and manifold configurations.
- e. Delivery shall be coordinated for access through finished openings and vertical handling limitation within the building.

1.2.5 Standard Products

Materials and equipment shall be the standard products of manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. The experience used shall include applications of equipment and materials under similar circumstances and of similar size. When two or more of the same products are supplied they shall be products of one manufacturer. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the site.

1.2.6 Nameplates

Each item of equipment shall bear a stainless steel, aluminum, or engraved polyester nameplate, as standard with the manufacturer, located in a conspicuous position and permanently fastened to the equipment. Name or identification plates shall be of the size standard with the manufacturer for the particular piece of equipment provided. Name plates shall reflect the name of the manufacturer/trade name, serial number, make, and model number, pertinent ratings, operating characteristics, and other information as standard with the manufacturer, date of manufacture, electrical characteristics, and other applicable data, such as flow rate, temperature, pressure, capacity, and material of construction. Separate equipment identification plates with the contract number marked thereon, shall be securely fastened to the surface of each piece of equipment.

1.2.7 American Gas Association Laboratories Standards

Gas-burning equipment shall be designed for operation with the type of gas specified and shall be approved by AGAL. Acceptable evidence of meeting the requirements of the applicable AGAL Directory standards shall be either AGAL mark on equipment, a photostatic copy of the AGAL appliance certificate, a listing of the specific food service equipment or appliance in the AGAL Directory of Certified Appliances and Accessories, or a certified test report from a nationally recognized independent testing

laboratory, indicating that the specified equipment has been tested and conforms to the requirements of the applicable AGAL standards.

1.2.8 Underwriters Laboratories Standards

Electrically operated equipment shall be in accordance with applicable UL standards such as UL 471, UL 489, UL 710 and UL 197. Evidence of meeting the requirements shall be a UL label on the equipment, a UL listing mark per UL Elec Equip Dir or a certified test report from a nationally recognized independent testing laboratory indicating that the specific food service equipment has been tested and conforms to the applicable UL standards.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Food Service Equipment; G A/E
Installation; G A/E

Data consisting of a complete list of equipment and materials. Detail drawings showing complete wiring, piping, and schematic diagrams, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work, including clearances for maintenance and operation.

a. Detail drawings by Contractor shall be separate drawings and shall be the contractor's standard sheet size, but not smaller than the contract drawings, and indicate the food service equipment and cold storage assemblies with itemized schedule, and special conditions drawings indicating size and location of slab depressions, cores, wall openings, blockouts, ceiling pockets, blocking grounds, ceiling, wall, access panels, and above ceiling hanger assemblies, rough-in plumbing/mechanical systems and rough-in electrical systems.

b. Detail drawings by manufacturer shall be separate drawings; sheet size shall be manufacturer's standard size and indicate item number, name, and quantity, construction details, sections, and elevations, adjacent walls, columns, and equipment, plumbing and electrical schematics, and fabricated fixtures with single electrical or plumbing connection, and service access panels required for maintenance or replacement of mechanical or electrical components.

c. Detail drawings by the Contractor that show the size, type, and location of equipment drain lines, and floor drains. Drawings shall indicate drain lines from equipment, distances of drain lines and floor drain receptacles from equipment and aisles, and elevation views of drain piping and floor drains.

SD-03 Product Data

Food Service Equipment; G A/E

Manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Brochures shall have front and rear protective covers with labeled project name and include an index indicating item number, quantity, description, and manufacturer, a fly sheet for each component indicating item number, name, quantity, manufacturer, optional equipment, modification, special instruction, and utility requirements, and catalog specifications sheets.

SD-06 Test Reports

Testing; G A/E

Test reports in booklet format showing all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system. Each test report shall indicate the final position of controls.

SD-10 Operation and Maintenance Data

Food Service Equipment; G A/E

Six complete copies of the service manual, not later than 3 months prior to the date of beneficial occupancy, with data for each different item of material and equipment specified. Service manuals shall include:

- a. Front and rear protective covers with labeled project name.
- b. Index indicating item number, quantity, description, manufacturer's name, and model number.
- c. Maintenance instructions for stainless steel and plastic laminate.
- d. Manufacturer's catalog specification sheets and manufacturer's detail and control drawings.
- e. Manufacturer's operation manual outlining the step-by-step procedures for equipment installation, startup, basic operation features, and operation shutdown.
- f. Manufacturer's maintenance manual listing routine maintenance procedures, possible breakdowns, repairs, and troubleshooting guides. The instructions shall include simplified diagrams for the equipment as installed.
- g. Manufacturer's list of parts and supplies with current unit price and address of manufacturer's parts supply warehouse.

1.4 DELIVERY AND STORAGE

1.4.1 Delivery

Unless otherwise directed, the following procedures shall apply:

- a. Field assembled fixed equipment integrated into structure shall be sent to jobsite when required.
- b. Fixed equipment not integrated into structure shall be sent to the jobsite after completion of finished ceilings, lighting, and acidizing of the finished floor and wall systems, including painting.
- c. Major movable equipment shall be delivered to inventory in a secured area for interim jobsite storage, or if secured area is not available, when fixed equipment installation/clean-up has been completed.
- d. Minor appliances and loose items shall be delivered to the jobsite when the Contracting Officer is prepared to receive and inventory such items.

1.4.2 Storage

Items delivered and placed into storage shall be stored with protection from weather, humidity, and temperature variation, dirt and dust, or other contaminants.

1.4.3 Protection of Fixed/Fabricated Manufactured Equipment

Fiberboard or plywood shall be taped to surfaces as required by equipment shape and installation access requirements.

1.4.4 Prohibited Use of Equipment

Food service equipment shall not be used as tool and material storage, work bench, scaffold, or stacking area.

1.4.5 Damaged Equipment

Contractor shall immediately submit documentation to the Contracting Officer with a recommendation of action for repair or replacement and the impact on project schedule.

PART 2 PRODUCTS

2.1 MATERIALS

All materials shall conform to the following:

1 - 2.1.1 Stainless Steel, Nonmagnetic

ASTM A 167 or ASTM A 240/A 240M: 18-8 **gauge**, 300 Series, austenitic, polished to No. 3 or 4 finish on exposed surfaces.

2.1.2 Stainless Steel Pipe and Tubing

ASTM A 269. Pipe and tubing shall be seamless or welded, of the gauge specified, of true roundness, and of material as specified for stainless steel. Seamless tubing shall be thoroughly annealed, pickled, and ground smooth. Welded tubing shall be thoroughly heat-treated, quenched to eliminate carbide precipitation and then drawn true to size and roundness, and ground. Tubing shall be given a No. 3 or 4 finish when exposed to view.

2.1.3 Galvanizing Repair Compound

ASTM D 520, Type I pigment.

2.1.4 Brazing Material

AWS A5.8, class shall be as applicable.

2.1.5 Steel Structural Shapes for Framing

ASTM A 36/A 36M. Structural shapes shall be uniform, ductile in quality, and shall be free of hard spots, runs, checks, cracks and other surface defects. Sections shall be galvanized by the hot-dip process, conforming to ASTM A 123/A 123M.

2.1.6 Coatings

Coatings shall be of a durable, nontoxic, nondusting, nonflaking, and mildew-resistant type, suitable for use with food service equipment and in conformance with NSF 2. Application shall be in accordance with the recommendations of the manufacturer.

2.1.6.1 Exterior Parts

Exterior, galvanized parts, exposed members of framework, and wrought steel pipe, where specified to be painted, shall be cleaned, and free of foreign matter before applying a rust inhibiting prime and two coats of epoxy-based paint in accordance with Section 09900 PAINTS AND COATINGS, unless otherwise specified. Color shall be selected by the Contracting Officer from manufacturer's standard colors.

2.1.6.2 Solder Material

ASTM B 32, Sn96.

2.2 COUNTERS

Counters shall be constructed in accordance with applicable portions of NSF 2.

2.2.1 Counter Tops

Counter tops shall be constructed of 1.9 mm stainless steel with all seams and corners welded, ground smooth, and polished.

2.2.2 Cafeteria Counters

Cafeteria counters shall be constructed and sound deadened as indicated and as specified for counters.

2.2.3 Pitch and Drainage of Equipment Surfaces

Wherever a fixture has a waste or drain outlet, the surface shall have a distinct pitch toward such outlet. Corners shall be coved on 19 mm radius and sloped 10 mm per m maintaining level crown at front edges of rolled rims, marine edges, and backsplashes, when tops are sloped to drains.

2.2.4 Drip Gutter

Drip gutter shall be an integral part of the counter top and located below beverage dispensing faucets where indicated. Drip gutter shall be provided with a 25 mm brass drain tube centered in the bottom of the gutter. Bottom shall be pitched to the drain. The drip gutter shall be 100 mm wide, 25 mm deep, and the length indicated. The drip gutter shall be provided with a 100 mm wide, 25 mm high, removable, nonsplash, stainless steel, wire mesh strainer with frame. A cold water flush inlet fitting shall be installed at one end of the gutter, and shall have a faucet with quick disconnect connection mounted under the top.

2.2.5 Counter Edges and Backsplashes

2.2.5.1 Counter Edges

Counter edges shall be one of the following types:

- a. Turned Down: Fifty millimeters at 90 degrees with 19 mm tight hem at bottom. Free Corners shall be rounded on 19 mm radius.
- b. Marine Edge: Turned up 13 mm and 38 mm at 45-degree angle and turned down 50 mm at 135 degree angle with 19 mm tight hem at bottom.
- c. Rolled Rim: Coved up 75 mm with 38 mm wide rim rolled 180 degrees and turned down to table top; hem edges, and bullnose corners.

1 - 2.2.5.2 Counter Backsplash

Counter backsplash shall be one of the following types:

- a. Coved up 250 mm and sloped back 38 mm at the top on a 45-degree angle; 63 mm slope where piping occurs. Turned down 25 mm at 135 degrees at the rear of the splash with the ends closed to the bottom of the top turn down. Splash turn down shall be secured to wall with 100 mm long, 1.9 mm stainless steel "zee" clips anchored to wall, 900 mm on center.
- b. Turned up 150 mm at 90 degrees on **19 mm** radius with edge turned back 25 mm at 90-degree angle with 25 mm turn down at 90 degrees at rear of splash with the ends closed to the bottom of the top turn down. Splash turn down shall be secured to wall with 100 mm long, 1.9 mm stainless steel "zee" clips anchored to wall, 900 mm on center.
- c. Turned up 150 mm at 90 degrees on a **19 mm** radius with edge turned back 50 mm at 90 degree angle with the ends closed to the bottom of the top turn down. Splash turn down shall be secured to wall with 100 mm long, 1.9 mm stainless steel "zee" clips anchored to wall, 900 mm on center.

2.2.6 Counter Top Support Angles

Counter top support angles shall be of 38 by 38 by 3 mm painted galvanized steel angles with all corners mitered, welded, and ground smooth at perimeter. Cross members shall be provided on 600 mm centers maximum. A 100 by 100 mm, 2.7 mm stainless steel triangular pad shall be provided where leg gussets are welded to the frame. Angle frame shall be stud bolted to counter top.

1 - 2.2.7 Sound Deadening of Counters, Sinks **and Worktables**

Counter tops, sinks **and worktables** shall be sound deadened with 13 mm wide rope sealant positioned continuously between all contact surfaces of the frame-members and the underside of counter top, overshelves and undershelves. Stud bolts shall be tightened for maximum compression and the excess sealant trimmed.

2.3 COUNTER BASES

Counter bases shall be open or closed as indicated.

2.3.1 Closed Bases

Closed bases shall be constructed with 38 mm by 38 mm, 3 mm galvanized steel angle with all corners mitered, welded, and ground smooth. Horizontal and vertical angles shall be provided on 600 mm centers or less. The enclosure panels on closed bases shall be of 1.3 mm (stainless steel galvanized steel with laminate plastic material conforming to NEMA LD 3 and NSF 35. Joint trim on enclosed bases shall be 50 mm wide, 1.9 mm stainless steel, attached with concealed stud bolts and sealed to interior partition. Enclosed bases shall be double walled on interior, exposed ends, and at interior exposed partitions. Service access shall be provided for utilities supplying equipment designed to fit atop the counter.

2.3.2 Open Bases

Open bases shall be constructed of 41 mm outside diameter, 1.6 mm stainless steel rails welded 360 degrees to the legs.

2.3.3 Gussets

Gussets shall be stainless steel, fully enclosed, a minimum of 75 mm in diameter at the top, reinforced with a bushing, and shall be continuously welded to channel or angle.

2.3.4 Legs

Legs shall be of 41 mm outside diameter stainless steel tubing. Legs shall be continuously welded to gussets, channel, or angle as specified.

2.3.5 Feet

Feet shall be sanitary, die-stamped stainless steel bullet-shaped, fully enclosed and shall provide for a 25 mm adjustment without threads being exposed. The bottom of the legs shall be finished off smoothly and the stem overlapped to provide a sanitary closed fitting. Feet for free-standing fixtures requiring utility connections shall be as above except with a flanged plate at the bottom which shall be anchored to the floor with noncorrosive bolts.

2.3.6 Undercounter Shelving

2.3.6.1 Open Base Shelves

Open base shelves shall be constructed of 1.6 mm stainless steel with all edges turned down 38 mm at 90 degrees with a 19 mm tight hem at bottom. Corners shall be notched a full 90 degrees and welded from underside to

completely fill the gap, ground and polished. Undershelf shall be braced with 25 mm by 100 mm, 1.9 mm stainless steel channel at longitudinal center line and between each intermediate pair of legs.

2.3.6.2 Closed Base Shelves

Interior shelves on closed bases shall be constructed of 1.6 mm (16 gauge) stainless steel. Side edges of the shelf shall be turned up 50 mm at 90 degrees on a 6 mm radius and sealed to the side walls. Rear of the shelf shall be coved up at 90 degrees on a 16 mm radius to shelf above or counter top, flanged out for attachment with no open space at interior. Vertical joints shall be sealed. Front edge shall be turned down 50 mm at 90 degrees with a 19 mm tight hem. The vertical seam of shelf turn down/turn up shall be welded to the face of body partition. Maximum depth of shelves shall be 560 mm. Shelves shall be reinforced with 25 mm by 100 mm, 1.9 mm stainless steel closed hat channel. Shelf slides, where indicated, shall be 1.9 mm (14 gauge) stainless steel, 38 mm by 38 mm angles, and shall have front and back corners rounded and finished smooth.

1 - 2.3.7 Tray Slides

Tray slides shall be as shown on drawings. The width of the tray slides shall not be less than **355 mm (14 inches)**. The mounting height of the tray slides shall be 850 mm above the finished floor. Tray slides shall be installed true and level. Tray slide shall be designed and installed to preclude tray spillage.

2.3.7.1 See Drawings. 2.3.7.2 See Drawings.

2.3.7.3 Support Brackets

Support brackets for tray slides shall be stainless steel, and shall be secured to the trim strip of the counter with stainless steel truss head bolts. Brackets shall not be spaced more than 1200 mm, center to center.

1 - 2.3.8 Protector Shelf

Protector shelf shall be installed on the serving line counters and shall be located over the equipment as indicated. Protector/serving shelf shall be constructed of 1.6 mm (**16 gauge**) stainless steel, with a minimum width of at least 300 mm, and shall have a full 25 mm skirt with 19 mm tight hem on all sides and shall be supported on stainless steel uprights, at front. All free corners shall be rounded on a 19 mm radius.

2.3.8.1 Heat Lamps

Heat lamp units shall be provided with consolidated chassis of longest possible length for multiple sections. Heat lamp units shall have integral incandescent display light with warm white lamps and shall be wired to a recess mounted infinitely adjustable heat control with pilot light for each separate section. Heat lamps shall be secured tightly to the underside of the serving shelf and shall have a "USDA" approved heat protector provided between the heat lamps and the shelf. Maximum allowable temperature at the top of a serving shelf shall be 49 degrees C.

2.3.8.2 Fluorescent Display Light Modules

Fluorescent display light modules shall be in 450 mm and 900 mm increments, each with regular or deluxe white T-8 energy efficient lamps. Display lamps shall be wired to a single recess mounted master switch per serving shelf.

2.3.8.3 Heat Lamp/Display Wiring

Heat lamp/display wiring shall be concealed in a corner post.

2.3.8.4 Protector Glass

Protector glass sheet shall be no less than 6 mm thick in transparent, tempered plate glass or heat- and mar-resistant clear acrylic framed in an all welded stainless steel channel edging and shall be installed under the protector shelf and in front of the food display. At the top and bottom of the installed glass shall be a 25 mm space for vapor venting. The protector glass or clear acrylic shall be pivoted for easy cleaning. Design shall be such that glass or clear acrylic can be replaced in the event of breakage.

1 - 2.3.8.5 Food Shield

Food shield/self serve shall conform to NSF 2 and be constructed of 1.6 mm (**16 gauge**) stainless steel, with a minimum width of at least 300 mm and shall have a full 25 mm skirt with 19 mm tight hem on all sides and shall be supported on stainless steel uprights at front. All free corners shall be rounded on 19 mm radius.

- a. Adjustable louver brackets below the top shall be fitted with 6 mm polished, tempered plate glass or heat and mar-resistant clear acrylic framed in an all welded stainless steel channel and shall be installed with a 175 mm clearance above counter top.
- b. Fluorescent light fixtures shall be installed the full length of the none heated undershelf displays. Display light wiring shall be concealed in a corner post. Fixtures shall be prewired to a single recess-mounted master switch per serving shelf.

2.4 DISH COUNTERS

Dish counters shall be constructed and sound deadened as indicated and as specified for counters and sinks. The dish counters shall be fitted and flanged into the dishwashing machine with a water-tight joint.

2.4.1 Dish Counter Support Channels

Dish counter support channels shall be 25 mm by 100 mm by 25 mm, 2.7 mm stainless steel. Channels shall be provided under dish counter top between each pair of legs and shall have closed ends. Cross members, on the centerline, shall be provided between legs. Channels shall be stud-bolted to counter top at 150 mm on center, maximum.

2.4.2 Dish Counter Components

1 - 2.4.2.1 NOT USED

2.4.2.2 Prewash Sink

Integral prewash sink shall be 520 mm by 520 mm welded to the dish counter

top with the corners rounded on 13 mm radius. The sink bottom shall be pitched to 1.6 mm stainless steel disposer throat flange or as specified by manufacturer 38 mm. Removable rack support/slide assembly shall be a 520 mm square 1.6 mm gauge frame with two cross members. Two 25 mm by 3 mm stainless steel angle rack guides shall be welded on top of the frame at 500 mm apart with ends flared at 45 degrees.

2.4.2.3 Prerinse Spray

A prerinse spray assembly shall be mounted on the backsplash of the dish counter with vertical tubing, wall bracket, flexible gooseneck hose, and self closing squeeze-type valve and spray.

2.4.2.4 Hose Bib Faucet

A hose bib faucet shall be mounted on a 2.7 mm stainless steel flange or inverted gusset below top of counter, which shall be ground and polished to match counter top.

2.4.2.5 Undershelves

Undershelves shall be the solid type, and shall be constructed as specified for open base shelves.

2.4.2.6 Scraping Trough

Scraping trough in the soiled dish counter shall be 1.9 mm stainless steel with all corners 19 mm coved, and shall be integrally welded to the dish counter. Trough shall be 200 mm wide minimum and shall be sloped 1 percent or from 100 mm depth to integral disposer or prewash sink. Long sides of trough shall be formed on a 60 degree angle with a 13 mm by 13 mm recessed shoulder at juncture of the dish counter. Removable trough covers shall be 197 mm by 500 mm, 1.6 mm stainless steel, pan formed, and the top shall be perforated 13 mm diameter holes punched 38 mm on center. One trough cover shall be provided for each 900 mm of trough. One inlet fitting shall be installed at the shallow end of the scraping trough, and intermediate inlet fittings shall be installed at 1200 mm on center. Inlet fittings shall be piped to a blending valve, vacuum breaker, solenoid valve, and shall have a globe valve at each intermediate inlet. Integral disposer sink shall be 450 mm by 450 mm by 188 mm deep, 1.9 mm stainless steel with all corners coved, welded to dish counter/scraping trough and shall be fitted with a removable silverware-trap. Removable flush cover shall be 1.6 mm stainless steel, 13 mm pan-formed, and perforated 13 mm holes punched at 38 mm on center with welded corners. A finger ring shall be provided for the removal of the cover. Support clips shall be 6 mm diameter stainless steel rod, 50 mm long, formed at 45 degree angle with two 19 mm leg ends 6 mm long threaded ends. Rod-clips shall be inserted through tight clearance holes in sink corners, and sealed watertight and shall be secured with stainless steel acorn-nuts or tack-welded at exterior of sink wall. Support clips shall be set for a flush cover position approximately 13 mm below top. A solenoid valve shall be interconnected with the disposer delay-relay control to initiate the blended water flow when the disposer is activated. All inlet fittings shall have 13 mm stainless steel tubing from blending valve to inlet fittings. Exposed fittings shall be chrome plated.

1 - 2.4.3 Slant Rack Overshelf

Glass/cup rack overshelf shall be 1.9 mm stainless steel with a 38 mm deep "Vee" trough at free long sides with a 25 mm tight hem at inside of trough.

A 13 mm marine edge shall be provided at free ends and a 100 mm high splash at the wall.

- a. Shelf shall be suspended with bottom edge at 450 mm above counter top.
- b. Drain tubes shall be provided at each end of trough through the backsplash to 19 mm above top of table.
- c. A horizontal rack rest of 41 mm outside diameter stainless steel tubing shall be provided the full length of the shelf and shall be supported 250 mm above the shelf on 31 mm outside diameter stainless steel tubing spaced at 1500 mm on center.

2.4.4 Dish/Tray Return Shelf

Dish/tray return shelf shall be sized as indicated on the drawings. Shelf shall extend through opening in wall to be flush with the wall at the deposit side. Shelf shall be turned down 25 mm at 90 degrees at the front with 19 mm return at bottom. Rear long side shall be turned down 25 mm at 90 degrees, and shall be integral with conveyor slider pan whenever adjacent.

2.4.4.1 Window Frame

Window frame shall be of 1.3 mm stainless steel and shall have the perimeter flange channel-formed, 25 mm by 19 mm at both sides of the wall. Corners of the frame shall be welded. The frame shall be installed with concealed attachments. The jamb of frame shall be aligned/abutted with the end splash of conveyor slider pan, whenever adjacent.

2.4.4.2 Overhead Rolling Door

An overhead rolling door shall be fitted into the dish/tray return. Enclosure and track installation shall be coordinated with the splash/jambs, and partition bucks.

2.5 CONVEYOR

2.5.1 Conveyor, Electrical

Conveyor shall be the endless belt type, electrically operated, straight, soiled dish type. Conveyor shall be U.L. listed and NSF approved.

2.5.1.1 Trough

The conveyor shall have a one-piece seamless pan constructed of 1.9 mm stainless steel with integral tracking trough. Integral belt track shall be pitched longitudinal for drainage and shall be equipped with a timed/automatic detergent wash. Horizontal and vertical corners shall be reinforced with 2.7 mm stainless steel closed end channels. Conveyor pan edges shall be turned up 75 mm with 19 mm at 90 degrees to form rolled rim. Pan shall be sized to transport standard 356 mm by 457 mm cafeteria trays. Slider pan shall be mounted on "U" shaped supports of 2.7 mm stainless steel, at 1500 mm on center. Legs shall be provided as specified for gussets, legs, and feet. Conveyor drive housing frame shall be constructed of 1.9 mm stainless steel. Enclosure shall have a 1.6 mm stainless steel, double insulated pan-formed access door with safety interlock, and shall be set on stainless steel adjustable legs. Provide stainless steel monorail return system with slide rails.

2.5.1.2 Motor

Conveyor shall be driven by a totally enclosed gearhead reduction motor of the size scheduled with overload and low voltage protection. Conveyor speed shall be infinitely variable from 0.1 to 0.25 meters per second using solid state controls. The drive shall be controlled manually through a water-tight control panel mounted as shown by the manufacturer. Motor components shall be factory prewired in accordance with NFPA 70 using waterproof conduit and NEMA ICS 6 and NEMA 250, Type 4 stainless steel waterproof enclosures. Motor shall be provided with devices to automatically stop the conveyor belt without coasting.

2.5.1.3 Control Panel/Controls

The control panel controls shall have an exposed disconnect switch and overload protection with reset key control for AC motors and replaceable fuse for DC motors. All components, such as overload and low voltage protection, motor controller, and control relay, shall be located within the control panel, all prewired to a terminal strip. External controls shall be 24 volt. A remote on-off switch shall be provided at each scrap station to manually control the conveyor operation. An automatic limit switch shall be provided at the take off end. Conveyor belt shall be provided with an automatic shutoff jam switch.

2.5.1.4 Belt Washer

The belt washer shall include a stainless steel wash tank with a removable scrap basket, and waste extension. A spray assembly shall be provided to wash the belt on both sides and shall be factory plumbed through a pump-type detergent injector. The wash assembly shall be provided with a mixing valve, water pressure regulator, gauge, vacuum breaker, solenoid valve, and in-line strainers. A timer shall be provided to regulate the duration of the belt-wash system. The beltwasher shall not be operable when the conveyor is stopped. Provide easily accessible stainless steel detergent dispenser cabinet with tank and low level indicator.

2.5.1.5 Drip Pan

A 1.3 mm stainless steel drip pan shall be provided the full length of the conveyor. The drip pan shall be turned up on each side, creased for center drainage, and shall be pitched or directed by a conveyor belt to an integral sump and removable strainer at the drain locations.

2.5.1.6 Conveyor Belt

The slat conveyor belt shall be overlapping and of nonstaining plastic material. Belt slats shall be 250 mm wide and shall snap onto a stainless steel chain without the use of tools. The chain shall be the driving force. Belts shall ride on high density plastic slide rails. Sprocket hubs and shafts shall be stainless steel with stainless steel teeth. Enclosure panels of 1.3 mm stainless steel shall be hinged to the slider pan, and the conveyor under-bracing assembly by means of concealed hinges at the top and screw fasteners or magnetic catch at the bottom.

2.5.1.7 Curve Guide

Where the conveyor negotiates a curve, it shall be equipped with an antifriction device to reduce friction and wear. Lubrication, if

necessary, shall be applied to the curve by means of a remote electrical pump.

2.5.2 Conveyor, Gravity Flow Type

Conveyor shall be stainless steel roller, gravity operated, soiled dish type, to transport standard 356 mm by 457 mm cafeteria trays, constructed in accordance with NSF 2, and shall be size and configuration indicated.

2.5.2.1 Conveyor Trough

The conveyor trough shall be one-piece, seamless, constructed of 1.9 mm stainless steel with integral soiled landing table, trough to be depressed to accept roller sections, pan pitched to soiled dishtable where indicated.

2.5.2.2 Soiled Dishtable

Table shall be one-piece, seamless, construction of 1.9 mm (14 gauge) stainless steel integral with trough, landing shelf and adjacent dishtable surfaces. Table shall be turned up 250 mm at 90 degrees and back at 45 degrees where table is against wall surfaces, turned up 75 mm at 90 degrees on all non-wall areas to form rolled rim. Table shall be mounted on 2.7 mm stainless steel closed end channel supports 1500 mm on center. Legs shall be provided as specified for stainless steel gussets, legs, crossrails, and feet. Ninety degree table turns shall be equipped with 2.7 mm stainless steel guide, complete with antifriction device. All corners shall be 19 mm coved radius.

2.5.2.3 Roller Assemblies

Roller sections shall be stainless steel, tubing style, with stainless steel ball bearings. Rollers shall be mounted to stainless steel hex shafts, set in 2.7 mm stainless steel side rails formed to maintain trays in proper alignment. Each section end of frame shall be fitted with stainless steel plate notched for easy removal. Roller section shall be mounted in trough to allow for free movement of trays without drag. Curved sections shall have 1.9 mm side rails with two rollers per shaft to negotiate corner turn.

2.6 SINKS

Sink shall be of the dimensions indicated and conform to the applicable requirements of NSF 2. Sinks shall be constructed of a minimum of 1.9 mm stainless steel. Vertical and horizontal corners shall be rounded to a radius of not less than 19 mm with double walls at partitions. Continuous 1.9 mm stainless steel exterior filler panels shall be provided between compartments of multiple-compartment sinks and shall be ground and polished to match the adjacent surfaces. The sink bottom shall be scored and sloped to assure drainage to the waste outlet. Sinks shall be equipped with waste and overflow fittings, drain plugs with quick-opening valves, and faucets of the type specified. Faucet and drain plug, and overflow fitting shall be required for each sink compartment, unless otherwise indicated. Spout outlet of faucets shall be a minimum of 125 mm above the rim of the sink. Sink legs shall be as specified for counters, except that closed gussets shall be welded to the support channels. Sinks installed adjacent to walls or enclosures shall be anchored and sealed thereto. Sinks shall be sound-deadened as specified for counters.

2.6.1 Plumbing/Trim Requirements

2.6.1.1 Drain Plug and Overflow Fittings

Drain shall consist of a 38 mm quick opening brass body valve with side outlet overflow connection with a stainless steel twist lever handle. Removable perforated stainless steel strainer plate shall be not less than 75 mm in diameter. Overflow fittings shall consist of 31 mm diameter chrome-plated brass tubing of not less than 0.91 mm thickness connected to an overflow head in the back of the sink compartment. Overflow head shall have a removable perforated chrome-plated brass or stainless steel strainer plate of not less than 38 mm diameter. Overflow head shall be installed in die-stamped opening 25 mm below counter top.

2.6.1.2 Backsplash-Mounted Faucets

Backsplash-mounted faucets shall be combination fitting-type with an exposed body and concealed supply connections at the back of the sink. Fitting shall have a swinging spout of approximately 200 mm in length and inlets with 19 mm pipe thread. Faucets shall have adjustable flanges. Valves shall have indexed metal lever handles and replaceable seats.

2.6.1.3 Counter Top or Ledge-Mounted Faucets

Counter top or ledge-mounted faucets shall be combination fitting-type with a concealed body and with the supply connections under the sink ledge or counter top. The faucets shall have replaceable valve seats, swinging spout elevated to clear valve handle, and four-arm or lever-style indexed metal handles. Chrome-plated copper alloy or stainless steel escutcheons for valves and spout, locknuts and washers or lock-nut type escutcheons together with coupling nuts, and 15 mm pipe size union-tailpieces shall be provided.

2.6.1.4 Control Valve Mountings

Gusset-shaped 1.9 mm stainless steel panel for the control valves shall be mounted on open base fixtures with 88 mm setback from the countertop edge/rim to the valve handle.

2.6.2 Pot Washing Sinks

2.6.2.1 Final Rinse Compartment

The final rinse compartment of the pot washing sink shall be equipped with a booster heater for sanitizing.

2.6.2.2 Temperature Gauge

Temperature gauge shall have a 75 mm diameter face with stainless steel flange.

2.6.2.3 Valves, Temperature Gauge, and Controls Mounting

Valves, temperature gauge, and controls shall be installed in a stainless steel recessed panel, ready for final connections. A perforated stainless steel casing shall be provided over the temperature bulb.

2.6.2.4 False Bottom

False bottom shall be constructed of 1.9 mm stainless steel, 13 mm deep pan

formed with a perforated top (13 mm holes punched 38 mm on center), and shall have welded corners and finger rings. False bottom shall be fitted with 50 mm high by 31 mm outside diameter tubular stainless steel feet with closed ends.

2.6.3 Cutlery and Excess Liquid Sinks

Cutlery and excess liquid sinks shall have a removable standpipe overflow, in lieu of an overflow in the back of the sink. The overflow shall be installed in the corner of the sink compartment. Compartments shall be provided with snug-fitting removable basket strainers. Drain plug with quick-opening valve shall be arranged for operation from the work side of the counter.

2.6.4 Glass Washing Sinks

Backsplashes shall be suitable for mounting the glass washing machine. Back shall be reinforced to eliminate vibration and noise.

2.7 EXHAUST HOODS OVER COOKING EQUIPMENT

Hoods and duct work systems shall conform to ACGIH-2092M , NFPA 96, and SMACNA HVAC Duct Const Stds. Hoods shall be U.L. listed per UL 710 and NSF approved. These standards represent only the minimum requirements; subsequent subsections of this clause may require construction that exceeds these minimum requirements. Unless otherwise specified, ducts and hoods shall be secured to building so as to be level and free from vibration under all conditions of operations.

2.7.1 Exhaust Duct

Exhaust duct for canopy or noncanopy hoods shall be constructed of 1.3 mm galvanized stainless steel and shall have external seams welded continuously, liquid tight. Duct size shall be based on a minimum air velocity of 7.6 meters per second and maximum of 12.7 meters per second. Duct shall be continuously welded, liquid tight, to hood duct collar as required by NFPA 96.

2.7.2 Hood Support

Wall mounted or island type hoods shall be supported from the structure with stainless steel mounting brackets provided with hoods. Hanger rods shall be 13 mm diameter stainless steel, threaded at the bottom and designed at the top to fit into inserts in building slats above or shall have hanger attachments fastened to structural steel members. Hanger rods shall be spaced 1200 mm on center, maximum.

2.7.3 NOT USED

2.7.4 Hood Lights and Wiring

Fixtures shall be U.L. Listed, recessed mounted, vapor proof fluorescent fixtures located along the full length of hood. The light fixtures shall be prewired to junction box on top of the hood. Regular or deluxe cool-white T-8 energy efficient fluorescent lamps shall be supplied. Hoods shall be factory prewired and shall have a single connection point. Hoods built in multiple sections shall be furnished with inter-connecting junction boxes for field connection of light fixtures.

2.7.5 Closure Panels

Vertical corner mullions, at removable closure panels, shall be 50 mm by 50 mm wide, 1.6 mm stainless steel, and shall be welded integrally to the furring and head channel. Exhaust hood closure panels shall be 13 mm pan-formed, 1.3 mm stainless steel. Upper edge of panels shall be retained in 25 mm by 50 mm continuous 1.6 mm stainless steel head channel secured to the hood superstructure. Lower edge of panels shall be mounted on perimeter furring cap, and shall be turned back 25 mm and flanged up 25 mm for "zee" clip retention.

2.7.6 NOT USED

2.7.7 Hand Held Fire Extinguishers

Hand held fire extinguishers shall be located at each exhaust hood and shall be suitable for gas, electric, and grease fires.

2.7.8 Filter Type Hoods

Filter type hoods over cooking equipment shall be of canopy or noncanopy construction, UL listed, NSF approved, pre-engineered, and factory fabricated. Hoods shall be constructed of 1.3 mm stainless steel. Internal hood joints, seams, filter support frames, and appendages attached inside the hood shall be sealed or otherwise made grease tight. Internal joints, seams, filter support frames and appendages shall be mechanically sound and sealed grease tight in accordance with the hood manufacturer's listing procedure and NFPA 96. Hoods over 3.6 m in length shall be provided in multiple, for mounting end to end. Hoods comprised of multiple sections shall be factory preassembled and shall be provided with predrilled mounting holes and stainless steel fasteners. Hoods shall be shipped separately for field installation. Welded field joints inside the capture area and exposed to view shall be ground and polished to match the adjacent finish. UL listed full joints shall be provided per terms of the manufacturer's listing. Hoods shall be factory prewired and shall have a single connection point. Hoods built in multiple sections shall be furnished with junction boxes for field connection.

2.7.8.1 Canopy Hoods

Canopy hoods shall completely cover the cooking equipment. The hood shall overhang the cooking equipment a minimum of 150 mm at each end and 300 mm in front of the equipment. Exhaust air volumes for hoods, wall or double island type, shall be a minimum of 0.51 cubic meter per second per square meter of suction opening, to provide for capture and removal of grease-laden cooking vapors. Exhaust air volumes for single island type hoods shall be a minimum of 0.76 cubic meter per second per square meter of suction opening, to provide for capture and removal of grease-laden cooking vapors, . Test data or performance acceptable to the authority having jurisdiction over both shall be provided and displayed. Factory built commercial exhaust hoods which are tested in accordance with UL710, listed, labeled and installed in accordance with manufacturer's instructions. Instructions shall not be required to comply with 2.7.8.1 of this specification.

2.7.8.2 NOT USED

2.7.8.3 Grease Filters

Grease filters shall be in accordance with UL 1046. Filters shall remove heat, odor, smoke, residue, and grease vapors from the exhaust of the applicable cooking process. Filter design shall result in optimum air velocity for the removal of residues and grease. Construction shall be stainless steel in an overlapping staggered arrangement to restrict the passage of flame upstream of the filter media.

2.7.9 Grease Extracting Type Hoods

Grease extracting exhaust hoods shall be pre-engineered, factory fabricated and assembled. Grease extracting exhaust hoods shall be of the size and type as indicated and shall be welded to the exhaust ductwork as required by NFPA 96. Hoods shall have a minimum grease extracting efficiency of 95 percent to be accomplished without the use of filters, cartridges or constant running water.

2.7.9.1 Construction

Construction shall be entirely of stainless steel. Grease extraction chamber and exhaust capture chamber shall be not less than 1.3 mm stainless steel. Seams or joints that direct and capture grease laden vapors shall be continuously welded, with the weld ground and polished to match the adjacent finish where exposed. The vertical joint where the front outside face of the hood meets the end panel of the hood shall be continuously welded, with the weld ground and polished to match the adjacent finish. Joints, seams, extractor chambers, and appendages shall be mechanically sound and sealed grease tight in accordance with the hood manufacturer's listing procedure and NFPA 96. Hoods over 3.6 m in length shall be provided in multiple, equal-length sections for mounting end to end; no section shall be less than 1.8 m in length. Hoods comprised of multiple sections shall be factory preassembled and provided with predrilled mounting holes and stainless steel fasteners. Welded field joints inside the capture area and exposed to view shall be, ground and polished to match the adjacent finish. Hoods shall be factory preplumbed and prewired and shall have a single connection point. Hoods built in multiple sections shall be furnished with unions and junction boxes for field connections. Grease extracting exhaust hoods shall be of the overhead type suitable for ceiling mounted island-type. Steel mounting brackets shall be provided by the manufacturer.

2.7.9.2 NOT USED

2.7.9.3 NOT USED

2.7.9.4 Internal Hood Fire Protection

Grease extracting hoods shall be furnished with piping and nozzles for a fire protection system providing protection of the exhaust hood system, grease extractor, exhaust duct, and the cooking equipment served by the exhaust hood, per NFPA 96. Exposed piping and fittings shall be chrome-plated or stainless steel sleeved.

2.8 CONDENSATE HOODS

Hood and duct work systems shall conform to ACGIH-2092M, SMACNA HVAC Duct Const Stds, and NFPA 96. Unless otherwise specified, ducts and hoods shall be secured to building so as to be level and free from vibrations under all conditions of operation. Supply and installation of exhaust fans for food service equipment and exhaust hoods shall be as specified in Section

15895-Air supply, distribution, ventilation and exhaust.

2.8.1 Condensate Exhaust Hood Connection Provisions

2.8.1.1 Exhaust Duct for Canopy or Noncanopy Condensate Hoods

Ducts shall be constructed of 1.3 mm (18 gauge) stainless steel. External seams shall be welded and liquid-tight. Duct size shall be based on a minimum air velocity of 4.06 meter per second. Duct shall be continuously welded, liquid tight, to hood duct collar as required by NFPA 96.

2.8.1.2 Hood Support

Wall mounted or island type hoods shall be supported from the ceiling structure with stainless steel mounting brackets provided with the hoods. Hanger rods shall be 13 mm diameter stainless steel, threaded at the bottom and designed at the top to fit into inserts in building slats above or hanger attachments fastened to structural steel members. Hanger rods shall be spaced 1200 mm on center, maximum.

2.8.1.3 Make-Up Air Tempered and/or Untempered

The air volume which is exhausted from a kitchen shall be replaced as required by NFPA 96. Air supplied upstream of the hood suction opening does not qualify as make-up air. The exhaust air flow rate of ventilation of dishwasher equipment shall be drawn through the open area between the dishwasher machine and the perimeter entrance of the hood. Make-up air diffusers shall be provided the full length of the front panels, at both sides of the hood producing a low velocity discharge. The supply air plenum shall have 25 mm thick foil-faced fiberglass insulation at interior of plenum. The temperature differential between make-up air and the air in the conditioned space shall not exceed 12 degrees C, except air that is part of the air conditioning system or air that does not decrease comfort conditions of the occupied space.

2.8.1.4 Hood Lights and Wiring

U.L. listed, recess mounted, gasketed vapor-proof fluorescent light fixtures shall be provided the full length of the hood as shown on the drawings. The light fixtures shall be prewired to junction box at a rear free corner. A Cool white T-8 energy efficient lamps shall be used.

2.8.1.5 Closure Panels

Vertical corner mullions shall be provided at removable closure panels, 50 mm by 50 mm, 1.6 mm (16 gauge) stainless steel, and shall be welded integrally to furring and head channel. Exhaust hood closure panels shall be 13 mm pan-formed 1.3 mm (18 gauge) stainless steel. The upper edge of the panel shall be retained in a 25 mm by 50 mm continuous 1.6 mm (16 gauge) stainless steel head channel secured to the hood superstructure. The lower edge of the panels shall be mounted on perimeter furring cap, and shall be turned back 25 mm for "zee" clip retention.

2.8.2 Ducts at Dishwashing Machines

Ducts at dishwashing machines shall consist of two vertical ducts, one at each end of the dishwasher. Exposed, seamless, ducts shall be constructed of not less than 1.3 mm (18 gauge) stainless steel and shall be sized to accommodate the machine exhaust vent. The intake of each duct shall be at

the top edge of the dishwasher and the ducts shall extend to 150 mm above the finished ceiling for final connection. The duct shall be trimmed at the ceiling with a 1.6 mm (16 gauge) stainless steel angle flange with corners welded. The exhaust outlet shall be connected to the exhaust system.

2.8.3 Condensate Exhaust Hoods

Hoods, exposed ducts, and enclosures over dishwashing machines and the rinse compartment of pot washing sinks shall be constructed of 1.6 mm (16 gauge) stainless steel with seams welded, ground, and polished.

2.8.3.1 Condensate Gutter

Hood shall be fabricated so as to form a condensate gutter 75 mm wide by 25 mm high at the perimeter and shall be provided with a condensate drain terminating at a floor sink location.

2.8.3.2 Duct Openings

Duct openings with collars shall be of quantity/size as indicated, with a stainless steel louvered grille at the openings. Penetrations of the dishwashing machine duct risers through the hood body shall be trimmed and sealed.

2.8.3.3 NOT USED

2.9 PREFABRICATED WALK-IN REFRIGERATORS

Refrigerators shall be prefabricated, commercial, walk-in type suitable for the intended use. Mercury shall not be used in thermometers. Units shall conform to UL 207, UL 471, and NSF 7 floorless, floor panel design type and size as indicated, and the following:

2.9.1 Miscellaneous Requirements

2.9.1.1 Closure Panels

Closure panels and/or trim strips to the building walls and ceiling shall be installed with concealed attachments. Closure/trim shall be of the same material as the wall panels unless otherwise noted.

2.9.1.2 I-Beam Supports

Wherever compartment dimension exceeds the clear-span ability of ceiling panels, I-beam supports shall be provided on the exterior of the ceiling or supported by spline-hangers. 13 mm diameter steel rods shall be installed through beam/hangers and secured to the structure above. Beams or posts within compartments will not be acceptable.

2.9.1.3 Identification Signs

Engraved phenolic plastic compartment identification signs 300 mm by 50 mm high in selected color with 25 mm high letters shall be mounted on door above view window.

2.9.1.4 Door

Door panels inner and outer skins shall be of 1 mm patterned aluminum.

Doors shall be filled with insulation section. Hardware shall be stainless steel.

2.9.1.5 Strip Curtains

Transparent flexible vinyl reinforced strip curtains shall be provided which are anchored at top and able to be replaced individually. Strips shall be a minimum of 800 mm in width and 2 mm thick.

2.9.1.6 Door Stops

Door stops shall be provided, where necessary, to prevent walk-in refrigerator doors from striking adjacent walls, plumbing fixtures or food service equipment when door is open.

1 - 2.9.1.7 Protective Bumpers

The exposed exterior of the refrigerator/freezer unit including the doors shall be equipped with a single protective bumper rail. The bumper rail shall be a stainless steel hatshaped channel 127 mm wide and shall be mounted at 864 mm above the finish floor.

2.9.1.8 Gasket

Gasket material shall be either natural or synthetic rubber and conform to NSF 2. Where frames are used, the panels shall fit together with gaskets that are designed for 50 percent compression.

2.9.1.9 Alarm System

An alarm system shall be provided consisting of a controller, pilot and warning lights, and audible alarm as specified by the manufacturer. The controller shall be equipped with normally-open and normally-closed contacts for remote monitoring of the temperature warning alarms and the power-off conditions.

2.9.2 Floor

2.9.2.1 NOT USED

2.9.2.2 Floorless Refrigerator Floors

Floorless refrigerator floors shall be flush with the surrounding building floor. The built-in floor shall be provided with two layers of 50 mm thick polyurethane board insulation with staggered joints set in mastic or other thickness of insulation as recommended by the manufacturer. In addition, a watertight seal formed by 0.152 mm polyethylene sheets with all joints lapped 150 mm and sealed, shall be provided on the surface of the subfloor which will support the insulation and the refrigeration floor. A 6.8 kg felt slip sheet shall be provided over insulation with 150 mm lapped joints flashed up the height of finished floor base. The subfloor and refrigerator floor shall each be not less than a 100 mm thickness of reinforced concrete with the insulation sandwiched between. The subfloor shall contain drain holes to drain water seepage. Beneath the floor screeds at refrigerator walls and partitions, the insulation shall be extended with a 50 mm thickness down to the insulation sandwiched between the subfloor and the refrigerator floor. The insulation beneath the door shall be as recommended by the manufacturer. The subfloor shall be supported on a fill of 50 mm clean rock aggregate having a minimum depth of

375 mm. In addition, the perimeter shall be embedded within the gravel fill to allow for air circulation.

2.9.3 Refrigeration Equipment

Refrigeration equipment for cold storage facilities shall be as specified under Section 15652A COLD STORAGE REFRIGERATION SYSTEMS.

2.10 WATER FILTER

A cartridge-type water filter shall be provided on water supply lines to equipment as shown.

2.10.1 Cartridge Filter

The filter shall remove dirt and off-taste items, such as chlorine and other medicated items. In addition, it shall reduce lime-scale problems when required by water conditions. The filter shall consist of a stainless steel pressure vessel, which includes shell top, bracket check valve, fittings and accessories, and plastic disposable cartridge. The cartridge shall be of the precoat filtration type in which a coating of particles is applied on a suitable fabric support. The filter shall contain not less than 90 percent activated carbon and 10 percent inert binders. The filter shall remove particles 2 microns and larger. The filter shall be installed as per manufacturers recommendations, activation faucet, and by-pass valve which will be normally closed. In addition, an indication gauge shall be provided to indicate when cartridge requires replacement.

2.10.2 Working Pressure and Flow Rate

The filter shall be installed as recommended by the manufacturer and be suitable for 860 kPa maximum working pressure at 38 degrees C water inlet temperature. Each filter shall have a nominal flow rate of 11.34 liters per minute. An additional replacement cartridge shall be provided for each filter.

2.11 DRAIN TRENCH LINER/GRATING

Drain trench liner/grating shall be of 1.9 mm (14 gauge) stainless steel in sizes as indicated with a 25 mm wide perimeter shoulder at the top, turned up flush and level with finished floor, tight-hemmed back down to the shoulder level and flanged out 50 mm for attachment to the slab.

2.11.1 Interior of the Liner

Interior of the liner shall be 150 mm deep with corners coved on 19 mm radius; sloped and scored 25 mm to an integrally welded box pattern drain (drain housing only). Drains shall be at 1200 mm on center maximum and shall be fitted with 150 mm long welded tailpiece. A safety chain shall be connected to the basket strainer assembly and the top of the liner wall. Underside of sloping portion of liner shall have 50 mm long "zee" clips.

2.11.2 Aluminum Grating

Aluminum grating shall be removable, without the use of tools, with 38 mm by 5 mm bearing bars and a perimeter frame. Close bearing bars shall have a 33 mm by 100 mm centerline to centerline grid. Section quantities and sizes shall be as indicated on the drawings with a maximum of 600 mm long sections.

2.12 NOT USED.

2.13 ELECTRICAL WORK

Electrical systems, components and accessories shall be certified to be in accordance with NFPA 70 and the following:

2.13.1 Installed Equipment Load

Should the electrical load of the approved equipment differ from that specified or shown on the drawings, the contractor shall provide and install electrical service compatible with the approved equipment.

2.13.2 Electrical Equipment and Components

Food service equipment furnished under this section shall have loads, voltages, and phases compatible with building system, and shall conform to manufacturer standards.

2.13.3 Cords and Caps

Food service equipment cord/caps shall be coordinated with related receptacles. All 120/208/240 volt "plug-in" equipment shall have Type SO or SJO cord and a plug with ground, fastened to frame/body of item. Mobile equipment shall have a strain-relief assembly at the cord connection of the appliance. Mobile electrical support equipment (heated cabinets, dish carts, etc.) and counter appliances mounted on mobile stands (mixers, food cutter, toaster, coffee makers, microwave ovens, etc.) shall have cord/cap assembly with cord-hanger as provided by the manufacturer.

2.13.4 Switches and Controls

Each motor-driven appliance or electrically-heated unit shall be equipped with control switch and overload protection per UL 197 and UL 471. Switches, controls, control transformers, starters, equipment protection and enclosures shall be Industry standards for the equipment environment.

2.13.5 Motors

Motors at 120, 240, 208/240 and 460/480 volts shall have starter with overload protection and short circuit motor protection per manufacturer standards.

2.13.6 Heating Elements

Electrically-heated equipment shall have thermostatic controls. Water heating equipment shall be equipped with a positive low-water shut-off.

2.13.7 Receptacles and Switches

Receptacles which are located in vertical panels of closed base bodies shall be installed in 300 mm by 215 mm by 75 mm deep recessed mounting panel sloped on a 60-degree angle and turned up to the top of the opening. Receptacles which are located in closed base fixtures shall be prewired to a junction box located within 150 mm from the bottom of the utility compartment. Receptacles which are installed in/on fabricated equipment shall be horizontally-mounted in a metal box with a stainless steel cover

plate.

2.13.8 Light Fixtures

Light fixtures with lamps which are installed in/on fabricated or field-assembled equipment shall be prewired to a junction box for final connection (fixtures shall be continuous run when indicated). Fluorescent display light shall be installed the full-length of the display stand and serving shelf with stud bolts or as indicated, and shall be prewired through a support post to a recess-mounted switch. Heat lamps shall be installed to underside of serving shelf assemblies as specified. Heat lamp length for chassis shall be sized per manufacturer or as indicated on the drawings. Cold storage light fixtures shall be electrically connected through the hub fitting located on the top of the fixture. Horizontal conduit shall be above the ceiling panels. Plastic sleeves shall be installed through ceiling panels for electrical conduit and the penetrations shall be sealed airtight at both sides of panel.

2.13.9 Final Electrical Connection Provisions

Final electrical connection points of equipment shall be tagged with item number, name of devices on the circuit, total electrical load, voltage, and phase. Fabricated equipment containing electrically-operated components or fittings, indicated on utility connections drawings to be direct-connected, shall have each component, fitting, or group thereof prewired to a junction box for final connection. Refer to the drawings for circuit loading. Field-assembled equipment (example, prefabricated cold storage assemblies, conveyor systems, exhaust hoods) shall have electrical components completely interconnected by this section for final connection as indicated on utility connection drawing. The following groups of cold storage assembly electrical devices shall be prewired to a top-mounted junction box for final connection per compartment grouping, unless otherwise indicated.

- a. Light fixtures, switches, and heated pressure-relief vent.
- b. Door/jamb heater and temperature monitors/alarms.
- c. Evaporator fans, defrost elements, freezer fan door switch, and drain line heaters.

2.13.10 Lamps

Food service equipment containing light fixtures shall have standard appliance type bulbs or energy efficient appliance type bulbs as indicated on the drawings. Exposed fluorescent lamps above or within a food zone shall have plastic coated T-8 energy efficient lamps or standard lamps, sleeved in plastic tube with end caps.

2.13.11 Steam Connection Provisions

Steam-injected equipment shall have a steam inlet globe control valve with cold handle, relief valve, strainer, condensate gate valve, bucket steam trap, and swing check valve. Compartment steam cookers shall have piping manifolded from all compartment exhaust valves to a floor drain, floor sink, or drain trench. Steam generators specified within this section shall have automatic boiler blowdown and a cold water condenser. Separate equipment, devices or components indicated to be connected to a steam-generator, provided under this section, shall be provided with all unions, ells, gate valves, nipples, brackets, clamps, etc., required for

the complete operating system for final connection. The steam supply piping shall be insulated with 25 mm fiberglass insulation and shall have factory-applied fire retardant. A full-length 1.6 mm stainless steel pipe enclosure with sloping top, jacket, and vapor barrier shall be installed over steam lines.

2.14 COLOR - NOT USED. Selected by the Contracting Office from Manufacturer's Standards Colors.

PART 3 EXECUTION

3.1 INSTALLATION

Equipment shall be installed at locations shown in accordance with NSF-01 and the manufacturer's written instructions. The Contractor shall make provision for the plumbing, heating, and electrical connections and for equipment indicated as being furnished and installed by the Government.

3.1.1 Equipment Connections

Equipment connections shall be complete for all utilities. Unless otherwise specified, exposed piping shall be stainless steel. Steam operating pressure shall be as indicated.

3.1.2 Backflow Preventers

Backflow preventers shall be furnished as specified in Section 15400A PLUMBING, GENERAL PURPOSE. The Contractor is responsible to install backflow preventers as shown on the contract drawings and at all other locations necessary to preclude a cross-connect or interconnect between a potable water supply and any source of nonpotable water, or other contaminant. Backflow preventers shall be installed at all locations where the potable water outlet is below the flood level of the equipment, or will be located below the level of the contaminant. Backflow preventers shall be provided of sufficient size to allow unrestricted flow of water to the equipment, and preclude the backflow of waste or other contamination into the potable water system.

3.1.3 Gas Equipment

Installation of equipment shall conform to NFPA 54. A heavy duty steel cable, 75 mm to 150 mm shorter than the equipment connector shall be fastened to the equipment and the walls.

3.1.4 Plumbing Work

Plumbing final connection points of equipment shall be tagged, indicating item number, name of devices or components, and type of utility (water, gas, steam, drain). Extensions of indirect waste fitting shall be provided to open-sight hub drain, floor sink or floor drains from food service equipment.

3.2 CONSTRUCTION OF FABRICATED EQUIPMENT

3.2.1 Grinding, Polishing, and Finishing

Exposed welded joints shall be ground smooth and finished to match the adjoining material. Wherever materials have been depressed or sunken by

welding operation, such depressions shall be hammered and peened flush with the adjoining surface, and again ground to eliminate high spots. Ground surfaces shall then be polished or buffed to match adjoining surfaces. Care shall be exercised in the grinding operations to avoid excessive heating of the metal and metal discoloration. Abrasives, wheels, and belts used in grinding shall be free of iron and shall not have been used on carbon steel. In all cases, the grain of rough grinding shall be removed by several successively finer polishing operations. The texture of the final polishing operation shall be uniform, smooth, and consistent. The grain direction of horizontal stainless steel surface shall be longitudinal, including the splash back. Polishing at right angle corners shall provide a mitered appearance. Butt and contact joints shall be close fitting and not require solder as a filler. Wherever brake bends occur, the bends shall be free of open texture or orange peel appearance. Where brake work does mar the uniform appearance of the material, such marks shall be removed by grinding, polishing, and finishing. Sheared edges shall be free of burrs, projections, and fins. Where miters or bullnosed corners occur, such miters and corners shall be finished with the underage of the material and ground to a uniform condition. Overlapping of material is not acceptable. Exposed stainless steel surfaces shall have a No. 3 or 4 finish. Finishes of materials, other than stainless steel, shall be comparable in appearance to commercial mill finish. Exposed surfaces shall include:

- a. Exterior surfaces exposed to view.
- b. Interior surfaces exposed to view in doorless cabinets.
- c. Undersides of shelves shall have a ground finish of No. 90 grit or finer.

3.2.2 Fastening Devices

Fastening devices shall be of the same material as the metal being joined when joint pieces are of similar metal. Fastening devices shall be stainless steel when stainless steel is joined to dissimilar metal. Stud bolts shall be a minimum of M6 stainless steel with length necessary to accept washers, and required nuts, and shall be welded 225 mm on center maximum. Exposed surfaces of equipment shall be free of bolts, screws, and rivet heads. Stainless steel stud bolts shall be used to fasten tops of counters or tables to angle framing and trim to other surfaces. Such bolts shall be of the concealed type. Threads of stud bolts which are on the inside of fixtures and are either visible or might come in contact with a wiping cloth, shall be capped with chrome plated washers, lock washers, and chromium-plated brass cap nuts. Wherever bolts are welded to the underside of trim or tops, the reverse side of the welds shall be finished uniform with the adjoining surface of the trim or the top. Dimples at these points will not be acceptable.

3.2.3 Welding

3.2.3.1 Welding Rods

Welding shall be done with welding rods of the same composition as the sheets or parts welded.

3.2.3.2 Weld Quality

Welds shall be strong and ductile. Welds shall be free of imperfections

such as pits, runs, spatter, cracks, low spots, voids, and shall be finished to have the same color as the adjoining surfaces. Butt welds made by welding straps under seams, or by filling in with solder, or by grinding will not be acceptable. Welded joints shall be homogeneous with the sheet metal. Spot welding shall not be substituted for continuous welding. Joints in tops of counters, tables, drainboards, exposed shelving, and sinks shall be joined by heli-arc welding or a process other than carbon-arc welding or one that will permit carbon pick-up. Joints shall be fully welded. Counter tops shall be factory welded into lengths as long as practical in order to reduce field welded joints to a minimum. Exposed welds shall be ground smooth, flush with adjacent surface and free of burrs and sharp edges. Wherever welds occur on nonfood contact surfaces not suitable for grinding or polishing, such welds and the accompanying discoloration shall be sandblasted and coated in the factory with a nontoxic metallic-base paint. Bolts and screws shall be welded by a process that will minimize the possibility of carbide precipitation. Welds in galvanized steel made after galvanizing, and the adjacent areas where galvanizing is damaged, shall be cleaned and coated with galvanizing repair compound.

3.2.4 Soldering

Soldering shall serve only as a filler to prevent leakage and shall be made with solder material. Stainless steel requiring soldering shall first be cleaned of discoloration and then have a soldering flux applied. Excess or remaining flux and catalytic material shall be removed after the soldering has been completed, and the entire soldered joint and adjacent metallic surfaces shall be cleaned with a liquid alkaline or neutralizing agent to prevent any attack on the surrounding metallic surfaces by the soldering flux.

3.2.5 Brazing

Brazing shall be accomplished with brazing material. Brazing shall be used only on copper tubing to brass and bronze connection fittings.

3.3 TESTING

Equipment shall be inspected and tested under operating conditions after installation. If inspection or test shows defects, such defects shall be corrected, and inspection and test shall be repeated. Refrigerator tests shall include the following:

3.3.1 Performance Tests

A detail written test procedure shall be submitted prior to performance of tests. The Contractor shall furnish all instruments, test equipment, and personnel required for the tests; Government will furnish the necessary water and electricity for the installed equipment. Evidence shall be submitted that the instruments have been properly calibrated by an independent laboratory at the Contractor's expense. Performance tests for refrigeration system shall be in accordance with Section 15652A COLD STORAGE REFRIGERATION SYSTEMS.

3.3.2 Operating Tests

An operating test shall be performed on all items after complete installation and adjustment. The failed test item shall be corrected and the test shall be rerun.

3.3.3 Clean and Adjust

Debris resulting from this work, as the installation progresses, shall be removed from the jobsite. All food service equipment, prior to demonstration, shall be cleaned and polished, both interior/exterior. Drawer slides and casters shall be lubricated and adjusted. Pressure regulating valves, timed-delay relays, thermostatic controls, temperature sensors, and exhaust hood grilles shall be adjusted, as required, for proper operation. Faucet aerators and line strainers shall be cleaned or replaced. Damage to painted finishes shall be touched up.

3.3.4 Equipment Start-Up/Demonstration

The Contractor shall obtain the services of the manufacturer's representative experienced in the installation, adjustment and operation of the equipment specified. The representative shall supervise the start-up, adjustment, and testing of the equipment, prior to the demonstration. Equipment shall be carefully tested, adjusted, and regulated in accordance with the manufacturer's instructions and shall be so certified in writing. A thorough operational demonstration shall be provided of all equipment and instructions furnished for general and specific care and maintenance. Selected items of equipment and attendees shall be scheduled, with the Contracting Officer, at least 2 weeks in advance of demonstration periods.

-- End of Section --

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

AMENDMENT #2

APPENDIX TO 11400A FOOD SERVICE EQUIPMENT

PART 1 NOT USED

PART 2 EQUIPMENT

ITEM NO.: 1 thru 1.8

ITEM: WALK-IN COOLER/COOLER/FREEZER (1 required)

MANUFACTURER: THERMO-KOOL

MODEL NO.: CUSTOM UNIT

DESCRIPTION: COMBINATION WALK-IN COOLER/COOLER/FREEZER FOR INDOOR APPLICATION

STD FEATURES:

- A. Size- 3048 x 7315.2 x 2590.8mm High (10'x 24'x 8'-6" high),
Compartments to be Evenly Divided,
- B. Coolers w/o Floor, Freezer with 101.6mm (4") Insulated Floor
Panels with Stainless Steel Finish.
- C. Ceilings to be Finished White Stucco Aluminum, Balance Int/Ext.
to be Stucco Aluminum.
- D. Unit to Have (3) Flush Mounted 914.4 x 2133.6mm (36"x 84")
Entrance Doors with Dardware.
- E. Pilot Light and Switch Assembly, Vapor Proof Lights and Dial
Thermometer.
- F. Unit to have 101.6mm (4") Durathane Foamed in Place Class 1
Insulation.
- G. NSF listed.

ACCESSORIES:

- A. 3 ea. - Vinyl strip curtains
- B. 3 ea. - Modularm -75 temperature alarms.
- C. 3 ea.- Fluorescent light fixtures,1219.2mm (48") w/o bulbs (bulbs by E.C)
- D. 1 ea.- Stainless steel bumper rail on exposed exterior.
- E. 1 ea. Model Vinyl cove base
- F. 2 ea. Model MOH10D73C 1Hp., pre-assembled remote refrigeration
system for medium temperature application, hermetic air cooled,
208-230/60/3, outdoor application with winter controls and
weather cover. Evaporator coil to be model TKM-0900 115/60/1, 5yr.
Compressor warranty, 1yr. Service/labor warranty.
- G. 1 ea. Model MOH031L63C 3Hp., pre-assembled remote refrigeration
system for low temperature application, hermetic air cooled,
208-230/60/3, outdoor application with winter controls and weather
cover. Evaporator coil to be model TKL-1201 208/60/1, 5yr.
compressor warranty, 1yr. service/labor warranty.

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 2

ITEM: SHELVING, WIRE, EPOXY

MANUFACTURER: Metro By InterMetro Industries Corporation

MODEL NO: #2454NK2

DESCRIPTION: Super Erecta® Wire Shelf System

STD FEATURES:

- A. Size: Shelves 609.6mmW x 1371.6mmL (24" W, 54" L)- 48 ea. Required
- B. Metroseal II (dark green epoxy) finish
- C. Plastic split sleeves are included in each carton

ACCESSORIES:

- A. 48 ea. Model 74PK2 Super Erecta® SiteSelect Post, 1895.5mm H (74 5/8" H), with adjustable leveling bolt, posts are grooved at 1" increments and numbered at 2" increments, double grooved every 8",
- B. Metroseal I (dark green epoxy) finish

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 5

ITEM: SHELVING, WIRE

MANUFACTURER: Metro By InterMetro Industries Corporation

MODEL NO.: #2448BR

DESCRIPTION: Super Erecta® Wire Shelf System

STD. FEATURES:

- A. Size: 609.6mmW x 1219.2mmL (24" W X 48" L)-15 ea. Required
- B. Bright (zinc) finish
- C. Plastic split sleeves are included in each carton

ACCESSORIES:

- A. 12 ea. Model 86P Super Erecta® SiteSelect Post, 86 5/8" H, adjustable leveling bolt, posts are grooved at 1" increments and numbered at 2" increments, double grooved every 8", chrome finish.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 6
ITEM: POWER SOAK SINK (1 ea required)
MANUFACTURER: Metcraft
MODEL NO.: #FPS0011
DESCRIPTION: Power soak sink, right to left,
STD FEATURES:
A. Size: 4876.8mm O.A. Length (192")
B. Includes Rear Exit Ball Valve Drains
C. (2) Pre-Rinse Faucets
D. (1) Pre-Rinse Spray
E. PS-200 Control Package
F. 53" Drain Board on Soiled End with Welded Disposer Cone
G. 48" Wash Tank, 30" Rinse Sink, 30" Sanitize Sink with Holes
Punched for Sink Heater
H. 28.5" Clean Drain Board.

ITEM NO.: 6.1
ITEM: PRE-RINSE FAUCET included in item # 6 (QTY-2)

ITEM NO.: 6.2
ITEM: PRE-RINSE SPRAY included in item # 6 (QTY-1)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 6.2
ITEM: DISPOSER (1 ea required)
MANUFACTURER: Hobart
MODEL NO: #FD500-1
DESCRIPTION: Disposer, basic unit only

STD FEATURES:

- A. 5-HP motor
- B. Aluminum housings
- C. Adjustable feet
- D. 200-230/460/60/3

ACCESSORIES:

- A. 1-Yr. parts, labor & travel time during normal working hrs (nc)
- B. 1 ea. Model CONTROL-GR20DG Group 2- 200-230/400-460/60/3
- C. 1 ea. Model GROUP C Disposer Accessory, GROUP C includes: vinyl silver-saver splash guard ring, vacuum breaker, water inlet, pre-rinse spray w/wall bracket
- D. 1 ea. Model BREAKER-VACUUM Vacuum breaker 3/4"
- E. 1 ea. Flanged feet for bolt down application

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 7

ITEM: SPLASH MOUNTED SWING FAUCETS (QTY- 2 - included in item # 6)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 8

ITEM: WALL MOUNT POT RACK (1 ea required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Double bar pot rack

STD FEATURES:

- A. Size: 2438.4mm long (96")
- B. Material: stainless steel with 2" x 1/4" thick bars, welded to stainless mounting brackets.
- C. Each bar to be fitted with 14 sliding " S " hooks.
- D. Custom, per approved drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 9

ITEM: SINK HEATER, ELECTRIC (1 ea required)

MANUFACTURER: Hatco

MODEL NO.: #3CS-9

DESCRIPTION: Sink Heater, Electric

STD. FEATURES:

- A. Size: 171.5mmL x 428.6mmW x 320.7mmH (6 3/4"L x 16 7/8"W x 12 5/8"H)
- B. Undersink design
- C. Electric operation, 9-KW, 208V, 50/60Hz, 1 PH
- D. Stainless steel front,
- E. For 533.4 - 635mmSq. (21-25" Sq.) sink area

ACCESSORIES:

- A. (1) Model SSBB - Stainless steel body and base (Not for retrofit)
- B. (1) Model TEMP LIGHT - Temperature light.

NOTE: THIS BOOSTER WILL RAISE THE TEMPERATURE OF THE FINAL RINSE TO 180 DEGREES,
AND IS NOT RECOMMENDED BY THE MANUFACTURER FOR THIS APPLICATION.

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 10

ITEM: PREP TABLE/SINK (1 ea required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom fabricated table

STD. FEATURES:

- A. Size: 2438.4mmL x 762mmW x 863.6mmH (96" x 30" x 34")
- B. (2) integrally welded sink bowls 609.6 x 609.6 x 304.8mm deep (24" x 24" x 12" deep) located left.
- C. Top to be 14ga. type 304 stainless with marine edge on front and both ends
- D. Partial 16ga. Under shelf, notched and welded to legs
- E. Stainless steel legs/gussets and feet, gussets continuously welded to channel, legs continuously welded to gusset/angle
- F. Welded front/left cross bracing
- G. 10" Backsplash at rear only to have min. 3/4 radius where splash intersects top, sink bowls to have continuous front panel to match adjacent finishes.
- H. All seams/corners welded, ground smooth and polished.
- I. Custom, per approved drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 11
ITEM: FAUCET (2 required - 1 for sink #10, 1 for sink #13)
MANUFACTURER: T & S Brass
MODEL NO: #B-0231
DESCRIPTION: Sink Mixing Faucet
STD. FEATURES:
A. 12" swing nozzle (360°)
B. Wall mounted, 8" centers
C. 1/2" IPS eccentric flanged female inlets
D. Wrist action blade handles #B-WH-6"
E. Non-splash aerator # B-199-1

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 12
ITEM: GRINDER, MEAT (1 required)
MANUFACTURER: Hobart
MODEL: #4812+BUILDDUP
DESCRIPTION: Meat Chopper, BASE UNIT ONLY, bench type, #12 hub, 8 - 10 lb.
per minute capacity
ACCESSORIES:
A. 1-Yr. parts, labor & travel time during normal working hrs
w/in the USA (nc)
B. Model ELE00A *115/60/1
C. 1 ea. Model 12C/E-BRI #12 bright metal chopping end
D. 1 ea. Model 12/22PN-SST *#12 sst rectangular pan
E. 1 ea. Model 12/22PN-SST *#12 sst rectangular pan
OPTIONS:
A. Model SWIMWO Switch w/thermal overload (lph only)

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 13

ITEM: PREP TABLE/SINK (1 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom fabricated table, with (2) integrally welded sink bowls

STD FEATURES:

- A. Size: 2438.4 x 762 x 863.6mm high (96" x 30" x 34")
- B. (2) integrally welded sink bowls 609.6 x 609.6 X 304.8mmdeep (24" x 24" x 12")located right.
- C. Top to be 14ga. type 304 stainless with marine edge on front and both ends
- D. Partial 16ga. undershelf notched and welded to legs,
- E. Stainless steel legs/gussets and feet, gussets continuously welded to channel, legs continuously welded to gusset/angle
- F. Welded front/right crossbracing
- G. 10" backsplash at rear only with min. 3/4" radius where splash intersects with top
- H. Sink bowls to have continuous front panel to match adjacent finishes.
- I. All seams/corners welded, ground smooth and polished.
- J. Custom per approved drawing.

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 14

ITEM: WORK TABLE (1 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom fabricated work table, open base style

STD. FEATURES:

- A. Size: 1524 x 762 x 914.4mm High (60" x 30" x 36")
- B. Top Constructed of 14ga. Type 304 Stainless Steel
- C. 10" Rear Backsplash, 3/4 " Radius Where Splash Intersects Top.
- D. Legs/Feet to be Stainless Steel and Continuously Welded to
Either Stainless Gusset or Channel.
- E. Underside of Top to be Reinforced and Sound Deadened.
- F. Legs to Have Welded Cross Bracing.
- G. Custom, Per Approved Drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 15

ITEM: INGREDIENT BIN (3 required)

MANUFACTURER: Cambro

MODEL NO.: #IBS27

DESCRIPTION: Camcrisper® Ingredient Bin, mobile, 27 gal. Capacity

STD. FEATURES:

- A. 1-pc seamless polyethylene bin
- B. 2-pc sliding polycarbonate lid
- C. S-hook on front (scoop NOT included)
- D. (4) 3" heavy duty casters (2 front swivel, 2 fixed)
- E. White w/clear cover

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 16

ITEM: MIXER, FOOD (2 required)

MANUFACTURER: Hobart

MODEL NO.: #A200-5002B

DESCRIPTION: Planetary Mixer, bench style

STD. FEATURES:

- A. Three Fixed Speeds
- B. Gear-Driven Transmission
- C. 15 Min. Timer
- D. #12 Taper Attachment Hub
- E. Manual Bowl Lift
- F. S/S Bowl Guard
- G. 20-Quart Stainless Steel Bowl, "B" Flat Beater, S/S "D" Wire Whip
Cord W/Plug
- H. 115/60/1, 1/2 HP Fixed Speed Motor

ACCESSORIES:

- A. (2) Warranty 1-Yr. Parts, Labor & Travel Time During Normal
Working Hrs (nc)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 16.1

ITEM: MIXER TABLE (FOR ITEM #16) (2 required)

MANUFACTURER: Hobart

MODEL NO.: #205024-1

DESCRIPTION: Single Shelf Mixer Table

STD. FEATURES:

- A. Size: 508 x 609.6 x 558.8mm high (20" x 24" x 22")
- B. Heavy gauge stainless steel tops, legs and shelves
- C. Chrome plated adjustable leveling feet

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 17

ITEM: PREP SINK (1 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom fabricated sink with (2)sink bowls

STD. FEATURES:

- A. Size: 3048 x 762 x 863.6mm high (120" x 30" x 34")
- B. (2) Integrally Welded Sink Bowls 609.6 x 609.6 X 304.8mm Deep
(24" x 24" x 12") Bowls, Centered
- C. Sinks to be Sound Deadened Between all Contact Surfaces
- D. Approx. 914.4mm (36") Left & Right Drain Board, Left Drain Board
to Have 18" Disposer Cone/Control Bracket
- E. Top to be 14ga. Type 304 Stainless with Roll Edge
- F. Stainless Steel Legs/Gussets and Feet, Gussets Continuously
welded to channel, legs continuously welded to gusset/angle
- G. Welded front/left/right cross bracing
- H. 10" backsplash at rear only to have min. 3/4" radius where
splash intersects top
- I. Sink bowls to have continuous front panel to match adjacent finishes.
- J. All seams/corners welded, ground smooth and polished.
- K. Custom, per approved drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 18

ITEM: WALL SHELF (1 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom fabricated stainless steel wall shelf

- A. Size: 1828.8 x 304.8mm deep (72" x 12")
- B. Constructed with 16ga. type 300 series stainless front and ends to be turned down 1", back 1/2", back turned up 1"
- C. Weld shelf to stainless steel mounting brackets.
- D. Grind smooth all edges/corners to prevent sharp edges.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 19

ITEM: FAUCET (2 required)

MANUFACTURER: T & S Brass

MODEL NO.: #B-0231

DESCRIPTION: Sink Mixing Faucet

STD. FEATURES:

F. 12" swing nozzle (360°)

G. Wall mounted, 8" centers

H. 1/2" IPS eccentric flanged female inlets

I. Wrist action blade handles #B-WH-6"

J. Non-splash aerator # B-199-1

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 20

ITEM: DISPOSER (1 required)

MANUFACTURER: Hobart

MODEL NO.: #FD3/300-1

DESCRIPTION: Disposer, basic unit only

STD. FEATURES:

- A. 3 HP motor
- B. Aluminum housings
- C. Adjustable feet

ACCESSORIES:

- A. 1-Yr. parts, labor & travel time during normal working hrs (nc)
- B. Electrical Control Group 3- #GR30DG - 208V, 60Hz, 9Amp, 3PH
- C. Model CONE-18INWS 18" cone w/hole
- D. Group B Disposer Accessory including: Nitrile rubber silver-saver
Splash Guard Ring, water swirl, vacuum breaker, 3/4"

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 20.1

ITEM: FAUCET, PRE-RINSE ASSEMBLY (1 required)

MANUFACTURER: T & S Brass

MODEL NO.: B-0133-B

DESCRIPTION: Wall mounted Pre-Rinse Unit,

STD. FEATURES:

- A. Size: 863.6mmH, 381mm Overhang, 457.2mm Riser (34"H, 15" overhang, 18" riser)
- B. 8" O.C. wall mounted faucet
- C. 1/2" IPS female eccentric flanged inlets, 34"H, 15" overhang, 18" riser
- D. B-0107- spray valve
- E. B-0044-H- flexible stainless steel hose
- F. B-0109-01- 6" wall bracket

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 21

ITEM: SLICER TABLE (1 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom stainless steel work table with duplex receptacle

STD. FEATURES:

- A. 1828.8mm x 762mm x 609.6mm high (72" x 30" X 24")
- B. 14ga. top
- C. 16ga. Under shelf
- D. Stainless legs
- E. Flanged feet
- F. To be sound deadened between all contact surfaces
- G. Legs to be continuously welded to stainless gussets or channel
- H. Top to be rolled edges with bullnose corners
- I. 120 Duplex receptacle
- J. Custom, per approved drawing

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 21.1

ITEM: WORK TABLE (2 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

DESCRIPTION: Custom stainless steel work table

STD. FEATURES:

- A. 1828.8mm x 762mm x 609.6mm high (72" x 30" X 24")
- B. 14ga. top,
- C. 16ga. Under shelf,
- D. Stainless legs and feet.
- E. To be sound deadened between all contact surfaces,
- F. Legs to be continuously welded to stainless gussets or channel
- G. Top to have rolled edges with bullnose corners
- H. Custom, per approved drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 22
ITEM: FOOD SLICER (1 required)
MANUFACTURER: Hobart
MODEL NO.: #2912-1
DESCRIPTION: Semi- Automatic Slicer

STD. FEATURES:

- A. 12" S/S Stay Sharp™ knife
- B. MICROBAN® Antimicrobial Product Protection
- C. Gauge Plate Interlock
- D. Poly-V-belt Drive System
- E. Permanently Mounted Ring Guard
- F. Variable 6-spd Automatic Carriage with Front Mounted Controls
- G. Stainless Steel Carriage and Knife Cover
- H. Top Mounted Borazon Stone Sharpener
- I. Low Fence
- J. 120/60/1, 1/2 HP
- K. Gauge Plate and Carriage System Interlocks

ACCESSORIES:

- A. 1-Yr. Parts, Labor & Travel Time During Normal Working Hrs (nc)
- B. Model 272912-LEGSET 4" Leg Set

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 23

ITEM: FREEZER, REACH-IN (1 required)

MANUFACTURER: Traulsen

MODEL NO: #RLT132WUT-FHS

DESCRIPTION: Freezer Single Section Reach-in

STD. FEATURES

- A. Size: 889mm x 685.8mm x 2114.55mm High Overall
(35" x 27" x 83 1/4")
- B. Self-Contained Refrig System
- C. Stainless Steel Exterior and Interior
- D. Standard Depth Cabinet
- E. Wide Full-Height Doors
- F. 1/2 HP Compressor, with INTELA-TRAUL™ Controls

ACCESSORIES:

- A. Door hinged on right, std. (nc)
- B. 115v/60/1ph, w/cord & plug attached, std. (nc)
- C. 1-year service-labor & 5 yr compressor warranty (std.)
- D. Casters, 6" high (set of 4)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 23.1
ITEM: FREEZER, REACH-IN (1 required)
MANUFACTURER: Traulsen
MODEL NO: #RLT132WUT-FHS
DESCRIPTION: Freezer Single Section Reach-in
STD. FEATURES

- A. Size: 889mm x 685.8mm x 2114.55mm high overall
 (35" x 27" x 83 1/4")
- B. Self-Contained Refrig System
- C. Stainless Steel Exterior and Interior
- D. Standard Depth Cabinet
- E. Wide full-height doors
- F. 1/2 HP compressor, with INTELA-TRAUL™ Controls

ACCESSORIES:

- A. Door hinged on left, std. (nc)
- B. 115v/60/1ph, w/cord & plug attached, std. (nc)
- C. 1-year service-labor & 5 yr compressor warranty (std.)
- D. Casters, 6" high (set of 4)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 24
ITEM REFRIGERATOR, REACH-IN (1 required)
MANUFACTURER: Traulsen
MODEL NO.: #RHT132WUT-FHS
DESCRIPTION: Refrigerator, Single Section Reach-in
STD. FEATURES:
A. Size: 889mm x 685.8mm x 2114.55mm high overall (35"x27"x83 1/4")
B. Self-Contained Refrig System
C. Stainless steel exterior and interior
D. Standard depth cabinet
E. Wide full-height doors
F. 1/3 HP compressor, with INTELA-TRAUL™ Controls

ACCESSORIES:
A. Door hinged on right, std. (nc)
B. 115v/60/lph, w/cord & plug attached, std. (nc)
C. 1-year service-labor & 5 yr compressor warranty (std.)
D. Casters, 6" high (set of 4)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 24.1
ITEM: REFRIGERATOR, REACH-IN (1 required)
MANUFACTURER: Traulsen
MODEL NO.: #RHT132WUT-FHS
DESCRIPTION: Refrigerator, Single Section Reach-in
STD. FEATURES:
A. Size: 889mm x 685.8mm x 2114.55mm high overall (35"x27"x83 1/4")
B. Self-Contained Refrig System
C. Stainless steel exterior and interior
D. Standard depth cabinet
E. Wide full-height doors
F. 1/3 HP compressor, with INTELA-TRAUL™ Controls

ACCESSORIES:
A. Door hinged on left (nc)
B. 115v/60/1ph, w/cord & plug attached, std. (nc)
C. 1-year service-labor & 5 yr compressor warranty (std.)
D. Casters, 6" high (set of 4)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 25
ITEM: CONVECTION OVEN, GAS (2 required)
MANUFACTURER: Blodgett
MODEL NO.: #DFG200 Double
DESCRIPTION: Convection Oven, gas, double-deck, extra depth
STD. FEATURES:

- A. Solid state manual controls
- B. 2-Speed Fan
- C. (5) Racks, 11 Rack Positions
- D. Int'r light
- E. Simultaneous operated doors w/glass
- F. S/S front, sides & top, 6" s/s legs, flue connector, 60,000 BTU each

ACCESSORIES:

- A. Natural gas
- B. Substitute Controls: Solid-State Digital display of time and temp.
- C. Cook & Hold and Pulse Plus
- D. Stainless steel draft hood, std. (nc)
- E. Gas manifold for double gas sections
- F. 6" casters (set) deduct cost of 6" legs (double oven only)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 25.1
ITEM: GAS CONNECTOR KIT (2 ea required)
MANUFACTURER: Dormont Manufacturing
MODEL NO.: #1675 KIT2S
DESCRIPTION 48" Gas Connector Kit
STD. FEATURES:
A. 3/4" inside diameter
B. 48" long, with Supr-Swivel coupling on both ends
C. Coiled Restraining Device
D. Full Port Gas Valve

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 26
ITEM: COMBI OVEN, GAS, FULL SIZE (1 required)
MANUFACTURER: Groen
MODEL NO. #2-C/2-20GFCNATS
DESCRIPTION: (138815) Convection Combo™ Steamer/Oven

STD. FEATURES:

- A. Double Stacked Ovens
- B. Floor Model on Stand
- C. W/Pressureless Convection Steamer
- D. Capacity (9) 18"x26" pans/comp.
- E. S/S Construction
- F. Field Reversible Doors (left hand swing required)
- G. W S/S bullet feet
- H. 0-2000' elevation
- I. 190,000 BTU

ACCESSORIES:

- A. Limited 1-year parts and labor warranty (std) (no charge)
- B. TWO-YEAR Boiler or steam generator warranty with PureSteam™ water filtration system (nc)
- C. Model 139025 PureSteam™ Water Treatment System-head, Filter Cartridge, and Treatment Blend Cartridge

OPTIONS:

- A. Natural Gas

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 27
ITEM: STEAM JACKETED KETTLE (2 required)
MANUFACTURER: Groen
MODEL NO.: #TDH-40, NAT
DESCRIPTION: Table Top Tilting Self-Contained Kettle
STD. FEATURES:

- A. Natural gas
- B. 40-quart capacity
- C. Hand tilt
- D. Support console on right
- E. 2/3 Jacket
- F. 304 s/s construction
- G. 0- 2000' elevation
- H. 52,000 BTU

ACCESSORIES:

- A. (2) Limited 1-year parts and labor warranty (std) (no charge)
- B. 316 S/S stainless steel interior (When order is placed, all equipment with 316S/S will be assigned a different Part# by the factory)
- C. (2) Model 078704 Faucet, single pantry with swing spout, for (TDH/20, TDH/40, water resistant; pre 10/2001) table top kettles

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 27.1
ITEM: SUPPORT STAND FOR KETTLE (2 required)
MANUFACTURER: Groen
MODEL NO.: #TS/9 FOR TDH
DESCRIPTION: Stainless Steel Support Stand for TDH-40 QT. Kettle
STD. FEATURES:
A. Size: 711mm x 939.8mm x 457.2mm high (28" x 37" x 18")
B. Type 304 Stainless Steel
C. Open Base
OPTIONS/ACCESSORIES:
A. Casters

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 28
ITEM: TILTING SKILLET (BRAISING PAN), GAS (2 required)
MANUFACTURER: Groen
MODEL NO.: #NHFP/E-4, NAT
DESCRIPTION: 40 GAL Capacity Tilting Skillet
STD. FEATURES:

- A. Natural gas
- B. 9" deep pan
- C. Elec. Tilt and Ignition
- D. Open Leg Frame Base
- E. S/S Construction
- F. Thermostat controls
- G. HD cover w/rear condensate drip shield
- H. W/Bullet feet
- I. 0 - 2000' elevation
- J. 144,000 BTU/HR Firing Rate

ACCESSORIES:

- A. (2) Limited 1-year parts and labor warranty (std) (no charge)
- B. (2) Model 122879 Pan Carrier
- C. (2) 2" tangent draw off

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 28.1
ITEM: FLOOR TROUGH (2 required)
MANUFACTURER: Advance Tabco
MODEL NO.: #FTG-1836
DESCRIPTION: Stainless Steel Floor Trough
STD. FEATURES:
A. Size: 457.2mm wide x 914.4mm long (18" x 36")
B. Std. Depth,
C. 14 Gauge 304 Stainless Steel
D. S/S Subway Grating Constructed From 3/16" x 1" Bars
E. S/S Waste Cup W/Removable S/S Basket (for up to 3" waste pipe) Pitched Towards Waste

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 28.2
ITEM: FAUCET, KETTLE FILLER (1 required)
MANUFACTURER: T & S Brass
MODEL NO.: #B-2331
DESCRIPTION: Combination Pot Filler, Spray Assembly
STD. FEATURES:

- A. Wall Mounted Mixing Faucet
- B. (2) In Line Vacuum Bbreakers
- C. (2) Wall Hooks
- D. (2) B-0144-H Flexible Stainless Hoses; 12' Provided
- E. Self Closing Spray Valve, Automatic Shut Off Valve
- F. Hook Nozzle, Tee Swivel

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 29
ITEM: RANGE, HEAVY-DUTY, GAS (1 required)
MANUFACTURER: Jade Range
MODEL NO.: #JTRH-4-36
DESCRIPTION: Titan, Four Open Burner Heavy Duty Range

STD. FEATURES:

- A. Size: 914.4mm
- B. (4) 457.2mm (18") 30,000 BTU open burners
- C. Standard Oven base with S/S Oven Liner
- D. 2 Chrome Plated Oven Racks
- E. S/S Front, Sides & Stub Back
- F. 6" High S/S Legs
- G. 155,000 BTU
- H. 3/4" Rear Connection, Standard, (nc)
- I. 3/4" Gas Regulator Supplied w/range, (nc)

ACCESSORIES:

- A. Natural gas
- B. Set of Four 6" Casters (2 w/brakes)

OPTIONS:

- A. R-36 Titan 36" Flue Riser, Single Height, Stainless Steel

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 29.1
ITEM: GAS CONNECTOR KIT (1 required)
MANUFACTURER: Dormont Manufacturing
MODEL NO.: #1675 KIT2S-1219.2mm (48")
DESCRIPTION: Gas Connector Kit, 3/4" inside diameter
STD. FEATURES:
A. Size: 1219.2 mm (48") long
B. Supr-Swivel coupling on both ends
C. Coiled restraining device
D. Full Port Gas Valve

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 30
ITEM: FRYER, GAS (Battery of 2 Fryers)
MANUFACTURER Frymaster
MODEL NO.: #MJ45E-SC
DESCRIPTION: Heavy Duty Restaurant Design Fryer
STD. FEATURES:

- A. Natural Gas-Fired
- B. 50 lb. fat capacity
- C. Thermostatic Controls
- D. Stainless Pot, Door and Cabinet

ACCESSORIES:

- A. Natural Gas (Specify Elevation if over 2,500 ft.)
- B. (2)-120v/60/1-ph, 1.0 Amp, Std. (nc)
- C. (1)FM-A-2 Filter Magic Model FM-A (to go with 2 fryers)
- D. Filter in Third Position from Left (nc)
- E. Stainless Door & Cabinet for Filter Magic
- F. (1)FWH-1 Food Warmer & Holding Station, includes; Rod
Style Heat Lamp, Cord & Plug, 12 x 20 x 2-1/2" S/S
Cafeteria-style Pan & Screen for Filter Magic Unit
- G. (1)-120v/60/1-ph, 9.0 Amps w/Cord & Plug, for Filter Unit (nc)
- H. (1)-120v/60/1-ph, 6.9 Amp, Std, (nc) for Heat Lamp
- I. (1 SET OF 4) Casters- (for battery of 2 fryers)

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 30.1
ITEM: GAS CONNECTOR KIT (1 required)
MANUFACTURER: Dormont Manufacturing
MODEL NO.: #16100 KIT2S- 1219.2mm (48")
DESCRIPTION: 1" Inside Diameter Gas Connector Kit
STD. FEATURES:
A. Size: 1219.2mm long (48")
B. Supr-Swivel coupling on both ends
C. With Coiled Restraining Device
D. Full Port Gas Valve

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 31

ITEM: SHELVING, WIRE (4 Shelves)

MANUFACTURER: Metro by InterMetro Industries Corporation

MODEL NO.: #2160BR

DESCRIPTION: Super Erecta® Wire Shelf

STD. FEATURES:

- A. Size: Shelves 533.4mm Wide x 1524mm Long (21" x 60")
- B. Bright (zinc) finish
- C. Plastic Split Sleeves are Included in Each Carton

ACCESSORIES:

- A. (4) #74P Super Erecta® SiteSelect Post, 74 5/8" H, \ Adjustable Leveling Bolt, Posts are Grooved at 1" Increments and Numbered at 2" Increments, Double Grooved AT 8" Increments, Chrome Finish.

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 32 - Exhaust hood(s) - By GREENHECK- MODEL GXFW- SEE MECHANICAL SHEET H1.1
ITEM NO. 33 - Fire suppression system - By GREENHECK - MODEL FSSC
ITEM NO. 34 - Spare Number

ITEM NO. 35

ITEM: HAND SINK (8 required)

MANUFACTURER: Advance Tabco

MODEL NO.: #7-PS-80

DESCRIPTION: Wall Mounted Hand Sink

STD. FEATURES:

- A. Size: 254mm Wide x 355.6mm Front to Back x 127mm Deep (10" x 14" x 5")
- B. Stainless Steel Construction
- C. Splash Mounted Faucet
- D. Lever Drain with Overflow
- E. Soap and Towel Dispenser
- F. P-trap

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 36
ITEM: WORK TABLE (2 required)
MANUFACTURER: Custom Fabricator by Northern Stainless, or Equal
MODEL NO.: CUSTOM
DESCRIPTION: Custom Stainless Steel Work Table with Undershef
STD. FEATURES:

- A. Size: 1828.8mm x 762mm x 863.6 High (72" x 30" x 34")
- B. 14 Gauge Top
- C. 16 Gauge Undershef
- D. Stainless Legs and Feet
- E. Sound Deadened Between all Contact Surfaces
- F. Legs to be Continuously Welded to Stainless Gussets or Channel
- G. Top to be Rolled Edges with Bullnose Corners
- H. Custom, per Approved Drawing.

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 37
ITEM: WORK TABLE (1 required)
MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal
MODEL NO. CUSTOM
DESCRIPTION: Custom stainless steel work table with undershelf
STD. FEATURES:
A. Size: 2438.4mm x 762mm x 863.6mm high (96" x 30" x 34")
B. 14 Gauge Top
C. 16 Gauge Undershelf
D. Stainless Legs and Feet.
E. Sound Deadened Between all Contact Surfaces
F. Legs to be Continuously Welded Stainless Gussets or Channel
G. Top to be Rolled Edges with Bullnose Corners
H. Custom, per Approved Drawing.

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 37.1 - OVERSHELF (1 required)
ITEM: Custom Fabricated by Northern Stainless, or Equal
MODEL NO.: CUSTOM
DESCRIPTION: Table Mounted Overshelf
STD. FEATURES:

- A. Size: 2438.4mm x 304.8mm deep (96" x 12")
- B. 16ga. Type 300 Stainless Steel
- C. Front to be Turned Down 1" and Back 1/2
- D. Back Turned up 1"
- E. Mount with 1 5/8" Stainless Steel Tubing on Item # 37
- F. Grind Smooth all Edges/Corners to Prevent Sharp Edges
- G. Custom, per Approved Drawing

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 38 Spare Number
ITEM NO. 39 Spare Number
ITEM NO. 40 Spare Number

ITEM NO.: 41
ITEM: ICE MAKER (2 required)
MANUFACTURER: Manitowoc
MODEL NO: #QD-1003W
DESCRIPTION: Ice Maker, Cube-Style, Water-Cooled
STD. FEATURES:

- A. Self-Contained Condenser
- B. 980-lb Production/24 hrs
- C. Stainless Steel Finish
- D. Dice Size Cubes

ACCESSORIES:

- A. (2)208-230V/60/3ph, add suffix "3" to model no.
- B. (2) Model TRI-L-20NH Tri-Liminator Two Primary Filter Assembly,
for series 800 through 1800
- C. (2)Specify bin top cut for 30" wide machine (nc)
- D. (2)Model K-00170 Ice Deflector, required for Q-800 or 1000
on F-style or non-Manitowoc bin

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 41.1
ITEM: ICE BIN (2 required)
MANUFACTURER: Follett Corporation
MODEL NO: SG1010-48
DESCRIPTION: Upright Ice Bin, Single Door
STD. FEATURES:
A. 1000 lb Bin Storage
B. Poly Liner
C. SmartGATE, Poly Lift Door w/ PowerHinge
D. Stainless Steel Exterior

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 41.2
ITEM: WATER FILTER ASSEMBLY (2 required)
MANUFACTURER: Scottsman
MODEL NO: SSM3
DESCRIPTION: Triple System Water Filter Assembly
STD. FEATURES:
A. Designed for Ice Machines over 1000 lbs
ACCESSORIES:
A. (2) 1 year parts & labor warranties (nc)

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 42

ITEM: HEATED CABINET, PASS-THRU (2 required)

MANUFACTURER: Traulsen

MODEL NO.: #RHF232WP-FHS

DESCRIPTION: Two-Section Heated Pass-Thru Cabinet

STD. FEATURES:

- A. Size: 1473.2mm Wide x 2114.6mm high x 685.8mm deep (58" x 83 1 /4" x 27")
- B. Stainless Steel Exterior and Interior
- C. Standard Depth Cabinet
- D. Wide Full-Height Doors
- E. INTELA-TRAUL™ Controls

ACCESSORIES:

- A. (2)Thermometer side: Left door hinged left/right hinged right, std. (nc)
- B. (2)Rear: Left door hinged left/right hinged right, std. (nc)
- C. (2)208/115v/60/1ph, std. (nc)
- D. 12 ea.-Universal tray slide - per pair
- E. Casters, 6" high

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 43
ITEM: REFRIGERATOR, PASS-THRU (2 required)
MANUFACTURER: Traulsen
MODEL NO.: #RHT232WPUT-FHS
DESCRIPTION: Two-Section Pass-Thru Refrigerator

STD. FEATURES:

- A. Size: 1473.2mm Wide x 2114.6mm high x 685.8mm deep (58" x 83 1 /4" x 27")
- B. Self-Contained Refrig System
- C. Stainless Steel Exterior and Interior
- D. Standard Depth Cabinet
- E. Wide Full-Height Doors
- F. 1/2 HP Compressor
- G. INTELA-TRAUL™ Controls

ACCESSORIES:

- A. (2)Thermometer side: Left door hinged left/right hinged right, std. (nc)
- B. (2)Rear: Left door hinged left/right hinged right, std. (nc)
- C. (2)115v/60/1ph, w/cord & plug attached, std. (nc)
- D. (2)1-year service-labor & 5 yr compressor warranty (std.)
- E. (12)Universal tray slide - per pair

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 44 - Spare Number

ITEM NO.: 45

ITEM: CASHIER'S COUNTER

MANUFACTURER: Shelleysteel

MODEL NO.: SCS-36

DESCRIPTION: Mobile Cashier's Counter

STD. FEATURES:

- A. Size: 914.4mm x 762mm x 914.4mm high (36" x 30" x 36")
- B. 18 gauge Stainless Steel Exterior Body
- C. 14 gauge Galvanized Bottom
- D. Stainless Steel Shelf
- E. Stainless Steel Cash Drawer
- F. Top - 14 gauge Stainless Steel with 50mm (2") Hole
For Cord Access

ACCESSORIES:

- A. 304.8mm (12") Wide Stainless Steel Fold-Down Tray Slide
- B. 120V/60Hz/ 1Ph, 10 Amp Convenience Outlet w/ Breaker
- C. Stainless Steel Trim Strips

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 47 - Spare Number

ITEM NO.: 48 - Spare Number

ITEM NO.: 49

ITEM: DISPENSER, TRAY SILVERWARE AND NAPKINS (6 required)

MANUFACTURER: Delfield

MODEL NO.: #FT2-SN-1418

DESCRIPTION: Mobile Tray, Silverware & Napkin Dispenser

STD. FEATURES:

- A. Size: 1212.9mm Long x 561.8mm Deep (47 3/ 4" x 22 1 /8")
- B. Open Frame Mobile Design
- C. Dual Self-Elevating Platform, for 355.6mm x 457.2mm
 (14" x 18") Trays

ACCESSORIES:

- A. Wrap Around Bumpers (adds 44.45mm (1 3/ 4") to Overall
 Length and Depth

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 50 - Spare Number

ITEM NO. 51 - Spare Number

ITEM NO.: 52

ITEM: HOT FOOD SERVING LINE (2 required)

MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal

MODEL NO.: CUSTOM

DESCRIPTION: Serving Line with Tray Slide & Hot Food Wells

STD. FEATURES:

- A. Size: 6350mm Long X 1181.1mm Wide (including tray slide) 20'-10" x 46 1/2"
- B. 355.6mm (14") Tray Slide
- C. 5 Hot Food Wells
- D. Wet/Dry Operation with Individual Thermostatic Controls
- E. Water Fill and Drain Manifold with Gate Valve
- F. Protector Shield with S/S Top with Heat
- G. Lamp/Light
- H. Open Area for Griddle W/Griddle Shield (See Item #59)
- I. Flat Stainless Utility Cabinets with Open Storage Server Side (for remaining counter space)
- J. Entire assembly to have stainless tray slide with raised "V" tray rails
- K. Construction to be 14ga. stainless tops
- L. Stainless Legs/Feet with Stainless Toe Kick
- M. Front and Ends to be Stainless with Laminate Finish
- N. Custom per approved drawings

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 53 Spare Number
ITEM NO. 54 Spare Number
ITEM NO. 55 Spare Number

ITEM NO.: 56

ITEM: Toast-Qwik® Conveyor Toaster (2 required)

MANUFACTURER: Hatco

MODEL NO.: #TQ-700

DESCRIPTION: Countertop Design, Bread and Bun Toaster

STD. FEATURES:

- A. Size: 368.3mm Long x 596.9mm Wide x 381mm High (14 1/2" x 23 1/2" x 15")
- B. Horizontal Conveyor
- C. Capacity - 12 Slices
- D. Approx. 700 Units/Hour Output

ACCESSORIES:

- A. 2 at 208V, 60Hz, 1PH, NEMA 6-15P
- B. (2) Model TRH-LEGS 4" Adjustable Legs (4 per pkg)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 57 - Exhaust hood(s) - GREENHECK - MODEL GXEV- SEE MECHANICAL
 SHEET H1.1

ITEM NO.: 58 - Spare Number

ITEM NO.: 59

ITEM: ACCU-TEMP GRIDDLE (2 required)

MANUFACTURER: Lang Manufacturing

MODEL NO.: #G-48TI

DESCRIPTION: Counter Unit Gas Griddle

STD. FEATURES:

- A. Size: 1219.2mm W x584.2mm D (48" x 23") Grill Area
- B. Natural Gas
- C. 1" highly polished steel griddle plate
- D. Snap Action thermostat with Burner Every 12" &120v electronic spark ignition,
- E. S/S Construction
- F. 4" S/S Legs
- G. 108,000 BTU

ACCESSORIES:

- A. (2) 120/60/1, with cord & plug provided (nc)
- B. (2)- Natural Gas (nc)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 59.1

ITEM: GAS CONNECTOR KIT (2 required)

MANUFACTURER: Dormont Manufacturing

MODEL NO.: #1675 KIT2S

DESCRIPTION: 48" Gas Connector Kit

STD. FEATURES:

- A. 19mm (3/4") inside diameter, 1219.2mm (48") Long
- B. Supr-Swivel coupling on both ends
- C. Coiled Restraining Device
- D. Full Port Gas Valve

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 59.2
ITEM: GRIDDLE STAND (2 required)
MANUFACTURER: Lang Manufacturing
MODEL NO.: #TSC-48
DESCRIPTION: Stainless Steel Griddle Stand
STD. FEATURES:
A. Size: 1212.8mm W x 635mm D x 647.7mm H (47-3/4" x 25" x 25-1/2")
B. Open Base w/Undershelf
C. Tubular Legs w/Casters

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 60 Spare Number
ITEM NO. 61 Spare Number
ITEM NO. 62 Spare Number
ITEM NO. 63 Spare Number
ITEM NO. 64 Spare Number
ITEM NO. 65 Spare Number
ITEM NO. 66 Spare Number
ITEM NO. 67 Spare Number
ITEM NO. 68 Spare Number

ITEM NO.: 69
ITEM: CUTTER/MIXER (1 required)
MANUFACTURER: Hobart
MODEL NO.: #HCM450-1
DESCRIPTION: Vertical Cutter/Mixer
STD. FEATURES:

- A. Size: 45-qt. Capacity
- B. BS/S Tilting Bowl w/Clear Lexan Cover
- C. 5 Min. Timer w/"Hold" & "Jog"
- D. 2-Bladed Cut/Mix Knife
- E. Knead/Mix Shaft
- F. Poly Strainer Basket
- G. Safety Interlocks
- H. 200/60/3, 5 Hp
- I. 6' cord w/plug & receptacle

ACCESSORIES:

- A. (1) 1-Yr. parts, labor & travel time during normal working hrs (nc)

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 70
ITEM: SERVING COUNTER/SALAD/DESSERTS (1 required)
MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal
MODEL NO.: CUSTOM
DESCRIPTION: "U" Shaped, Custom Stainless Steel Counter
STD. FEATURES:
A. Size: 8229.6mm Across Front, 3479.8mm Ea. Side (27', 11'-5")
B. Cut Outs for (4) Self Contained Drop -In Cold Pans
C. Single Sided Sneeze Guards with Lights
D. 355.6mm (14") Stainless Tray Slide with Raised " V " Tray Rails
E. Server Side to Have Open Shelf Storage where Shown
F. Stainless Legs and Feet with Stainless Toe Kick
G. Top finish to be 14ga. 300 series stainless
H. Stainless Front
I. Sides and Ends with Laminate Finish
J. All Seams Welded, Ground Smooth and Polished
K. Custom Unit, Per Approved Drawing

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 70.1
ITEM: COLD FOOD UNIT, DROP-IN (4 ea required)
MANUFACTURER: Delfield
MODEL NO.: #8159-EF
DESCRIPTION: LiquiTec™ Drop-In Cool Food Unit
STD. FEATURES:

- A. 4-Pan Size
- B. 4" or 6" Deep Pans Flush w/Counter Top
- C. Insulated Pan
- D. S/S inner liner & top
- E. Galv Outer Liner
- F. Self-Contained Eutectic Fluid Refrig. System
- G. 1/4 HP, 7 Amp, NSF-7

ACCESSORIES:

- A. (4) at 115v/60/1-ph, std. (nc)
- B. (4) One Year Service and Labor Contract (net)
- C. (4) Single Service Flip-up Sneeze Guard (with lights; 36" minimum)

Safety Pays

BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO. 71 - Spare Number
ITEM NO. 72 - Spare Number
ITEM NO. 73 - Spare Number
ITEM NO. 74 - Spare Number
ITEM NO. 75 - Bag in box storage racks - by Purveyor (Coke/Pepsi)

ITEM NO.: 76
ITEM: Clean Dish Table (1 required)
MANUFACTURER: Custom Fabricated by Northern Stainless, or Equal
MODEL NO.: CUSTOM
DESCRIPTION: "L" Shaped Custom Stainless Steel Clean Dish Table
STD. FEATURES:
A. Size: Table: 1524mm x 2286mm (60" x 90"),
Undershelf: 1574.8mm (62")
B. Stainless Steel Undershelf Welded to Table Legs
C. Top Constructed of 14ga. 300 series S/S with Mitered Inside Corner
D. Rolled Rim Front and Side
E. 10" Rear Back Splash
F. Corner Rack Guide
G. Custom, Per Approved Drawing

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 77
ITEM: BOOSTER HEATER (1 required)
MANUFACTURER: Hatco
MODEL NO.: #C-30
DESCRIPTION: Compact Electric Booster Heater

STD. FEATURES:
A. Size: 6-Gallon Storage Capacity
B. Electric Operation, 30-KW
C. Stainless Steel Front
D. Custom Fittings & Castone tank

ACCESSORIES:
A. 208V, 3-phase
B. SSA-LEGS 6" - 8" Adjustable Stainless Steel Legs
C. Shock Absorber (reduces water hammer)

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 78
ITEM: DISHWASHER (1 required)
MANUFACTURER: Hobart
MODEL NO.: C64A + BUILDUP (Accessories)
DESCRIPTION: Conveyor Type Dishwasher

STD. FEATURES:

- A. Size: 248 Racks/Hour Capacity
- B. Two Tank Design
- C. S/S Construction
- D. Automatic Fill
- E. Auto-Timer
- F. 115 Volt Pilot Circuit

ACCESSORIES:

- A. 1-Yr. parts, labor & travel time during normal working hrs
w/in the USA (nc)
- B. Model ELE0AX 208/60/3
- C. Model DIR0RL Right to left operation
- D. Model HGT6HI(6" higher than std)
- E. Model HTE15K Elec tank ht 15kw wash/10kw rinse
- F. Model SPCYES W/single point electric connection
- G. Model CNV020 *conveyor for 20x20 racks
- H. Model VFCYES W/vent fan control
- I. Model TRNWTH W/transformer
- J. Model FETSTD *std feet
- K. Model PRAW/O *W/o low temp rinse arm
- L. Model WTRCOM *common water connection
- M. Model SWITCH-TABLIM Table limit switch
- N. Model PRESREG-3/40BR 3/4" brass pressure regulator
- O. Model WTRHAM-ARREST Water hammer arrestor kit

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 79

ITEM: Condensate hood - GREENHECK - MODEL GD2 -SEE MECHANICAL SHEET
H1.1

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 80
ITEM: FAUCET / RINSE ASSEMBLY (1 required)
MANUFACTURER: T & S Brass
MODEL NO.: #B-0133-B
DESCRIPTION: Pre-Rinse Unit & Faucet
STD. FEATURES:

- A. 863.6mmH, 381mm overhang, 457.2mm riser, (34", 15", 18")
- B. 8" O.C. wall mounted faucet
- C. 1/2" IPS female eccentric flanged inlets
- D. #B-0107 spray valve,
- E. #B-0044-H flexible stainless steel hose
- F. #B-0109-01 6" wall bracket

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 81
ITEM: DISPOSER (1 required)
MANUFACTURER: Hobart
MODEL NO.: #FD3/300-1
DESCRIPTION: Disposer, Basic Unit Only
STD. FEATURES:

- A. 3 HP motor
- B. Aluminum Housings
- C. Adjustable Feet

ACCESSORIES:

- A. 1-Yr. parts, labor & travel time during normal working hrs (nc)
- B. Model CONTROL-GR20DG Group 2 200-230/400-460/60/3
- C. GROUP B Accessory Group Including- Nitrile Rubber Silver-Saver
 Splash Guard Ring, Water Swirl Inlet & 3/4" Vacuum Breaker

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 82
Item: SLANT RACK SHELF (1 required)
MANUFACTURER: Custom Fabricated by Northern Stainless or Equal
MODEL NO.: CUSTOM
DESCRIPTION: Wall Mounted Slant Rack Shelf
STD. FEATURES:
A. Size: 1574.8 mm (62") Long
B. Stainless Steel
C. Wall Mounted with stainless steel Mounting Brackets

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 83

ITEM: TRAY ACCUMULATOR/SOILED DISHTABLE (1 required)

MANUFACTURER: Custom Fabricated by K-FLEX (Hobart Subsidiary), or Equal

MODEL NO.: CUSTOM

DESCRIPTION: Custom slat belt conveyor system

STD. FEATURES:

- A. Size: 4 tier type, 56 tray capacity
- B. Soiled Dishtable
- C. Pre-Rinse Sink
- D. Waste Trough to Include Soiled Tray Accumulator
- E. Stainless Steel Pass Thru Window Frame and Sill (see dwgs)

ACCESSORIES:

- A. 1-Yr. parts, labor & travel time during normal working hrs
 w/addition 4-yr. of non-prorated compressor-only warranty (nc)
- B. Note: Custom per approved drawing

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 84 - Spare Number

ITEM NO.: 85

ITEM: SOAK SINK (1 required)

MANUFACTURER: Advance Tabco

MODEL NO.: #9-MS-24

DESCRIPTION: Mobile Soak Sink

STD. FEATURES:

- A. Size: 609.6mm x 609.6mm x 304.8mm Deep (24" x 24" x 12")
- B. 863.6mm High (34")
- C. Sink Outlet Fitted with Quick-Release Drain
- D. Stainless Steel Construction
- E. Casters

STD. FEATURES:

- A. Silver Basket

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 86 - Spare Number
ITEM NO.: 87 Spare Number

ITEM NO.: 88
ITEM: GLASS RACKS / DOLLIES
MANUFACTURER: CARLISLE / LAKESIDE
MODEL NO.: RG25 / 820
DESCRIPTION: 25 SPACE GLASS RACKS WITH OPTIONAL HEIGHT EXTENDERS / SELF-LEVELING
 CANTILEVER GLASS RACK DISPENSER

STD FEATURES: (GLASS RACKS):
 A. 25 GLASS CAPACITY PER RACK
 B. SIZE: 508 x 508 MM

OPTIONAL FEATURES:
 A. OPTIONAL GLASS RACK EXTENDERS - TO INCREASE THE HEIGHT IF THE GLASS
 RACKS TO ACCOMMODATE TALLER GLASSES- THE NEED FOR THESE EXTENDERS TO BE
 DETERMINED BY ACTUAL GLASSWARE CHOSEN FOR FACILITY.

STD FEATURES: (CANTILEVER GLASS RACK DISPENSER)
 A. SIZE: FOR 508 x 508 mm GLASS RACKS.
 B. PERIMETER BUMPERS
 C. FIELD ADJUSTABLE TO ENSURE PROPER DISPENSING LEVEL
 D. EASY-TO-CLEAN STAINLESS STEEL
 E. ROLLS ON 102mm HEAVY DUTY CASTERS, 2 WITH BRAKES

Safety Pays
BATTALION DINING FACILITY Fort McCoy, Wisconsin

ITEM NO.: 90
ITEM: BEVERAGE COUNTERS (2 required)
MANUFACTURER Custom Fabricated by Northern Stainless, or Equal
MODEL NO.: CUSTOM
DESCRIPTION: Custom Stainless Counter With Tray Slide
STD. FEATURES:

- A. Size: 4876.8 x 1181.1mm Deep(including tray slide)x 914.4mm
 High (16' x 46.5" x 36")
- B. 14 gauge 300 series stainless top with 4" backsplash
- C. Front and Ends to be Stainless Steel with Laminate Finish
- D. Base Cabinet to have Bottom and Intermediate Shelf
- E. Sliding Doors
- F. Top to have Urn Trough (location to be determined).
- G. Tray Rail to be Stainless Steel 14" Deep with Raised " V " Tray Slide
- H. Unit to have Stainless Legs and Feet with Stainless Toe Plate
- I. Custom, Per Approved Drawing.

ITEM NO. 91 - Drink dispensers - By Purveyor
ITEM NO. 92 - Juice dispensers - By Purveyor
ITEM NO. 93 - Milk dispensers - By Purveyor
ITEM NO. 94 - Coffee urn - By Purveyor
ITEM NO. 95 - Spare Number
ITEM NO. 96 - Spare Number
ITEM NO. 97 - Ice/Drink dispensers - By Purveyor

AMENDMENT # 2

SECTION 13110A (ADDED SECTION)

**CATHODIC PROTECTION SYSTEM (SACRIFICIAL ANODE)
11/98**

PART 1 GENERAL

1.1 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM B 418 (1995a) Cast and Wrought Galvanic Zinc Anodes
- ASTM B 843 (1993; R 1998) Magnesium Alloy Anodes for Cathodic Protection
- ASTM D 1248 (1998) Polyethylene Plastics Molding and Extrusion Materials

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- 49 CFR 192 Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards

NACE INTERNATIONAL (NACE)

- NACE RP0169 (1996) Control of External Corrosion on Underground or Submerged Metallic Piping Systems
- NACE RP0177 (1995) Mitigation of Alternating Current and Lightning Effects on Metallic Structures and Corrosion Control Systems
- NACE RP0188 (1999) Discontinuity (Holiday) Testing of Protective Coatings
- NACE RP0190 (1995) External Protective Coatings for Joints, Fittings, and Valves on Metallic Underground or Submerged Pipelines and Piping Systems

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA TC 2 (1998) Electrical Polyvinyl Chloride (PVC) Tubing (EPT) and Conduit (EPC-40 and EPC-80)
- NEMA WC 5 (1992; Rev 2, 1996)

Thermoplastic-Insulated Wire and Cable for
the Transmission and Distribution of
Electrical Energy

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (1999) National Electrical Code

UNDERWRITERS LABORATORIES (UL)

UL 6 (1997) Rigid Metal Conduit

UL 510 (1994; Rev thru Apr 1998) Polyvinyl
Chloride, Polyethylene, and Rubber
Insulating Tape

UL 514A (1996; Rev Dec 1999) Metallic Outlet Boxes

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Drawings; G, AE

Six copies of detail drawings consisting of a complete list of equipment and material including manufacturer's descriptive and technical literature, catalog cuts, results of system design calculations including soil-resistivity, installation instructions and certified test data stating the maximum recommended anode current output density and the rate of gaseous production if any at that current density. Detail drawings shall contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will function properly as a unit.

Contractor's Modifications; G, AE

Six copies of detail drawings showing proposed changes in location, scope of performance indicating any variations from, additions to, or clarifications of contract drawings. The drawings shall show proposed changes in anode arrangement, anode size and number, anode materials and layout details, conduit size, wire size, mounting details, wiring diagram, method for electrically-isolating each pipe, and any other pertinent information to proper installation and performance of the system.

SD-03 Product Data

Equipment; G, AE

Within 30 days after receipt of notice to proceed, an itemized list of equipment and materials including item number, quantity, and manufacturer of each item. The list shall be accompanied by a

description of procedures for each type of testing and adjustments, including testing of coating for thickness and holidays. Installation of materials and equipment shall not commence until this submittal is approved.

Spare Parts;

Spare parts data for each different item of material and equipment specified, after approval of detail drawings and not later than six (6) months prior to the date of beneficial occupancy. The data shall include a complete list of parts, special tools, and supplies, with current unit prices and source of supply. One (1) spare anode of each type shall be furnished.

SD-06 Test Reports

Tests and Measurements; G, AE

Test reports in booklet form tabulating all field tests and measurements performed, upon completion and testing of the installed system and including close interval potential survey, casing and interference tests, final system test verifying protection, insulated joint and bond tests, and holiday coating test. A certified test report showing that the connecting method has passed a 120-day laboratory test without failure at the place of connection, wherein the anode is subjected to maximum recommended current output while immersed in a three percent sodium chloride solution.

Contractor's Modifications; G, AE

Final report regarding Contractor's modifications. The report shall include pipe-to-soil measurements throughout the affected area, indicating that the modifications improved the overall conditions, and current measurements for anodes. The following special materials and information are required: taping materials and conductors; zinc grounding cell, installation and testing procedures, and equipment; coating material; system design calculations for anode number, life, and parameters to achieve protective potential; backfill shield material and installation details showing waterproofing; bonding and waterproofing details; insulated resistance wire; exothermic weld equipment and material.

SD-07 Certificates

Cathodic Protection System;

Proof that the materials and equipment furnished under this section conform to the specified requirements contained in the referenced standards or publications. The label or listing by the specified agency will be acceptable evidence of such compliance.

Services of "Corrosion Expert"; G, AE

Evidence of qualifications of the "corrosion expert."

a. The "corrosion expert's" name and qualifications shall be certified in writing to the Contracting Officer prior to the start of construction.

b. Certification shall be submitted giving the name of the firm, the number of years of experience, and a list of not less than five (5) of the firm's installations three (3) or more years old that have been tested and found satisfactory.

SD-10 Operation and Maintenance Data

Cathodic Protection System; AE

Before final acceptance of the cathodic protection system, six copies of operating manuals outlining the step-by-step procedures required for system startup, operation, adjustment of current flow, and shutdown. The manuals shall include the manufacturer's name, model number, service manual, parts list, and brief description of all equipment and their basic operating features. Six copies of maintenance manual, listing routine maintenance procedures, recommendation for maintenance testing, possible breakdowns and repairs, and troubleshooting guides. The manuals shall include single-line diagrams for the system as installed; instructions in making pipe-to-reference cell and tank-to-reference cell potential measurements and frequency of monitoring; instructions for dielectric connections, interference and sacrificial anode bonds; instructions shall include precautions to ensure safe conditions during repair of pipe or other metallic systems. The instructions shall be neatly bound between permanent covers and titled "Operating and Maintenance Instructions." These instructions shall be submitted for the Contracting Officer's approval. The instructions shall include the following:

a. As-built drawings, to scale of the entire system, showing the locations of the piping, location of all anodes and test stations, locations of all insulating joints, and structure-to-reference cell potentials as measured during the tests required by Paragraph: TESTS AND MEASUREMENTS, of this section.

b. Recommendations for maintenance testing, including instructions in making pipe-to-reference cell potential measurements and frequency of testing.

c. All maintenance and operating instructions and nameplate data shall be in English.

d. Instructions shall include precautions to insure safe conditions during repair of pipe system.

Training Course;

The proposed Training Course Curriculum (including topics and dates of discussion) indicating that all of the items contained in the operating and maintenance instructions, as well as demonstrations of routine maintenance operations, including testing procedures included in the maintenance instructions, are to be covered.

1.3 GENERAL REQUIREMENTS

The Contractor shall furnish and install a complete, operating, sacrificial anode cathodic protection system in complete compliance with NFPA 70, with all applicable Federal, State, and local regulations and with minimum requirements of this contract. In addition to the minimum requirements of these specifications, construction of gas pipelines and associated cathodic protection systems shall be in compliance with 49 CFR 192. The services required include planning, installation, adjusting and testing of a cathodic protection system, using sacrificial anodes for cathodic protection of the Water and gas lines, their connectors and lines under the slab or floor foundation. The cathodic protection system shall include anodes, cables, connectors, corrosion protection test stations, and any other equipment required for a complete operating system providing the NACE criteria of protection as specified. Insulators are required whenever needed to insulate the pipes from any other structure. Any pipe crossing the pipe shall have a test station. The cathodic protection shall be provided on Water, Fire Protection and Gas pipes.

1.3.1 Services of "Corrosion Expert"

The Contractor shall obtain the services of a "corrosion expert" to supervise, inspect, and test the installation and performance of the cathodic protection system. "Corrosion expert" refers to a person, who by thorough knowledge of the physical sciences and the principles of engineering and mathematics, acquired by professional education and related practical experience, is qualified to engage in the practice of corrosion control of buried or submerged metallic surfaces. Such a person must be accredited or certified by the National Association of Corrosion Engineers (NACE) as a NACE Accredited Corrosion Specialist or a NACE certified Cathodic Protection (CP) Specialist or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metallic piping and tank systems, if such certification or licensing includes 5 years experience in corrosion control on underground metallic surfaces of the type under this contract. The "corrosion expert" shall make at least 3 visits to the project site. The first of these visits shall include obtaining soil resistivity data, acknowledging the type of pipeline coatings to be used and reporting to the Contractor the type of cathodic protection required. Once the submittals are approved and the materials delivered, the "corrosion expert" shall revisit the site to ensure the Contractor understands installation practices and laying out the components. The third visit shall involve testing the installed cathodic protection systems and training applicable personnel on proper maintenance techniques. The "corrosion expert" shall supervise installation and testing of all cathodic protection.

1.3.2 Contractor's Modifications

The specified system is based on a complete system with magnesium sacrificial anodes. The Contractor may modify the cathodic protection system after review of the project, site verification, and analysis, if the proposed modifications include the anodes specified and will provide better overall system performance. The modifications shall be fully described, shall be approved by the Contracting Officer's representative, and shall meet the following criteria. The proposed system shall achieve a minimum pipe-to-soil "instant off" potential of minus 850 millivolts with reference to a saturated copper-copper sulfate reference cell on the underground components of the piping or other metallic surface. The Contractor shall take resistivity measurements of the soil in the vicinity of the pipes and ground bed sites. Based upon the measurements taken, the current and

voltage shall be required to produce a minimum of minus 850 millivolts "instant off" potential between the structure being tested and the reference cell. This potential shall be obtained over 95 percent of the metallic area. The anode system shall be designed for a life of twenty-five (25) years of continuous operation.

1.3.3 Isolators

Isolators are required to insulate the indicated pipes from any other structure. Isolators shall be provided with lightning protection and a test station as shown.

1.3.4 Anode and Bond Wires

A minimum of 5 magnesium anodes with an unpackaged weight of kilograms shall be provided uniform distances along the metallic pipe lines. A minimum of 3 test stations shall be used for these anodes. These anodes shall be in addition to anodes for the pipe under concrete slab and casing requirements. For each cathodic system, the metallic components and structures to be protected shall be made electrically continuous. This shall be accomplished by installing bond wires between the various structures. Bonding of existing buried structures may also be required to preclude detrimental stray current effects and safety hazards. Provisions shall be included to return stray current to its source without damaging structures intercepting the stray current. The electrical isolation of underground facilities in accordance with acceptable industry practice shall be included under this section. All tests shall be witnessed by the Contracting Officer.

1.3.5 Surge Protection

Approved zinc grounding cells or sealed weatherproof lightning arrestor devices shall be installed across insulated flanges or fittings installed in underground piping as indicated on the drawings. The arrestor shall be gapless, self-healing, solid state type. Zinc anode composition shall conform to ASTM B 418, Type II. Lead wires shall be number 6 AWG copper with high molecular weight polyethylene (HMWPE) insulation. The zinc grounding cells shall not be prepackaged in backfill but shall be installed as detailed on the drawings. Lightning arrestors or zinc grounding cells are not required for insulated flanges on metallic components used on nonmetallic piping systems.

1.3.6 Summary of Services Required

The scope of services shall include, but shall not be limited to, the following:

- a. Close-interval potential surveys.
- b. Cathodic Protection Systems.
- c. System testing.
- d. Casing corrosion control.
- e. Interference testing.
- f. Training.

- g. Operating and maintenance manual.
- h. Insulator testing and bonding testing.
- i. Coating and holiday testing shall be submitted within 45 days of notice to proceed.

1.3.7 Nonmetallic Pipe System

In the event pipe other than metallic pipe is approved and used in lieu of metallic pipe, all metallic components of this pipe system shall be protected with cathodic protection. Detailed drawings of cathodic protection for each component shall be submitted to the Contracting Officer for approval within 45 days after date of receipt of notice to proceed, and before commencement of any work.

1.3.7.1 Coatings

Coatings for metallic components shall be as required for metallic fittings. Protective covering (coating and taping) shall be completed and tested on each metallic component (such as valves, hydrants and fillings). This covering shall be as required for underground metallic pipe. Each test shall be witnessed by the Contracting Officer. Coatings shall be selected, applied, and inspected in accordance with NACE RP0190 and as specified in these specifications. The use of nonmetallic pipe does not change other requirements of the specifications. Any deviations due to the use of nonmetallic pipe shall be submitted for approval.

1.3.7.2 Tracer Wire

When a nonmetallic pipe line is used to extend or add to an existing metallic line, an insulated No. 8 AWG copper wire shall be thermit-welded to the existing metallic line and run the length of the new nonmetallic line. This wire shall be used as a locator tracer wire and to maintain continuity to any future extensions of the pipe line.

1.3.8 Tests of Components

A minimum of four (4) tests shall be made at each metallic component in the piping system. Two (2) measurements shall be made directly over the anodes and the other two (2) tests shall be over the outer edge of the component, but at the farthest point from the anodes. Structure and pipes shall be shown with the cathodic protection equipment. All components of the cathodic protection system shall be shown on drawings, showing their relationship to the protected structure or component. A narrative shall describe how the cathodic protection system will work and provide testing at each component. Components requiring cathodic protection shall include but not be limited to the following:

- a. Pipes under the floor slab or foundations.
- b. PIV.
- c. Shutoff valves.
- d. Metallic pipe extended from aboveground locations.
- e. Each connector or change-of-direction device.

- f. Any metallic pipe component or section.
- g. Backflow preventor.
- h. Culvert.

1.3.9 Drawings

Detailed drawings shall be provided showing location of anodes, insulated fittings, test stations, permanent reference cells, and bonding. Locations shall be referenced to two (2) permanent facilities or mark points.

1.3.10 Electrical Potential Measurements

All potential tests shall be made at a minimum of 3 meter intervals witnessed by the Contracting Officer. Submittals shall identify test locations on separate drawing, showing all metal to be protected and all cathodic protection equipment. Test points equipment and protected metal shall be easily distinguished and identified.

1.3.11 Achievement of Criteria for Protection

All conductors, unless otherwise shown, shall be routed to or through the test stations. Each system provided shall achieve a minimum pipe-to-soil "instant off" potential of minus 850 millivolt potentials with reference to a saturated copper-copper-sulfate reference cell on all underground components of the piping. Based upon the measurements taken, the current and voltage of the anodes should be adjusted as required to produce a minimum of minus 850 millivolts "instant off" potential between the structure being tested and the reference cell. This potential should be obtained over 95 percent of the metallic area. This must be achieved without the "instant off" potential exceeding 1150 millivolts. Testing will be witnessed by the Contracting Officer. Additional anodes shall be provided by the Contractor if required to achieve the minus 850 millivolts "instant off". Although acceptance criteria of the cathodic protection systems are defined in NACE RP0169, for this project the "instant off" potential of minus 850 millivolts is the only acceptable criteria.

1.3.12 Metallic Components and Typicals

a. Metallic components: As a minimum, each metallic component shall be protected with two (2) magnesium anodes. This number of anodes is required to achieve minus 850 millivolts "instant off" potential on the metallic area and at the same time not provide overvoltage above 1150 millivolts "instant off." As a minimum, the magnesium anode unpackaged weight shall be 4.1 kilograms. The magnesium anodes shall be located on each side of the metallic component and routed through a test station.

b. Fire Hydrants: Fire hydrant pipe components shall have a minimum of two (2) anodes. These magnesium anodes shall have an unpackaged weight of 7.7 kilograms.

c. Pipe Under Concrete Slab: Pipe under concrete slab shall have a minimum of 2 magnesium anodes. These magnesium anodes shall have an unpackaged weight of 4.1 kilograms. Pipe under concrete slab shall have permanent reference electrodes located under the slab. One (1) permanent reference electrode shall be located where the pipe enters the concrete slab. All conductors shall be routed to a test station.

d. Valves: Each valve shall be protected with 1 magnesium anodes. The magnesium anode shall have an unpackaged weight of 4.1 kilograms .

e. Metallic Pipe Component or Section: Each section of metallic pipe shall be protected with 2 magnesium anodes. The magnesium anodes shall have an unpackaged weight of 4.1 kilograms .

f. Connectors or Change-of-Direction Devices: Each change-of-direction device shall be protected with 2 magnesium anodes. The magnesium anode shall have an unpackaged weight of 4.1 kilograms .

1.3.13 Metallic Component Coating

Coatings for metallic components shall be as required for metallic fittings as indicated. This will include fire hydrants, T's, elbows, valves, etc. Coatings shall be selected, applied, and inspected in accordance with NACE RP0190 and as specified in these specifications.

PART 2 PRODUCTS

2.1 MAGNESIUM ANODES

A minimum of 2 anodes shall be installed on the Pipe system. See Paragraph METALLIC COMPONENTS AND TYPICALS for additional anodes under slab.

2.1.1 Anode Composition

Anodes shall be of high-potential magnesium alloy, made of primary magnesium obtained from sea water or brine, and not made from scrap metal. Magnesium anodes shall conform to ASTM B 843 and to the following analysis (in percents) otherwise indicated:

| | |
|------------------------|-----------------------------|
| Aluminum, max. | 0.010 |
| Manganese, max. | 0.50 to 1.30 |
| Zinc | 0.05 |
| Silicon, max. | 0.05 |
| Copper, max. | 0.02 |
| Nickel, max. | 0.001 |
| Iron, Max. | 0.03 |
| Other impurities, max. | 0.05 each or 0.3 max. total |
| Magnesium | Remainder |

The Contractor shall furnish spectrographic analysis on samples from each heat or batch of anodes used on this project.

2.1.2 Dimensions and Weights

Dimensions and weights of anodes shall be approximately as follows:

TYPICAL MAGNESIUM ANODE SIZE

(Cross sections may be round, square, or D shaped)

| NOMINAL WT. kg. | APPROX. SIZE (mm) | NOMINAL GROSS WT kg PACKAGED IN BACKFILL | NOMINAL PACKAGE DIMENSIONS (mm) |
|--------------------|----------------------|--|------------------------------------|
| 1.4 | 76 X 76 X 127 | 3.6 | 133 X 133 X 203 |

TYPICAL MAGNESIUM ANODE SIZE

(Cross sections may be round, square, or D shaped)

| | | | |
|------|-----------------|------|-----------------|
| 2.3 | 76 X 76 X 203 | 5.9 | 133 X 133 X 286 |
| 4.1 | 76 X 76 X 356 | 12.3 | 133 X 508 |
| 5.5 | 102 X 102 X 305 | 14.5 | 191 X 457 |
| 7.7 | 102 X 102 X 432 | 20.5 | 191 X 610 |
| 14.5 | 127 X 127 X 521 | 30.9 | 216 X 711 |
| 22.7 | 178 X 178 X 406 | 45.5 | 254 X 610 |

2.1.3 Packaged Anodes

Anodes shall be provided in packaged form with the anode surrounded by specially-prepared quick-wetting backfill and contained in a water permeable cloth or paper sack. Anodes shall be centered by means of spacers in the backfill material. The backfill material shall have the following composition, unless otherwise indicated:

| Material | Approximate Percent by Weight |
|-----------------|-------------------------------|
| Gypsum | 75 |
| Bentonite | 20 |
| Sodium Sulphate | 5 |
| Total | 100 |

2.1.4 Not Used

2.1.5 Connecting Wire

2.1.5.1 Wire Requirements

Wire shall be No. 10 AWG solid copper wire, not less than 3 meters long, unspliced, complying with NFPA 70, Type RHH insulation. Connecting wires for magnesium anodes shall be factory installed with the place or emergence from the anode in a cavity sealed flush with a dielectric sealing compound.

2.1.5.2 Anode Header Cable

Cable for anode header and distribution shall be No. AWG stranded copper wire with type CP high molecular weight polyethylene, 2.8 mm thick insulation, 600-volt rating, in accordance with NEMA WC 5.

2.2 MISCELLANEOUS MATERIALS

2.2.1 Electrical Wire

Wire shall be No. 12 AWG stranded copper wire with NFPA 70, Type RHW-USE insulation.

2.2.1.1 Wire Splicing

Connecting wire splicing shall be made with copper compression connectors or exothermic welds, following instructions of the manufacturer. Single split-bolt connections shall not be used. Sheaths for encapsulating electrical wire splices to be buried underground shall fit the insulated wires entering the spliced joints and epoxy potting compound shall be as specified below.

2.2.1.2 Test Wires

Test wires shall be AWG No. 12 stranded copper wire with NFPA 70, Type TW or RHW or polyethylene insulation.

2.2.1.3 Resistance Wire

Resistance wire shall be AWG No. 16 or No. 22 nickel-chromium wire.

2.2.2 Conduit

Rigid galvanized steel conduit and accessories shall conform to UL 6. Non metallic conduit shall conform to NEMA TC 2.

2.2.3 Test Boxes and Junctions Boxes

Boxes shall be outdoor type conforming to UL 514A.

2.2.4 Joint, Patch, Seal, and Repair Coating

Sealing and dielectric compound shall be a black, rubber based compound that is soft, permanently pliable, tacky, moldable, and unbacked. Compound shall be applied as recommended by the manufacturer, but not less than 13 mm thick. Coating compound shall be cold-applied coal-tar base mastic. Pressure-sensitive vinyl plastic electrical tape shall conform to UL 510.

2.2.5 Backfill Shields

Shields shall consist of approved pipeline wrapping or fiberglass-reinforced, coal-tar impregnated tape, or plastic weld caps, specifically made for the purpose and installed in accordance with the manufacturer's recommendations. When joint bonds are required, due to the use of mechanical joints, the entire joint shall be protected by the use of a kraft paper joint cover. The joint cover shall be filled with poured-in, hot coat-tar enamel.

2.2.6 Epoxy Potting Compound

Compound for encapsulating electrical wire splices to be buried underground shall be a two package system made for the purpose.

2.2.7 Test Stations

Stations shall be of the flush-curb-box type and shall be the standard product of a recognized manufacturer. Test stations shall be complete with an insulated terminal block having the required number of terminals. The test station shall be provided with a lockable over and shall have an embossed legend, "C.P. Test." A minimum of one (1) test station shall be provided each component of the pipe. A minimum of six (6) terminals shall be provided in each test station. A minimum of two (2) leads are required to the metallic pipe from each test station. Other conductors shall be provided for each anode, other foreign pipe, and reference cells as required. [Test stations may be constructed of nonmetallic materials. However, if nonmetallic materials are utilized, as a minimum, the materials shall be resistant to damage from ultraviolet radiation, contain good color retention qualities, contain high strength qualities, and be resistant to accidental or vandalistic impacts that might be normally encountered in the environment for which they are to be installed. The test stations shall be

listed for the particular application for which they are to be utilized].

2.2.8 Joint and Continuity Bonds

Bonds shall be provided across all joints in the metallic water and gas lines, across any electrically discontinuous connections and all other pipes and structures with other than welded or threaded joints that are included in this cathodic protection system. Unless otherwise specified in the specifications, bonds between structures and across joints in pipe with other than welded or threaded joints shall be No. 8 AWG stranded copper cable with polyethylene insulation. Bonds between structures shall contain sufficient slack for any anticipated movement between structures. Bonds across pipe joints shall contain a minimum of 102 mm of slack to allow for pipe movement and soil stress. Bonds shall be attached by exothermic welding. Exothermic weld areas shall be insulated with coating compound and approved, and witnessed by the Contracting Officer. Continuity bonds shall be installed as necessary to reduce stray current interference. Additional joint bondings shall be accomplished by the Contractor where the necessity is discovered during construction or testing or where the Contracting Officer's representative directs that such bonding be done. Joint bonding shall include all associated excavation and backfilling. There shall be a minimum of two (2) continuity bonds between each structure and other than welded or threaded joints. The Contractor shall test for electrical continuity across all joints with other than welded or threaded joints and across all metallic portions or components. The Contractor shall provide bonding as required and as specified above until electrical continuity is achieved. Bonding test data shall be submitted for approval.

2.2.9 Resistance Bonds

Resistance bonds should be adjusted as outlined in this specification. Alternate methods may be used if they are approved by the Contracting Officer.

2.2.10 Stray Current Measurements

Stray current measurements should be performed at each test station. Stray currents resulting from lightning or overhead alternating current (AC) power transmission systems shall be mitigated in accordance with NACE RP0177.

2.2.11 Electrical Isolation of Structures

As a minimum, isolating flanges or unions shall be provided at the following locations:

- a. Connection of new metallic piping or components to existing piping.
- b. Pressure piping under floor slab to a building.

Isolation shall be provided at metallic connection of all lines to existing system and where connecting to a building. Additionally, isolation shall be provided between water and/or gas line; and foreign pipes that cross the new lines within 3.05 m. Isolation fittings, including isolating flanges and couplings, shall be installed aboveground or in a concrete pit.

2.2.11.1 Electrically Isolating Pipe Joints

Electrically isolating pipe joints shall be of a type that is in regular

factory production.

2.2.11.2 Electrically Conductive Couplings

Electrically conductive couplings shall be of a type that has a published maximum electrical resistance rating given in the manufacturer's literature. Cradles and seals shall be of a type that is in regular factory production made for the purpose of electrically insulating the carrier pipe from the casing and preventing the incursion of water into the annular space.

2.2.11.3 Insulating Joint Testing

A Model 601 Insulation Checker, as manufactured by "Gas Electronics", or an approved equal, shall be used for insulating joint (flange) electrical testing.

2.2.12 Underground Structure Coating

This coating specification shall take precedence over any other project specification and drawing notes, whether stated or implied, and shall also apply to the pipeline or tank supplier. No variance in coating quality shall be allowed by the Contractor or Base Construction Representative without the written consent of the designer. All underground metallic pipelines and tanks to be cathodically protected shall be afforded a good quality factory-applied coating. This includes all carbon steel, cast-iron and ductile-iron pipelines or vessels. Coatings shall be selected, applied, and inspected in accordance with NACE RP0190 and as specified. If non-metallic pipelines are installed, all metallic fittings on pipe sections shall be coated in accordance with this specification section.

a. The nominal thickness of the metallic pipe joint or other component coating shall be 0.2 mm, plus or minus 5 percent.

b. Pipe and joint coating for factory applied or field repair material shall be applied as recommended by the manufacturer and shall be one of the following:

- (1) Continuously extruded polyethylene and adhesive coating system.
- (2) Polyvinyl chloride pressure-sensitive adhesive tape.
- (3) High density polyethylene/bituminous rubber compound tape.
- (4) Butyl rubber tape.
- (5) Coal tar epoxy.

2.2.12.1 Field Joints

All field joints shall be coated with materials compatible with the pipeline coating compound. The joint coating material shall be applied to an equal thickness as the pipeline coating. Unbonded coatings shall not be used on these buried metallic components. This includes the elimination of all unbonded polymer wraps or tubes. Once the pipeline or vessel is set in the trench, an inspection of the coating shall be conducted. This inspection shall include electrical holiday detection. Any damaged areas of the coating shall be properly repaired. The Contracting Officer shall be asked to witness inspection of the coating and testing using a holiday detector.

2.2.12.2 Inspection of Pipe Coatings

Any damage to the protective covering during transit and handling shall be repaired before installation. After field coating and wrapping has been applied, the entire pipe shall be inspected by an electric holiday detector with impressed current in accordance with NACE RP0188 using a full-ring, spring-type coil electrode. The holiday detector shall be equipped with a bell, buzzer, or other type of audible signal which sounds when a holiday is detected. All holidays in the protective covering shall be repaired immediately upon detection. Occasional checks of holiday detector potential will be made by the Contracting Officer's representative to determine suitability of the detector. All labor, materials, and equipment necessary for conducting the inspection shall be furnished by the Contractor.

a. Protective covering for aboveground piping system: Finish painting shall conform to the applicable paragraph of SECTION: 09900, PAINTING, GENERAL, and as follows:

b. Ferrous surfaces: Shop-primed surfaces shall be touched-up with ferrous metal primer. Surfaces that have not been shop-primed shall be solvent-cleaned. Surfaces that contain loose rust, loose mil scale, and other foreign substances shall be mechanically-cleaned by power wire-brushing and primed with ferrous metal primer. Primed surface shall be finished with two (2) coats of exterior oil paint and vinyl paint. Coating for each entire piping service shall be an approved pipe line wrapping having a minimum coating resistance of 50,000 Ohms per 0.0929 square meters .

2.2.13 Resistance Wire

Wire shall be No. 16 or No. 22 nickel-chromium wire with TW insulation.

2.2.14 Electrical Connections

Electrical connections shall be done as follows:

a. Exothermic welds shall be "Cadweld" or an approved equal. Use of this material shall be in strict accordance with the manufacturer's recommendations.

b. Electrical-shielded arc welds shall be approved for use on steel pipe by shop drawing submittal action.

c. Brazing shall be as specified in Paragraph: Lead Wire Connections.

2.2.15 Electrical Tape

Pressure-sensitive vinyl plastic electrical tape shall conform to UL 510.

2.2.16 Permanent Reference Electrodes

Permanent reference electrodes shall be Cu-CuSO4 electrodes suitable for direct burial. Electrodes shall be guaranteed by the supplier for 15 years' service in the environment in which they shall be placed. Electrodes shall be installed directly beneath pipe, or metallic component.

2.2.17 Casing

Where a pipeline is installed in a casing under a roadway or railway, the pipeline shall be electrically insulated from the casing, and the annular space sealed and filled with an approved corrosion inhibiting product against incursion of water.

PART 3 EXECUTION

3.1 CRITERIA OF PROTECTION

Acceptance criteria for determining the adequacy of protection on a buried underground pipe shall be in accordance with NACE RP0169 and as specified below.

3.1.1 Iron and Steel

The following method (a) shall be used for testing cathodic protection voltages. If more than one method is required, method (b) shall be used.

a. A negative voltage of at least minus 850 millivolts as measured between the underground component and a saturated copper-copper sulphate reference electrode connecting the earth (electrolyte) directly over the underground component. Determination of this voltage shall be made with the cathodic protection system in operation. Voltage drops shall be considered for valid interpretation of this voltage measurement. A minimum of minus 850 millivolts "instant off" potential between the underground component being tested and the reference cell shall be achieved over 95 percent of the area of the structure. Adequate number of measurements shall be obtained over the entire structure, pipe, tank, or other metallic component to verify and record achievement of minus 850 millivolts "instant off." This potential shall be obtained over 95 percent of the total metallic area without the "instant off" potential exceeding 1200 millivolts.

b. A minimum polarization voltage shift of 100 millivolts as measured between the underground component and a saturated copper-copper sulphate reference electrode contacting the earth directly over the underground component. This polarization voltage shift shall be determined by interrupting the protective current and measuring the polarization decay. When the protective current is interrupted, an immediate voltage shift will occur. The voltage reading, after the immediate shift, shall be used as the base reading from which to measure polarization decay. Measurements achieving 100 millivolts decay shall be made over 95 percent of the metallic surface being protected.

c. For any metallic component, a minimum of four (4) measurements shall be made using subparagraph (a), above, and achieving the "instant off" potential of minus 850 millivolts. Two (2) measurements shall be made over the anodes and two (2) measurements shall be made at different locations near the component and farthest away from the anode.

3.1.2 Aluminum

Aluminum underground component shall not be protected to a potential more negative than minus 1200 millivolts, measured between the underground component and a saturated copper-copper sulphate reference electrode contacting the earth, directly over the metallic component. Resistance, if required, shall be inserted in the anode circuit within the test station to reduce the potential of the aluminum to a value which will not exceed a potential more negative than minus 1200 millivolts. Voltage shift criterion shall be a minimum negative polarization shift of 100 millivolts

measured between the metallic component and a saturated copper-copper sulphate reference electrode contacting the earth, directly over the metallic component. The polarization voltage shift shall be determined as outlined for iron and steel.

3.1.3 Copper Piping

For copper piping, the following criteria shall apply: A minimum of 100 millivolts of cathodic polarization between the structure surface and a stable reference electrode contacting the electrolyte. The polarization voltage shift shall be determined as outlined for iron and steel.

3.2 ANODE STORAGE AND INSTALLATION

3.2.1 Anode Storage

Storage area for magnesium anodes will be designated by the Contracting Officer. If anodes are not stored in a building, tarps or similar protection should be used to protect anodes from inclement weather. Packaged anodes, damaged as a result of improper handling or being exposed to rain, shall be resacked by the Contractor and the required backfill added.

3.2.2 Anode Installation

Unless otherwise authorized, installation shall not proceed without the presence of the Contracting Officer. Anodes of the size specified shall be installed to the depth indicated and at the locations shown. Locations may be changed to clear obstructions with the approval of the Contracting Officer. Anodes shall be installed in sufficient number and of the required type, size, and spacing to obtain a uniform current distribution over the surface of the structure. The anode system shall be designed for a life of 25 years of continuous operation. Anodes shall be installed as indicated in a dry condition after any plastic or waterproof protective covering has been completely removed from the water permeable, permanent container housing the anode metal. The anode connecting wire shall not be used for lowering the anode into the hole. The annular space around the anode shall be backfilled with fine earth in 150 mm layers and each layer shall be hand tamped. Care must be exercised not to strike the anode or connecting wire with the tamper. Approximately 20 liters of water shall be applied to each filled hole after anode backfilling and tamping has been completed to a point about 150 mm above the anode. After the water has been absorbed by the earth, backfilling shall be completed to the ground surface level.

3.2.2.1 Single Anodes

Single anodes, spaced as shown, shall be connected to the pipeline, allowing adequate slack in the connecting wire to compensate for movement during backfill operation.

3.2.2.2 Groups of Anodes

Groups of anodes, in quantity and location shown, shall be connected to an anode header cable. The anode header cable shall make contact with the structure to be protected only through a test station. Anode lead connection to the anode header cable shall be made by an approved crimp connector or exothermic weld and splice mold kit with appropriate potting

compound.

3.2.2.3 Welding Methods

Connections to ferrous pipe shall be made by exothermic weld methods manufactured for the type of pipe supplied. Electric arc welded connections and other types of welded connections to ferrous pipe and structures shall be approved before use.

3.2.3 Anode Placement - General

Packaged anodes shall be installed completely dry, and shall be lowered into holes by rope sling or by grasping the cloth gather. The anode lead wire shall not be used in lowering the anodes. The hole shall be backfilled with fine soil in 150 mm layers and each layer shall be hand-tamped around the anode. Care must be exercised not to strike the anode or lead wire with the tamper. If immediate testing is to be performed, water shall be added only after backfilling and tamping has been completed to a point 150 mm above the anode. Approximately 8 liters of water may be poured into the hole. After the water has been absorbed by the soil, backfilling and tamping may be completed to the top of the hole. Anodes shall be installed as specified or shown. In the event a rock strata is encountered prior to achieving specified augered-hole depth, anodes may be installed horizontally to a depth at least as deep as the bottom of the pipe, with the approval of the Contracting Officer.

3.2.4 Underground Pipeline

Anodes shall be installed at a minimum of 2.5 meters and a maximum of 3 meters from the line to be protected.

3.2.5 Installation Details

Details shall conform to the requirements of this specification. Details shown on the drawings are indicative of the general type of material required, and are not intended to restrict selection to material of any particular manufacturer.

3.2.6 Lead Wire Connections

3.2.6.1 Underground Pipeline (Metallic)

To facilitate periodic electrical measurements during the life of the sacrificial anode system and to reduce the output current of the anodes, if required, all anode lead wires shall be connected to a test station and buried a minimum of 610 mm in depth. The cable shall be No. 10 AWG, stranded copper, polyethylene or RHW-USE insulated cable. The cable shall make contact with the structure only through a test station. Resistance wire shall be installed between the cable and the pipe cable, in the test station, to reduce the current output, if required. Anode connections, except in the test station, shall be made with exothermic welding process, and shall be insulated by means of at least three (3) layers of electrical tape; and all lead wire connections shall be installed in a moistureproof splice mold kit and filled with epoxy resin. Lead wire-to-structure connections shall be accomplished by an exothermic welding process. All welds shall be in accordance with the manufacturer's recommendations. A backfill shield filled with a pipeline mastic sealant or material compatible with the coating shall be placed over the weld connection and

shall be of such diameter as to cover the exposed metal adequately.

3.2.6.2 Resistance Wire Splices

Resistance wire connections shall be accomplished with silver solder and the solder joints wrapped with a minimum of three (3) layers of pressure-sensitive tape. Lead wire connections shall be installed in a moistureproof splice mold kit and filled with epoxy resin.

3.2.7 Location of Test Stations

Test stations shall be of the type and location shown and shall be [curb box] [post] [indoor] mounted. Buried insulating joints shall be provided with test wire connections brought to a test station. Unless otherwise shown, other test stations shall be located as follows:

- a. At 300 m intervals or less.
- b. Where the pipe or conduit crosses any other metal pipe.
- c. At both ends of casings under roadways and railways.
- d. Where both sides of an insulating joint are not accessible above ground for testing purposes.

3.2.8 Underground Pipe Joint Bonds

Underground pipe having other than welded or threaded coupling joints shall be made electrically continuous by means of a bonding connection installed across the joint.

3.3 ELECTRICAL ISOLATION OF STRUCTURES

3.3.1 Isolation Joints and Fittings

Isolating fittings, including main line isolating flanges and couplings, shall be installed aboveground, or within manholes, wherever possible. Where isolating joints must be covered with soil, they shall be fitted with a paper joint cover specifically manufactured for covering the particular joint, and the space within the cover filled with hot coal-tar enamel. Isolating fittings in lines entering buildings shall be located at least 305 mm above grade of floor level, when possible. Isolating joints shall be provided with grounding cells to protect against over-voltage surges or approved surge protection devices. The cells shall provide a low resistance across isolating joint without excessive loss of cathodic current.

3.3.2 Gas Distribution Piping

Electrical isolation shall be provided at each building riser pipe to the pressure regulator, at all points where a short to another structure or to a foreign structure may occur, and at other locations as indicated on the drawings.

3.4 TRENCHING AND BACKFILLING

Trenching and backfilling shall be in accordance with Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITY SYSTEMS.

3.5 TESTS AND MEASUREMENTS

3.5.1 Baseline Potentials

Each test and measurement will be witnessed by the Contracting Officer. The Contractor shall notify the Contracting Officer a minimum of five (5) working days prior to each test. After backfill of the pipe, the static potential-to-soil of the pipe shall be measured. The locations of these measurements shall be identical to the locations specified for pipe-to-reference electrode potential measurements. The initial measurements shall be recorded.

3.5.2 Isolation Testing

Before the anode system is connected to the pipe, an isolation test shall be made at each isolating joint or fitting. This test shall demonstrate that no metallic contact, or short circuit exists between the two isolated sections of the pipe. Any isolating fittings installed and found to be defective shall be reported to the Contracting Officer.

3.5.2.1 Insulation Checker

A Model 601 insulation checker, as manufactured by "Gas Electronics", or an approved equal, using the continuity check circuit, shall be used for isolating joint (flange) electrical testing. Testing shall conform to the manufacturer's operating instructions. Test shall be witnessed by the Contracting Officer. An isolating joint that is good will read full scale on the meter. If an isolating joint is shorted, the meter pointer will be deflected or near zero on the meter scale. Location of the fault shall be determined from the instructions, and the joint shall be repaired. If an isolating joint is located inside a vault, the pipe shall be sleeved with insulator when entering and leaving the vault.

3.5.2.2 Cathodic Protection Meter

A Model B3A2 cathodic protection meter, as manufactured by "M.C. Miller", or an approved equal, using the continuity check circuit, shall be used for isolating joint (flange) electrical testing. This test shall be performed in addition to the Model 601 insulation checker. Continuity is checked across the isolation joint after the test lead wire is shorted together and the meter adjusted to scale. A full-scale deflection indicates the system is shorted at some location. The Model 601 verifies that the particular insulation under test is good and the Model B3A2 verifies that the system is isolated. If the system is shorted, further testing shall be performed to isolate the location of the short.

3.5.3 Anode Output

As the anodes or groups of anodes are connected to the pipe, current output shall be measured with an approved clamp-on milliammeter, calibrated shunt with a suitable millivoltmeter or multimeter, or a low resistance ammeter. (Of the three methods, the low-resistance ammeter is the least desirable and most inaccurate. The clamp-on milliammeter is the most accurate.) The valves obtained and the date, time, and location shall be recorded.

3.5.4 Reference Electrode Potential Measurements

Upon completion of the installation and with the entire cathodic protection

system in operation, electrode potential measurements shall be made using a copper-copper sulphate reference electrode and a potentiometer-voltmeter, or a direct-current voltmeter having an internal resistance (sensitivity) of not less than 10 megohms per volt and a full scale of 10 volts. The locations of these measurements shall be identical to the locations used for baseline potentials. The values obtained and the date, time, and locations of measurements shall be recorded. No less than eight (8) measurements shall be made over any length of line or component. Additional measurements shall be made at each distribution service riser, with the reference electrode placed directly over the service line.

3.5.5 Location of Measurements

3.5.5.1 Piping or Conduit

For coated piping or conduit, measurements shall be taken from the reference electrode located in contact with the earth, directly over the pipe. Connection to the pipe shall be made at service risers, valves, test leads, or by other means suitable for test purposes. Pipe-to-soil potential measurements shall be made at intervals not exceeding 1.5 meters .

The Contractor may use a continuous pipe-to-soil potential profile in lieu of 1.5 meter interval pipe-to-soil potential measurements. Additional measurements shall be made at each distribution service riser, with the reference electrode placed directly over the service line adjacent to the riser. Potentials shall be plotted versus distance to an approved scale. Locations where potentials do not meet or exceed the criteria shall be identified and reported to the Contracting Officer's representative.

3.5.5.2 Not Used

3.5.5.3 Casing Tests

Before final acceptance of the installation, the electrical separation of carrier pipe from casings shall be tested and any short circuits corrected.

3.5.5.4 Interference Testing

Before final acceptance of the installation, interference tests shall be made with respect to any foreign pipes in cooperation with the owner of the foreign pipes. A full report of the tests giving all details shall be made. Stray current measurements shall be performed at all isolating locations and at locations where the new pipeline crosses foreign metallic pipes. The method of measurements and locations of measurements shall be submitted for approval. As a minimum, stray current measurements shall be performed at the following locations:

- a. Connection point of new pipeline to existing pipeline.
- b. Crossing points of new pipeline with existing lines.

Results of stray current measurements shall also be submitted for approval.

3.5.5.5 Holiday Test

Any damage to the protective covering during transit and handling shall be repaired before installation. After field-coating and wrapping has been applied, the entire pipe shall be inspected by an electric holiday detector with impressed current in accordance with NACE RP0188 using a full-ring, spring-type coil electrode. The holiday detector shall be equipped with a

bell, buzzer, or other type of audible signal which sounds when a holiday is detected. Holidays in the protective covering shall be repaired upon detection. Occasional checks of holiday detector potential will be made by the Contracting Officer to determine suitability of the detector. Labor, materials, and equipment necessary for conducting the inspection shall be furnished by the Contractor. The coating system shall be inspected for holes, voids, cracks, and other damage during installation.

3.5.5.6 Recording Measurements

All pipe-to-soil potential measurements, including initial potentials where required, shall be recorded. The Contractor shall locate, correct and report to the Contracting Officer any short circuits to foreign pipes encountered during checkout of the installed cathodic protection system. Pipe-to-soil potential measurements shall be taken on as many pipes as necessary to determine the extent of protection or to locate short-circuits.

3.6 TRAINING COURSE

The Contractor shall conduct a training course for the operating staff as designated by the Contracting Officer. The training period shall consist of a total of 4 hours of normal working time and shall start after the system is functionally completed but prior to final acceptance tests. The field instructions shall cover all of the items contained in the operating and maintenance instructions, as well as demonstrations of routine maintenance operations, including testing procedures included in the maintenance instructions. At least 14 days prior to date of proposed conduction of the training course, the training course curriculum shall be submitted for approval, along with the proposed training date. Training shall consist of demonstration of test equipment, providing forms for test data and the tolerances which indicate that the system works.

3.7 CLEANUP

The Contractor shall be responsible for cleanup of the construction site. All paper bags, wire clippings, etc., shall be disposed of as directed. Paper bags, wire clippings and other waste shall not be put in bell holes or anodes excavation.

3.8 MISCELLANEOUS INSTALLATION AND TESTING

3.8.1 Coatings

All aboveground pipeline shall be coated as indicated or as approved. The coating shall have a minimum thickness of 0.18 mm . The pipeline coating shall be in accordance with all applicable Federal, State, and local regulations.

3.8.2 Excavation

In the event rock is encountered in providing the required depth for anodes, the Contractor shall determine an alternate approved location and, if the depth is still not provided, an alternate plan shall be submitted to the Contracting Officer. Alternate techniques and depths must be approved prior to implementation.

3.9 SPARE PARTS

After approval of shop drawings, and not later than three (3) months prior

to the date of beneficial occupancy, the Contractor shall furnish spare parts data for each different item of material and equipment specified. The data shall include a complete list of parts, special tools, and supplies, with current unit prices and source of supply. In addition, the Contractor shall supply information for material and equipment replacement for all other components of the complete system, including anodes, cables, splice kits and connectors, corrosion test stations, and any other components not listed above. The Contractor shall furnish a reference cell on a reel with 120 m of conductor, along with other accessories, and a digital voltmeter that can be used in the maintenance of this cathodic protection system. Use of this equipment shall be demonstrated in actual tests during the training course, which shall include a description of the the equipment and measurement of the pipe-to-soil potential, rainfall, and gas company voltages.

3.10 SEEDING

Seeding shall be done by the Contractor, as directed, in all unsurfaced locations disturbed by this construction. In areas where grass cover exists, it is possible that sod can be carefully removed, watered, and stored during construction operations, and replaced after the operations are completed since it is estimated that no section of pipeline should remain uncovered for more than two (2) days. The use of sod in lieu of seeding shall require approval by the Contracting Officer.

3.11 SYSTEM TESTING

The Contractor shall submit a report including potential measurements taken at adequately-close intervals to establish that minus 850 millivolts potential, "instant-off" potential, is provided, and that the cathodic protection is not providing interference to other foreign pipes causing damage to paint or pipes. The report shall provide a narrative describing how the criteria of protection is achieved without damaging other pipe or structures in the area.

3.12 CLEARING OF TREES AND UNDERBRUSH

In the areas of the anode beds, all trees and underbrush shall be cleared and grubbed to the limits shown or indicated.

-- End of Section --