SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. **S-IZ100-12-R-0027**	2. TYPE OF SOLICITATION ☐ SEALED BID (IFB) ☒ NEGOTIATED (RFP)	3. DATE ISSUED **April 1, 2012**	PAGE OF PAGES **1 of 176**

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. PR1691135	6. PROJECT NO.

7. ISSUED BY CODE	8. ADDRESS OFFER TO
U.S. Embassy **Al Kindy Street** **International Zone** **Baghdad, Iraq**	BaghdadGSOProcBid@state.gov

9. FOR INFORMATION CALL: →	A. NAME Ms. Desiree Tupper	B. TELEPHONE NO. *(Include area code)* ***(NO COLLECT CALLS)*** BaghdadGSOProcurement@state.gov

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

East End Concrete Patio and BBQ Grill Installation, U.S. Embassy Baghdad, Iraq.

SF-1442, Solicitation, Offer and Award
A. Price
B. Supplies or Services
C. Description/Specifications/Statement of Work
D. Packaging and Marking
E. Inspection and Acceptance
F. Deliveries/Performance
G. Administrative Data
H. Special Requirements
I. Clauses
J. List of Attachments
K. Representations, Certifications, and other Statements of Offerors or Quoters
L. Instructions, Conditions, and Notices to Offerors or Quoters
M. Evaluation Criteria

11. The Contractor shall begin performance within **5** calendar days and complete it within **90** calendar days after receiving ☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. *(See* **Section F***.)*

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* ☒ YES ☐ NO	12B. CALENDAR DAYS 10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

Sealed offers in original and **1** copies to perform the work required are due at the place specified in Item 8 by **12:00 noon on April 30, 2012** local time . If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

An offer guarantee ☐ is, ☒ is not required.

All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by referenced. Offers providing less than **90** calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER *(Must be fully completed by offeror)*

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)*
CODE	

17. The offeror agrees to perform the work at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government within _60__ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.*

AMOUNTS → **USD** _____

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

19. ACKNOWLEDGMENT OF AMENDMENTS
The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each

AMENDMENT NO.										
DATE										

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

AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA	
24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)*	ITEM → Section G	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 253(c)( )
26. ADMINISTERED BY C		27. PAYMENT WILL BE MADE BY American Embassy Baghdad

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _1_ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration slated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications are incorporated by reference in or attached to this contract.	☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	31.A. NAME OF CONTRACTING OFFICER (TYPE OR PRINT)

30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE

TABLE OF CONTENTS

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

B.1 CONTRACT PRICE

The contractor shall complete all work (including furnishing all labor, material, equipment and services) required under this contract for the following firm fixed price and within the time specified. This price shall include all labor, materials, overhead (including insurance required by FAR 52.228-4, Workers' Compensation and War-Hazard Insurance, which shall be a direct reimbursement), and profit.

Description	**Price – in USD**
A. Construction Project	
B. DBA Insurance	
TOTAL PRICE (A+B)	

B.2 TYPE OF CONTRACT

This is a firm fixed price contract payable entirely in the currency indicated in the SF1442. No additional sums will be payable for any escalation in the cost of materials, equipment or labor, or because of the contractor's failure to properly estimate or accurately predict the cost or difficulty of achieving the results required. The Government will not adjust the contract price due to fluctuations in currency exchange rates. The Government will only make changes in the contract price or time to complete due to changes made by the Government in the work to be performed, or by delays caused by the Government.

The Government will make payments based on quantities and unit prices only to the extent specifically provided in the contract.

SECTION C - DESCRIPTION/SPECIFICATIONS
STATEMENT OF WORK

C.1 CHARACTER AND SCOPE OF WORK

The Contractor shall furnish and install all materials required by this contract. The contract drawings are set forth in Section J as Attachment 5 and the Specifications/Statement of Work are set forth in Section J as Attachment 6.

C.2 DRAWINGS

In case of differences between small and large-scale drawings, the latter will govern. Where a portion of the work is drawn in detail and the remainder of the work is indicated in outline, the parts drawn in detail shall apply also to all other portions of the work.

SECTION D - PACKAGING AND MARKING

D.1 The Contractor shall mark materials delivered to the site as follows:

American Embassy
Al Kindi Street
International Zone
Bagdad, Iraq

SECTION E - INSPECTION AND ACCEPTANCE

E.1 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at

http://acquisition.gov/far/index.html or, http://farsite.hill.af.mil/search.htm

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Dept. of State Acquisition Website at

http://www.statebuy.state.gov/ to see the links to the FAR. You may also use an Internet "search engine" (such as, Yahoo, Google, Excite, Alta Vista, etc.) to obtain the latest location of the most current FAR.

FEDERAL ACQUISITION REGULATION (48 CFR CH. 1)

52.246-12	INSPECTION OF CONSTRUCTION	AUG 1996

E.2 QUALITY ASSURANCE

The Contractor shall institute an appropriate inspection system set forth in a Quality Assurance Plan. The plan shall include checklists of duties to be carried out, ensuring these duties are carried out by the supervisory staff and senior employees, and carrying out weekly inspections to determine whether the various services are being performed according to the contract. The Contractor shall provide copies of the weekly inspection reports to the COR.

The Contractor shall correct and improve promptly any shortcomings and substandard conditions noted during inspections. The Contractor shall bring any conditions beyond the responsibility of the Contractor to the attention of the Contracting Officer or COR.

E.2.1 MONTHLY REPORT: The Contractor shall submit to the COR a monthly progress report, along with the monthly invoice, summing up observations resulting from the inspections, progress, difficulties or irregularities encountered, resolution of problems, measures taken to improve conditions, recommendations, and other matters related to this contract.

E.2.2. INSPECTION BY GOVERNMENT: The COR, or his/her authorized representatives, will inspect from time to time the services being performed and the supplies furnished to determine whether work is being performed in a satisfactory manner, and that all supplies are of acceptable quality and standards.

The Contractor shall be responsible for any countermeasures or corrective action, within the scope of this contract, which may be required by the Contracting Officer as a result of such inspection.

E.3 SUBSTANTIAL COMPLETION

E.3.1 DEFINITIONS

(a) "Substantial Completion" means the stage in the progress of the work as determined and certified by the Contracting Officer in writing to the Contractor, on which the work (or a portion designated by the Government) is sufficiently complete and satisfactory. Substantial completion means that the property may be occupied or used for the purpose for which it is intended, and only minor items such as touch-up, adjustments, and minor replacements or installations remain to be completed or corrected which:

1. do not interfere with the intended occupancy or utilization of the work, and

2. can be completed or corrected within the time period required for final completion.

(b) The "date of substantial completion" means the date determined by the Contracting Officer or authorized Government representative as of which substantial completion of the work has been achieved.

E.3.2 USE AND POSSESSION UPON SUBSTANTIAL COMPLETION

The Government shall have the right to take possession of and use the work upon substantial completion. Upon notice by the Contractor that the work is substantially complete (a Request for Substantial Completion) and an inspection by the Contracting Officer or an authorized Government representative (including any required tests), the Contracting Officer shall furnish the Contractor a Certificate of Substantial Completion. The certificate shall be accompanied by a Schedule of Defects listing items of work remaining to be performed, completed or corrected before final completion and acceptance. Failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use upon substantial completion shall not be deemed an acceptance of any work under the contract.

E.4 FINAL COMPLETION AND ACCEPTANCE

E.4.1 DEFINITIONS

(a) "Final completion and acceptance" means the stage in the progress of the work as determined by the Contracting Officer and confirmed in writing to the Contractor, at which all work required under the contract has been completed in a satisfactory manner, subject to the discovery of defects after final completion, and except for items specifically excluded in the notice of final acceptance.

(b) The "date of final completion and acceptance" means the date determined by the Contracting Officer when final completion of the work has been achieved, as indicated by written notice to the Contractor.

E.4.2 FINAL INSPECTION AND TESTS

The Contractor shall give the Contracting Officer at least five (5) days advance written notice of the date when the work will be fully completed and ready for final inspection and tests. Final inspection and tests will be started not later than the date specified in the notice unless the Contracting Officer determines that the work is not ready for final inspection and so informs the Contractor.

E.4.3 FINAL ACCEPTANCE

If the Contracting Officer is satisfied that the work under the contract is complete (with the exception of continuing obligations), the Contracting Officer shall issue to the Contractor a notice of final acceptance and make final payment upon:

(a) satisfactory completion of all required tests,

(b) a final inspection that all items by the Contracting Officer listed in the Schedule of Defects have been completed or corrected and that the work is finally complete (subject

to the discovery of defects after final completion), and

(c) submittal by the Contractor of all documents and other items required upon completion of the work, including a final request for payment (Request for Final Acceptance).

SECTION F - DELIVERIES OR PERFORMANCE

F.1 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at:

http://acquisition.gov/far/index.html or, http://farsite.hill.af.mil/search.htm

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Dept. of State Acquisition Website at http://www.statebuy.state.gov/ to see the links to the FAR. You may also use an Internet "search engine" (such as, Yahoo, Excite, Alta Vista, etc.) to obtain the latest location of the most current FAR.

FEDERAL ACQUISITION REGULATION (48 CFR CH. 1)

52.242.14	SUSPENSION OF WORK	APR 1984

F.2 52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to:

(a) commence work under this contract within **Five (5) calendar days** after the date the Contractor receives the notice to proceed,

(b) prosecute the work diligently, and

(c) complete the entire work ready for use not later than **Ninety (90) calendar days** after the date the Contractor receives the notice to proceed. The time stated for completion shall include final cleanup of the premises and completion of "punch list" items.

F.3 LIQUIDATED DAMAGES

F.3.1 52.211-12 LIQUIDATED DAMAGES - CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay liquidated damages to the Government in the amount of ***$732.00*** for each 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 Default clause.

F.3.2. ASSESSMENT AND APPORTIONMENT OF LIQUIDATED DAMAGES

Liquidated damages will be assessed from the completion date indicated in the contract or extensions thereof to the date of substantial completion as actually achieved by the Contractor, as determined by the Contracting Officer.

F.4 CONTRACTOR'S SUBMISSION OF CONSTRUCTION SCHEDULES

(a) The time for submission of the schedules referenced in Section I, 52.236-15, "Schedules for Construction Contracts", paragraph (a), is hereby modified to reflect the due date for submission as "ten (10) days after receipt of an executed contract".

(b) These schedules shall include the time by which shop drawings, product data, samples and other submittals required by the contract will be submitted for approval.

(c) The Contractor shall revise such schedules (1) to account for the actual progress of the work, (2) to reflect approved adjustments in the performance schedule, and (3) as required by the Contracting Officer to achieve coordination with work by the Government and any separate contractors used by the Government. The Contractor shall submit a schedule which sequences work so as to minimize disruption at the job site.

(d) All schedules shall be in the English language and any system of dimensions (English or metric) shown shall be consistent with that used in the contract. No extension of time shall be allowed due to a delay by the Government in approving such deliverables if the Contractor has failed to act promptly and responsively in submitting its deliverables. The Contractor shall identify each deliverable as required by the contract.

F.5 ACCEPTANCE OF SCHEDULE

When the Government has accepted any time schedule, it shall be binding upon the Contractor. The completion date is fixed and may be extended only by a written contract modification signed by the Contracting Officer. Acceptance or approval of any schedule or revision thereof by the Government shall not (1) extend the completion date or obligate the Government to do so, (2) constitute acceptance or approval of any delay, or (3) excuse the Contractor from or relieve the

Contractor of its obligation to maintain the progress of the work and achieve final completion by the established completion date.

F.6 NOTICE OF DELAY

If the Contractor receives a notice of any change in the work, or if any other conditions arise which are likely to cause or are actually causing delays which the Contractor believes may result in late completion of the project, the Contractor shall notify the Contracting Officer. The Contractor's notice shall state the effect, if any, of such change or other conditions upon the approved schedule, and shall state in what respects, if any, the relevant schedule or the completion date should be revised. The Contractor shall give this notice not more than ten (10) days after the first event-giving rise to the delay or prospective delay. Only the Contracting Officer may make revisions to the approved time schedule.

F.7 NOTICE TO PROCEED

(a) After receiving and accepting any bonds or evidence of insurance, the Contracting Officer will issue the Contractor a Notice to Proceed. The Contractor shall then prosecute the work commencing and completing performance not later than the time period established in the contract.

(b) It is possible that the Contracting Officer may elect to issue the Notice to Proceed before receipt and acceptance of any bonds. Issuance of a Notice to Proceed by the Government before receipt of the required bonds or policies shall not be a waiver of the requirement to furnish these documents.

F.8 WORKING HOURS

All work shall be performed during regular workdays (Sunday to Thursday) between 08:00 and 17:00 except for the holidays identified below. Other hours, if requested by the Contractor, may be approved by the Contracting Officer's Representative. The Contractor shall give 24 hours in advance to COR who will consider any deviation from the hours identified above. Changes in work hours will not be a cause for a price increase.

(a) The Department of State observes the following days as holidays:

New Year's Day
Martin Luther King's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving Day
Christmas Day

Any other day designated by Federal law, Executive Order or Presidential Proclamation, and all official holidays of the Republic of Iraq.

When any such day falls on a Saturday, the preceding Friday is observed; when any such day falls on a Sunday, the following Monday is observed. Observance of such days by Government personnel shall not be cause for additional period of performance or entitlement to compensation except as set forth in the contract. If the contractor's personnel work on a holiday, no form of holiday or other premium compensation will be reimbursed either as a direct or indirect cost, unless authorized pursuant to an overtime clause elsewhere in this contract.

F.9 EXCUSABLE DELAYS

The Contractor will be allowed time, not money, for excusable delays as defined in FAR 52.249-10, Default. Examples of such cases include:

(l) acts of God or of the public enemy,
(2) acts of the United States Government in either its sovereign or contractual capacity,
(3) acts of the government of the host country in its sovereign capacity,
(4) acts of another contractor in the performance of a contract with the Government,
(5) fires,
(6) floods,
(7) epidemics,
(8) quarantine restrictions,
(9) strikes,
(l0) freight embargoes,
(11) delays in delivery of Government furnished equipment and
(12) unusually severe weather.

In each instance, the failure to perform must be beyond the control and without the fault or negligence of the Contractor, and the failure to perform. Furthermore, the failure:

(1) must be one that the Contractor could not have reasonably anticipated and taken adequate measures to protect against,

(2) cannot be overcome by reasonable efforts to reschedule the work, and

(3) directly and materially affects the date of final completion of the project.

F.10 PRECONSTRUCTION CONFERENCE

A preconstruction conference will be held up to 10 days after contract award at the U.S. Consulate in Basrah, to discuss the schedule, submittals, notice to proceed, mobilization and other important issues that affect construction progress. See FAR 52.236-26, Pre-Construction Conference in Section I.

F.11 DELIVERABLES

The following items shall be delivered under this contract:

Description	Quantity	Delivery Date	Deliver To:
H.1.2. Bonds/Insurance	1	10 days after award	CO
H.11.1. Safety Plan	1	10 days after award	COR
E.2. Quality Assurance Plan	1	10 days after award	COR
F.4. Construction Schedule	1	10 days after award	COR
H.14.1. Submittal Register/ welding & bolt materials	1	10 days after award	COR
F.10. Pre-Construction Conference	1	10 days after award	COR
H.13.2. Biographic Data on Personnel	1	10 days after award	COR
E.2. Inspection Reports	1	3 days after end of weekly period	COR
G.3.2 Payment Request	1	Last day of each month	COR
E.2.1. Monthly Progress Report	1	7th day of the following month	COR
F.4.(c). Updates to Construction Schedule	1	Last day of each month	COR
E.3.2. Request for Substantial Completion	1	5 days before inspection	COR
H.4.4. As-built Drawings and Warranties	1	After final completion but before final acceptance	COR
E.4.2. Request for Final Acceptance	1	5 days before inspection	COR
F.6 Notice of Delay	1	Within 10 days after event	CO
F.8 Additional Hours	1	No later than 24 hours in advance of need	COR
H.2.4 Evidence of Insurance	1	10 days after award	CO
H.17.2 Differing Site Condition	1	Within 10 days of occurrence	CO
H.11 Safety Incidents	1	Within 24 hours of incident	COR
O&M Manuals	1	After final completion but before final acceptance	COR

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 AUTHORITY OF CONTRACTING OFFICER

All work shall be performed under the general direction of the Contracting Officer, who alone shall have the power to bind the Government and to exercise the rights, responsibilities, authorities and functions vested by the contract.

G.2 MONITORING OF THE CONTRACTOR

G.2.1. 652.242-70 CONTRACTING OFFICER'S REPRESENTATIVE (COR) (AUG 1999)

(a) The Contracting Officer may designate in writing one or more Government employees, by position title, to take action for the Contracting Officer under this contract. Each designee shall be identified as a Contracting Officer's Representative (COR). Such designation(s) shall specify the scope and limitations of the authority so delegated; provided, that the designee shall not change the terms or conditions of the contract, unless the COR is a warranted Contracting Officer and this authority is delegated in the designation.

(b) The COR for this contract is the Facility Manager.

G.2.2 DUTIES

The COR is responsible for inspection and acceptance of services. These duties include review of Contractor invoices, including the supporting documentation required by the contract. The COR may provide technical advice, substantive guidance, inspections, invoice approval, and other purposes as deemed necessary under the contract. The COR is designated as the authority to act for the Contracting Officer in matters concerning technical clarification, random inspection of Contractor performance to ensure compliance with contract specifications and acceptance of the Contractor's performance under this contract. The COR will coordinate all work with the Contractor during the term of this contract. The COR is not authorized to alter the contract's terms, or conditions, including the design to budget parameter. Such changes must be authorized by the Contracting Officer in a written modification to the contract. Reference to the project architect within documents incorporated into this contract shall be read to mean COR.

G.3 PAYMENT

G.3.1 GENERAL

Payments are subject to FAR 52.232-5, "Payments Under Fixed-Price Construction Contracts".

G.3.2 DETAIL OF PAYMENT REQUESTS

Each application for payment shall cover the value of labor and materials completed and in place, including a prorated portion of overhead and profit. The Government will make payments no more frequently than monthly, unless otherwise provided in this contract. The Contractor shall address invoices to:

U.S Embassy Baghdad
Financial Management Officer
International Zone
Baghdad, Iraq

Alternately, invoices may be submitted in Acrobat PDF format only, to this email address:

BaghdadVouchers@state.gov

G.3.3 PAYMENTS TO SUBCONTRACTORS

The Contractor shall make timely payment from the proceeds of the progress or final payment for which request is being made to subcontractors and suppliers following the Contractor's contractual arrangements with them.

G.3.4 EVALUATION BY THE CONTRACTING OFFICER

Following receipt of the Contractor's request for payment, and on the basis of an inspection of the work, the Contracting Officer shall make a determination as to the amount that is then due. If the Contracting Officer does not approve payment of the full amount applied for, less the retainage addressed in FAR 52.232-5, the Contracting Officer shall advise the Contractor of the reasons.

G.3.5 ADDITIONAL WITHHOLDING

The Government may withhold from payments due the Contractor any amounts as may be considered necessary to cover --

(a) Wages or other amounts due the Contractor's employees on this project;

(b) Wages or other amounts due employees of subcontractors on this project;

(c) Amounts due suppliers of materials or equipment for this project; and

(d) Any other amounts for which the Contractor may be held liable under this contract, including but not limited to the actual or prospective costs of correction of defective work and prospective liquidated damage when the Contractor has failed to make adequate progress.

This withholding is independent of monies retained by the Government under FAR 52.232-5, or otherwise as permitted to be retained under this contract.

G.3.6. PAYMENT

Under the authority of 52.232-27(a) the 14 day period identified in FAR 52.232-27(a)(1)(i)(A) is hereby changed to 30 days.

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 BOND/IRREVOCABLE LETTERS OF CREDIT REQUIREMENTS

H.1.1 BONDS/IRREVOCABLE LETTERS OF CREDIT REQUIRED

The Contractor shall furnish (1) a performance and guaranty bond and a payment bond on forms provided by and from sureties acceptable to the Government, each in the amount of 20% of the contract price, or (2) comparable alternate performance security (irrevocable letter of credit) approved by the Government such as letter of credit/guaranty shown in Section J.

H.1.2 TIME FOR SUBMISSION

The Contractor shall provide the bonds or alternate security as required by the paragraph H.1.1 above within ten (10) days after contract award. Failure to submit (1) the required bonds or other security acceptable to the Government in a timely manner; (2) bonds from an acceptable surety; or (3) bonds in the required amount, may result in rescinding or termination of the contract by the Government. If the contract is terminated, the contractor will be liable for those costs as described in FAR 52.249-10, "Default (Fixed-Price Construction).

H.1.3 COVERAGE

The bonds or alternate performance security shall guarantee the Contractor's execution and completion of the work within the contract time and the correction of any defects after completion as required by this contract, the payment of all wages and other amounts payable by the Contractor under its subcontracts or for labor and materials, and the satisfaction or removal of any liens or encumbrances placed on the work.

H.1.4 DURATION OF COVERAGE

The required performance and payment securities shall remain in effect in the full amount required until final acceptance of the project by the Government. Upon final acceptance, the penal sum of the performance security only shall be reduced to 10% of the contract price. The performance security shall remain in effect for one year after the date of final completion and acceptance, and the Contractor shall pay any premium required for the entire period of coverage. The requirement for payment security terminates at final acceptance.

H.1.5 FAR 52.228-2 - ADDITIONAL BOND SECURITY (OCT 1997)

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if --

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract becomes unacceptable to the Government;

(b) Any surety fails to furnish reports on its financial condition as required by the Government; or

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or

(d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting Officer has the right to immediately draw on the ILC.

H.2 INSURANCE

H.2.1 AMOUNT OF INSURANCE

The Contractor is required by FAR 52.228-5 to provide whatever insurance is legally necessary. The Contractor, shall, at its own expense, provide and maintain during the entire performance period the following insurance amounts:

General Liability (includes premises/operations, collapse hazard, products, completed operations, contractual, independent contractors, broad form property damage, personal injury)

1. Bodily Injury on or off the site stated in US Dollars:

Per Occurrence	**$10,000**
Cumulative	**$150,000**

2. Property Damage on or off the site in US Dollars:

Per Occurrence	**$10,000**
Cumulative	**$150,000**

The foregoing types and amounts of insurance are the minimums required. The Contractor shall obtain any other types of insurance required by local law or that are ordinarily or customarily obtained in the location of the work. The limit of such insurance shall be as provided by law or sufficient to meet normal and customary claims.

The Contractor agrees that the Government shall not be responsible for personal injuries or for damages to any property of the Contractor, its officers, agents, servants, and employees, or any other person, arising from and incident to the Contractor's performance of this contract. The Contractor shall hold harmless and indemnify the Government from any and all claims arising there from, except in the instance of gross negligence on the part of the Government.

The Contractor shall obtain adequate insurance for damage to, or theft of, materials and equipment in insurance coverage for loose transit to the site or in storage on or off the site.

H.2.2 GOVERNMENT AS ADDITIONAL INSURED

The general liability policy required of the Contractor shall name "the United States of America, acting by and through the Department of State", as an additional insured with respect to operations performed under this contract.

H.2.3 INSURANCE-RELATED DISPUTES

Failure to agree to any adjustment contemplated under this contract regarding insurance shall be a dispute within the meaning of the clause in Section I, 52.233-1, Alternate I, "Disputes". Nothing in this clause shall excuse the Contractor from proceeding with the work.

H.2.4 TIME FOR SUBMISSION OF EVIDENCE OF INSURANCE

The Contractor shall provide evidence of the insurance required under this contract within ten (10) days after contract award. Failure to timely submit this evidence, in a form acceptable to the Contracting Officer, may result in rescinding or termination of the contract by the Government.

H.3 DEFINITIONS

In addition to the definitions provided in Section I, FAR 52.202-1 and DOSAR 652.202-70, the following definitions shall apply when used in connection with this contract:

(a) Contract Drawings or Drawings, where indicated by the context, means those drawings specifically listed in the construction contract or as later incorporated into the contract by contract modification.

(b) Day means a calendar day unless otherwise specifically indicated.

(c) Host Country means the country in which the project is located.

(d) Material means all materials, fixtures and other articles incorporated in, or which are intended to remain with, the project.

(e) Notice to Proceed means a written notice to the Contractor from the Contracting Officer authorizing the Contractor to proceed with the work under the contract as of a date set forth in the Notice.

(f) Other Submittals includes progress schedules, shop drawings, testing and inspection reports, and other information required by the contract to be submitted by the Contractor for information or approval by the Government.

(g) Project Data includes standard drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract.

(h) Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

(i) Schedule of Defects means the list of items, prepared in connection with substantial completion of the work or early occupancy or utilization of a portion thereof, which the Contracting Officer has designated as remaining to be performed, completed or corrected before the work will be accepted by the Government.

(j) Separate Contractor means a contractor, other than the Contractor or any of its subcontractors, to whom the Government has awarded a contract for construction of a portion of the project.

(k) Work means any and all permanent construction which is intended to be incorporated into the finished project and required to be performed or otherwise provided by the Contractor under this contract, unless otherwise indicated by the context.

H.4 OWNERSHIP AND USE OF DOCUMENTS

H.4.1 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND MODELS

(a) OWNERSHIP. All specifications, drawings, and copies thereof, and models, are the property of the Government.

(b) USE AND RETURN. The contractor shall not use or allow others to use the documents described in (a) above on other work. The Contractor shall return or account for the signed contractor set and additional copies provided to or made by the Contractor upon final completion of the work.

H.4.2 SUPPLEMENTAL DOCUMENTS

The Contracting Officer shall furnish from time to time such detailed drawings and other information as is considered necessary, in the opinion of the Contracting Officer, to interpret, clarify, supplement, or correct inconsistencies, errors or omissions in the Contract documents, or to describe minor changes in the work not involving an increase in the contract price or extension of the contract time. The Contractor shall comply with the requirements of the supplemental documents, and unless the Contractor makes objection within 20 days, their issuance shall not provide for any claim for an increase in the Contract price or an extension of contract time.

H.4.3 RECORD DOCUMENTS

The Contractor shall maintain at the project site:

- a current marked set of Contract drawings and specifications indicating all interpretations and clarifications, contract modifications, change orders, or any other departure from the contract requirements approved by the Contracting Officer; and

- a complete set of record shop drawings, product data, samples and other submittals as approved by the Contracting Officer.

H.4.4 "AS-BUILT" DOCUMENTS

After final completion of the work, but before final acceptance, the Contractor shall provide:

- complete set of "as-built" drawings, based on the record set of drawings, marked to show the details of construction as actually accomplished; and

- record shop drawings and other submittals, in the number and form as required by the specifications.

H.5 GOVERNING LAW

The laws of the United States shall govern the contract and its interpretation.

H.6 LANGUAGE PROFICIENCY

The manager assigned by the contractor to superintend the work on-site, as required by Section I, 52.236-6, "Superintendence by the Contractor", shall be fluent in written and spoken English.

H.7 LAWS AND REGULATIONS

H.7.1 COMPLIANCE REQUIRED

The Contractor shall, without additional expense to the Government, be responsible for complying with all laws, codes, ordinances, and regulations applicable to the performance of the work, including those of the host country, and with the lawful orders of any governmental authority having jurisdiction. Host country authorities may not enter the construction site without the permission of the Contracting Officer. Unless otherwise directed by the Contracting Officer, the Contractor shall comply with the more stringent of the requirements of such laws, regulations and orders and of the contract. In the event of a conflict between the contract and such laws, regulations and orders, the Contractor shall promptly advise the Contracting Officer of the conflict and of the Contractor's proposed course of action for resolution by the Contracting Officer.

H.7.2 LABOR, HEALTH AND SAFETY LAWS AND CUSTOMS

The Contractor shall comply with all local labor laws, regulations, customs and practices pertaining to labor, safety, and similar matters, to the extent that such compliance is not inconsistent with the requirements of this contract.

H.7.3 SUBCONTRACTORS

The Contractor shall give written assurance to the Contracting Officer that all subcontractors and others performing work on or for the project have obtained all requisite licenses and permits.

H.7.4 EVIDENCE OF COMPLIANCE

The Contractor shall submit proper documentation and evidence satisfactory to the Contracting Officer demonstrating compliance with this clause when directed by the Contracting Officer.

H.8 RESPONSIBILITY OF CONTRACTOR

H.8.1 DAMAGE TO PERSONS OR PROPERTY

The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others.

H.8.2 RESPONSIBILITY FOR WORK PERFORMED

The Contractor shall be responsible for all materials delivered and work performed until final completion and acceptance of the entire work, except for any completed unit of work which may have been accepted in writing under the contract.

H.9 CONSTRUCTION OPERATIONS

H.9.1 OPERATIONS AND STORAGE AREAS

(a) CONFINEMENT TO AUTHORIZED AREAS. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer.

(b) VEHICULAR ACCESS. The Contractor shall, and in accordance with any regulations prescribed by the Contracting Officer, use only established site entrances and roadways.

H.9.2 USE OF PREMISES

(a) Occupied Premises. If the premises are occupied, the Contractor, its subcontractors, and their employees shall comply with the regulations promulgated by the Government governing access to, operation of, and conduct while in or on the premises and shall perform the work required under this contract in such a manner as not to unreasonably interrupt or interfere with the conduct of Government business.

(b) Requests from occupants. The Contractor shall refer any request from occupants of existing buildings to change the sequence of work to the Contracting Officer for determination.

(c) Access limited. The Contractor, its subcontractors and their employees shall not have access to or be admitted into any building or portion of the site outside the areas designated in this contract except with the permission of the Contracting Officer.

H.10 TEMPORARY FACILITIES AND SERVICES

The Contractor may erect temporary buildings (such as, storage sheds, shops, offices) and utilities only with the approval of the Contracting Officer. The cost of these temporary buildings is included in the contract fixed price. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

H.11 SAFETY

H.11.1 DOSAR 652.236-70 ACCIDENT PREVENTION (APR 2004)

(a) *General*. The contractor shall provide and maintain work environments and procedures which will safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to contractor operations and activities; avoid interruptions of Government operations and delays in project completion dates; and, control costs in the performance of this contract. For these purposes, the contractor shall:

(1) Provide appropriate safety barricades, signs and signal lights;

(2) Comply with the standards issued by any local government authority having jurisdiction over occupational health and safety issues; and,

(3) Ensure that any additional measures the contracting officer determines to be reasonably necessary for this purpose are taken.

(4) For overseas construction projects, the contracting officer shall specify in writing additional requirements regarding safety if the work involves:

(i) Scaffolding;
(ii) Work at heights above two (2) meters;
(iii) Trenching or other excavation greater than one (1) meter in depth;
(iv) Earth moving equipment;
(v) Temporary wiring, use of portable electric tools, or other recognized electrical hazards. Temporary wiring and portable electric tools require

the use of a ground fault circuit interrupter (GFCI) in the affected circuits; other electrical hazards may also require the use of a GFCI;
(vi) Work in confined spaces (limited exits, potential for oxygen less that 19.5 percent or combustible atmosphere, potential for solid or liquid engulfment, or other hazards considered to be immediately dangerous to life or health such as water tanks, transformer vaults, sewers, cisterns, etc.);
(vii) Hazardous materials – a material with a physical or health hazard including but not limited to, flammable, explosive, corrosive, toxic, reactive or unstable, or any operations which creates any kind of contamination inside an occupied building such as dust from demolition activities, paints, solvents, etc.; or
(viii) Hazardous noise levels.

(b) *Records*. The contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to or theft of property, materials, supplies, or equipment. The contractor shall report this data in the manner prescribed by the contracting officer.

(c) *Subcontracts*. The contractor shall be responsible for its subcontractors' compliance with this clause.

(d) *Written program.* Before commencing work, the contractor shall:

(1) Submit a written plan to the contracting officer for implementing this clause. The plan shall include specific management or technical procedures for effectively controlling hazards associated with the project; and,

(2) Meet with the contracting officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(e) *Notification*. The contracting officer shall notify the contractor of any non-compliance with these requirements and the corrective actions required. This notice, when delivered to the contractor or the contractor's representative on site, shall be deemed sufficient notice of the non-compliance and corrective action required. After receiving the notice, the contractor shall immediately take corrective action. If the contractor fails or refuses to promptly take corrective action, the contracting officer may issue an order suspending all or part of the work until satisfactory corrective action has been taken. The contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any suspension of work order issued under this clause.

H.12 SUBCONTRACTORS AND SUPPLIERS

H.12.1 CLAIMS AND ENCUMBRANCES

The Contractor shall satisfy as due all lawful claims of any persons or entities employed by the Contractor, including subcontractors, material men and laborers, for all labor performed and materials furnished under this contract, including the applicable warranty or correction period, unless the Government shall be directly liable by contract. The Contractor shall not at any time permit any lien, attachment, or other encumbrance to be entered against or to remain on the building(s), or the premises, whether public or private, or any portion thereof, as a result of nonperformance of any part of this contract.

H.12.2 APPROVAL OF SUBCONTRACTORS

(a) REVIEW AND APPROVAL. The Government reserves the right to review proposed subcontractors for a period of five (5) days before providing notice of approval or rejection of any or all subcontractors.

(b) REJECTION OF SUBCONTRACTORS. The Government reserves the right to reject any or all subcontractors proposed if their participation in the project, as determined by the Contracting Officer, may cause damage to the national security interests of the United States. The Contractor agrees to promptly replace any subcontractor rejected by the Government under this clause.

H.13 CONSTRUCTION PERSONNEL

H.13.1 REMOVAL OF PERSONNEL

The Contractor shall maintain discipline at the site and at all times take all reasonable precautions to prevent any unlawful, riotous, or disorderly conduct by or among those at the site. The contractor shall ensure the preservation of peace and protection of persons and property in the neighborhood of the project. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee that the Contracting Officer deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the project is deemed by the Contracting Officer to be contrary to the Government's interests.

H.13.2 CONSTRUCTION PERSONNEL SECURITY

After award of the contract, the Contractor shall have ten days to submit to the Contracting Officer a list of workers and supervisors assigned to this project (Biographic Data on Personnel) for the Government to conduct all necessary security checks. It is

anticipated that security checks will take up to 60 days to perform. For each individual the list shall include:

Full Name
Place and Date of Birth
Current Address
Identification number (Jensiya or passport number)
Vehicle make, model, color and license plate number

Failure to provide any of the above information may be considered grounds for rejection and/or re-submittal of the application. Once the Government has completed the security screening and approved the applicants, the Government will provide a badge to the individual for access to the site. The Government may revoke this badge at any time due to the falsification of data, or misconduct on site.

H.14 MATERIALS AND EQUIPMENT

H.14.1 SELECTION AND APPROVAL OF MATERIALS

(a) STANDARD TO QUALITY. All materials and equipment incorporated into the work shall be new and for the purpose intended, unless otherwise specified. All workmanship shall be of good quality and performed in a skillful manner that will withstand inspection.

(b) SELECTION BY CONTRACTOR. Where the contract permits the Contractor to select products, materials or equipment to be incorporated in the work, or where specific approval is otherwise required by the contract, the Contractor shall furnish a Submittal Register to the Contracting Officer, for approval. The Submittal Register shall include the names of the manufacturer, model number, and source of procurement of each such product, material or equipment, together with other pertinent information concerning the nature, appearance, dimensions, performance, capacity, and rating. To ensure a timely review the Contractor shall provide a submittal register ten days after contract award showing when shop drawings, samples, or submittals shall be made. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Installation or use of any products, materials or equipment without the required approval shall be at the risk of subsequent rejection.

H.14.2 CUSTODY OF MATERIALS

The Contractor shall be responsible for the custody of all materials received for incorporation into the project, including Government furnished materials, upon delivery to the Contractor or to any person for whom it is responsible, including subcontractors. The Contractor shall deliver all such items to the site as soon as practicable. If required by the Contracting Officer, the Contractor shall clearly mark in a manner directed by the

Contracting Officer all items of which the Contractor has custody but which have not been delivered or secured at the site, clearly indicating the use of such items for the U.S. Government project.

H.14.3 BASIS OF CONTRACT PRICE

The contract price is based on the use of the materials, products and equipment specified in the contract, except for substitutions or "Or-Equal" items proposed by the Contractor which have been specifically approved by the Government at the time of execution of the contract. Any substitution approved by the Government after execution of the contract shall be subject to an appropriate adjustment of the contract price.

H.14.4 SUBSTITUTIONS

(a) PRIOR APPROVAL REQUIRED. The Contractor must receive approval in writing from the Contracting Officer before substitutions (1) proposed by the Contractor but not yet approved at the time of execution of the contract, or (2) proposed by the Contractor after execution of the contract may be used in the project. Sufficient information to permit evaluation by the Government must accompany any substitution request including but not limited to the reasons for the proposed substitution and data concerning the design, appearance, performance, composition, and relative cost of the proposed substitute. The Contractor shall make requests for substitutions in a timely manner to permit adequate evaluation by the Government. If, in the Contracting Officer's opinion, the use of such substitute items is not in the best interests of the Government, the Contractor must obtain the items originally specified with no adjustment in the contract price or completion date.

(b) APPROVAL THROUGH SHOP DRAWINGS. The Contractor may propose substitutions of materials in the submittal of shop drawings, provided such substitution is specifically requested in writing in the transmittal of the shop drawings to the Contracting Officer. Such substitution requests must be made in a timely manner and supported by the required information.

(c) FINAL APPROVAL ON DELIVERY. Acceptance or approval of proposed substitutions under the contract are conditioned upon approval of items delivered at the site or approval by sample. Approval by sample shall not limit the Government's right to reject material after delivery to the site if the material does not conform to the approved sample in all material respects.

H.14.5 "OR-EQUAL CLAUSE"

References in the Specifications/Statement of Work to materials, products or equipment by trade name, make, or catalog number, or to specific processes, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may propose for approval or rejection by the Contracting Officer the substitution of any material, product, equipment or process that the Contractor believes to

be equal to or better than that named in the Specifications/Statement of Work, unless otherwise specifically provided in this contract.

H.14.6 USE AND TESTING OF SAMPLES

("Samples" include materials and equipment.)

(a) USE. The Contractor shall send approved samples not destroyed in testing to the Contracting Officer. Those which are in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in the work shall match the approved samples within any specified tolerances. Other samples not destroyed in testing or not approved will be returned to the Contractor at its expense if so requested.

(b) FAILURE OF SAMPLES. If a sample fails to pass the specified tests described in this contract, any further samples of the same brand or make of that material or equipment may not be considered for use in performance under this contract.

(c) TAKING AND TESTING OF SAMPLES. Samples delivered on the site or in place may be taken by the Contracting Officer for additional testing by the Government outside of those required by the Contract documents. Samples failing to meet contract requirements will automatically void previous approvals of the items tested. The Contractor shall replace such materials or equipment found not to have met contract requirements, unless the Contracting Officer determines it to be in the Government's interest to accept the non-conforming materials or equipment with an appropriate adjustment of the Contract price as determined by the Contracting Officer.

(d) COST OF ADDITIONAL TESTING BY THE GOVERNMENT. When additional tests of samples are performed, only one test of each sample proposed for use will be made at the expense of the Government. Samples which do not meet contract requirements will be rejected. Further testing of additional samples, if required, will be made at the expense of the Contractor.

H.15 IMPORTED MATERIALS, EQUIPMENT, AND PERSONNEL

H.15.1 SHIPMENT AND CUSTOMS CLEARANCE

(a) Costs to be borne by Contractor. The Contractor is responsible for paying all charges incurred in obtaining materials that must be imported for the project and in transporting the materials from their place or origin to the construction site. Moving costs shall include, but not necessarily be limited to, packing, handling, cartage, overland freight, ocean freight, transshipment, port, unloading, customs clearance and duties (other than customs duties specified below), unpacking, storage, and all other charges including administrative costs in connection with obtaining and transporting the materials from their source to the project site.

(b) Duty-free clearance. The Contractor shall not be responsible for customs duties for which the Government has been able to obtain a customs waiver. The Contractor shall follow the instructions of the Contracting Officer as to the manner of labeling the shipping containers or otherwise processing shipments of imported materials in order to obtain, or continue to receive, duty free clearance through customs. The Contractor shall be responsible for the payment of customs duties, if any, which

(1) are imposed on items which are not labeled and processed in accordance with the Contracting Officer's instructions,

(2) are imposed on the Contractor's tools, construction equipment and machinery imported for use on the project, or

(3) are otherwise ineligible for duty-free entry. The Contractor is responsible for customs duties where the Contractor has failed to give adequate and timely notice to the Contracting Officer of importation on containers or materials which may be eligible for a customs waiver. The Contracting Officer will provide instructions concerning time periods for notification of importation by the Contractor.

(c) Customs Clearance. The Government will be responsible for obtaining customs clearances, and for obtaining exemption certificates or paying customs duties not waived, for imported products, materials and equipment which are labeled and processed in accordance with the Contracting Officer's instructions. The Government shall not be responsible for obtaining customs clearance for the Contractor's tools, construction equipment or machinery, nor for obtaining visas, entry or work permits for the Contractor's personnel.

H.15.2 SURPLUS MATERIALS

Unless otherwise specified, any surplus materials, fixtures, articles or equipment remaining at the completion of the project shall become the property of the Contractor, except those items furnished by the Government, whose cost is not included in the contract price.

H.16 SPECIAL WARRANTIES

H.16.1 SPECIAL WARRANTY OBLIGATIONS

Any special warranties that may be required under the contract shall be subject to the stipulations set forth in 52.246-21, "Warranty of Construction", as long as they do not conflict with the special warranty.

H.16.2 WARRANTY INFORMATION

The Contractor shall obtain and furnish to the Government all information required in order to make any subcontractor's, manufacturers, or supplier's guarantee or warranty

legally binding and effective. The Contractor shall submit both the information and the guarantee or warranty to the Government in sufficient time to permit the Government to meet any time limit specified in the guarantee or warranty, but not later than completion and acceptance of all work under this contract.

H.17 EQUITABLE ADJUSTMENTS

H.17.1 BASIS FOR EQUITABLE ADJUSTMENTS

Any circumstance for which the contract provides an equitable adjustment that causes a change within the meaning of paragraph (a) of the "Changes" clause shall be treated as a change under that clause. The Contractor shall give the Contracting Officer written notice (within 20 days) stating:

(a) the date, circumstances, and applicable contract clause authorizing an equitable adjustment and

(b) that the Contractor regards the event as a changed condition for which an equitable adjustment is allowed under the contract.

H.17.2 DIFFERING SITE CONDITION NOTICE

The Contractor shall provide written notice of a differing site condition within 10 days of occurrence following FAR 52.236-2, Differing Site Conditions.

H.17.3 DOCUMENTATION OF PROPOSALS FOR EQUITABLE ADJUSTMENTS

(a) ITEMIZATION OF PROPOSALS AND REQUESTS. The Contractor shall submit any request for equitable adjustment in the contract price, including any change proposal submitted in accordance with the "Changes" clause, in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract price in the detail required by the Contracting Officer, The request shall include all costs and delays related to or arising out of the change or event giving rise to the proposed adjustment, including any delay damages and additional overhead costs.

(b) PROPOSED TIME ADJUSTMENTS. The Contractor shall submit a proposed time extension (if applicable) with any request for an equitable adjustment or change proposal. The request shall include sufficient information to demonstrate whether and to what extent the change will delay the completion of the contract.

(c) RELEASE BY CONTRACTOR. The price and time adjustment made in any contract modification issued as a result of a change proposal or request for an equitable adjustment shall be considered to account for all items affected by the change or other circumstances giving rise to an equitable adjustment. Upon issuance of such contract modification, the Government shall be released from

any and all liability under this contract for further equitable adjustments attributable to the facts and circumstances giving rise to the change proposal or request for equitable adjustment.

H.18 NONCOMPLIANCE WITH CONTRACT REQUIREMENTS

If the Contractor, after receiving written notice from the Contracting Officer of noncompliance with any requirement of this contract, fails to initiate promptly appropriate action(s) to bring performance/work into compliance with a contract requirement within a reasonable period of time, the Contracting Officer shall have the right to order the Contractor to suspend any or all work under the contract. This order shall be in force until the Contractor has complied or has initiated such action as may be appropriate to comply within a reasonable period of time. The Contractor will not be entitled to any extension of contract time or payment for any costs incurred as a result of being ordered to suspend work for such a cause.

H.19 ZONING APPROVALS AND BUILDING PERMITS

The Government is responsible for:

- obtaining proper zoning or other land use control approval for the project,
- obtaining the approval of the Contract Drawings and Specifications,
- paying fees due, and
- obtaining and paying for the initial building permits.

SECTION I - CONTRACT CLAUSES

I.1 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at: http://acquisition.gov/far/index.html or, http://farsite.hill.af.mil/search.htm

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Dept. of State Acquisition Website at http://www.statebuy.state.gov/ to see the links to the FAR. You may also use an Internet "search engine" (such as, Yahoo, Excite, Alta Vista, etc.) to obtain the latest location of the most current FAR.

FEDERAL ACQUISITION REGULATION (48 CFR Ch. 1)

52.202-1	DEFINITIONS	JUL 2004
52.203-3	GRATUITIES	APR 1984
52.203-5	COVENANT AGAINST CONTINGENT FEES	APR 1984
52.203-6	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT	SEP 2006
52.203-7	ANTI-KICKBACK PROCEDURES	OCT 2010
52.203-8	CANCELLATION, RECISSION AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY	JAN 1997
52.203-10	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY	JAN 1997
52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS	OCT 2010
52.204-4	PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER	AUG 2000
52.204-9	PERSONAL VERIFICATION OF CONTRACTOR PERSONNEL	JAN 2011
52.204-10	REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS	JUL 2010
52.209-6	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT	DEC 2010
52.215-2	AUDIT AND RECORDS – NEGOTIATION	OCT 2010
52.215-8	ORDER OF PRECEDENCE – UNIFORM CONTRACT FORMAT	OCT 1997
52.215-21	REQUIREMENTS FOR COST OR PRICING DATA OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA – MODIFICATIONS	OCT 1997

52.216-7	ALLOWABLE COST AND PAYMENT ALTERNATE I	JUN 2011 JUN 2011
52.222-1	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES	FEB 1997
52.222-19	CHILD LABOR – COOPERATION WITH AUTHORITIES AND REMEDIES	AUG 2010
52.222-50	COMBATING TRAFFICKING IN PERSONS	FEB 2009
52.223-18	CONTRACTOR POLICY TO BAN TEXT MESSAGING WHILE DRIVING	AUG 2011
52.225-13	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES	JUN 2008
52.225-14	INCONSISTENCY BETWEEN ENGLISH VERSION AND TRANSLATION OF CONTRACT	FEB 2000
52.225-19	CONTRACTOR PERSONNEL IN A DESIGNED OPERATIONAL AREA OR SUPPORTING A DIPLOMATIC MISSION OUTSIDE THE UNITED STATES	MAR 2008
52.228-2	ADDITIONAL BOND SECURITY	OCT 1997
52.228-3	WORKERS COMPENSATION ACT (DEFENSE BASE ACT)	APR 1984
52.228-4	WORKERS' COMPENSATION AND WAR-HAZARD INSURANCE OVERSEAS	APR 1984
52.228-5	INSURANCE – WORK ON A GOVERNMENT INSTALLATION	JAN 1997
52.228-11	PLEDGES OF ASSETS	SEP 2009
52.228-13	ALTERNATIVE PAYMENT PROTECTION	JUL 2000
52.228-14	IRREVOCABLE LETTER OF CREDIT	DEC 1999
52.229-6	TAXES – FOREIGN FIXED-PRICE CONTRACTS	JUN 2003
52.232-5	PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS	SEP 2002
52.232-17	INTEREST	OCT 2010
52.232-18	AVAILABILITY OF FUNDS	APR 1984
52.232-24	PROHIBITION OF ASSIGNMENT OF CLAIMS	JAN 1986
52.232-27	PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS	OCT 2008
52.232-34	PAYMENT BY ELECTRONIC FUNDS TRANSFER – OTHER THAN CENTRAL CONTRACTOR REGISTRATION	MAY 1999
52.233-1	DISPUTES ALTERNATE I	JUL 2002 DEC 1991
52.233-3	PROTEST AFTER AWARD	AUG 1996
52.233-4	APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM	OCT 2004
52.236-2	DIFFERING SITE CONDITIONS	APR 1984

52.236-3	SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK	APR 1984
52.236-5	MATERIAL AND WORKMANSHIP	APR 1984
52.236-6	SUPERINTENDENCE BY THE CONTRACTOR	APR 1984
52.236-7	PERMITS AND RESPONSIBILITIES	NOV 1991
52.236-8	OTHER CONTRACTS	APR 1984
52.236-9	PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS	APR 1984
52.236-10	OPERATIONS AND STORAGE AREAS	APR 1984
52.236-11	USE AND POSSESSION PRIOR TO COMPLETION	APR 1984
52.236-12	CLEANING UP	APR 1984
52.236-14	AVAILABILITY AND USE OF UTILITY SERVICES	APR 1984
52.236-15	SCHEDULES FOR CONSTRUCTION CONTRACTS	APR 1984
52.236-21	SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION	FEB 1997
52.236-26	PRECONSTRUCTION CONFERENCE	FEB 1995
52.242-3	PENALTIES FOR UNALLOWABLE COSTS	MAY 2001
52.242-13	BANKRUPTCY	JUL 1995
52.243-4	CHANGES	JUNE 2007
52.243-5	CHANGES AND CHANGED CONDITIONS	APR 1984
52.245-9	USE & CHARGES	AUG 2010
52.246-21	WARRANTY OF CONSTRUCTION	MAR 1994
52.248-3	VALUE ENGINEERING – CONSTRUCTION	OCT 2010
52.249-2	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) ALTERNATE I	MAY 2004 SEPT 1996
52.249-14	EXCUSABLE DELAY	APRIL 1984
52.249-10	DEFAULT (FIXED-PRICE CONSTRUCTION)	APR 1984
52.247-63	PREFERENCE FOR U.S.-FLAG CARRIERS	JUN 2003
52.247-64	PREFERENCE FOR PRIVATELY OWNED U.S.-FLAG COMMERCIAL VESSELS	APR 2003

THE FOLLOWING CLAUSES ARE SET FORTH IN FULL TEXT:

I.1 652.204-70 DEPARTMENT OF STATE PERSONAL IDENTIFICATION CARD ISSUANCE PROCEDURES (MAY 2011)

(a) The Contractor shall comply with the Department of State (DOS) Personal Identification Card Issuance Procedures for all employees performing under this contract who require frequent and continuing access to DOS facilities, or information systems. The Contractor shall insert this clause in all subcontracts when the subcontractor's employees will require frequent and continuing access to DOS facilities, or information systems.

(b) The DOS Personal Identification Card Issuance Procedures may be accessed at *http://www.state.gov/m/ds/rls/rpt/c21664.htm* .

(End of clause)

I.2 652.243-70 NOTICES (AUG 1999)

Any notice or request relating to this contract given by either party to the other shall be in writing. Said notice or request shall be mailed or delivered by hand to the other party at the address provided in the schedule of the contract. The contracting officer must make all modifications to the contract in writing.

I.3 652.242-73 AUTHORIZATION AND PERFORMANCE (AUG 1999)

(a) The contractor warrants the following:

(1) That is has obtained authorization to operate and do business in the country or countries in which this contract will be performed;

(2) That is has obtained all necessary licenses and permits required to perform this contract; and,

(3) That it shall comply fully with all laws, decrees, labor standards, and regulations of said country or countries during the performance of this contract.

(b) If the party actually performing the work will be a subcontractor or joint venture partner, then such subcontractor or joint venture partner agrees to the requirements of paragraph (a) of this clause.

I.4 RESERVED

I.5 THE FOLLOWING CLAUSE IS APPLICABLE IF CHECKED

[ ] 652.229-70 EXCISE TAX EXEMPTION STATEMENT FOR CONTRACTORS WITHIN THE UNITED STATES (JUL 1988)

This is to certify that the item(s) covered by this contract is/are for export solely for the use of the U.S. Foreign Service Post identified in the contract schedule.

The Contractor shall use a photocopy of this contract as evidence of intent to export. Final proof of exportation may be obtained from the agent handling the shipment. Such proof shall be accepted in lieu of payment of excise tax.

I.6. 52.228-15 Performance and Payment Bonds—Construction (OCT 2010)

(a) *Definitions*. As used in this clause—

"Original contract price" means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) *Amount of required bonds*. Unless the resulting contract price is $150,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) *Performance bonds (Standard Form 25).* The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) *Payment Bonds (Standard Form 25-A).* The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection.

(i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) *Furnishing executed bonds*. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) *Surety or other security for bonds*. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or Department of Treasury, Financial Management Service, Surety Bond Branch, 3700 East West Highway, Room 6F01, Hyattsville, MD 20782. Or via the internet at

http:://www.fms.treas.gov/c570/.

(e) *Notice of subcontractor waiver of protection (40 U.S.C. 3133(c)).* Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract."

I.7 652.225-71 SECTION 8(A) OF THE EXPORT ADMINISTRATION ACTS OF 1979, AS AMENDED (AUG 1999)

(a) Section 8(a) of the U.S. Export Administration Act of 1979, as amended (50 U.S.C. 2407(a)), prohibits compliance by U.S. persons with any boycott fostered by a foreign country against a country which is friendly to the United States and which is not itself the object of any form of boycott pursuant to United States law or regulation. The Boycott of Israel by Arab League countries is such a boycott, and therefore, the following actions, if taken with intent to comply with, further, or support the Arab League Boycott of Israel, are prohibited activities under the Export Administration Act:

(1) Refusing, or requiring any U.S. person to refuse to do business with or in Israel, with any Israeli business concern, or with any national or resident of Israel, or with any other person, pursuant to an agreement of, or a request from or on behalf of a boycotting country;

(2) Refusing, or requiring any U.S. person to refuse to employ or otherwise discriminating against any person on the basis of race, religion, sex, or national origin of that person or of any owner, officer, director, or employee of such person;

(3) Furnishing information with respect to the race, religion, or national origin of any U.S. person or of any owner, officer, director, or employee of such U.S. person;

(4) Furnishing information about whether any person has, has had, or proposes to have any business relationship (including a relationship by way of sale, purchase, legal or commercial representation, shipping or other transport, insurance, investment, or supply) with or in the State of Israel, with any business concern organized under the laws of the State of Israel, with any Israeli national or resident, or with any person which is known or believed to be restricted from having any business relationship with or in Israel;

(5) Furnishing information about whether any person is a member of, has made contributions to, or is otherwise associated with or involved in the activities of any charitable or fraternal organization which supports the State of Israel; and,

(6) Paying, honoring, confirming, or otherwise implementing a letter of credit which contains any condition or requirement against doing business with the State of Israel.

(b) Under Section 8(a), the following types of activities are not forbidden ``compliance with the boycott,'' and are therefore exempted from Section 8(a)'s prohibitions listed in paragraphs (a)(1)-(6) above:

(1) Complying or agreeing to comply with requirements:

(i) Prohibiting the import of goods or services from Israel or goods produced or services provided by any business concern organized under the laws of Israel or by nationals or residents of Israel; or,

(ii) Prohibiting the shipment of goods to Israel on a carrier of Israel, or by a route other than that prescribed by the boycotting country or the recipient of the shipment;

(2) Complying or agreeing to comply with import and shipping document requirements with respect to the country of origin, the name of the carrier and route of shipment, the name of the supplier of the shipment or the name of the provider of other services, except that no information knowingly furnished or conveyed in response to such requirements may be stated in negative, blacklisting, or similar exclusionary terms, other than with respect to carriers or route of shipments as may be permitted by such regulations in order to comply with precautionary requirements protecting against war risks and confiscation;

(3) Complying or agreeing to comply in the normal course of business with the unilateral and specific selection by a boycotting country, or national or resident thereof, of carriers, insurance, suppliers of services to be performed within the boycotting country or specific goods which, in the normal course of business, are identifiable by source when imported into the boycotting country;

(4) Complying or agreeing to comply with the export requirements of the boycotting country relating to shipments or transshipments of exports to Israel, to any business concern of or organized under the laws of Israel, or to any national or resident of Israel;

(5) Compliance by an individual or agreement by an individual to comply with the immigration or passport requirements of any country with respect to such individual or any member of such individual's family or with requests for information regarding requirements of employment of such individual within the boycotting country; and,

(6) Compliance by a U.S. person resident in a foreign country or agreement by such person to comply with the laws of that country with respect to his or her activities exclusively therein, and such regulations may contain exceptions for such resident complying with the laws or regulations of that foreign country governing imports into such country of trademarked, trade named, or similarly specifically identifiable products, or components of products for his or her own use, including the performance of contractual services within that country, as may be defined by such regulations.

I.8 652.229-71 PERSONAL PROPERTY DISPOSITION AT POSTS ABROAD (AUG 1999)

Regulations at 22 CFR Part 136 require that U.S. Government employees and their families do not profit personally from sales or other transactions with persons who are not themselves entitled to exemption from import restrictions, duties, or taxes. Should the contractor experience importation or tax privileges in a foreign country because of its contractual relationship to the United States Government, the contractor shall observe the requirements of 22 CFR Part 136 and all policies, rules, and procedures issued by the chief of mission in that foreign country.

I.9 CONTRACTOR IDENTIFICATION (JULY 2008)

Contract performance may require contractor personnel to attend meetings with government personnel and the public, work within government offices, and/or utilize government email.

Contractor personnel must take the following actions to identify themselves as non-federal employees:

1) Use an email signature block that shows name, the office being supported and company affiliation (e.g. "John Smith, Office of Human Resources, ACME Corporation Support Contractor");

2) Clearly identify themselves and their contractor affiliation in meetings;

3) Identify their contractor affiliation in Departmental e-mail and phone listings whenever contractor personnel are included in those listings; and

4) Contractor personnel may not utilize Department of State logos or indicia on business cards.

I.10 652.228-71 WORKER'S COMPENSATION INSURANCE (DEFENSE BASE ACT) - SERVICES (JUN 2006)

(a) This clause supplements FAR 52.228-3. For the purposes of this clause, "covered contractor employees" includes the following individuals:

(1) United States citizens or residents;

(2) Individuals hired in the United States or its possessions, regardless of citizenship; and

(3) Local nationals and third country nationals where contract performance takes place in a country where there are no local workers compensation laws.

(b) The Contractor shall procure Defense Base Act (DBA) insurance pursuant to the terms of the contract between the Department of State and the Department's DBA insurance carrier for covered contractor employees, unless the Contractor has a DBA self-insurance program

approved by the Department of Labor. The Contractor shall submit a copy of the Department of Labor's approval to the contracting officer upon contract award, if applicable.

(c) The current rate under the Department of State contract is $5.50 of compensation for construction.

(d) The Contractor shall insert a clause substantially the same as this in all subcontracts. The Contractor shall require that subcontractors insert a similar clause in any of their subcontracts.

(e) Should the rates for DBA insurance coverage increase or decrease during the performance of this contract, the contracting officer shall modify this contract accordingly.

(f) The Contractor shall demonstrate to the satisfaction of the contracting officer that the equitable adjustment as a result of the insurance increase or decrease does not include any reserve for such insurance. Adjustment shall not include any overhead, profit, general and administrative expenses, etc.

(g) (1) Section 16 of the State Basic Authorities Act (22 U.S.C. 2680a), as amended, provides that the Defense Base Act shall not apply with respect to such contracts as the Secretary of State determines are contracts with persons employed to perform work for the Department of State on an intermittent basis for not more than 90 days in a calendar year. "Persons" includes individuals hired by companies under contract with the Department. The Procurement Executive has the authority to issue the waivers for Contractor employees who work on an intermittent or short-term basis.

(2) The Contractor shall submit waiver requests to the contracting officer. The request shall contain the following information:

(i) Contract number;

(ii) Name of Contractor;

(iii) Brief description of the services to be provided under the contract and country of performance;

(iv) Name and position title of individual(s);

(v) Nationality of individual(s) (must be U.S. citizen or U.S. resident);

(vi) Dates (or timeframe) of performance at the overseas location; and,

(vii) Evidence of alternative worker's compensation coverage for these employees (e.g., evidence that the State worker's compensation program covers workers on short-term foreign assignments).

(3) The contracting officer shall provide to the Contractor the original of the approved or disapproved document and maintain a copy in the contract file.

(End of clause)

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

SECTION J - LIST OF ATTACHMENTS

ATTACHMENT NO.	DESCRIPTION OF ATTACHMENT	NO. PAGES
Attachment 1	Standard Form 25, *Performance and Guaranty Bond*	1
Attachment 2	Standard Form 25A, *Payment Bond*	2
Attachment 3	Sample Bank Letter of Guaranty	1
Attachment 4	Breakdown of Proposal Price by Divisions of Specifications	1
Attachment 5	Drawings	2
Attachment 6	Specifications	15
Attachment 7	Defense Base Act Insurance Information	2
Attachment 8	OBO NEC Specifications	93

ATTACHMENT #1
SF 25 – PERFORMANCE BOND

PERFORMANCE BOND *(See instructions on reverse)*	DATE BOND EXECUTED *(Must be same or later than date of contract)*	OMB No.: 9000-0045 Expires: 11/30/2012

Public reporting burden for this collection of information is estimated to average 25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (MVR), Federal Acquisition Policy Division, GSA, Washington, DC 20405

PRINCIPAL *(Legal name and business address)*	TYPE OF ORGANIZATION ("X" one) ☐ INDIVIDUAL ☐ PARTNERSHIP ☐ JOINT VENTURE ☐ CORPORATION STATE OF INCORPORATION
SURETY(IES) *(Name(s) and business address(es)*	PENAL SUM OF BOND MILLION(S) / THOUSANDS / HUNDRED(S) / CENTS CONTRACT DATE / CONTRACT NO.

OBLIGATION

We, the Principal and Surety (ies), are firmly bound to the Unites States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action against any or all of us. for all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

CONDITIONS

The Principal has entered into the contract identified above.

THEREFORE

The above obligation is void if the Principal-

(a)(1) Performs and fulfills all the undertaking, covenants, terms, conditions, and agreements of the contract during the original term of the contract and any extensions thereof that are granted by the Government, with or without notice of the Surety(ies) and during the life of any guaranty required under the contract, and (2) performs and fulfills all the undertakings, covenants, terms conditions, and agreements of any and all duly authorized modifications of the contract that hereafter are made. Notice of those modifications to the Surety(ies) are waived.

(b) Pays to the Government the full amount of the taxes imposed by the Government, if the said contracts is subject to the Miller Act, (40 U.S.C. 270a-270e), which are collected, deducted, or withheld from wages paid by the Principal in carrying out the construction contract with respect to which this bond is furnished.

WITNESS

The Principal and Surety(ies) executed this performance bond and affixed their seals on the above date.

PRINCIPAL

SIGNATURE(S)	1. (Seal)	2. (Seal)	3. (Seal)	Corporate Seal
NAME(S) & TITLE(S) *(Typed)*	1.	2.	3.	

INDIVIDUAL SURETY(IES)

SIGNATURE(S)	1. (Seal)	2. (Seal)
NAME(S) *(Typed)*	1.	2.

CORPORATE SURETY(IES)

SURETY A	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT ($)	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S *(Typed)*	1.	2.		

AUTHORIZED FOR LOCAL REPRODUCTION
Previous edition not usable

STANDARD FORM 25 (REV. 5-96)
Prescribed by GSA-FAR (48 CFR) 53.228 (b)

ATTACHMENT # 2 - Standard Form 25A

PAYMENT BOND *(See instructions on reverse)*	DATE BOND EXECUTED *(Must be same or later than date of contract)*	OMB No.: 9000-0045

Public reporting burden for this collection of information is estimate to average 25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (MVR), Federal Acquisition Policy Division, GSA, Washington, DC 20405.

PRINCIPAL *(Legal name and business address)*	TYPE OF ORGANIZATION *("X" one)*	
	☐ INDIVIDUAL	☐ PARTNERSHIP
	☐ JOINT VENTURE	☐ CORPORATION
	STATE OF INCORPORATION	
SURETY(IES) *(Name(s) and business address(es))*	PENAL SUM OF BOND	
	MILLION(S) / THOUSAND(S) / HUNDRED(S) / CENTS	
	CONTRACT DATE	CONTRACT NO.

OBLIGATION:

We, the Principal and Surety(ies), are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

CONDITIONS:

The above obligation is void if the Principal promptly makes payment to all persons having a direct relationship with the Principal or a subcontractor of the Principal for furnishing labor, material or both in the prosecution of the work provided for in the contract identified above, and any authorized modifications of the contract that subsequently are made. Notice of those modifications to the Surety(ies) are waived.

WITNESS:

The Principal and Surety(ies) executed this payment bond and affixed their seals on the above date.

PRINCIPAL				
SIGNATURE(S)	1. (Seal)	2. (Seal)	3. (Seal)	Corporate Seal
NAME(S) & TITLE(S) *(Typed)*	1.	2.	3.	

INDIVIDUAL SURETY(IES)		
SIGNATURE(S)	1. (Seal)	2. (Seal)
NAME(S) *(Typed)*	1.	2.

CORPORATE SURETY(IES)				
SURETY A	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $
	SIGNATURE(S)	1.	2.	Corporate Seal
	NAME(S) & TITLE(S) *(Typed)*	1.	2.	

AUTHORIZED FOR LOCAL REPRODUCTION
Previous edition is usable

STANDARD FORM 25A (REV. 10-98)
Prescribed by GSA FAR (48 CFR) 53.228(c)

STANDARD FORM 25A (BACK)

CORPORATE SURETY(IES) *(Continued)*					
SURETY B	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		
SURETY C	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		
SURETY D	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		
SURETY E	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		
SURETY F	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		
SURETY G	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT $	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAME(S) & TITLE(S) *(Typed)*	1.	2.		

INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, is used when a payment bond is required under the Act of August 24, 1935, 49 Stat. 793 (40 U.S.C. 270a-270e). Any deviation from this form will require the written approval of the Administrator of General Services.

2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorized person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.

3. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitation listed therein. Where more than one corporate surety is involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "CORPORATE SURETY(IES)." In the space designated "SURETY(IES)" on the face of the form, insert only the letter identification of the sureties.

(b) Where individual sureties are involved, a completed Affidavit of Individual Surety (Standard Form 28) for each individual surety, shall accompany the bond. The Government may require the surety to furnish additional substantiating information concerning their financial capability.

4. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal", and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction requiring adhesive seals.

5. Type the name and title of each person signing this bond in the space provided.

STANDARD FORM 25A (REV. 10-98) BACK

ATTACHMENT #3
SAMPLE LETTER OF BANK GUARANTY

Place ***[ ]***
Date ***[ ]***

Contracting Officer
U.S. Embassy, ***[Post name]***
[Mailing Address]

Letter of Guaranty No**. _____**

SUBJECT: Performance and Guaranty

The Undersigned, acting as the duly authorized representative of the bank, declares that the bank hereby guarantees to make payment to the Contracting Officer by check made payable to the Treasurer of the United States, immediately upon notice, after receipt of a simple written request from the Contracting Officer, immediately and entirely without any need for the Contracting Officer to protest or take any legal action or obtain the prior consent of the Contractor to show any other proof, action, or decision by an other authority, up to the sum of ***[Amount equal to 40% of the contract price in U.S. dollars during the period ending with the date of final acceptance and 10% of the contract price during contract guaranty period]***, which represents the deposit required of the contractor to guarantee fulfillment of his obligations for the satisfactory, complete, and timely performance of the said contract ***[contract number]*** for ***[description of work]*** at ***[location of work]*** in strict compliance with the terms, conditions and specifications of said contract, entered into between the Government and ***[name of contractor]*** of ***[address of contractor]*** on ***[contract date]***, plus legal charges of 10% per annum on the amount called due, calculated on the sixth day following receipt of the Contracting Officer's written request until the date of payment.

The undersigned agrees and consents that said contract may be modified by Change Order or Supplemental Agreement affecting the validity of the guaranty provided, however, that the amount of this guaranty shall remain unchanged.

The undersigned agrees and consents that the Contracting Officer may make repeated partial demands on the guaranty up to the total amount of this guaranty, and the bank will promptly honor each individual demand.

This letter of guaranty shall remain in effect until 3 months after completion of the guaranty period of Contract requirement.

_____-

Depository Institution: ***[Name]***
Address: Location: _____
Representative(s): _____ _____ State of Inc.: _____
_____ _____ Corporate Seal:
_____ _____

Certificate of Authority is attached evidencing authority of the signer to bind the bank to this document.

ATTACHMENT #4

UNITED STATES DEPARTMENT OF STATE
BREAKDOWN OF PRICE BY DIVISIONS OF SPECIFICATIONS

(1) DIVISION/DESCRIPTION	(2) LABOR	(3) MATERIALS	(4) OVERHEAD	(5) PROFIT	(6) TOTAL
1. General Requirements/ Mobilization					
2. Site Work					
3. Concrete					
4. Masonry					
5. Metals					
6. Wood and Plastic					
7. Thermal and Moisture					
8. Doors and Windows					
9. Finishes					
10. Specialties					
11. Equipment					
12. Furnishings					
13. Special Construction					
14. Conveying Systems					
15. Mechanical					
16. Electrical					
TOTAL					

Allowance Items:

PROPOSAL PRICE TOTAL: USD _____

Alternates (list separately do not total)

_____

Offeror: ***Date***

ATTACHMENT # 5
Drawings

C102 – East End Patio Plan
C103 – East End Patio Plan

(will be provided at site visit)

ATTACHMENT # 6
STATEMENT OF WORK

2012 East End Concrete Patios and Oasis

U.S. EMBASSY BAGHDAD, IRAQ

20 March 2012

Statement of Work

Specification Sections

01521	Construction Safety and Occupational Health
02300	Earthwork
02780	Unit Pavers
03300	Cast-in-Place Concrete
05500	Metal Fabrications
09912	Painting

Drawings

C102	East End Patio Plan
C103	East End Patio Plan

STATEMENT of WORK

GENERAL CONSTRUCTION SERVICES

2012 East End Concrete Patios and Oasis

U.S. EMBASSY
BAGHDAD, IRAQ

20 March 2012

TABLE OF CONTENTS

Attachments:

Specification Sections

01521 Construction Safety and Occupational Health
02300 Earthwork
02780 Unit Pavers
03300 Cast-in-Place Concrete
05500 Metal Fabrications
09912 Painting

Drawings

C102 East End Patio Plan
C103 East End Patio Plan

1. Project Description

1.1 Project Synopsis

A. The project will provide concrete patios at the East End Housing.

1.2 BACKGROUND

A. At present there are no architectural features for the East End Housing entrances and the southern facing entryways experience high heat gain during the prime cooling months. Through the installation of the patios in the above mentioned areas, the Post can upgrade the general appearance of the compound and improve space usage for the public. With various activities conducted outdoors during the summer months, East End Housing does not promote the activities. Installation of the patios proposed in the SOW detailed below will go a long way to promote the public moral and provide pleasant environment for outdoor activities.

1.3 SOLUTION

A. Obtain the services of a contractor to install the patios in the areas identified.

2. GENERAL CONDITIONS

2.1 **Fixed-Price Proposal**. The Contractor shall provide one fixed-priced Proposal for the complete Project that includes every aspect of the Work.

2.2 **Specifications**.

A. The Work shall be governed by the United States Department of State Overseas Buildings Operations New Embassy Compound, Baghdad, Iraq Master Specifications, International Codes, which include the International Building Code, International Mechanical Code, International Plumbing Code, and National Electric Code, also are applicable. Should there be a discrepancy between the NEC Specifications and the applicable Building Code, the more stringent of the two shall govern.

B. The Contractor is responsible for compliance with all Building Codes; Work not in compliance with the Codes shall be deemed to be unacceptable.

2.3 **Execution**. The Work shall be executed in a diligent and workmanlike manner in accordance with the negotiated fixed-price, this Scope of Work, the Project Schedule, referenced Building Codes, and the laws of the City of Baghdad where applicable.

2.4 **Work Hours**. Unless otherwise agreed with Facilities Management, the Work shall be executed during normal Embassy work hours. Night, weekend or holiday work shall not be permitted except as arranged in advance with Facilities Management. Embassy holiday schedule is available from Facilities Management.

2.5 **Safety**.

A. The Contractor shall be responsible for conducting the work in a manner that ensures the safety of residents, employees and visitors to the Embassy, and the Contractor's employees.

B. The Contractor is required to comply with the Construction Safety and Occupational Health Regulations of OBO Specification Section 01521 and the US Army Corps of Engineers Safety and Health requirements Manual. (EM385).

2.6 **Workforce**.

A. The contractor shall provide all supervision, skilled and unskilled labor needed to perform the work. The Contractor shall provide all skilled and unskilled labor needed to perform the Work.

B. In order to comply with the Embassy's minimum escort ratio requirement of one (1) escort to four (4) workers, the Contractor will have on his staff an employee(s) with an RSO vetted "Escort" Badge.

C. If the Contractor has no staff with an Escort Badge the Contractor will have 10 days from award to submit the required paperwork. The RSO vetting process could take up to 30 days and must be shown on the Contractors Project Schedule.

D. Information for all non-badged staff must be submitted to the COR for processing to allow the workers access to the NEC. This list must be resubmitted every 30 days or when modified.

E. If escorts are needed prior to being vetted by the RSO the Contractor may submit a request to the COR for government furnished escorts. The COR will schedule temporary escorts ONLY if they are available and the request must be submitted at least 48 hours in advance of the preferred date.

2.7 **Subcontractors**. Contractor shall be responsible for the conduct and workmanship of Subcontractors engaged in the Project, and for Subcontractors compliance with the terms of this Statement of Work. The Contractor is responsible for the behavior and workmanship of Subcontractors while on Embassy property.

2.8 **Modification to Contract**. The Contractor shall not incur any costs beyond those described in this SOW unless directed otherwise in writing by the Contracting Officer. Any work performed by the Contractor beyond this SOW without written direction from the Contracting Officer will be at the Contractor's own risk and at no cost to the Embassy.

2.9 **Stop Work**. At any time during the Project, the Contracting Officer reserves the right to Stop Work for protection of employees or visitors, security, or any other reason at his/her discretion.

2.10 **Construction Cost Breakdown**. The Government provided "Construction Cost Breakdown" is for bid comparison only, and the contractor is responsible to field measure and to quantify the required materials and tasks as to complete the job.

2.11 **Submittals**. The contractor is responsible to submit shop drawings prior to fabrication and release of any materials for the FAC Engineer's review and approval. The Engineer's review, however, does not relieve of the contractor's responsibility for the engineering work as to provide a complete working system.

2.12 **Excavation and Utilities**. The contractor is responsible to locate all existing utility lines prior to any excavation. Prior to disconnecting any existing utility services, the contractor is responsible to provide 48-hour advance notice to the COR.

2.13 **Close-out**. Prior to final acceptance, the contractor is to submit to the Engineer marked up drawings (As-Builts) reflecting the work as constructed. The drawings shall be digitally submitted on a CD-ROM in both AutoCAD and PDF format.

2.14 **Housekeeping**. The contractor is responsible to clean up daily after working hours. The Contractor is also responsible for Final Cleaning of the area, ready for use by the Government.

3. BID FORM - CONSTRUCTION COST BREAKDOWN

Sunshades for Chancery & East End Parking Lots - Feb 2012

No	Descriptions	Unit	Qty	Unit Price $	Total Price $
1	**Administration**				
A	Mobilization/Demobilization				
B	Submittals and shop drawings				
C	Cleanup, Disposal				
	Administration			**Sub-Total**	
2	**New Work**				
A	Patio Type A & B	EA	22		
B	Ornamental Railing	LS	1		
C	Oasis Type A & B	EA	2		
D	GFE BBQ Grill Installation	EA	22		
	New Work			**Sub-Total**	
3	**DBA Insurance**				
A	Contractor shall cover each of its workers at the site with DBA Workers' Compensation coverage, and require its subcontractors to do the same. Contractor must furnish certificate evidencing this coverage to Engineer prior to starting work.	%			
	DBA Insurance			**Sub-Total**	
	Items 1 thru 3			**Sub-Total**	
	General & Admin Markup: %				
				Sub-Total	
	Profit: %				
				Contract Cost	

4. SCOPE OF WORK

4.1 General Requirements

A. The Contractor is to provide all labor, logistics, equipment and material for the Work requested based on the attached and referenced drawings and specifications, and the specific instructions noted in this Statement of Work.
B. Contract requires Steel Fabrication Shop Drawings per NISD standards www.nisd.org. Shop Drawings to be submitted for FAC approval prior to any fabrication.
C. Comments below supplement the referenced specifications and are to be incorporated into the Work. If there are any conflicts, the most stringent standard applies.
D. Except as noted, within 5 days of Notice to Proceed, the contractor shall provide to the COR a project schedule showing start to completion.
E. Except as noted, within 10 days of NTP, the Contractor shall provide to the COR details of the proposed installation utilizing written description or sketches or both.
F. The contractor is responsible to dispose of the construction debris outside of the IZ. Include, but not limited to soils, rock excavation, packing materials, scrap steel, and debris generated by project.
G. The contractor is responsible to properly layout and prepare for the installation based on locations provided by FAC.
H. Concrete surfacing in the area is assumed adequate to sustain the base plate anchor bolts but must be verified in the field by the Contractor.
I. When pursuing the work, the contractor is to take extra care as not to damage existing structure.

4.2 East End Concrete Patios & Oasis

A. Provide concrete patio types “A” & “B” as shown on the drawings.
B. The concrete patios shall be installed per the following:
    1. Provide U.S. PE stamped structural engineer’s shop drawings for the each retaining wall and its footing. The wall thickness and the reinforcement requirement shall be determined by the engineer.
    2. Excavate minimum 350mm deep over the area in which the new pad is to be located. Provide further excavation depth for the retaining wall section per the structural engineer’s design. Existing gravel and soils shall be removed as a part of this excavation.
    3. Provide a Sub-base course 150 mm compacted thickness in a single layer, compacted by hand-operated tampers. Compact sub-base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
    Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

4. Provide 200mm thick concrete with 25MPa 28-day compressive strength, sulphate resisting cement Type 5 and 16mm reinforcing steel at 250mm each direction with a 300mm overlap minimum on crushed gravel base provided for in item above.
5. Provide form work as to properly layout and prepare for the concrete pour.
6. All concrete pad edges are to receive chamfered finishing.
7. Provide expansion joint in between concrete patio and existing sidewalk.
8. All concrete is to be from a nearby IZ batch plant. No hand mix concrete will be accepted.
9. Each concrete patio shall be poured monolithically. Therefore, no expansion joints are to be installed.
10. Provide curing of concrete pad with wet burlaps for minimum of seven (7) days.
11. The concrete is to receive broom finish.

C. Provide ornamental railing as shown on the plan. The railing shall be installed per the following:
1. Railing members shall be made with 50mm diameter schedule 80 steel pipe with intermediate posts welded to railings.
2. The railing shall be parallel to the concrete edge contour. Straight line railing shall not be accepted.
3. Each post shall be embedded in concrete.
4. WWM 4x4 shall be welded to the steel railing and post.
5. All welds shall be continuous. No spot or tac weld shall be allowed.
6. All field welds shall be wire brushed, primed and painted.
7. All areas of exposed metal shall have one coat primer and two coats final paint. The contractor shall submit a manufacturer's color chart for the FAC review and approval prior to field paint.
8. Provide an additional top coat of paint following welding operation to provide a clean finished product.
9. Provide 10 gallons (40 liters) of paint as attic stock.

D. Provide oasis types "A" & "B" as shown on the drawings.

E. The oasis shall be installed per the following:
1. Excavate minimum 500mm deep over the area in which the new pad is to be located. Provide further excavation depth for the retaining wall section per the structural engineer's design. Existing gravel and soils shall be removed as a part of this excavation.
2. Provide a Sub-base course 150 mm compacted thickness in a single layer, compacted by hand-operated tampers. Compact sub-base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
   Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
3. Provide 150mm thick concrete with 25MPa 28-day compressive strength, sulphate resisting cement Type 5 and 16mm reinforcing steel at 250mm

each direction with a 300mm overlap minimum on crushed gravel base provided for in item above.

4. Provide form work as to properly layout and prepare for the concrete pour.
5. All concrete pad edges are to receive chamfered finishing.
6. Provide expansion joint in between concrete patio and existing sidewalk.
7. All concrete is to be from a nearby IZ batch plant. No hand mix concrete will be accepted.
8. Each concrete patio shall be poured monolithically. Therefore, no expansion joints are to be installed.
9. Provide "I" shaped 62.5mm thick concrete unit pavers in 50mm thick cement/sand mix setting bed. The unit pavers are to meet ASTM C936 specification. Sweep sand into paver joints until joints are filled solid. Fog lightly with water and repeat a minimum of three times or until joints are compacted and full.
10. Provide 100mm wide concrete curb for edge finish. The concrete curb shall be cast-in-place. No unit curb shall be allowed.
11. Provide landscape stone retaining walls as shown on the drawing. The wall shall be 2.5m radius from center of trees. The wall shall match with East End swimming pool. Provide backfill with river soil to within 2cm of top of wall and 10cm above root zone.

F. Provide installation of fourteen (14) GFE BBQ grills.

4.3 **Closeout**

A. At completion of work, the Contractor shall clean any impacted areas to a condition equal to original condition.
B. All shipping materials and construction debris are to be disposed of in a legal manner outside of the IZ.
C. Prior to Final Acceptance the Contractor shall submit to the Contracting Officer Representative marked up drawings (As-Builts) reflecting the work as constructed. The drawings shall be digitally submitted on a CD-ROM in both AutoCAD and PDF format.

5. DELIVERABLES – SEE SECTION F.11

6. PROJECT SCHEDULE - RESERVED

7. RESPONSIBILITIES AND PROJECT MANAGEMENT

7.1 **COR**. A Contracting Officers Representative (COR) will be assigned to ensure quality assurance goals are met. The Contractor shall provide the COR access to the site at all times.

7.2 **Point of Contact** (POC). The COR shall be the main point of contact for this Project. The Contractor shall report to the COR on (a) status of the Project, (b) changes in Schedule, (c) accidents and safety issues, (d) disruptions to elevator or utility services; and all other important information pertaining to the Project

7.3 **English Speaking Representative**. The Contractor shall provide an English-speaking representative on-site during all working hours with the authority to make all decisions on behalf of the Contractor and subcontractors.

7.4 **Management Personnel**. The Contractor shall staff the site, full-time, with a competent senior manager who shall perform project management. Remote project management is not an option. This individual shall keep a detailed photographic and written history of the project and shall update the Government weekly.

7.5 **Site Security**. The Contractor is responsible for on-site security as necessary to ensure no unauthorized access to their work sites. The Contractor is 100% responsible for securing their working materials and equipment. Any damage to facilities or infrastructure, which happens due to a lack of security, will be the responsibility of the Contractor to correct.

7.6 **Contractor's Temporary Work Center**. The Contractor will be permitted to use a designated area within the contract limits for operation of his construction equipment and office if warranted. If directed by the Contracting Officer, the Contractor shall not receive additional compensation to relocate his operations. The Contractor is responsible for obtaining any required additional mobilization area above that designated. On completion of the contract, all facilities shall be removed from the mobilization area within 5 days of final acceptance by the Contractor and shall be disposed of in accordance with applicable host government laws and regulations. The site shall be cleared of construction debris and other materials and the area restored to its final grade. The Contractor is responsible for maintaining this area in a clear orderly manner.

7.7 **Health and Safety.**

A. The Contractor shall be solely responsible for risk assessments, managing health, and safety issues associated with this project. The Contractor must provide cold water to all workers at the job sites. Based on hazard assessments, Contractors shall provide or afford each affected employee personal protective equipment (PPE) that will protect the employee from hazards. At a minimum PPE shall consist of eye protection, hard hats, and closed toe shoes.

B. If the workers arrive on-site with sandals or athletic shoes, the Contractor is expected to provide rubber boots to them or send them home. All construction workers and management personnel must wear hard hats at all times on the construction sites. Contractor provided rubber boots and rubber gloves shall be worn when working around concrete placement. Other PPE such as gloves, dust masks, air respirators (sewage work) are also recommended. These items must be provided at the Contractor's expense. Workers may use discretion if they feel unsafe in using the equipment in a hostile environment. Any worker at an elevated location above 4 meters, with the exception of a portable ladder, must be provided and utilize a safety harness.

C. The Contractor must adhere to the Construction Safety and Occupational Health Regulations of OBO Specification Section 01521.

7.8 **Confined Spaces**.

A. Work conducted in confined spaces must have a written permit issued by the POSHO. Confined space is any area limited in dimension or ventilation with restricted means of entry or exit. Identify with the COR any spaces which may be subject to permit.

B. Permit-required confined spaces include sewers, electrical vaults, utility tunnels, sump pits, mechanical rooms, tanks, pits, excavations deeper than 1200 mm, as well as other types of enclosures. Any space that is accessed by lifting a manhole cover is a permit-required confined space. COR will provide forms for the permit. Contractor is responsible to identify activity in confined space and to apply for the POSHO permit prior to initiating work.

ATTACHMENT # 7
DEFENSE BASE ACT INSURANCE RATES & CONTACT INFORMATION

Contract number: S-AQMMA-08-C-0204

Contractor: Continental Insurance Co.
333 S. Wabash Ave
Chicago, IL 60604-4107

Agent: Rutherfoord International
5500 Cherokee Avenue, Suite 300
Alexandria, VA 22312

Primary Contact: Delia Shontere, Phone (703) 813-6507
FAX: (703) 354-0370, Email: delia.shontere@rutherfoord.com

Secondary Contact Sara Payne, Phone (703) 813-6503, same FAX as above
E-mail: sara.payne@rutherfoord.com

Rates July 22, 2011 through July 21, 2012:
Please note the rates referenced below are subject change due to an ongoing contract audit. If the audit outcome determines different rates are applicable, A/OPE will issue an additional PIB with the rates and guidance.

Description	Rate
Services	$4.00 per $100 of employee compensation
Construction	$5.50 per $100 of employee compensation
Security Contractor/Guards without Aviation Exposure within Global War on Terrorism designated areas (currently designated areas are Iraq and Afghanistan)	$10.50 per $100 of employee compensation
Aviation Related Services with Aviation Exposure within Global War on Terrorism designated areas (currently designated areas are Iraq and Afghanistan)	$20.00 per $100 of employee compensation

For the purposes of this contract, employee remuneration is defined as salary plus post differential, but excludes per diem, housing allowance, travel expenses, temporary quarters allowance, education allowance and other miscellaneous post allowances.

Please note if a contractor is self-insured they are not required to utilize this contract. The following link provides a list of contractors approved by the Department of Labor as authorized self-insured employers to provide DBA insurance: http://www.dol.gov/esa/owcp/dlhwc/lscarrier.htm#authorized%20self-insured%20employers. Contractors not on this list are not self-insured and are required to use the DoS DBA contract, except for the INL Air Wing contract.

DEFINITION OF LABOR CATEGORIES

SERVICE:

$4.00/$100 "White collar" workers such as IT Consultants, Engineers, Administrative-type Office workers, Translators, Instructors, Restaurant type services. Security Consultants could be included as long as they are just assessing risk and not providing armed protection.

CONSTRUCTION:

$5.50/$100 "Blue collar" workers providing Construction services such as Laundry Services, Janitorial Services, Installation of Cable, Security Systems, Testing/Maintaining of Equipment, Carpentry, Electrical, Plumbing, HVAC, Elevator installation and maintenance, Concrete, Asphalt, Day Laborers, Operation, Maintenance and Repair of Heavy/Light Equipment, Mechanics, Drivers, Skilled/Unskilled Manual Labor.

SECURITY:

$10.50/$100 Personal Security Detail (PSD) and Static or Convoy Guarding property of Personnel (Iraq/Afghanistan)

AVIATION:

$20.00/$100 Pilot and Crew of any aircraft excluding ground personnel who provide maintenance or services but stay on the ground

The labor category for this acquisition is CONSTRUCTION.

ATTACHMENT # 8
OBO NEC SPECIFICATIONS

01521 Construction Safety and Occupational Health

SECTION 01521 – CONSTRUCTION SAFETY AND OCCUPATIONAL HEALTH

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Other general provisions of the Contract, including FAR clauses by reference or as amended in Contract Sections B through J, and other Division 1 sections of these Contract Specifications apply to requirements of this Section; this Section in turn applies to the Contract Drawings and to Specification Divisions 2 through 16 to be developed by the Contractor.

B. Refer to Section 01501, *Temporary Facilities and Controls*, for information on materials, equipment, and electrical power related to temporary facilities.

C. Regulations and Standards. Governing regulations and specific technical safety and health requirements for work performed at Project Site and incorporated into this construction safety and occupational health program include the following:

1. Latest edition of U.S. Army Corps of Engineers (USACE) Safety and Health Requirements Manual, EM 385-1-1; this document is available at U.S. Government Printing Office, Washington D.C.
2. DOS Foreign Affairs Manual (FAM), Vol. 6, Subchapter 610 "Safety Health and Environmental Management Program" shall apply when and where construction activity impacts on U.S. diplomatic missions and the public.
3. NFPA Code 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
4. ANSI A10 series standards for Safety Requirements for Construction and Demolition.
5. NFPA Code 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.
6. NFPA 10, Standard for Portable Fire Extinguishers.
7. Rigging, by James Headley, Crane Institute of America Publishing Company, Mainland Florida, 2001.
8. 2001 Food Code, Food and Drug Administration, National Technical Information Service Publication PD2002-100819, or latest edition.

1.2 SUMMARY

A. The purpose of this Section is to indicate the nature and scope of Contractor responsibilities for:

1. Construction safety and occupational health for all persons and property at the Project Site.

2. Developing a Construction Accident Prevention Plan (CAPP) for management procedures, operations, training, inspections, assessments and reporting of safety and health matters on site.

1.3 DEFINITIONS

Refer to Contract Glossary for definitions of all safety-related terms, and specifically, Designated Authority, Hazard, Activity Hazard Analysis, Job Hazard Analysis, Qualified Person, and Confined Space.

1.4 SUBMITTALS

A. Construction Accident Prevention Plan (CAPP).

1. See Attachment "A", *Guidelines for Preparation of the Construction Accident Prevention Plan*. The Construction Accident Prevention Plan (CAPP) is a safety and health policy and program management document. The CAPP shall be job-specific, and shall address unusual or unique aspects of the Project. The CAPP is based upon USACE EM 385-1-1, where it is referred to as "Accident Prevention Plan (APP)".

2. Before beginning work at the Project Site, submit to Project Director/COR for acceptance, a detailed CAPP indicating means which will be provided to ensure: safe access to work areas, protection/safety/health of persons authorized to be at Project Site, and protection of property on and adjacent to Project Site during all phases of construction. Include in the text of CAPP a certified statement executed by Contractor's representative having broad corporate authority indicating full commitment to accepted CAPP, and level of authority in assignment of responsibilities for implementation at the Project Site. Include specific details for meetings, inspections, and training/instruction of Contractor, subcontractor, and separate contractor employees.

B. Activity and Job Hazard Analysis. Prior to proceeding with performance of work involving unusual construction operations, work practices, or work involving hazardous materials, prepare and submit written analysis to Project Director/COR. Do not proceed with work that has been identified as being potentially hazardous until Project Director/COR has expressed and recorded "no objection" to proposed methods and procedures.

C. Hazardous Materials. Contractor shall bring to immediate attention of Project Director/COR any material suspected of being hazardous which is encountered in demolition or excavation or used during execution of the work. A determination will be made by Project Director/COR as to whether to have tests performed to ascertain whether the material is hazardous; do not proceed with that part of the work until directed by Project Director/COR.

D. Hazardous Work Permits. Contractors and subcontractors shall submit written requests to Project Director/COR for all Hazardous Work Permits. Permits are required whenever construction operations include the following:

1. Hot Work. Includes all work that results in open flame such as welding, cutting, brazing, and burning. The Contractor shall provide effective fire

protection and prevention at all times during such operations.

2. Confined Space Entry. As defined above, includes work in enclosed areas such as storage tanks, bins, sewers, in-ground vaults, boilers, vessels, tunnels, manholes, pits, etc.

3. Internal Combustion Engines. The use of trucks, forklifts, pumps, or generators powered by petroleum-based fuel when used inside a building, structure, or confined space.

4. Explosive Actuated Tools. These include powder charged tools manufactured by Hilti, Remington, Ram Set, and others used for fastening purposes.

5. Explosives. Follow all applicable US and local government regulations. In all cases close coordination with controlling officials shall be effected.

E. Material Safety Data Sheets (MSDS). Refer to the requirements USACE EM 385-1-1.

F. Minutes of Meetings. Record and submit to Project Director/COR minutes of safety related meetings, including weekly tool box safety meetings and meetings of the Joint Safety and Health Committee as described below.

G. Records of Inspection. All records of inspection shall be made available to the Project Director/COR. Records of inspection shall include documentation of safety, health, and housekeeping inspections and corrective actions and timetables associated with any deficiencies encountered. Documentation shall also be made available for verification that corrective actions were implemented.

H. Accident Investigation and Reporting. Investigate and submit separate accident report on each accident resulting in lost time, disabling/fatal injuries, or damage to vehicles, property, materials, supplies, or to furniture, fixtures, and equipment.

1. Prepare reports on forms supplied by and in accordance with instructions of Project Director/COR. Include in each report Contractor's recommendations and statement of actions taken to prevent recurrence of accident. Submit report of each accident with 24 hours of accident or mishap, except as otherwise indicated by requirements or governing regulations.

2. Except as may be otherwise requested by Project Director/COR during time of contract, report major accidents and mishaps on Form (3-92) DS-1663, related instruction sheet available from the Project Director/COR.

1.5 PROJECT CONDITIONS

A. General. Continue management and implementation of safety and health program through time of construction. Comply with conditions existing and developing at Project Site, and with requests of Project Director/COR. Acceptance by Project Director/COR will not relieve the Contractor of overall responsibility for compliance with the strict interpretation of all safety and health requirements of the Contract.

B. The Project Director/COR reserves the right to suspend work when and where the Contractor's safety and health program is considered to be operating in an

inadequate manner, has severe shortcomings, or is not in compliance. This shall include failures to complete required submittals within the time periods specified.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials, equipment, and workmanship for temporary facilities described in this Section shall be provided and performed in accordance with requirements in Section 01501, **Temporary Facilities and Controls.**

PART 3 - EXECUTION

IMPLEMENTATION OF CONSTRUCTION ACCIDENT PREVENTION PLAN

Management and Corporate Commitment. Implementation and management of accepted CAPP shall have full cooperation and support of management at the broad, corporate level. Full cooperation and support shall be expressed by written statement executed by a senior officer of the construction contracting firm/corporation, included with the CAPP as described in this Section.

Safety and Health Rules. The Contractor shall establish and enforce clearly written, definitive rules to be followed by employees of Contractor, subcontractors, and separate contractors at Project Site, applicable for performance of each unit of work. Prominently post notices in English, the host national language, and third country languages, if appropriate, stating that failure to comply with safety and health rules may cause immediate termination of employment. Post safety and health rules at the Project Site and provide a copy to each subcontractor prior to the commencement of work.

Emergency Resources. The Contractor shall establish, jointly with OBO, a listing of telephone numbers and location of ambulance, physician, hospital, fire, police, and other sources of emergency assistance. This information shall be conspicuously posted in several locations on Project Site.

Emergency Communication. Wireless telephone service shall be the preferred method of emergency communications. Emergency communication access shall be available to site medical personnel and nearby medical clinic or hospital.

Emergency Plans. The Contractor shall establish, jointly with the Project Director/COR and OBO Site Security Manager, plans to ensure safety of all persons at Project Site in the event of fire or other emergency, and review with all effected employees. Emergency plans shall be tested quarterly using drills to ascertain and ensure their effectiveness. Testing of emergency plans shall be conducted jointly by USG and Contractor staff.Plans shall include: Escape procedures and routes, method of accounting for employees following emergency evacuation, identification of source and location for rescue and medical assistance, means of reporting emergencies, and persons to be contacted for information or clarification. Planning for Project shall include total system response capabilities to minimize consequences of accidents, natural disasters, or other emergencies. On-site emergency planning shall be integrated with off-site emergency support. The number of persons permitted in any location shall be limited to rescue and escape capability, as determined by Contractor and in concurrence with Project Director/COR. Emergency alert systems shall be identified, selected, installed, and tested

to alert all persons likely to be affected by existing or imminent disaster conditions, and to alert and summon personnel and equipment comprising emergency response capability.

General Orientation. Contractor to provide orientation for new employees regarding safety and health policies, and work rules.

Specific Training.

Provide specific training to supervisory personnel and all craft workers of the Contractor and subcontractors in proper use and care of specific personal protective gear, equipment, and clothing.

Contractor and subcontractor employees shall be trained and supervised by qualified persons to perform, safely and confidently, recognized hazardous work operations and work performed with hazardous conditions to which they have been assigned.

Safety and Health Program Manager (SHPM).

Assign to the Project Site a full-time SHPM whose duties shall be the effective implementation, coordination, and enforcement of the CAPP. Provide support to the SHPM for the duration of the Contract. Notices posted at Project Site shall name the SHPM and describe the authority held by the position.

Qualification. The SHPM shall be a qualified, experienced construction industry professional having ability and authority to manage CAPP. The SHPM shall be qualified to anticipate, identify, evaluate, and implement corrective action in relation to potential safety and health hazards and dangerous exposures.

Joint Safety and Health Committee. Establish for the project, a functioning Joint Safety and Health Committee. Membership to include management or supervisory personnel of the Contractor and subcontractors and OBO representatives as may be needed. The Joint Safety and Health Committee, chaired by the SHPM, shall meet at regularly scheduled times and at other times as determined by the Project Director/COR. The committee shall:

Coordinate the management of safety and health activities and actions for effective protection.

Determine implementation of new safety and health measures related to forthcoming construction activities.

Anticipate and analyze potentially hazardous conditions, and implement safe and healthy solutions.

Perform Activity and Job Hazard Analysis for work activities involving unusual construction operations, work practices, or work involving hazardous materials. Develop methods and procedures to reduce identified hazards to greatest extent possible.

Inspections.

Frequent safety, health, and housekeeping inspections shall be conducted by qualified persons of temporary structures, fabrication shops, material, machinery and equipment at the Project Site. All inspections shall be documented by qualified persons. Documentation shall include any deficiencies encountered along with details and timetable for corrective actions.

The SHPM shall be responsible to identify and coordinate all safety, health, and

housekeeping inspections.

The SHPM shall be responsible to verify, document, and ensure that all corrective actions have been implemented.

Tool Box Meetings. Contractor shall hold "tool box" safety meetings once each week. Require attendance by all tradespersons, laborers, foremen, and supervisors at Project Site; include those of separate contractors. Discuss current construction operations, analyze hazards, and communicate solutions.

TOOLS, EQUIPMENT, AND MACHINERY

Quality. Hand tools, power tools, equipment, machinery, materials, and personal protective apparatus shall be of manufacturer listed by U.S. or internationally recognized testing laboratory for specific application for which they are to be used. They shall be quality products recognized for professional construction use, applications, and work practices.

Safe Clearance Procedure. Prior to initial use, and periodically thereafter at times of continued use, provide inspections of construction tools, equipment, and machinery. Do not permit continued use of tools, equipment, and machinery that are not in satisfactory working condition. Immediately upon identification of damage or malfunction, tag and remove from Project Site. Do not allow return of items until repaired or reprocessed in compliance with industry practice. Engage qualified persons to make such inspections and repair. Prepare written records, including recommendations for corrections of defects and misapplication.

Machinery and Mechanized Equipment.

Prior to being placed in use, all machinery and mechanized equipment shall be inspected and tested by qualified personnel and certified to be in safe operating condition. Records of tests and inspections shall be maintained at the site by the Contractor and shall become part of the official project file.

Tower cranes, crawler cranes, truck and wheel mounted cranes and material hoists shall be erected, tested, maintained, and repaired in accordance with the manufacturer’s recommendations. All actions shall be documented.

Tower cranes shall be inspected quarterly for operation and structural integrity in accordance with manufacturer’s recommendations.

Hoisting Equipment. Provide general-use manufactured apparatus for hoisting and material handling equipment, suitable for Project configuration, that is, for the number of stories and similar considerations and for the suitable handling of materials, fabrications, tools, equipment, work platforms, and, where applicable, for the transportation of craftspersons between grade and floor levels.

Walking and Working Surfaces.

Scaffolding shall be a standard, medium- to heavy-duty welded tubular frame or a project-designed steel tube and clamp system. All components shall be manufactured and tested according to international standards. All types of manufactured scaffolding systems shall include the scaffold manufacturer’s integrated access stairway sections, handrails, and walking platforms.

For all cast-in-place concrete installations of walls, columns, beams and slabs,

provide manufacturer's standard access scaffolding and work platforms which are an integral part of a pre-engineered, reusable, factory built concrete forming/shoring system consisting of pre-fabricated modular metal framed plywood or all metal panels.

Protect openings in floor slabs of more than 0.03 square meters (46 square inches) in area. Provide guardrails at floor slab edges that are not yet permanently walled off, where located more than 1.25 meters (4 feet) above grade or adjoining floor/deck surface.

Access to Construction Operations. Provide ramps, stairs, ladders, and similar devices for craftsperson, inspector, authorized visitor, and USG personnel access and egress.

Noise Reduction. Minimize the generation of noises through the efficient and shielded use of materials, tools, processes and procedures. Restrict the use of noise or impact-producing tools to necessary prosecution of the work. These actions shall seek to minimize complaints from nearby occupancies, and comply with requests of local authorities.

SITE MAINTENANCE, PROTECTION, AND SANITATION

General. Provide indirect, work-related, temporary support facilities and services as described below in conjunction with performance of work at Project Site.

Comply with Host Country governing regulations as enforced by authorities; including building codes, requirements of utility companies, health/safety regulations by police/rescue/fire departments, environmental protection regulations, and similar applicable regulations.

Inspections. Arrange for required inspections, certifications, and permits, for installation and use of each temporary facility, prior to use; as may be required by governing authorities and franchised service vendors.

Maintain temporary facilities in clean, sanitary, and safe operating conditions; and do not allow conditions of use to become inefficient, overloaded, hazardous, or otherwise deleterious to the USG's interests; comply with the Project Director's/COR's requests.

Fire Protection. Except as otherwise indicated, and in every instance, expedite/complete and place into service permanent fire protection system and equipment. Prior to the time permanent facilities are placed into service, provide temporary fire protection facilities, as will be adequate for conditions at the Project Site. Where possible, arrange jointly with Project Director/COR and local fire department to respond to calls for assistance and service in cases of fire emergency. Provide temporary portable fire extinguishers, complying with applicable provisions of NFPA 10, Standard for Portable Fire Extinguishers, and UL rated; multi-purpose dry chemical type, 5.0 kg size, UL-rated "4-A:60-B:C." Maintain unobstructed access to fire extinguishers and locate at each prime point of access to each story of construction, and at each principal office, lunch room, fabrication shop, storage enclosure, gate/guard house, and similar temporary facility at Project Site. Prohibit smoking, except in designated areas of relatively low fire hazard. During welding, cutting, and burning, comply with NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, in fire-hazardous areas

of exposure, provide stand-by fire-protection personnel and adequate supervision of operations.

First Aid. At project sites on which more than 99 and less than 300 persons are employed (greatest number being the total number of employees on a shift), establish and equip, as directed by a licensed physician, a first aid station staffed full time with a professional nurse trained in emergency response. If medical clinics or hospitals are accessible within five minutes of the project site, the facilities may be approved by a licensed physician for use, in lieu of a first aid station.

Barricades, Closures, and Traffic Control. Provide substantial barricade-type closures and rails at locations where encroachment of a physically hazardous condition in construction is possible, for equipment, tradespersons, and others at or adjoining the Project Site. Provide sidewalk bridge type protective structure where traffic, vehicular and pedestrian, cannot be excluded from hazardous areas under and nearby overhead work in progress. Provide appropriate warning signs, flashing-type warning lights, and adequate general lighting at principal barricades which are not intended to be crash-proof. Maintain barricades through periods of exposure to hazardous conditions.

Roadways and Walkways. Establish safe roadways and walkways in and around Project Site, and connecting with adjoining public thoroughfares. Provide signage and other markings; including traffic control signage and signals, as may be necessary and useful in controlling traffic and in restricting traffic from passing through other areas. Cooperate with local officials in the establishment and/or adjustment of street entrance/exiting signals and signs. Do not allow established traffic ways to become encumbered or obstructed with work activities, materials, parked vehicles, equipment, and similar elements. In particular, keep established entrance-and-exit passages clear for medical emergencies, escape, fire fighting, and other emergency access and egress.

Environmental Protection. Provide facilities and services as may be required by governing authorities to protect the environment; as it may be affected by performance of the work at the Project Site, and elsewhere, wherever work is in progress. Minimize the generation of wastes and avoid the pollution of every element of the environment. Prohibit the discharging and accidental loss of substances from the construction process that could possibly contaminate the atmosphere, surface or ground water, soil or subsoil.

<u>Excavation and Demolition.</u>

The Contractor, before commencement of any part of excavation or demolition, shall give any notices required to be given to adjoining landowners or other parties. Contractor shall initiate all necessary protective provisions prior to excavation or demolition of any site improvement.

Before excavation or demolition of any site improvement, Contractor shall examine structural condition of all adjacent structures or infrastructure, whether on site or on adjoining property. Based on examination, where there is reason to believe planned excavation or demolition will cause damage or unsafe conditions to adjacent structures or infrastructure, excavation or demolition operations shall not be performed until means have been provided to insure stability and prevent

collapse of adjacent structures or infrastructure. Such means shall consist of sheet piling, shoring, bracing, underpinning, or equivalent.

Other protective provisions shall include, at a minimum, temporary protective coverings or enclosures of adjoining work, warning signs, and similar provisions.

Dust Control. Where and when applicable, implement a suitable program for dust control in and around the Project Site, designed to reduce dust generation/ distribution to reasonable level. Coordinate with environmental protection program.

Rodent, Pest, and Vermin Control. Employ specialized services to eliminate or minimize the threat of deleterious effects from insects, animals, and other vermin at Project Site. Up to and at the time of substantial completion, the Project and Project Site will be relatively free of entrenched and harbored pests of every description. Employ only environmentally safe methods and products in the control of rodents, pests and other vermin.

Potable Water. Where reasonably possible, provide potable water for entire water requirement of construction period. Where and when that is not possible, provide potable water for drinking and other uses where specified; clearly marked with signage in multiple languages as appropriate for site location; with source as Contractor's option: City-controlled piped water, well on site, commercially bottled water, or other reliable source. Demonstrate on a monthly basis to the Project Director/COR that the potable water from all selected sources is safe for human consumption. Sterilize piping of temporary potable water systems prior to use.

<u>Construction Site Sanitation and Health Facilities.</u>

Toilets Facilities and Restrooms.

Toilet facilities are defined as enclosures containing one or more toilet fixtures or commodes for the purpose of defecation or urination or both. A urinal is a toilet fixture maintained within a toilet room for the sole purpose of urination. A toilet facility or restroom may be a temporary structure, portable units, or a permanent facility.

The Project Site shall be provided with adequate toilet facilities. Separate facilities shall be provided for each sex and properly labeled in English and the commonly understood local language. Pictograms shall be used. The sewage disposal method shall comply with the requirements of the authority having jurisdiction. Toilet facilities shall be provided so as to be readily accessible to all employees. As far as is practicable, toilet facilities shall be located within sixty-one (61) meters (200 feet) of all locations where workers are regularly performing the work. The number of toilet fixtures shall be based on the anticipated maximum number of workers at Project Site. An adequate supply of toilet paper shall be maintained at all times. A hand-washing lavatory shall be provided in close proximity to all toilet facilities.

The construction and installation of toilet facilities shall be accepted by the Project Director/COR and shall be in compliance with, if appropriate, all-applicable local jurisdictional codes. The floors, walls, partition, and doors of all toilet facilities shall be of a hard, impervious finish that can be easily cleaned. Floors shall be concrete. Walls and partitions shall be constructed of concrete

masonry units, and doors shall be of metal or solid wood. All surface finishes shall be chosen to facilitate cleaning and the maintenance of the highest standards of sanitation.

Each toilet or commode shall occupy a separate compartment or stall which shall be equipped with a door and latch. Partitions and doors shall be of nonabsorbent materials. The walls of compartments, stalls, or partitions between the toilets or commodes may be less that the height of room walls, but the top shall not be less than one hundred seventy-three (173) centimeters (5 feet, 8 inches) from the floor and the bottom not more than thirty (30) centimeters (1 foot) above the floor.

In all newly constructed toilet rooms, the floors and exterior walls to a height of fifteen (15) centimeters (6 inches) above the floor shall be of watertight construction to facilitate cleaning and sanitation.

Every toilet fixture, commode, or urinal shall be so installed that the space around and behind the fixture can be easily cleaned.

Where non-sewer waste disposal systems are permitted, these shall be of a type accepted by the local health authorities having jurisdiction. These systems shall be maintained in a sanitary condition.

Lavatories and Personal Washing Facilities.

A lavatory is a basin or similar vessel for washing hands, arms, face and head. Adequate facilities for maintaining personal cleanliness shall be provided at the Project Site. Facilities shall be convenient for employee access and shall be maintained in a sanitary condition.

Lavatories shall be provided at or adjacent to all toilet facilities. Lavatories with adequate hot (43°-60°C or 110°-140°F) and cold water shall be provided. Mixing or combination supply fixtures are preferable. Sixty (60) centimeter diameter (24 inch) basin rims shall be considered as equal to one lavatory. In all instances, a dispenser containing a suitable skin cleaning agent shall be provided at each lavatory.

Drinking Fountains and Dispensers.

Provide an adequate number of drinking water fountains or dispensers, distributed for convenience and efficiency, around the Project Site and service support areas. Maintain an adequate supply of sanitary disposable paper cups and waste receptacles at each water dispenser.

Provide bottled drinking water where piped potable water service is not available.

Shower Facilities.

Where employees are exposed to skin contamination with poisonous, infectious, or irritating material (cement, lime, solvents, etc.), or where unsanitary or unhealthful working conditions require bathing before leaving the Project Site, the Contractor shall provide shower facilities in the ratio of one per each fifteen persons so exposed. Showers shall be supplied with ample hot (43°-60°C or 110°-140°F) and cold water.

A dispenser containing a suitable skin-cleaning agent shall be provided at each shower. Individual hand towels of cloth or paper shall be provided. Proper receptacles or other sanitary means shall be provided for the disposal of used towels. The provision of a loop towel rack for general or common use shall be prohibited as unsanitary.

Laundry Facilities.

Provide laundering of work clothing and coveralls that have become contaminated with poisonous, irritating or infectious material (cement, lime, solvents, etc.). The Contractor shall provide clean sets of laundered clothing or coveralls as part of the protective clothing requirement.

Should the process in which the worker is engaged be such that the individual's work clothing becomes wet or has to be washed between shifts, the Contractor shall make such provision to dry such clothing before reuse.

Changing Rooms.

Changing or dressing rooms shall be provided whenever it is the local practice or a requirement to change from street clothing to work clothing.

Street and work clothing shall not be stored in contact with each other in changing rooms.

Lunch Rooms, Mess Halls, Dining Facilities, and Food Service Operations.

An enclosed facility shall be provided and set aside specifically for employees to eat lunch at the Project Site. The minimum area per person shall be specified as 1.0 square meter or 11 square feet. The Contractor shall provide such enclosed facilities to accommodate at one time 50% of the maximum number of non-office-occupant personnel anticipated and as authorized to be at Project Site.

These facilities shall be equipped with tables and chairs or benches to seat the number of persons anticipated. The Contractor shall specify suitable floor, wall, and ceiling finishes, doors and windows, screening, and suitable fixtures and accessories. The Contractor shall provide general lighting, HVAC system, and drinking fountains or dispensers.

These dining facilities shall be physically separated from toilets at a minimum distance of sixty-one (61) meters (200 feet). Dining facilities shall be physically separated from all locations where there is the threat of exposure to toxic or infectious materials.

Perishable home-prepared lunches are a potential source of food-borne illness when stored at room temperature. Accordingly, the Contractor shall provide refrigeration facilities capable of maintaining a temperature of 7°C or 45°F or lower for the storage of lunches prior to consumption. Should local law require that meals be provided, the Contractor shall accommodate those requirements.

The Contractor shall provide space, utilities, and support services for the installation of vending machines for drinks and incidental foods. The Contractor shall establish, administer, and supervise service contracts with local vending

firms. These contracts and the plan for their execution in practice must be cleared by the Project Director/COR and the Site Security Manager.

If the Contractor provides prepared or pre-prepared catered meals at the Project Site, all employee food service facilities and operations shall meet and comply with relevant requirements of the FDA 2001 Food Code or latest edition.

Waste Handling and Janitorial Services.

General. Provide proper and adequate segregated waste containers for the collection and removal of waste materials in different categories. These include, but are not limited to: hazardous wastes, flammable wastes, sanitary and health-care wastes, garbage, wastes for recycling as required by local authorities, inert and dry wastes, and incidental debris from the construction process. Dispose of general non-organic wastes at seven (7) day intervals. Dispose of organic, garbage, and similar temperature-sensitive wastes at three (3) day intervals when the average outdoors-daily maximum temperature can be expected to be above 18°C. Clean waste containers regularly and adequately. Dispose of wastes in a lawful manner.

Contractor may develop and implement a waste management plan that quantifies material diversion goals and methods of salvage and recycling in order to earn LEED points as described in Contract Section C.

On a daily basis the Contractor shall keep the Project and Construction Site clean and clear of accumulated wastes, including surplus materials, trimmings, incidental demolished work, and construction debris. Clean completed elements and portions of work, and maintain in "broom clean" condition, except as otherwise indicated by the Project Director/COR.

On a daily basis, provide janitorial services, including the restocking of disposable products, for the maintenance of temporary offices, security spaces, toilets, first-aid rooms, lunchrooms, shower/locker rooms, and similar facilities. Scrub toilet and first-aid room fixtures and floors daily, and scrub floors and walls of shower rooms daily. Provide weekly cleaning, damp mopping, or vacuuming, as may be appropriate, for other floors. Provide monthly washing of windows and cleaning of other walls, ceilings, light fixtures, and similar facility surfaces. Comply with the Project Director's/COR's specific requests to maintain facilities in a reasonably clean and sanitary condition at all times. Extend janitorial services to include permanent facilities as may be authorized for use as temporary facilities.

1. END OF SECTION 01521

<<< The following document is an example of a CAPP >>>

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U.S. DEPARTMENT OF STATE
OVERSEAS BUILDINGS OPERATIONS

Project Name & CONTRACT No. ----------

CONSTRUCTION ACCIDENT PREVENTION PLAN (CAPP)

NAME OF CONTRACTOR:

POLICY.
The (name of Contractor) accident prevention policy, ensures that all of our employees have a firm understanding of our company's position regarding the protection of all persons, public, and property during all phases of new construction and renovation works, of U.S. Department of State buildings. In implementation of the accident prevention policy, (name of Contractor) accepts full responsibility for the establishment and implementation of an effective construction safety and occupational health program at the project site.

PURPOSE.
The Construction Accident Prevention Plan (CAPP), herein, establishes organizational and management elements necessary to implement an effective Safety and Health Program. The CAPP, as a policy and management document, will comply with the latest edition, of the U.S. Army Corps of Engineers Safety And Health Requirements Manual EM 385-1-1.

The objective of (name of Contractor) is to provide for a safe working construction environment, a strong safety awareness by all of our supervisors and workers, and the safe use of tools, machinery and equipment.

REFERENCE DOCUMENTS. The _____Project will comply with the following regulations:

- U.S. Army Corps of Engineers, *Safety and Health Requirements Manual*, EM 385-1-1, latest edition.
- U.S. Department of State Foreign Affairs Manual Volume 6 Subchapter 610, *Safety Health and Environmental Management Program*, with latest changes.
- NFPA Code 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*.
- ANSI A10 series standards for Safety Requirements for Construction and Demolition.
- NFPA Code 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.*
- NFPA 70, *National Electrical Code.*
- NFPA 10, *Standard for Portable Fire Extinguishers.*

- *2001 Food Code*, Food and Drug Administration, National Technical Information Service Publication PD2002-100819, or latest edition.
- *Rigging,*by James Headley, Crane Institute of America Publishing Company, Maintland Florida, 2001.

ORGANIZATIONAL/ADMINISTRATIVE RESPONSIBILITY FOR CAPP.
Mr./Ms. (name), the Project Manager, has been given full authority, responsibility, and support by (name of Contractor) for the administration and implementation of the CAPP.

Safety and Health Program Manager (SHPM).
To assist our Project Manager, a qualified Safety and Health Program Manager (SHPM) will be appointed (full time) to administer and implement the (CAPP). The Project Manager and the Safety and Health Program Manager have been delegated with corporate responsibility and authority to identify safe and unhealthful conditions and to take corrective action to abate or eliminate such conditions. The SHPM is a qualified, experienced, construction industry professional possessing the ability and authority to manage this CAPP. The SHPM will anticipate, identify, evaluate, and implement corrective action to abate or reduce potential safety and health hazards and dangerous exposures.

Joint Safety and Health Committee.
(name of Contractor) will establish for the duration of the project a functional Joint Safety and Health Committee for this project. Membership will be by official appointment and will include supervisory personnel from our company and from our subcontractors. The SHPM will coordinate and delegate the activities of the Committee.

PROGRAM MANAGEMENT REQUIREMENTS.

Emergency Plans.
(name of Contractor) will establish jointly with Project Director/COR, in the event of fire or other emergency, Emergency Plans for the safe evacuation of all persons at the Project Site. Emergency Plans that are relative to (name of Contractor) construction operations will be submitted to the Project Director/COR for acceptance. Plans will be tested/evaluated monthly to ascertain their effectiveness.

First Aid Station.
(name of Contractor) understands that on OBO construction project sites on which more than 99 and less than 300 persons are employed (greatest number being the total number of employees on a shift) at the site, there shall be established and equipped, as directed by a licensed physician, a first aid station staffed full time with a professional nurse trained in emergency response. If medical clinics or hospitals are accessible within five minutes of the project site, the facilities may be approved by a licensed physician for use, in lieu of a first aid station.

Activity and Worker Hazard Analysis.
The Project Manager, SHPM, and the Joint Safety and Health Committee, will assess safety and health issues associated with special construction activities in the schedule. Prior to each major

phase of the work, the Project Manager will prepare and submit an Activity and Worker Hazard Analysis report to the Project Director/COR for acceptance.

Safety Training and Orientation.
"New Hire" training will be conducted by ___. New employees to the Project Site will be required to attend an employee safety orientation program, at which time, safety rules will be explained by the SHPM.

A copy of the project safety rules will be given to each new employee, who will be required to sign a statement stating that he/she has been instructed in the safety philosophy of the company, have been given a copy of the project safety rules, and understand them.

In addition, all employees will observe and obey rules at Post governing the conduct and behavior of persons performing construction work in an occupied U.S. Department of State facility.

Violation of Safety Rules.
(name of Contractor) will initiate a procedure/mechanism to discipline all workers who repeatedly violate safety rules. (Example: the procedure may include the termination of an employee after one verbal and two written warnings for the same violation).

Tool Box Safety Meetings – Coordination and Communication.
To ensure better safety and health awareness, (name of Contractor) will communicate, through weekly Tool Box meetings, a corporate safety and health philosophy to all construction personnel. Records of attendance and documentation of topics for each meeting will be kept. Topics will include but not be limited to protection of employees, personal protective clothing/equipment, fall protection, fire prevention, fire protection, emergency evacuation procedures, and the safe use of power tools and machinery.

Material Safety Data Sheets.
Material Safety Data Sheets (MSDS) for all hazardous chemical substances in use on Project Site will be obtained from the manufacturer and kept on Project Site. Workers who are assigned to work with hazardous substances will be trained in the proper procedures and precautionary measures to be taken while using such substances/products.

Safe Clearance Procedure.
Prior to initial use, and periodically thereafter at times of continued use, (name of Contractor) will inspect all construction tools, equipment and machinery. (name of Contractor) will not permit continued use of tools equipment and machinery which are not in good condition. Damaged or malfunctioning tools or equipment will be tagged and immediately removed from service.

Hazardous Work Permits.
(name of Contractor) and subcontractors will submit written requests to Project Director/COR for Hazardous Work Permits when construction operations include the following:

1. Hot Work. Work that results in open flames such as welding, cutting, brazing and burning. (name of Contractor) will provide effective fire protection and prevention at all times during such operations.
2. Confined Space Entry. Work in enclosed areas such as storage tanks, bins, sewers, in-ground vaults, boilers, tunnels, manholes etc.
3. Internal Combustion Engines. Use of trucks, forklifts, pumps, or generators, powered by petroleum-based fuel, when inside a building structure or confined space.
4. Explosive Actuated Tools. Powder charged tools (Hilti, Remington, Ram Set and other manufactures) used for fastening purposes.

Temporary Electrical Power.
(name of Contractor), if requested, will submit to Project Director/COR, for acceptance, a plan of proposed temporary power distribution and the means of protection of all circuits including receptacles, grounding, and ground fault circuit interrupters.

Inspections.
Under the direction of the SHPM, (name of Contractor) will provide for frequent safety, health, and housekeeping inspections of Project Site. Temporary structures, fabrication shops, material storage areas, all machinery, tools and equipment will be inspected to ensure compliance with USACE Safety and Health Requirements Manual EM 385-1-1. Records of inspections, and a timetable for corrective action will be maintained.

Reporting Work Related Injuries.
All work related injuries will be reported to Project Director/COR. A daily log of first aid treatment will be kept at the location of the first aid station. Injuries requiring off-site medical treatment will be reported to Project Director/COR. An accident report will be completed by a supervisor or foreman for each work related injury or illness resulting in lost time.

Accident Investigation.
All accidents involving death, multiple hospitalizations, or excessive property damage will be officially investigated and reported under the authority and direction of the Project Director/COR.

2. END OF ATTACHMENT “A” SECTION 01521

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and exterior plants.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks and pavements.
5. Subsurface drainage backfill for walls and trenches.
6. Excavating and backfilling for utility trenches.
7. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

1.2 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by COR. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Bulk Excavation: Excavation more than 3 m in width and more than 9 m in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by COR. Unauthorized excavation, as well as remedial work directed by COR, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 0.76 cu. m for bulk excavation or 0.57 cu. m for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Each type of plastic warning tape.
2. Geotextile.

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.
2. Mechanical analysis, according to ASTM D 422, for each on-site and borrow soil material proposed for fill and backfill.
3. Sulfate and chloride ions, according to ASTM D 516 and 512 respectively, for each on-site borrow soil material proposed for fill and backfill

1.4 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Preexcavation Conference: Conduct conference at Project site to comply with requirements in Division 1.

1.5 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by COR and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify COR not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without COR's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities no longer activated in conflict with new construction. Coordinate with the COR to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 75 mm in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 37.5-mm sieve and not more than 12 percent passing a 0.075-mm sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 37.5-mm sieve and not more than 8 percent passing a 0.075-mm sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 37.5-mm sieve and not more than 12 percent passing a 0.075-mm sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 25-mm sieve and not more than 8 percent passing a 0.075-mm sieve.

H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 37.5-mm sieve and 0 to 5 percent passing a 2.36-mm sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 25-mm sieve and 0 to 5 percent passing a 4.75-mm sieve.

J. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Grab Tensile Strength: 700 N ; ASTM D 4632.
3. Sewn Seam Strength: 630 N ; ASTM D 4632.
4. Tear Strength: 250 N ; ASTM D 4533.
5. Puncture Strength: 250 N ; ASTM D 4833.
6. Apparent Opening Size: 0.425-mm 0.250-mm 0.212-mm sieve, maximum; ASTM D 4751.
7. Permittivity: 0.5 0.2 0.1 per second, minimum; ASTM D 4491.
8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Grab Tensile Strength: 1100 N ; ASTM D 4632.
3. Sewn Seam Strength: 990 N ; ASTM D 4632.
4. Tear Strength: 400 N ; ASTM D 4533.
5. Puncture Strength: 400 N ; ASTM D 4833.
6. Apparent Opening Size: 0.250-mm sieve, maximum; ASTM D 4751.
7. Permittivity: 0.02 per second, minimum; ASTM D 4491.
8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 150 mm wide and 0.1 mm thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 750 mm deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.

5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system, specified in Division 2 Section "Dewatering," to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.
3. Do not expose subgrade to atmospheric conditions for extended periods. If necessary, use temporary cover or a thin layer of concrete (i.e. mud mats).

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Excavated side slopes for general excavation, structures, utility trenches shall not exceed 1.0 V to 2.0 H. Shoring and bracing shall be required for slopes exceeding 1.0 V to 2.0 H. For excavations below the water table, sheeting and shoring may also be necessary.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 25 mm . If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. If necessary place a layer of binding concrete (i.e. mud mat). Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Pile Foundations: Stop excavations 150 to 300 mm above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 25 mm . Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 300 mm higher than top of pipe or conduit.

1. Clearance: 300 mm each side of pipe or conduit.

C. Trench Bottoms: Excavate trenches 100 mm deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

1. Excavate trenches 150 mm deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 SUBGRADE INSPECTION

A. Notify COR when excavations have reached required subgrade.

B. If COR determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 5 km/h .
2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 13.6 tonnes .
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by COR, and replace with compacted backfill or fill as directed.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by COR, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. 20 mm (3/4-inch) size stone or lean concrete fill, with 28-day compressive strength of 17.2 MPa , may be used when approved by COR.

1. Fill unauthorized excavations under other construction or utility pipe as directed by COR.

3.10

3.11 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.12 BACKFILL

A. Place and compact backfill to required density in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash, debris, compressible material, and organic soils. .

6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. Based on the Geotechnical Investigation by the Louis Berger Group, on site material may not be suitable for backfilling in most cases. Granular backfill meeting the following general criteria is typically acceptable for instances where controlled backfill is necessary:

- Maximum particle size 100mm (4 in.);
- No more than 30% by weight retained on the 20mm (¾-in.) sieve;
- No more than 40% by weight passing the #100 sieve; and,
- No more than 12% by weight passing the #200 sieve, non-plastic.

3.13 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 450 mm of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 3 Section "Cast-in-Place Concrete."

D. Provide 100-mm thick, concrete-base slab support for piping or conduit less than 750 mm below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 100 mm of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 25 mm in any dimension, to a height of 300 mm over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

G. Place and compact final backfill of satisfactory soil to final subgrade elevation.

H. Install warning tape directly above utilities, 300 mm below finished grade, except 150 mm below subgrade under pavements and slabs.

3.14 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.15 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.16 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 300 mm in loose depth for material compacted by heavy compaction equipment, and not more than 200 mm in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 300 mm of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 150 mm below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 150 mm below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.17 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 25 mm .
2. Walks: Plus or minus 25 mm .
3. Pavements: Plus or minus 13 mm .

C. Grading inside Building Lines: Finish subgrade to a tolerance of 13 mm when tested with a 3-m straightedge.

3.18 SUBBASE COURSES

A. Place subbase course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course under pavements and walks as follows:

1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends only in locations directed by the Geotechnical Engineer.
2. Shape subbase course to required crown elevations and cross-slope grades.
3. Place subbase course 150 mm or less in compacted thickness in a single layer.
4. Place subbase course that exceeds 150 mm in compacted thickness in layers of equal thickness, with no compacted layer more than 150 mm thick or less than 75 mm thick.
5. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.19 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 150 mm or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 150 mm in compacted thickness in layers of equal thickness, with no compacted layer more than 150 mm thick or less than 75 mm thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.20 FIELD QUALITY CONTROL

A. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

B. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing

subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by COR.

C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 186 sq. m or less of paved area or building slab, but in no case fewer than 3 tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 30 m or less of wall length, but no fewer than 2 tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 46 m or less of trench length, but no fewer than 2 tests.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.21 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by COR; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.22 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property. Contractor may elect to coordinate with other Contractors working on other RFP Packages to transport surplus satisfactory soil to and/or from other contractor work areas as an option to importing from offsite sources or exporting off of the property.

END OF SECTION 02300

SECTION 02780 - UNIT PAVERS

PART 4 - GENERAL

4.1 SUMMARY

A. This Section includes the following:

1. Concrete pavers set in bituminous setting bed.
2. Edge restraints for unit pavers and stabilized stone dust surfacing

B. Related Sections include the following:

1. Division 2 Section "Earthwork" for compacted subgrade and subbase course, if any, under unit pavers.
2. Division 2 Section "Cement Concrete Pavement" for concrete base course under unit pavers and for flush stone curbs.
3. Division 2 Section "Hot Mix Asphalt Paving" for asphalt base course under unit pavers.
4. Division 7 Section "Joint Sealants" for sealing control and expansion joints in unit pavers with elastomeric sealants.

4.2 SUBMITTALS

A. Product Data: For materials other than water and aggregates.

B. Product Data: For the following:

1. Concrete Pavers
2. Bituminous setting materials.
3. Edge restraints.
4. Asphalt tack coat

C. Sieve Analyses: For aggregate setting-bed materials, according to ASTM C 136.

D. Samples for Initial Selection: For the following:

1. Furnish no less than 4 individual concrete pavers of each type, color and finish of concrete unit paver indicated.
2. Exposed edge restraints sample 305mm in length with one stake
3. 4 kilo sample of sand for COR approval

4.3 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed unit paver installations similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations: Obtain each type of unit paver, joint material, and setting material from one source with resources to provide materials and products of consistent quality in appearance

and physical properties. Pedestrian and vehicular pavers shall be installed under multiple contracts. Color and material selection to be approved by COR.

C. Mockups: Before installing unit pavers, build mockups for each form and pattern of unit pavers required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work, including same base construction, special features for expansion joints, and contiguous work as indicated:

1. Construct 2m x 2m mockups for each paving type in the location and of the size indicated or, if not indicated, as directed by COR.
2. Notify COR seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain COR 's approval of mockups before starting unit paver installation.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Document any applicable local codes or authorities and ensure that all relevant work is in compliance.

E. Implement applicable provisions of the Quality Control program as established in Section 01401, "Contractor Quality Control."

4.4 DELIVERY, STORAGE, AND HANDLING

A. Protect unit pavers and aggregate during storage and construction against soiling or contamination from earth and other materials.

1. Cover pavers with plastic or use other packaging materials that will prevent rust marks from steel strapping.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store liquids in tightly closed containers protected from freezing.

D. Store asphalt cement and other bituminous materials in tightly closed containers.

4.5 PROJECT CONDITIONS

A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

B. Weather Limitations for Bituminous Setting Bed: Comply with the following requirements:

1. Apply asphalt adhesive when ambient temperature is above 10 deg C and when temperature has not been below 2 deg C for 12 hours immediately before application. Do not apply when base is wet or contains excess moisture.
2. Install bituminous setting bed only when atmospheric temperature is above 4 deg C and when base is dry.

PART 5 - PRODUCTS

5.1 CONCRETE UNIT PAVERS

A. Vehicular Concrete Pavers: Solid paving units, ASTM C 936, made from normal-weight aggregates in sizes and shapes indicated.

Type 1, 2, 3

1. Color and Finish: Brown and Buff with light textured finish, beveled edges, and 1.5mm spacer on all 4 sides.
2. Size: 100 x 200 mm and 150 x 230 mm and approximately 80 mm thick.

B. Pedestrian Concrete Pavers: Solid paving units, ASTM C 936, made from normal-weight aggregates in sizes and shapes indicated.

Type 1, 3, 4

1. Color and Finish: Brown and Buff with light textured finish, beveled edges, and 1.5mm spacer on all 4 sides.
2. Size: 300 x 600 mm and 100 x 200 mm and approximately 50 mm thick.

5.2 ACCESSORIES

A. Plastic Edge Restraints: Manufacturer's heavy duty, standard triangular PVC extrusions designed to serve as edge restraints for unit pavers; rigid type for straight edges and flexible type for curved edges, with pipe connectors and 9.5-mm diameter by 300-mm- long steel spikes. Size of edging is as follows:

1. 45 mm high by 89 mm wide.
2. 79 mm high by 241 mm wide.

B. Steel Edge Restraints: Painted commercial steel edging with loops pressed from or welded to face to receive stakes at 900 mm o.c., and steel stakes 380 mm long for each loop. Size of edging is as follows:

1. 4.8 mm thick by 100 mm high.

2. 6.4 mm thick by 125 mm high.

C. Compressible Foam Filler: Preformed strips complying with ASTM D 1056, Grade 2A1.

5.3 AGGREGATE SETTING-BED MATERIALS

A. Graded Aggregate for Base: Sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.

B. The aggregate material for base shall be specified , provided and installed under Division 2 Section: EARTHWORK

C. Geotextile: Woven or nonwoven geotextile manufactured from polyester or polypropylene fibers, with a permeability rating 10 times greater than that of soil on which paving is founded and an apparent opening size small enough to prevent passage of fines from leveling course into graded aggregate of base course below.

D. Sand for Joints: Fine, sharp, washed, natural sand or crushed stone with 100 percent passing 1.18-mm sieve and no more than 10 percent passing 0.075-mm sieve.

1. Provide sand of color needed to produce required joint color.

5.4 BITUMINOUS SETTING BED

A. Asphalt cement to be used in the bituminous setting bed shall conform to ASTM D 3381. Viscosity grade shall be A.C. 10 or A.C. 20.

B. Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coating, lumps of clay, alkali salts, and organic matter. Aggregate shall be uniformly graded from "coarse" to "fine" with 100 percent by weight passing the No. 4 (4.75 mm) sieve and shall meet the gradation requirements when tested in accordance with ASTM C 136.

C. Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees Fahrenheit (165 degrees Centigrade) at an asphalt plant. The approximate proportion of materials shall be 7 percent cement asphalt and 93 percent fine aggregate. Each ton of material shall be apportioned by weight in the approximate ratio of 145 pounds (65.8 kg) asphalt to 1,855 pounds (841.4 kg) sand. The Contractor shall determine the exact proportions to produce the best possible mixture for construction of the bituminous setting bed to meet specified requirements.

2.5 ASPHALTIC PRIMER

A. Primer for base beneath bituminous setting bed and asphalt block pavers shall be an emulsified asphalt rapid setting type conforming to AASHTO M 140, Grade RS-1, or AASHTO M 208, Grade CRS-1.

2.6 NEOPRENE-MODIFIED ASPHALT ADHESIVE

A. Neoprene modified asphalt adhesive shall meet the following requirements:

1. Mastic (asphalt adhesive):

a. Solids (base) content by volume = 75± 1 percent.

b. Weight = 8.0 to 8.5 pounds/gallon (1.05 to 0.97 kg./liter).
c. Solvent vehicle = Varsol [over 100°F (37°C) flash].

2. Base (2 percent neoprene, 10 percent fibers, 88 percent asphalt):

a. Melting point (ASTM D 36) = 200°F (93°C) minimum.
b. Penetration at 77°F (25°C) 100 gram load 5 second (0.1 mm) = 23 to 27.
c. Ductility (ASTM D 113 at 77°F (25°C), 5 cm/minute) = 125 cm, minimum.

2.7 SURFACE SEALANT FOR PAVERS

A. Surface sealant for all pavers shall be a clear, non yellowing, non staining water / oil repellant. Material must have 5 year warranty and comply with all AIM/VOC regulations

PART 6 - EXECUTION

6.1 EXAMINATION

A. Examine areas indicated to receive paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Where pavers are to be installed over waterproofing, examine waterproofing installation, with waterproofing Installer present, for protection from paving operations. Examine areas where waterproofing system is turned up or flashed against vertical surfaces and horizontal waterproofing. Proceed with installation only after protection is in place.

3.2 EDGING

A. Plastic edging strips shall be installed at locations indicated on the Contract Documents. Where required, edging shall be cut square and accurately to required length.

1. Plastic edging shall be securely staked in required position. Stakes shall be driven every (25 mm) in straight runs and into every support section in curved sections.

2. Adjacent lengths shall be attached using manufacturer's standard connection pipe according to manufacturer's published instructions.

3. Edging shall be set plumb and vertical at required line and grade. Straights sections shall not be wavy; curved sections shall be smooth and shall have no kinks or sharp bends.

3.3 ACCEPTABILITY OF CONCRETE BASE

A. Contractor shall examine the concrete base provided, installed and paid for under the work of the Division 2 Section, CEMENT CONCRETE PAVEMENT to determine its adequacy to receive concrete pavers and setting bed. Concrete shall have fully cured prior to the work of installing concrete pavers. Evidence of inadequate base shall be brought to the immediate attention of the Owner’s Representative and shall be corrected by the Contractor as directed by the COR at no additional cost to the Owner.

B. Start of work of this Division 2 Section, UNIT PAVERS, shall constitute acceptance of concrete base.

3.4 AGGREGATE BASE COURSE

A. Aggregate material for base beneath concrete pavers shall be to the depth indicated on the Contract Documents. Base shall be as specified and paid for under the Division 2 Section, EARTHWORK, of this Specification.

3.5 BITUMINOUS SETTING BED

A. The surface of the concrete base shall receive an asphalt prime coat before laying bituminous setting bed. Prime coat shall be applied at rate that will leave bituminous residue of 5 to 7 gallons per 100 square yards after evaporation of vehicle. Base surface shall be dry and clean when prime coat is applied. Bituminous setting bed shall not be placed until vehicle has completely evaporated from prime coat.

B. Bituminous setting bed over concrete base shall be specified under Division 2 Section HOT MIX ASHALT PAVING

C. The setting bed shall be rolled with a power roller to a nominal depth of 19.05 mm while still hot. The setting bed thickness shall be adjusted so that when the concrete pavers are placed and rolled, the top surface of the pavers will be at the required finished grade.

D. A coating of neoprene-modified asphalt adhesive shall be applied by mopping, squeegee, or troweling over the top surface of the bituminous setting bed so as to provide continuous bond under the pavers.

2. If adhesive is trowel-applied, trowel shall be serrated type with serrations not to exceed 1/16 inch (1.59 mm).

3.6 INSTALLATION, GENERAL

A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be visible or cause staining in finished work.

B. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.

C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

1. For concrete pavers, a block splitter may be used.

D. Joint Pattern: As indicated, or match existing unit paver joint pattern.

E. Tolerances: Do not exceed 0.8-mm unit-to-unit offset from flush (lippage) nor 3 mm in 3 m from level, or indicated slope, for finished surface of paving.

F. Tolerances: Do not exceed 1.6-mm unit-to-unit offset from flush (lippage) nor 3 mm in 600 mm and 6 mm in 3 m from level, or indicated slope, for finished surface of paving.

G. Expansion and Control Joints: Provide for sealant-filled joints at locations and of widths indicated. Provide joint filler as backing for sealant-filled joints where indicated. Install joint filler before setting pavers. Sealant materials and installation are specified in Division 7 Section "Joint Sealants."

H. Expansion and Control Joints: Provide joint filler at locations and of widths indicated. Install joint filler before setting pavers. Make top of joint filler flush with top of pavers.

I. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.

1. Install edge restraints to comply with manufacturer's written instructions. Install stakes at intervals required to hold edge restraints in place during and after unit paver installation.
2. For metal edge restraints with top edge exposed, drive stakes at least 25 mm below top edge.
3. Install job-built concrete edge restraints to comply with requirements in Division 3 Section "Cast-in-Place Concrete."

3.7 JOINT TREATMENT

A. Joint filler shall be swept dry into the joints between pavers until the joints are completely filled. Surface shall be swept clean. Swept surface shall than be thoroughly dampened with a low-volume fine spray of water.

1. Sweep sand into paver joints until joints are filled solid. Fog lightly with water and repeat a minimum of three times or until joints are compacted and full.

2. Prior to acceptance, the paved area shall be flooded with water to assure that there are no depressions. Pavers with top surfaces greater than 1.6 mm above or below adjacent pavers shall be removed and reset. Remove and reset pavers as required until surface is true to line and grade. Refill sand joints as necessary until all joints are filled to finish grade.

B. Concrete paving shall be kept damp by intermittent spraying for three days, minimum, to effectively cure the joints.

3.8 CLEANING OF CONCRETE PAVER SURFACES

A. After completion of concrete paving, surfaces shall be carefully cleaned, removing all dirt, excess filler, and stains.

B. Clean pavers using an approved masonry cleaner and soft bristle brush.

3.9 APPLICATION OF SURFACE SEALANT OF CONCRETE PAVER SURFACES

A. Seal pavement surface as follows:

1. Apply surface sealer to installed, thoroughly cleaned paved areas using a low pressure airless sprayer, brush or roller in compliance with manufacturer's recommendations. Apply material in quantities sufficient to saturate the surface pavement and not less than 1 gallon per 450 square feet.

2. Contractor shall take safety precautions in order to avoid all skin contact with the sealer, keep the sealer away from all heat sources or flames, and maintain adequate ventilation to avoid any concentration of sealer vapors in the work area. Vapors may ignite explosively and may travel along the ground by ventilation to ignition sources far from the product.

3. Sealed, paved surfaces shall display no color difference from the unsealed surface and no surface sheen. Paved areas that do exhibit these qualities after

END OF SECTION 02780

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 7 - GENERAL

7.1 SUMMARY

A. This Section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Cast-in-place concrete includes the following:

1. Footings.
2. Foundation walls.
3. Slabs-on-grade.
4. Suspended slabs.
5. Concrete toppings.
6. Building frame members.
7. Building walls.
8. Equipment pads and bases.
9. Site perimeter walls, concrete filled bollards, and site structures.

7.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, or silica fume; subject to compliance with requirements.

7.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections. Shop drawing review is only for conformance with the design concept of the project and compliance with the information given in the contract documents.

B. Product Data: For each type of manufactured material and product indicated.

C. Design Mixtures: For each concrete mixture. Include alternate mixtures designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

1. Mix design shall indicate the weight of each ingredient of the mixture, aggregate graduation, slump, air content, water/ cement ratio, admixtures, and 7 and 28 day compressive strength test results of trial mixes or acceptable record of field results.
2. Indicate amounts of mix water to be withheld for later addition at Project site.

D. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing,

and supports for concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".

E. Formwork Shop Drawings: Prepared, signed and sealed by a professional engineer indicating fabrication and erection of forms of specific finished concrete surfaces. Show form construction including jointing, special form joints or reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually. Show locations and detail construction joints for concrete work. Show locations of all embedded items. Drawings shall show all walls in elevation and in section.

1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and installing and removing reshoring.

2. Review is for general applications and features only. Designing formwork and shoring sequence for structural stability and efficiency is Contractor's responsibility.

F. Welding Certificates: Copies of certificates for welding procedures and personnel.

G. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

H. Steel Reinforcement: From a qualified testing agency, indicating compliance with requirements.

I. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements, including where applicable, compatibility with other subsequent materials and finishes:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Waterstops.
7. Curing and sealing compounds.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Vapor retarders.
12. Semirigid joint filler.
13. Epoxy joint filler.
14. Joint-filler strips.
15. Repair materials.

J. Minutes of preinstallation conference.

7.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Professional Engineer Qualifications: A professional engineer who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for formwork and shoring and reshoring installations that are similar to those indicated for this Project in material, design, and extent.

C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."

F. Codes and Standards: Comply with provisions of the latest editions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified.

1. American Concrete Institute (ACI) 301-99, “Specifications for Structural Concrete for Buildings.”
2. ACI 117-90, “Specification for Tolerances for Concrete Construction and Materials”.
3. ACI 211.1-91, “Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.”
4. ACI 304R-00, “Guide for Measuring, Mixing, Transporting, and Placing Concrete.”
5. ACI 305R-99, “Hot Weather Concrete.”
6. ACI 306R-88, “Cold Weather Concrete.”
7. ACI 309R-96, “Guide for Consolidation of Concrete.”
8. ACI 318M-02, “Building Code Requirements for Reinforced Concrete.”
9. ACI 347-01, “Guide to Formwork for Concrete.”
10. Concrete Reinforcing Steel Institute (CRSI) “Manual of Standard Practice, 2001, 27th Edition”.

G. Preinstallation Conference: Conduct conference at the Project site to comply with requirements of Division 1 Section “Project Meetings” Comment #31 and the following:

1. At least 35 days prior to submitting design mixes, conduct a meeting to review detailed requirements for preparing concrete design mixes and to determine procedures for satisfactory concrete operations. Review requirements for submittals, status of coordinating work, and availability of materials. Establish preliminary work progress schedule and procedures for materials inspection, testing, and certifications. Require representatives of each entity directly concerned with cast-in-place concrete to attend conference, including, but not limited to, the following:

a. Contractor’s superintendent.
b. Agency responsible for concrete design mixes.

c. Agency responsible for field quality control.
d. Ready-mix concrete producer.
e. Primary admixture manufacturers.
f. Concrete subcontractor.
g. Formwork subcontractor.
h. Steel reinforcing installer subcontractor.
i. Quality Control Manager.
j. Contracting Officer's Representative (COR).

H. Place concrete after the placement of all forms, reinforcement, inserts, sleeves, and other embedments have been inspected and approved by the Contractor's superintendent and the Quality Control Manager and reviewed by the COR.

I. Place concrete only under the supervision of the Contractor's superintendent and the Quality Control Manager.

J. The Contractor is responsible for the establishment of a quality control program to manage forming, reinforcement, production, delivery, placement, compaction, finishing, curing, protection and patching of all concrete. Comply with the requirements specified in Section 01401.

K. Provide the Quality Control Manager and the COR with access to the site or to the plant to facilitate inspection of the reinforcement. Submit a schedule, showing the beginning and the duration of the shop fabrication, in sufficient time to allow for the proper inspection.

L. Provide the Quality Control Manager and the COR, with access to the concrete plant to facilitate inspection of concrete. Notify the Quality Control Manager when production of concrete is to commence and the plant location in sufficient time to allow for the proper inspection.

M. Inspection and testing will be performed by the Quality Control Manager in accordance with the requirements of this Section and Section 01401, Contractor's Quality Control.

N. Provide free access to the Work and cooperate with the appointed Quality Control Manager. Notify the QCM prior to the start of concrete work, at least 36 hours in advance. Provide a covered storage box on-site for the temporary storage of concrete cylinders.

O. Tests of the proposed cement, aggregates and other concrete ingredients will be performed to ensure conformance with the specified requirements.

P. The Quality Control Manager will make the concrete compressive test specimens and perform all the tests specified in this Section and Section 01401.

Q. The Quality Control Manager shall be the only entity authorized to allow the addition of any water to a concrete mix after batching.

R. The Quality Control Manger shall have the authority to reject concrete prior to or during placement for reasons of non-compliance with the Contract Documents. Rejected concrete will be promptly removed an replaced at no cost to the Owner.

7.5 DELIVERY, STORAGE, AND HANDLING

A. Store cement, aggregate, admixture, water, embedded items and reinforcing in a manner to prevent deterioration or intrusion of any foreign matter. Do not use damaged or deteriorated materials.

B. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 8 - PRODUCTS

8.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Plywood, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints or as shown on drawings.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC or rubber strips, 20 mm by 20 mm.

D. Form Release Agent: Provide commercially formulated form release agent with a maximum of 350 mg/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

E. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 40 mm to the plane of the exposed concrete surface.

1. Provide ties that, when removed, will leave holes not larger than 25 mm in diameter in the concrete surface.

8.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, (Grade 60), deformed. Reinforcing as indicated on the structural drawings to comply with the special ductility requirements of ACI-318M, paragraph 21.2.5, parts (a) and (b).

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Plain-Steel Wire: ASTM A 82, as drawn.

D. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

8.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
2. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

B. Joint Dowel Bars: Plain-Steel bars, ASTM A615M, Grade 420, cut bars true to length with ends square and free of burs.

C. Mechanical Splices and Connections: As indicated on Drawings.

8.4 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150; Type V (High Sulfate Resistance) shall be used for all foundations and below grade concrete. Type II concrete shall be used for all other work.

1. Use one brand of cement throughout Project unless otherwise acceptable to Project Director.

B. Fly Ash: ASTM C 618, Class F.

C. Ground Granulated Blast-Furnace Slag (GGBF): ASTM C 989, Grade 100 or 120.

D. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:

1. Coarse aggregate size for concrete in walls, columns, beams, and structural slabs shall not exceed 20 mm.
2. Coarse Aggregates: (a) General Use: 25 mm to 4.75 mm; (b) Walls, Columns, Beams, and Structural Slabs: 20 mm to 4.75 mm; (c) Tight Placement: 12.5 mm to 4.75 mm.
3. Fine Aggregates: Fineness modulus shall not be less than 2.3 nor more than 3.1.
4. Combined Aggregate Gradation: Well graded from coarsest to finest with not more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve, on the No. 50 (0.300 mm) sieve, and the No. 100 (0.150 mm) sieve.
5. Materials that contain particles that will discolor the surface shall not be used for any exposed concrete.
6. Provide aggregates from a single source for exposed concrete.
7. Do not use aggregates containing chloride ions in excess to the requirements of ACI for concrete construction in corrosive environments.

E. Lightweight Aggregate: ASTM C 330.

1. Nominal Maximum Aggregate Size: 10 mm.

F. Water: Potable and complying with ASTM C 94.

8.5 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride. Accelerating admixtures shall not be used unless approved by the Quality Control Manager.

B. Air-Entraining Admixture: ASTM C 260, Type C.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. Retarding Admixture: ASTM C 494, Type B.

E. Accelerating (Non-Corrosive) Admixture: ASTM C 494, Type C.

F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

G. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

H. High Range, Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F.

I. High Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.

J. Corrosion-Inhibiting Admixture: Commercially formulated, calcium nitrite, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

    a. DCI or DCI-S; W. R. Grace & Co., Construction Products Div.
    b. Rheocrete CNI; Master Builders, Inc.

8.6 FIBER REINFORCEMENT

A. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for use in concrete, complying with ASTM C 1116, Type III, 12 to 25 mm long.

B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Fibrillated Fibers:

    a. Fibrasol F; Axim Concrete Technologies.
    b. Fibermesh; Fibermesh, Div. of Synthetic Industries.
    c. Forta; Forta Corporation.
    d. Grace Fibers; W. R. Grace & Co., Construction Products Div.

2. Monofilament Fibers:

    a. Fibrasol IIP; Axim Concrete Technologies.
    b. Fiberstrand 100; Euclid Chemical Co.
    c. Fibermix Stealth; Fibermesh, Div. of Synthetic Industries.
    d. Forta Mono; Forta Corporation.
    e. Grace MicroFiber; W. R. Grace & Co., Construction Products Div.

8.7 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513, for embedding in concrete to prevent passage of fluids through joints. Factory fabricated corners, intersections, and directional changes.

1. Profile: Flat, dumbbell with center bulb.
2. Dimensions: 150 mm by 10 mm thick.

B. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricated corners, intersections, and directional changes.

1. Profile: Flat, dumbbell with center bulb.
2. Dimensions: 150 mm by 10 mm thick.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Rubber Waterstops:

    a. Greenstreak.
    b. Progress Unlimited Inc.
    c. Westec Barrier Technologies; Div. of Western Textile Products, Inc.

2. PVC Waterstops:

    a. Greenstreak.
    b. Meadows: W. R. Meadows, Inc.
    c. Murphy: Paul Murphy Plastics Co.
    d. Progress Unlimited Inc.
    e. Vinylex Corporation.
    f. Sika Corporation.

D. Self-Expanding Strip Waterstops: Manufactured rectangular or trapezoidal strip, sodium bentonite or other hydrophylic material for adhesive bonding to concrete.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

    a. Volclay Waterstop-RX; Colloid Environmental Technologies Co.
    b. Conseal CS-231; Concrete Sealants Inc.
    c. Swellseal Joint; De Neef Construction Chemicals (U.S.) Inc.
    d. Hydrotite; Greenstreak.

8.8 VAPOR RETARDERS

A. Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 0.26 mm (10 mils) thick.

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 38-mm sieve and 0 to 5 percent passing a 2.36-mm (No. 8) sieve.

8.9 FLOOR AND SLAB TREATMENTS

A. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, non-glazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

B. Penetrating Liquid Floor Treatment (Liquid Densifer/Sealer): For warehouses and garages. Chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces, increases abrasion resistance, and provides a low sheen surface that is easy to clean and reduces the problem of tire mark removal.

C. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Penetrating Liquid Floor Treatment:

a. Chemisil Plus; ChemMasters.
b. “Ashford Formula”, Curecrete Chemical Co.
c. “Euco Diamond Hard”, The Euclid Chemical Co.

8.10 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete and exposed concrete slab surfaces for temporary protection from rapid moisture loss.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 300 g/sq. m (9 oz./sq. yd.) dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C 309, Type1, Class B.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1 Class B.

G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

I. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Evaporation Retarder:

a. Spray-Film; ChemMasters.
b. Sure Film (J-74); Dayton Superior.
c. Confilm; Degussa Construction Chemicals.
d. Eucobar; Euclid Chemical Co.
e. E-Con; L&M Construction Chemicals, Inc.

2. Clear, Solvent-Borne, Membrane-Forming Curing Compound:

a. Spray-Cure Clear; ChemMasters.
b. General Purpose Cure & Seal (J-20UV); Dayton Superior.
c. MasterKure N-Seal-HS; Degussa Construction Chemicals
d. Diamond Clear; Euclid Chemical Co.
e. Dress & Seal 30; L&M Construction Chemicals, Inc.

3. Clear, Waterborne, Membrane-Forming Curing Compound:

a. Safe Cure Clear; ChemMasters.
b. Day-Chem Rez Cure (J-11-W); Dayton Superior.
c. Kure-N-Seal W; Degussa Construction Chemicals.
d. Diamond Clear VOX; Euclid Chemical Co.
e. Dress & Seal WB 30; L&M Construction Chemicals, Inc.

4. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound:

a. Spray-Cure & Seal 25; ChemMasters.
b. Super Diamond Clear; Euclid Chemical Co.
c. Lumiseal Plus; L&M Construction Chemicals, Inc.

5. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound:

a. Polyseal WB; ChemMasters.
b. Super Diamond Clear VOX; Euclid Chemical Co.
c. Lumiseal WB Plus; L&M Construction Chemicals, Inc..

8.11 RELATED MATERIALS

A. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

B. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of type, class, and grade to suit requirements.

C. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.85 mm (22 gage) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

D. Reglets: Fabricate reglets of not less than 0.55 mm (26 gage) thick galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

E. Epoxy Joint Filler: For control and construction joints of slab-on-grade in warehouses, a two component, 100 percent solids, low-range tensile strength semi-rigid epoxy with a minimum shore D hardness 50 (ASTM D676) and elongation of 6 percent (ASTM D 2240). The epoxy joint filler shall be mixed and installed in strict accordance with the direction of manufacturer. The joint filler shall not be filled sooner than 90 days after slab placement.

F. Joint Sealant for Isolation Joint at Slab-on-Grade:

1. Eucolastic I (Urethane sealant): Use closed cell polyethylene backer rod.

8.12 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 3 mm and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 3 to 6 mm or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 30 MPa at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Topping: Traffic-bearing, cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 6 mm.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 3 to 6 mm or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 40 MPa at 28 days when tested according to ASTM C 109/C 109M.

8.13 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by laboratory trial batch method as specified ACI 211.1, ACI 301 and ACI 318M. Use an independent testing agency

acceptable to the Project Director for preparing and reporting proposed mix designs. Do not use the same testing agency for field quality control testing.

B. Submit written reports to the Project Director of each proposed mix prepared and sealed by a professional engineer for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until the Project Director has approved proposed mix designs.

C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Limit use of fly ash and ground granulated blast furnace (GGBF) slag to not exceed 20 percent of cementitious content by weight.

D. Design mixes to provide normal weight concrete with properties as indicated herein unless indicated otherwise on the Structural Drawings.

1. Civil/Site and Perimeter Walls. Proportion normal-weight concrete mix as follows:

   a. Compressive Strength (28 Days): 30 MPa minimum.
   b. Maximum Slump: 125 mm.

2. Slab-on-Grade and Footings. Proportion normal-weight concrete mix as follows:

   a. Compressive Strength (28 Days): 25 MPa minimum.
   b. Maximum Slump: 125 mm.

3. Suspended Slabs and Building Frame Members: Proportion normal-weight concrete mix as follows:

   a. Maximum Slump: 125 mm.
   b. Maximum Slump for Concrete Containing High-Range, Water-Reducing Admixture: 200 mm after admixture is added to concrete with 50 mm to 75 mm slump.
   c. Compressive Strength (28 Days): 30 MPa minimum.

4. Footings and Foundations – 25 MPa

E. Water-Cementitious Materials Ratio: Provide concrete for following conditions with maximum water-cementitious materials (W/C) ratios as follows:

1. Unless noted otherwise: Maximum W/C = 0.50.
2. Maximum Water-Cementitious Materials Ratio: 0.45 for concrete subject moderate sulfate exposure (per ACI 318M Table 4.3.1) or required to have low water permeability or subject to freezing and thawing while moist.
3. Maximum Water-Cementitious Materials Ratio: 0.40 for concrete subject to severe or very severe sulfate exposure (per ACI 318M Table 4.3.1) or for corrosion protection of steel reinforcement in concrete exposed to chlorides from deicing chemicals, salt, saltwater, brackish water, seawater, or spray from these sources.

F. Limit water-soluble, chloride ion content in hardened concrete to 0.15 percent by weight of cement.

G. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 0.90 kg/m^3 (1.5 lb./cu. yd.).

H. Air Content: Use air-entraining admixtures in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 6 percent with a tolerance of plus or minus 1½ percent.

1. Do not air entrain concrete for trowel finished interior floors and suspended slabs.
2. Do not allow entrapped air content to exceed 3 percent.
3. Concrete exposed to sulfates shall be air-entrained.

I. Admixtures: Use admixtures according to manufacturers written instructions.

1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixtures when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use high range water-reducing admixture in pumped concrete as required for pumpability and workability and concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixes where indicated. Corrosion inhibiting admixture is to be added at the Project site.

8.14 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

8.15 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 30 deg C and 32 deg C, reduce mixing and delivery time from 90 minutes to 75 minutes, and when air temperature is above 32 deg C, reduce mixing and delivery time to 60 minutes.
2. Hand-Mixed Concrete: Hand mixed concrete is not allowed.

PART 9 - EXECUTION

9.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 and as shown on formwork shop drawings which have been reviewed by the Project Director, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

1. Class A, 3 mm.
2. Class B, 6 mm.
3. Class C, 13 mm.
4. Class D, 25 mm.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.

1. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

9.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that are attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor bolts, accurately located, to elevations required.

2. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashing in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.
4. Install FE/BR window and door embeds.
5. Install blast resistant window embeds.

9.3 REMOVING AND REUSING FORMS

A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 10 deg C for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

B. Leave formwork for beam soffits, joists, slabs, and other structural element, that supports weight of concrete in place until concrete has achieved the following:

1. At least 70 percent of 28-day design compressive strength, but not less than four days.
2. Determine compressive strength of in-place concrete by testing representative field- or laboratory-cured test specimens according to ACI 301.
3. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

D. When forms are reused, clean surfaces, remove fins and latience, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by COR.

9.4 SHORES AND RESHORES

A. Comply with ACI 318M, ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring and reshoring.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

9.5 VAPOR RETARDERS

A. Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions.

1. Place vapor retarder sheeting in position with longest dimension parallel the direction of pour.
2. Lap joints: 150 mm and seal with manufacturer’s recommended mastic or pressure-sensitive tape.

9.6 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Install in accordance with steel reinforcement placement shop drawings that have been reviewed by the Project Director.

C. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover as approved by the Project Director. Do not tack weld crossing reinforcing bars.

1. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.
2. Welding of reinforcing bars is not permitted unless indicated on the structural drawings.

E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

F. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Secure overlaps with wire.

9.7 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by COR. Indicate locations and show details on shop drawing submittals.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 40 mm into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction (Control) Joints in Slabs-on Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as shown. Use saw cuts 3 mm wide by one-fourth of the slab depth or inserts 6 mm wide by one-fourth of slab depth, unless otherwise indicated.

1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
3. If joint pattern is not shown, provide joints not exceeding 4.5 meters in either direction and located to be conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
4. Discontinue reinforcing through joint only as shown on the drawings.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 12 mm or more than 25 mm below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Dowel Joints: Install dowel sleeves and dowels or dowel bar and support assemblies at joints where indicated.

1. Use dowel sleeves or lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint, unless indicated otherwise on the drawings.

9.8 WATERSTOPS

A. Flexible Waterstops: Install in construction joints as indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, bonding or mechanically fastening and firmly pressing into place. Install in longest lengths practicable.

9.9 CONCRETE PLACEMENT

A. General: Comply with ACI 304, " Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.

B. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

C. Do not add water to concrete during delivery, at Project site, or during placement, unless approved by Project Director.

D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation and at such a rate of placement not to exceed the maximum shown on the formwork shop drawings.

E. Deposit concrete in forms in horizontal layers no deeper than 600 mm and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

1. Consolidate placed concrete with mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 150 mm into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

G. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 4 deg C, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 10 deg C and not more than 27 deg C at point of placement.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

H. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 32 deg C at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
4. Concrete placement shall not be started if the temperature is 40 deg. C and rising or until it is 43 deg. C and falling. All concrete placement shall be completed at ambient air temperature of less than 45 deg. C.

9.10 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 3 mm in height.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.

C. Rubbed Finish: Apply the following to smooth-formed finished concrete:

1. Smooth-Rubbed Finish: No later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent

formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

9.11 FINISHING FLOORS AND SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Specified Overall Values (SOV) for flatness and Minimum Local Values (MLV) for both F_F (flatness) and F_L (levelness) are measured according to ASTM E 1155, Standard Test Method for Determining Floor Flatness and Levelness Using the F-Number System. F_L (levelness) shall be calculated for suspended slabs before slab shoring is removed.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. to a tolerance of Specified Overall Value (SOV) F_F18 / F_L15 and Minimum Local Value (MLV) F_F13 / F_L10. Use stiff brushes, brooms, or rakes.

1. Apply scratch finish to surfaces indicated and to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes and where indicated.

2. Finish surface to a tolerance of Specified Overall Value (SOV) F_F18 / F_L15 and Minimum Local Value (MLV) F_F13 / F_L10.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture. Grind smooth any surface defects that would telegraph through applied floor covering system.

1. Apply float finish to surfaces indicated on the Architectural Drawings, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

2. Finish surface to a tolerance of Specified Overall Value (SOV) F_F20 / F_L18 and Minimum Local Value (MLV) F_F15 / F_L12.

D. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated on Architectural Drawings and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

2. Finish surface to a tolerance of Specified Overall Value (SOV) F_F25 / F_L20 and Minimum Local Value (MLV) F_F17 / F_L15.

E. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated on Architectural Drawings and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated on Architectural Drawings.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Project Director before application.

G. Slip-Resistive Aggregate Finish: Before final floating, apply slip-resistive aggregate finish where indicated on Architectural Drawings and to concrete stair treads, platforms, and ramps. Apply according to manufacturer's written instructions and as follows:

1. Uniformly spread 1.2 kg/m^2f dampened slip-resistive aggregate over surface in one or two applications. Tamp aggregate flush with surface, but do not force below surface.
2. After broadcasting and tamping, apply float finish.
3. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose slip-resistive aggregate.

9.12 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

9.13 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 1 kg/m^2 x hour (0.20 lbs./$ft.^2$ x hour) before

and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 300-mm lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 300 mm, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    b. Cure concrete surfaces to receive floor coverings by moisture cure or with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated on Architectural Drawings in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 300-mm lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 300 mm, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete.

3. Curing Compound: Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared. Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.
5. Hot-Weather Curing: Cure concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

    a. When ambient air temperature is expected to be greater or equal to 36 deg. C in the following seven days after flatwork is poured it shall be moist-cured for a minimum of seven days.

9.14 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 14 days old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous. Comply with manufacturer’s written instructions.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

9.15 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least six months. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semi-rigid epoxy joint filler the full depth in saw-cut joints and at least 50 mm deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

9.16 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to the Project Director. Remove and replace concrete that cannot be repaired and patched to the Project Directors approval.

B. Patching Mortar: Mix dry-pack mortar, consisting of one part Portland cement to 2½ parts fine aggregate passing a 1.2 mm (No. 16) sieve, using only enough water as required for handling and placing.

C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of the Project Director. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discoloration that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 12 mm in any dimension in solid concrete but not less than 25 mm in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cork cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by COR.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.25 mm wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to the COR.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment when acceptable to the COR. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping when acceptable to the COR. Cut out low areas to ensure a minimum repair topping depth of 6 mm to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 25 mm or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 20 mm clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 25 mm or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to COR approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to acceptance of the COR.

9.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. General: The Contractor shall employ a qualified independent testing and inspecting agency, approved by the COR, to sample materials, perform tests, and submit test reports according to the requirements specified in this Article.

B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 50 m^3 or fraction thereof of each concrete mix placed each day unless directed otherwise by the Project Director. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C 143; one test at point of discharge for each composite sample. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231; pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 4 deg C and below, when 27 deg C and above, and one test for each set of composite sample.
5. Unit Weight: ASTM C567; one test for each composite sample.

6. Compressive Test Specimens: ASTM C31/C31M; cast and laboratory cure one set of four standard cylinders specimens for each composite sample.
7. Compressive-Strength Tests: ASTM C39; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen tested at 56 days (reserve).

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete as approved by the Project Director.

D. Test results shall be reported in writing to COR, ready-mix producer, and the Contractor within 24 hours after testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspection agency, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day, 28-day, and 56 day (reserve) tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by the COR but shall not be used as the sole basis for acceptance or rejection of concrete.

F. Additional Tests: The testing and inspecting agency shall make additional test of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the COR. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by the COR. Any concrete that does not comply with this specification will not be accepted. Concrete found to be deficient shall be corrected in a manner satisfactory to the COR. All investigations, testing, load tests, and correction of deficiencies shall be performed at the expense of the Contractor and approved by the COR.

END OF SECTION 03300

CONCRETE MIX DESIGN SUBMITTAL FORM

Project: _____
City: _____
General Contractor: _____
Concrete Contractor: _____
Concrete Strength (Class): _____
Use (Describe): _____

Design Mix Information (Check One)

Based on Std. Deviation Analysis ☐
Trial Mix Text Data ☐

Design Characteristics

Density		kg/m^3
Strength		MPa (28 day)
Air		% specified

If trial mixes are used the Mix Design is proportioned to achieve f´cr = f´c + 8.3MPa
(9.7 MPa for 35MPa strength and higher strength at 28 days)

MATERIALS	Type/ Source	Specific Gravity	Weight (kg)	Absolute Volume (m^3)
Cement				
Fly Ash				
Silica Fume				
GGBF Slag				
Fine Aggregate				
Course Aggregate				
Water				
Air				
Other				
		Total		m^3

Water/Cementitious Material Ratio (kg water/kg cementitious material) = _____

ADMIXTURES	Manufacturer	Dosage (Metric)
Water Reducer		

Air Entraining Agent		
High Range Water Reducer		
Non-Corrosive Accelerator		
Other		

Slump before HRWR _____ mm
Slump after HRWR _____ mm

Standard Deviation Analysis (from experience records):

# of Test Cylinders Evaluated:	
Standard Deviation:	

The larger of: $f'cr = f'c + 1.34s$ or $f'cr = f'c + 2.33s-3.5$ (MPa)

(Refer to ACI 301 for increased deviation factor when less than 30 tests are available. Refer to ACI 318M Section 5.3 – Proportioning on the basis of field experience or trial mixtures, or both.)

LABORATORY TESTS DATA

Compressive strength

Age (days)	Mix #1	Mix #2	Mix #3
7	MPa	MPa	MPa
7	MPa	MPa	MPa
28	MPa	MPa	MPa
28	MPa	MPa	MPa
28 average	MPa	MPa	MPa

REQUIRED ATTACHMENTS:

Combined Aggregate Gradation Report	
Standard Deviation Analysis Summary or Trial Mixture Test	
Admixture Compatibility Certification Letter	

Note: 8% - 18% aggregate required to be retained on each sieve except the top size and the #100

Submitted by :

Name: _____
Address: _____
_____
Phone #: _____
Main Plant Location: _____
Kilometers to Project: _____
Secondary Plant Location: _____
Kilometers to Project: _____
_____
Date: _____

SECTION 05500 - METAL FABRICATIONS

PART 10 - GENERAL

10.1 SUMMARY

A. This Section includes the following:

1. Loose bearing and leveling plates.
2. Loose steel lintels.
3. Shelf angles.
4. Support angles for elevator door sills.
5. Elevator machine beams.
6. Steel framing and supports for overhead doors.
7. Steel framing and supports for operable partitions and ceiling hung toilet partitions.
8. Steel framing and supports for countertops.
9. Metal angle corner guards for columns, walls and bading deck edge subject to vehicular impact.
10. Metal edgings.
11. Bicycle Racks.
12. Flack Jacket Hanger Racks in the Marine Security Guard React Room.
13. Pipe bollards.

10.2 PERFORMANCE REQUIREMENTS

A. Structural Performance of Ladders: Provide ladders capable of withstanding the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

B. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 67 deg C, ambient; 100 deg C, material surfaces.

10.3 SUBMITTALS

A. Product Data: For the following:

1. Metal nosings and treads.
2. Paint products.
3. Grout.

B. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.
3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.

D. Welding certificates.

E. Qualification Data: For professional engineer.

10.4 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum."
3. AWS D1.3, "Structural Welding Code--Sheet Steel."
4. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PART 11 - PRODUCTS

11.1 METALS, GENERAL

A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

11.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.

C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.

D. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.

E. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

F. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

G. Galvanized Pipe and Sleeves: Galvanized steel complying with ASTM A 653/A 653M, commercial steel, Type B, with Z275 coating; 2.8-mm nominal thickness.

H. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

11.3 NONFERROUS METALS

A. Aluminum Plate and Sheet: ASTM B 209M, Alloy 6061-T6.

B. Aluminum Extrusions: ASTM B 221M, Alloy 6063-T6.

C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.

D. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

E. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).

F. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded Architectural bronze).

G. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).

11.4 FASTENERS

A. General: Provide Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM F 568M, Property Class 4.6; with hex nuts, ASTM A 563M; and, where indicated, flat washers.

C. Anchor Bolts: ASTM F 1554, Grade 36.

D. Machine Screws: ASME B18.6.7M.

E. Lag Bolts: ASME B18.2.3.8M.

F. Wood Screws: Flat head, carbon steel, ASME B18.6.1.

G. Plain Washers: Round, carbon steel, ASME B18.22M.

H. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.2M.

I. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Material: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Alloy Group 1 or 2 stainless-steel bolts complying with ASTM F 738M and nuts complying with ASTM F 836M.

J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as needed.

11.5 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 9 painting Sections.

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

G. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.

H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

I. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 20 MPa , unless otherwise indicated.

11.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Shear and punch metals cleanly and accurately. Remove burrs.

C. Ease exposed edges to a radius of approximately 1 mm, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

G. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

H. Allow for thermal movement resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 67 deg C, ambient; 100 deg C, material surfaces.

I. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

J. Remove sharp or rough areas on exposed traffic surfaces.

K. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

11.7 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize plates after fabrication.

11.8 LOOSE STEEL LINTELS

A. Fabricate loose structural-steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

B. Weld adjoining members together to form a single unit where indicated.

C. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 200 mm, unless otherwise indicated.

D. Galvanize loose steel lintels located in exterior walls.

11.9 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports indicated and as necessary to complete the Work.

B. Fabricate units from structural-steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Fabricate units from slotted channel framing where indicated.
2. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors 32 mm wide by 6 mm thick by 200 mm long at 600 mm o.c., unless otherwise indicated.
3. Furnish inserts if units must be installed after concrete is placed.

C. Fabricate supports for operable partitions as follows:

1. Beams: Continuous steel shapes of sizes indicated with attached bearing plates, anchors, and braces as indicated. Drill bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.

D. Galvanize miscellaneous framing and supports where indicated.

11.10 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from structural-steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 150 mm from each end, 150 mm from corners, and 600 mm o.c., unless otherwise indicated.

C. Galvanize miscellaneous steel trim in the following locations:

1. Exterior.
2. Interior, where indicated.

11.11 STEEL PIPE BOLLARDS

A. Type: Standard schedule 40 steel pipe.

1. Fill with standard weight concrete; set in concrete foundations.
2. Continuously weld steel plate to top; grind smooth.

B. Finish: Paint.

11.12 FLACK JACKET HANGER RACKS

A. Fabricate racks from metal material specified in this Section according to drawings.

1. Fasteners for attachment to walls specified in this Section according to drawings.
2. Steel Plate: 6 mm thick.
3. Steel Rods: 6 mm.
4. Pipe Sleeve: From similar material for fabrication of pipes.

B. Helmet Shelf: Fabricate from wire fabric.

11.13 BICYCLE RACKS

A. Fabricate from Schedule 40 steel pipe, fully welded together, to lengths indicated.

B. Fabricate with DN 80 top rails and end posts, DN 40 bottom rails and intermediate posts not more than 1800 mm o.c., and DN 20 vertical separators at approximately 200 mm o.c.

C. Make top rails 900 mm above pavement/floor and bottom rails 100 mm above pavement/floor.

D. Fabricate end posts and intermediate posts with 6.4-mm (thick steel baseplates for bolting to concrete slab. Drill end post baseplates at all 4 corners and intermediate-post baseplates at 2 opposite sides for 12.7-mm (anchor bolts.

E. Galvanize bicycle racks after fabrication.

11.14 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

11.15 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123, for galvanizing steel and iron products.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

11.16 STAINLESS-STEEL FINISHES

A. Remove tool and die marks and stretch lines or blend into finish.

B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

C. Bright, Directional Polish: No. 4 finish.

D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

11.17 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association.

B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

C. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.

PART 12 - EXECUTION

12.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

E. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

12.2 INSTALLING BICYCLE RACKS

A. Anchor bicycle racks to existing construction with expansion anchors. Provide four 12.7-mm bolts at each end post and 2 at each intermediate post.

12.3 SETTING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

12.4 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

12.5 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 0.05-mm dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 Section "Painting."

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

SECTION 09912 - PAINTING

PART 13 - GENERAL

13.1 SUMMARY

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, COR will select from standard colors and finishes available.

1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items include the following factory-finished components:

a. Architectural woodwork.
b. Acoustical wall panels.
c. Metal lockers.
d. Elevator equipment.
e. Finished mechanical and electrical equipment.
f. Light fixtures.

2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:

a. Foundation spaces.
b. Furred areas.
c. Ceiling plenums.
d. Utility tunnels.
e. Pipe spaces.
f. Duct shafts.
g. Elevator shafts.

3. Finished metal surfaces include the following:

    a. Anodized aluminum.
    b. Stainless steel.
    c. Chromium plate.
    d. Copper and copper alloys.
    e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:

    a. Valve and damper operators.
    b. Linkages.
    c. Sensing devices.
    d. Motor and fan shafts.

5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

13.2 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
3. Semi-gloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

13.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Include manufacturers' product data for paints, including printed statement of VOC content and chemical components.
2. Include manufacturers' MSDS information for each product.
3. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
4. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 200 mm square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

13.4 QUALITY ASSURANCE

A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain block fillers, primers, and undercoat for each coating system from the same manufacturer as the finish coats.

C. Environmental Regulations: Comply with Government, regulations limiting volatile organic compound (VOC) content in coating materials, related to coating materials and application methods, as current at time of performance of the work.

1. Paints and coatings listed in Schedules do not necessarily comply with environmental regulations in force at the project site. In such cases, subject to acceptance by Government, provide manufacturer's equivalent or replacement product, as verified by compliance with submittal requirements specified above.

D. Pre-installation Conference: Before beginning preparation of samples, meet with Government and appropriate consultants, and other concerned entities.

1. Review requirements for shop-priming, compatibility of each coating material with substrates and other coatings, and the suitability of each specified paint system for the substrates and other field conditions indicated.
2. Record discussions of conference, including decisions and agreements or disagreements reached, and furnish a copy for each attendee. If substantial disagreements exist at the conclusion of the conference, determine how disagreements will be resolved and set a date for reconvening the conference.

E. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.

1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.

   a. Wall Surfaces: Provide samples on at least
   b. Small Areas and Items: Architect will designate items or areas required.

2. Apply benchmark samples, according to requirements for the completed work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.

3. Final approval of colors will be from benchmark samples.

13.5 PROJECT CONDITIONS

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content.

13.6 Keep storage area neat and orderly. Remove oily rags and waste daily.

A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 7 deg C. Maintain storage containers in a clean condition, free of foreign materials and residue.

B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 10 and 32 deg C.

C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 7 and 35 deg C.

D. Do not apply paint in rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 3 deg C above the dew point; or to damp or wet surfaces.

PART 14 - PRODUCTS

14.1 MANUFACTURERS

A. Provide paint products by one of the following manufacturers:

1. Benjamin Moore
2. PPG Industries
3. Sherwin-Williams

B. Special Coatings:

1. Carboline Company (Carboline)
2. Du Pont Company High Performance Coatings (Du Pont)
3. Tnemec Company (Tnemec)

14.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

14.3 PREPARATORY COATS

A. Concrete Unit Masonry Block Filler: High-performance latex block filler of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

B. Exterior Primer: Exterior alkyd or latex-based primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

1. Ferrous-Metal and Aluminum Substrates: Rust-inhibitive metal primer.
2. Zinc-Coated Metal Substrates: Galvanized metal primer.
3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

C. Interior Primer: Interior latex-based or alkyd primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

1. Ferrous-Metal Substrates: Quick drying, rust-inhibitive metal primer.
2. Zinc-Coated Metal Substrates: Galvanized metal primer.
3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

14.4 EXTERIOR FINISH COATS

A. Exterior Flat Acrylic Paint.

B. Exterior Semigloss Acrylic Enamel.

C. Exterior Full-Gloss Acrylic Enamel for Concrete, and Masonry.

D. Exterior Full-Gloss Acrylic Enamel for Ferrous and Other Metals.

E. Exterior Full-Gloss Alkyd Enamel.

14.5 INTERIOR FINISH COATS

A. Interior Flat Acrylic Paint.

B. Interior Flat Latex-Emulsion Size.

C. Interior Semigloss Acrylic Enamel.

D. Interior Full-Gloss Acrylic Enamel.

E. Interior Full-Gloss Alkyd Enamel for Gypsum Board.

F. Interior Full-Gloss Alkyd Enamel for Wood and Metal Surfaces.

14.6 INTERIOR WOOD STAINS AND VARNISHES

A. Open-Grain Wood Filler.

B. Interior Wood Stain: Alkyd based.

C. Interior Alkyd- or Polyurethane-Based Clear Satin Varnish.

D. Interior Waterborne Clear Satin Varnish: Acrylic-based polyurethane.

E. Interior Waterborne Clear Gloss Varnish: Acrylic-based polyurethane.

F. Paste Wax: As recommended by manufacturer.

PART 15 - EXECUTION

15.1 APPLICATION

A. Comply with procedures specified in PDCA P4 for inspection and acceptance of surfaces to be painted.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

C. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.
2. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

    a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
    b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
    c. If transparent finish is required, backprime with spar varnish.
    d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
    e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

    a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3, SSPC-SP 10/NACE No. 2.
    b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

E. Material Preparation:

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.

F. Exposed Surfaces: Include areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

1. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
2. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
3. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
4. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
5. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.

G. Sand lightly between each succeeding enamel or varnish coat.

H. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Omit primer over metal surfaces that have been shop primed and touchup painted.

2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.

I. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.

K. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

L. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

M. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

N. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

O. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.

P. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

15.2 CLEANING AND PROTECTING

A. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

B. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by COR.

C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

15.3 PAINT SCHEDULES

A. Wherever more than one coat of paint is called for, paint with completely separate coats with the manufacturer's minimum drying time between coats.

1. Application of separate coats, with manufacturers dry time between, is imperative and absolute. Drying time between coats is mandatory and not to be waived or modified.
2. Under no circumstances is the number of coats to be combined into a lesser number with an, "equivalent" thickness to attempt to equal separate coats, applied individually.
3. Applications called, "Equivalent", with fewer than the specified number of coats, but equal to the total thickness, are not acceptable.
4. To assure performance, keep a record of application of each coat, each location, with dates of application, substrate, type of paint, names of applicators, and ambient conditions. Submit the record to the Government for review and acceptance in authorizing payment for the work.

15.4 EXTERIOR PAINT SCHEDULE

A. SYSTEM NO. 1.

1. High Performance Coating Over Exposed To View Shop Primed or Galvanized Steel Surfaces:
   a. Structural components, equipment supports, bollards, etc.
2. Certify compatibility with shop applied primers requirements specified in Part I
3. Observe paint manufacturer's limitations on elapsed time between coats.
4. Provide two coats over primer (first coat) as follows.
   a. Intermediate Coat: High performance epoxy coating formulated for use over exterior primed or galvanized steel, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of 2.0 and 3.0 mils.
      1) Tnemec 27FC Typoxy

   b. Finish Coat: Aliphatic acrylic polyurethane enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness range of 2.0 to 3.0 mils.
      1) Tnemec Series 73 (semi gloss) Enduro Shield III

B. SYSTEM NO. 2

1. Premium, Full Gloss. Alkyd Enamel Finish: Apply at the fallowing surfaces:
   a. Exposed surfaces (exterior and interior) of exterior shop primed hollow metal door and frame assemblies.

b. Exposed surfaces (exterior and interior) of shop primed overhead coiling door curtains and other exposed overhead coiling door components.

2. Touch-up shop applied primer before applying finish coats. Provide two finish coats over a shop applied primer
   a. First and Second Finish Coats: Premium quality, full gloss, exterior, alkyd enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.5 mils.
      1) Moore IronClad Quick-Dry Industrial Enamel #071
      2) Tnemec Series 23, Enduratone

15.5 INTERIOR PAINT SCHEDULE General: Provide the following paint systems for the various substrates, as indicated. Apply additional coats when undercoats, previous coatings or other conditions show through the final coat, until the cured film is of uniform coating finish, color and appearance.

A. SYSTEM NO. 3

1. Semi-Gloss, two component Polyester - Epoxy Coating over Concrete.
   a. Apply over concrete wall and column surfaces where sanitary conditions must be maintained, where subject to water, and as scheduled

2. Provide two coats over a primer as follows:
   a. Primer: Acrylic primer spread at rate recommended by manufacturer.
      1) Moore: Regal first coat interior latex primer & underbody #216

   b. Second Coat: Epoxy enamel base and polyester-resin hardener, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      1) Moore: Iron Clad Tile Like Catalyzed Coating #371

   c. Finish Coat: Semigloss, clear epoxy glaze and polyester resin hardener, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.9 mils.
      1) Moore Iron Clad Tile-Like Clear Glaze Semi-Gloss

B. SYSTEM NO. 4

1. Semi-Gloss, Acrylic Enamel over Concrete.
   a. Apply over concrete wall and column surfaces scheduled to receive paint other than system 3 and generally at the following locations:
      1) Stairs, service corridors and service areas on each floor.
      2) Locker rooms, athletic areas, workrooms.

2. Provide two coats over a primer as follows:
   a. Primer: Alkaki-resistant, acrylic latex interior primer spread at rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.0 mil.
      1) Moore: Regal first coat interior latex primer & underbody #216
      2) PPG: 6-2 Speedhide Interior Quick Drying Latex Sealer

   b. First and Second Coats: Semigloss.acrylic-latex interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      1) Moore: Moore's Regal AquaGlo Vinyl-Acrylic Latex Enamel #333
      2) 88-110 Satinhide Interior Enamel Wall &Trim LO-Lustre Semi-Gloss Latex.

C. SYSTEM NO. 5

1. Flat Acrylic over Concrete.
   a. Apply over concrete wall and column surfaces scheduled to receive paint not included in Systems No. 3 or 4

2. Provide one finish coat over a primer as follows:
   a. Primer: Alkaki-resistant, acrylic latex interior primer spread at rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.0 mil.
      1) Moore: Regal first coat interior latex primer & underbody #216
      2) PPG: 6-2 Speedhide Interior Quick Drying Latex Sealer

   b. Finish Coat: Flat, latex based, interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      1) Moore: Moore's Regal Wall Satin #215
      2) PPG: 80 Line Wallhide Interior Wall flat latex paint.

D. SYSTEM NO. 6

1. Flat Acrylic over Concrete with leveling coat.
   a. Apply at concrete ceiling surfaces scheduled to receive leveling coat.

2. Provide vinyl-base leveling coat with primer and one finish coat, as follows:
   a. Primer: Alkali-resistant, acrylic-latex interior primer spread at rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.4 mils.
      1) Moore: Regal First Coat Interior Latex Primer & Underbody #216
      2) PPG: 6-2 Speedhide Interior Quick Drying Latex Sealer.

b. Finish Coat: Flat, acrylic-latex, interior paint spread at rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
   1) Moore: Regal Wall Satin #215
   2) PPG: 80 Line Wallhide Interior Wall Flat Latex Paint

E. SYSTEM NO. 7

1. Semi-Gloss, Two Component, Polyester-Epoxy Coating over Concrete Masonry Units.
   a. Apply over concrete masonry units subject to water and elsewhere where scheduled.

2. Provide two finish coats over a block filler as follows:
   a. Block Filler: High performance, latex based, block filler applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 5.0 mils.
      1) Moore: Moorcraft Interior & Exterior Block Filler #

   b. Second Coat: Epoxy enamel base and polyester resin hardener, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      1) Moore: IronClad Tile-Like Catalyzed Coating #371

   c. Finish Coat: Semigloss, clear epoxy glaze and polyester resin hardener, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.9 mils.
      1) Moore Iron Clad Tile-Like Clear Glaze Semi-Gloss 370-02

F. SYSTEM NO. 8

1. Semi-Gloss, Acrylic-Enamel over Concrete Masonry Units.
   a. Apply over concrete masonry units, where scheduled, generally at the following locations:
      1) Stairs, service corridors.
      2) Locker rooms, athletic spaces and toilet areas.

2. Provide two finish coats over a block filler as follows:
   a. Block Filler: High performance, latex based, block filler applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 5.0 mils.
      1) Moore: Moorcraft Interior & Exterior Block Filler #173
      2) PPG: 6-7 Speedhide Interior/Exterior Masonry Block Filler

   b. First and Second Coats: Semigloss, acrylic-latex, interior applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.

1) Moore: Moore's Regal AquaGlo Vinyl-Acrylic latex Enamel #333
2) PPG: 88-110 Satinhide Interior Enamel Wall & Trim Lo-Lustre Semi-Gloss Latex.

G. SYSTEM NO. 9

1. Flat, Acrylic-Enamel over Concrete Masonry Units.
   a. Apply over concrete masonry units, where scheduled, but not included in Systems 7 and 8.

2. Provide two finish coats over a block filler as follows:
   a. Block Filler: High performance, latex based, block filler applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 5.0 mils.
      1) Moore: Moorcraft Interior & Exterior Block Filler #173
      2) PPG: 6-7 Speedhide Interior/Exterior Masonry Block Filler
   b. First and Finish Coats: Flat, latex-based, interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.5 mils.
      1) Moore: Regal Wall satin #215
      2) PPG: 80 Line Wallhide Interior Wall Flat Latex Paint.

H. SYSTEM NO. 10

1. Semi-gloss, Acrylic-Enamel over Gypsum Board.
   a. Apply at exposed gypsum board wall surfaces scheduled to receive paint at the following locations:
      1) Stairs and service corridors
      2) Locker rooms, athletic spaces, toilets.

2. Provide two finish coats over a primer as follows:
   a. Primer: Latex based interior applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      1) Moore: Regal First Coat Interior Latex Primer & Underbody #216
      2) PPG: 17-10 Quick-Drying Interior Latex Primer Sealer.

   b. First and Second Coats: Semi-gloss, acrylic-latex- interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      1) Moore: Moore's Regal AquaGlo Vinyl-Acrylic Latex enamel #333
      2) PPG: 89-10 Satinhide Interior enamel wall& Trim Lo-Lustre semi-Gloss Latex.

I. SYSTEM NO. 11

1. Low- Lustre, Acrylic-Enamel over Gypsum Board.

a. Apply at exposed gypsum board wall surfaces scheduled to receive low luster, or satin finish paint.

2. Provide two finish coats over a primer as follows:
   a. Primer: Latex based interior applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      1) Moore: Regal First Coat Interior Latex Primer & Underbody #216
      2) PPG: 17-10 Quick-Drying Interior Latex Primer Sealer.

   b. First and Second Coats: Low-Lustre (eggshell or satin), acrylic-latex-interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      1) Moore: Moore's Regal AquaVelvet #319
      2) PPG: 89-Line Manor Hall Eggshell Latex Wall and Trim Enamel

J. SYSTEM NO. 12

1. Flat, Acrylic-Enamel over Gypsum Board.
   a. Apply at exposed gypsum board wall surfaces scheduled to receive paint but not included in Systems 10 and 11.

2. Provide one finish coat over a primer as follows:
   a. Primer: Latex based interior applied rate recommended by manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      1) Moore: Regal First Coat Interior Latex Primer & Underbody #216
      2) PPG: 17-10 Quick-Drying Interior Latex Primer Sealer.
   b. Finish Coat: Flat, acrylic-latex- interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
      1) Moore: Regal Wall Satin #215AquaGlo Vinyl-Acrylic Latex enamel #333
      2) PPG: 80 Line Wallhide Interior Wall Flat Latex

K. SYSTEM NO. 13

1. Low-Lustre, Acrylic Enamel over Steel Surfaces:
   a. Apply to steel doors and frames, metal trim and other miscellaneous metal items except surfaces included in System 14.

2. Provide two finish coats over primer.
   a. Primer: Quick drying rust inhibiting alkyd based or epoxy metal primer, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.5 mils.
      1) Moore: IronClad Retardo Rust inhibitive paint #163
      2) PPG: 6-208 Speedhide Interior/Exterior rust inhibitive steel primer.

b. First and Second Coats: Low luster (eggshell or satin) acrylic-latex, interior enamel applied at spread rate recommended by the manufacturer to achieve a dry film thickness of not less than 2.8 mils.
   1) Moore: Moore's Regal AquaVelvet #319
   2) PPG: 89-Line Manor Hall Eggshell Latex Wall and Trim Enamel

L. SYSTEM NO. 14

1. Semi-gloss alkyd enamel over steel surfaces:
   a. Apply to steel surfaces scheduled to be painted, at the following locations:
      1) Steel doors and frames not included in Systems 12 or 13.
      2) Steel stair components, ladders, railings, and handrails.
      3) Metal trim and other miscellaneous items including mechanical and electrical.

2. Provide one finish coat over an undercoat and an alkyd or latex primer. Except for touch up, primer is not required over shop-primed items.
   a. Alkyd Primer: Quick drying, rust inhibitive, alkyd based or epoxy metal primer, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.5 mils.
      1) Moore: IronClad Retardo Rust inhibitive paint #163
      2) PPG: 6-208 Speedhide Interior/Exterior rust inhibitive steel primer.
      3) S-W: Kem Kromik Metal Primer B50N2/B50W1

   b. Latex Primer:Alkyd-modified, acrylic, rust inhibitive latex primer, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.5 mils.
      1) Moore: Retard-X do Rust inhibitive Latex primer #162
      2) PPG: 6-208 Red inhibitive metal primer.

   c. Undercoat: Alkyd interior enamel undercoat or semi-gloss interior alkyd enamel finish coat, Alkyd Primer: Quick drying, rust inhibitive, alkyd based or epoxy metal primer, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.2 mils.
      1) Moore: Moore's alkyd Enamel Underbody #217
      2) PPG: 6-6 Speedhide Interior Quick Drying Enamel Undercoater
      3) S-W: Pro-Mar 200 Interior Alkyd Semi-Gloss Enamel B34W200

   d. Finish Coat: Low –odor, semi-gloss, alkyd interior enamel applied at, a spreading rate as recommended by the manufacturer for this substrate, to achieve a dry film thickness of not less than 1.4 mils.
      1) Moore: Alkyd Dulamel #207

2) PPG: 27 Line Wallhide Low Odor Interior Enamel Wall and Trim Semi-Gloss Oil
3) S-S: Classic 99 Interior/Exterior Semi-gloss Alkyd Enamel A-40 Series.

M. SYSTEM NO. 15

1. Waterborne Satin –Varnish Finish:
   a. Apply at hardwood surfaces to receive transparent finish, but not scheduled to receive shop-applied finish by casework fabricator.

2. Provide two finish coats of a waterborne, clear satin varnish over sealer coat and a waterborne, interior wood stain. Wipe wood filler before applying stain, if recommended by the manufacturer for wood species indicated.

   a. Stain Coat: Waterborne, interior wood stain applied at spreading rate recommended by the manufacturer.
      1) Moore: Benwood Penetrating Stain #234
      2) PPG: 77-302 Rez Interior Semi-transparent Stain.

   b. Sealer Coat: Clear sanding sealer applied at spreading rate recommended by the manufacturer.
      1) Moore: (None recommended)
      2) PPG: 77-Rez Interior Quick Drying Sealer and Finish.

   c. First and Second Finish Coats: Waterborne, varnish finish applied at spreading rate recommended by manufacturer.
      1) Moore: Stays Clear Acrylic Polyurethane #423, Satin
      2) PPG: Rez Satin Acrylic Clear Polyurethane

N. SYSTEM NO.16

1. Low-Luster, Acrylic-Enamel over Wood.
   a. Apply at exposed wood and construction panel surfaces not scheduled to receive transparent, natural, finish.

2. Provide two finish coats over a primer.
   a. Primer: Alkyd, or acrylic-latex based, interior wood primer, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.4 mils.
      1) Moore: Moore’s Alkyd enamel underbody #217
      2) PPG: 17-225 Quick Drying Enamel Undecoat

   b. First and Second Coats: Low-luster (eggshell or satin) acrylic latex interior enamel, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 2.8 mils.

1) Moore: Moore's Regal Aqua Velvet #319
2) PPG: 89 Line Manor Hall Interior Eggshell Latex Wall and Trim Enamel

O. SYSTEM NO.17

1. Semi-gloss, Alkyd Enamel over other Wood Surfaces.
   a. Apply at exposed wood and construction panel surfaces not scheduled to receive transparent, natural, finish, and not included in System No. 16.

2. Provide two finish coats over a primer.
   a. Primer: Alkyd, or -latex based, interior wood undercoater, as recommended by the manufacturer for this substrate, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 1.2 mils.
      1) Moore: Moore's Alkyd enamel underbody #217
      2) PPG: 17-225 Quick Drying Enamel Undecoat
      3) S-W: Pro Mar 200 Alkyd Enamel Undercoater B49W200

   b. First and Second Coats: Odorless, semigloss, interior enamel, applied at a rate recommended by the manufacturer to achieve a dry film thickness of not less than 2.4 mils.
      1) Moore: Alkyd Dulamel #207
      2) PPG: 27 Line Wallhide Low Odor Interior Enamel Wall and Trim Semi-Gloss Oil
      3) S-W: Classic 99 Interior/Exterior Semi-gloss Alkyd Enamel A-40 Series.

P. SYSTEM NO. 18

1. Two Component Epoxy Coating System for Concrete Floors
   a. Apply at exposed concrete floors in spaces requiring special high performance coating as scheduled.

2. Provide two finished coats. Prior to applying coating, condition floor according to coating manufacturer's instructions and recommendations.
   a. First and Second Coats: High gloss polyamide epoxy coating system applied at spreading rate as recommended by manufactured to achieve a total dry film thickness of not les than 2.5 mils per coat. Thin first coat per manufacturer's recommendations.
      1) Moore: Iron Clad Chemical and Water Resistant Epoxy Enamel #182
      2) PPG: 97-1 Series Aquapon Polyamide- Epoxy Ready Mixed Colors
      3) Tnemec: Series 67 Tneme-Tread.

Q. SYSTEM NO. 19

1. Concrete Sealer (chemical type).
   a. Apply at concrete floor surfaces as follows:
      1) Indicated to receive glue down carpet installation.
      2) Surfaces indicated to be sealed

2. Provide transparent, colorless, penetrating liquid hardener and sealer of proven compatibility with carpet adhesive.
   a. Prepare surfaces and apply not less than two coats complying strictly with the manufacturer's instructions and recommendations.
      1) "Armotrop", by Anti-Hydro Co.
      2) "Sikafuard 70", by Sika Corp.
      3) "Thoro Penetrating Sealer", by Thoro System Products

END OF SECTION 09912

PART IV - REPRESENTATIONS AND INSTRUCTIONS

SECTION K - REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS OR QUOTERS

K.1 52.203-02 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that-

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to-

(i) Those prices;
(ii) The intention to submit an offer;, or
(iii) The methods or factors used to calculate the prices offered.

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory-

(1) Is the person in the offeror's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraph (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above ***insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization]*;** and

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the offeror deletes or modifies subparagraph (a)(2) above, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

K.2 52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (SEP 2007)

(a) Definitions. As used in this provision – "Lobbying contact" has the meaning provided at 2 USC 1602(8). The terms "agency", "influencing or attempting to influence", "officer or employee of an agency", "person", "reasonable compensation", and "regularly employed" are defined in the FAR clause of this solicitation entitled Limitation on Payments to Influence Certain Federal Transactions (52.203-12).

(b) Prohibition. The prohibition and exceptions contained in the FAR clause of this solicitation entitled "Limitation on Payments to Influence Certain Federal Transactions" (52.203-12) are hereby incorporated by reference in this provision.

(c) Certification. The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress on its behalf in connection with the awarding of this contract.

(d) Disclosure. If any registrants under the Lobbying Disclosure Act of 1995 have made a lobbying contract on behalf of the offeror with respect to this contract, the offeror shall complete and submit, with its officer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to provide the name of the registrants. The offeror need not report regularly employed officers or employees of the offeror to whom payments of reasonable compensation were made.

(e) Penalty. Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by 31 USC 1352. Any persons who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure required to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $150,000, for each failure.

K.3 52.204-3 TAXPAYER IDENTIFICATION (OCT 98)

(a) Definitions:

"Common parent", as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“Taxpayer Identification Number (TIN)", as used in this provision, means the number required by the IRS to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision in order to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325 (d), reporting requirements of 26 USC 6041, 6041A, and 6050M and implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to the reporting requirements described in FAR 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror’s relationship with the Government (3l USC 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror’s TIN.

(d) Taxpayer Identification Number (TIN).

TIN: _____

___ TIN has been applied for.
___ TIN is not required because:
___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.;
___ Offeror is an agency or instrumentality of a foreign government;
___ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of Organization.

___ Sole Proprietorship;
___ Partnership:
___ Corporate Entity (not tax exempt);
___ Corporate Entity (tax exempt);
___ Government entity (Federal, State, or local);
___ Foreign government;

___ International organization per 26 CFR 1.6049-4;
___ Other _____

(f) Common Parent.

___ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this clause.
___ Name and TIN of common parent;

Name _____
TIN _____

K.4 **52.204-8** ANNUAL REPRESENTATIONS AND CERTIFICATIONS (NOV 2011)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 236220 for Construction Management, commercial and institutional building or Warehouse construction, 237310 for Construction Management, highway road, street or bridge, 237990 for Construction Management, outdoor recreation facility, 236118 for Construction Management, residential remodeling, 237110 for Construction Management, water and sewage line and related structures.

(2) The small business size standard is $33.5 million**.**

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

[ ] (i) Paragraph (d) applies.

[ ] (ii) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c)(1) The following representations or certifications in ORCA are applicable to this solicitation as indicated:

(i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—

(A) The acquisition is to be made under the simplified acquisition procedures in Part 13;

(B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or

(C) The solicitation is for utility services for which rates are set by law or regulation.

(ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed $150,000.

(iii) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the clause at 52.204-7, Central Contractor Registration.

(iv) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—

(A) Are not set aside for small business concerns;

(B) Exceed the simplified acquisition threshold; and

(C) Are for contracts that will be performed in the United States or its outlying areas.

(v) 52.209-2, Prohibition on Contracting with Inverted Domestic Corporations—Representation. This provision applies to solicitations using funds appropriated in fiscal years 2008, 2009, or 2010.

(vi) 52.209-5, Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(vii) 52.214-14, Place of Performance—Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

(viii) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(ix) 52.219-1, Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.

(A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.

(B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

(x) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

(xi) 52.222-22, Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at 52.222-26, Equal Opportunity.

(xii) 52.222-25, Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at 52.222-26, Equal Opportunity.

(xiii) 52.222-38, Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial items.

(xiv) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

(xv) 52.223-4, Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA–designated items.

(xvi) 52.225-2, Buy American Act Certificate. This provision applies to solicitations containing the clause at 52.225-1.

(xvii) 52.225-4, Buy American Act—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternate I, and Alternate II) This provision applies to solicitations containing the clause at 52.225-3.

(A) If the acquisition value is less than $25,000, the basic provision applies.

(B) If the acquisition value is $25,000 or more but is less than $50,000, the provision with its Alternate I applies.

(C) If the acquisition value is $50,000 or more but is less than $67,826, the provision with its Alternate II applies.

(xviii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.

(xix) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan—Certification. This provision applies to all solicitations.

(xx) 52.225-25, Prohibition on Contracting with Entities Engaging in Sanctioned Activities Relating to Iran—Representation and Certification. This provision applies to all solicitations.

(xxi) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to—

(A) Solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions; and

(B) For DoD, NASA, and Coast Guard acquisitions, solicitations that contain the clause at 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns.

(2) The following certifications are applicable as indicated by the Contracting Officer: [*Contracting Officer check as appropriate.*]

__ (i) 52.219-22, Small Disadvantaged Business Status.

__ (A) Basic.

__ (B) Alternate I.

__ (ii) 52.222-18, Certification Regarding Knowledge of Child Labor for Listed End Products.

__ (iii) 52.222-48, Exemption from Application of the Service Contract Act to Contracts for Maintenance, Calibration, or Repair of Certain Equipment Certification.

__ (iv) 52.222-52, Exemption from Application of the Service Contract Act to Contracts for Certain Services–Certification.

__ (v) 52.223-9, with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA–Designated Products (Alternate I only).

__ (vi) 52.227-6, Royalty Information.

__ (A) Basic.

__(B) Alternate I.

__ (vii) 52.227-15, Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at http://orca.bpn.gov. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying*

change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR CLAUSE #	TITLE	DATE	CHANGE
_____	_____	_____	_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of provision)

K. 5 RESERVED

K.6. 52.225-18 Place of Manufacture (Sept 2006)
(a) Definitions. As used in this clause—

" Manufactured end product" means any end product in Federal Supply Classes (FSC) 1000-9999, except—

(1) FSC 5510, Lumber and Related Basic Wood Materials;
(2) Federal Supply Group (FSG) 87, Agricultural Supplies;
(3) FSG 88, Live Animals;
(4) FSG 89, Food and Related Consumables;
(5) FSC 9410, Crude Grades of Plant Materials;
(6) FSC 9430, Miscellaneous Crude Animal Products, Inedible;
(7) FSC 9440, Miscellaneous Crude Agricultural and Forestry Products;
(8) FSC 9610, Ores;
(9) FSC 9620, Minerals, Natural and Synthetic; and
(10) FSC 9630, Additive Metal Materials.

"Place of manufacture" means the place where an end product is assembled out of components, or otherwise made or processed from raw materials into the finished product that is to be provided to the Government. If a product is disassembled and reassembled, the place of reassembly is not the place of manufacture.

(b) For statistical purposes only, the offeror shall indicate whether the place of manufacture of the end products it expects to provide in response to this solicitation is predominantly—

(1) [ ] In the United States (Check this box if the total anticipated price of offered end products manufactured in the United States exceeds the total anticipated price of offered end products manufactured outside the United States); or
(2) [ ] Outside the United States.

K.7 52.225-20 PROHIBITION ON CONDUCTING RESTRICTED BUSINESS OPERATIONS IN SUDAN—CERTIFICATION (AUG 2009)

(a) *Definitions.* As used in this provision—

"Business operations" means engaging in commerce in any form, including by acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, or any other apparatus of business or commerce.

"Marginalized populations of Sudan" means—

(1) Adversely affected groups in regions authorized to receive assistance under section 8(c) of the Darfur Peace and Accountability Act (Pub. L. 109-344) (50 U.S.C. 1701 note); and

(2) Marginalized areas in Northern Sudan described in section 4(9) of such Act.

"Restricted business operations" means business operations in Sudan that include power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, as those terms are defined in the Sudan Accountability and Divestment Act of 2007 (Pub. L. 110-174). Restricted business operations do not include business operations that the person conducting the business can demonstrate—

(1) Are conducted under contract directly and exclusively with the regional government of southern Sudan;

(2) Are conducted pursuant to specific authorization from the Office of Foreign Assets Control in the Department of the Treasury, or are expressly exempted under Federal law from the requirement to be conducted under such authorization;

(3) Consist of providing goods or services to marginalized populations of Sudan;

(4) Consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization;

(5) Consist of providing goods or services that are used only to promote health or education; or

(6) Have been voluntarily suspended.

(b) *Certification.* By submission of its offer, the offeror certifies that it does not conduct any restricted business operations in Sudan.

K.8 RESERVED

K.9 RESERVED

K.10 652.228-70 DEFENSE BASE ACT – COVERED CONTRACTOR EMPLOYEES (JUN 2006)

(a) Bidders/offerors shall indicate below whether or not any of the following categories of employees will be employed on the resultant contract, and, if so, the number of such employees:

Category	Yes/No	Number
(1) United States citizens or residents		
(2) Individuals hired in the United States, regardless of citizenship		
(3) Local nationals or third country nationals where contract performance takes place in a country *where there are no* local workers' compensation laws		Local nationals: _____ Third Country Nationals: _____
(4) Local nationals or third country nationals where contract performance takes place in a country where there *are* local workers' compensation laws		Local nationals: _____ Third Country Nationals: _____

(b) The contracting officer has determined that for performance in the country of IRAQ

☐ Workers' compensation laws exist that will cover local nationals and third country nationals.

☑ Workers' compensation laws do not exist that will cover local nationals and third country nationals.

(c) If the bidder/offeror has indicated "yes" in block (a)(4) of this provision, the bidder/offeror shall not purchase Defense Base Act insurance for those employees. However, the bidder/offeror shall assume liability toward the employees and their beneficiaries for war-hazard injury, death, capture, or detention, in accordance with the clause at FAR 52.228-4.

(d) If the bidder/offeror has indicated "yes" in blocks (a)(1), (2), or (3) of this provision, the bidder/offeror shall compute Defense Base Act insurance costs covering those employees pursuant to the terms of the contract between the Department of State and the Department's Defense Base Act insurance carrier at the rates specified in DOSAR 652.228-74, Defense Base Act Insurance Rates – Limitation. If DOSAR provision 652.228-74 is not included in this solicitation, the bidder/offeror shall notify the contracting officer before the closing date so that the solicitation can be amended accordingly.

K.11. 52.209-2 Prohibition on Contracting with Inverted Domestic Corporations—Representation. (May 2011)

(a) *Definition*. "Inverted domestic corporation" and "subsidiary" have the meaning given in the clause of this contract entitled Prohibition on Contracting with Inverted Domestic Corporations (52.209-10).

(b) *Relation to Internal Revenue Code*. An inverted domestic corporation as herein defined does not meet the definition of an inverted domestic corporation as defined by the Internal Revenue Code at 26 U.S.C. 7874 .

(c) *Representation*. By submission of its offer, the offeror represents that—

(1) It is not an inverted domestic corporation; and

(2) It is not a subsidiary of an inverted domestic corporation.

(End of provision)

K.12 52.209-5 CERTIFICATION REGARDING RESPONSIBILITY MATTERS (APR 2010)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that—

(i) The Offeror and/or any of its Principals—

(A) Are o are not o presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have o have not o, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) contract or subcontract; violation of Federal or State antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property (if offeror checks "have", the offeror shall also see 52.209-7, if included in this solicitation);

(C) Are o are not o presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision;

(D) Have o, have not o, within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied.

(1) Federal taxes are considered delinquent if both of the following criteria apply:

(i) *The tax liability is finally determined*. The liability is finally determined if it has been assessed. A liability is not finally determined if there is a pending administrative or judicial challenge. In the case of a judicial challenge to the liability, the liability is not finally determined until all judicial appeal rights have been exhausted.

(ii) *The taxpayer is delinquent in making payment*. A taxpayer is delinquent if the taxpayer has failed to pay the tax liability when full payment was due and required. A taxpayer is not delinquent in cases where enforced collection action is precluded.

(2) *Examples*.

(i) The taxpayer has received a statutory notice of deficiency, under I.R.C. § 6212, which entitles the taxpayer to seek Tax Court review of a proposed tax deficiency. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek Tax Court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(ii) The IRS has filed a notice of Federal tax lien with respect to an assessed tax liability, and the taxpayer has been issued a notice under I.R.C. § 6320 entitling the taxpayer to

request a hearing with the IRS Office of Appeals contesting the lien filing, and to further appeal to the Tax Court if the IRS determines to sustain the lien filing. In the course of the hearing, the taxpayer is entitled to contest the underlying tax liability because the taxpayer has had no prior opportunity to contest the liability. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek tax court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(iii) The taxpayer has entered into an installment agreement pursuant to I.R.C. § 6159. The taxpayer is making timely payments and is in full compliance with the agreement terms. The taxpayer is not delinquent because the taxpayer is not currently required to make full payment.

(iv) The taxpayer has filed for bankruptcy protection. The taxpayer is not delinquent because enforced collection action is stayed under 11 U.S.C. 362 (the Bankruptcy Code).

(ii) The Offeror has o has not o, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principal," for the purposes of this certification, means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (*e.g.*, general manager; plant manager; head of a division or business segment; and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

K.13 52.225-25 Prohibition on Contracting with Entities Engaging in Sanctioned Activities Relating to Iran—Representation and Certification. (Nov 2011)

(a) *Definitions*.

"Person"—

(1) Means—

(i) A natural person;

(ii) A corporation, business association, partnership, society, trust, financial institution, insurer, underwriter, guarantor, and any other business organization, any other nongovernmental entity, organization, or group, and any governmental entity operating as a business enterprise; and

(iii) Any successor to any entity described in paragraph (1)(ii) of this definition; and

(2) Does not include a government or governmental entity that is not operating as a business enterprise.

"Sensitive technology"—

(1) Means hardware, software, telecommunications equipment, or any other technology that is to be used specifically—

(i) To restrict the free flow of unbiased information in Iran; or

(ii) To disrupt, monitor, or otherwise restrict speech of the people of Iran; and

(2) Does not include information or informational materials the export of which the President does not have the authority to regulate or prohibit pursuant to section 203(b)(3) of the International Emergency Economic Powers Act (50 U.S.C. 1702(b)(3)).

(b) The offeror shall e-mail questions concerning sensitive technology to the Department of State at *CISADA106@state.gov*.

(c) Except as provided in paragraph (d) of this provision or if a waiver has been granted in accordance with 25.703-4, by submission of its offer, the offeror—

(1) Represents, to the best of its knowledge and belief, that the offeror does not export any sensitive technology to the government of Iran or any entities or individuals owned or controlled by, or acting on behalf or at the direction of, the government of Iran; and

(2) Certifies that the offeror, or any person owned or controlled by the offeror, does not engage in any activities for which sanctions may be imposed under section 5 of the Iran Sanctions Act. These sanctioned activities are in the areas of development of the petroleum resources of Iran, production of refined petroleum products in Iran, sale and provision of refined petroleum products to Iran, and contributing to Iran's ability to acquire or develop certain weapons or technologies.

(d) *Exception for trade agreements*. The representation requirement of paragraph (c)(1) and the certification requirement of paragraph (c)(2) of this provision do not apply if—

(1) This solicitation includes a trade agreements notice or certification (*e.g.*, 52.225-4, 52.225-6, 52.225-12, 52.225-24, or comparable agency provision); and

(2) The offeror has certified that all the offered products to be supplied are designated country end products or designated country construction material.

(End of provision)

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS OR QUOTERS

L.1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates the following provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at:

http://acquisition.gov/far/index.html/ or, http://farsite.hill.af.mil/search.htm

These addresses are subject to change. If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use of an Internet "search engine" (such as, Yahoo, Infoseek, Alta Vista, etc.) is suggested to obtain the latest location of the most current FAR.

http://www.statebuy.state.gov/

FEDERAL ACQUISITION REGULATION (48 CFR CH. 1)

52.204-6	CONTRACTOR INDENTIFICATION NUMBER-DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER	APR 2008
52.214-34	SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE	APR 1991
52.215-1	INSTRUCTIONS TO OFFERORS – COMPETITIVE ACQUISITION	JAN 2004
52.236-28	PREPARATION OF PROPOSALS – CONSTRUCTION	OCT 1997

L.2 SOLICITATION PROVISIONS IN FULL TEXT

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a firm fixed price contract resulting from this solicitation.

52.233-2 SERVICE OF PROTEST (SEPT 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General

Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from BaghdadGSOProcBid@state.gov.

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

L.3 QUALIFICATIONS OF OFFERORS

Offerors must be technically qualified and financially responsible to perform the work described in this solicitation. At a minimum, each Offeror must meet the following requirements:

(1) Be able to understand written and spoken English;

(2) Have an established business with a permanent address and telephone listing;

(3) Be able to demonstrate prior construction experience with suitable references for company and Project manager;

(4) Have the necessary personnel, equipment and financial resources available to perform the work;

(5) Have all licenses and permits required by local law;

(6) Meet all local insurance requirements;

(7) Have the ability to obtain a performance and guarantee bond and a payment bond, or to post adequate performance security, such as irrevocable letters of credit or guarantees issued by a reputable financial institution;

(8) Have no adverse criminal record; and

(9) Have no political or business affiliation which could be considered contrary to the interests of the United States.

L.4 REVIEW OF DOCUMENTS

Each Offeror is responsible for:

(1) Obtaining a complete set of contract drawings and specifications;

(2) Thoroughly reviewing such documents and understanding their requirements;

(3) Visiting the project site and becoming familiar with all working conditions, local laws and regulations; and

(4) Determining that all materials, equipment and labor required for the work are available.

Any ambiguity in the solicitation, including specifications and contract drawings, must be reported immediately to the Contracting Officer. Any prospective Offeror who requires a clarification, explanation or interpretation of the contract requirements must make a request to the Contracting Officer not less than ten working days before the closing date of the solicitation. Offerors may rely ONLY upon written interpretations by the Contracting Officer.

L.5 SUBMISSION OF OFFERS

L.5.1 SUMMARY OF INSTRUCTIONS

Each offer shall consist of the following physically separate volumes:

Volume	Title	No. of Copies
I	Executed Standard Form 1442, *Solicitation, Offer and Award (Construction, Alteration, or Repair),* and completed Section K	ONE
II	Completed Section B. The price proposal shall include a completed Section J, Attachment 4, "Breakdown of Proposal Price by Divisions of Specifications" and the BID FORM.	ONE
III	Performance schedule in the form of a "bar chart" and Business Management/Technical Proposal.	ONE

Submit the complete offer to the address indicated at Block 7 of Standard Form (SF) 1442, if mailed, or the address set forth below, if hand delivered (if this is left blank, the address is the same as that in Block 7 of SF 1442).

In a sealed envelope marked for the attention of the **"Contracting Officer – Proposal S-IZ100-12-R-0027 Enclosed"**, which may be delivered to the Embassy Red CAC on Al Kindi Street between 0800 and 1500 on regular business days (Sunday to Thursday). No proposal will be accepted after the cut-off date and time.

If submitted in electronic format submit the offer to BaghdadGSOProcBid@state.gov in .pdf format. Please ensure that each file does not exceed 2mb. If your proposal is bigger than the stipulated size you must submit multiple emails clearly marking the solicitation number as well as the file number (example: Proposal for Solicitation S-IZ100-12-R-0027 part 1 of 3).

The offeror shall identify and explain/justify any deviations, exceptions, or conditional assumptions taken with respect to any of the instructions or requirements of this solicitation in the appropriate volume of the offer.

L.5.2 DETAILED INSTRUCTIONS

L.5.2.1 Volume I: Standard Form (SF) 1442 and Section K. Complete blocks 14 through 20C of the SF 1442 and all of Section K.

L.5.2.2 Volume II: Section B and BID FORM. The price proposal shall consist of completed Section B, Section J, Attachment 4, "BREAKDOWN OF PROPOSAL PRICE BY DIVISIONS OF SPECIFICATIONS". Complete all applicable portions of this form in each relevant category (such as, labor, materials, etc.).

L.5.2.3 Volume III: Performance schedule and Business Management/Technical Proposal.

(a) Present the performance schedule in the form of a "bar chart" indicating when the various portions of the work will be commenced and completed within the required contract completion schedule. This bar chart shall be in sufficient detail to clearly show each segregable portion of work and its planned commencement and completion date.

(b) The Business Management/Technical Proposal shall be in two parts, including the following information:

PROPOSED WORK INFORMATION - Provide the following:

(1) A list of the names, addresses and telephone numbers of the owners, partners, and principal officers of the Offeror;

(2) The name and address of the Offeror's field superintendent for this project; and

(3) A list of the names, addresses, and telephone numbers of subcontractors and principal materials suppliers to be used on the project, indicating what portions of the work will be performed by them.

EXPERIENCE AND PAST PERFORMANCE - List all contracts and subcontracts your company has held over the past three years for the **same or similar** work. Provide the following information for each contract and subcontract:

(1) Customer's name, address, and telephone numbers of customer's lead contract and technical personnel;
(2) Contract number and type;
(3) Date of the contract award place(s) of performance, and completion dates;
(4) Contract dollar value;
(5) Brief description of the work, including responsibilities;
(6) Comparability to the work under this solicitation;
(7) Brief discussion of any major technical problems and their resolution;
(8) Method of acquisition (fully competitive, partially competitive, or noncompetitive), and the basis for award (cost/price, technical merit, etc.);

(9) Cost/price management history, including any cost overruns and under runs, and cost growth and changes;
(10) Percent turnover of contract key technical personnel per year; and
(11) Any terminations (partial or complete) and the reason (convenience or default)
(12) Identify any accidents or safety concerns that occurred and resolution.

LICENSES
(1) A copy of the company registration with the Iraqi Ministry of Trade, or
(2) For foreign companies, a copy of the company registration with the Foreign Companies Section of the Iraqi Ministry of Trade,

INSURANCE & PAYMENT PROTECTION INFORMATION
(1) A statement identifying the insurance company from which the general liability insurance policy will be purchased if awarded the contract,
(2) A statement identifying the bank which will issue the bank guaranty letter if awarded the contract.

L.6 52.236-27 SITE VISIT (FEB 1995)

a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.
(b) A site visit has been scheduled for **10:00 on Sunday, April 15, 2012.**
(c) Participants will meet at the U. S. Embassy, RED CAC on Al Kindi Street, International Zone, Baghdad, Iraq.
(d) In order to be admitted to the Site Visit, a Site Visit Registration form must be submitted by email to this address BaghdadGSOProcurement@state.gov to the attention of the Contracting Specialist no later than 12:00 on **Tuesday, April 10, 2012**. No more than 2 persons will be admitted from each company. The form is available for download from the Embassy web site at http://iraq.usembassy.gov/gso_procurement.html or you may request a copy of the form by email at BaghdadGSOProcurement@state.gov.
(e) Questions after the site visit may be sent by email to BaghdadGSOProcurement@state.gov no later than 12:00 noon Baghdad time on April 18, 2012. Answers to all questions will be posted on the Embassy's procurement web site at BaghdadGSOProcurement@state.gov, on the solicitation page the questions pertain to.

(f) One set of drawings, listed as Attachment 5 to Section J will be provided to each company at the site visit/pre-proposal conference.

L.7 652.206-70 COMPETITION ADVOCATE/OMBUDSMAN (AUG 1999) (DEVIATION)

(a) The Department of State's Competition Advocate is responsible for assisting industry in removing restrictive requirements from Department of State solicitations and removing barriers to full and open competition and use of commercial items. If such a solicitation is considered competitively restrictive or does not appear properly conducive to competition and commercial

practices, potential offerors are encouraged to first contact the contracting office for the respective solicitation. If concerns remain unresolved, contact the Department of State Competition Advocate on (703) 516-1693, by fax at (703) 875-6155, or write to: U.S. Department of State, Competition Advocate, Office of the Procurement Executive (A/OPE), Suite 900, SA-27, Washington, DC 20522-2712.

(b) The Department of State's Acquisition Ombudsman has been appointed to hear concerns from potential offerors and contractors during the pre-award and post-award phases of this acquisition. The role of the ombudsman is not to diminish the authority of the contracting officer, the Technical Evaluation Panel or Source Evaluation Board, or the selection official. The purpose of the ombudsman is to facilitate the communication of concerns, issues, disagreements, and recommendations of interested parties to the appropriate Government personnel, and work to resolve them. When requested and appropriate, the ombudsman will maintain strict confidentiality as to the source of the concern. The ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Interested parties are invited to contact the contracting activity ombudsman, Management Counselor, at email BaghdadGSOProcurement@state.gov. For an American Embassy or overseas post, refer to the numbers below for the Department Acquisition Ombudsman. Concerns, issues, disagreements, and recommendations which cannot be resolved at a contracting activity level may be referred to the Department of State Acquisition Ombudsman at (703) 516-1693, by fax at (703) 875-6155, or write to: Department of State, Acquisition Ombudsman, Office of the Procurement Executive (A/OPE), Suite 900, SA-27, Washington, DC 20522-2712.

652.228-74 DEFENSE BASE ACT INSURANCE RATES – LIMITATION (JUN 2006)

(a) The Department of State has entered into a contract with an insurance carrier to provide Defense Base Act (DBA) insurance to Department of Sate covered contactor employees at a contracted rate. For the purposes of this provision, "covered contractor employees" includes the following individuals:

(1) United States citizens or residents;

(2) Individuals hired in the United States or its possessions, regardless of citizenship; and

(3) Local nationals and third country nationals where contract performance takes place in a country where there are no local workers' compensation laws.

(b) In preparing the cost proposal, the bidder/offeror shall use the following rates in computing the cost for the DBA insurance:

Services @ $4.00 per $100.00 of employee compensation; or

Construction @ $5.50 per $100.00 of employee compensation.

(c) Bidders/Offerors shall compute the total compensation (direct salary plus differential, but excluding per diem, housing allowances) to be paid to covered contractor employees and the cost of DBA insurance in their bid/proposal using the foregoing rate. Bidders/offerors shall include the estimated DBA insurance costs in their proposed fixed price or estimated cost. However, the DBA insurance costs shall be identified in a separate line item in the bid proposal."

L.8 MAGNITUDE OF CONSTRUCTION PROJECT

It is anticipated that the range in price of this contract will be: between $100,000 and $250,000.

L.9 FINANCIAL STATEMENT

If asked by the Contracting Officer, the offeror shall provide a current statement of its financial condition, certified by a third party, that includes:

Income (profit-loss) Statement that shows profitability for the past Three years;

Balance Sheet that shows the assets owned and the claims against those assets, or what a firm owns and what it owes; and

Cash Flow Statement that shows the firm's sources and uses of cash during the most recent accounting period. This will help the Government assess a firm's ability to pay its obligations.

The Government will use this information to determine the offeror's financial responsibility and ability to perform under the contract. Failure of an offeror to comply with a request for this information may cause the Government to determine the offeror to be nonresponsible.

SECTION M - EVALUATION FACTORS FOR AWARD

M.1 EVALUATION OF PROPOSALS

M.1.1 GENERAL. To be acceptable and eligible for evaluation, proposals must be prepared in accordance with Section L - INSTRUCTIONS, CONDITIONS AND NOTICES TO OFFERORS, and must meet all the requirements set forth in the other sections of this solicitation.

M.1.2 BASIS FOR AWARD.

The Government intends to award a contract resulting from this solicitation to the lowest priced, technically acceptable offeror who is a responsible contractor. The evaluation procedures are set forth below:

(a) INITIAL EVALUATION. The Government will evaluate all proposals received to ensure that each proposal is complete in terms of submission of each required volume, as specified in Section L. The Government may reject proposals which are missing a significant amount of the required information.

(b) TECHNICAL EVALUATION. After the Initial Evaluation, the Government will review those proposals remaining for consideration to determine technical acceptability. The Government will consider the following evaluation criteria in determining the acceptability of the technical proposal. To be considered technically acceptable, the technical proposal must provide the information requested in Section L and conform to the requirements of the solicitation.

- The Proposed Work Information described in L.5.2.3(b).
- The qualifications and experience of the offeror's proposed project superintendent and subcontractors.
- Experience and Past Performance (L.5.2.3.(b)). The Government may contact references to verify the quality of the past performance.
- The performance schedule (bar chart) (Section L.5.2.3.).
- Responses to all other technical requirements contained in the solicitation.

(c) The Government will make a responsibility determination by analyzing whether the apparent successful offeror complies with the requirements of FAR 9.1, including:

- adequate financial resources or the ability to obtain them;

- ability to comply with the required performance period, taking into consideration all existing commercial and governmental business commitments;
- satisfactory record of integrity and business ethics;
- necessary organization, experience, and skills or the ability to obtain them;
- necessary equipment and facilities or the ability to obtain them; and
- be otherwise qualified and eligible to receive an award under applicable laws and regulations.

The Government reserves the right to reject proposals that are unreasonably low or high in price. Unsuccessful offerors will be notified in accordance with FAR 15.5.

M.1.3 AWARD SELECTION

The Government will review the prices of all technically acceptable firms and award the contract to the lowest priced, technically acceptable, responsible offeror.

M.2 AWARD WITH OR WITHOUT DISCUSSIONS

Under FAR provision 52.215-1 (included in Section L of this RFP), award of this contract may be made based on initial proposals and without holding discussions, following FAR 15.306(a)(3). However, the Government may elect to make award with discussions if it is determined to be in the Government's best interest.

COMPETITIVE RANGE DETERMINATION AND REJECTION OF OFFERS

If the Government elects to make award with discussions, it reserves the right, before requesting a final proposal revision, to: 1) limit the number of offerors in the competitive range to the greatest number of proposals that will permit an adequate competition among the technically acceptable proposals; 2) make more than one competitive range determination; 3) conduct more than one round of discussions; and 4) conduct more than one round of proposal revisions.

The Government reserves the right to reject an offer if one of the following conditions exists:

a. Offeror fails to submit any of the required proposal documents required by Section L;

b. Offeror submits a cost/price proposal that cannot be adequately explained or substantiated;

c. Offeror submits an offer that could not be made technically acceptable without a major rewrite.

d. Offeror submits an offer electronically to any email address other than to BaghdadGSOProcBid@state.gov

e. The offeror does not provide proof that it has the permits and licenses to legally conduct business in Iraq (See Section L. Volume III- Licenses)

M.3 52.225-17 EVALUATION OF FOREIGN CURRENCY OFFERS (FEB 2000):

If the Government receives offers in more than one currency, the Government will evaluate offers by converting the foreign currency to United States currency using the exchange rate used by the Embassy in effect as follows:

(a) For acquisitions conducted using sealed bidding procedures, on the date of bid opening.

(b) For acquisitions conducted using negotiation procedures—

(1) On the date specified for receipt of offers, if award is based on initial offers; otherwise

(2) On the date specified for receipt of proposal revisions.

M.4 SEPARATE CHARGES

Separate charges, in any form, are not solicited. For example, any charges for failure to exercise an option are unacceptable.