

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. SCO20016Q0015	2. TYPE OF SOLICITATION _ SEALED BID (IFB) x NEGOTIATED (RFP)	3. DATE ISSUED 08/29/2016	Page 1 of 3
	IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.			

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. PR5640548	6. PROJECT NO.
7. ISSUED BY AMERICAN EMBASSY BOGOTA CARRERA 45 NO. 24B-27, ATTN: GSO BOGOTA COLOMBIA	CODE CO200	8. ADDRESS OFFER TO AMERICAN EMBASSY BOGOTA CARRERA 45 NO. 24B-27, ATTN: GSO/SECCION DE COMPRAS BOGOTA COLOMBIA
9. FOR INFORMATION CALL: →	A. NAME Nancy Brant – Sonia Rivera	B. TELEPHONE NO. <i>(Include area code)</i> (NO COLLECT CALLS) 571-275-3806 / 571-275-2077

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):

Architectural and structural design and construction to repair the existing Greenhouse Building at the Embassy Compound.

Attachments

- Attachment 1: Breakdown of price by Divisions of Specifications
- Attachment 2: Drawings
- Attachment 3: Specifications
- Attachment 4: Soils investigations
- Attachment 5: Safety requirements for contractors

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

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> x YES _ NO	12B. CALENDAR DAYS 5
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

- A. Sealed offers in original and 1 copies to perform the work required are due at the place specified in Item 8 by 16:00 *(hour)* local time 09/13/2016 *(date)*. If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.
- B. An offer guarantee _ is, x is not required.
- C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.
- D. Offers providing less than 120 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	FACILITY 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 _____ 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 →

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

19. ACKNOWLEDGMENT OF AMENDMENTS

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

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	20B. SIGNATURE	20C. OFFER DATE
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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	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO _ 10 U.S.C. 2304(c)() _ 41 U.S.C. 253(c)()
26. ADMINISTERED BY Same as block #7	CODE	27. PAYMENT WILL BE MADE BY U.S. Embassy – Bogota Finance Management Center - FMC Carrera 45 #24B-27

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ 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 or incorporated by reference in or attached to this contract.	<input type="checkbox"/> 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.
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30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)	31A. NAME OF CONTRACTING OFFICER (Type or print) <p align="center">Nancy Brant</p>		
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA, BY .	31C. AWARD DATE

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STANDARD FORM 1442 BACK (REV. 4-85)11. SCHEDULE*(Include applicable Federal, State and local taxes)*

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
1	Architectural and structural design and construction to repair the existing Greenhouse Building at the Embassy Compound Funding Information: Total: \$0.00 ----- \$0.00	1.00	LS	\$0.00	\$0.00
2	Administration & Unforeseen Funding Information: Total: \$0.00	1	LS	\$0.00	\$0.00
3	Profit Funding Information: Total: \$0.00	1	LS	\$0.00	\$0.00
4	VAT Funding Information: Total: \$0.00	1	LS	\$0.00	\$0.00

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SF-1442 COVER SHEET

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REQUEST FOR QUOTATIONS - CONSTRUCTION

A. PRICE

The Contractor shall complete all work, including furnishing all labor, material, equipment and services required under this purchase order for the following firm fixed price and within the time specified. This price shall include all labor, materials, all insurances, overhead and profit.

Total Price (including all labor, materials, overhead and profit)	ColP\$
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A.1 VALUE ADDED TAX

VALUE ADDED TAX (VAT). The Contractor shall include VAT as a separate charge on the Invoice and as a separate line item in Section B.

B. SCOPE OF WORK

The character and scope of the work are set forth in the contract. The Contractor shall furnish and install all materials required by this contract.

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.

C. PACKAGING AND MARKING. RESERVED

D. INSPECTION AND ACCEPTANCE

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.

D.1 SUBSTANTIAL COMPLETION

(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.

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 will 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.

D.2 FINAL COMPLETION AND ACCEPTANCE

D.2.1 "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.

D.2.2 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.

D.2.3 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.

D.2.4 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:

- Satisfactory completion of all required tests,
- 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

- 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).

E. DELIVERIES OR PERFORMANCE

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 issuance of the Notice to Proceed.

The time stated for completion shall include final cleanup of the premises.

52.211-12 LIQUIDATED DAMAGES - CONSTRUCTION (SEPT 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 **COP\$700,000** for each calendar day of delay until the work is completed or accepted.

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

CONTRACTOR'S SUBMISSION OF CONSTRUCTION SCHEDULES

(a) The time for submission of the schedules referenced in FAR 52.236-15, "Schedules for Construction Contracts", paragraph (a), is hereby modified to reflect the due date for submission *as five (5) calendar 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 deliverables 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 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.

(e) 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.

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 such notice promptly, 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.

NOTICE TO PROCEED

(a) After receiving and accepting any bonds or evidence of insurance, the Contracting Officer will provide the Contractor a Notice to Proceed. The Contractor must 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 or evidence of insurance. Issuance of a Notice to Proceed by the Government before receipt of the required bonds or insurance certificates or policies shall not be a waiver of the requirement to furnish these documents.

WORKING HOURS

All work shall be performed during ***Monday to Friday during regular hours from 0700 to 1700 hours, local time***. Other hours, if requested by the Contractor, may be approved by the Contracting Officer's Representative (COR). The Contractor shall give 24 hours in advance to COR who will consider any deviation from the hours identified above. Changes in work hours, initiated by the Contractor, will not be a cause for a price increase.

PRECONSTRUCTION CONFERENCE

A preconstruction conference will be held 10 days after contract award at the US Embassy Bogotá at Carrera 45 #24B-27 to discuss the schedule, submittals, notice to proceed, mobilization and other important issues that affect construction progress. See FAR 52.236-26, Preconstruction Conference.

DELIVERABLES - The following items shall be delivered under this contract:			
<u>Description</u>	<u>Quantity</u>	<u>Deliver Date</u>	<u>Deliver To</u>
Section G. Securities/Insurance	1	5 days after award	CO
Section E. Construction Schedule	1	5 days after award	COR
Section E. Preconstruction Conference	1	5 days after award	COR
Section G. Personnel Biographies	1	5 days after award	COR
Section F. Payment Request	1	Last calendar day of each month	COR
Section D. Request for Substantial Completion	1	5 days before inspection	COR
Section D. Request for Final Acceptance	1	5 days before inspection	COR

F. ADMINISTRATIVE DATA

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

(a) The Contracting Officer may designate in writing one or more Government employees, by name or 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 Management Senior Engineer.**

Payment: The Contractor's attention is directed to Section H, 52.232-5, "Payments Under Fixed-Price Construction Contracts". The following elaborates on the information contained in that clause.

Requests for payment, may be made no more frequently than monthly. Payment requests shall cover the value of labor and materials completed and in place, including a prorated portion of overhead and profit.

After 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, which is then due. If the Contracting Officer does not approve payment of the full amount applied for, less the retainage allowed by in 52.232-5, the Contracting Officer shall advise the Contractor as to the reasons.

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.

<i>U.S. Embassy – Bogota</i>
<i>Financial Management Center - FMC</i>
<i>Carrera 45 No. 24B-27</i>
<i>Bogota D.C., Colombia</i>

The Contractor shall show Value Added Tax (VAT) as a separate item on invoices submitted for payment.

G. SPECIAL REQUIREMENTS

G.1.0 PERFORMANCE/PAYMENT PROTECTION - The Contractor shall furnish some form of payment protection as described in 52.228-13 in the amount of 50% of the contract price.

G.1.1 The Contractor shall provide the information required by the paragraph above within ten (10) calendar days after award. Failure to timely submit the required security 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), which is included in this purchase order.

G.1.2 The bonds or alternate performance security shall guarantee the Contractor's execution and completion of the work within the contract time. This security shall also guarantee the correction of any defects after completion, 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.

G.1.3 The required 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 shall be reduced to 10% of the contract price. The 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.

G.2.0 INSURANCE - The Contractor is required by FAR 52.228-5, "Insurance - Work on a Government Installation" 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:

G.2.1 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, IN U.S. DOLLARS	
Per Occurrence	USD\$90,000

Cumulative	USD\$180,000
(2) PROPERTY DAMAGE, ON OR OFF THE SITE, IN U.S. DOLLARS	
Per Occurrence	USD\$90,000
Cumulative	USD\$180,000

G.2.2 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.

G.2.3 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 therefrom, except in the instance of gross negligence on the part of the Government.

G.2.4 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.

G.2.5 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.

G.3.0 DOCUMENT DESCRIPTIONS

G.3.1 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 prompt objection is made by the Contractor within 20 days, their issuance shall not provide for any claim for an increase in the Contract price or an extension of contract time.

G.3.1.1. RECORD DOCUMENTS. The Contractor shall maintain at the project site:

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

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

G.3.1.2. "As-Built" Documents: After final completion of the work, but before final acceptance thereof, the Contractor shall provide:

- (1) a complete set of "as-built" drawings, based upon the record set of drawings, marked to show the details of construction as actually accomplished; and,
- (2) record shop drawings and other submittals, in the number and form as required by the specifications.

G.4.0 LAWS AND REGULATIONS - 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.

G.4.1 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.

G.4.2 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.

G.4.3 The Contractor shall submit proper documentation and evidence satisfactory to the Contracting Officer of compliance with this clause.

G.5.0 CONSTRUCTION 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 employed at the site. The Contractor shall ensure the preservation of peace and protection of persons and property in the neighborhood of the project against such action. 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.

G.5.1 If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

G.5.2 After award, the Contractor has ten calendar days to submit to the Contracting Officer a list of workers and supervisors assigned to this project for the Government to conduct all necessary security checks. It is anticipated that security checks will take sixty (60) days to perform. For each individual the list shall include:

- Full Name
- Place and Date of Birth
- Current Address
- Identification number
- Gender
- Marital status
- Phone number
- Occupation
- Employment
- Naturalization
- Current and past citizenship
- Passport Number

As long as one (1) scanned copy of the CEDULA, one (1) scanned copy of CERTIFICADO DE ANTECEDENTES JUDICIALES (can be obtained for free by the applicant at www.policia.gov.co).

For Company Representatives Name Checks please attach one (1) scanned copy of the Chamber of Commerce.

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

G.5.3 The Contractor shall provide an English speaking supervisor on site at all times. This position is considered as key personnel under this purchase order.

G.6.0 Materials and Equipment - 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 by the Contracting Officer.

G.7.0 SPECIAL WARRANTIES

G.7.1 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 are not in conflict.

G.7.2 The Contractor shall obtain and furnish to the Government all information required to make any subcontractor's, manufacturer's, 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.

G.8.0 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; provided, that the Contractor gives the Contracting Officer prompt 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

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

G.9.0 ZONING APPROVALS AND PERMITS. RESERVED

H. CLAUSES

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 this/these address(es): <http://www.acquisition.gov/far/> or <http://farsite.hill.af.mil/vffara.htm>. Please note these addresses are subject to change.

If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Department of State Acquisition website at <http://www.statebuy.state.gov/> to access links to the FAR. You may also use an internet "search engine" (for example, Google, Yahoo, Excite) to obtain the latest location of the most current FAR.

The following Federal Acquisition Regulation clause(s) is/are incorporated by reference (48 CFR CH. 1):

<u>CLAUSE</u>	<u>TITLE AND DATE</u>
52.202-1	DEFINITIONS (NOV 2013)
52.204-9	PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL (JAN 2011)

- 52.204-10 REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER
SUBCONTRACT AWARDS (JULY 2013)
- 52.204-12 DATA UNIVERSAL NUMBERING SYSTEM NUMBER MAINTENANCE
(DEC 2012)
- 52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE (JULY 2013)
- 52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN
SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED
OR PROPOSED FOR DEBARMENT (AUG 2013)
- 52.209-9 UPDATES OF INFORMATION REGARDING RESPONSIBILITY MATTERS
(JULY 2013)
- 52.213-4 TERMS AND CONDITIONS –SIMPLIFIED ACQUISITIONS (OTHER THAN
COMMERCIAL ITEMS) (OCT 2014)
- 52.216-7 ALLOWABLE COST AND PAYMENT (JUN 2013)
- 52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)
- 52.222-19 CHILD LABOR – COOPERATION WITH AUTHORITIES AND REMEDIES
(JAN 2014)
- 52.222-50 COMBATING TRAFFICKING IN PERSONS (FEB 2009)
- 52.223-18 ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING
WHILE DRIVING (AUG 2011)
- 52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUNE 2008)
- 52.225-14 INCONSISTENCY BETWEEN ENGLISH VERSION AND TRANSLATION
OF CONTRACT (FEB 2000)
- 52.225-19 CONTRACTOR PERSONNEL IN A DESIGNATED OPERATIONAL AREA
OR SUPPORTING A DIPLOMATIC MISSION OUTSIDE THE UNITED
STATES (MAR 2008)
- 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 (JAN 2012)

- 52.228-13 ALTERNATIVE PAYMENT PROTECTION (JULY 2000)
- 52.228-14 IRREVOCABLE LETTER OF CREDIT (NOV 2014)
- 52.229-6 TAXES - FOREIGN FIXED-PRICE CONTRACTS (FEB 2013)
- 52.229-7 TAXES- FIXED PRICE CONTRACTS WITH FOREIGN GOVERNMENTS (FEB 2013)
- 52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 2014)
- 52.232-8 DISCOUNTS FOR PROMPT PAYMENT (FEB 2002)
- 52.232-11 EXTRAS (APR 1984)
- 52.232-18 AVAILABILITY OF FUNDS (APR 1984)
- 52.232-22 LIMITATION OF FUNDS (APR 1984)
- 52.232-25 PROMPT PAYMENT (JULY 2013)
- 52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (MAY 2014)
- 52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER - SYSTEM FOR AWARD MANAGEMENT (JULY 2013)
- 52.232-34 PAYMENT BY ELECTRONIC FUNDS TRANSFER – OTHER THAN SYSTEM FOR AWARD MANAGEMENT (JULY 2013)
- 52.233-1 DISPUTES (MAY 2014) *Alternate I (DEC 1991)*
- 52.233-3 PROTEST AFTER AWARD (AUG 1996)
- 52.236-2 DIFFERING SITE CONDITIONS (APR 1984)
- 52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)
- 52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)
- 52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)
- 52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

- 52.236-8 OTHER CONTRACTS (APR 1984)
- 52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)
- 52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)
- 52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)
- 52.236-12 CLEANING UP (APR 1984)
- 52.236-14 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)
- 52.242-14 SUSPENSION OF WORK (APR 1984)
- 52.243-4 CHANGES (JUN 2007)
- 52.243-5 CHANGES AND CHANGED CONDITIONS (APR 1984)
- 52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (JULY 2014)
- 52.245-2 GOVERNMENT PROPERTY INSTALLATION OPERATION SERVICES (APR 2012)
- 52.245-9 USE AND CHARGES (APR 2012)
- 52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)
- 52.246-17 WARRANTY OF SUPPLIES OF A NONCOMPLEX NATURE (JUN 2003)
- 52.246-21 WARRANTY OF CONSTRUCTION (MAR 1994)
- 52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (APR 2012) *Alternate I (SEPT 1996)*
- 52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)
- 52.249-14 EXCUSABLE DELAYS (APR 1984)

The following Department of State Acquisition Regulation (DOSAR) clause(s) is/are set forth in full text:

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)

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.

(End of clause)

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 e-mail 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.

(End of clause)

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 than 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.

(End of clause)

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.

(End of clause)

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. All modifications to the contract must be made in writing by the Contracting Officer.

(End of clause)

I. LIST OF ATTACHMENTS

ATTACHMENT NUMBER	DESCRIPTION OF ATTACHMENT	NUMBER OF PAGES
Attachment 1	<i>Breakdown of Price by Divisions of Specifications</i>	3
Attachment 2	<i>Drawings</i>	1
Attachment 3	<i>Specifications</i>	42
Attachment 4	<i>Soils investigation</i>	7
Attachment 5	<i>Safety requirements for Contractors</i>	11

J. QUOTATION INFORMATION

A. QUALIFICATIONS OF OFFERORS

Offerors/quoters must be technically qualified and financially responsible to perform the work described in this solicitation. At a minimum, each Offeror/Quoter 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;
- (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 or to post adequate performance security, such as bonds, 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.

B. SUBMISSION OF QUOTATIONS

This solicitation is for the performance of the construction services described in SCOPE OF WORK, and the Attachments which are a part of this request for quotation.

Each quotation must consist of the following:		
VOLUME	TITLE	NUMBER OF COPIES*
I	Standard Form 1442 including a completed Attachment 1 , "BREAKDOWN OF PROPOSAL PRICE BY DIVISIONS OF SPECIFICATIONS	2
II	Performance schedule in the form of a "bar chart" and Business Management/Technical Proposal	2

Submit the complete quotation to the address indicated. If mailed, on Standard Form 1442, or if hand-delivered, use the address set forth below:

US Embassy Bogota
General Services Office
Attn: Nancy Brant

Carrera 45 #24 B-27
Bogota, Colombia

The Offeror/Quoter shall identify and explain/justify any deviations, exceptions, or conditional assumptions taken with respect to any of the instructions or requirements of this request for quotation in the appropriate volume of the offer.

Volume II: 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 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;
- (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; and,

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; Contract dollar value;
- (4) Brief description of the work, including responsibilities; and
- (5) Any litigation currently in process or occurring within last 5 years.

C. 52.236-27 SITE VISIT (CONSTRUCTION) (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 *September 6, 2016 at 0830 hours, local time.*

(c) Participants will meet at *U.S. Embassy, Carrera 45 #24B-27, Bogota D.C., Colombia*

D. MAGNITUDE OF CONSTRUCTION PROJECT

It is anticipated that the range in price of this contract will be: **Between \$25,000 and 100,000**

E. LATE QUOTATIONS. Late quotations shall be handled in accordance with FAR.

F. 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/vffara.htm>. Please note these addresses are subject to change.

If the Federal Acquisition Regulation (FAR) is not available at the locations indicated above, use the Department of State Acquisition website at <http://www.statebuy.state.gov> to access the link to the FAR, or use of an Internet "search engine" (for example, Google, Yahoo or Excite) is suggested to obtain the latest location of the most current FAR.

The following Federal Acquisition Regulation provisions are incorporated by reference (48 CFR CH. 1):

<u>PROVISION</u>	<u>TITLE AND DATE</u>
52.204-6	DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JULY 2013)
52.204-7	SYSTEM FOR AWARD MANAGEMENT (JULY 2013)

52.204-16	COMMERCIAL AND GOVERNMENT ENTITY CODE REPORTING (NOV 2014)
52.214-34	SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)
52.215-1	INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (JAN 2004)

K. EVALUATION CRITERIA

Award will be made to the lowest priced, acceptable, responsible quoter. The Government reserves the right to reject quotations that are unreasonably low or high in price.

The Government will determine acceptability by assessing the offeror's compliance with the terms of the RFQ. The Government will determine responsibility by analyzing whether the apparent successful quoter complies with the requirements of FAR 9.1, including:

- 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
- otherwise, qualified and eligible to receive an award under applicable laws and regulations.

The following DOSAR is provided in full text:

652.209-79 REPRESENTATION BY CORPORATION REGARDING AN UNPAID DELINQUENT TAX LIABILITY OR A FELONY CRIMINAL CONVICTION UNDER ANY FEDERAL LAW (SEPT 2014) (DEVIATION per PIB 2014-21)

(a) In accordance with section 7073 of Division K of the Consolidated Appropriations Act, 2014 (Public Law 113-76) none of the funds made available by that Act may be used to enter into a contract with any corporation that –

(1) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency has direct knowledge of the conviction, unless the agency has considered, in accordance with its procedures, that this further action is not necessary to protect the interests of the Government; or

(2) Has any unpaid Federal tax liability that has been assessed for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency has direct knowledge of the unpaid tax liability, unless the Federal agency has considered, in accordance with its procedures, that this further action is not

necessary to protect the interests of the Government.

For the purposes of section 7073, it is the Department of State's policy that no award may be made to any corporation covered by (1) or (2) above, unless the Procurement Executive has made a written determination that suspension or debarment is not necessary to protect the interests of the Government.

(b) Offeror represents that—

(1) It is [] is not [] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

(2) It is [] is not [] a corporation that has any unpaid Federal tax liability that has been assessed for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

(End of provision)

SECTION L - REPRESENTATIONS, CERTIFICATIONS AND
OTHER STATEMENTS OF OFFERORS OR QUOTERS

L.1 52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(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
- (c) otherwise due under the contract.

- (d) 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 (31 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.

(e) 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 _____
 (End of provision)

L.2 52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (NOV 2014)

(a)(1) The North American Industry Classification System (NAICS) code(s) for this acquisition is/are:

- 236118 - Construction Management, residential remodeling**
- 236220 - Construction Management, commercial and institutional building or Warehouse construction**
- 237110 - Construction Management, water and sewage line and related structures**
- 237310 - Construction Management, highway road, street or bridge**
- 237990 - Construction Management, outdoor recreation facility**

(2) The small business size standard is **\$36.5 Million USD**.

(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 provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the provision at 52.204-7 is not included in this solicitation, and the offeror is currently registered in the System for Award Management (SAM), and has completed the Representations and Certifications section of SAM 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 SAM 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 provision at [52.204-7](#), System for Award Management.
- (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, 2010, or 2012.
- (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 Certificate. This provision applies to solicitations containing the clause at [52.225-1](#).
- (xvii) [52.225-4](#), Buy American—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) 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 \$79,507, the provision with its Alternate II applies.

(D) If the acquisition value is \$79,507 or more but is less than \$100,000, the provision with its Alternate III 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 Certain Activities or Transactions Relating to Iran-Representation and Certifications. This provision applies to all solicitations.

(xxi) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.

(2) The following certifications are applicable as indicated by the Contracting Officer:

[*Contracting Officer check as appropriate.*]

___ (i) 52.204-17, Ownership or Control of Offeror.

___ (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 Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment- Certification.

___ (iv) 52.222-52, Exemption from Application of the Service Contract Labor Standards 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 SAM website accessed through <https://www.acquisition.gov>. After reviewing the SAM 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
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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 SAM.

(End of provision)

L.3. 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.

(End of provision)

L.4 AUTHORIZED CONTRACTOR ADMINISTRATOR

If the offeror does not fill-in the blanks below, the official who signed the offer will be deemed to be the offeror's representative for Contract Administration, which includes all matters pertaining to payments.

Name:
Telephone Number:
Address:

--

[Proposal Note: If the bidder/offeror has indicated “yes” in blocks (a)(1), (2), or (3) of the following provision, the bidder/offeror shall include Defense Base Act insurance costs covering those employees in their proposed prices. The bidder/offeror may obtain DBA insurance directly from any Department of Labor approved providers at the DOL website at <http://www.dol.gov/owcp/dlhwc/lscarrier.htm>.]

L.5 652.228-70 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:

<u>Category</u>	<u>Yes/No</u>	<u>Number</u>	
(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 Colombia

- 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) RESERVED

(End of provision)

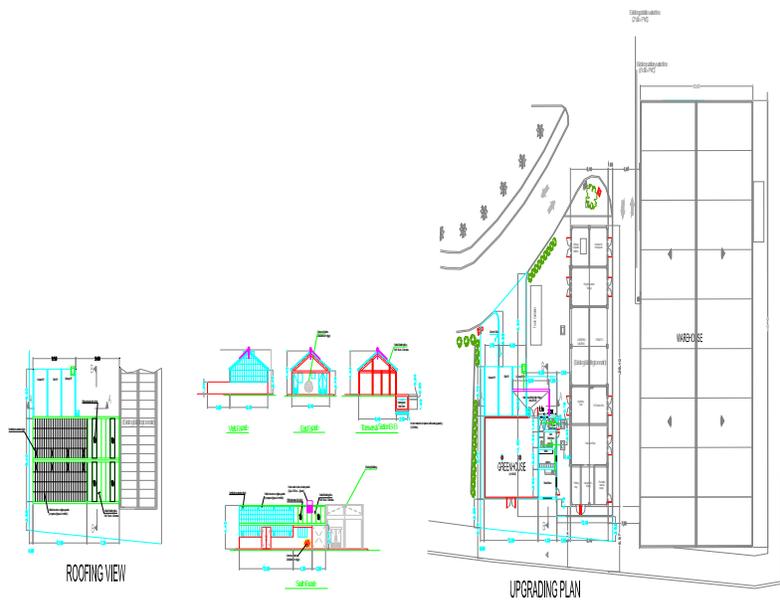
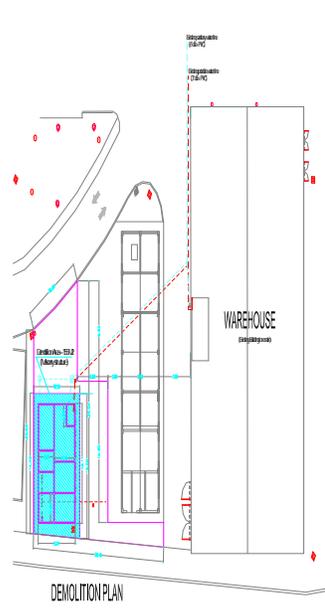
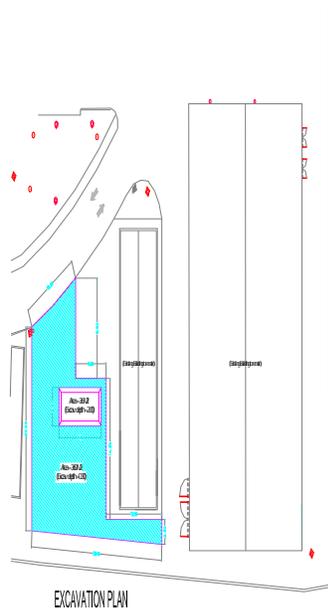
ATTACHMENT #1- BREAKDOWN OF PRICE BY DIVISIONS OF SPECIFICATIONS

ITEM	DESCRIPTION	UNIT	QTY.	UN. COST	TOTAL
1	PRELIMINARIES				
1.1	Safety PPE	LS	1.00		
1.2	Shop Drawings and structural design	LS	1.00		
1.3	Masonry wall demolish	M2	210.00		
1.4	Concrete slab demolish	M2	155.00		
1.5	Roofing and metal structure uninstal	M2	100.00		
1.6	Uninstall exterior windows and doors	ea	13.00		
	Subtotal PRELIMINARIES				\$0
2	EXCAVATION AND FILLINGS				
2.1	Land clearance	M2	360.00		
2.2	Excavation	M3	170.00		
2.3	Filling with selected material B-200 (t=30 cm)	M3	108.00		
2.4	Crush material	M3	7.50		
	Subtotal Excavation and filling				\$0
3	CONCRETE				
3.1	Tie beams and concrete slab	M3	63.00		
3.2	Concrete structure (aerial beams)	M3	4.00		
3.3	Water tank	M3	11.00		
3.4	Rebars (Fy=60.000 psi)	Kgs	7276.00		
3.5	Waterproof plaster for water tank (mortar 1:3)	M2	48.00		
	Subtotal Concrete				\$0
4	MASONRY				
4.1	Concrete block (.2x.2x.4) with rebars	M2	148.00		
4.2	Plaster (mortar 1:4)	M2	98.00		
	Subtotal masonry				\$0
5	METAL STRUCTURE AND ROOFING				
5.1	Glass walls with metal beams	M2	47.00		
5.2	Glass roofing with metal purlins	M2	100.00		
5.3	Metal roofing type "Steel-Colmena"with metal purlins plus gutters and flanges , 16 gauge	M2	61.00		
	Subtotal metal structure				\$0
6	CEILING-				
6.1	Ceiling (drywall) and suspension system	M2	30.00		

	Subtotal ceiling					\$0
7	FLOOR -					
7.1	Concrete base h 0.10m (kitchenet base)	M2	1.50			
7.2	Alistado piso en concreto (t=0.04)	M2	95.00			
7.3	Ceramic tiles (duropiso) kitchen	M2	11.00			
	Subtotal floors					\$0
8	FINISHES (WALLS)					
8.1	Interior painting 2 coats ref. Epoxic (greenhouse)	M2	61.00			
8.2	Interior painting 2 coats ref. Viniltex (cafeteria)	M2	27.00			
8.3	Exterior painting 2 coats ref. KORAZA pintuco	M2	118.00			
	Subtotal finishes walls					\$0
9	DOORS & WINDOWS					
9.1	Double door metallic frame w/louwer (2mx2.4m)	ea	2.00			
9.2	Single metallic door frame w/louwer (1mx2.2m)	ea	1.00			
9.3	Single metallic door frame w/louwer (0.7mx2.2m)	ea	2.00			
9.4	Metallic Windows with 5mm glass - louwer (0.4m x0.6m)	ea	3.00			
9.5	Metallic Windows with 5mm glass (1m x1m)	ea	1.00			
9.6	Metallic Windows with 5mm glass (1m x2m)	ea	1.00			
	Subtotal doors and windows					\$0
10	Drainage system					
10.1	PVC Piping system for drainage	LS	1.00			
10.2	Masonry box	LS	2.00			
	Subtotal Drainage and hydraulic system					\$0
11	ELECTRICAL & COMMUNICATION INSTALLATIONS					
11.1	Electrical and communication installations (lighting)	LS	1.00			
11.2	Lamps 0.60m x 0.60m(LED)	ea	6.00			
11.3	Greenhouse lamps (LED)	ea	6.00			
11.4	Light switches	ea	6.00			
11.5	Electrical outlets - outdoor	ea	6.00			
11.6	Electrical outlets GFCI	ea	3.00			
11.7	telephone outlets	ea	2.00			
11.8	Electrical board and feeders (UL certif)	LS	1.00			
	Subtotal electrical and communication installations					\$0

12	MECHANICAL INSTALLATIONS				
12.1	Heat water sytem Ajoover - cap = 130 Lts.	ea	1.00		
12.2	Exhaust fan system	ea	3.00		
	Subtotal mechanical installations				\$0
13	KITCHENETTE / BATHROOMS FIXTURES				
13.1	The cabinet will come in Formica finish, inside and outside, with a row of drawers, the remaining section will be a cupboard with doors and a movable internal division. The cabinet will include the supply and installation of a stainless steel sink with corresponding water faucets, water mixer, properly fitted to the hydraulic and sanitary installation. Also, it will have an electric stove.	LS	1.00		
13.2	Sanitary appliances and bathroom accessories. Includes: Interior hydraulic and sanitary connections, a shower, a water closet, a lavatory, faucet, a mirrow, a shower glass door and ceramic veneering for floor and walls. See specifications.	EA	2.00		
	Subtotal fixtures				\$0
14	CLEAN UP				
14.1	General clean up and remove of construction debris	LS	1.00		
	Subtotal clean up				\$0
	SUBTOTAL				\$0
	Administration and Unforseen				\$0.00
	Profit				\$0.00
	VAT		16%		\$0
	TOTAL				\$0
	US\$ COST				\$0

ATTACHMENT #2 - DRAWINGS



ATTACHMENT #3 - SPECIFICATIONS

1.1 PROJECT DATA

- A. Project Title:
Greenhouse Building Repair – Phase II
- B. Project Location:
The site is located in front of the State Warehouse at the American Embassy Bogotá, Colombia.
Address: Carrera. 45 No. 24B - 27.
- C. Background:
This project, undertaken by the Facilities Maintenance Office, Overseas Buildings Operations (OBO), involves the Architectural and structural design and construction to repair the existing Greenhouse Building at the Embassy compound.

1.2 PROJECT SCOPE

- A. Contractor is solely responsible for providing complete construction and engineering services, contract coordination and supervision, and delivery of parts and systems including but not limited to the management, professional design services, and construction necessary to meet the requirements of this contract within the established schedules. General description of the project includes but is not limited to:
- Detailed architectural, civil and structural engineering to repair the Greenhouse Building.
 - Demolish concrete slab, masonry walls and existing metal structure.
 - Construction of a new concrete tank to collect rain water, along with the hydraulic installation to pump this water for bathroom services and the ground irrigation system.
 - Construction of new building according to conceptual design attached.
- B. Limit of Construction:
1. The Contract includes all work within the U.S. Government (USG) property line.
 2. The Contractor must coordinate through the Contracting Officer Representative (COR) and the Embassy's administration regarding schedules, work procedures, access, connectivity and any other issues that may arise during the design and construction.
 3. All systems must be designed and built to operate with the existing equipment in the Embassy. The Contractor must guarantee that the existing equipment and systems will not be affected in their operation. Contractor must verify existing site conditions.
- C. The Contractor shall plan this project in accordance with the following requirements:
1. Security procedures described in this document.
 2. Specifications and design documents.
- D. Permits and Licenses:
1. Not applicable.

- E. USG Work / Coordination:
1. The Contractor shall coordinate with the COR the designs, schedules, specifications and work in order to minimize the impact to the end-users. If it is necessary to close the operation of any facility in the Embassy compound, every effort must be done to assure that the activities will be done as fast as possible. In all cases there must be a previous coordination of all the activities with the Embassy representatives.

1.3 GENERAL PROJECT REQUIREMENTS

A. General Requirements.

These specifications provide details of the main activities to be performed and the type of materials, finishes, and work procedures for various tasks.

Applicable Codes:

- a. Construction of this project must be performed in compliance with all applicable international, national and local codes.
- b. All parts, systems and equipment proposed shall meet all applicable codes.
- c. See Construction specifications for detailed information.

THE FOLLOWING SPECIFICATIONS APPLY TO ANY WORK

Safety, Health and Environment

The contractor will accept all legal dispositions currently in force concerning safety for staff and workers, as well as for the public who directly or indirectly may be affected by the work. The contractor will follow the most stringent standard between the Safety and Health Requirements Manual established by the US Army Corps of Engineers:

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_385-1-1.pdf

or, the Colombian laws on industrial safety as established by the Ministry of Labor. - Safety requirements to be strictly followed in Attachment 4.

General cleaning:

- The contractor will take left over materials to an authorized dumpsite not affecting Embassy or third party interests. No claims will be accepted for transportation.
- Once the work is completed, or part of the work is finished, the contractor will proceed to remove all materials left over, all debris and other residual materials and will execute a thorough general cleaning of all inner and outer areas, or in those areas indicated by the contracting party.
- The Contractor will also undertake repairs to eliminate scratches and damages observed by both, the contractor and the contracting party, so that the construction site may be handed over to the Embassy in perfect condition. These repairs will not entail any additional cost to the contracting party and therefore will not constitute an additional cost to the contract.

- Once every element built has being thoroughly cleaned by the contractor, a general sweep will take place to remove every small residue possible left over by the final repairs.
- B. Project Budget.
1. The Contractor shall determine the price of materials, labor and equipment for the work anticipated for all aspects of the construction project.
 2. Construction budget estimates shall be expressed in terms of prevailing Bogota labor and material rates in Colombian pesos.
- C. Drawing Format & Communications
1. CAD – Licensed AutoCAD
 2. All drawings, specifications, cost estimates, and other portions of submittals shall be prepared in English.
- D. Meetings
1. The Contractor shall prepare a detailed written record of all conferences and meetings with the COR related to the Project.
 2. Confirmation of telephone conversations in which decisions affecting the project are made shall also be prepared in writing.
 3. Two (2) copies of these records shall be submitted to the COR within five calendar (5) days of the event.
 4. The written format established by the Contractor for these records shall be subject to the approval of the COR.
- E. Design
1. Match existing materials and design where applicable.
 2. The Contractor shall follow all specifications and drawings from the government design.
 3. No changes can be performed to the design documents unless explicitly authorized in writing by the COR. A record of any changes must be maintained and submitted with the final documentation.
- F. Project schedule
- This project must be completed in 90 calendar days from the notice to proceed given by the Contracting Officer.

1.4 CONSTRUCTION REQUIREMENTS

A. General Requirements:

Following are the main characteristics of the work to be performed; all costs included, so that the contractor may review them, prepare the quotation based on them and perform the work as defined on these parameters.

Remember that this quotation must include all costs for labor, materials, equipment, etc., and all other items necessary and incidental to the design and construction of the hydraulic system in accordance with the criteria, drawings and specifications.

B. Engineering Requirements:

As described in construction specifications. Architectural and Civil engineering design must match existing conditions.

- C. Structural Requirements:
As described in construction specifications.
- D. Mechanical Requirements:
As described in construction specifications.
- E. Plumbing:
As described in construction specifications.
- F. Electrical Requirements:
As described in construction specifications.
- G. Security Requirements:
 - 1. All documents, drawings, submittals and any information related to the project is sensitive but unclassified, SBU, and must be released, saved, transmitted and filed accordingly.
 - 2. Before initiating the work, for control purposes, a list with the names of all workers and staff will be provided to the Embassy, indicating worker's full names and ID card numbers. The list will contain full names (names and surnames), ID number and place of issuance, telephone number and address. The American Embassy reserves the right to admit or deny the entrance to workers.

1.5 ROLE OF GOVERNMENT IN PROJECT CONSTRUCTION

- A. Project Design
Provide clarification on the scope and intent of design documents.
- B. Project Execution
 - 1. The COR will be the liaison between the contractor and the Embassy and any inquiry, problem, task or activity must be coordinated in advance.

1.6 CONSTRUCTION DOCUMENTATION

Submittal Requirements: The requirements within this SOW serve as direction to the Contractor in the development and delivery of a complete set of construction submittals.

Construction Sequencing and Execution Plan: Shall be submitted to the COR for approval.

Submittal Materials: All materials required for the execution of the project shall be submitted for approval to the COR.

Non-Capital Project Budget Cost Estimate

The Contractor shall prepare and organize all cost estimates.

The Contractor shall identify prices for materials, labor and equipment which are available locally and that may be used for the work.

Overhead, profit and contingency assumptions shall be separately identified. Any costs for taxes, duties etc. that may be applied to this project by the local government shall be separately identified.

General conditions for construction shall be shown in detail denoting the cost elements for direct costs for material, labor, equipment and other costs such as mobilization, permits, bonds, main office expense, shipping, etc.

2.0 CONTRACT ADMINISTRATION

Contracting Officer's Representative (COR): All reports, drawings, discs, cost estimates, etc., shall be submitted to the Facility Manager or Deputy Facility Manager.

Technical Representative: The FAC Project Engineer is designated as the Technical Representative for technical advice, substantive guidance, inspection and such other purposes as deemed necessary under the contract.

COR and COTR may be reached at American Embassy - Bogota. Cra. 45 No. 24B – 27. Facilities Management Office. Tel 2753871 / 2752577 / 2752681.

ATTACHEMENTS:

1. Quantity chart
2. Drawings
3. Soil investigation
4. Safety, Health and Environment Requirements (English & Spanish versions)

PROJECT DETAILED INFORMATION

Following is the description of the activities to be performed:

- **Architectural, Civil and Structural design**

The Contractor shall provide complete design and construction services for all facilities, site work, structures, utilities and installation of necessary equipment to repair the existing Greenhouse Building Area. Design and construction shall result in complete and useable building of the type normally associated with each proposed facility.

Omissions from the drawings or specifications or substandard details of the work which is clearly necessary to carry out the intent of the drawings and specifications, or which is normally performed, shall not relieve the Contractor from performing such omitted or misdescribed. The project shall be performed as if fully and correctly set forth and described in the drawings and specifications.

- **Localization and lay out**

The contractor will use precision topographic instruments to layout the location of the building and all elements to be built according to the architectural drawings and blueprints.

The lay out will be reviewed by an Embassy representative assigned to this project and without his approval no construction may proceed. The layout will be performed by a professional who in addition to planning will also determine the building levels. Everything will be referenced using properly anchored wooden bridges. The contractor will supply everything needed to conduct the planimetrics, height posts, field notebooks, etc.

The contracting party will check the location of the axis, but this does not exonerate the contractor from its responsibility for any mistakes, layout, and leveling as well as any other faulty building elements.

To initiate the layout process, the reference points shall be previously approved, both horizontally and vertically, as well as the definition of the boundaries of the terrain.

The temporary BM and referenced axis will be located in places that do not interfere with the development of the work, avoiding the necessity to remove them, allowing for later control at any time. No painted marks will be allowed nor any other type of marks such as scratches, nails, etc., made on existing Embassy buildings or structures.

The cost of this activity will include the lay out costs, subsequent concrete slab localization etc. The price of the remaining activities requiring lay out and localization will be included in the price of that particular activity.

- **Terrain leveling and configuration**

The terrain will be modeled according to the established height contours as indicated in the architectonic drawings, eliminating mounds, hillocks, filling in where necessary, to leave the terrain with the required levels and gradients ready for the building. This activity includes neighboring areas, leaving the whole area ready as set forth in the architectonic design.

Fill material will come, if possible, from the excavation for the building site to avoid purchasing materials.

The material will be selected, removing all rubbish such as glass, cans, plastics or other materials unsuitable for building. The unsuitable materials will be taken by the contractor to an authorized rubbish depot or a place not affecting the interests of the Embassy or third parties. This dump will be located within the limits of Bogotá and no claims will be accepted for transportation.

- **Provisional enclosure**

The work place will be completely isolated from outer zones or transit roads around or near the building site. Zones marked for storing materials will be equally closed. For this end, a closing fence, made of synthetic material will be built, supported by wooden posts placed every 2 meters. The fence will be tempered, with steel wires in the upper, middle and lower sections. Entry posts will be installed at the building site gate and where the fence changes direction.

This fence will have one entry gate comprising a double jamb panel that will provide an entry for vehicles, materials, and workers.

While the building is under construction, the contractor will be permanently updating and maintaining the closing fence to keep it in perfect condition.

On completion of the work, and upon due authorization of the contracting party, the contractor will remove the closing fence pursuant to the terms established in the section entitled "General Cleaning". The cost for removing the closing fence is the total value of this item. This activity will be paid by linear meter

Workers laboring on the building site are not allowed to leave the closed working area during rest hours.

- **Clearing the land**

Land shall be cleared pursuant to the area marked for the architectonic localization of the building, plus 1 meter overlap all around. This operation will be done manually, or mechanically provided care is taken not to remove the reference points placed previously during relocation.

Clearance means the removal of the superficial layer of the terrain, to a varying depth from 0,0 to 0.50m. up to the removal of all vegetable, organic, and unsuitable materials found in the soil to this depth.

The clearance operation will not be limited to removing solely the superficial layer, but will go deeper to remove grass roots and other objects found, which in the opinion of the Embassy representative are not suitable for use in further works. The clearance will also carefully remove grass for later use when replanting the gardens. Grass removed will be stored properly while the building is being built.

Any surplus materials left from the clearance operation, will be removed by the contractor pursuant to instructions provided by the Embassy representative, and according to the General Cleaning Chapter.

- **Foundations**

The foundation system shall be designed and constructed by the Contractor according to the recommendations of the geotechnical investigation (See attachment #3). The foundation shall be permanent with reinforced concrete slabs and footers.

- **Mechanical excavation**

All excavations will be done using a back loader, except in those places where due to possible interference with an existing structure, excavation will only be done manually, for example foundation beams, excavations for inspection boxes, sanitary or electric canals, and those places that due to their volume, at the contractor's discretion, no mechanical means can be used. The material left from the excavation, may not be stored in the upper edge of the excavation but should be loaded immediately to dump trucks and taken out of the Embassy limits to the place established by the authorities for dumping.

The contractor will provide signage to all those places where excavations are being undertaken (safety signals) and will provide provisional marking. This marking will be done using yellow plastic tape, 8 cm wide, and supported by temporary posts properly anchored to the soil. Each tape signal will have 3 lines of tape to protect people, vehicles, and animals, and avoid possible accidents. (The contractor will assume this cost in his general administrative costs, including installation, maintenance, and removal)

Materials left over from excavation will be removed by the contractor according to the instructions issued by the Embassy representative and the General Cleaning Chapter

Excavations will adjust to levels, horizontal, vertical and gradient planes, and therefore should be perfectly trimmed to the height contours and other architectonic structural details, taking into account the geological studies of the soil.

In the event the contractor exceeds the excavation specifications, he must fill in using granular material previously approved by the contracting party or soil engineer. Costs arising from over-excavating, including the fill, will be assumed by the contractor.

The contractor will verify in the soil study plan, any special recommendations to be followed when undertaking the excavation. Provisional slopes and banks used to stabilize the excavation, shall be approved by the soil engineer or soil advisor.

Excavations deeper than 1.0m will be shored-up to prevent slides and avoid damaging another work or adjacent buildings. This activity will provide secure working conditions and help advance the work. If the

contractor considers that the shoring-up is insufficient, or needs additional protection, he may order to increase the protection but this does not exonerate the contractor from his responsibility for land slides and damages caused by land slides.

- **Compacting the subsoil**

Once the excavation work is finished, the exposed subsoil will be compacted by mechanical means. In the case of ditches and trenches, compacting will be done by manual means, until a compact rate of 90% is obtained, from the maximum data obtained in the laboratory on the modified Proctor test. Subsoil will be compacted by several passes of a non-vibrating 5 ton cylinder.

The value of this activity will be included in the item entitled Conforming Material, including field and laboratory tests.

- **Woven geo-textile**

A long fiber woven geo-textile will be installed (Pavco 2400 or equivalent) between the granular fill and the soil. The geo-textile will be placed loosely in order to avoid punctures due to the aggregate compacting.

Overlaps and seams will be done according to instructions from the manufacturers.

The value of this item will be quoted per square meter of surface covered, including provisions for supporting the fabric in gradients or vertical surfaces.

- **Conforming material (Gravel layer)**

- a) The gravel to be used will be sandy type, with a maximum of 20% passing through a # 200 sieve and a plasticity index lower than 8% Special care should be taken regarding the strict compliance of these limits, for which there should be tests before initiating the construction of the layer, and while the construction is in process, if a change in the characteristics is observed.
- b) The material will start to be placed according to the local B-200 standard in the area where greater excavation has taken place, placing the materials on layers of up to 0.15m thick, compacting them with a cylinder until a minimum density of 95% is obtained, as per the Modified proctor test.
- c) Density will be verified at a point for each 100 m².
- d) In order to control the compacting degree, three Proctor tests will be conducted before initiating the construction of the layer, using samples of the material to be used.
- e) Once the area has been leveled, a woven geo-textile, type PAVCO 2400 or similar, will be installed in order to evenly distribute the strains produced under the slab.
- f) The fill will continue to use the same procedure, verifying now and then for layer compacting.

The fill material will comply to the following specifications:

Maximum size of the aggregate:	½ of layer thickness
Material passes sieve #200:	20% in weight
Maximum passing rate #200 on #40	65% in weight
Liquid limit:	Smaller to 25%
Index of plasticity:	Lower than 8%

All fill with width superior 2.4mts will be compacted with heavy duty vibratory equipment (above 5 tons).

The value of this item will be quoted per cubic meter including the laboratory and field tests.

- **Concrete**

Unless otherwise specified, local Colombian codes, standards and conditions, shall apply. Where a standard needs additional criteria, or the local codes dictate, the design, construction and installation of all concrete construction shall conform to the following codes, regulations, standards and recommended practices as applicable (Latest edition at time of request for proposals shall govern): American Concrete Institute, Portland Cement Association, Prestressed Concrete Institute.

The minimum compressive strength concrete shall be 20.5 MPa (3000 psi) @ 28 days. The reinforcing of concrete columns, walls, continuous footings, and tie and bond beams shall be continuous. As a minimum, reinforcing steel bars and mats shall be Grade 60 (60,000 psi).

- **Metal**

Unless otherwise specified or noted hereinafter, all steel construction shall conform to applicable local Colombian Codes and the following codes, standards, regulations and recommended practices. Latest edition at time of request for proposals shall govern; the structure of the roof will be designed and built according to the drawings and in compliance with NSR-10 and AISC standards.

American Institute of Steel Construction
American Iron and Steel Institute
Steel Joist Institute
2006 International Building Code

Structural steel shall have a minimum strength of 248 MPa (36,000 psi) yield.

Basic wind speed. The minimum basic wind speed (3 second gust) shall be 40 m/s (145 Km/hr).

Structural steel fabrication and erection shall be performed by an organization experienced in structural steel work of equivalent magnitude. The Contractor shall be responsible for correctness of detailing, fabrication, and for the correct fitting of structural members. AISC ASD Manual and AISC ASD/LRFD Vol II shall govern the work. Welding shall be in accordance with AWS D1.1; High-strength bolting shall be in accordance with AISC ASD Manual.

The structure will be painted with anti-corrosive paint and color finished will match the existing ones.

The welding procedure has to comply with: AWS D1.1/D1.1M. Provide AWS D1.1/D1.1M qualified welders and welding operators. The Contractor shall develop and submit the Welding Procedure Specifications (WPS) for all welding; including welding done using prequalified procedures. Prequalified procedures may be submitted for information only; however, procedures that are not prequalified shall be submitted for approval. The inspection has to be done by ink and done by a certified laboratory; a report must be done giving the results and recommendations.

The structure will come complete with a full set of fittings and other accessories for assembly and installation.

Before building the structure, the contractor will submit for approval by the contracting party, the calculation memories, the building drawings, a complete description of the assembly system, paint catalogues, screws and bolts to be used, welding, steel quality certificate, etc.,

The supporting materials will comprise steel anchoring plates under ASTM A-36 quality standard. The welding shall be done complying E70 standards and bolts will be SAE degree 5 quality.

Underground facilities:

- **Manual excavation**

This item comprises all necessary excavations for the underground facilities, electric, hydraulic, sanitary, communications etc. and excavations that cannot be executed correctly using excavation equipment, maintaining specified lines and slopes.

Excess excavation performed without the prior written authorization of the contracting party, as well as refill, will be at the contractor's risk and expense. The Embassy will not recognize any cost for such activities in these cases.

The contractor will provide access to the excavation site, signs (warnings of caution), and provisional signage. The signage will be made with yellow plastic tape, 8 centimeters wide, supported on temporary posts, and properly anchored to the floor. There will be at least three lines of tape to protect people, vehicles, and animals from possible accidents (The contractor will assume these costs from his Administrative General Costs, including dismantling and removing tape and posts).

Material left over from excavation and cleaning will be moved away by the contractor according to instructions issued by the Embassy representative and the General Cleaning Chapter.

In some cases the material excavated and selected may be used in the configuration of the terrain (see TERRAIN LEVELING AND CONFIGURATION) and the formation of embankments or fill, the contracting party may in this case order the contractor to leave the necessary material near the fill. The movement of this material will not represent extra costs and for this concept the Embassy will not accept any type of claim.

Excavations deeper than 1.0m will be shored-up to prevent slides and avoid damaging another work or adjacent buildings. This activity will provide secure working conditions and advance the work. If the contractor considers the shoring-up done to be insufficient, or needs additional protection, he may order increased protection but this does not exonerate him from his responsibility for land slides and damages caused by land slides

- **Sanitary facilities**

For the construction of the underground drainage grid, PVC pipes and accessories will be used. The manufacturer's norms will be followed regarding pipe and accessory welding. For the pipes that must be embedded in concrete, the following precautions will be taken:

1. Check for gradient at different branches after they are in their final position and before proceeding to casting the concrete slab.
2. In no case will there be gradients greater than 2% unless this is specifically indicated in the drawings.
3. Hydraulic tests will be made sealing the pipes with accessories and filling it with water until the level of the upper mouth of sanitary device. This test will run for six hours after which it won't be able to show any change on the water level.

4. The plugs used in the inspections will be placed in accessible places lifting them with elbows that are at floor level with copper lids easily identifiable and always visible. In no case there will be plugs in a place or position demanding the perforation of the floor.
5. The minimum allowed diameters are 3" for floor siphons and hand washers, 6" for sanitary drainage.

The minimum depth and width of the ditch to place the pipe will be 60 cm. Once the excavation is finished, the exposed subsoil will be compacted by mechanical or manual procedures until a 90% density is obtained, relative to the maximum obtained in the laboratory by the Modified Proctor test.

The bottom of the ditch will be filled with rock sand compacted without stones at a thickness of 6 cm. then proceed to place the pipe centered in the ditch. The ditch will be then covered with rock sand for up to 6 cm. above the pipe. Then proceed to finish and fill the ditch with material from the the excavation or granular material as indicated in the drawings or instructed by the contracting party. If water is found, the bottom of the ditch should be stabilized with a ½" gravel layer 30 cm. thick. The bottom of the ditch should be flat and regular to avoid flexing movements of the pipe. When the installation depth is lower than 60 cm, it will be protected embedding it in simple concrete or as indicated in the drawings, or as instructed by the contracting party.

Wherever specified, fill will be provided using granular material to granulate according to the local standard specification B-200, compacted at 95% relative to the maximum density obtained in the laboratory by the Modified Proctor test, in layers of not more than 15 cm. thick.

- **Water rain facilities**

The building area will have canals and down spouts according to the design. The canals will be concealed behind the main facade and connected to rain water system boxes using PVC down-pipes embedded in the walls. In the event it is not possible to embed the down-pipes in the walls, they will go embedded to the external structure and covered with the same material used in the walls.

PVC drainage pipes will be supplied, Ø 8" and 10" diameter, installed with minimum gradients of 0.44% and 0.33% respectively, with flexible rubber seals (washers) connectors, buried in ditches with a minimum covering layer of 600 mm to the key. If this protecting cover is not achieved, special protection will be provided as described later on. The pipes will be covered with granular fill no less than 150 mm thick, and from there on, filled with classified natural soil. Where indicated by the drawings, or deemed necessary by the contracting party, fill using natural soil will be compacted to a minimum of 90% density, relative to the value obtained in laboratory in the Modified Proctor test, having previously classified and removed unsuitable materials and/or organic items such as wood, grass roots, etc.

The cost of this item includes testing in the field and in the laboratory.

The pipe will be inspected and tested for leaks, applying a hydrostatic pressure test of 2mts the column of water during a period of no less than 24 hours, before being buried.

This item will be paid by lineal meter of laid pipe, tested for leaks, according to the nominal diameter, the excavation undertaken, the granular fill or natural soil used, as well as replanting the lawn will be paid under this same item.

Wherever the pipe covering is less than 600mm, and these are not found under a concrete slab, a special protection will be built using reinforced concrete, at 21 Mpa, conformed by a rectangular concentric section of 400x400, reinforced by 4 longitudinal # 3 rods and # 2 closed handles @150mm each. The external minimum covering will be 50mm.

This item will be paid per linear meter of shielded pipe including the concrete, reinforced steel, and any eventual forming.

The protection in concrete will not be done until the leak test has been carried out and the gradient has been checked.

- **Inspection boxes**

In the intersections and/or at the upper ends of the pipes, inspection tanks will be built. These will be made by poor concrete mixture 30 mm thick, a reinforced concrete slab as floor base (of 100 mm thickness using #3 rods @150 mm in both directions), masonry walls of solid brick, using 1:4 waterproof mortar and stucco mixed at 1:3 waterproofed with Sika 1 or equivalent product.

Over the tank floor base, a simple concrete will be cast and tamped with flat metallic small rods at a depth similar to the exit tube and inclined at 5% in the direction of the small rods. These specifications will be consulted with the contracting party if no details are available in the drawings.

All the boxes will be provided with a metallic lid and metallic frame bearing the same characteristics as the existing ones found in the Embassy. The closing of the inspection boxes, other than rain water drainage boxes, will be totally hermetic to avoid unpleasant gases and scents rising to the surface.

The contracting party will reject the boxes whose key levels do not adjust strictly to the specifications and when the building process of these elements is not the appropriate one.

All incoming and outgoing pipes will be perfectly sealed with waterproofed mortar mixed at 1:4.

The free internal dimensions, in place, vary from 500x500 mm to 1000x1000 mm. and the depth will vary from a minimum of 400 mm to a maximum of 1000. The lid will stand out at least 50 mm over the surrounding area except for the boxes located inside the concrete slabs and/or sidewalks, in which case the lid will be leveled with the surrounding area.

The article will be paid by unit built, including land movements.

- **Hydraulic facilities**

The drawings will indicate the materials of the pipes and accessories. Those that are not indicated in the drawings will be defined by the contracting party.

The works will be executed following the manufacturer's instructions for each case. In addition, standards set out by Icontec 1500 for plumbing will be followed.

Before any pipe is installed, it will be carefully inspected by the contractor for fabrication defects and approved by the contracting party. No pipe or another material that shows scratches or any other type of defect prohibited by manufacturing specifications, may be used. Pipe cutting is to be accomplished using a jigsaw and the ends filed with sand paper.

The tubes, valves, and other accessories should be cleaned carefully removing any strange object that may have been introduced during or before the placement. The materials and accessories provided by the contractor should have a guarantee.

Each tube end will always stay corked, leaving these carefully locked.

The minimum depth of the ditch for placing the pipe will be of 60 cm.

Once excavation is finished, the exposed subsoil will be compacted by mechanical or manual procedures (only for ditches) to a density of 90% relative to the maximum obtained in the laboratory by the Modified Proctor test.

The bottom of the ditch will be filled with rock sand without stones, 6cm thick. Proceed placing the pipe centered in the ditch, covering it later with compact 6cm rock sand, filled on top with granular material as indicated in the drawings or by the contracting party. When water is found, the bottom of the ditch should be stabilized with a ½" gravel layer of 30cm thick. The bottom of the ditch should be flat and even to avoid pipe flexing when the placement depth is less than 60cm. it should be protected embedding simple concrete, as indicated in the drawings or as authorized by the contracting party.

The water supply grid will be subjected to three constant pressure hydraulic tests at 150 psi during a period not less than 12 hours for final approval by the contracting party. The first before filling the ditch

or covering the pipe, the second test after filling the ditch and the third test just before handing over the building and definitive delivery of the work.

The internal hydraulic facilities will be quoted by points using the diameters calculated in the design. The contractor will submit a sample and the technical information record of the product to be installed. The pipe will be anchored to the walls and metallic hinges using supporting devices 25cm minimum each. The design should provide for the construction of additional pipe to prevent the return blow effect.

Concrete slab:

- **Vapor barrier**

Once the conforming material is finished, (gravel layer) a vapor barrier will be installed (Polisec or similar) in the entire area including an overlap of 20cm. The internal overlap joints will have a minimum width of 15cm. and they will be fixed or sealed with adhesive tape or similar tape of a minimum width of 5 cm, compatible with the membrane.

The vapor barrier will be made of polyethylene with a minimum thickness of 0.152 mm (6 mils), or other equivalent material of the same characteristics.

The value of this item will be per square meter.

- **Reinforcement**

Everything concerning this activity shall comply to the standards set by Code NSR-10 particularly those corresponding to Title C, and the technical standards NTC 161, NTC 248, NTC 2289, ASTM A 305, ASTM A 615, ASTM A 706.

The contractor will order a quality control test performed in a laboratory approved by the contracting party, to be carried out for every ten tons of reinforcement or less, taking at least 2 test tubes for each diameter used.

The cost of these tests will be assumed by the contractor.

- **Concrete slab**

All activities concerning reinforced concrete will be executed according to the applicable norms of the Code NSR-10, especially those corresponding to Title C.

Coordination will be required with other contractors, especially with the plumbers, the electricians; those in charge of installing the fiber optics; of the ground mesh and those in charge of the communication network, since part of these works will be embedded in the concrete slab. If the contractor's designs require the use of boxes in passing embedded and interconnected ducts, for the conduction of regulated and non-regulated current, the contractor will make sure that the grids will run on separate ducts, using an equivalent pipe diameter. If he decides to use the same duct for regulated and non-regulated current, a physical separation will be made using docking elements along the line. The ducts or channels will not be circular but rectangular, metallic, and perfectly shielded (applies to all the cases where data cables are routed, such as trays), with their corresponding signaling, facilitating the inspection and identification of the net (The definition of the labeling will be indicated in conjunction with the technical staff of the American Embassy). Under no circumstances will it be acceptable for the energy grid and the logical net to share ducts. The passing boxes will be differentiated as trunk traffic distribution boxes and inspection boxes, both of which will be metallic, embedded, and shielded with metallic inspection lids, for easy opening, and perfectly marked according to distribution drawings. The ducts will have an isolation layer to increase the life of the cables. The distances between inspecting boxes, number of cables per duct, and

cable bending angles will be governed by the norms contained in NEC and EIA/TIA standards, cable shielding and grounding as per NFPA and IEEE standards.

Written warning will be given in advance to the contracting party about the activities concerning the mooring of irons and concrete founding, in order to have perfect coordination.

The concrete and steel construction quality and procedures are detailed in the drawings.

The curing and protection of concrete will be done using “antisol” white or similar product previous authorization by the contracting party. Concrete handling procedures and installation will follow manufacturer’s specifications. The supply and application price should be included in any activity using concrete.

After finishing the concrete slab, the entire exposed granular material around the perimeter will be covered with grass as per the parameters set in the “Lawn.”

Leveling differences in excess of 3mm will not be allowed in the finished surface.

- **Tuning the floor**

The contractor guarantees the floor is completely even, horizontal, and leveled, ready to install the enamel finish, preparing it with a 1:4 mortar mix (I Cement Portland type 1: washed sand) kneaded with water and if required by the contracting party, the kneading process will be made with a mixture of water and liquid additive, using a 3:1 mix, to improve the adherence and to increase the strength of the mortar. The former will comply to the ASTM C-1059 the 86 standard.

The cured surface should be structurally good and free of dust, grease, and extraneous materials.

Before applying the mortar, the surface will be washed but no water may pool. The contracting party may at his discretion demand the use of a primer to improve adherence and increase the mortar strength, until a thin appearance is achieved leaving the surface ready for application. The former will comply with ASTM C-1059 the 86 standard or similar standard until a thin appearance is achieved. No leveling differences in excess of 3mm will be accepted.

- **IDENTIFICATION FOR ELECTRICAL SYSTEMS**

GENERAL

1.1 SUMMARY

- A. This Section includes electrical identification materials and devices.

Retain paragraph below for projects with electrical utility work, including underground and overhead distribution and medium-voltage wiring.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.
- B. Identification Schedule: Index of nomenclature of electrical equipment and system components used in identification and labels.
- C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI C2.
- B. Comply with the OBO Electrical Code (NFPA 70 “National Electrical Code as amended by OBO).
- C. Comply with ANSI A13.1 and the OBO Electrical Code for color-coding.
- D. Comply with OSHA standards: Code of Federal Regulations (CFR), Title 29, Part 1910.145.

1.4 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual, and in Article on Quality Assurance. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PRODUCTS

1.5 RACEWAY IDENTIFICATION MATERIALS

Retain this Article if Project requires identification beyond requirements in NFPA 70. See "Specifying Considerations" Article in the Evaluations.

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.
- B. Color for Printed Legend:
 - 1. Power Circuits: Black letters on an orange field.
 - 2. Legend: Indicate system or service and voltage, if applicable.
- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameter sized to suit diameter of raceway it identifies and to stay in place by gripping action.

- E. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 50 mm (2 inches) long, with diameter sized to suit diameter of raceway it identifies and to stay in place by gripping action.
- F. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 50 mm (2 inches) wide; compounded for outdoor use.

1.6 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS

- 1. by tag manufacturer.

1.7 UNDERGROUND-LINE WARNING TAPE

- A. Description: Permanent, bright-colored, continuous-printed, polyethylene tape.
 - 1. Not less than 150 mm (6 inches) wide by 0.10 mm (4 mils) thick.
 - 2. Compounded for permanent direct-burial service.
 - 3. Embedded continuous metallic strip or core.
 - 4. Printed legend shall indicate type of underground line.

1.8 WARNING LABELS AND SIGNS

- A. Metal-Backed, Butyrate Warning Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 1-mm (0.04 inch) galvanized-steel backing; and with colors, legend, and size required for application. 6 mm (1/4 inch) grommets in corners for mounting. Nominal size, 250 by 360 mm (10 by 14 inches).
- B. Warning and danger labels and signs shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 900 MM."
 - 3. High Voltage (more than 600 volts) Warning: "DANGER – HIGH VOLTAGE."
 - 4. Concealed High Voltage Warning: "DANGER CONCEALED HIGH VOLTAGE WIRING."
- C. Emergency Operating Signs: Install engraved-laminated emergency-operating signs with white letters on red background with minimum 9-mm-high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

1.9 INSTRUCTION SIGNS

- A. Engraved, laminated acrylic or melamine plastic, minimum 1.6 mm (1/16 inch) thick for signs up to 130 sq. cm (20 sq. in) and 3.2 mm (1/8 inch) thick for larger sizes.
 - 1. Engraved legend with black letters on white face.
 - 2. Punched or drilled for mechanical fasteners.
 - 3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

1.10 EQUIPMENT IDENTIFICATION LABELS

Retain one of four paragraphs below to specify type of labels Contractor must use to comply with NFPA 70 (2002 Edition), Article 110-22, "Identification of Disconnecting Means." Note that, unless otherwise indicated, the labeling products selected below will also be used for labeling that is not required by NFPA 70 but may be specified in Part 3 "Application" Article to identify equipment other than disconnect devices. See Evaluations.

- A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 10 mm (3/8 inch).
- B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 10 mm (3/8 inch). Overlay shall provide weatherproof and ultraviolet-resistant seal for label.
- C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on dark-gray background. Minimum letter height shall be 10 mm (3/8 inch).
- D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 10 mm (3/8 inch).
- E. Retain paragraph below to specify type of label for identifying outdoor equipment if specified in Part 3 "Application" Article.
- F. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 25 mm (1 inch).

1.11 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 - 1. Minimum Width: 5 mm (3/16 inch).
 - 2. Tensile Strength: 22 kg (50 lb) minimum.
 - 3. Temperature Range: Minus 40 to plus 85 deg C (Minus 40 to plus 185 deg F).
 - 4. Color: Black, except where used for color-coding.
- B. Paint: Paint materials and application requirements are specified in Division 09 painting Sections.

1. Exterior Ferrous Metal:
 - a. Semigloss Alkyd-Enamel Finish: Two finish coats over primer.
 - 1) Primer: Exterior ferrous-metal primer.
 - 2) Finish Coats: Exterior semigloss alkyd enamel.
 2. Exterior Zinc-Coated Metal (except Raceways):
 - a. Semigloss Alkyd-Enamel Finish: Two finish coats over primer.
 - 1) Primer: Exterior zinc-coated metal primer.
 - 2) Finish Coats: Exterior semigloss alkyd enamel.
 3. Interior Ferrous Metal:
 - a. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.
 - 1) Primer: Interior ferrous-metal primer.
 - 2) Finish Coats: Interior semigloss acrylic enamel.
 4. Interior Zinc-Coated Metal (except Raceways):
 - a. Semigloss Acrylic-Enamel Finish: Two finish coats over primer.
 - 1) Primer: Interior zinc-coated metal primer.
 - 2) Finish Coats: Interior semigloss acrylic enamel.
- C. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

EXECUTION

1.12 APPLICATION

- A. Raceways and Duct Banks More Than 600 V Concealed within Buildings: 100 mm (4 inch) wide black stripes on 250 mm (10 inch) centers over orange background that extends full length of raceway or duct and is 300 mm (12 inches) wide. Stencil warning for Concealed High Voltage with 75 mm (3 inch) high black letters on 500 mm (20 inch) centers; see Article on Warning Labels and Signs. Stop stripes at legends. Apply to the following finished surfaces:
 1. Floor surface directly above conduits running beneath and within 300 mm (12 inches) of floor that is in contact with earth or is framed above unexcavated space.
 2. Wall surfaces directly external to raceways concealed within wall.
 3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.
- B. Accessible Raceways More Than 600 V: Identify with warning for High Voltage in black letters at least 50 mm (2 inches) high, with snap-around labels; see Article on Warning Labels and Signs. Repeat legend at 3 meters (10 foot) maximum intervals.

- C. Accessible Raceways, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A: Identify with orange snap-around label.
- D. Accessible Raceways and Cables of Auxiliary Systems: Identify the following systems with color-coded, self-adhesive vinyl tape applied in bands:
 - 1. Fire Alarm System: Red.
 - 2. Fire-Suppression Supervisory and Control System: Red and yellow.
 - 3. Combined Fire Alarm and Security System: Red and blue.
 - 4. Security System: Blue and yellow.
 - 5. Mechanical and Electrical Supervisory System: Green and blue.
 - 6. Telecommunication System: Green and yellow.
 - 7. Control Wiring: Green and red.
- E. Power-Circuit Conductor Identification: For conductors No. 1/0 AWG and larger in vaults, pull and junction boxes, manholes, and handholes use metal tags. Identify source and circuit number of each set of conductors. For single conductor cables, identify phase in addition to the above.
- F. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use metal tags. Identify each ungrounded conductor according to source and circuit number.
- G. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source and circuit number.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, signal, sound, intercommunications, voice, and data connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual.
- I. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.
 - 1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - b. Controls with external control power connections.

Equipment Requiring Workspace Clearance According to the OBO Electrical Code: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

- K. Danger Labels for Outdoor Cabinets, Boxes, and Enclosures for Power and Lighting including Transformers and Automatic Voltage Regulators: Comply with 29 CFR 1910.145. Identify system voltage on label. Apply to exterior of door, cover, or other access.
- L. Warning Labels for Noise Hazard: Provide warning sign “Noise Hazard – Hearing Protection Required” at doors accessing Engine Generator rooms.
- M. Instruction Signs:
 - 1. Operating Instructions: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
 - 2. Emergency Operating Instructions: Install instruction signs with white legend on a red background with minimum 10 mm (3/8 inch) high letters for emergency instructions at equipment used for power transfer and load shedding.
- N. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

- a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide single line of text with 13 mm (1/2 inch) high letters on 38 mm (1-1/2 inch) high label; where 2 lines of text are required, use labels 50 mm (2 inches) high.
- b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
- c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from floor.

2. Equipment to Be Labeled:

- a. Panelboards, electrical cabinets, and enclosures.
- b. Access doors and panels for concealed electrical items.
- c. Emergency system boxes and enclosures.
- d. Disconnect switches.
- e. Push-button stations.
- f. Contactors.
- g. Remote-controlled switches, dimmer modules, and control devices.
- h. Battery inverter units.
- i. Voice and data cable terminal equipment.
- j. Intercommunication and call system master and staff stations.
- k. Television/audio components, racks, and controls.

- l. Fire-alarm control panel and annunciators.
- m. Security and intrusion-detection control stations, control panels, terminal cabinets, and racks.
- n. Monitoring and control equipment.
- o. Terminals, racks, and patch panels for voice and data communication and for signal and control functions.

1.13 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach nonadhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.
- F. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at **50-foot** (15 meters) maximum intervals in straight runs, and at **25-foot** (8 meters) maximum intervals in congested areas.
- G. Color-Coding for Phase Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.
 1. Color shall be factory applied.
 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 3. Colors for Circuits exceeding 200 volts to ground:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.
 4. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 150 mm (**6 inches**) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

- H. Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.
- I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 150 to 200 mm (6 to 8 inches) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 400 mm (16 inches) overall.
- J. Painted Identification: Prepare surface and apply paint according to Division 09 painting Sections.
- K. Technical Security System (TSS) Identification:
 1. Label wiring between TSS termination and Electrical Closet (EC) terminations.
 2. Label wiring at both ends and at intermediate points.
 3. See Appendix M of the OBO Building Code for additional requirements on color coding TSS components.

- **RACEWAYS AND BOXES**

GENERAL

1.14 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
 1. Division 07 Section "Penetration Firestopping" for firestopping materials and installation at penetrations through walls, ceilings, and other fire-rated elements.
 2. .
 3. Division 26 Section "Vibration and Seismic Controls for Electrical Systems" for seismic restraints and bracing of raceways, boxes, enclosures, and cabinets.
 4. Division 26 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.
 5. Division 33 Section "Underground Ducts and Raceways" for exterior ductbanks, manholes, and underground utility construction.
- C. This Section includes requirements for both Technical Security Systems (TSS) and general electrical systems. DEFINITIONS
- D. EMT: Electrical metallic tubing.
- E. ENT: Electrical nonmetallic tubing.
- F. FMC: Flexible metal conduit.
- G. RMC: Rigid metal conduit.

- H. LFMC: Liquidtight flexible metal conduit.
- I. LFNC: Liquidtight flexible nonmetallic conduit.
- J. RNC: Rigid nonmetallic conduit.

1.15 PERFORMANCE

- A. Install raceway and conduit in manner that maintains required performances and ratings of walls.

1.16 SUBMITTALS

- A. Non-TSS Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. TSS Product Data: Similar as for non-TSS.
- C. Non-TSS Shop Drawings: Show fabrication and installation details of components for raceways, fittings, boxes, enclosures, and cabinets. Detail assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
- D. TSS Shop Drawings: Similar as for non-TSS.
- E. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
 - 1. Interaction of TSS and non-TSS infrastructure.
 - 2. Ceiling suspension assembly members.
 - 3. Method of attaching hangers to building structure.
 - 4. Size and location of initial access modules for acoustical tile.
 - 5. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

1.17 QUALITY ASSURANCE

- A. Comply with the OBO Electrical Code (NFPA 70, “National Electrical Code” as amended by OBO).
 - 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100 by a testing agency acceptable to Project Director/COR based upon input from OBO/PDCS/DE/EE, and marked for intended use.

1.18 COORDINATION

- A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PRODUCTS

1.19 GENERAL

- A. Approved Technical Security System Products: See Attachment B, “DS TSS Equipment List” to Division 28 Section “Common Work Results for Technical Security Systems (TSS)” for a listing of products that have been approved for use in DOS overseas facilities. The selection from this list shall be as appropriate for the project.

1.20 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Plastic-Coated Steel Conduit and Fittings: NEMA RN 1.
- C. IMC: ANSI/NEMA C80.6.
- D. EMT: ANSI C80.3.
- E. EMT Fittings: ANSI/NEMA FB 1
 - 1. Fittings: Compression type. Set screw type not permitted.
 - 2. Connectors: Threaded / locknut type. Snap in type not permitted.
- F. FMC: Zinc-coated steel.
- G. LFMC: Flexible steel conduit with PVC jacket.
- H. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

1.21 NONMETALLIC CONDUIT AND TUBING

- A. ENT: NEMA TC 13.
- B. RNC: NEMA TC 2, Schedule 40 and Schedule 80 PVC.
- C. ENT and RNC Fittings: NEMA TC 3; match to conduit or tubing type and material.
- D. LFNC: UL 514B.

1.22 METAL WIREWAYS

- A. Material and Construction: Sheet metal sized and shaped as indicated, NEMA 250, Type 1 or 3R.
- B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- C. Select features, unless otherwise indicated, as required to complete wiring system.
- D. Wireway Covers: Hinged type or as indicated.
- E. Finish: Manufacturer's standard enamel finish.

1.23 NONMETALLIC WIREWAYS

- A. Description: Fiberglass polyester, extruded and fabricated to size and shape indicated, with no holes or knockouts. Cover is gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections are flanged, with stainless-steel screws and oil-resistant gaskets.
- B. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.
- C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Select features, unless otherwise indicated, as required to complete wiring system.

1.24 SURFACE RACEWAYS

- A. Above-Ground Raceways: Rigid galvanized steel conduit, intermediate metal conduit and corrosion-treated electrical metallic tubing shall be used as permitted by codes for above-ground installations and for wiring in non-hazardous areas of buildings. PVC conduit may be used only with the approval of Project Director/COR based upon input from OBO/PDCS/DE/EE in limited applications. Raceway installation in the ceiling space is preferred over installation in floor slabs.
- B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard color.
- C. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.

1.25 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.
- C. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- D. Floor Boxes: Cast metal, fully adjustable, rectangular.
- E. Floor Boxes: Nonmetallic, nonadjustable.
- F. Pull Boxes and Junction Boxes - General:
 - 1. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
 - 2. Provide pull boxes and junction boxes with blank cover plates.
- G. TSS Pull Boxes and Junction Boxes:
 - 1. Provide pull boxes locating less than 3 meters above floor in Public Access Area spaces with lockable covers or tamper-proof screws.
 - 2. Provide boxes with 25 mm minimum knockouts for TSS equipment.
- H. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
- I. Cabinets: NEMA 250, Type 1, 2 mm (14 gauge) galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover. Key latch as indicated. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

1.26 FACTORY FINISHES

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.
- B. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

EXECUTION

1.27 RACEWAY APPLICATION

- A. Outdoors - General:

1. Exposed: Rigid steel.
2. Concealed: Rigid steel.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R.

B. Outdoors - TSS:

1. Below-Grade: RNC. Provide change to metallic conduit using metallic elbow when leaving conduit or ductbank to go above grade.

C. Indoors - General:

1. Exposed: EMT Conduits may be exposed in utility spaces such as electrical and mechanical rooms.
2. Concealed: EMT.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
4. Damp or Wet Locations: Rigid steel conduit.
5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
 - a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
6. Lighting fixtures “whips”: FMC; MC cable may be used instead of FMC subject to approval by Project Director/COR.

D. Indoors - TSS:

1. Inside Building Hardline: FMC with 27 mm min. I.D. and 2 meters max. length, or EMT.
2. Outside Building Hardline: RMC, FMC, intermediate metal, or LFMC.
3. Protected Distribution System (PDS) Hardened Carrier: EMT, ferrous conduit or pipe, or rigid-sheet steel duct. Elbows, couplings, nipples, and connectors shall match material used for carrier.
4. Wireless Distribution System (WDS): EMT.
5. Chemical Dispensing System: RMC between dispensers and control console in MSG Post 1. No other device wiring is permitted in this system conduit.

E. Minimum Raceway Size: 21mm DN 21. Exception: 12mm as noted for specialized control conduits and for FMC lighting fixture “whips.”

F. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

1.28 SHARED TSS AND NON-TSS INSTALLATION REQUIREMENTS

- A. Keep raceways at least 150 mm away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- B. Support raceways as specified in Division 26 Section "Common Work Results for Electrical, Communications and Electronic Safety."
- C. Install temporary closures to prevent foreign matter from entering raceways.
- D. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
- E. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- F. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.
 1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
- G. Raceways Embedded in Slabs: Where permissible, install in middle 1/3 of slab thickness where practical and leave at least 50 mm of concrete cover.
 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 2. Space raceways laterally to prevent voids in concrete.
 3. Run conduit larger than 25 mm parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 4. Change from nonmetallic tubing to Schedule 80 nonmetallic conduit, or rigid steel conduit, before rising above the floor.
- H. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
 1. Run parallel or banked raceways together on common supports.
 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- I. Join raceways with fittings designed and approved for that purpose and make joints tight.
 1. Use insulating bushings to protect conductors.

- J. Terminations:
1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
 2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 90-kg tensile strength. Leave at least 300 mm of slack at each end of pull wire tied off with 25mm locknut.
- L. Telephone and Signal System Raceways, 53 and Smaller: In addition to above requirements, install raceways in maximum lengths of 30 m and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements. Pull or junction boxes shall not be used as a bend.
- M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 2. Where otherwise required by the OBO Electrical Code.
- N. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC or LFMC may be used 150 mm above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
- O. Flexible Connections: Use maximum of 1800 mm of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.
- P. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
- Q. Set floor boxes level and flush with finished floor surface.
- R. Set floor boxes level. Trim after installation to fit flush with finished floor surface.
- S. Install hinged-cover enclosures and cabinets plumb. Support at each corner.
- T. All branch circuit wiring supplying receptacles and pigtails to supply electrified furniture shall be run overhead above the suspended ceiling and shall not be run under, or embedded within, the concrete floor slab.

1.29 TSS INSTALLATION REQUIREMENTS

A. General:

1. TSS signal conductors shall not share same conduit, handholes, electrical cabinets, or junction boxes with power conductors.
2. Non-security signal and power conductors shall not be installed in conduits used for TSS signal and power conductors.
 - a. The only exception is for chemical dispensing system.

B. Conduit:

1. At transitions from below grade to above grade conduit routing, use metallic elbows at least 3 meters outside of building wall to change from below grade RNC to above grade metallic conduit.
2. Where transiting building hardline, physically protect conduit by means such as embedding conduit in concrete.
3. Conduit above ceiling may be surface mounted.
4. Route TSS conduits to minimize conduits in areas external to building hardline.

C. Pull Boxes:

1. Install pull boxes at every other 90-degree bend.
2. Locate pull boxes at maximum 15 meter intervals along conduit runs.
3. Pull boxes shall be accessible to installer using ladder for installation, and inspectable when installed above ceiling grid.
4. Once installation is completed, seal pull boxes with tamper-proof screws, and apply label reading "Do Not Use."

D. Junction Boxes:

1. Junction boxes serving TSS shall be metallic and serve TSS only.
2. Junction boxes may be surface mounted above the ceiling where applicable.

1.30 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

1.31 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

- **EXTERIOR LIGHTING**

GENERAL

1.32 SUMMARY

- A. This Section includes the following:
 - 1. Exterior luminaires with lamps and ballasts, but not mounted on exterior surfaces of buildings.
 - 2. Luminaire-mounted photoelectric switches.

1.33 DEFINITIONS

- A. CRI: Color rendering index.
- B. HID: High-intensity discharge.
- C. LED: Light-Emitting Diode.
- D. Luminaire: Complete lighting fixture, including ballast housing if provided.
- E. Pole: Luminaire support structure, including tower used for large area illumination.
- F. Standard: Same definition as "Pole" above.

1.34 PERFORMANCE STANDARDS

- A. Site lighting shall conform to requirements in Appendix B of the Zoning Code of Overseas Buildings Operations.

1.35 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

- A. Dead Load: Weight of luminaire and its horizontal and vertical supports, and supporting structure, applied as stated in AASHTO LTS-4-M.
- B. Live Load: Single load of 2200 N (500 lbf), distributed in accordance with AASHTO LTS-4-M.
- C. Wind Load: Pressure of wind on pole and luminaire, calculated and applied as stated in AASHTO LTS-4 and as determined by analysis of local conditions.
 - 1. Wind speed for calculating wind load for poles exceeding 15 m in height is 50 m/s (110 mph).
 - 2. Wind speed for calculating wind load for poles 15 m in height or less is 50m/s (110 mph).

- D. Seismic Resistance: Poles installed in areas requiring seismic bracing shall have bracing designed in accordance with the Building Code of Overseas Buildings Operations. Seismic restraints shall be designed by a professional engineer.
 - 1. Seismic Influences: Increase the strength of mounting or supporting components or add seismic restraints, or both, to improve resistance to failure due to flexure, separation of poles from foundations, or separation of lighting fixtures from mountings.

1.36 SUBMITTALS

- A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:
 - 1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.
 - 2. Details of attaching luminaires and accessories.
 - 3. Details of installation and construction.
 - 4. Luminaire materials.
 - 5. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, ballasts, and accessories.
 - a. For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
 - b. Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 - 6. Photoelectric relays.
 - 7. Ballasts, including energy-efficiency data.
 - 8. Lamps, including life, output, and energy-efficiency data.
 - 9. Materials, dimensions, and finishes of poles.
 - 10. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.
 - 11. Anchor bolts for poles.
 - 12. Manufactured pole foundations.
- B. Shop Drawings:
 - 1. Anchor-bolt templates keyed to specific poles and certified by manufacturer.
 - 2. Design calculations, certified by a qualified professional engineer, indicating strength of screw foundations and soil conditions on which they are based.
 - 3. Wiring Diagrams: Power and control wiring.
 - 4. Seismic restraints.
- C. Seismic Design: Design data and calculations.
- D. Soil tests reports for lighting poles.

- E. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-4-M and that load imposed by luminaire has been included in design.
- F. Field quality-control test reports.
 - 1. Photometric test reports to demonstrate conformance with Appendix B of the Zoning Code of Overseas Buildings Operations. Submit separate report for LED lamps.
- G. Operation and Maintenance Data: For luminaires poles to include in emergency, operation, and maintenance manuals.

1.37 QUALITY ASSURANCE

- A. Comply with the OBO Electrical Code (NFPA 70, "National Electrical Code" as amended by OBO).
 - 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to Project Director/COR based upon input from OBO/PDCS/DE/EE, and marked for intended use.
- B. FMG Compliance: Fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FMG.
- C. Comply with IEEE C2, "National Electrical Safety Code."

1.38 DELIVERY, STORAGE, AND HANDLING

- A. Package aluminum poles for shipping according to ASTM B 660.
- B. Store poles on decay-resistant-treated skids at least 300 mm (12 inches) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.
- C. Retain factory-applied pole wrappings on metal poles until right before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

1.39 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Lamps: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
 - 2. Glass and Plastic Lenses, Covers, and Other Optical Parts: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
 - 3. Ballasts: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
 - 4. Globes and Guards: 10 for every 100 of each type and rating installed. Furnish at least one of each type.

PRODUCTS

1.40 LUMINAIRES, GENERAL REQUIREMENTS

- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
- B. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Design to prevent doors, frames, lenses, diffusers, and other components from falling accidentally either during relamping or when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Design to disconnect ballast when door opens.
- G. Exposed Hardware Material: Stainless steel.
- H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
- I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.
- J. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
 - 2. Specular Surfaces: 83 percent.
 - 3. Diffusing Specular Surfaces: 75 percent.
- K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- L. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."

2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.
 - a. Color to match poles.

1.41 FLUORESCENT BALLASTS AND LAMPS

- A. Low-Temperature Ballast Capability: Rated by its manufacturer for reliable starting and operation of indicated lamp(s) at temperatures minus 30 deg C and higher.
- B. Ballast Characteristics:
 1. Power Factor: 90 percent, minimum.
 2. Electromagnetic Ballasts: Comply with ANSI C82.1, energy-saving, high power factor, Class P, automatic-reset thermal protection.
 3. Case Temperature for Compact Lamp Ballasts: 65 deg C, maximum.
 4. Transient-Voltage Protection: Comply with IEEE C62.41 and IEEE C62.41.2 Category A or better.
- C. Low-Temperature Lamp Capability: Rated for reliable starting and operation with ballast provided at temperatures minus 30 deg C and higher.
- D. Fluorescent Lamps: Low-mercury type. Comply with the EPA's toxicity characteristic leaching procedure test; shall yield less than 0.2 mg of mercury per liter when tested according to NEMA LL 1.
- E. Compact Fluorescent Lamps: CRI 80 (minimum), color temperature 3500 K, averaged rated life of 10,000 hours at 3 hours operation per start, unless otherwise indicated.
 1. T4, Double-Twin Tube: Rated 18 W, 1200 initial lumens (minimum).
 2. T4, Double-Twin Tube: Rated 26 W, 1800 initial lumens (minimum).

1.42 LED LAMPS

- A. Luminaire Efficiency: Initial delivered lumens shall produce thermal losses which are less than 10 percent when operated at steady state at average ambient temperature of 25 C, and optical losses shall be less than 15 percent.
- B. Depreciation: Average delivered lumen over 50,000 hours shall be minimum 85 percent of initial delivered lumens.
- C. Light Distribution: Light distribution required to conform to Appendix B of the Zoning Code of Overseas Buildings Operations are basis for type of IESNA luminaire classification (LCS).
- D. System Wattage Including Drive Loss: 80 lumen/watt minimum (delivered lumens/total wattage).
- E. Color Rendering Index (CRI): 75 minimum.

- F. Electrical Safety: Wet listed and listed for operation in high ambient temperatures in either U.S., Canada, ENEC, CE, ROHS, or EMI .
- G. Driver:
 - 1. Electronic power supply
 - 2. Voltage range: 120-277 (+/- 10 percent)
 - 3. Current: .35 A_{dc} (+/- 5 percent)
 - 4. Frequency: 50/60 Hz
 - 5. Power Factor: Greater than 90 percent at full load
 - 6. THD: Less than 20 percent at full load
 - 7. Load Regulation: +/- 1 percent from no load to full load
 - 8. Output Ripple: Less than 10 percent
 - 9. Output shall be isolated
 - 10. Case Temperature: Rated for -40 C through +80 C
 - 11. Power Supply Enclosure: Fully encased and potted, IP65
 - 12. Protection: Overheat, self-limited short circuit, and overload
 - 13. Primary fused
- H. Life Rating: Minimum 50,000 hours.
- I. Restrike shall be instant on and off, with full illumination for instant on.

EXECUTION

1.43 LUMINAIRE INSTALLATION

- A. Install lamps in each luminaire.
- B. Fasten luminaire to indicated structural supports.
 - 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources.
- D. Locate override controls for exterior site lighting for access by Marine Security Guard immediately adjacent to CCTV control racks such that lighting controls can be operated while directly viewing CCTV monitors.

1.44 PHYSICAL SECURITY REQUIREMENTS FOR POLES

- A. Foundations for light poles shall not protrude above the finished grade more than 150 mm.

1.45 INSTALLATION OF INDIVIDUAL GROUND-MOUNTING LUMINAIRES

- A. Install on concrete base with top 100 mm (4 inches) above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 03 Section "Cast-in-Place Concrete."

1.46 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.
- B. Steel Conduits: Comply with Division 26 Section "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.25-mm (0.010-inch) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

1.47 GROUNDING

- A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.
- B. Ground nonmetallic poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor and conductor protector.
 - 3. Ground metallic components of pole accessories and foundations.

1.48 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

1.49 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.
 - 1. Verify operation of photoelectric controls.
- C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards.
2. Comply with one of the following set of testing guide(s):
 - a. IESNA:
 - 1) IESNA LM-5, "Photometric Measurements of Area and Sports Lighting."
 - 2) IESNA LM-50, "Photometric Measurements of Roadway Lighting Installations."
 - 3) IESNA LM-52, "Photometric Measurements of Roadway Sign Installations."
 - 4) IESNA LM-64, "Photometric Measurements of Parking Areas."
 - 5) IESNA LM-72, "Directional Positioning of Photometric Data."
 - b. British Standard:
 - 1) BS EN 13032-2:2004, "Light and Lighting Measurement and Presentation of Photometric Data of Lamps & Luminaires – Part 2 Presentation of Data for Indoor and Outdoor Workplaces."
- D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

1.50 REPAIRS

- A. Steel Lighting Poles: Repair minor dents. Touch-up paint at repaired surfaces and where finish has been scratched or chipped.

END OF SECTION 265600

The time frame for completing the work: 90 calendar days.

Attachment # 4 Soil Survey

LUIS E. VELASQUEZ C.
Ingeniero Civil
Suelos –Cimentaciones

Bogotá D.C, 26 de agosto de 2.015

INGENIERO
PEDRO BUENO
EMBAJADA DE LOS ESTADOS UNIDOS
BOGOTÁ.

Adjunto a la presente me permito hacer entrega del informe correspondiente al trabajo de exploración, muestreo de suelos, resultado de los ensayos de laboratorio y evaluación de los resultados para el diseño de la Cimentación de la edificación a llevar a cabo con altura de un piso y tanque para almacenamiento de agua a llevar a cabo en el predio ubicado en la zona de vivero, sede de la Embajada de Los Estados Unidos Calle 24 Bis # 48-50 en la ciudad de Bogotá.

Atentamente,

ING. LUIS E. VELASQUEZ CUBILLOS
Oficina y Lab. Carrera 55 A N° 128 A 56 Tel.8052770- Cel.3002703710 Bogotá

OBRA: Edificación Un Piso y Tanque Agua.

LOCALIZACION: Calle 24 Bis N° 48-50 de Bogotá.

CONTENIDO:

1.0 GENERALIDADES

2.0 EXPLORACION DEL SUBSUELO Y ENSAYOS DE LABORATORIO

2.1 Perforaciones

2.2 Ensayos de laboratorio

2.3 Estratigrafía General del Terreno

2.4 Nivel Freático

2.5 Efectos Locales

3.0 PROFUNDIDAD DE CIMENTACION Y CAPACIDAD PORTANTE

3.1 Profundidad de Cimentación

3.2 Capacidad Portante Admisible del Terreno

3.3. Factores Directos e Indirectos

4.0 SISTEMA DE CIMENTACION

4.1 Asentamientos

5.0 CONCLUSIONES Y RECOMENDACIONES

6.0 ANEXOS

1.0 GENERALIDADES:

De acuerdo a lo solicitado por el Ing. Pedro Bueno, se presenta en éste informe el resultado de la investigación de los suelos mediante ensayos de laboratorio con el fin de determinar sus características geotécnicas y parámetros necesarios para obtener la capacidad portante admisible del terreno de fundación que ha de servir al Ingeniero calculista de la estructura para el diseño de la cimentación de la edificación con altura de un piso y Tanque para almacenamiento de agua.

La estructura de la edificación estará conformada con pórticos en concreto reforzado en dos pisos con carga máxima por columna del orden de 25 Tons.

EXPLORACION DEL SUBSUELO Y ENSAYOS DE LABORATORIO:

2.1 Perforaciones:

En el predio antes mencionado en la zona a desarrollar el proyecto se ejecutó una exploración a cinco metros de profundidad con muestreo de los suelos en cada uno de los estratos con el fin de conocer la estratigrafía y sus características geotécnicas mediante equipo de perforación Petty de 18 H.P con avance a percusión.

De cada uno de los estratos se tomaron muestras del terreno las cuales se empacaron debidamente en el sitio para luego trasladar al laboratorio a fin de ejecutar los ensayos pertinentes.

Se adjunta un esquema con la ubicación de la perforación.

2.2. Laboratorio:

A las muestras de suelo extraídas de cada uno de los estratos, fueron ejecutados los ensayos de granulometría, límites de Atterberg, contenido de humedad natural, peso unitario, peso específico y resistencia a la compresión inconfiada a los suelos cohesivos .

Determinadas las características geotécnicas de los suelos, se clasificaron por el sistema unificado de la USCE. Se adjunta al presente informe el perfil estratigráfico con la Clasificación USC de los suelos, resistencia, cuadros de ensayo y resumen de los resultados de laboratorio obtenidos en cada uno de los estratos.

2.3 Estratigrafía General:

2.3.1 Geología y Morfología:

El predio se halla ubicado en la zona plana alta de la Sabana de Bogotá ,formado geológicamente por relleno lacustre sedimentario perteneciente a la Formación Sabana (Qs) ,corresponde al nivel de terraza plana alta constituido por la acumulación sucesiva de depósitos fluvio-lacustres de limos arena y arcilla limosa firme de color gris carmelito con habano .

2.3.2 Estratificación y Caracterización Geotécnica:

El predio es de superficie plana con buen drenaje, estratigrafía uniforme con las siguientes características geotécnicas y dispuestas, así:

De 0.0m a 0.20m Limo orgánico carmelito con raíces de pasto Kikuyo .

De 0.20m a 0.50m Limo con arena fina compacta de color carmelita con resistencia a la penetración Standard N de 39 Golpes /Pie.

De 0.50m a 1.0m se encuentra un estrato de limo arcillo arenoso firme color carmelito con las siguientes características, así:

Resistencia a la penetración Standard Ncorr.	=26 Golpes /Pie
Resistencia a la compresión inconfiada	= 3.48 Kgs/Cm ² .
Peso unitario suelo húmedo	= 2.0Tons./M ³ .
Humedad natural	= 34.7 %.
Pasa tamiz #200	= 70
Límite líquido	= 93

Límite plástico	= 51
Índice de plasticidad	= 42
Clasificación USC	= MH
Peso específico Gs.	= 2.57

De 1.0m a 4.50m se encuentra un estrato de arena media a fina no plástica de color gris con las siguientes características geotécnicas promedio, así:

Resistencia a la penetración Standard Ncorr.	=19 Golpes /Pie
Angulo de fricción Θ	= 29°
Peso unitario suelo húmedo	= 2.05Tons./M3.
Humedad natural	= 12.2 %.
Pasa tamiz #200	= 14
Límite líquido	= NL
Límite plástico	= NP
Índice de plasticidad	= NP
Clasificación USC	= SM

De 4.50 a > 5.0m se encuentra un estrato de arcilla limosa inorgánica con lentes de arena fina color gris de alta compresibilidad con las siguientes características, así:

Resistencia a la penetración Standard N corr.	= 20 Golpes /Pie.
Peso unitario suelo húmedo	= 1.58 Ton./M3.
Humedad natural	= 7.9 %
Pasa Tamiz # 200	= 100%
Límite Líquido	= 90
Límite Plástico	= 28
Índice de Plasticidad	= 62
Clasificación USCS	= CH

2.4 Nivel Freático:

En la estratigrafía perforada no se detectó nivel freático.

2.5 Efectos Locales:

Los parámetros sismo-resistentes a tener en cuenta para el diseño estructural, son:

Perfil de Suelo: D

Zona de riesgo sísmico = Intermedio

Zona de respuesta sísmica = Lacustre Aluvial 200

Aa.	= 0.15
Av.	= 0.20
Fa.	= 1.10
Fv.	= 2.80
Tc	= 1.63
TL	= 4.0
Ao	= 0.17

3.0 PROFUNDIDAD DE CIMENTACION Y CAPACIDAD PORTANTE

3.1 Profundidad de Cimentación.

La profundidad de cimentación para el caso de zapatas en la zona de la edificación se recomienda fijar a 1.0m sobre el suelo areno limoso firme de color gris con habano y carmelito.

Para el caso de la cimentación del tanque se recomienda apoyar a la profundidad de 2,0m sobre el estrato formado por arena limosa inorgánica de color gris.

Para el diseño del tanque se debe tener en cuenta además del valor de capacidad portante admisible del terreno de fundación un peso unitario del suelo de 2.0 Tons./M3. Coeficiente de presión activa de tierras K_a de 0.37 y coeficiente de presión pasiva de tierras $K_p = 2.70$.

3.2 Capacidad Portante Neta Admisible del Terreno de Fundación:

La capacidad portante neta admisible "Qad" del terreno de fundación para el caso de la cimentación tipo zapatas o cimientos corridos en la zona de la edificación de uno a dos pisos, será:

$$\Theta = 29^\circ$$

$$N_q = 16$$

$$N_\gamma = 19$$

$$\gamma = 1.9 \text{ Tn./M}^3.$$

$$F.S = 3,0$$

$$Q_{ad} = (\gamma \cdot D_f \cdot N_q + 0,5 \gamma \cdot B \cdot N_\gamma) / F.S$$

$$Q_{ad} = (1.9 \times 1.0 \times 16 + 0,5 \times 2.0 \times 1.0 \times 19) / 3.0 = 16.4 \text{ Tons./M}^2 \text{ para zapatas o cimientos corridos.}$$

Capacidad Portante Cimentación Tanque;

$$\Theta = 28^\circ$$

$$B = 3.0 \text{ m}$$

$$D_f = 2.0 \text{ m}$$

$$\gamma = 1.7 - 1.9 \text{ Ton./M}^3.$$

$$Q_{ad} = (1,9 \times 2.0 \times 14 + 0,5 \times 1.7 \times 3 \times 16) / 3.0 = 31 \text{ Tons./M}^2.$$

4.0 SISTEMA DE CIMENTACIÓN:

Según cargas que obtenga el Ing. Calculista de la estructura, se considera que el tipo de cimentación a emplear puede ser cimentación superficial de tipo zapatas enlazadas en ambas direcciones mediante vigas en concreto reforzado debidamente diseñadas y calculadas a criterio técnico del Ingeniero calculista de la estructura.

4.1 Asentamiento Teórico Probable.

Teniendo en cuenta las características del terreno de fundación y cargas a soportar, el asentamiento total probable será menor a 1.0 Cms.

5.0 CONCLUSIONES Y RECOMENDACIONES:

5.1 Terminada la excavación para la cimentación de las zapatas se recomienda colocar en el fondo de ésta una capa de concreto pobre de limpieza en espesor mínimo de 3 cms.

5.2 La Placa del fondo del tanque se recomienda fundir sobre una capa de concreto pobre de limpieza en espesor mínimo de 5 Cms.

5.3 La excavación para el tanque a construir se recomienda bajar teniendo en cuenta una inclinación de los taludes de 1v:3h. Fundida la placa de fondo y muros en concreto reforzado se recomienda rellenar por el respaldo de los muros con material granular no plástico debidamente apisonado.

5.3 Todas las columnas a la altura de la cimentación se recomienda enlazarlas entre sí en ambas direcciones mediante el empleo de vigas en concreto reforzado debidamente diseñadas y calculadas a criterio técnico del Ing. Calculista de la estructura.

5.4 Terminada la excavación para la cimentación de la obra y si se presentan variaciones con relación al estudio de suelos, se recomienda solicitar la visita del Ing. de suelos con el fin de verificar la estratigrafía del terreno y capacidad portante.

Si durante las etapas de diseño y construcción de la cimentación se presentan dudas o se observan características del terreno no previstas en el presente informe con el mayor gusto serán atendidas y resueltas oportunamente.

Atentamente,

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ESTUDIO DE SUELOS

CALLE 24 Bis N° 48-50 ZONA VIVERO

EMBAJADA DE LOS ESTADOS UNIDOS DE AMERICA

LUIS E VELASQUEZ C .
INGENIERO CIVIL
SUELOS –CIMENTACIONES

AGOSTO DE 2015

Attachment # 5 SAFETY REQUIREMENTS FOR CONTRACTORS

The purpose of this document is to ensure compliance with current safety regulations as well as the health and integrity of personnel avoiding any damage or injury. The contractor will accept all legal dispositions currently in force concerning safety for staff and workers, as well as for the public who directly or indirectly may be affected by the work. The contractor will follow the more restrictive standard between the Safety and Health Requirements Manual established by the US Army Corps of Engineers (http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_385-1-1.pdf) or the Colombian laws on industrial safety as established by the Ministry of Labour as follows:

General Safety Requirements

- The contractor is required to provide the proof of payment of local insurances (EPS, ARL) of all the employees that will be involved in the task. Likewise, the contractor is required to provide monthly payment documents of local insurance for the length of work.
- Contractor personnel must carry the ARL and EPS badge during the time spent in the premises of the Embassy and while performing the contract work.
- The contractor will conduct a safety briefing before starting daily work.
- It is forbidden the entrance of contractor personnel who have signs of drunkenness or who are under the influence of stimulants or hallucinogens.
- The contractor must accept the safety standards set by the US Embassy.
- The contractor must place provisional barricades and warning signs in order to keep people away from hazards and avoid accidents to third parties.
- The contractor will not use chains, rings, watches and/or bracelets during the execution of works.
- The contractor will not consume food during the execution of works. It should be done in areas designated for this purpose.

- The contractor should not smoke during the execution of works. The contractor should do so only in areas designated for smokers and in areas where it does not constitute a danger for personnel and/or facilities.

Personal Protective Equipment (PPE) Requirements

- Contractor personnel must use personal protective equipment (PPE) required and in accordance with the contracted work.
- The contractor is required to inspect and maintain spare PPE in case of damage, deterioration or loss of the equipment.
- The PPE used must meet the technical specifications required by Colombian regulation and international standards.
- Sharp cutting tools must be carried in Tools Carrying Case; under no circumstances they can be carried in uniform's pockets.
- In those tasks where is required PPE certified, the contractor must provide the current certification.
- The contractor must provide records of PPE received for all the employees involved in the task.

Safety inspections requirements:

- All tools, equipment and/or machinery that will be used in the execution of the contracted work must be inspected by a certifying agency. The contractor must provide records of the inspections before starting works and monthly.
- Safety representatives of the US Embassy may inspect equipment, tools and/or machinery of the contractor at any time and may request to change it if deemed.

Emergency Response Requirements

- In case of an emergency within the US Embassy facilities and/or during the execution of the contracted work, contractor personnel must follow the instructions given by the Embassy representative (escort) who is supervising the works, the brigade or security personnel.
- The contractor must not obstruct emergency response equipment such as first aid kits, fire extinguishers, fire cabinets, defibrillators, spill kits, stretchers or safety signs.

Ergonomics Requirements

- The contractor personnel must meet standards related to cargo handling given by Colombian law. Men: lifting weights not exceeding 25 kg. For women: lifting weights not exceeding 12.5 kg.
- For handling heavier loads than those stipulated in the previous item, the contractor shall provide mechanical assistance to its workers.

High Risk Work Requirements

- The contractor shall submit certificates of training for each person who will run the task. These certificates must be submitted before starting the execution of works.
- The contractor shall prepare a work permit specifically for the task and must be provided to the Embassy before the initiation of work.
- The contractor must present a certificate of medical aptitude for each person who will perform the work.
- The contractor must send a risk assessment of the task in a minimum period of eight working days before commencement of work. A safety representative of the US Embassy will review the document and make any comment it deems.
- During the execution of high-risk activities the contractor must always count on the presence of a second person/attendant (safety representative, brigade, certified employee) that may give first aid or notice in case of emergency.

Fall Protection Requirements

All work performed more than 1.50 meters is considered work at heights, therefore the contractor must strictly comply with Resolution 1409 de 2012:

- All equipment to work at heights must meet at least the ANSI Z359.1 standards or European counterparts.
- All contractor personnel using equipment for work at heights must follow the instructions and warnings that bring such equipment.
- Contractor personnel will not use as an anchor point for work, ladders, piping or pipe supports.

- If an anchor point does not offer the recommended resistance for fall protection (5000 lbs), the contractor must provide protective equipment for heights with dampers that may decrease the impact force.
- Scissor scaffolds are prohibited. Only use multi directional/modular scaffolding properly certified.
- Use dielectric ladders to work with electricity and areas with electrical influence.
- It is forbidden to stand on the three top rungs of the ladders.
- If the contracted work requires work on scaffolds, the contractor must follow the guidelines established in the NTP 530, 531, 532, 695 and 696 standards or OSHA 1910 Subpart F.
- All personnel performing work at height must use at least the following personal protection equipment: helmet (dielectric if needed), with chin strap and three support points, safety glasses that protect eyes from impacts, with UV protection and glare; hearing protection if necessary, gloves with high resistance to abrasion, slip reinforced toe boots, work clothes according to weather conditions and risk factors and a full body harness.
- The contractor must submit to the US Embassy in a minimum period of eight working days before commencement of work, the training certificates of all workers who will perform the job. The certificate must comply with the provisions of Resolution 3673 de 2008. A re-training should be provided to employees at least once a year as required by the legislation.

Requirements for Chemical Substance Management

- If the contracted task requires the use of chemicals, the contractor must comply with the specifications required by law for storage, handling and transportation.
- If the contracted task requires the use of chemicals, the contractor shall provide to the US Embassy a copy of the Safety Data Sheet (SDS) of each of the products.
- The contractor is responsible for verifying the correct handling of each product such as storage, labeling, required PPE, disposal of waste in compliance with safety and environment regulations.

Requirements for Lifting loads, use of cranes or elevating work platforms

- The contractor must submit to the US Embassy the certificates of the equipment (by an entity certified by the ONAC) of the equipment used for the work (including forklift, cranes and elevating platforms) and required documents of the vehicles (SOAT, ownership card , mechanical inspections).

- The contractor shall send to the US Embassy all the certificates (issued by an entity certified by the ONAC) of all the slings, chains, shackles or other elements used for lifting loads.
- The contractor shall send to the US Embassy the training certificates of all the personnel that will perform the task.
- The contractor shall send to the US Embassy the Maintenance Program of the equipment and machinery that will be used.
- The contractor shall send to the US Embassy the loading and unloading procedure.
- The contractor must send to the US Embassy the Risk Assessment of the task that will be performed.
- The contractor must make a plan to ensure the lifting capacity of the crane or arm relative to its load.

Road Safety Requirements

- The vehicle must have the basic elements of emergency response. NTC 4532.
- Vans and trucks must have vehicle back-up alarms and back-up sensors.
- The contractor must submit to the US Embassy the required documents of the vehicles (SOAT, ownership card, driver license, mechanical inspections).

Requirements for Confined Spaces

For any work to be performed in a confined spaces, you must consult with the Safety Office to identify and comply with all the mandatory requirements established by SHEM.

NORMAS GENERALES DE SEGURIDAD INDUSTRIAL Y SALUD OCUPACIONAL PARA CONTRATISTAS

El propósito del presente documento es asegurar el cumplimiento de la normatividad vigente así como la salud e integridad de las personas evitando cualquier tipo de daño o lesión. El contratista deberá aceptar todas las disposiciones legales vigentes en materia de seguridad para el personal, así como para el público que directa o indirectamente pueden verse afectados por la obra. El contratista dará cumplimiento a la norma más restrictiva entre el Manual de Requisitos de seguridad y de salud establecidos por el Cuerpo de Ingenieros del Ejército de los EE.UU (http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_385-1-1.pdf) o las leyes colombianas en materia de seguridad industrial, según lo establecido por el Ministerio de Trabajo de la siguiente manera:

Requisitos Generales:

- El contratista está obligado a presentar las planillas de pago al Sistema General de Seguridad Social del personal que tenga trabajando en las instalaciones de la Embajada. Así mismo, el contratista está obligado a enviar mensualmente las planillas vigentes durante el tiempo que dure la labor para la cual fueron contratados.
- El personal contratista debe portar el carne de la ARL y EPS durante el tiempo que permanezca en las instalaciones de la Embajada realizando la labor contratada.
- La empresa contratista realizará una charla de seguridad diaria antes de iniciar la labor.
- Está prohibido el ingreso de personal contratista que presente signos de embriaguez o que se encuentre bajo efectos de sustancias estimulantes o alucinógenas.
- La empresa contratista deberá acoger las normas de seguridad establecidas por la Embajada.
- La empresa contratista deberá realizar cerramiento provisional en las áreas de influencia del trabajo a realizar, con el fin de evitar accidentes a terceros.
- La empresa contratista deberá señalar el área de trabajo prohibiendo el ingreso de personal ajeno a la labor.
- La empresa contratista no permitirá a su personal el uso de cadenas, anillos, relojes y/o pulseras durante la ejecución de los trabajos.
- La empresa contratista no permitirá a su personal el consumo de alimentos durante la ejecución de los trabajos. Debe hacerse en áreas destinadas para este fin.

- La empresa contratista no permitirá a su personal fumar durante la ejecución de los trabajos. Para fumar deben hacerlo sólo en las zonas asignadas para los fumadores y en áreas en donde no se constituya en un peligro para el personal y/o las instalaciones.

Requisitos de Elementos de Protección Personal:

- El personal contratista deberá usar los Elementos de Protección Personal (EPP) requeridos y específicos para las labores contratadas.
- La empresa contratista está obligada a inspeccionar y a mantener el inventario suficiente para el reemplazo de EPP en caso de daño, deterioro o pérdida.
- Los EPPs usados por el personal contratista deben cumplir con las especificaciones técnicas exigidas por la legislación colombiana y las normas internacionales que los regulen.
- El personal contratista que para el desarrollo de la labor deba utilizar herramientas y objetos corto-punzantes deben ser portados en canguros multi-herramientas; bajo ninguna circunstancia pueden ser portados en bolsillos del uniforme.
- En aquellas actividades en las que se requiera EPP certificado, éste debe contar con la certificación vigente.
- La empresa contratista deberá enviar a la Embajada registros firmados por los trabajadores de la entrega de EPP.

Requisitos Inspecciones de Seguridad:

- Todas las herramientas, equipos y/o maquinaria que van a ser utilizados en la ejecución de la tarea contratada deben ser inspeccionados por un representante de Salud Ocupacional de la empresa contratante y/o por un ente certificador, según corresponda. Se deben entregar los registros de dichas inspecciones a la Embajada y se deben enviar mensualmente.
- El personal de Salud Ocupacional de la Embajada podrá inspeccionar los equipos, herramientas y/o maquinaria de la empresa contratista en el momento que lo considere necesario y podrá solicitar su cambio si así lo considera.

Requisitos Respuesta ante Emergencia:

- En caso de que se presente una emergencia en las instalaciones de la Embajada durante la ejecución de la labor contratada, el personal contratista deberá acatar las órdenes dadas por el representante/escolta de la Embajada que se encuentre supervisando el trabajo, por los brigadista y/o el personal de seguridad. Seguir instrucciones dadas por RSO.

- La empresa contratista no podrá obstruir equipos de respuesta ante emergencia tales como botiquines, extintores, gabinetes contra incendio, desfibriladores, camillas, entre otros. Ni la señalización de los mismos.

Requisitos de Ergonomía:

- El personal contratista deberá cumplir con las normas relacionadas con la manipulación de cargas dadas por la legislación colombiana. Para hombres: levantamiento de pesos no mayores de 25 kg. Para mujeres: levantamiento de pesos no mayores de 12.5 kg.
- Para la manipulación de pesos mayores a los estipulados en el ítem anterior, la empresa contratista deberá proveer ayudas mecánicas a sus trabajadores.

Requisitos Tareas de Alto Riesgo:

- Si el trabajo a realizar se enmarca dentro de tareas de alto riesgo, la empresa contratista deberá presentar los certificados de entrenamiento de cada persona que ejecutará la tarea. Estos certificados deben ser enviados antes de iniciar la ejecución de la labor.
- Si el trabajo a realizar se enmarca dentro de tareas de alto riesgo, la empresa contratista deberá elaborar un permiso de trabajo específicamente para dicha tarea y debe ser proporcionado a la Embajada antes de la iniciación de la labor.
- Si el trabajo a realizar se enmarca dentro de tareas de alto riesgo, la empresa contratista deberá presentar el certificado de aptitud médica de cada una de las personas a realizar la labor.
- Si el trabajo a realizar se enmarca dentro de tareas de alto riesgo, la empresa contratista deberá enviar el Análisis de Riesgo de la tarea en un plazo mínimo de ocho días hábiles antes de la iniciación del trabajo. El representante de Salud Ocupacional de la Embajada revisará el documento y hará las observaciones que considere pertinentes.
- Durante la ejecución de actividades de alto riesgo siempre se debe contar con la presencia de un vigía que pueda dar aviso en caso de emergencia.

Requisitos Trabajo en Alturas:

Todo trabajo que se realice a más de 1.50 mts se considera trabajo en alturas, por lo tanto el contratista deberá dar estricto cumplimiento a la Resolución 3673 de 2008; de la cual se destacan los siguientes aspectos:

- Todo equipo de trabajo en alturas debe cumplir, como mínimo, la norma ANSI Z359.1 ó estándares europeos homólogos.
- Todo personal contratista que utilice equipos para trabajos en alturas deberá acatar las instrucciones y advertencias que traen dichos equipos.

- El personal contratista no utilizará como punto de anclaje para trabajo en alturas escaleras, tubería, soportes de tubería o andamios.
- Si un punto de anclaje no ofrece la resistencia recomendada para protección contra caídas (5000 lbs), la empresa contratista deberá suministrar equipos de protección para alturas con amortiguadores que permitan disminuir la fuerza del impacto.
- Están prohibidos los andamios de tijera, sólo se deben utilizar andamios modulares debidamente certificados.
- Utilice escaleras dieléctricas para trabajos con electricidad y áreas con influencia eléctrica.
- Está prohibido pararse en los dos peldaños más altos de una escalera.
- Si la labor contratada requiere trabajo en andamios, el contratista deberá aplicar los lineamientos establecidos en las normas NTP 530, 531, 532, 695 y 696 ó OSHA 1910 subparte F.
- Todo el personal que realice trabajos en alturas deberá utilizar como mínimo las siguientes elementos de protección personal: casco con resistencia y absorción anti-impactos, según la necesidad podrán ser dieléctrico, con barbuquejo y tres puntos de apoyo, gafas de seguridad que protejan a los ojos de impacto, con protección para rayos UV y deslumbramientos; protección auditiva si es necesaria, guantes antideslizantes, flexibles de alta resistencia a la abrasión, botas antideslizantes con punteras reforzada, ropa de trabajo de acuerdo a las condiciones climáticas y de los factores de riesgo y un arnés integral o de cuerpo completo.
- La empresa contratista debe enviar a la Embajada 8 días hábiles los certificados de capacitación y el entrenamiento de todos los trabajadores que realizarán trabajos en alturas. El certificado debe cumplir con lo establecido en la resolución 3673 de 2008 y uno de reentrenamiento, por lo menos una vez al año como lo establece la legislación.

Requisitos para el Manejo de Sustancia Químicas:

- Si la tarea contratada requiere el uso de sustancias químicas, el contratista deberá cumplir con las especificaciones que la ley exige para su almacenamiento, manipulación y transporte.
- Si la tarea contratada requiere el uso de sustancias químicas, el contratista deberá entregar una copia de la hoja de seguridad (SDS) de cada uno de los productos a utilizar. No se aceptan fichas técnicas de productos.

- La empresa contratista es responsable de verificar el manejo correcto de cada producto tales como: almacenamiento, rotulación, EPP requerido, disposición final de los residuos generados dando cumplimiento con la normatividad, cuidado del medio ambiente.

Requisitos para Izaje de cargas, uso de grúas o brazos articulados:

- La empresa contratista deberá enviar a la Embajada los certificados (por un ente avalado por la ONAC) de la maquinaria empleada para la prestación del servicio (Incluye montacargas y camiones grúa) y los documentos legales de estos vehículos (SOAT, tarjeta de propiedad, revisión técnico mecánica si aplica).
- La empresa contratista deberá enviar a la Embajada los certificados de (por un ente avalado por la ONAC) aval de las eslingas, guayas, cadenas, grilletes u otros elementos empleados para el izaje de cargas.
- La empresa contratista deberá enviar a la Embajada los certificaciones y/o avales de los controladores de maniobra.
- La empresa contratista deberá enviar a la Embajada los certificaciones y/o avales de los operadores de la maquinaria.
- La empresa contratista deberá enviar a la Embajada los certificaciones y/o avales del aparejador o señalero de las cargas.
- La empresa contratista deberá enviar a la Embajada el programa de mantenimiento e inspecciones que se tengan de los equipos y la maquinaria.
- La empresa contratista deberá enviar a la Embajada registros de capacitación y entrega de EPP al personal que realiza la labor.
- La empresa contratista deberá enviar el certificado de aptitud médica del personal que realizará la tarea.
- La empresa contratista deberá enviar a la Embajada el procedimiento del cargue y descargue.
- La empresa contratista deberá enviar a la Embajada el análisis de riesgo o matriz de riesgos por cargos de la operación a realizar.
- La empresa contratista deberá realizar un plan de izaje para garantizar la capacidad de la grúa o brazo con relación a su carga.

Requisitos Seguridad Vial:

- El vehículo debe contar con los elementos básicos de atención de emergencias. NTC 4532.
- Las camionetas y vehículos pesados deben contar con pito y sensor de reversa.

- La empresa contratista deberá enviar a la Embajada los documentos legales de los vehículos (SOAT, tarjeta de propiedad, licencia de conducción, revisión técnico mecánica si aplica).

Requisitos para trabajos en espacios confinados

Para cualquier trabajo que se deba realizar en un espacio confinado, debe consultar con la Oficina de Seguridad para identificar y cumplir con todos los requisitos obligatorios establecidos por SHEM.