Statement of Work

for Construction of Overhead Coiling Doors
and Steel Infill Works

OBO Field Office

Introduction

This Statement of Work (SOW) will be carried out under contract with the U.S. Embassy Sanaa, Yemen, to the work described herein.

Statement of Work

The contractor shall install overhead coiling doors and steel in-fill works as shown on the attached drawings. The work will be carried out at the Rear Compound Access Control (RCAC) at the U.S. Embassy compound.

All work shall be coordinated with the existing structure and sliding gates and shall be installed in a manner that does not interrupt existing gate operations.

Work Hours and Schedule

The contractor will perform work activities between the hours of 9:00 a.m. and 6:00 p.m. Saturday through Thursday. The work will be completed within 60 days following contract award.

Within one week following the date of award, the contractor shall submit a work plan and schedule indicating how the work will be accomplished in the prescribed amount of time.

Security and Background Checks

Before any work may begin, the Embassy will complete a background check of the contractor and its principal officers. All supervisors and workers that will access the Embassy compound will do so only after successful completion of a background check and issuance of a site access badge. Background checks shall be included in the work plan and schedule above. The contractor shall allow three weeks for the Embassy to conduct background checks following the time that all related security paperwork are provided to the OBO Field Office.

All construction materials and tools that are required to complete the works shall be recorded at the OBO Field Office at least one day before the scheduled delivery.

Execution of the Works

The work shall be performed in a professional manner to a standard consistent with existing adjacent construction.

The contractor shall appoint a qualified supervisor who shall be present during all execution of the works. He shall ensure that workers are equipped with adequate safety protective gear and that work is executed according to appropriate safety standards.

It will be the responsibility of the contractor to remove all construction and demolition debris from the work area and the Embassy compound. The work area shall be left in a clean condition at all times.

The contractor will remove any work element that is not executed according to the terms of the contract, and the contractor will be required to perform the work again in conformity to contract requirements.

The project will be considered completed after final inspection and acceptance by the OBO Field Office.

Notes:

Please see attachment# 2. It has more details of the kind of work required for this project.

PROJECT MANUAL

Rear CAC Sally Port
Security Upgrade
United States Embassy
Sana'a, Yemen

Prepared for:

The United States Department of State
Office of Overseas Buildings Operations
Washington, D.C.

IFC Submission
24 October 2013

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PROJECT MANUAL

Project: Rear CAC Sally Port
Security Upgrade
United States Embassy
Sana'a, Yemen
BPA Project No. 2012-6330

Prepared For: The United States Department of State
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ABBREVIATIONS

ABV.	Above
A.F.F.	Above Finish Floor
ACOUST.	Acoustical
ADJ.	Adjacent
A/C	Air Conditioning
A.H.V.	Air Handling Unit
AMCA	Air Movement and Control Association
A.C.	Alternate Current
ALUM.	Aluminum
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing & Materials
A.W.G.	American Wire Gauge
A.AMP.	Ampere
A.F.	Amp Frame of Fuse
A.T.	Amp Trip
ANG.	Angle
APPROX.	Approximate
ARCH.	Architectural
A.D.	Area Drain
AUTO.	Automatic
A.T.S.	Automatic Transfer Switch
B.D.	Balancing Damper
BSMT.	Basement
BM.	Beam
BRG.	Bearing
BLW.FL.	Below Floor
BTWN.	Between
B.O.M.	Bill of Materials
BLK.	Black
BLKG.	Blocking
BTM.	Bottom
BRKR.	Breaker
BTU.	British Thermal Unit
BTUH.	British Thermal Units per Hour
BLDG.	Building
CAB.	Cabinet
CAP.	Capacity
CPT.	Carpet
C.I.	Cast Iron
C.L.	Center Line
CLG.	Ceiling
CLG.D.	Ceiling Diffuser
C.L.	Center Line
CM.	Centimeter
CER.	Ceramic
CHARACT.	Characteristics
C.W.R.	Chilled Water Return

ABBREVIATIONS

C.W.S.	Chilled Water Supply
CIR.	Circle
C.O.	Clean out
CL.	Closet
C.W.	Cold Water
COL.	Column
CONC.	Concrete
C.M.U.	Concrete Masonry Unit
COND.	Condensate
C.D.	Condensate Drain
C.R.	Condenser Water Return
C.S.	Condenser Water Supply
C.,COND.	Conduit
CONN.	Connect, Connection
CONSTR.	Construction
CONT.	Continuation, Continuous
CU.	Copper
C.F.M.	Cubic Feet per Minute
DEG.	Degrees
^{o}C	Degrees Celcius
^{o}F	Degrees Farenheit
DEPT.	Department
DET.	Detail
DIA.	Diameter
DIM.	Dimension
DIS.	Disconnect
DR.	Door
DR.L.	Door Louver
DWL.	Dowel
DPDT	Double Pole Double Throw
DPST	Double Pole Single Throw
DN.	Down
D.S.	Down Spout
D.	Drain
DWG.	Drawing
D.F.	Drinking Fountain
D.B.	Dry Bulb
D.W.	Dumb Waiter
EA.	Each
ELEC.	Electrical
E.P.	Electrical Panel
E.W.C.	Electric Water Cooler
ELEV.	Elevation
EMER.	Emergency
E.C.	Empty Conduit
EQ.	Equal
EQUIP.	Equipment
ETC.	Etcetera

ABBREVIATIONS

E.A.	Exhaust Air
E.F.	Exhaust Fan
EXIST.	(E)Existing
(ETR)	Existing to Remain
EXP.	Expansion
EXT.	Exterior
E.S.P.	External Static Pressure
EXTIN.	Extinguisher
F.C.	Fan Coil
FT.	Feet, Foot
FIN.	Finish
F.D.	Fire Damper
F.H.V.	Fire Hose Valve
FIXT.	Fixture
FLG.	Flashing
FLEX.	Flexible
FL.	Floor
F.D.	Floor Drain
F.S.	Floor Sink
FLOR.	Fluorescent
FTG.	Footing
F.O.G.	Fuel Oil Gage Line
F.O.R.	Fuel Oil Return
F.O.S.	Fuel Oil Supply
F.O.V.	Fuel Oil Vent
F.L.A.	Full Load Amperes
F.F.D.	Funnel Floor Drain
F.	Fuse
F.S.S.	Fused Safety Switch
GAL.	Gallon
G.P.M.	Gallon per Minute
GALV.	Galvanized
G.	Gas (Natural) Pipe
GA.	Gauge
G.C.	General Contractor
GEN.	Generator
GL.	Glazing
GVL.	Gravel
GRD.	Ground
G.F.I.	Ground Fault Interrupter
GYP.BD.	Gypsum Drywall Board
HDWE.	Hardware
HTG.	Heating
HT.	Height
HZ	Hertz
H.P.S.	High Pressure Steam
H.C.	Hollow Core
HCWD.	Hollow Core Wood

ABBREVIATIONS

H.M.	Hollow Metal
HOR.	Horizontal
H.P.	Horse Power
H.B.	Hose Bibb
H.W.	Hot Water
H.W.H.	Hot Water Heater
H.W.R.	Hot Water Return
H.W.S.	Hot Water Supply
H.	Hour
IN.	Inches
INC.	Incinerator
I.D.	Inside Diameter
INSUL.	Insulation
INT.	Interior
INV.	Invert
JKT.	Jacket
J.C.	Janitor's Closet
JT.	Joint
J.B.	Junction Box
KG.	Kilogram
K.V.A.	Kilovolt Amperes
K.W.	Kilowatts
KIT.	Kitchen
LAM.	Laminate
LAV.	Lavatory
L.H.	Left Hand
LTG.	Lightning
L.T.	Liquid Tight
L.L.H.	Long Leg Horizontal
L.L.V.	Long Leg Vertical
L.P.S.	Low Pressure Steam
M.C.M.	Thousand Circular Mills
M.B.H.	Thousand BTU per Hour
MH.	Manhole
MFG.	Manufacturer
MAS.	Masonry
MAT.	Material
MAX.	Maximum
MECH.	Mechanical
M.P.S.	Medium Pressure Steam
MET.	Metal
M.	Meter
MM.	Millimeter
MIN.	Minimum
MISC.	Miscellaneous
MOD.	Modification
MLD.	Molding
MOD.	Modification

ABBREVIATIONS

M.C.C.	Motor Control Center
MTG.	Mounting
M.HT.	Mounting Height
NEMA	National Electrical Manufacturer's Association
NAT.	Natural
NC.	Noise Criteria
N.F.S.S.	Non-Fused Safety Switch
N.C.	Normally Closed
N.O.	Normally Open
N/A	Not Applicable
N.I.C.	Not In Contract
N.T.S.	Not To Scale
No., #	Number
O/C.	Office of Communications
O.C.	On Center
OPNG.	Opening
O.S.D.	Open Site Drain
O.A.	Outside Air
O.D.	Outside Diameter
O.S.&Y.	Outside Screw & Yoke
OV.	Overhead
O.F.E.	Owner Furnished Equipment
PTD.	Painted
P.P.	Painted Plaster
PR.	Pair
PNL.	Panelboard
PVMT.	Pavement
P.P.F.	Perforated Panel Face
PH.0	Phase
P.LAM.	Plastic Laminate
PL.	Plate
PLUMB.	Plumbing
PLYWD.	Plywood
P.	Poles
PVC.	Polyvinyl Chloride Conduit/Pipe
LBS.	Pounds
P.C.F.	Pounds per Cubic Foot
P.S.F.	Pounds per Square Foot
P.S.I.	Pounds per Square Inch
PWR.	Power
PC.	Precast
P.R.V.	Pressuring Reducing Valve
PROP.	Property
P.A.C.	Public Access Control
QTY.	Quantity
Q.T.	Quarry Tile
R.L.	Rainleader
REC.	Receptacle

REF.	Reference
REFR.	Refrigerator
REINF.	Reinforcing
R.X.	Relocated or Existing to be Removed
REQD.	Required
R.A.	Return Air
R.R.	Return Register
R.H.	Right Hand
RGD.	Rigid
R.	Riser
R.D.	Roof Drain
RM.	Room
R.O.	Rough Opening
SCHED.	Schedule
SEC.	Section
SY.	Security
S.I.C.	Security Interface Cabinet
SENS.	Sensible
SER.	Service
SSK.	Service Sink
SHT	Sheet
SMACNA	Sheetmetal & Air Conditioning Contractors Assoc., Inc.
S.D.	Shower Drain
S/T	Shunt Trip
S.R.	Sidewall Register
SIM.	Similar
SPST	Single Pole Single Throw
SPDT	Single Pole Double Throw
S.D.	Smoke Damper
SCWD.	Solid Core Wood
S.P.L.	Special Projects Liaison
SPEC.	Specification
S.F.E.	Sponsor Furnished Equipment
SQ.	Square
S.F.	Square Foot
S.STL.	Stainless Steel
STD.	Standard
S.P.	Static Pressure
STL.	Steel
STOR.	Storage
STRUCT.	Structural
SUSP.	Suspended
SW.	Switch
TEL.	Telephone
T.V.	Television
TERM.	Terminal
T'STAT.	Thermostat
THK.	Thick

THRES.	Threshold
M.B.H.	Thousand BTU per Hour
M.C.M.	Thousand Circular Mills
THRU	Through
T.C.	Time Clock
T&G.	Tongue & Grove
T.G.	Transfer Grille
XFRMR	Transformer
TRANS.	Transition
T.	Tread
TRT.	Treated
TYP.	Typical
U.G.	Under Ground
U.L.	Underwriters' Laboratories
U.O.N.	Unless Otherwise Noted
UR.	Urinal
V.P.	Vapor Proof
V.T.S.	Vent Thru Roof
VERT.	Vertical
V.T.	Vinyl Tile
V.A.	Volt Ampere
V.	Voltage, Volts
W.H.	Wall Hydrant
W.C.	Water Closet
W.P.	Waterproofing
W.	Watts
W.W.F.	Welded Wire Fabric
W.B.	Wet Bulb
W.	Wire
W/	With
W/O	Without
WD.	Wood

INDEX OF DRAWINGS

General

Architectural

Structural

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Loose bearing and leveling plates.
2. Steel framing and supports for overhead doors.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance of Ladders: Provide ladders capable of withstanding the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

B. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 67 deg C, ambient; 100 deg C, material surfaces.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Metal nosings and treads.
2. Paint products.
3. Grout.

B. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.
3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by qualified professional engineer responsible for their preparation.

C. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.

D. Welding certificates.

E. Qualification Data: For professional engineer.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project and with record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum."
3. AWS D1.3, "Structural Welding Code--Sheet Steel."
4. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: For metal fabrications exposed to view in completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.

C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.

D. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.

E. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

F. Galvanized Pipe and Sleeves: Galvanized steel complying with ASTM A 653/A 653M, commercial steel, Type B, with Z275 coating; 2.8-mm nominal thickness.

G. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

2.3 NONFERROUS METALS

A. Aluminum Plate and Sheet: ASTM B 209M , Alloy 6061-T6.

B. Aluminum Extrusions: ASTM B 221M , Alloy 6063-T6.

C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.

D. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

E. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).

F. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded Architectural bronze).

G. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).

2.4 FASTENERS

A. General: Provide Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM F 568M, Property Class 4.6; with hex nuts, ASTM A 563M; and, where indicated, flat washers.

C. Anchor Bolts: ASTM F 1554, Grade 36.

D. Machine Screws: ASME B18.6.7M.

E. Lag Bolts: ASME B18.2.3.8M.

F. Wood Screws: Flat head, carbon steel, ASME B18.6.1.

G. Plain Washers: Round, carbon steel, ASME B18.22M.

H. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.2M.

I. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain (without failure) load equal to six times load imposed when installed in unit masonry and equal to four times load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by qualified independent testing agency.

1. Material: Carbon-steel components zinc-plated complying with ASTM B 633, Class Fe/Zn 5.
2. Material: Alloy Group 1 or 2 stainless-steel bolts complying with ASTM F 738M and nuts complying with ASTM F 836M.

J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as needed.

2.5 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with Division 09 painting Sections.

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Shear and punch metals cleanly and accurately. Remove burrs.

C. Ease exposed edges to a radius of approximately 1 mm, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces so they are smooth and blended, so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

G. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

H. Allow for thermal movement resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 67 deg C, ambient; 100 deg C, material surfaces.

I. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

J. Remove sharp or rough areas on exposed traffic surfaces.

K. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

2.7 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize plates after fabrication.

2.8 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports indicated and as necessary to complete the Work.

B. Fabricate units from structural-steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

C. Galvanize miscellaneous framing and supports where indicated.

2.9 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from structural-steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 150 mm from each end, 150 mm from corners, and 600 mm o.c., unless otherwise indicated.

C. Galvanize miscellaneous steel trim in the following locations:

1. Exterior.
2. Interior, where indicated.

2.10 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

2.11 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123, for galvanizing steel and iron products.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

2.12 STAINLESS-STEEL FINISHES

A. Remove tool and die marks and stretch lines or blend into finish.

B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

C. Bright, Directional Polish: No. 4 finish.

D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or similar construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

E. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2 SETTING BEARING AND LEVELING PLATES

A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

1. Use nonshrink grout, nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.3 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings, if any.

B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

3.4 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 0.05-mm dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 Section "Painting."

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055000

SECTION 083321 – OVERHEAD COILING DOORS, GRILLES AND SHUTTERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following types of overhead coiling doors:

1. Manual chain operated overhead coiling service doors.

1.2 DEFINITIONS

A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

1.3 SUBMITTALS

A. Product Data: For each type and size of overhead coiling door and accessory. Include the following:

1. Summary of forces and loads on walls and jambs.

B. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's product data.

C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available for units with factory-applied finishes.

D. Qualification Data: For Installer.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:

1. Wind Load: Uniform pressure (velocity pressure) of 960 Pa, acting inward and outward.

B. Operation-Cycle Requirements: Design overhead coiling door components and manual operator to operate for not less than 20,000 cycles and for 10 cycles per day.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the overhead coiling door manufacturer for both installation and maintenance of units required for this Project.

PART 2 - PRODUCTS

2.1 DOOR CURTAIN MATERIALS AND CONSTRUCTION

A. Available Manufacturers: The following manufacturers provide products which may be incorporated into this work:

1. Dynamic
2. Metro Door
3. Overhead Door

B. Door Curtains: Fabricate overhead coiling door curtain of interlocking slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:

1. Stainless-Steel Door Curtain Slats: ASTM A 666 or British/ISO Standard BS EN10272:2007, Type 304.

a. Minimum Specified Thickness: Not less than 0.65 mm .
b. S-configuration profile slats.

2. Inside Curtain Slat Face: To match material of outside metal curtain slat.
3. Provide single-ply door curtain with 18 gauge for Government Code 2141.

C. Bottom Bar for Service Doors: Consisting of two angles, each not less than 60 by 60 by 6 mm thick; galvanized or stainless-steel extrusions to suit type of curtain slats.

D. Curtain Jamb Guides for Service Doors: Fabricate curtain jamb guides of steel angles or channels and angles, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain, and a continuous bar for holding windlocks. Build up units with not less than 5-mm thick galvanized steel sections complying with ASTM A 36/A36M, and complying with one of the following:

1. ASTM A 123/A 123M

2.2 HOODS AND ACCESSORIES

A. Hood: Form to entirely enclose coiled curtain and operating mechanism at opening head and act as weatherseal. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.

1. Fabricate steel hoods, for steel doors, of not less than 0.7-mm thick, hot-dip galvanized steel sheet with Z275 zinc coating, complying with ASTM A 653M.
2. Exterior Mounted Door: Fabricate hood with sealant-joint bead profile for applying joint sealant.

B. Integral Frame, Hood, and Fascia: Provide welded assemblies of the following sheet metal:

1. Fabricate of not less than 1.6-mm-thick, hot-dip galvanized steel sheet with Z275 zinc coating, complying with ASTM A 653M.

C. Integral Sills: Fabricate sills as integral part of frame assembly of same sheet metal, but not less than 2.0 mm thick.

D. Chain Lock Keeper: Suitable for padlock.

E. Locking Mechanism for Government Code 2141 door: Door sill shall be composed of continuous 60 x 60 x 6mm galvanized steel angles. Provide holes in angles at both ends of door to accommodate DS-approved. The certified design is achieved by the addition of a steel angle; it is not a manufactured item. Refer to the roll-up/roll-down type doors detail in OBO-ICS IBC Appendix N.

2.3 COUNTERBALANCING MECHANISM

A. General: Counterbalance doors by means of adjustable-tension steel helical torsion spring, mounted around a steel shaft and contained in a spring barrel connected to the door curtain with required barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

B. Counterbalance Barrel: Fabricate spring barrel of hot-formed, structural-quality, welded or seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 2.5 mm/m of span under full load.

C. Provide spring balance of one or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Provide cast-steel barrel plugs to secure ends of springs to barrel and shaft.

D. Fabricate torsion rod for counterbalance shaft of cold-rolled steel, sized to hold fixed spring ends and carry torsional load.

E. Brackets: Provide mounting brackets of manufacturer's standard design, either cast-iron or cold-rolled steel plate with bell-mouth guide groove for curtain.

2.4 FINISHES, GENERAL

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 STEEL AND GALVANIZED STEEL FINISHES

A. Three (3) Coats Fluoropolymer Finish.

2.6 STAINLESS-STEEL FINISHES

A. General: Remove or blend tool and die marks and stretch lines into finish.

1. Grind and polish surfaces to produce uniform, directional textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

B. Bright, Cold-Rolled, Unpolished Finish: No. 2B finish.

C. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install doors and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to Shop Drawings, manufacturer's written instructions, and as specified.

B. Anchoring must be same as five-minute FE walls; i.e., use 10 mm anchors at 460 mm o.c. with a minimum 75 mm embeds for concrete.

3.2 ADJUSTING

A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion, and fitting weathertight for entire perimeter.

3.3 DEMONSTRATION

A. Startup Services: Engage a factory-authorized service representative to perform startup services and to train Government's maintenance personnel as specified below:

1. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

2. Train Government's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance, and procedures for testing and resetting release devices.
3. Schedule training with Government with at least seven days' advance notice.

END OF SECTION 083321

SECTION 323120 - METAL FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. The extent and locations of metal fences are shown on the Contract Drawings, and include devices for anchorage of fence units to substrates.

B. Metal Security Fence installation types include the following:

1. Steel picket enclosure mounted to face of existing walls and top of existing steel picket fences.
2. Anti-climb fencing mounted on top of existing concrete knee wall.

1.2 PERFORMANCE REQUIREMENTS

A. Metal security fence shall be designed with the following pickets:

1. 25 mm x 25 mm bar stock picket design.

B. Metal Security Fence for Anti-Climb Fence: Detail, fabricate, and install fencing in conformance with requirements of applicable site zone in Chapters 5-7 of the OBO Zoning Code, and with security details for site construction in Appendix A of the OBO Zoning Code. Fabricate for maximum strength against the use of ordinary hand tools to bend pickets in a manner that would enlarge openings sufficiently to allow passage of intruders through the fence.

1.3 SUBMITTALS

A. Product data, for each type and grade of metal used in fabricating units, and for bolts and accessory items used in assembly and installation. Include manufacturer's product data for materials to be used in finishing or painting fence units.

B. Shop drawings for each type and size of metal fence unit. Show layout at same scale as site plan; typical plan, elevation, and section of units, including bracing, at 1:20 scale; and joint/anchorage details at 1:5 scale. Include details of fence posts, corners, and terminations. Include structural analysis of resistance to wind loading.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver prefabricated fence units and support bracing/anchorage units to project site, completely assembled and prefinished, with finish fully protected during handling, shipping, storage, and delivery/installation.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Steel Shapes, Plates, and Bars: ASTM A 36, hot-dip galvanized.

B. Steel Structural Tubing: ASTM A 501; hot-formed, welded or seamless structural tubing, hot-dip galvanized.

C. Welding Rods and Bare Electrodes: Provide as required by AWS specifications, for the metal and alloy to be welded.

D. Bolts and Fasteners: ASTM A 320, AISI Type 300-series, stainless steel bolts and nuts. Where within reach from attack-face of fence, provide non-removable bolt/nut units (not removable by use of commonly available tools). Provide stainless steel washers.

E. Setting/Anchoring Cement: Nonshrinking, nonstaining, hydraulic-controlled expansion cementitious compound; factory prepackaged for mixing with water at project site for a pourable and trowellable mix; recommended by manufacturer for exterior exposure without protective coating, sealer, or waterproofing. Provide product equivalent to "Super Por-Rock" by Minwax Const. Products Div.

F. Expansion Shims: To allow for thermal expansion of fence units, provide fluorocarbon resin (or similar) plastic washers, pads, and slip sheets in bolted connections between units, and between fence components and anchorages.

G. Shop Primer Paint:

1. Corrosive Environment (100 kilometers or less from an ocean/sea shore environment): Organic zinc-rich coating, with zinc-dust content not less than 80 percent by weight of non-volatile content; with vehicle base selected for compatibility with specified finish coating system. Comply with paint manufacturer's instructions for method of application and surface pretreatment.

2.2 FABRICATION

A. General: Cut and form/shape members to sizes and shapes required for assembly of fence units. Weld joints of assembly with welds all around, to produce joints of full-member-strength, with no possible moisture penetration. Grind welds reasonably smooth, but not necessarily flush. Prefabricate units in plant by welding, to the greatest extent possible. Provide bolted connections for bracing elements and similar parts, but only to the extent units must be disassembled for delivery to project and for installation.

1. Drill anchor bolt holes accurately spaced, oversized by 6 mm above bolt size, for installation tolerance.
2. Provide for thermal movement of units, amounting to plus-or-minus 1 mm in 1 m of fence length.

3. Close ends of hollow members (pipes/tubes) which are not butt welded tight against another member in the assembly. Close with 6 mm thick steel plate, slightly recessed and welded all around for tight seal.
4. Avoid the use of bolts and screws exposed to and accessible from the threat side of fence. Where unavoidable, provide nonremovable type fasteners in the assembly.
5. Ease exposed metal edges of fabricated units, to approximately 0.8 mm radius, prior to finishing.

B. Shop-applied Finish, General: Comply with applicable provisions/recommendations of NAAMM Metal Finishes Manual, and the following:

1. Prepare ferrous metal surfaces by cleaning in compliance with SSPC-SP6, "Commercial Blast Cleaning."
2. Apply shop primer paint coat in accordance with paint manufacturer's recommendations for application and baking.
3. Coating:

a. Polyurethane Special Coating: Provide Fabricator's standard 0.063 to 0.076 mm dry film thickness, of powdered polyurethane, applied electrostatically and thermally fused to form smooth coating on prime-coated steel surfaces; of color indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate fence installation with work of other sections of these specifications. Deliver concrete inserts to Installer of concrete substrates that will support fence units, prior to time scheduled for placement of concrete. Furnish templates and complete instructions for placing inserts.

B. Check concrete substrate and anchorage inserts, for compliances and tolerances required to facilitate installation of fence units. Coordinate beginning of installation with curing of concrete substrate, and with other work at project site; for both temporary security utilization of fence enclosure, and for preservation of metal work and finish.

3.2 INSTALLATION

A. Set plumb and level, and true to line-of-slope; accurately located with respect to adjacent units, setbacks and property lines, and adjoining work. Comply with Fabricator's instructions on unpacking, handling, preservation/removal of protective covering, and assembly of fabricated elements. Set base/support plates of units in confined bed of setting/anchoring cement, without voids. Trim away excess bedding material, and tool exposed joint faces for neat, water-resistant exposure.

B. Anchor fence units to substrate. Install fasteners in manner to prevent them from being removed.

C. Provide continuous top and bottom rails. Fabricate fencing to follow the slope of the grade with the pickets remaining vertical.

D. Avoid unnecessary cutting, drilling, and welding of prefinished fence units. Where necessary to cut, drill, or weld, repair shop coat(s) of finish (primer and finish coat, if any) in manner recommended by paint manufacturer, and in manner which will provide corrosion protection equivalent to shop-applied coat(s) in-so-far as this is possible.

E. Complete the installation of corner posts, special bracing, gates, special security features, and other elements of the work indicated as work of this section.

F. Clean exposed surfaces of fence work, and touch up abraded finishes to restore appearance and corrosion resistance.

END OF SECTION 323120

Classification derived from DoS Security Classification Guide for Design and Construction of Overseas Facilities May 2003