Embassy of The United States of America

Rome, Italy

U.S. CONSULATE GENERAL NAPLES

CHILLER REPLACEMENT

Facility Management

05/07/2026

1. FOREWORDS

The Embassy of the United States in Rome needs to award a contract for the replacement of the main chiller at the U.S. Consulate General in Naples, Piazza della Repubblica 2, Naples.

2. GENERAL

The premises where this project is taking place is the U.S. Consulate General in Naples.

- The contractor shall supply all the installation materials and equipment, skilled and unskilled labor, technical supervision, as well as logistic and administrative support. The contractor shall also supply all accessory services such as: transportation, leasing, equipment and tools, disposal of debris, cleaning the work area and anything else necessary to complete the project in compliance with the present specifications

- Maximum attention is required for the safety of personnel at work on the site. The workers shall operate in compliance with standard codes. Since the work site consists of crucial technical installations, temporary safety protection measures towards third parties and workers shall be installed with care and attention, especially for the hours when site is closed.

- The Contractor shall be responsible for submitting, for approval by the COR, samples of materials and supplies to be used.

- It shall be Contractor's responsibility to verify all the quantities and dimensions.

- Work execution special care:
  - Protection in place: Provide protection to existing historic materials wherever encountered adjacent to work or along paths of travel to prevent damage to or marring of materials, surfaces, and finishes. Such protection shall be freestanding of the object or surface itself whenever possible and of sufficient size and thickness to withstand impact from falling debris; rolling objects such as equipment, machinery, and handcarts; movement of materials and debris; and residue from flame cuttings such as sparks. Provide all necessary and related parts, devices, lifts, scaffolding and anchors required for complete protection installation.

- Provide protection in place to protect objects from dust and construction activities. Provide appropriate and sufficient protection for immovable fixtures and finishes as indicated on attached inventory. Typical protection may include rigid protection to prevent surface abrasion and impact damage, and/or soft protection to cushion over-lying rigid protection and to prevent surface damage from materials that stain or abrade (such as dust). Protection materials will be water-resistant but sufficiently permeable to permit moisture evaporation to prevent biological growths. Protection materials will be installed in such a way that historic materials and finishes are not damaged.
- Protection shall prevent damage to all existing historic building elements and finishes, including but not limited to walls, floors, ceilings, moldings, decorative relief, stairs and handrails, and other artwork and architectural features remaining in-situ. Cover and protect furniture, equipment, switch plates, covers, lighting fixtures, and all decorative items from damage and soiling, if such items were not removed prior to the start of the work.
- Maintain all protection devices in sound condition until completion of the work. Repair or replace protection devices as necessary to maintain effectiveness of protection.

- Contractor may be directed by the COR to perform some activities outside of Embassy's official business hours. This should happen at no additional cost.

3. SAFETY STANDARDS

The Contractor shall comply with all the applicable health and safety obligations provided by USACE 385-1.1 and Legislative Decree No. 81/2008 (Consolidated Law on Occupational Health and Safety). The main objective is to eliminate or, where not possible, to reduce to the minimum any exposure of workers to risks arising from work-related activities.

To this end, the Contractor is required, when applicable, to submit the Risk Assessment Document (Documento di Valutazione dei Rischi – DVR) or the Operational Safety Plan (Piano Operativo di Sicurezza – POS), to provide adequate and documented training to workers, to supply appropriate individual and collective protective equipment (PPE and CPE), and to fully comply with all the other obligations set forth under Legislative Decree 81/2008.

Submission of the Operational Safety Plan (POS).

Within 10 calendar days after receiving the Notice to Proceed, the awarded Contractor must submit a detailed Operational Safety Plan (POS).

The POS must clearly identify the following key professional figures:

- Site Technical Director (Direttore Tecnico di Cantiere): The individual responsible for managing the construction site on behalf of the Contractor. This role may be fulfilled by either an internal employee or an external professional formally appointed by the company. This figure is not to be confused with the Construction Supervisor (Direttore dei Lavori), who is appointed by the Client and is responsible for verifying that the works are carried out in compliance with the design and technical specifications.

- Supervisor (Preposto): An individual who, by the nature of their duties, supervises the work of others (e.g., site manager, workshop head, department chief). The Supervisor must be adequately trained to fulfill the responsibilities assigned under Art. 19, paragraph 1, letter g) and in accordance with the objectives of Art. 37 of Legislative Decree 81/2008.

The Supervisor shall ensure, continuously and effectively, that:

1. Workers comply with safety instructions and the provisions of the safety plan;

2. Personal protective equipment (PPE) is used as required;

3. Any deficiencies in procedures, tools, PPE, or persistent non-compliance are promptly reported to the employer or manager.

- The contractor has to send the list of personnel who will work on site. The workers have to be regularly registered and if there is a subcontractor this has to present the documents requested too. All workers have to understand and speak Italian.

Art. 3.1 DEFINITIONS

A glossary of terms and relative equivalents used in the drawing up of the tender documents are indicated hereunder:

Client, Administration, Project Supervisor, COR, CO: all these denominations identify the technical administrative staff, predisposed to handle the contract on behalf of the Embassy of the United States of America.

Contracting Company, Contractor: all these denominations identify the subject that undertakes to carry out the work described in the contract.

Contract, Purchase Order (P.O.), Work Order: these terms identify the contract document with which the project is awarded. The Client at his indisputable judgement shall make the formal selection of the different types of documents.

Art. 3.2 DESCRIPTION OF WORK

DESCRIPTION OF SYSTEMS

EXISTING SYSTEM

The main building of the Consulate General of the United States of America in Naples is currently cooled by a chiller consisting of an evaporator/compressor section and two remote condensers. Chilled water is supplied to the main manifold by two primary pumps. This manifold also receives supply and return piping from the heating plant. Distribution throughout the building is managed by variable speed secondary pumps and a dual-temperature network for both heating and cooling.

The existing chiller is a Carrier 30HZV141 unit with four compressors, operating with R407c refrigerant and providing a nominal cooling capacity of 352 kW. Each pair of compressors is connected via refrigerant gas lines to a remote air-cooled condenser (Carrier 09PECMN9044-2THI-0), each capable of dissipating 235 kW (R407c). The chiller was installed in 2007, and the two remote condensers were replaced in 2017.

The two primary chilled water pumps are VERGANI MAC 80/161 models, each rated at 3 HP, operating in alternating mode.

The electrical panel in the refrigeration room is powered by a 4x120mm² line plus ground and is equipped with the following protective circuit breakers:

- Main Switch: Three-phase circuit breaker, In=250A
- Chiller Switch: Three-phase differential circuit breaker, In=250A, Idn=0.3A
- Condenser 1 Switch: Three-phase differential circuit breaker, In=25A, Idn=0.3A
- Condenser 2 Switch: Three-phase differential circuit breaker, In=25A, Idn=0.3A
- Lighting Switch: Single-phase differential circuit breaker, In=16A, Idn=0.03A
- 220/24V Transformer Switch: Single-phase circuit breaker, In=6A
- 24V Auxiliary Switch: Single-phase circuit breaker, In=10A
- Pump 1 Motor Protection: Three-phase, In=6.3A
- Pump 2 Motor Protection: Three-phase, In=6.3A
- Socket Switch: Three-phase differential circuit breaker, In=16A, Idn=0.03A
- Single-phase fuse, In=32A

NEW SYSTEM

The new system will consist of two reversible heat pumps, to be installed in place of the remote condensers. Each heat pump will provide a cooling capacity of 172.8 kW and a heating capacity of 202.9 kW. The refrigeration circuit will include two scroll compressors and operate with R454B refrigerant. Each unit will be equipped with twin primary pumps onboard.

New piping will be installed and connected to the existing network. The hydraulic circuit will also include two 1,500-liter buffer tanks and an expansion vessel.

A new electrical panel and associated circuits will be installed.

Continuity of service

The contractor shall ensure uninterrupted, continuous service (Monday through Friday, 06:00 through 19:00) of the heating and air conditioning systems serving the buildings throughout the entire duration of the works. The contractor shall plan and execute all activities — including any tie-ins, shutdowns, demolition, and equipment replacement — in such a way that no occupied space is left

without adequate heating or cooling at any time. Where temporary interruptions are unavoidable, the contractor shall provide suitable temporary provisions (e.g., temporary units, bypasses, or phased switchover) and shall coordinate and obtain prior written approval for any planned outage. All works shall be sequenced and phased to maintain full environmental conditions in the served facilities, and the contractor shall remain liable for any disruption to building operations resulting from a failure to maintain this continuity of service.

All preventive, unscheduled, and emergency maintenance activities for the temporary units shall be included within the scope of the contract and carried out at the contractor's expense for the entire duration of the works.

No data connection of any kind — including communications, data, or telephone links — to any external network or location shall be provided to or permitted for the temporary units. All temporary units shall operate on a fully stand-alone basis, without any external connectivity.

Cleanliness and Housekeeping Requirements

The Contractor shall maintain a clean and orderly work environment throughout the duration of the project. This includes, but is not limited to, the daily removal of debris, dust, and construction waste from all active work areas at the close of each workday. In addition, the Contractor shall ensure that all spaces impacted by construction activities — including, but not limited to, corridors and pathways used for worker transit, staging areas, and routes designated for material delivery and equipment movement — receive thorough, professional-grade cleaning on a regular basis and upon the conclusion of work in each affected area. All cleaning activities shall be conducted in a manner that minimizes disruption to building occupants and preserves the integrity of existing finishes and surfaces.

Furniture Relocation

The Contractor shall be responsible for the careful moving and relocation of any furniture, fixtures, or equipment that obstructs or otherwise impedes the installation process. All items shall be handled with due care to prevent damage, and shall be returned to their original positions - or to locations designated by the Contracting Officer's Representative (COR) - upon completion of work in the affected area. Any damage to furniture or property resulting from relocation

activities shall be the responsibility of the Contractor to repair or replace at no additional cost to the Government.

Project Manager Site Presence and Reporting

The Project Manager shall be present on site on a daily basis for the entire duration of the works. Prior to each site visit, the Project Manager shall notify the Contracting Officer's Representative (COR) of his/her presence. At the end of each working day, the Project Manager shall submit to the COR a written daily inspection report in English, documenting the activities carried out, the number and roles of personnel on site, the status of materials and equipment deliveries, any issues or non-conformities identified, and any actions taken or planned to address them. The daily inspection report shall be submitted in a format approved by the COR and shall constitute an official record of the progress of the works. Failure to maintain the required site presence or to submit the daily inspection report may be considered a material breach of contract obligations.

DESCRIPTION OF WORKS

The scope of work includes the following disciplines:

- HVAC and hydraulic systems
- Electrical systems
- Civil works (masonry and finishing)
- Various services and specialized tasks

The interventions and supplies required for the execution of the project are detailed below by area:

EXISTING SYSTEM

HVAC and Hydraulic Works

- Site preparation, including installation of fences, temporary staging areas, and protection of materials, furniture, floors, and walls.

- Removal and storage of all furniture that may interfere with the work, as directed by the COR.
- Draining of refrigerant circuits from the chiller and remote condensers, with recovery and disposal of R407c gas in accordance with regulations.
- Disconnection of all hydraulic, refrigerant, and electrical connections from the chiller and remote condensers. Removal and transport of units to an authorized center for disposal, recovery, and recycling of materials. Certification of proper disposal must be provided to the Client.
- Disconnection and removal of the supply and return sections of the hydraulic circuit adjacent to the air chiller, including associated valves and control instrumentation. The work will include upstream isolation to avoid draining the entire system and to allow continued use for building heating if needed.
- Disconnection and removal of primary pumps, expansion vessels, and buffer tanks, including associated valves and control instrumentation.
- Disconnection and removal of all hydraulic, refrigerant, and electrical connections from the chiller. Removal and authorized disposal of the unit.

Electrical Works

- Safe disconnection of the power supply line to the refrigeration plant's electrical panel.
- Disconnection and removal of all incoming and outgoing electrical circuits from the refrigeration plant's panel, with authorized disposal.
- Removal of wiring for all circuits powered by the current electrical panel. Wiring to be demolished shall be removed from both concealed and exposed conduit. no wiring which becomes unused as a result of the contract shall be abandoned in place.
- Dismantling and removal of all cable conduits that will be replaced or rendered obsolete by the new electrical system.

NEW SYSTEM

HVAC and Hydraulic Works

- Supply and installation of two Cimaveneta NX-N-G06/LN-K/0802P reversible heat pumps, operating with R454B refrigerant, with a nominal cooling capacity of 172.8 kW and heating capacity of 200 kW.

  Each unit will include the following accessories and options:

  - Silenced version
  - Special acoustic insulation for compressor and pump compartments, and reduced fan speed
  - Cable numbering for electrical panel
  - Phase sequence control
  - Compressor power factor correction
  - Circuit breakers
  - 4185 Serial Card - Ethernet - pCOWeb - BACNET OVER IP + SMTP email
  - ClimaPRO BACnet over IP
  - Controller display protection
  - High and low pressure gauges
  - Compressor suction and discharge valves
  - Safety valves
  - Electronic thermostatic valve
  - Liquid line solenoid valve
  - "BLYGOLD POLUAL XT" coil treatment
  - EC fans
  - Twin 2-pole pump kit with anti-intrusion grille
- Installation of new carbon steel piping for dual temperature circuit, PN16, compliant with UNI EN 10255, including specials, fittings, welding, supports, and all accessories required for proper installation, for supply and return, connecting the heat pumps to the hydraulic network.

- Installation of two vertical 1,500-liter stainless steel buffer tanks for the heat pumps, with rigid polyurethane foam insulation and pre-painted metal cladding.
- Installation of two 400-liter pressurized membrane expansion vessels, connected to the chilled water return line with 1" steel piping. Pre-charge pressure: 3 bar; operating pressure: 5.5 bar.
- Supply and installation of new piping, manifolds, valves, strainers, thermometers (scale range: 0-90°C, Class 1), pressure gauges (scale range: 0-6 bar, Class 1), and expansion tanks as per drawings. Piping shall be treated with anti-rust coating. All equipment shall be PN16.
- Supply and installation of new flexible, closed-cell insulation material with built-in Microban® antimicrobial protection (AF/Armaflex Class 0) and aluminum finishing. Insulation thickness shall be as follows:

Heating and DHW pipes - DPR 412/93 (lambda = 0.040 W/mK)	
Pipe diameter (mm)	**Minimum thickness (mm)**
<= 20	20
20 - 39	30
40 - 59	38
60 - 79	40
80 - 99	46
>= 100	50

Corrections:
- Pipes in unheated rooms (shafts, internal false ceilings): thickness x 0.5
- Pipes exposed outdoors or in unprotected unconditioned spaces: full table values

Chilled water pipes - INDOOR (water 7/12 C, ambient 27 C / 65% RH, l= 0.036-0.040)	
Pipe diameter (mm)	**Typical thickness (mm)**
<= 22	13 - 19
22 - 42	19 - 25
42 - 76	25 - 32
76 - 100	32 - 40
Chilled water pipes - OUTDOOR (water 7/12 C, ambient 32 C / 70% RH, l= 0.036-0.040)	
Pipe diameter (mm)	**Typical thickness (mm)**
<= 22	25 - 32
22 - 42	32 - 40
42 - 76	40 - 50
76 - 100	50 - 60

- Finishing of pipe insulation with 6/10 mm thick aluminum sheeting.
- Connection of the hydraulic system to the water supply network using ¾" steel piping, including automatic filling valve, strainer and back flow preventer (BA type) per UNI EN 1717 standards.
- Installation of a system drain line on the hydraulic circuit return, using ¾" steel piping and hose bib.
- Supply and installation of a steel magnetic dirt separator with insulation, capable of separating particles down to 5 μm. EN 1092-1 flange connection, DN 80 (EN 1092-1) PN 16, max operating pressure 10 bar, fluid temperature range 0–100°C, painted finish.
- Technical and professional services for system preparation and initial startup, including:
    - Filling the hydraulic circuit with anti-corrosive additive
    - Initial startup under supervision of an authorized service center, with comprehensive system testing. The service center will provide a four-hour training course for Client personnel on operation and first-level maintenance of the new system.

Electrical and Electronic Systems

- Replacement of existing light fixtures in the chiller room with LED lighting.
- Replacement of the circuit breaker supplying the new distribution panel for the refrigeration plant with a new molded-case circuit breaker with residual current protection (4 poles, In=320A, Im=1440A, Icu/Icn=36kA, adjustable Idn).
- Supply and installation of electrical cable FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 4x(1x185)+1G95 from the new switch to the new main distribution panel of the refrigeration plant.
- Supply and installation of a new electrical panel made of metal carpentry, complete with transparent door and cable entry compartment (dimensions: 1931x920x437mm). The panel will be equipped with the following devices:
    - Molded-case circuit breaker and GFCI, serving as main disconnector: 4 poles, 320A, Ith: 280A, adjustable Idn, Im: 1440A, Icu/Icn: 36kA

- Network presence indicator lights, protected by 4P fuses
- T1 Surge Protection Device, 4P, protected by 4P fuses
- Multimeter with RS485 connection serving Heat Pump 1
- Molded-case circuit breaker and GFCI serving Heat Pump 1: 4 poles, In: 160A, Ith: 155A, Idn: 0.50 (B type), Im: 1600A, Icu/Icn: 18kA – electrical cable: FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 4x(1x70)+1G35
- Multimeter with RS485 connection serving Heat Pump 2
- Molded-case circuit breaker and GFCI serving Heat Pump 2: 4 poles, In: 160A, Ith: 155A, Idn: 0.50 (B type), Im: 1600A, Icu/Icn: 18kA – electrical cable: FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 4x(1x70)+1G35
- Molded-case circuit breaker and GFCI serving lighting: 2 poles 16A, In: 10A, Ith: 10A, Idn: 0.03 (AC type), Im: 100A, Icu/Icn: 10kA – electrical cable: FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 3G2.5
- Molded-case circuit breaker and GFCI serving the service outlet: 4 poles 16A, In: 16A, Ith: 16A, Idn: 0.03 (AC type), Im: 160A, Icu/Icn: 10kA – electrical cable: FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 4x(1x2.5)+1G2.5
- Molded-case circuit breaker and GFCI serving the 4th floor chiller: 4 poles 16A, In: 16A, Ith: 16A, Idn: 0.3 (B type), Im: 160A, Icu/Icn: 10kA – electrical cable: FG16OM16 0.6/1 kV, Cca-s1,d1,a1, 4x(1x2.5)+1G2.5
- Molded-case circuit breaker and GFCI serving the spare: 2 poles 16A, In: 16A, Ith: 16A, Idn: 0.3 (AC type), Im: 160A, Icu/Icn: 10kA

- Installation of a three-conductor shielded RS485 data transmission line, complete with terminations, from the two multimeters to the BAS panel located in the boiler room.
- Installation of shielded CAT6 data transmission lines, complete with terminations, from the two heat pumps to the electrical panel in the old chiller room, and a line from the old chiller room to the BAS panel located in the boiler room.
- Supply and installation of an 8-port switch, to be installed in a dedicated panel.

Civil Works

- Demolition of flooring and platforms used for the raised placement (about 15 cm above the floor) of the chiller unit and primary pumps.
- Creation of a new screed sloped (min1%) towards the new drain
- Installation of a new p-trapped drain in the chiller room
- Tiling of the room with new porcelain stoneware tiles with slip resistance rating R11. Dimensions and finish to be defined with the COR.
- Core drilling of holes in internal and external masonry, both horizontally and vertically, for the passage of hydraulic pipes and the metal cable duct that will house the electrical cables.
- Fastening and anchoring to masonry of hydraulic pipes, cable ducts, and HVAC systems. Hydraulic pipe clamps must be insulated.
- Skim coating and complete painting of the chiller room, including the ceiling.
- Modify existing structures to host the new heat pumps. Remove paint from the existing beams, brush them to remove rust, coat them with anti-corrosive paint after relocation.
- Final professional cleaning of the premises.

Art. 3.3 LIMITATIONS

The accomplishment of the project shall be circumscribed to the specific requests described in the Tender Documents.

Art. 3.4 MATERIAL EQUIVALENTS

The contractor shall verify and ensure that all the materials supplied are new and without defects and that their use and/or installation is carried out using the best techniques and fully respecting the instructions supplied by the manufacturers.

Special parts shall be manufactured solely by workshops that are highly qualified in that specific sector.

The makes indicated in this SOW (Scope of Work) are intended as a point of reference and therefore, the words *or approved equivalent* are implicit.

Therefore, the makes and products listed are to be deemed equivalent to each other. Different selections implemented by the Contractor shall be approved in advance by the COR, after submission of samples and technical cards.

REVERSIBLE HEAT PUMP
CLIMAVENETA
https://climatizzazione.mitsubishielectric.it
NX-N-G06_LN_L_802P

INERTIAL TANK
CORDIVARI
www.cordivari.it
VOLANO TERMICO BS
1500 liters

EXPANSION TANK
CALEFFI
www.caleffi.com
556
400 liters

MAGNETIC DIRT SEPARATOR
CALEFFI
www.caleffi.com
546680
DN100

CIRCUIT BREAKER
ABB
www.abb.it

PIPING INSULATION
ARMACELL
www.armacell.com
AF/ARMAFLEX

Art. 3.5 TENDER DOCUMENTS

The following documents shall form an integral part of the contract:

- The present Special Tender Document
- General Conditions in use by the Client
- Ductwork calculation reports
- Ductwork system bills of materials
- Drawings
- Bill of quantities
- Catalog cuts

Art. 3.6 WORK PROGRESS

In general, the Contractor shall have the faculty of developing the work in the way he believes more convenient and shall hand it over completed within the terms of the contract, as long as, in the opinion of the Project Manager, this is not detrimental to the outcome of the project and the interests of the Administration.

The Administration reserves the right to request that a specific task be carried out within a pre-determined period of time, or to dispose the order of the performance of the work in the way it deems more convenient, especially in relation to requirements depending on the performance of work and delivery of supplies excluded from the contract, without the Contractor having the possibility to refuse or ask for special compensation.

Before starting the work, the Contractor shall submit for the COR approval a detailed operative schedule and costs, which he will follow during the performance of the contract, in concurrence with the schedule.

Art. 3.7 PARKING

No parking is allowed inside Embassy grounds. The Contractor's vehicles shall be allowed to enter only for loading and unloading materials.

Loading and unloading operations shall be carried out using only one vehicle at a time.

Consequently, during the accomplishment of the project the Contractor shall ensure that its vehicles are parked at its own expense outside the Government property.