

**SUPPLEMENTAL SPECIFICATION  
SPECIFICATION 611 – FIELD OFFICE AND LABORATORY**

**611-1            DESCRIPTION**

**611-1.01        Scope**

- a. This work shall consist of providing, furnishing and maintaining in good condition one or more wood frame or metal buildings for the exclusive use of the Engineer and the inspection force during the construction period as field and laboratory office.
- b. The type or types of buildings to be provided shall be as called for in the Proposal Schedule. The buildings shall be as described herein or as shown on the Standard Drawings. However, with the prior written approval of the Engineer, the Contractor may provide equivalent field and laboratory office spaces that meets the requirements of this specification. The alternatives may be suitable mobile trailers, prefabricated buildings, or space in existing buildings which are conveniently located with respect to the project.

**611-2            MATERIALS**

**611-2.01        General Requirements for all Buildings**

- a. Each building shall be constructed in a workmanlike manner. They shall be adequately roofed and floored and made weather-tight.
- b. Lumber for the construction of the buildings shall be of the kind and class best suited for the purpose. It shall be new except that the use of approved, sound, used lumber may be authorized by the Engineer.
- c. Each building shall have a minimum ceiling height of 8 feet and louver type windows (Miami Type) to provide adequate ventilation. All windows shall be screened.
- d. Each outside door shall be equipped with a cylinder lock and a screen door. Each inside door to offices and closets shall also be provided with a cylinder lock. Two keys shall be provided for each lock. Doors to toilet rooms shall be provided with privacy lock.
- e. Each toilet room (one for gentlemen and one for ladies) shall be provided with a flush type toilet and lavatory with running water complying with the sanitary code. Whenever possible, fresh water and sewer connections to facilities of the Puerto Rico Aqueduct and Sewer Authority (P.R.A.S.A.) shall

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be made. Where these are not available within a reasonable distance, an adequately sized cesspool for sewage disposal, or other acceptable method of disposal provided, and a 100-gallon elevated potable water tank shall be installed. The water tank shall be refilled daily by the Contractor with water safe for drinking and sanitary use.

- f. The sink at the laboratory shall also be provided with running water. Where P.R.A.S.A. facilities are not available, an additional elevated 100-gallon water tank shall be provided for the laboratory and refilled daily by the Contractor while the laboratory is in use.
- g. All storage closets shall be provided with at least four shelves totaling a minimum of 24 square feet of shelf space.
- h. Each building shall be provided with an approved electrical system connected to the Puerto Rico Electric Power Authority (P.R.E.P.A.) facilities with a sufficient number of no glare type ceiling luminaries to provide a minimum illumination level of 100 foot-candles at desk height level. A sufficient number of electrical power wall outlets, distributed around the building, shall be installed to provide at least three (3) double outlets per every 50 square feet of floor space or fraction thereof.
- i. Each building shall be provided with at least two non-toxic, dry chemical fire extinguishers of commercial quality meeting Underwriters Laboratories, Inc. approval for Class A, B and C fires with a minimum rating 2A: 10B: 10C for every 160 feet of floor space.
- j. Off-street parking space with a capacity of at least five passenger cars shall be provided close to each field office building and separate from parking space provided for Contractor's personnel.
- k. Where P.R.A.S.A. water facilities are available, each field office shall be provided with an electric water cooler. In other cases, a thermos jug of at least five gallon capacity shall be provided and filled daily with fresh potable water and ice by the Contractor.
- l. A first-aid kit complying with OSHA requirements shall be provided at each field office and kept properly stocked by the Contractor at all times.
- m. A standard electric pencil sharpener.
- n. For all field offices, air conditioning equipment having the capacity to maintain an ambient temperature of  $70^{\circ}\text{F} \pm 5^{\circ}$  shall be provided.

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**611-2.02 Specific Requirements for Each Building**

- a. Field and Laboratory Office Model 1 - This building shall be 3.66 m (12 ft.) by 12.20 m (40 ft.) and shall provide a minimum area of 44.65 square meters (480 square feet) of floor space with two outside door. The building also includes tables, benches and equipment and two toilet rooms (one for gentlemen and one for ladies).
- b. Field and Laboratory Office Model 2 - This building shall be 3.66 m (12 ft.) by 12.20 m (40 ft.) and shall provide a minimum area of 44.65 square meters (480 square feet) of floor space with two outside door. The building shall be partitioned to provide two private offices, lavatories, two toilet rooms (one for gentlemen and one for ladies), and two closets, approximately 0.91 m by 1.22 m for storage of equipment and supplies.
- c. Field and Laboratory Office Model 3 - This building shall be 3.05 m (10 ft.) by 4.88 m (16 ft.) and shall provide a minimum area of 14.88 square meters (160 square feet) of floor space with one outside door. The building shall be partitioned to provide an office, lavatories, two toilet rooms (one for gentlemen and one for ladies), and one closet, approximately 0.96 m by 1.19 m for storage of equipment and supplies.
- d. Field and Laboratory Office Model 4 - This building shall be 3.05 m (10 ft.) by 4.88 m (16 ft.) and shall provide a minimum area of 14.88 square meters (160 square feet) of floor space with one outside door. The building shall be constructed in conformance to details on Standard Drawing FILA 4 of 5. The building shall provide one closet, approximately 0.91 m by 1.37 m for storage of equipment and supplies, a sink equipped with water faucet and drain line on a work counter of at least 10 feet long by 2 feet wide and a height of 3 feet. The work counter shall be provided with a minimum shelf space underneath of 20 square feet in area. A covered water tank, 6 feet long, 4 feet wide and 2½ feet high shall be provided outside the laboratory building.
- e. Field and Laboratory Office Model 5 - This building shall be 3.05 m (10 ft.) by 7.92 m (26 ft.) and shall provide a minimum area of 24.16 square meters (260 square feet) of floor space with one outside door. The building shall be constructed in conformance to details on Standard Drawing FILA 5 of 5. The building shall be partitioned into an office 3.05 m by 3.05 m of floor area and a laboratory section. Each section shall have an outside door and in addition:
  1. The office section shall be provided with the same lavatory and toilet room, and closet facilities as required for Field and Laboratory Office Model 3 in paragraph “c” above.

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2. The laboratory section shall be provided with the same sink, work counter and closet facilities as required for Field and Laboratory Office Model 4 in paragraph “d” above, except that the work counter may be reduced to a length of 7 feet with 14 square feet of shelf space underneath and closet of 3 feet wide by 2 feet deep and located next to the work counter. The outdoor covered water tank may be omitted in projects where no Portland cement concrete is to be used.

**611-2.03      Field Office Equipment**

- a. Each Field Office and Laboratory Building Model 1 and 2 shall be provided with the following equipment in excellent working conditions and of quality satisfactory to the Engineer.
  1. One electric typewriter, with standard keyboard and 19 inch carriage.
  2. One electric calculating machine, tape type, fully automatic with answer registered to at least ten (10) digits.
  3. Two standard office desks, 30” x 60”, plastic top laminated, six-drawer type with lock and keys, and with executive type, adjustable chair.
  4. One standard secretarial “L” shaped desk, with adjustable secretarial chair.
  5. Two standard 4-drawer file metal cabinets, legal size with locks and keys.
  6. One standard drafting table, 36” x 60” minimum size.
  7. Two adjustable draftsman stools.
  8. One 36” x 72” office table with plastic laminated top.
  9. Eight (8) office chairs.
  10. Two vertical (wall mounted) filing plan racks with capacity for four sets of 24” x 36” plans each rack.
  11. One roll file unit with eight 6” x 6” compartments capable of holding eight rolls of paper, each 22” wide.

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12. Two 8.0 mega pixels digital camera with media capable of storing at least 48 photographs at its highest resolution.
  13. Electronic development, in a professional photo outlet for twenty (20) 8 ½” x 11” size photographs per month.
  14. Copier machine capable of handling letter and legal size paper.
  15. Plain paper fax machine.
  16. Telephone line and monthly payment of telephone bills.
  17. High-speed Broadband (10MB/s minimum speed or as requested by the Engineer) Internet Service connection, modem, Wireless 802.11N and Ethernet cable configuration, 8 port switch, cat-5 cables and monthly payment of service bills.
  18. One Standard Workstation, “L” shaped desk, 3-drawer type with locks and keys, and executive type, adjustable chair.
- b. Each Field and Laboratory Office Model 3 and Model 5 shall be provided with the following equipment in good working condition and of quality satisfactory to the Engineer.
1. All the same equipment as listed in items (1) to (7) and (12) to (16) under paragraph “a” above for Field and Laboratory Office Model 1 and Model 2.
  2. Two office chairs.
  3. One vertical plan rack with capacity for four (4) sets of 22” x 36” plans.
  4. One roll file unit with four 6” x 6” compartments capable of holding four rolls of pager, each 22” wide.
- c. For each building, the Contractor shall furnish necessary miscellaneous items to include calculating machine paper, typewriter ribbons, paper cups, sanitary paper, and cleaning materials (brooms, mops, pails, detergents, etc.).
- d. The contractor shall furnish and install the following computer equipment and software for Field and Laboratory Office Models 1, 2, 3 and 5.

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1. Computer hardware
  - (a.) One (1) Laptop Computer for Engineer. (15.6” LCD Display)
  - (b.) One (1) desktop Computer for the Administrative Assistant
  - (c.) One (1) desktop Computer for the Assistant Engineer
  - (d.) One (1) laser printer 600 dpi x 600 dpi for letter, legal, tabloid and custom size (12"x 18") paper with usb 2.0 and parallel ports, drivers and manuals.
  - (e.) One (1) Scanner B/W, Duplex capable, with 25 pages/minute scan speed at 300x300 dpi, 11"x17" media scan capable, with automatic document feeder, usb 2.0 and Ethernet ports, drivers and manuals.
  - (f.) One (1) Scanner with 10 pages/minute speed, Color, 8 1/2" x 14" media scan capable, with automatic feeder, usb 2.0 port, drivers and manuals.
  
2. Each computer required as shown on item 1 above, shall comply with the minimum specifications:
  - (a.) Intel Core i-3 2120 @ 3.3 GHz microprocessor
  - (b.) 8GB (2x4GB modules) DDR3 RAM
  - (c.) 1 TB Hard Drive
  - (d.) 128 MB PCI express video card, DVI and DB-15
  - (e.) Internal card reader
  - (f.) DVD-R/W Writer
  - (g.) 21 inch LCD Color Display (1024 x 768)
  - (h.) Four (4) USB 2.0 ports

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- (i.) 1000 VA UPS/battery backup
  - (j.) Wireless 802.11N and Ethernet LAN card
3. For each computer required on item 1 above, the following computer software shall be provided - the latest release or higher
- (a.) Window 8 Professional
  - (b.) MS Office 2010 Professional
  - (c.) Latest version of AutoCad LT
  - (d.) Security Suite (Antivirus, Anti-Spyware and Firewall. Shall include license renewal for the term of the contract)
  - (e.) Scan Software, capable of import/export PDF searchable document and image files
  - (f.) Oracle Primavera P6 EEPM R15.1 (or later) term licenses (temporary) with maintenance and one printed user manual. The term of the licenses shall cover the total project duration.
  - (g.) Primavera Contract Management (or later) term licenses (temporary) with maintenance and one printed user manual.
4. Any damaged or stolen equipment or software listed on items 1 thru 3 above shall be replaced by the Contractor within the next 72 hours after requested by the Engineer.
5. The Contractor shall provide all consumable materials for the computer equipments such as floppy disks, printer paper (letter, legal and tabloid size), toner, DVD's (R/RW), CD's (R/RW) disks and any other material needed for the operation of the equipment. Also, he shall be responsible for the repair, maintenance or upgrade work (labor & parts) that may be needed on said equipment and software until project final acceptance.
6. The Contractor shall submit to the Engineer a certification that all software provided for project's use has been legally acquired from a certified provider and is properly licensed. He shall exempt the

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Authority from any legal claim that may occur due to the improper use of the software.

7. Upon the completion of the project, the computer equipment and software shall revert to the Contractor.

**611-2.04 Field Laboratory Equipment** - Field laboratories on Field and Laboratory Office Models 4 and 5 shall be provided with the following equipment in good working condition. The laboratory equipment shall be equal or approved equal to that manufactured by Soiltest Inc., Karol-Warner Inc., or W.H. Curting.

- a. One standard desk or writing table, 30" x 60", with chair.
- b. One field scale of 35-lb capacity accurate to 0.01 pound.
- c. One triple beam scale, with brass scoop, of 2610 gram capacity, accurate to 0.1 gram.
- d. One double burner electric hot plate or a kerosene or bottled gas stove suitable for drying soil or moisture samples.
- e. One electric motorized or mechanical sieve shaker with a capacity of no less than six (6) sieves and 1 pan of 8-inch diameter.
- f. One set of U.S. Standard Brass, 8-inch diameter woven-wire sieves conforming to AASHTO M 92. The sieve set shall include 2", 1 1/2", 1", 3/4", 1/2", and 3/8", sieves and Nos. 4, 8, 10, 16, 30, 50 and 200 sieves, and sieve pan.
- g. Six rectangular aluminum pans, 9 3/4" x 13" x 3/4" deep.
- h. For projects including earthwork operations under Specification 203 and/or the construction of aggregate base or surface courses, a nuclear testing device capable of measuring the in-place density of soil and soil-aggregate courses in accordance with AASHTO T 238, and a licensed operator to operate it when required by the Engineer. The Authority may relieve the Contractor of this requirement, at its discretion, on projects where the earthwork operation and the construction of aggregate base and surfaces are minor and incidental to the main construction items.
- i. Apparatus to determine the liquid of soils as per AASHTO T 89 and the plastic limit as per AASHTO T 90.



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- j. Apparatus required to determine the moisture density relations of soils using the AASHTO T 180 Method D to include:
  - 1. One 6-inch diameter compaction mold.
  - 2. One 10-lb. Compaction rammer.
  - 3. One hardened steel 10-inch straight edge with one beveled edge.
- k. A concrete block 12” x 12” x 12” for soil compaction tests.
- l. Apparatus required to determine the in-place density of soils by AASHTO T 191 (Sand-Cone Method). This item may be omitted on projects where no crushed gravel or crushed stone base or surface courses are included.
- m. Twelve cylindrical metal molds with their bases or for making concrete specimens for compression strength tests. These molds shall be 6 inches diameter, 12 inches high and ¼ inch thick. The bases shall be 8 inches by 8 inches by ¼ inch thick. In lieu of metal molds, the Contractor shall provide all required single use plastic molds with lids, conforming to AASHTO M 205 and T 23, that are necessary to comply with the required frequency of concrete specimens sampling. Stripping tools for the removal of the samples from the mold shall be provided.
- n. Two tamping rods with rounded tips.
- o. Two truncated cone molds, 8” diameter at bottom, 4” diameter at top, 12” high, with a minimum gage thickness of No. 16, suitable for slump tests of concrete using AASHTO T 119.
- p. For projects including earthwork operations and the construction of base and/or surface courses (aggregate, P.C. concrete, or asphaltic), the Contractor shall provide an accurate 3-meter straightedge for checking surface tolerances.
- q. Such special testing equipment or devices as specially required to be furnished by the Contractor in the specifications for construction items included in the contract.
- r. The Contractor shall also furnish miscellaneous tools such as shovels, trowels, mixing spoons, spatulas, floats, pails, sample containers with close-fitting lids, etc. as may be required by the Engineer to collect and prepare samples for testing.

**611-3 CONSTRUCTION REQUIREMENTS**

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**611-3.01      General**

- a. The buildings shall be constructed near the site of the work, at a location acceptable to the Engineer. They shall be independent units, detached from any office, storage or warehouse building occupied by the Contractor. The building may be built on the project right-of-way (ROW) when space is available. If no space is available within the ROW, the Contractor shall obtain, at his expense, the necessary space at an approved location.
- b. The buildings shall be completed and be fully equipped as required by this specification, to the satisfaction of the Engineer, prior to the start of any contract work. The building shall be removed by the Contractor outside of the project site after acceptance by the Authority of the work under the contract, unless otherwise ordered or authorized by the Engineer.

**611-3.02      Maintenance**

- a. The Contractor shall maintain all buildings and equipment in good condition throughout the duration of the project and he shall promptly repair and replace any item damaged through normal usage or by any causes other than negligence on the part of the Engineer and his personnel.
- b. The Contractor shall perform routine cleaning of the field office twice a week such as but not to: sweeping, dusting, moping and toilet room cleaning.
- c. Laboratory equipment, calculating machines and typewriters not in good operating condition or damaged shall be repaired or replaced within five (5) days of the date of notification to the Contractor.
- d. Should the Contractor fail to repair or replace an item not in adequate working condition, the Engineer may order such item repaired or replaced with the cost deducted from any payment that may be due the Contractor or he may apply the provisions of Article 611-5.04 of this specification, at his discretion.
- e. After the usage of the buildings is terminated by the Engineer, these shall be removed from the project by the Contractor, the areas cleaned and left in a neat acceptable condition.

**611-4            METHOD OF MEASUREMENT**

- 611-4.01**      The unit of measurement for each field and laboratory office specified and used on the project will be by the month measured from the date each building is

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completely furnished and ready for occupancy, as determined by the Engineer, to the date that it is released back to the Contractor for removal. Periods of less than one month will be computed at the rate of 1/30 of the unit price per month for each day of occupancy by the Engineer.

**611-5 BASIS OF PAYMENT**

**611-5.01** Payment for each accepted building constructed and furnished complete as specified herein, will be paid for at the corresponding contract unit price. Such price and payment shall constitute full compensation for furnishing the site of the building, for furnishing and erecting the building, furnishing of the specified utilities and payment of utility charges, furnishing of the specified office and laboratory equipment, maintenance of the building and cleaning of the site upon completion of each item as required by the plans and specifications.

**611-5.02** Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Field and Laboratory Office Model 1 .....	Month
Field and Laboratory Office Model 2 .....	Month
Field and Laboratory Office Model 3 .....	Month
Field and Laboratory Office Model 4 .....	Month
Field and Laboratory Office Model 5 .....	Month

**611-5.03** No payment will be made for time periods for which the Contractor is subject to assessment of liquidated damages under Section 108.09 of the General Provisions.

**611-5.04** No payment will be made for periods of time in which the Contractor fails to comply with any of the requirements of this specification

**611-5.05** Deductions under paragraphs 5.03 and 5.04 above will be assessed at 1/30 of the monthly unit price per day of penalty or non-compliance. These deductions will be non-refundable.

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