



Republic of the Philippines  
**CAVITE STATE UNIVERSITY**  
 Don Severino delas Alas Campus  
 Indang, Cavite

**BILL OF QUANTITIES**

IMPROVEMENT OF CvSU CCAT CAMPUS ICT BUILDING					
ABC: ₱ 14,000,000.00				Bill of Quantities	
COLLEGE/UNIT/CAMPUS: ROSARIO CAMPUS					
Item No.	Description	Unit	Quantity	Unit Price (Pesos)	Amount (Pesos)
I	EARTHWORKS (Pesos _____ _____ and _____ centavos)				
II	CONCRETE WORKS (Pesos _____ _____ and _____ centavos)				
III	MASONRY WORKS (Pesos _____ _____ and _____ centavos)				
IV	TILE WORKS (Pesos _____ _____ and _____ centavos)				
V	CARPENTRY WORKS (Pesos _____ _____ and _____ centavos)				
VI	RAFTERS & ROOFING WORKS (Pesos _____ _____ and _____ centavos)				
VII	MISCELLANEOUS WORKS (Pesos _____ _____ and _____ centavos)				
VIII	ELECTRICAL WORKS (Pesos _____ _____ and _____ centavos)				
IX	FIRE PROTECTION WORKS (Pesos _____ _____ and _____ centavos)				

X	PLUMBING WORKS (Pesos _____ _____ and _____ centavos)				
XI	PAINTING WORKS (Pesos _____ _____ and _____ centavos)				
<b>GRAND TOTAL</b>					_____
<b>Write grand total in words</b>					_____ _____ _____

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_  
Name of Bidder/Bidder's Representative: \_\_\_\_\_  
Position: \_\_\_\_\_  
Construction Company/Contractor: \_\_\_\_\_

**CAVITE STATE UNIVERSITY**

**SCOPE OF WORK:**

**A. IMPROVEMENT OF CvSU CCAT CAMPUS ICT BUILDING**

**GENERAL NOTES:**

1. The project should be finished in 210 calendar days.
2. Actual site inspection is a must. There is an existing building with ground floor. Improvement works will focus on the second floor level of the building.
3. This set of specifications shall govern the methods of construction and the kinds of materials to be used for the proposed project shown in the plans and detailed drawings.
4. All parts of the construction shall be finished with first class workmanship, to the fullest talent and meaning of the plans and these specifications, and to the entire satisfaction of the project inspector and the end-user.

**B. Technical Description**

**I. Earthworks**

**A. Mobilization/Demobilization**

Provide the following:

1. Billboard with project information
2. Bunkhouse with office
3. Temporary comfort rooms
4. Site temporary enclosure may be blue sack or any suitable materials that may enclose the workplace.

**B. Excavation/ Backfilling/ Clearing**

1. This work includes excavation for all catch basins, perimeter walks and roads.
2. See plan for details.

**C. Demobilization includes cleaning up of site, clearing, hauling and disposal of waste and construction debris. Restoration of any damages shall also be done before exiting the area.**

**D. The area should be cleared/cleaned before and after construction work at least ten meters away from the building line. Notify the end-user regarding the properties that need to be hauled away from the site prior to construction.**

**II. Concrete Works**

**A. Cast-in-place concrete**

1. Concrete works include columns, stiffener columns, slab, beams, roof beams, lavatory counters, ledge/canopy, perimeter walk, roads and all other concrete components needed to complete the structure.

- Provide lintel beams for the opening of windows and doors.
  - 2. Strength of concrete to be adopted shall be **3,500 psi**.
  - 3. Provide concrete pathwalk with 5" CHB zocalo around the perimeter of the building. W=1.0 m.; Thk.= 0.10 m.
  - 4. Concrete works should be plain cement finish.
  - 5. Provide necessary tools and equipment needed for concrete works.
  - 6. Reasonable number of tests on the concrete is required by the implementing agency during the progress of the work. Not less than two (2) cylindrical specimens shall be reserved for the 28th day test. The Contractor shall pay for the cost of material testing.
  - 7. Compression and slump tests shall be made for every batch of concrete. 1 set of tests shall be made from any one batch of concrete and all 3 tests shall be made from the same batch.
  - 8. In case of failure of test cylinders to meet the specified strengths, the Contractor shall at his expense obtain concrete core samples from the poured concrete and the compressive strength of same be taken by a competent testing authority to determine the conclusive strength and integrity of the concrete poured.
- B. Steel reinforcement**
- 1. Use deformed bar grade 40.
  - 2. Provide necessary tools and equipment needed for steel works.
  - 3. See plan for details and extent of work.
  - 4. The contractor shall furnish 2 copies of the manufacturer's certificate of mill tests of all reinforcing steel. The contractor shall at his own expense employ an approved testing laboratory which shall conduct testing of all reinforcement sizes of each bulk under the supervision of the project inspector.
- III. Masonry Works**
- A. CHB laying**
- 1. Installation of CHB reinforced with 10 mm Ø deformed bar spaced at 0.60 m. on center every three layers.
    - a. CHB 5" for the perimeter/exterior walls and interior/partition walls.
  - 2. Masonry works should be plastered plain cement.
- IV. Tile Works**
- Supply and installation of the following:
- 1. Ceramic colored tiles (locally-made) 0.40 m. x 0.40 m. for the whole floor area of the building. Tiles must be accented with dark colors. Use unglazed ceramic tiles for the hallway.
  - 2. Use granite tiles with grooves for the stairs.
  - 3. For the comfort room:
    - a. Ceramic colored tiles 16" x 16" for flooring (un glazed)
    - b. 12" x 24" glazed tiles for the entire wall (from floor to ceiling)
    - c. Granite slab for the lavatory concrete counter including 0.6 m of its wall.
  - 4. Consult the end user for color preference of tiles.
- V. Carpentry Works**
- 1. Provide necessary form lumber and scaffolding needed for the completion of the project.
  - 2. Provide ceiling works for the whole area.
    - a. Use fiber cement board 3/16" thick for ceiling boards.
    - b. Use metal furring as ceiling runner and ceiling joist at 0.40 m. on center both ways.
    - c. Provide decorative wooden molding to all ceiling perimeter and corners.
    - d. Provide 3/16" x 1" flat bar coated with primer and paint for ceiling hanger every 1.20 m. both ways.
    - e. Use pre-painted spandrel 4" for the whole area of eaves.
    - f. Provide ceiling ventilation for every 3 meters and all corners of the eaves.
- VI. Rafters and Roofing Works**
- A. Rafters:**
- 1. Use galvanized tubular bar (2.0) 2" x 6".
  - 2. This work also includes painting of two (2) coats of epoxy primer and two (2) coats of quick dry enamel black.
  - 3. Provide necessary tools and equipment.
  - 4. All joint connections should be fully welded.
  - 5. Use galvanized CEE purlins (1.5), 2" x 4" @ 0.60 m. on center.

6. Provide 2 - 2" x 6" (1.50mm.) CEE purlins for fascia board.
  7. Provide 4-16 mm. Ø anchor bolts with nuts and washers for each support.
  8. Provide 12 mm. Ø with nuts and washers for sag rod.
- B. Roofing:
1. Adopt gauge 26 (0.5 mm.) rib type pre-painted roof sheet.  
Specifications:
 

Effective coverage	: 1000 mm.
Insulation Thickness	: 35 mm.
Insulation Materials	: Polyisocyanurate (PIR) or approved equal
Metal Thickness	: 0.50 mm.
  2. Adopt gauge 26 (0.5 mm.) prefabricated stainless gutter.
  3. Provide gauge 26 (0.5 mm.) pre-painted fascia cover.
  4. All attachment for the roofing sheet shall be 4" tek screw for metal.
  5. Provide water sealant for all attachment (water sealant should be provided for both inside and outside surface of tek screw head).

## VII. Miscellaneous Works

Supply and Installation of the following:

1. Doors
  - 8.0** sets of D-2 Panel door with 2" x 5" door jamb complete with all accessories.
  - 2.0** sets of D-3 Panel door with 2" x 5" door jamb complete with all accessories.
  - 6.0** units of Phenolic partition system with doors for the cubicle; complete with all accessories such indicator door lock.

Note: All door knobs for D-2 and D-3 should be heavy duty lever type.
2. Windows
  - 18.0** sets of W-2 Aluminum sliding windows with 1/4" thick bronze glass on powder coated finish aluminum frame; complete with all accessories.
  - 2.0** sets of W-3 Aluminum sliding windows with 1/4" thick bronze glass on powder coated finish aluminum frame; complete with all accessories.
  - 1.0** set of W-4 Aluminum frame awning windows with 1/4" thick bronze glass on powder coated finish alum. frame; complete with all accessories.
3. Stainless Railing (Stairs, hallway/ terrace, fire escape and fire escape ladder).
  - a. Provide 1.5 mm thick (304) stainless tubing for railings.
  - b. See plan for details and extent of work.
4. Aluminum composite panel
  - a. Supply and Installation of 4.0 mm. aluminum composite panel at the upper part of the building.
  - b. See plan for details and extent of work.

## VIII. Electrical Works

1. Supply and installation of panel boards and circuit breakers. G.E., Schneider or approved equal.  
**Specifications of materials to be used:**
  - a. LPP2 - 1 set
    - Main (225AT, 300AF, 3P, 230V, MCCB) and Branches (4-50 AT 3P, 10-20 AT 2P, 4 spare)
  - b. ACU power outlet - 4 sets
    - 50 AT, 3P, 230V Circuit breaker w/ NEMA 3r Panel enclosure
  - c. Replacement of existing 250AT, 300AF, 3P main circuit breaker of panel board MDP with 300AT, 400AF, 3P, 230V MCCB.  
**Note:** Bolt-on type, NEMA Standard should be used.
2. Supply and installation of 6 sets of 9.5 m concrete pole with secondary rack and spool insulator in accordance with the plan.
3. Supply and installation of RSC/IMC metal conduits, PVC orange conduit pipes, conduit fittings PVC junction/utility/pull box and support clamps/hangers.

**Specifications of materials to be used:**

- a. RSC/IMC metal conduit pipes for service entrance and exposed conduit raceway. Including its fittings.
  - b. PVC orange conduit pipe embedded all throughout. Including its fittings.
  - c. Clamps and support brackets
4. Supply and Installation of copper conductors wires, cable tie and messenger wires from:
- Existing 3 phase distribution transformer to MDP (Outdoor overhead secondary lines).
  - MDP (located at ground floor to existing LPP1 (located at ground floor).
  - MDP (located at ground floor) to LPP2 (located at second floor).
  - LPP2 to lighting fixtures and power outlets.

**Specifications of materials to be used:**

- a. THHN/THWN copper wire. 99.99% pure copper conductor, fire retardant. Phelps Dodge, Philflex or approved equal. Refer to Schedule of loads for proper size of wire and color coding of wires.
  - b. 10 mm. Ø guy messenger wire for outdoor overhead lines.
  - c. Cable tie 7.6 x 300 mm. installed every 500 mm. for outdoor overhead lines.
5. Supply and installation of utility lighting fixtures, switches, outlets and other electrical components in accordance with the plan.

**Specifications of materials to be used:**

- a. 1-40W, Fluorescent lamp (24 sets)
  - b. 1-18W, CFL (24 sets)
  - c. Solar street light (10 sets)
    - Solar panel - 18V/85W, monocrystalline silicon
    - Battery - Built-in life PO4 lithium iron battery
    - Light output - 8,800 lm/80W
    - Lifetime - 50,000 hours
    - Shell material - Aluminum alloy
    - Working model - Motion sensor or time control
    - Charging time - 6-7 hours
    - IP Rating - IP 65
  - d. Emergency light twin head with 1-gang outlet (8 sets).
  - e. Wide series switches.
  - f. 2-gang convenience outlet, universal type w/ ground (16 sets).
  - g. 2-gang floor mounted convenience outlet, universal type w/ ground (32 sets).
  - h. 1-gang convenience outlet, outlet for emergency lights (8 sets).
  - i. 6 HP/ 5 TR, 3 phase, 230V, 60 Hz Floor mounted air conditioner units (4 sets).
  - j. 1 set of Water pump (2.5 HP)
  - k. 18" Orbit ceiling fan, Banana metal type blade, 4 speeds (16 sets)
  - l. 1 set of 3 phase electric kWh meter
6. Include tapping to the source, electrical testing and commissioning.
- a. Continuity test.
  - b. Insulation test.
  - c. Phase sequence test

**Note:** Electrical feeder line layout is to be connected from existing 3 phase distribution transformer located in front of Technovation center up to MDP (200 linear meter distance). Provide the necessary connectors & equipment for the wiring installation.

7. Consult inspectors for details and extent of work.

**Note:** Electrical testing and guarantee, electrical supervision and final electrical inspection report should be signed and sealed by Professional Electrical Engineer with notary public.

**IX. Fire Protection Works**

Supply and Installation of the following:

1. Dry standpipe 3" Ø with siamese fittings

2. Fire hose, (50 m.) with cabinet (2 units)
3. Fire escape ladder and railings (stainless)

## X. Plumbing Works

### A. Water Supply Line

1. Adopt (PN 20) PPR pipes and fittings for water lines.
  - a. Supply and installation of 25 mm. PPR pipes with 2 pcs. stop valve from source to cistern tank.
  - b. Use 25 mm. Ø from cistern to water tank; 25 mm. Ø from tank to comfort rooms.
  - c. Use 20 mm. Ø for inside of comfort rooms.
2. Supply and installation of one unit stainless tank , CAPSULE type with partition thickness = 1.2 mm. ; length = 2.54 m. ; height = 2.34 m. ; dia. = 2.20 m.
3. Provide one unit cistern tank. (Size: 4.50 m. x 2.0 m. x 2.0 m. with partition)
4. Provide gate valve for every comfort room.
5. Provide water meter.
6. Provide spray bidet (heavy duty) for every cubicle.
7. Tapping to the source is included.
8. No pipe should be embedded without testing it to leak.

### B. Sewer Line

1. Adopt PVC heavy duty orange pipes and fittings (Sanimold type with O-ring or its equivalent) for ventilation, downspout and the whole sewer line system including the septic vault fittings.
  - a. Use 4" Ø for the main line and water closet.
  - b. Use 2" Ø for lavatory and ventilation.
2. Provide 4" PVC pipe for downspout.
3. Provide one unit septic tank with pipes extending to the nearest disposal area.
4. Provide catch basin with concrete reinforced pipes. See plan for sizes.

### C. Fixtures

Provide the following for the comfort rooms:

1. Brass roof drain 4" (6 pcs.)
2. Brass floor drain 4" (9 pcs.)
3. Colored tank type water closet, counter top type lavatory and urinals.
4. Brass Roof Drain Dome Type (6 pcs.)
5. Heavy duty spray bidet (6 pcs.)

**Note:** All fixtures must be HCG, American Std, or approved equivalent complete with all accessories.

## XI. Painting Works

The whole building should be painted (both exterior & interior) including doors.

### A. Wood

1. Apply one coat of flatwall enamel white. Allow to dry overnight.
2. Repair minor surface imperfection with glazing putty. Let dry then sand.
3. Apply at least two coats of Quick Dry Enamel in the desired color. Allow an overnight intercoating interval.

### B. Metal

1. Apply epoxy primer by brush or spray. Allow to dry for 24 hours. Apply suitable putty on imperfections.
2. Apply at least two coats of Quick Dry Enamel in the desired color.

### C. Concrete

1. Treat the surface with concrete neutralizer. Mix one part with 16 parts water by volume.
2. Apply skim coat as primer. Repair minor surface imperfections with a suitable putty. Let dry, then sand.
3. Apply at least two coats of colored dirt resistant semi gloss latex paint (factory mixed).

**Note:** Color of paint will depend upon the preference of the end-user. Paints and its accessories should be BOYSEN or approved equal.

- C. Contractor of the said project must provide an as-built plan of the project at the end of the contract as a requirement for the release of their final billing.
- D. For color/types of any fixtures or materials to be used on site, consult the end-user and the inspector for approval. Consult the plan and the scope of work for the extent of tasks of the contract. If possible, let the end-user sign your sample as proof of approval.
- E. The plans, detailed drawings and these specifications shall be considered as complementing each other, so that what is mentioned or shown in one, although not mentioned or shown in the other, shall be considered as appearing on both. **In case of conflict between the two, generally, the scope of work prevails.**
- F. Resident site engineer is a must for the projects to be undertaken by the contractor of the university. In cases where there are electrical works, it is required that an electrical engineer or a master electrician be a part of the contractor's team to supervise all electrical works. Likewise, master plumbers must supervise plumbing works. It can be considered when only one person is the master plumber and master electrician at the same time as long as his major duty is supervision of both fields. Safety engineer is a must as per DOLE requirement. **Note: All key personnel should be included in the list of personnel for submission.**
- G. In cases of participation in two or more projects, the set of workers and foreman shall be different per project, however, the set of engineers and equipment may be reused.
- H. Construction safety and health program as well as construction schedule (PERT/CPM/S-Curve) shall be provided by the winning bidder.
- I. All public utilities used by the winning contractor in the construction of the project, such as electricity, water, telephone, etc., shall be for the sole account of the contractor.
- J. See plans/consult the end-user and project inspector for details and extent of work. The silence of specifications, plans, special provisions and supplementary specifications as to any detail, or the apparent omission therein of detailed description or definition of the quality of materials and workmanship shall be regarded to mean that only materials and workmanship of first class quality are to be used or employed.