



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

BILL OF QUANTITIES

CONSTRUCTION OF COLLEGE OF MEDICINE BUILDING					
ABC: ₱137,785,000.00					
COLLEGE/UNIT/CAMPUS: CvSU MAIN 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	TRUSSES AND ROOFING WORKS (Pesos _____ _____ and _____ centavos)				
VII	MISCELLANEOUS WORKS (Pesos _____ _____ and _____ centavos)				

VIII	ELECTRICAL WORKS (Pesos _____ _____ and _____ centavos)				
IX	SOLAR POWER SYSTEM WORKS (Pesos _____ _____ and _____ centavos)				
X	ELECTRONIC WORKS (Pesos _____ _____ and _____ centavos)				
XI	PLUMBING WORKS (Pesos _____ _____ and _____ centavos)				
XII	MECHANICAL WORKS (Pesos _____ _____ and _____ centavos)				
XIII	FIRE PROTECTION WORKS (Pesos _____ _____ and _____ centavos)				
XIV	PAINTING WORKS (Pesos _____ _____ and _____ centavos)				
GRAND TOTAL _____					
Write grand total in words _____ _____ _____					

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

CAVITE STATE UNIVERSITY

SCOPE OF WORK:

A. CONSTRUCTION OF COLLEGE OF MEDICINE BUILDING

GENERAL NOTES:

1. The project should be finished in 360 calendar days.
2. Actual site inspection is a must.
- 3.

B. Technical Description

I. Earthworks

- A. Site Preparation/ Mobilization/ Demobilization/ Temporary Enclosure/ Office/ Bunkhouses/ Comfort Rooms/ etc.

Provide the following:

- Billboard
- Bankhouse with office
- Temporary comfort rooms
- 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 column/wall footings, tie beam, catch basin, cistern tank and septic tank.
2. The area should be cleared/cleaned before and after the construction work at least ten meters away from the building line. Unusable used formworks, excessive soil fill, and all other unwanted debris of construction works should be disposed properly.

- C. Additional fill and soil poisoning

1. Provide additional fill
2. The area should be treated with termite proofing. Termite proofing should be conducted by an accredited termite specialist.
3. Gravel fill = 0.05 m. thick

II. Concrete Works

- A. Cast-in-place concrete

1. Concrete works include columns, footings, stiffener columns, slab, beams, stairs, roof beams, lavatory counters, chemical storage room, ledge/canopy and all other concrete components needed to complete the structure.
 - Provide lintel beams for the opening of windows and doors. Use 0.15m x 0.20 m reinforced with 10 mm bars.
2. Strength of concrete to be adopted shall be **3,500 psi**.
3. Concrete works should be plain cement finish,
4. Provide concrete pathwalk with 4" CHB zocalo around the perimeter of the building. W=1.0 m.; Thk.= 0.10 m.
5. Provide necessary tools and equipment needed for concrete works.

- B. Steel reinforcement

1. Use deformed bar grade 40.
2. Provide 10 mm. Ø RSB at 0.30 meter on center both ways for slab on fill at ground floor.
3. Provide necessary tools and equipment needed for steel works.
4. See plan for details and extent of work.

III. Masonry Works

1. Installation of CHB reinforced with 10 mm Ø deformed bar spaced at 0.60 m. on center every three layers.
 - a. CHB 6" for the perimeter/exterior walls and septic tank.
 - b. CHB 4" for interior/ partition walls.
 - c. Louver block for chemical room.
2. Masonry works should be plastered plain cement.

IV. Tile Works

- A. Supply and installation of the following:

1. Ceramic floor tile wooden design dry pressed 12mm. x 20cm. x 120cm. for the whole area of ground floor to roof deck of the building.
2. Granite tiles with groove for the stairs.
3. For the comfort room:
 - a. Unglazed granite colored tiles 24" x 24" for flooring
 - b. Glazed ceramic colored tiles 12" x 24" for the entire wall (from floor to ceiling)
 - c. Granite slab for all lavatory concrete counters including 0.60 m. of its wall.
4. Bricks for the zocalo wall at ground floor.
5. Pebbles #5 for parking and ramps on the ground floor.
6. Ceramic tiles for the chemical room including its counter.
7. 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 of ground floor to roof deck.
 - a. Provide echostop plasterboard (round hole shape punching 8 groups per sheet for

- the whole area except comfort rooms).
- b. Use cement board for all comfort rooms.
- c. Use light steel frame for all ceiling runners and ceiling joist at 0.40 m. on center both ways.
- d. Provide decorative wooden molding to all ceiling perimeter and corners.
- e. Provide rod suspension hanger for every 1.20 m. both ways.
- 3. Provide ceiling works for the whole eaves.
 - a. Use pre-painted spandrel 4" for the whole area of eaves.
 - b. Provide pre-painted spandrel with hole as ceiling ventilation for every 1 meter and all corners of the eaves.
- 4. Supply and installation of drywall partitions
 - a. Use gypsum 12.0 mm thick for double wall partition.
 - b. Use metal stud at 0.40 m. on center and metal tracks.
- 5. Supply and installation of wooden flooring of the viewing area at 6th floor.
 - a. Use T&G wooden flooring for stair and floor with two coats of polyurethane varnish sealer and two coats of polyurethane varnish topcoat.
 - b. Use 2" x 3" (2.0) tubular at 0.30 m. on center for floor joist and 2" x 4" (2.0) tubular for frame and support. This work also includes painting of two (2) coats of epoxy primer and two (2) coats of QDE paint.

VI. Trusses & Roofing Works

A. Rafters:

1. See plans for sizes of bar and other details for the installation of steel trusses.
2. This work also includes painting of two (2) coats of epoxy primer and two (2) coats of QDE paint.
3. Provide necessary tools and equipment.
4. All joint connections should be fully welded and shall be provided with 10mm. thick gusset plates for member connections and base plates for truss to column connections.
5. Use tubular bar 2" x 4" (2.0) at 0.60 m. on center for purlins.
6. Provide anchor bolts with nuts and washers for each support.
7. Provide 12 mm. Ø with nuts and washers for sag rod.
8. Use CEE purlins 2 - 2" x 6" for fascia boards.

B. Roofing:

1. Adopt sandwich panel 5 ribs (0.5 mm x 1220 mm. x 50 mm.)
Specifications:
Insulation Thickness : 50 mm.
Insulation Materials : Polyisocyanurate (PIR) or approved equal
Metal Thickness : 0.50 mm
2. Adopt gauge 26 x 18 (0.5 mm.) stainless ridge roll.
3. Adopt gauge 26 (0.5 mm.) prefabricated and pre-painted fascia cover.
4. Supply and installation of stainless gutter/flushing gauge 26 (0.5 mm.)
5. All attachment for roofing sheet and ridge roll shall be 4" teck screw for metal.
6. Provide water sealant for all attachment (water sealant should be provided for both inside and outside surface of teck screw head).

VII. Miscellaneous Works

Supply and Installation of the following:

1. Doors

- 27.0 sets D-1 Framed hinged door with fixed; 6mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish
- 53.0 sets D-2 Panel door with 1/4" thick clear peeping on KD door jamb, complete with heavy duty accessories
- 41.0 sets D-3 (0.775 m. x 2.10 m.) Prepainted Steel door & jamb; complete with all accessories
- 5.0 sets D-4 Panel door with 1/4" thick clear peeping on KD door jamb, complete with heavy duty accessories
- 2.0 sets D-5 Framed hinged door with fixed; 6mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish.
- 36.0 units Phenolic toilet partition system with doors for the CR cubicle complete & all accessories such indicator door lock. (Ht. = 1.90m.)
- 1.0 set Stainless door for chemical room, complete with all accessories 1" (304) stainless pipe for framing with Ga. 26 stainless sheets.

2. Windows

- 12.0 sets W-1 Aluminum awning window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories
- 12.0 sets W-2 Aluminum casement window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories
- 36.0 sets W-3 Aluminum casement window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.

- 36.0 sets W-4 Aluminum fixed window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 6.0 sets W-5 Aluminum framed curtain wall stick type with 12 mm. thick monolithic reflective tempered on aluminum powder coated framed finish; complete with all accessories.
- 2.0 sets W-6 Aluminum framed curtain wall stick type with 12 mm. thick monolithic reflective tempered on aluminum powder coated framed finish; complete with all accessories.
- 2.0 sets W-7 Aluminum framed curtain wall stick type with 12 mm. thick monolithic reflective tempered on aluminum powder coated framed finish; complete with all accessories.
- 4.0 sets W-8 Aluminum framed curtain wall stick type with 12 mm. thick monolithic reflective tempered on aluminum powder coated framed finish; complete with all accessories.
- 12.0 sets W-9 Aluminum sliding window with fixed; 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 20.0 sets W-10 Aluminum sliding window with fixed; 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 6.0 sets W-11 Aluminum sliding window with fixed; 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 6.0 sets W-12 Aluminum fixed window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 7.0 sets W-13 Aluminum fixed window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 1.0 set W-14 Aluminum fixed window with 6 mm. thick reflective/tinted glass tempered on aluminum powder coated frame white finish; complete with all accessories.
- 3. Façade Decorative Railings (hot dipped). Provide hot dipped decorative railings at façade (2" x 6" tubular 2.0) with bracket/holders.
- 4. Aluminum cabinet with drawer for all counters at comfort rooms.
- 5. Stainless railing (Stairs, PWD ramp fire exit and fire escape ladder). Provide 1.5 mm thick (304) stainless tubing for railings. Use 2" x 2", 1" x 2" & 1" x 1" tubing.
- 6. Aluminum louver with push button manual operation aluminum roll up grills shatter at ground floor (10 sets).
- 7. Stainless Signage
Signage, made of stainless steel mirror finish 1/16" thickness, 16" height x 10" wide, in proportion, Times New Roman Font compressed, with 2-1/2" stainless build-up sidings and stainless screws on back with aluminum composite panel cladding background "COLLEGE OF MEDICINE"
- 8. Aluminum composite panel cladding with aluminum frame, complete with all accessories around the building at roof deck and all exterior columns.

VIII. Electrical Works

- 1. Supply and Installation of panel board and circuit breakers. See schedule of loads and electrical plans for details and specifications. **Note:** Bolt-on type, Nema Standard should be used.
- 2. Supply and installation of conductors and PVC conduit/junction box/utility box from main panel to convenience outlet/light outlet.
 - a. PVC conduit orange pipe and RSC/IMC metal conduit.
 - b. Utility and junction boxes should be PVC and deep type.
 - c. THHN and THW CU. stranded wire, Phelps Dodge or approved equal.
 - Refer to the Schedule of loads for size and color coding of conductor wires.
 - THW type of conductor wires for outdoor installation.
- 3. Supply and Installation of electrical fixtures/switches/outlets and other electrical devices.
 - a. Switches (Bticino, National or its equivalent)
 - b. Convenience outlets (Bticino, National or its equivalent)
 - c. 2-36W LED fluorescent lamp w/ diffuser (396 sets)
 - d. 1-36W LED fluorescent lamp w/ diffuser (145 sets)
 - e. 2-18W LED Pendant type lighting for laboratory (16 sets)
 - f. 6" Square recessed horizontal, center frosted glass, 2xE27 white rim (91 sets).
 - g. 9W LED bulb (67 sets).
 - h. Heavy duty twinhead emergency light (110 sets)
 - i. 4W, ceiling mounted LED exit sign, big double sided with white light, input voltage: AC 100-240V (15 units)
- 4. Supply and installation of Manual Transfer Switch with rating/specification indicated

- in electrical plan.
5. Supply and Installation of the following:
 - a. Three units amorphous transformer 167 kVA (brand new) including all its accessories (shall be certified by the supplier that the transformers to be installed are brand new)
 - b. Two units of electrical concrete post and its accessories.
 - c. Three - lines high tension wire (power cable 15 KV XLPE cable 50 sq.m.) with ground wire from existing lines to the new transformer/MDP.
 - d. Construction of service entrance post with electric meter (Watt-hour meter).
 - e. Include testing and commissioning.
 - f. Consult inspectors for details and extent of work.
 6. Tap to the source.

IX. Hybrid Solar Power System Works

1. Supply and installation of railings and roof attachment. Mounting structure must be tilted and have an angle between 18 to 36 degrees to have maximum sunlight exposure.
2. Supply and installation of solar panels.
 - a. 60 pcs. of 500W solar panels, trina or approved equal
3. Supply and installation of AC & DC wire cables, circuit breakers, transfer switch, distribution box and accessories.
 - a. MC4 connectors should be an interconnection of solar power components.
 - b. Output wires should be connected with an electric board that supplies electricity to the load.
4. Supply, installation and bonding of solar inverters and batteries.
 - a. Lithium Iron Phosphate Battery, LIFEPO4 or approved equal. (3-units)
 - b. Hybrid inverter, DEYE or approved equal. (2-units)
5. Connect the solar inverter to the consumer unit.
6. Energize the circuit breakers including testing and commissioning of the solar power system.
7. Consult plan and inspectors for details and extent of works.

X. Electronic Works

1. Supply and installation of CCTV and Power Source.
 - a. Supply and installation of circuit breakers.
 - Installation of 30A, single phase, 230V, 10 KAIC, Bolt-on circuit breaker in Main Distribution Panel.
 - Installation of 30A, single phase, 230V, 10 KAIC, Safety circuit breaker located at first floor.
 - Connect to the source.
2. Supply and installation of wiring conductors, CAT6 UTP cable and PVC conduits/square box.
 - a. THHN stranded wire, Phelps dodge or approved equal.
 - b. PVC conduit orange pipe with sizes indicated on the plan.
 - c. CAT6 UTP cable should be guaranteed long PoE transmission distance and great flame resistance.
 - d. All cables should have no splicing point end to end to maintain integrity of the cable wire.
 - e. PVC conduit should be used to protect the cable wires wherein applicable.
3. Supply and installation of CCTV equipment.
 - a. Dome type camera, high quality colorful imaging with 4MP resolution 24/7, built-in microphone for real-time audio security with PoE. (27 units).
 - b. Bullet type camera, high quality colorful imaging with 2MP resolution 24/7, water and dust resistant (IP67) with 16 channel Network Video Recorder with 16 PoE ports, 2 SATA interface (3 units).
 - c. 2 sets of NVR, LCD monitor and router located on the plan.
4. Energize the circuit breakers including testing and commissioning of the CCTV system.
5. Consult plan and inspectors for details and extent of works.

XI. Plumbing Works

- A. Water Supply Line
 1. Adopt (PN 20) PPR pipes and fittings for water lines.
 - a. Supply and installation of 50 mm. PPR pipes with 2 pcs. stop valve from source to cistern tank (180 meters)
 - b. Use 50 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.
 - d. Supply and installation of two units stainless tank , CAPSULE type with partition thickness = 1.2 mm. ; length = 2.54 m. ; height = 2.34 m. ; dia. = 2.20 m.
 - e. Provide one unit cistern tank. (Size: 4.50 m. x 2.0 m. x 2.0 m. with partition)
 - f. Provide gate valve for every comfort room.
 - g. Provide water meter.
 2. Tapping to the source is included.
 3. No pipe should be embedded without testing it to leak.
- B. Sewer Line
 1. Adopt PVC heavy duty orange pipes and fittings for ventilation, downspout and the

- whole sewer line system including septic vault fittings.
 - a. Use R.C.P. for storm drainage.
 - b. Use 4" Ø for sewer lines and downspouts.
 - c. Use 2" Ø and 3" Ø for the lavatory.
- 2. Provide two units septic tank and one unit cistern tank.
- 3. Provide catch basin with RCP pipes.
- C. Fixtures
 - Supply and installation of the following:
 - a. 2 pcs. heavy duty faucet (stainless) at ground/front elevation.
 - b. 43 units of heavy duty spray bidet for every cubicle of comfort room.
 - c. 43 sets of Colored Water Closet (tank type)
 - d. 43 sets of Colored Lavatory with faucet
 - e. 18 sets of Colored Urinals.
 - f. 67 pcs. Floor drain strainer (brass)
 - g. 30 pcs. Roof drain strainer (stainless)
 - h. 12 pcs. Mirror (2.0 m. x 1.0 m. x 6.0 mm.)
 - i. 7 pcs. Mirror (0.8 m. x 1.0 m. x 6.0 mm.)

XII. Mechanical Works

1. Supply, Delivery and Installation, Testing and Commissioning of Brand New Passenger Elevator
 - a. General Specifications:
 - Type : Passenger Elevator Car
 - Rated Capacity : 15 Passenger, Range : 1,150 kg.
 - Speed : 1.6m/s
 - No. of Stop : Seven (7)
 - Floor Designations : G, 2, 3, 4, 5, 6, & Roof Deck
 - Travel Height : 24.50m.
 - Shaft Size : 2.70m. x 2.20m.
 - Power Supply : 230 volts, 3 phase, 50/60Hz
 - Power Supply Accessories: Automatic Voltage Regulator for each car
 - Counterweight Safety Gear : Required
 - b. Car lift Specifications:
 - Structural car size for 15 passengers
 - Door type : Single panel door
 - Door panel : High gloss stainless steel
 - Door sill : Extruded hard aluminum
 - Wall finished : Subject for the approval of the end user
 - c. Car and Landing Position Indicator:
 - Car position indicator : Light emitted (LCDTFT)
 - Light position indicator : Light emitted (LCDTFT)
 - d. Special Features:
 - Arrival Gong : On-Car (Female English VoiceRecording)
 - Intercom System : Two-way
 - With : Aluminum ladder pit, Out of switch control, Emergency power, Evacuation control, CCTV wiring provisions and Earthquake sensor.
 - e. Standard Control Features:
 - Alarm, Automatic return to main floor, Door final timer with alarm, Door pre-opening with chime sound
 - Emergency lights in car fully recessed, Light curtain, Overloading warning with alarm, Control system access for persons with disability (PWD) and Braille for visually impaired with railings.
2. Supply, Delivery and Installation, Testing and Commissioning of Brand New Generator, 125 KVA, 230V, Three phase, Diesel Generator Set - Silent type (1-unit). Provide housing for the generator.
3. Supply, Delivery and Installation, Testing and Commissioning of Brand New (inverter) Air Conditioning units
 - a. Window type (0.75HP) - 8 units
 - b. Floor mounted (1.50HP) - 2 units
 - c. Floor mounted (2.0HP) - 5 units
 - d. Floor mounted (3.0HP) - 39 units
 - e. Floor mounted (5.0HP) - 9 units
 - f. Wall mounted (1.50HP) - 1 unit

XIII. Fire Protection Works

1. Supply and Installation of the following:
 - Complete with all wirings/fittings and accessories:
 - a. 7 - units firehose, (50 meters) with cabinet
 - b. 7 - units Fire alarm bell with control
 - c. 1 - unit fire alarm control panel
 - d. 1 - unit fire pump (30.0 HP)
 - e. 1 - unit jockey pump (5.0 HP)
 - f. 1 - unit water pump (2.5 HP)

- g. 115 - units smoke detector
- h. Dry standpipe 2" with siamese fitting
- i. Sprinkler system
 - 610 pcs. Pendant type sprinklers
- j. 58 - units fire extinguisher (HCFC-123 10 lbs.) with wall bracket and sticker sign

XIV. Painting Works

The whole building should be painted both exterior and interior.

- A. Wood
 1. Apply two coats of polyurethane varnish sealer. Allow to dry overnight.
 2. Repair minor surface imperfection with glazing putty. Let dry then sand.
 3. Apply at least two coats of polyurethane varnish topcoat. Allow an overnight interval.
- B. Metal
 1. Apply epoxy primer by brush or spray. Allow to dry for 24 hours. Apply suitable putty on imperfections, then, sand.
 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 Latex flat 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. Building permits, necessary clearances and other government taxes are to be secured by the contractor.
- D. 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.
- E. 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. **Note: In the event that discrepancies on plans and scope of work occur, 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. 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.