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

BILL OF QUANTITIES

NAME OF PROJECT: CONSTRUCTION OF ACADEMIC BUILDING FOR COLLEGE OF MEDICINE TO INCREASE CARRYING CAPACITY
ABC: ₱ 55,750,000.00 **Bill of Quantities**
COLLEGE/UNIT/CAMPUS: COLLEGE OF MEDICINE

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	**Plumbing Works** (Pesos _____ _____ _____ and _____ centavos)				
X	**Mechanical Works** (Pesos _____ _____ _____ and _____ centavos)				
XI	**Fire Protection Works** (Pesos _____ _____ _____ and _____ centavos)				
XII	**Painting Works** (Pesos _____ _____ _____ and _____ centavos)				
	GRAND TOTAL				_____
	Write grand total in words	_____ _____ _____			

Submitted by: Date: _____

Name of Bidder/Bidder's Representative: _____

(Signature over Printed Name)

Position: _____

Construction Company/Contractor: _____

CAVITE STATE UNIVERSITY

SCOPE OF WORKS:

A. CONSTRUCTION OF ACADEMIC BUILDING FOR COLLEGE OF MEDICINE TO INCREASE CARRYING CAPACITY

1. The project should be finished for 300 calendar days.
2. Actual site inspection is a must.
3. The area should be cleared/cleaned before and after the construction work. Unusable used formworks, excessive soil fill and all other unwanted debris of construction works should be disposed properly.
4. Mobilization
   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. 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.
   C. Excavation/ Backfilling/ Clearing
      1. This work includes excavation for all column/ wall footings, tie beam, catch basin, cistern tank, septic tank and storm drainage.
   D. Additional fill and soil poisoning
      1. Provide additional fill.
      2. The area should be treated with termite proofing. Termite proofing should be conducted by accredited termite specialists.
      3. Provide gravel fill (0.05m. thick)

B. Technical Description

I. Concrete Works

A. Cast-in place concrete
   1. Use ready mix concrete.
   2. Provide metal decking (1.0mm) for all suspended slabs except comfort rooms.
   3. Concrete works include columns, footings, stiffener columns, slabs, beams, stairs, roof beams, lavatory counters, ledge/canopy, and all other components needed to complete the structure. Provide lintel beams for the opening of doors and windows. Use 0.15m x 0.20m reinforced with 10mm bars.
   4. Provide 50mm thick lean concrete subgrade base fill for all concrete structures with direct contact with soil.
   5. Strength of concrete to be adopted shall be 3,500 psi.
   6. Concrete works should be plain cement finish.
   7. Provide necessary tools and equipment needed for concrete works.
   8. 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.
   9. 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.

B. Steel reinforcement
   1. Use deformed bar grade 40.
   2. Provide 10mm Ø RSB at 0.30m on center both ways for slab on fill at ground floor.
   3. Provide necessary tools and equipment needed for steel works.
   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.

II. Masonry Works

1. Supply and installation of CHB reinforced with 10mm Ø deformed bar spaced at 0.60m on center every 3 layers.
    a. CHB 6” for the perimeter/exterior walls and septic tank.
    b. CHB 4” for interior/ partition walls.
2. Masonry works should be plastered plain cement.

III. Tile Works

1. Supply and installation of the following:
    a. Ceramic floor tile wooden design dry pressed 12mm x 20 cm x 120cm for the whole area of ground floor to roof deck to the building.
    b. Granite tiles with groove for the stairs.
    c. For the comfort rooms:
        - Use unglazed granite colored tiles 24” x 24” for flooring.
        - Use glazed ceramic colored tiles 12” x 24” for the entire wall (from floor to ceiling)
        - Use granite slab for all lavatory concrete counters including 0.60m of its wall.
    d. Use granite tiles for the background of signage and logo (Grid A to B/ Ground to Roof Deck).
    e. Bricks for the plant boxes at ground floor.
    f. Use pebbles # 5 for parking and ramps on the ground floor.
    g. Consult the end-user for color preference of tiles.

IV. 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 1” x 2” tubular bars for all ceiling runners and ceiling joist at 0.40m on center both ways.
    d. Provide 3” decorative wooden molding to all ceiling perimeter and corners.
    e. Provide ¼” x 1” flat bar for suspension hanger for every 1.20m 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 0.50m and all corners of the eaves.

V. Trusses and Roofing Works

A. Rafters

1. See plan for sizes of G.I. pipes 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 joints 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 CEE purlins 2” x 6” x 1.5mm thick at 0.60m on center.
6. Provide anchor bolts with nuts and washer for each support.
7. Provide 12mm Ø RSB with nut and washer for sag rod.

B. Roofing

1. Adopt sandwich panel 5 ribs (0.60m x 1,220mm x 50mm)
   Specifications:

Insulation Thickness	:	50mm
Insulation Materials	:	Polyisocyanurate (PIR) or approved equal
Metal Thickness	:	0.60mm

2. All attachments for roofing sheets and ridge roll shall be 4” tek screw for metal.
3. Provide water sealant for all attachments. Water sealant should be applied for both inside and outside the surface of the tek screw head.

VII. Miscellaneous Works

A. Doors

Supply and installation of the following:

- 10.0 sets D-1 (2.0m x 2.50m) Double swing door with ¼" thick reflective glass on a white powder aluminum frame; complete with heavy duty accessories, door jamb and lever type door knob with pre-painted finish
- 12.0 sets D-2 (1.0m x 2.10m) Steel panel door with 0.20m x 0.70m x ¼" clear peeping glass; complete with heavy duty accessories, door jamb and lever type door knob with pre-painted finish
- 6.0 sets D-3 (0.90m x 2.10m) Steel panel door; complete with heavy duty accessories, door jamb and lever type door knob with pre-painted finish
- 6.0 sets D-4 (1.0m x 2.10m) Steel panel door; complete with heavy duty accessories, door jamb and lever type door knob with pre-painted finish
- 10.0 sets D-5 (0.70m x 2.10m) Steel panel door; complete with heavy duty accessories, door jamb and lever type door knob with pre-painted finish
- 26.0 sets Phenolic toilet partition system with doors for the CR cubicle complete with all accessories such as indicator lock. (Ht. = 1.90m)

B. Windows

- 6.0 sets W-1 Awning type window on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 6.0 sets W-2 Fixed glass window on powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 24.0 sets W-3 Casement type window with fixed on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 3.0 sets W-4 Awning type window on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 12.0 sets W-5 Fixed glass window on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 5.0 sets W-6 Sliding type window on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 6.0 sets W-7 Awning type window on white powder coated aluminum frame with ¼" thick tinted glass; complete with all accessories
- 6.0 sets W-8 Curtain wall fixed panel window with awning window in an aluminum alloy framing on white powder coat finish and monolithic clear reflective tempered glass.

C. Aluminum cabinet with drawer for all counters at comfort rooms.

D. Stainless railing (Stairs, PWD ramp fire exit and fire escape ladder). Provide 1.50mm thick (304) stainless tubing for railings. Use 2" x 2", 1" x 2" and 1" x 1" tubing.

E. Provide fire escape stairs.

F. Aluminum louver with push button manual operation aluminum roll up grills shatter at ground floor (26 sq.m.)

G. 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 ½" stainless build-up sidings and stainless screw on back with aluminum composite panel cladding background "COLLEGE OF MEDICINE" with logo.

VIII. Electrical Works

1. Supply and installation of panel board and circuit breakers in accordance with the schedule of loads and electrical plans. Note: Bolt-on type, Nema Standard should be used. Strictly follow the color coding of conductor wires.
2. Supply and installation of conductors and PVC conduit/junction box from main panel to convenience outlet/ light outlet.
   a. PVC conduit orange pipe.
   b. RSC metal conduit for exposed conduits and service entrance.
   c. Utility and junction boxes should be PVC and deep type.
3. Supply and installation of electrical fixtures/ switches/ outlets and other electrical devices in accordance with the plans.
   a. Wide series switches (Bticino, National or its equivalent)
   b. Two gang convenience outlets, universal type with grounding (Bticino, National

or its equivalent)
c. 2-18W LED light tube with diffuser (72 sets)
d. 1-9W LED light tube with diffuser (23 sets)
e. 9W LED pin light (34 sets)
f. MCCB with NEMA 3R for ACUs power supply (20 sets).
g. Heavy duty twin head emergency light (23 sets)

4. Supply and installation of Manual Transfer Switch (2-600 AT, 700 AF, mechanical interlock)
5. Supply and installation of the following:
   a. Amorphous distribution transformers 167 kVA, 13.8 kV/230V, 60 Hz, pole mounted (3 units) complete with transformer accessories (fuse cut-out, lightning arresters, fuse links, risers, connectors, etc.). Provide a certification and warranty from the supplier that the transformer units are brand new. See electrical plan for complete specification.
   b. Two (2) units electrical concrete post and its dressing/accessories (35').
   c. One (1) unit electrical concrete post and its dressing/accessories (45').
   d. Construction of service entrance post with electric meter (watt-hour meter). 3 phase, CT rated. see electrical plan for details.
   e. Include testing and commissioning.
   f. Consult inspectors for details and extent of work.
6. Tapping to the source is included.

IX. Plumbing Works

A. Water Line Supply
   1. Adopt (PN 20) PPR pipes and fittings for water line
      a. Supply and installation of 50 mm PPR pipes with 2 pcs stop valve from source to cistern tank (180 meters)
      b. Use 50mm Ø from cistern tank to water tank and 25mm Ø from water tank to comfort rooms.
      c. Use 20mm Ø for pipes inside the comfort room.
      d. Supply and installation of two (2) units stainless tank, capsule type with partition; complete with fittings. Dimensions: thickness = 1.20m; length = 2.54m; height = 2.34m; diameter = 2.20m
      e. Provide one unit cistern tank with partition (size: 3.0m x 2.0m x 2.0m)
      f. Provide gate valve for every comfort room
      g. Provide a 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 heavy duty PVC orange pipes and fittings for ventilation, downspout and the whole sewer line system including septic vault fittings.
      a. Use RCP for storm drainage. See plan for details.
      b. Use 4" Ø for sewer lines and downspout
      c. Use 2" Ø and 3" Ø for the lavatory.
   2. Provide two (2) units septic tanks.
   3. Provide a catch basin with RCP pipes and steel grating. See plan for details/

C. Fixtures

   Supply and installation of the following:
   1. 4 pcs heavy duty stainless faucet at ground/front area of the building.
   2. 30 units of heavy-duty spray bidet for every cubicle of comfort room
   3. 30 sets of colored water closet (tank type)
   4. 21 sets of colored lavatory under the counter with faucet
   5. 6 sets of colored lavatory wall hang with faucet
   6. 10 sets of colored urinal with phenolic partition
   7. 18 pcs brass floor drain strainer
   8. 21 pcs stainless roof drain strainer dome type
   9. 6 pcs Mirror (2.0m x 1.0m x 6.0mm)
   10. 6 pcs mirror (0.80m x 1.0m x 6.0mm)

X. 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 passengers, Range: 1,150 kg
      Speed: 1.6m/s
      No. of stops: Three (3)
      Floor designations: G,1,3 & Roof deck
      Travel height: 14.50m
      Shaft size: 2.90m x 2.40m
      Power Supply: 230 volts, 3 phase, 50/60 HZ
      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 Voice Recording)
      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 light in car fully recessed, light curtain, overloading warning with alarm, control system access for person with disability (PWD) and Braille for visually impaired with railings
2. Supply, delivery and installation, testing and commissioning of brand-new (inverter) air conditioning units
   a. 12 units Ceiling mounted (inverter) split type (2.50HP)
   b. 8 units floor mounted (inverter) split type (6.0HP)

XI. Fire Protection Works

1. Supply and installation of the following (complete with wirings/fittings and accessories):
   a. 4 units fire hose (50 meters) with cabinet
   b. 4 units fire alarm bell with control
   c. 1 unit addressable 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. 41 units smoke detector
   h. 2 units heat detector
   i. Dry stand pipe 2” with Siamese fitting
   j. Sprinkler system (210 pcs pendant-type sprinkler)
   k. 10 units fire extinguisher (HCFC-123 10 lbs) with wall bracket and sticker sign
   l. 4 units fire extinguisher ceiling type (HFC 236fa for ground floor and roof deck

XII. Painting Works

The whole building should be painted both exterior and interior.

A. Metal

1. This works includes painting of all metal including roof framing, ceiling joist/runner and all metal decking.
2. Apply epoxy primer by brush or spray. Allow to dry for 24 hours. Apply suitable putty

on imperfections, then sand.

3. Apply at least two (2) coats of Quick Dry Enamel in the desired color.

B. Concrete

1. Treat the surface with concrete neutralizer. Mix one part with 16 parts of 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 (2) coats of colored dirt resisting semi-gloss latex factory-mixed paint.
   Note: Color of paint will depend upon the preference of the end-user. Paints and its accessories should be BOYSEN or approved equal.

E. 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.

F. Building permits, necessary clearances and other government taxes are to be secured by the contractor. All other requirements should be provided by the contractor. Conduct confirmatory soil boring tests.

G. 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.

H. 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.**

I. 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.

J. 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**.**

K. Construction safety and health program as well as construction schedule (PERT/CPM/S-Curve) shall be provided by the winning bidder.

L. 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.

M. 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.