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

BILL OF QUANTITIES

IMPROVEMENT OF COLLEGE OF NURSING TO INCREASE CARRYING CAPACITY
2nd POSTING
ABC: ₱ 50,000,000.00 **Bill of Quantities**
COLLEGE/UNIT/CAMPUS: COLLEGE OF NURSING

Item No.	Description	Unit	Quantity	Unit Price (Pesos)	Amount (Pesos)
I	PRELIMINARY WORKS AND 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 & ROOFING WORKS (Pesos _____ _____ _____ and _____ centavos)				
VII	MISCELLANEOUS WORKS (Pesos _____ _____ _____ and _____ centavos)				
VIII	ELECTRICAL WORKS (Pesos _____ _____ _____ and _____ centavos)				

IX	PLUMBING WORKS (Pesos _____ _____ _____ and _____ centavos)				
X	FIRE PROTECTION WORKS (Pesos _____ _____ _____ and _____ centavos)				
XI	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: _____

SCOPE OF WORK:

A. **IMPROVEMENT OF COLLEGE OF NURSING TO INCREASE CARRYING CAPACITY - 2nd POSTING**

GENERAL NOTES:

1. The project should be finished in 240 calendar days.
2. Actual site inspection is a must.Verify actual condition of site.
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. Preliminary Works and Earthworks

A. Mobilization/Demobilization

Provide the following:

1. Billboard with project information
2. Bunkhouse with temporary office
3. Temporary comfort rooms
4. Site temporary enclosure may be blue sack or any suitable materials that may enclose the workplace.
5. It includes cleaning up of site, clearing, hauling and disposal of waste and construction debris.
6. Any excess materials resulting from all earthwork operations not required or unsuitable for backfill as directed by the project inspector, shall be disposed of by the contractor at his expense.

B. Demolition Works

1. Demolition work for minor structures in front of the building is included as well as the chipping works for anchorage of new structures to the existing structure.

C. Earthworks

a. Excavation/ Backfilling/ Clearing

1. This work includes excavation for all columns, wall footings, tie beams, catch basins, cistern tank, and septic tank.
2. 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.

b. Additional Fill and Soil Poisoning

1. Provide additional fill.
2. Gravel fill should be 0.50m thick.
3. The area should be treated with termite proofing. Termite proofing should be conducted by an accredited termite specialist.
4. The contractor shall provide a service guarantee covering the treatment of termite infestation or the repetition of the above termite control services without extra cost to the end-user if any manifestation of recurrence or infestation occurs during the guarantee period of one year.

II. Concrete Works

A. Use ready mix concrete.

1. Concrete works include columns, footings, stiffener columns, slab, beams, roof beams, 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 0.20m reinforced with 10mm Ø bars.
2. Strength of concrete to be adopted shall be **3,500 psi.**
3. Concrete works should be plain cement finish.
4. Column details from 4th floor to roof beam shall use the third floor column schedule.
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. Provide 10 mm Ø deformed bars at 0.30m on center both ways for slab on fill at ground floor.
   2. Use deformed bar grade 40.
   3. Provide necessary tools and equipment needed for steel works.
   4. See plan for details and extent of work.
   5. 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.

C. Waterproofing works
   1. Waterproofing for all comfort rooms shall be included.

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 6" for the perimeter/exterior walls.
      b. CHB 4" for interior/partition walls.
   2. Masonry works should be plastered plain cement.

IV. Tile Works

Supply and installation of the following:

1. Ceramic floor tile 16" x 16" (locally made) from second floor to fourth floor (grid A to V/4 to 6) and the whole area of roof deck of the building.
2. For the comfort room:
   a. Unglazed colored tiles 16" x 16" 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.
3. Bricks for the zocalo wall at ground floor.
4. Pebbles #5 for parking and ramps on the ground floor.
5. 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 the roof deck.
   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 rod suspension hanger for every 1.20 m. both ways.
   e. Use pre-painted spandrel 4" for the whole area of eaves.
   f. Provide ceiling ventilation for every 1 meter and all corners of the eaves.

VI. Trusses and Roofing Works

A. Trusses:
   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.
   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. Provide anchor bolts with nuts and washer for each support.
   6. Provide 12 mm. O with nut and washer for sag rod.
   7. Use CEE purlins 2 - 2" x 6" for fascia board.

B. Roofing:
   1. Adopt gauge 24 (0.6 mm.) rib type roofing sheet.
   2. Adopt gauge 26 x 18 (0.5 mm.) stainless ridge roll.
   3. Adopt gauge 26 x 18 (0.5 mm.) stainless valley gutter.

4. Adopt gauge 26 (0.5 mm.) stainless gutter. (8" x 7 1/4")
5. Adopt gauge 26 (0.5 mm.) prefabricated and pre-painted fascia cover.
6. All attachment for roofing sheet and ridge roll shall be 4" tek screw for metal.
7. 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
   - **48.0** sets of D-1 0.90m x 2.10m Panel Door with 0.20m x 0.70m x ¼" thick clear peeping glass and 0.05m x 0.125m KD door jamb
   - **2.0** sets of D-2 Double glass door in powder coated aluminum frame with ¼" thick reflective glass
   - **4.0** sets of D-3 0.80m x 2.10m Steel doors complete with heavy duty accessories
   - **8.0** sets of D-4 0.60m x 1.60m Phenolic door panel complete with heavy duty accessories

   Note: All door knobs to be installed are heavy-duty lever type.
2. Windows
   - **110.0** sets of W-1 Sliding-type windows in powder coated aluminum frame with 1/4" thick tinted glass.
   - **1.0** sets of W-2 Curtain wall fixed panel glass window with awning in aluminum alloy framing on powder coated finish and monolithic clear reflective tempered glass.
   - **2.0** set of W-3 Sliding-type windows in powder coated aluminum frame with 1/4" thick tinted glass.
3. Stainless Signage
   a. 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 NURSING**"

VIII. Electrical Works

1. Supply and Installation of panel boards and circuit breakers in accordance with the plan.
   a. **1 set** Panel board LPP1, (1 Main, 4 Branches)
      Main 1-20AT, 50AF, 3P, 230V,
      Branches 2-15AT 2P, 2-space
   b. **3 sets** Panel board LPP2,LPP3 & LPP4, (1 Main, 8 Branches)
      Main 1-50AT, 50AF, 3P, 230V,
      Branches 3-15AT 2P ; 4-20AT 2P, 1-space
   c. **1 set** Panel board LPP5 (1 Main, 8 Branches)
      Main 1-50AT, 50AF, 3P, 230V,
      Branches 5-15AT 2P; 2-20AT 2P, 1-space
   d. **3 sets** Panel board ACP2, ACP3 & ACP4 (1 Main, 22 Branches)
      Main 1-200AT, 300AF, 3P, 230V,
      Branches 20-30AT 2P, 2-space
   e. **1 set** Panel board ACP5 (1 Main, 22 Branches)
      Main 1-600AT, 700AF, 3P, 230V,
      Branches 20-70AT 2P, 2-space
   f. **1 set** Panel board DP3 (1 Main, 10 Branches)
      Main 1-900AT, 1000AF, 3P, 230V,
      Branches1-20AT 3P; 5-50AT 3P; 3-200AT 3P; 1-600AT 3P
   g. **1 set** Panel board MDP (1 Main, 6 Branches)
      Main 1200AT, 1200AF, 3P, 230V
      Branches 1-15AT 2P; 1-20AT 2P; 1-400AT 3P; 1-500AT 3P; 1-900AT 3P, 1-space
   h. **60 sets** 30 AT, 2P, 230V Circuit breaker w/ NEMA 3r Panel enclosure for ACU
   i. **20 sets** 70 AT, 2P, 230V Circuit breaker w/ NEMA 3r Panel enclosure for ACU

2. Supply and installation of copper conductor wires and PVC conduit/junction box/utility box in accordance with the plan. Include reconnecting of existing feeder lines of DP1 and DP2 to MDP (see E-2 for details).
    a. PVC conduit orange pipe embedded all throughout.
    b. IMC/EMT/RSC pipe for service entrance and exposed conduit pipe.
    c. Utility and junction boxes should be PVC and deep type.
    d. THHN and THWN copper conductor wires. 99.99% copper and fire retardant. Phelp dodge or Philflex.
3. Supply and Installation of electrical fixtures/switches/outlets and other electrical devices in accordance with the plan.
    a. Wide series switches (Bticino, National or its equivalent)
    b. 2-gang universal convenience outlets with ground (Bticino, National or its equivalent)
    c. 2-18W LED light tube w/ diffuser (317 sets)
    d. 1-18W LED light tube w/ diffuser (35 sets)
    e. 1-9W LED light tube w/ diffuser (15 sets)
    f. Heavy duty twinhead emergency light with 1-gang outlet ea. (45 sets)
    g. 12W, LED downlight, recessed (21 sets)
4. Supply and Installation of 2-900AT, 1000AF Manual Transfer Switch with housing.
5. Supply and installation of 3-167 kVA distribution transformers and primary concrete poles.

    Include retirement of existing DTs and energization, testing and commissioning of new distribution transformers.

    Submit transformer testing results and certifications to project inspectors.
    a. Distribution transformer 167 kVA, 13.8 kV/230V, 60 Hz, pole mounted (3 units) complete with transformer accessories.
    b. 13.5m concrete pole, class 3A, complete with pole dressing, insulators, grounding, pole steel band, connectors and accessories.
    c. Provide necessary equipment for the pole erection and wiring installation.
6. Construction of service entrance post with 3 phase electric meter (Watt-hour meter) CT rated. See plans for details.
7. Construction of an electrical house with details indicated in the plan. Details/specification of door and window indicated below.
    a. **1 set** sliding glass window with complete accessories. 1 meter x 1 meter
    b. **1 set** solid panel door with complete accessories. 0.8 meter x 2.1 meter
8. Supply and installation of ACUs including its refrigerant, copper tubing, brackets and accessories. Details and specification of units indicated below.
    a. **34 sets** of 2.0 HP, High Wall OPTIMA Inverter Series, SPLIT TYPE, ACU, 230V, 1Ph, 60Hz, 18,990 COOLING CAPACITY kJ/hr, 1,760 POWER INPUT Watts, ENERGY EFFICIENCY, R32 REFRIGERANT
    b. **11 sets** of 6.0 HP, DIGITAL INVERTER TECHNOLOGY, ACU, 230V, 1Ph, 60Hz, 47,500 COOLING CAPACITY kJ/hr, 4,320 POWER INPUT Watts, ENERGY EFFICIENCY, R410A REFRIGERANT
9. Include tapping to the source, electrical testing and commissioning.
    a. Continuity test.
    b. Insulation test.
    c. Phase sequence test
10. 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. In addition, electrical permits shall be up to securing approved CFEI.

IX. 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 (water tank).
        b. Use 25 mm. Ø from water tank to comfort rooms.

c. Use 20 mm. Ø for inside of comfort rooms.
d. Provide gate valve for every comfort room.

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 (Sanimold type with O-ring or its equivalent) for ventilation, downspout and the whole sewer line system including the septic vault fittings.
   a. Use R.C.P. for storm drainage.
   b. Use 4" Ø for sewer lines and down spout.
   c. Use 2"Ø and 3" Ø for lavatory.
2. Provide storm drainage system for the whole building (Grids 1 & 6). Downspout should be installed in every column.
   Note: For Grid 1, connect the downspout from the gutter to the existing downspout at fourth floor.
3. Provide two units septic tank.
4. Provide catch basin with RCP pipes.

C. Fixtures

Supply and Installation of the following:

1. 5 pcs. heavy duty faucet (stainless).
2. 8 units of heavy duty spray bidet for every cubicle of comfort room.
3. 8 sets of Colored Water Closet (tank type)
4. 5 sets of under-the-counter lavatories complete with all accessories
5. 2 units concrete counter finished with granite tiles
6. 3 sets of Colored Urinal with phenolic partition with stainless brackets.
7. 11 pcs. Floor drain strainer (brass)
8. 1 pc. Mirror (2.0 m. x 1.0 m. x 6.0 mm.)
9. 1 pc. Mirror (0.8 m. x 1.0 m. x 6.0 mm.)
   Note: All fixtures must be HCG, American Std, or approved equivalent complete with all accessories.

X. Fire Protection Works

Supply and Installation of dry standpipe with fire hose and cabinet:

1. 10 - units firehose, (50 mtrs.) with cabinet
2. Dry stand pipe 3" with siamese fitting

XI. Painting Works

The whole new structure 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.