

## **XII. Reinforcing Steel Bars**

This item shall consist of furnishing, bending, fabricating, and placing of steel reinforcement of the type, size, shape, and grade required per standard specifications and in conformity with the requirements shown on the plans or as directed by the Engineer.

1. The Reinforcing Steel Bars shall conform to the latest specification of the ACI and the National Structural Code of the Philippines with a minimum grade equivalent to Grade 40 (276 MPa) unless otherwise specified or as directed by the Engineer.
2. Shop drawings/ Rebar cutting list shall be submitted by the Contractor for TPC approval before rebar fabrication and installation.
3. Submission of shop drawings/Rebar Cutting list for evaluation/ approval shall be submitted 7 days before rebar fabrication.
4. All cut off points of RSB in all tie beams, suspended beams, and girder must be observed as specified on plans and as per approved design and as per standard construction practices and methodology.
5. Reinforcing Steel bars shall undergo material testing for strength verification.
6. The Contractor shall submit to the TPC and PMC a mill certificate of reinforcing steel bars for yield strength verification and its content.
7. Steel bars shall not be coated with form oil.
8. Standard hooks, Splicing, and Development length shall be observed on site.
9. All Hooks for stirrup/lateral ties and main reinforcement shall be seismic hooks.
10. This scope includes all reinforcing bars required for reinforced concrete works including other items where it is necessary as per plan and specifications.

## **XIII. Structural Concrete (Incl. Lean Concrete)**

This item shall consist of furnishing, placing, and finishing concrete in all structures except pavements per this Specification and conforming to the lines, grades, and dimensions shown on the plans. Concrete shall consist of a mixture of Portland cement, fine aggregate, coarse aggregate, admixture when specified, and water mixed in the proportions specified or approved by the Engineer.

1. Structural concrete must attain a minimum compressive strength  $f_c' = 21.0$  MPa (3000 Psi) at 28 days and as per structural specification.
2. Use clean fine aggregates & crushed gravel (maximum 19mm $\emptyset$ ) as per plan and structural specification for Structural members. The use of uncrushed gravel is prohibited.
3. Concrete pouring of columns shall be terminated anywhere within the upper thirds of the column clear height.
4. Monolithic concrete pouring of slab on fill/suspended slab/girder and beams shall be observed.
5. This scope includes the concrete pouring of the framing system before masonry works.
6. Proper concrete sampling and testing shall be done on-site as per specifications.
7. Proper concrete curing must be observed on site.
8. Lean concrete must be provided for column footings with a minimum thickness of 50mm.
9. Proper concrete pouring methodology shall be observed on-site to avoid the segregation of aggregates.
10. Structural Concrete shall attain its acceptable strength before Stripping/Dismantling of bottom forms.
11. This scope also includes the construction of foundation, column footings, columns, tie beams, girders, beams, slab-on-grade, suspended slabs, canopies, and other items necessary as per plan and specifications.

## PART C. ARCHITECTURAL FINISHES & OTHER CIVIL WORKS

### XIV. Masonry Works

Contractor shall supply all the specified materials, expertise, supervision, labor, layout, equipment, tools, scaffold and miscellaneous items required for a complete masonry job in accordance with the drawings, plans and specifications as specified herein. All masonry works shall be performed by skilled craftsmen in a workmanlike manner throughout and shall be in accordance with all relevant codes, standards and regulations as deemed necessary.

1. Concrete Hollow Blocks (CHB) shall be applicable for non-load-bearing applications as specified in the drawings. CHB shall have fine, even texture, well defined edges and shall be sound and free from cracks and other defects.
2. Masonry units should be delivered and stored on wooden pallets to prevent moisture absorption from the soil and covered with water-repellent tarps or plastic covers to prevent wetting, staining, or discoloration.
3. Aggregates should be protected against contamination from rain and from blowing dust and soil during construction to prevent staining or reduced mortar bond strength.
4. Different aggregates should be stored in separate stockpiles and all aggregate stockpiles covered with a waterproof tarp or plastic covering when not in use.
5. CHB shall be laid with full mortar coverage on both horizontal and vertical shells. Requirements for the mortar are as follows:
  - Portland Cement: ASTM C150, Type 1
  - Sand: Clear, Sharp, graded from fine to coarse, ASTM C-144
  - Water: Clean and potable
  - Mixture: Class "B" Mixture
6. If needed, provide a guide chord stretched out from end to end to establish desired CHB alignment.
7. After erecting 4 layers of CHB, observe 3 to 4 hours' interval before proceeding with the next layer of CHB.
8. A 20mm thick gap shall be provided in between walls and columns, walls and beams, walls and slab on top.
9. Provide 20mm thick Styropor as joint filler between walls and columns/ walls and beams/slab on top.
10. The contractor shall establish and ensure desired CHB alignment and plumbness. The Contractor shall reconstruct any inadequate work.
11. This includes all masonry works required for the completion of the building as well as parapet walls and other decorative masonry works.
12. CHB shall be piled on plank platforms in dry locations, and shall be protected with appropriate cover or other suitable material until laid in the wall. Reinforcement and other metal items shall be protected from the elements. All mortar materials shall be stored under cover in a dry place so that damage from moisture, freezing and other sources are prevented.

#### XIV.A 4" thk. Masonry Wall (Incl. Reinforcing Steel Bars)

- a. Use 4" non-load bearing concrete hollow blocks mainly for interior walls indicated in the plans.
- b. This item also includes reinforcing steel bars of concrete hollow blocks. Use 10mm diameter RSB spaced at 600mm for vertical reinforcement and 10mm diameter RSB at every three (3) layers of CHB for horizontal reinforcement.
- c. Use gauge no. 16 G.I. tire wire to secure the steel bars into its designated position.

#### XIV.B 5" thk. Masonry Wall (Incl. Reinforcing Steel Bars)

- a. Use 5" non-load bearing concrete hollow blocks for exterior walls indicated in the plans.
- b. This item also includes reinforcing steel bars of concrete hollow blocks. Use 10mm diameter RSB spaced at 600mm for vertical reinforcement and 10mm diameter RSB at every three (3) layers of CHB for horizontal reinforcement.
- c. Use gauge no. 16 G.I. tire wire to secure the steel bars into its designated position.

## XV. Doors

This Item shall consist of furnishing all aluminum glass door, panel doors, flush doors, and frameless glass door materials, labor, tools and equipment required in undertaking the proper installation as shown on the Plans and in accordance with this Specification.

1. This scope of work includes fabrication and installation of Doors including all items required to be fabricated like doorjamb and provision of complete accessories including heavy duty handle set and locking devices.
2. This scope of work includes provision of Doors and door frames conforming to the sizes, dimensions and designs as shown and specified in the schedule of doors or as per the bill of materials.
3. Contractor to ensure that all materials to be used shall be in accordance with the required specifications.
4. Provide glass panels conforming with the recommended design, thickness, type, and color as shown in the detail and schedule of doors.
5. All doors shall be provided with corresponding heavy-duty stainless handle set, locking devices, as well as fixing accessories such as stainless door hinges, as shown in the detail and schedule of doors.
6. All door sizes and design shall be verified prior to fabrication and installation.
7. Frame and panel members shall be fabricated from extruded aluminum sections true to details with clean, straight, sharply defined profiles and free from defects impairing strength or durability.
8. Screws, nuts, washers, bolts, rivets and other miscellaneous fastening devices shall be made of non-corrosive materials such as aluminum, stainless steel, etc.
9. Hardware for fixing and locking devices shall be closely matched and adaptable to the type and method of opening.
10. For all assembly and fabrication works the cut ends shall be true and accurately jointed, free of burrs and rough edges. Cut-out recesses, mortising, grinding operation for hardware shall be accurately made and properly reinforced when necessary.
11. This scope includes provision of all doors as listed below:

### XV.A Panel Door

GENERAL SPECIFICATIONS	DOOR TAG	NO. OF SET	DIMENSIONS/SPECIFIC DETAILS
<b>Panel Type Door with Vision</b> 900mmW x 2100mmH Luan Panel Door on Luan Door Jamb with 6mm thk. Clear Vision Glass; Amerilock Cylindrical Door Knob; and complete hardware accessories (Note: Use Kiln Dried Luan Wood or equivalent)	<b>D4</b>	<b>4 sets</b>	900mmW x 2100mmH with 6mm thk. Fixed Clear Vision Glass
<b>Double Swing Panel Type Door with Vision</b> 1000mmW x 2100mmH Double Swing Luan Panel Door on Luan Door Jamb with 6mm thk. Clear Vision Glass; Stainless-Steel Heavy-Duty C - Type Door Handle w/ Plate; Kick Plate; Door Stopper & Closer; and complete hardware accessories (Note: Use Kiln Dried Luan Wood or equivalent)	<b>D4'</b>	<b>1 set</b>	1000mmW x 2100mmH with 6mm thk. Fixed Clear Vision Glass

<p><b>Panel Type Door</b> 900mmW x 2100mmH Lauan Panel Door on Lauan Door Jamb with Stainless Steel Cylindrical Door Knob; Night Latch; and complete hardware accessories (Note: Use Kiln Dried Lauan Wood or equivalent)</p>	<b>D5</b>	<b>6 sets</b>	900mmW x 2100mmH
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#### XV.B Solid-Core Flush Doors

GENERAL SPECIFICATIONS	DOOR TAG	NO. OF SET	DIMENSIONS/SPECIFIC DETAILS
<p><b>Flush Door</b> 800mmW x 2100mmH Solid Core Flush Door on Lauan Door Jamb with Stainless Steel Amerilock Cylindrical Door Knob; and complete hardware accessories (Note: Use Kiln Dried Lauan Wood or equivalent).</p>	<b>D6</b>	<b>12 sets</b>	800mmW x 2100mmH
<p><b>Flush Door</b> 700mmW x 2100mmH Solid Core Flush Door on Lauan Door Jamb with Stainless Steel Amerilock Cylindrical Door Knob; and complete hardware accessories (Note: Use Kiln Dried Lauan Wood or equivalent)</p>	<b>D7</b>	<b>9 sets</b>	700mmW x 2100mmH

#### XV.C Glass Doors

GENERAL SPECIFICATIONS	DOOR TAG	NO. OF SET	DIMENSIONS/SPECIFIC DETAILS
<p><b>Frameless Glass Door (Swing Type)</b> 1600mmW x 2100mmH x 12mm thk Frameless Tempered Clear Glass Door + two (2) 700mmW x 2100mmH x 12mm thk Fixed Tempered Clear Glass Panel on both sides including 38mmØ SS304 Stainless Steel H-Type Door Handle Set; Yale P010 Bottom Patch Fitting; Yale P020 Top Patch Fitting; and Yale L010 Stainless Steel Corner Patch Lock</p>	<b>D1</b>	<b>1 set</b>	1600mmW x 2100mmH x 12mm thk Swing Type Frameless Glass Door with 700mmW x 2100mmH x 12mm thk Fixed Tempered Clear Glass Panel on both sides