



# DACY Architects/ Planners Co.

## TECHNICAL SPECIFICATIONS

**DIVISION 06  
WOOD AND PLASTIC**

**SECTION 06100  
ROUGH CARPENTRY**

**PART I - GENERAL**

**1.1 SCOPE**

This section shall include all labor, materials, equipment and the performance of all operations necessary for the completion of rough carpentry and framing works as indicated in drawings and these specifications

**1.2 SUBMITTALS**

1.2.1 **SHOP DRAWINGS:** Submit shop drawings for approval showing essential dimensions and construction details in connection with rough carpentry and framing.

1.2.2 **SAMPLES:** Submit samples of materials for approval of the Architect. Match these samples with the delivered materials prior to use.

**1.3 DELIVERY AND STORAGE**

Deliver materials to site in undamaged condition. Store materials to ensure proper ventilation and drawings and protect against dampness before and after delivery.

**1.4 GENERAL REQUIREMENTS**

1.4.1 **QUALITY OF LUMBER:** Use lumber of best grade available for the respective kinds for various parts of work. Lumber must be well-seasoned, thoroughly dry and free from loose or unsound knots, cups, shakes and other imperfections.

1.4.2 **SUBSTITUTIONS OF LUMBER:** Written approval of the Architect is required in substituting the kind of lumber specified on plans. In case of substitution, a reduction of Contract price is applied equal to the difference in costs of the two kinds of lumber using the current market prices. Substitution made without prior approval will be rejected, removed and changed at the Contractor's expense.

**PART II - PRODUCTS**

**2.1 MATERIALS**

Conform to the following specifications all materials for carpentry and use whenever called for in the plans or noted in the schedule.

**2.1.1 KINDS OF LUMBER:**

a> **KILN DRY TANGUILE:** For wood frames, studs, ceiling joists, reed facing, and all other lumber and wood work not covered by this specification.

b> **NARRA:** For panel doors and door casings, special mullions and muntins.

2.1.2 **PLYWOOD:** Use ordinary-cut tanguile veneers, water resistant, Class B conforming with commercial standard CS 45, locally manufactured. Use 6, 12 or 19mm thick as indicated in drawings.

2.1.3 **CEMENT BONDED BOARDS:** Use 8, 10, or 12mm thick, as indicated on drawings, "Omniboard" brand or approved equivalent. Use nails and fasteners as recommended by manufacturer.

**2.1.3 FASTENERS:**



- a> **NAILS:** Use locally manufactured common wire or finishing nails as required, smooth shank and zinc coated.
  - b> **SCREWS:** Use the best available commercial quality, brass or chromium plated.
- 2.1.4 **GLUE:** Use waterproofed glue of resorcinol formaldehyde synthetic resins or flue as used in the manufacture of the plywood suitable to hot process, malemineura type.

### PART III - EXECUTION

#### 3.1 INSTALLATION

##### 3.1.1 WOOD FRAMING AND ROUGH CARPENTRY:

- a> Fit framing closely, set accurately and secure rigidly in place, provide anchor bolts with nuts and washers, straps and the rods as required.
- b> Cut and fill neatly to accommodate other work as required.
- c> Use well seasoned, straight, square-edge stacks, free from loose or unsound knots, bark edges or other defects.
- d> Make width of plates for walls and partitions the same as the studs to have horizontalities.
- e> For anchors, connectors and fasteners not indicated or specified, use types and sizes necessary to suit field conditions. Unless otherwise indicated or specified, adopt Manufacturer's recommendation for size, type and spacing of nails, screws and bolts.

Use zinc-coated hardware for all works exposed to weather or in contact with concrete and apply a brush coat of bituminous paint to lumber surfaces in contact with concrete.

### PART IV - SCHEDULE OF SPECIFICATIONS

#### 4.1 SCOPE

- 4.1.1 Lumber of approved quality required for the various parts of the work shall be used for the proposed structure.
- 4.1.2 Kiln-dried Tanguile for all nailers.

### SECTION 06200 FINISH CARPENTRY



## PART I - GENERAL

### 1.1 SCOPE

This section includes all materials, labor, equipment and the performance of all operations necessary for the completion of all finishing carpentry and millwork indicated on plans and specifications.

### 1.2 GENERAL REQUIREMENTS

1.2.1 **DELIVERY AND STORAGE:** Deliver materials to site in undamaged condition. Stack lumber and millwork to ensure proper ventilation and drainage. Protect materials against dampness before and after delivery. Store under cover in well-ventilated enclosure, not exposed to extreme changes of temperature and humidity. Do not store finished lumber and millwork in buildings until concrete, masonry and plaster are dry.

1.2.2 **SIZES AND PATTERN:** Work lumber to pattern or shapes indicated. Shaped material shall conform to the standard patterns indicated in current grading rules for the species.

1.2.3 **MOISTURE CONTENT:** The maximum moisture content of treated or untreated finish lumber and millwork shall be 15% at the time of delivery to the job site.

### 1.3 SUBMITTALS

1.3.1 **SAMPLES:** Furnish for approval of the Architect samples of each type of materials with quantities as requested. Match these samples with the delivered materials prior to installation

1.3.2 **SHOP DRAWINGS:** Furnish shop drawings and cuts as necessary for the fabrication and erection of prefabricated millwork. Show all detail and erection data.

Indicate the materials and species, arrangements, profiles of mouldings, thickness, sizes of parts, fastenings, clearances, assembly/erection details and necessary connections to work of other trades. Do not deliver to site until shop drawings and cuts have been approved and returned to the Contractor. contractor shall be responsible for all errors in detailing and fabrication and for correct fitting of mill fabricated items.

## PART II - PRODUCTS

### 2.1 MATERIALS

2.1.1 **LUMBER:** Materials for finishing and mill work shall be selected from the following specie: Tanguile, Apitong, Narra or as directed by the Architect. For either stain or natural finish millwork, the grade shall be of the highest of the specie. For the paint finish mill work, the grade shall be of the second grade of the specie.

2.1.2 **PLYWOOD:** Conforming to commercial standard CS 45, locally manufactured.

a> For plywood to be painted, use ordinary rotary-cut tanguile veneers, water resistant, Class B.

b> For plywood to be varnished or to receive wallcovering, use ribbon-grained tanguile veneers water resistant, Class B.

## PART III - EXECUTION

### 3.1 WORKMANSHIP



All wood finish and millwork shall be true to details, clean and sharply defined. Panels must be set to allow for free movement in case of swelling or shrinkage. Means of fastening various parts together shall be concealed.

## 3.2 ERECTION

### 3.2.1 FINISH

- a> Mill, fabricate and erect interior finish of wood as indicated in drawings. Machine-sand at the mill and hand-sand smooth at the job.
- b> Interior trim set against concrete, masonry or wood shall be separated with 6 mm stone-cut joints.
- c> Intersecting plywood veneers or plywood panels shall be finished with a corner trim of wood with the same specie and finish as the plywood.
- d> Make joints tight and in a manner to conceal shrinkage. Secure trim with fine finishing nails, screws or glue where required.
- e> Set nails for putty stopping.
- f> For woodworks to receive pickle finish, bleach wood by using a commercial "two-way" bleach. Apply a coat of silver gray stain (or a color as specified by the architects), and let it soak into the pores before wiping off the surface. Then apply a final coat of water-white lacquer.
- g> All mouldings which terminate at corners or ends of walls shall be mitered.

3.2.2 **WOOD DOOR, JAMBS AND HEAD:** Set frames plumb and level and brace until built-in. Anchor wood frames to masonry with approved metal anchors on each side of jamb. Place top and bottom anchors 200 mm from head to floor.

3.2.3 **WOOD SHELVING:** Each shelf shall be supported on a continuous wood cleat at walls when necessary. Secure cleats to masonry walls by expansion bolt or approved fastening device. Wood shelving shall have a minimum thickness of 12mm for 1m span and 19mm beyond 1m span.

3.2.4 **BUILT-IN CABINETS AND COUNTER TOPS (MILL MADE):** Fabricate counters and cabinets in accordance with details. Only sound kiln-dried lumber or plywood shall be used. Erect cabinets straight, level and plumb and securely anchor in place. Scribe and closely fit cabinets to adjacent work. Provide necessary ground and anchors for securing cabinet work in place.

3.2.2 **WOOD FRAMES TO RECEIVE FIXED GLASS:** Where fixed glass is set on wood frames, thoroughly prime rabbets and wood stops. Fit stops and secure in place loosely with chrome plated oval-head screws.

## 3.3 HARDWARE INSTALLATION

Accurately fit and install all finish hardware items required. If surface-applied hardware is fitted and applied before painting, remove all such items, except butts, and reinstall after painting work is completed.

## **PART IV – SCHEDULE OF SPECIFICATIONS**

### **4.1 SCOPE**

- 4.1.1 Kiln-dried Tanguile for all mouldings, baseboard, edgings and trims.
- 4.1.2 Kiln-dried Narra for panel doors and jambs.
- 4.1.3 Kiln-dried Yakal for all other door jambs in direct contact with concrete.
- 4.1.4 3mm, 6mm, 12mm,19mm marine plywood for door veneers, ceilings, partitions as shown on plans.
- 4.1.5 Kiln-dried Almaciga for all cornice mouldings.



**SECTION 06400  
ARCHITECTURAL WOODWORK**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all materials, labor, equipment and the performance of all operations necessary for the completion of all cabinet works and other architectural woodworks of the project as indicated on drawings and this specification.

**1.2 DEFINITIONS**

**1.2.1 CABINET WORKS:** Cabinet works as defined herein, includes all built-in cabinets, counters, shelvings and other similar items as may be called for by the plans.

**1.3 SUBMITTALS**

**1.3.1 SAMPLES:** Submit samples of materials and pre-fabricated items for the Architect's approval. Match these samples with the delivered materials and items prior to installation.

**1.3.2 SHOP DRAWINGS:** Submit full-sized detailed shop drawings of all cabinets and woodworks before fabrication for approval by the Architect.

**PART II - PRODUCTS**

**2.1 MATERIALS**

**2.1.1 LUMBER:** Shall be of approved quality of the respective types as specified in Item 2.1 Section 06100.

**2.1.2 PLYWOOD:** Use ordinary rotary cut tanguile veneers, water resistant, Class B conforming with commercial standard CS 45, locally manufactures. Use 6 mm or 12 mm thick as indicated in drawings.

**2.1.3 HARDWARE AND ACCESSORIES:** All hardware items like concealed hinges, cabinet and drawer locks, closet cylinder locks, cabinet door and drawer pulls, catches, bolts, hasps, etc. shall be of types suitable to the service required and needed in their operation as required by the Architect.

**PART III - EXECUTION**

**3.1 WORKMANSHIP**

All required cabinet wood works shall be executed in the best way possible. Only capable and well experienced workmen shall be assigned to do finishing carpentry work.

Whenever practicable, all cabinet wood work items that are not constructed integrally with the building shall be assembled in shop and shall be pre-finished throughout, ready to receive the finishes before delivery to the site.

In addition to the machine-sanding, all interior and exterior surfaces shall be smoothed by hand and free from machine and tool marks, abrasions, raised and other undesirable.

**PART IV – SCHEDULE OF SPECIFICATIONS**

**4.1 SCOPE**

**4.1.1** 6mm, 12mm, 19mm marine plywood for cabinets, shelves, closets, drawers and other cabinet works as shown on plans.

**4.1.6** Kiln-dried Tanguile for all edgings, trims, etc.



**DIVISION 07  
THERMAL AND MOISTURE PROTECTION**

**SECTION 07100  
WATERPROOFING**

**PART I - GENERAL**

**1.1 SCOPE**

This section shall include all labor, materials, equipment and the performance of all operations necessary for the completion of all waterproofing works as shown on drawings and this specification.

**1.2 SUBMITTALS**

- 1.2.1 **MANUFACTURER’S LITERATURE:** Submit product literature and installation procedure.
- 1.2.2 **CERTIFICATES:** Submit a currently dated license certificate. This certificate shall verify the applicator’s qualifications to properly install the water proofing system.
- 1.2.3 **GUARANTEE:** Furnish guarantee to owner per requirements of the Architect for waterproofing work for ten (10) years after the date of final acceptance of the building against leaks.

**1.3 DELIVERY, STORAGE AND HANDLING**

Materials, shall be delivered in original sealed containers clearly marked with supplier’s name, brand name and type of materials.

Handle products to avoid damage to container. Do not store for long periods in direct sunlight. Materials stored in the jobsite shall be protected from weather, moisture, and extreme temperature changes.

**1.4 QUALIFICATIONS OF APPLICATORS**

The application of waterproofing shall be done by a subcontractor acceptable to the manufacturer of the products used.

**PART II - PRODUCTS**

**2.1 MATERIALS**

- 2.1.1 **FOR ALL ROOF DECKS, BALCONIES/TERRACES, CONCRETE GUTTERS AND MAIN ENTRANCE CANOPY:** The required waterproofing material shall be based on a distilled bitumen compound modified with plastomeric polymers and is reinforced with an interlaid spun bonded polyester and a fiberglass scrim such as *Hitchins* FORMCEAL P-3-PL (by SPECSERV) or approved equal.

The waterproofing membrane shall have the following specifications:

Thickness, UNI 8202/6 (mm)	3.2	
Nominal weight, UNI 8202/7 (kg/m2)	3.15	
Tensile strength, UNI 8208/8;		
Maximum load: longitudinal (N/5cm)	700	
Maximum load: transversal (N/5cm)	690	
Elongation: longitudinal (%)	45	
Elongation: transversal (%)	50	
Tear strength, UNI 8202/9-method B:		
Longitudinal (N)	150	
Transversal (N)		170
Static puncture resistance, UNI 8202/11:		



On asbestos cement	PS 3
Low temperature flexibility:	
UNI 8202/15 (Centigrade)	-10
Thermal stability:	
UNI 8202/18 (Centigrade)	+120
Water tightness:	
UNI 8202/21 (Kpa)	>60
Water vapour permeability	
UNI 8202/23:	>60,000
Softening point R&B:	
ASTM-D36 (Centigrade)	>150

#### a) **SURFACE PREPARATION**

Concrete surfaces shall be steel-troweled smooth, firm, dry, clean and free of rubbish, loose or foreign materials. Surfaces shall be without sharp protrusions, indentations and other imperfections. They shall be properly cured, and completely dry and free of dust immediately prior to application of primer. At intersections of walls and floors, concrete cant strips shall be provided. On vertical walls where membrane will terminate, reglets as shown on drawings shall be provided.

#### b) **APPLICATION**

Application of waterproofing material shall be done by or under the direct supervision of the Manufacturer's representative, a person who is thoroughly experienced in installation of the product.

The membrane shall be torched-on, which means that adhesion to the substrate and to itself is achieved by heating the bottom of the membrane with a gas-torch. The surface of the material then becomes semi-liquid and sticks to the substrate. The torch-on application process melts the polyethylene film on the underside for improved adhesion.

#### c) **FIELD QUALITY CONTROL**

Waterproofed area shall be flood-tested for twenty-four (24) hours.

**2.1.2 FOR ALL TOILET AND BATHS, WATER TANKS, ELEVATOR PITS AND PLANTBOXES:** The required waterproofing material shall be of the cementitious crystalline type that chemically controls and permanently fixes non-soluble crystalline growth throughout the capillary voids of the concrete such as XYPEX (by SPECSERV) or approved equal.

#### a) **SURFACE PREPARATION**

Concrete surfaces shall have an open capillary system to provide tooth and suction and shall be clean, free from scale, excess form oil, laitance, curing compounds and any other foreign matter. Smooth surfaces, caused by steel forms, etc., or surfaces covered by excess form oil or other contaminants shall be washed, lightly sandblasted, waterblasted, or acid-etched with muriatic acid, as required to provide a clean absorbent surface. Horizontal surfaces shall not be trowelled or power-trowelled, and shall be left with a rough float finish or (preferably) a broom finish. If power-trowelling is required it shall be kept to a minimum. Vertical surfaces may have a sacked finish. A slurry coat of Xypex should not be applied to horizontal concrete deck surfaces which are less than 20 hours old.

Xypex shall be applied to 'green' concrete as soon as possible after forms have been stripped, or to existing concrete which has been thoroughly saturated with clean water. Surfaces to be treated shall be moistened prior to application, as required to insure proper migration of crystalline chemicals into the capillary voids in the concrete. Free water shall be removed prior to treatment with Xypex



**b) APPLICATION**

Application of waterproofing material shall be done by or under the direct supervision of the Manufacturer's representative, a person who is thoroughly experienced in installation of the product. Xypex shall be mixed by volume with clean water, which is free from salt, or other deleterious materials. Materials shall be mixed in quantities which can be applied within 20-30 minutes from the time of mixing. As the mixture thickens, it shall be stirred frequently, but no additional water shall be added.

**1. MIXING FOR BRUSH APPLICATION**

Dry powder shall be measured and mixed into the mixing container. Water shall be measured and mixed into the powder with a paddle on a slow speed electric drill, (250 RPM) or other type mixer which will ensure adequate mixing. For small jobs, Xypex may be mixed by hand and trowel. Mixing proportions shall be as follows:

<u>COVERAGE</u>	<u>PROPORTIONS ( BY VOL.)</u>
1.5 lb./sq.yd.	5 powder to 2 water
2.0 lb./sq.yd.	3 powder to 1 water

**2. MIXING FOR SPRAY APPLICATION**

Mixing shall be the same as for brush application in the proceeding paragraph, except that a thinner mixture is required. The following proportions are to be used only as a guide. Spray applications may require slightly different proportions in order to properly match the type of equipment and pressures used.

<u>COVERAGE</u>	<u>PROPORTIONS ( BY VOL.)</u>
1.5 lb./sq.yd.	5 powder to 3water

Xypex 'Modified' shall be used in most cases as a second coat, and shall be applied while the first coat is still 'green' but after it has reached an initial set. Light pre-watering may be necessary when rapid drying conditions occur. Where indicated on the drawings, the second coat shall have a sponge float finish to provide a smooth attractive finish.

When structural slabs that have been treated with Xypex are to receive a concrete or other topping, the topping shall be placed while the waterproofing material is still 'green' (8 to 48 hours), but after it has reached an initial set.

**c) CURING**

Curing shall begin as soon as the waterproofing materials have set up sufficiently so as not to be damaged by a fine spray. Treated surfaces shall be fog sprayed three times a day for a two day period, or may be covered with damp burlap for the prescribed period. In warm climates, more than 3 sprayings per day may be required. Plastic sheeting may not be laid directly on the Xypex coating as Xypex requires air contact to cure correctly. For swimming pools reservoirs, wet wells, etc., the Xypex shall be cured for 3 days and then allowed to set for 12 days before filling the structure with liquid. For structures holding particularly hot and/or corrosive liquids, the Xypex should be cured for 3 days and allowed to set for 18 days.

**d) APPLICATION OF PAINT**

The waterproofing coating requires 21 days of curing and crystal generation before any such application commences. Before applying the coating, it is recommended to wash the water-proofed surface with 15% muriatic acid diluted in a ratio of one part acid to 4 parts water by volume. Be sure to flush all acid off concrete surfaces.

**2.1.3 FOR ALL PARAPET WALLS:** The required waterproofing material shall be multi-layered, fungi and algae resistant elastomeric such as SEALFLEX (by SPECSERV) or approved equal. Application of waterproofing material shall be done by or under the direct supervision of the Manufacturer's representative, a person who is thoroughly experienced in installation of the product.

**2.2 FIELD QUALITY CONTROL**

Waterproofed area shall be flood-tested for twenty-four (24) hours.



## DIVISION 08

### DOORS AND WINDOWS

#### SECTION 08100 STEEL DOORS AND FRAMES

##### PART I - GENERAL

###### 1.1 SCOPE

This section includes all labor, equipment and the performance of all operations necessary for the provision and installation of all metal doors as indicated on drawings and this specification.

###### 1.2 PRODUCT HANDLING

1.2.1 **STORAGE:** Factory finish-painted doors and frames shall be individually packed in polyethylene sheets and cartons to prevent damage to finish and shall be properly stored.

###### 1.3 SUBMITTALS

1.3.1 **MANUFACTURER'S CERTIFICATE:** Submit Manufacturer's certificate for assurance of quality of products and capability of furnishing and completion of all metal door works.

1.3.2 **SAMPLES:** Submit sample cuts of door materials, accessories and other pertinent matters as deemed necessary by the Architect. Submit such samples 30 days before the start of the work.

##### PART II - PRODUCTS

###### 2.1 MATERIALS

2.1.1 **METAL DOORS:** Shall be standard lightweight metal flush door of "METAL-FLUS" Brand, manufactured by Filipinas Shutters, Inc. or approved equivalent, 44 mm in thickness, lightweight gauge 20, powder paint-coated galvalum sheets, color as specified by Architect.

2.1.2 **METAL ROLL-UP DOORS:** Shall be standard lightweight shutters, manually operated, gauge 16, as manufactured by Filipinas Shutters, factory primed and "Cleanlume" finish. Complete with guiderail, case, mechanisms and lockset.

2.1.3 **FRAMES AND ACCESSORIES:** Frames and accessories such as locksets, hinges, etc. shall be as recommended by the manufacturer.

##### PART III - EXECUTION

###### 3.1 INSTALLATION

All frames shall be rigidly installed, plumbed and in true alignment. Follow with strict compliance the manufacturer's instructions for installation.



**SECTION 08120  
ALUMINUM DOORS, WINDOWS AND FRAMES**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all labor, equipment and the performance of all operations necessary to furnish and install all aluminum doors, windows and frames of the project as indicated on drawings and specifications. All related works needed to have this work completed shall also form part of this section.

**1.2 SUBMITTALS**

1.2.1 **SHOP DRAWINGS:** Shop drawings shall be submitted for approval. No door or window shall be installed prior to the approval of shop drawings. Shop drawings shall indicate elevations of each door and window type, thickness and gauges of metal, fastenings, method of glazing and other details as requested by the Architect.

1.2.2 **SAMPLES:** Samples shall be one full size of each door and window type complete with hardware and accessories and submitted to the Architect for approval. No door or window shall be delivered before samples have been approved.

**1.3 GENERAL REQUIREMENTS**

1.3.1 **PROTECTION:** Use care in handling materials during transportation and at the job site. Store doors upright on wood platform in a dry location and under cover. Protect from damage during subsequent construction activities after installation.

**PART II - PRODUCTS**

**2.1 MATERIALS**

2.1.1 **ALUMINUM:** Shall be of extruded aluminum. All aluminum sections shall be 6063-T5 alloy and all castings shall be S43 alloy. All aluminum shall be fabricated of a brand approved by the Architect. This specification shall also be for the aluminum encasement for the deformed bar grillwork.

2.1.2 **HARDWARE:** All aluminum doors shall be fitted with appropriate hardware's including keylock (double cylinder deadlock for active door leaf of all entrance units in case of pairs of doors), solid aluminum push and pull bar handle and top and flush bolts.

2.1.3 **FINISH:** Finish for all aluminum doors, windows and frames shall be as approved by the Architect.

**PART III - EXECUTION**

**3.1 WORKMANSHIP**

All joints in the frames shall be accurately milled to hair line crack, securely reinforced, weathered and joined by means of concealed fastenings whenever possible.

Door stiles and rails shall be tie-bolted with appropriate bolts, nuts and lockwashers. The tie bolts shall be concealed with the head and sill of the door. The doors shall be completely reinforced at the tie bolts with interlocking channel chips.



### **3.2 INSTALLATION**

Door stiles and rails shall be tie-bolted with appropriate bolts, nuts and lockwashers. The tie bolts shall be concealed with the head and sill of the door. The doors shall be completely reinforced at the tie bolts with interlocking channel chips.

All doors shall be set level and plumb without twisting or forcing during installation. All aluminum coming in contact with dissimilar metals and materials shall be protected by the application of asphalt joint. The exterior joints between frames and surrounding masonry are to be jointed with approved secosmastic sealing compound applied in accordance with Manufacturer's recommendation.

Install aluminum windows in strict compliance with the manufacturer's instruction.

### **3.3 CLEANING**

Doors and frames shall be cleaned with soap and water using a stiff fiber brush and rinsed thoroughly with water. When the frames have been discolored, the contractor shall be responsible to return the frames to its original finish in accordance with the Manufacturer's recommendation at his own cost.



**SECTION 08210  
WOOD DOORS**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all labor, materials, equipment and the performance of all operations necessary for the completion of fabrication and installation of all wooden doors as indicated on drawings and this specifications.

**1.2 SUBMITTALS**

**1.2.1 SHOP DRAWINGS:** Before placing orders and start of fabrication and when called for by the Architect, the Contractor shall submit to the Architect for approval, shop drawings of all wooden doors including details of section and hardwares.

**1.2.2 CUTS AND SAMPLES:** Furnish for approval, cuts, descriptive material and samples showing each type of door included. Show sizes, thickness, construction, methods of assembly, sticking and all other necessary information. Before delivery of doors to the site, submit a sample section of each type of door.

**1.3 GENERAL REQUIREMENTS**

**1.3.1 STORAGE AND PROTECTION OF DOORS:** Protect wood doors and frames against damage and dampness. Store them under cover in a well-ventilated place where they will not be exposed to extreme changes in temperature and humidity. Do not store doors and frames in any place under construction until concrete, masonry work and plaster are dry. Replace units when damaged due to lack of adequate protection or care in installation.

**1.3.2 PROVISIONS FOR HARDWARE:** Provide lock blocks on hollow core doors which are scheduled or specified to receive floor hinges.

**1.3.3 DOOR DESIGNS, SIZES AND THICKNESS:** Use door designs, sizes and thickness as indicated or scheduled. Wood doors shall have an overall thickness of 50 mm unless otherwise specified by the Architect.

**PART II - PRODUCTS**

**2.1 MATERIALS**

Doors and door frames shall be manufactures of thoroughly seasoned kiln-dried wood, of grade and specie as specified under Division 6. Wood doors shall be products of reputable manufacturers approved by the Architect.

**2.2 FABRICATION OF DOORS AND FRAMES:**

**2.2.1 WOOD DOORS:** Shall be of the type, sizes and thickness indicated. Top and bottom edges of all interior and exterior shall be given a coat of lead and oil priming paint or a coat of water resistant varnish after cutting and fitting and prior to installation works. Doors shall be panel and/or glazed as indicated. Glass shall be clear, ordinary, 6.3 mm (1/4") thick.

**2.2.2 FLUSH DOORS:** Shall be hollow core of thickness indicated on drawings and fabricated as such that the core and frame assembly shall be bonded to face veneers. Flush doors shall be three (3) ply, 6 mm thick, ordinary, waterproofed or marine kind of plywood as indicated in the schedule. Stiles and rails shall have mortised joints at corners. The core shall be a grid pattern of horizontal and vertical interlocking wood strips and reinforced with wood block inserts for lock sets and other hardware as necessary. Doors shall be painted or with designs as indicated on drawings.

- 2.2.3 **BAR TYPE SWING DOORS:** Shall be of flush door or louvered type with 6 mm Tanguile plywood face veneer with double acting gravity hinges.
- 2.2.4 **WOOD DOOR FRAMES:** Shall be of the design, sizes and thickness indicated in the **Schedule of Doors**. Frames shall be set to plumb and true and braced to prevent distortion. Frames in wooden walls or partitions shall be secured with finishing nails or as indicated. In concrete or masonry walls, frames shall be secured by anchor bolts or as shown on drawings.

### **PART III - EXECUTION**

#### **3.1 CONSTRUCTION REQUIREMENTS**

Construct all doors and frames to sizes shown and indicated on drawings. Glue all door frames, cores and plywood veneers together and hot-press into a one-piece panel. Glue edge strips around edges of doors. Hold doors in retainers until the glue has set, then re-dry to remove all moisture contained in the glue. Drum-sand and belt-sand the assembled door into a smooth finish ready for varnish or paint. Cut in uniform finish all louver blades and fasten to the frames in an approved manner.

#### **3.2 INSTALLATION**

For door frames, set frames plumb and square, double-wedges and fastened with finishing nails. Provide solid blocking behind jambs at butts and lock strikes. Space blocking not more than 400 mm on centers. For doors, fit, hang and trim as indicated and specified. Provide 1.60 mm clearance at sides and top, and 5 mm over thresholds. Provide 10 mm clearance at bottoms where no thresholds occur. Apply hardware with fastenings of the size, quality, quantity and finish as specified.



**SECTION 8700  
HARDWARE**

**PART I - GENERAL**

**1.1 SCOPE**

a. The work includes furnishing and delivering to the jobsite, or as otherwise directed, complete finish hardware to fully equip the building in accordance with the Architect's drawings and intent as hereinafter specified. Work of this section includes furnishing all materials, equipment, services, templates, schedules and all items required; or necessary for, or incidental to, the furnishing and description as required by the drawings, specifications, schedules and actual site conditions for all doors.

b. Finish hardware includes items listed below and any other items required to make a complete job in every respect.

- Butt Hinges
- Concealed Hinges
- Locks, Latches, Deadlocks
- Cylinder and Keying Systems
- Key Control System and Key Cabinets
- Closers
- Flush Bolts and Foot Bolts
- Doorstops
- Sliding door hardware
- Drawer Runners

c. See drawings details and schedule for location, extent of work, and other requirements.

**1.2 SUBMITTALS**

a. General

Submit all information necessary for the work of the Owner, the Architect, the Contractor, and all affected trades.

b. Samples

- 1) A sample of each item of hardware for approval.
- 2) A sample of each required finish for approval. Prepare samples of the base metal alloy required for the final hardware units, formed by the same process required for the hardware. Submit either actual units of hardware as required, or metal coupons not less than 12" x 12" (300 x 300 mm) in size.

c. Detailed drawings and/or shop drawings.

d. Manufacturer's Data

Provide catalog cuts for every item furnished, showing all finishes, sizes, catalog numbers and pictures, with all abbreviations fully explained.

e. Templates

Furnish hardware templates to each fabricator of doors, frames, and other work to be factory prepared for the installation of hardware. Check the shop drawings of such other work, to confirm that adequate provisions will be made for the proper installation of hardware.

f. Installation Manuals

g. Operation and Maintenance Data





Provide Architect with manufacturer's part lists and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

### 1.3 GENERAL REQUIREMENTS

- a. All hardware shall be of the best grade, entirely free from imperfections in manufacturing and finish.
- b. All materials shall be procured from a source of supply approved by the Architect as competent to correctly evaluate the plans, details and specifications and be prepared at all times to promptly and satisfactorily service the hardware on the job. This supplier must be an established contractor for builder's hardware who meets all the above requirements.
- c. Exit doors and doors leading to exits, stair halls, fire label doors, etc. shall be provided with hardware in full compliance with applicable codes.

### 1.4 PACKAGING AND MARKING

- a. Individually pack each item of finish hardware and deliver in the manufacturer's original container. Clearly mark each package or box with the manufacturer's name, catalog number and all other markings required for easy identification of the hardware.
- b. Furnish a packing list to clearly identify the quantity and type of hardware in every box numbered in accordance with this list.
- c. Provide all hardware the required screws, bolts and fastenings necessary for installation packed in the same package with the hardware. Label all packages legibly and adequately indicating the part of the work for which it is intended.

### 1.5 STORAGE AND PROTECTION

Store hardware in a dry and locked place. Protect the hardware from damage at all times, both prior to and after its installation.

After the hardware has been properly fitted, all exposed items such as knobs, escutcheons, plates, locks, etc. shall be removed until final coat of painter's finish has been applied and then hardware installed.

All hardware, unless to be painted over, that are not to be removed before painting shall be properly masked until final coat of painter's finish has been applied after which such masks shall be removed.

## PART II : PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Continuous Hinges

Furnish all security doors with continuous hinges, Ravco® or approved equivalent.

#### 2.1.2 Butt Hinges

- a) Butt hinges shall conform to US Federal Specification FF-H-116 and ANSI A156.1 standards.
- b) Full mortise hinges with button tip loose pin shall be used for interior wood doors and full [mortise hinges](#) with non removable pin shall be used for exterior wood doors opening out, unless otherwise specified (Hager 1741 or approved equivalent).
- c) Metal doors and doors installed with closers shall use ball bearing, full mortise hinges, unless otherwise specified (Hager BB 1279 or approved equivalent).
- d) The following shall be adhered to in determining the number and sizes of butt hinges for flush doors, unless otherwise specified.

Door Height

No. of Hinges

Doors 1.5 m high and under	2 Hinges
Doors over 1.5 high and not over 2.3 high	3 Hinges
Doors over 2.3 m high and not over 3.0 high	4 Hinges
<u>Door Dimensions</u>	<u>Height of Hinge</u>
34 mm thick doors	76 mm High
Doors 43 mm thick and up to 900 mm wide	87 mm High
Doors 43 mm thick over 900 mm wide	112 mm High
All Doors over 62 mm thick	125 mm High

The leaf of Butt Hinges shall be of sufficient width so as to clear all trim. For extraordinary conditions, furnish type and size as recommended by manufacturer.

e) Finish and Material

1. Exterior out-swinging doors shall use heavy-duty weight, brass or bronze base metal.
2. Exterior in-swinging doors shall use heavy-duty weight, steel base metal.
3. All interior doors shall use standard duty weight steel base metal.
4. Hinges on doors to receive paint shall be bonderized and prime coated for painting.

**2.1.3 Concealed Hinges**

- a) For doors - all metal invisible hinge, SOSS model 218 or 220 or approved equivalent.
- b) For cabinets - all metal hinge with automatic spring mechanism, minimum 90° opening angle, German Paul Hettich Euromac or approved equivalent.

**2.1.4 Locks**

a) Cylindrical Locks

1. All wood and metal doors shall be equipped with high grade standard duty (ANSI A 156.2 Series 4000 Grade 2) or heavy duty (ANSI A 156.2 Series 4000 Grade 1) lever type locksets, unless otherwise specified (Schlage brand or approved equivalent).
2. Mechanism shall be of heavy gauge, cold-rolled steel contained in a sturdy cylindrical housing, with all parts zinc-plated and dichromated for maximum resistance against rust and corrosion. Exposed parts shall be brass heavy plated.

b) Keys and Keying

1. All keys shall be nickel silver material.
2. A minimum of six-pin key system shall be furnished.
3. Develop and submit for approval a keying schedule for entire job. No locks shall be ordered unless formal keying schedule has been approved.
4. Generally provide all locksets, padlocks and cylinders with keying systems that are grand masterkeyed, masterkeyed and changed keyed at the factory, alike or differently, in group as desired.
5. Furnish a construction master key system for all cylinders.



- 6. Furnish one (1) key cabinet with 50% expansion and complete 3-way cross index system.

**2.1.5 Closers**

- a) All door closers shall conform to US Federal Specifications FF-H-121C Types 3001, 3004, 3009 or 3230 and ANSI A 156.4 Standards.
- b) The following table shall serve as guide in determining door closer sizes:

Maximum Door Width	Closer Size
0.76 m	2
0.90 m	3
1.07 m	4
1.20 m	5
1.37 m	6

Use larger size where unusual conditions exist.

- c) Regardless of mounting method, closers shall be capable of opening 180".
- d) Unless otherwise specified, concealed closers shall be used (Dorma™ ITS 96 or approved equivalent).
- e) Surface mounted closers, when used, shall always be mounted on the room side or generally on the less important side of doors. Use parallel arm closer if necessary (Dorma or approved equivalent).
- f) Closers shall have spring power adjustment of plus 50% and an additional plus 15% at the shoe on standard and top jamb applications.
- g) Closers shall have tamper proof regulation screws adjustable only with a hex wrench. Closers shall have separate adjustments for sweep speed, latch speed and back check selector valve to permit checking action prior to 90° regardless of type of mounting.

**2.1.6 Flush Bolts and Foot Bolts**

- a) Hinged double wood doors, except bar doors and double acting doors, shall be fitted at top and bottom with extension flush bolts with 24" (600 mm) rod, dull brass finish, only on the astragal side (inactive door). Use Ives extension flush bolt no. 457 or approved equivalent.
- b) For high doors, attach the top flush bolt or sufficient distance from the door header to allow the flush plate to be within easy reach.
- c) For bottom flush bolt or foot bolt, use dust proof strikes, Ives no. 488 or approved equivalent.

**2.1.7 Miscellaneous Hardware**

- a) All doors that are not equipped with door closers and when opening will strike an object shall be provided with door stop conforming to US Federal Specifications FF-H-111a, Type 1330.
- b) Each metal, single leaf door, that is not equipped with door closers shall be equipped with one silencer in the lock side of the door frame.

**2.1.8 Sliding Door Hardware**

- a) For doors - cold rolled galvanized steel track with four nylon wheels in nylon hanger body, Henderson Husky or approved equivalent.
- b) For cabinets - double axied rollers on guide runners, Woodflex type 55 (for inset doors) or approved equivalent

**2.1.9 Drawer Runners**

Provide all drawers with bottom mounted glides with stopper, German Paul Hettich or approved equivalent.



**PART III - EXECUTION**

**3.01 INSTALLATION**

The Contractor shall submit to the Architect for approval, prior to delivery of builder's hardware to the site, a complete listing of all items and a sample for each of the hardware proposed to be furnished for identification of each item of hardware for each point of installation.

- a. The general Contractor shall advise the hardware supplier of all completion data for hardware installation in order that sufficient time can be allowed for manufacturing and delivery to the jobsite.
- b. Install hardware in accordance with manufacturer's recommendation, using proper templates.
- c. Installation shall be performed by mechanics skilled in this kind of work and experienced with the specified products.
- d. Use only proper tools in good condition, special tools when necessary, to prevent damage to finish, abuse of hardware, screws, doors and frames.
- e. Concerning hardware for doors or frames not pre-drilled in factory carefully and accurately lay out hardware according to templates and shop drawings. Make all attachments level, plumb, and clean using holes accurately drilled and tapped in field.
- f. Whenever possible, do not install trim until doors have been finish painted. After painting and finish of woodwork has been completed, install the finish hardware permanently.
- g . Maintain following mounting heights:

Hinges		
Top	-	125 mm from head of frame to top of hinge
Bottom	-	250 mm from finished floor to bottom of hinge
Intermediate	-	centered between top & bottom hinges
Locks	-	1 000 mm from finished floor to centerline of knob
Deadlock	-	1500mm from finished floor to centerline of strike

These locations are intended to be followed when no reason is apparent for others.

- h. At the completion of the job, it shall be the responsibility of the Contractor to turn over to the Owner a complete set of installation instructions - special wrenches or tools - extra screws and attachments, as would be packaged by the manufacturer for the benefit of the installer.



**SECTION 08800  
GLAZING**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all labor, materials, equipment and the performance of all operations necessary to furnish and install all glass and glazing work in accordance with the drawings and this specification

The works included are:

- a> Glass and glazing for Aluminum Curtain Glass.
- b> Glass and glazing for hollow, and wood doors (where specified).
- c> Glass and glazing for aluminum doors, windows and frames (where specified).
- d> Mirror for all toilets.

**1.2 SUBMITTALS**

1.2.1 **SAMPLES:** Submit samples for Architect's approval of all glass types specified herein, not less than 5" x 8" (125 x 800mm). Match these samples with the delivered materials prior to installation.

1.2.2 **CERTIFICATES:** Submit manufacturer's specification and recommendations for glazing conditions specified herein. Submit certificates of compliances, certifying conformance with requirements of this specification.

**1.3 QUALIFICATIONS**

1.3.1 **MANUFACTURERS:** It is the intent of this specifications that the products of the specific manufacturer's listed herein, represent quality standard and performance standards desired. Other manufacturers offering products equivalent to those specified will be acceptable, subject to approval.

**1.4 DELIVERY, PROTECTION AND STORAGE**

All glass shall be carefully packed for transportation, exercising reasonable precaution to insure avoidance of damage during transit. Use care in unloading, unpacking and storage on arrival at job site to avoid damage.

Deliver all glazing accessory materials in manufacturer's original unopened containers, clearly marked as to their contents.

Store all materials at the job site, in a manner assuring its safety from all forms of damage. Screen from paint, plaster, welding splatter, construction scum and the like. Protect glass from soiling, condensation, etching, etc. Follow manufacturer's instructions rigidly.

**1.5 GUARANTEE**

Guarantee shall be under Section 08912 Glazed Aluminum Curtain Walls.

**1.6 CONFORMANCES**

Conforms to the standards of quality set forth in the ASTM Standards C 1036-90 (Standard Specification for Flat Glass) and C 1048-90 (Standard Specification for Heat Treated Flat Glass-Kind HS. Kind FT coated and uncoated glass). In addition, Tempered glass conforms to the provisions set forth in the Consumers Product Safety Commission 16 CFR-1201, a standard for safety glass.



**PART II - PRODUCTS**

**2.1 MATERIALS**

**2.1.1 GLASS:**

- a> **INSULATED GLASS (FAÇADE):** 25mm hermetically sealed units. Dehydrate entrapped air and provide desiccant on same side of each light. *Guardian* NU 52 or approved equal.

**Technical Specifications**

*Guardian Industries Corp., U.S.A.*

*Guardian NU-52* : 25mm (1") Insulated Unit (Double Glazed)

Make up – 6mm NU-52 Neutral Heat Strengthened  
12mm air space  
6mm Clear Float Heat Strengthened

Visible light	: Transmittance	43%
	Reflectance Indoor	11%
	Reflectance Outdoor	11%

Solar Energy	: Transmittance	23%
	Reflectance Outdoor	9%

U-Value	: Summer Daytime	0.37 BTU/hr.sq.ft.F
	Winter Nighttime	0.32 BTU/hr.sq.ft.F

Summer	: Shading Coefficient	0.35
	Relative Heat Gain	76 BTU/hr.sq.ft.

- b> **SINGLE THICKNESS GLASS (FAÇADE):** Provide in thickness, and/or tempered or heat-strengthened, as required. *Guardian* TS-20 or approved equal.

**Technical Specifications**

*Guardian Industries Corp., U.S.A.*

*Guardian TS-20* : 6mm Monolithic Heat Strengthened or Tempered

Visible light	: Transmittance	10%
	Reflectance Indoor	33%
	Reflectance Outdoor	9%

Solar Energy	: Transmittance	8%
	Reflectance Outdoor	11%

U-Value	: Summer Daytime	0.99 BTU/hr.sq.ft.F
	Winter Nighttime	0.95 BTU/hr.sq.ft.F

Summer	: Shading Coefficient	0.33
	Relative Heat Gain	81 BTU/hr.sq.ft.

- c> **FRAMELESS GLASS DOORS:** Clear monolithic, minimum 12.5mm thickness in either heat-strengthened, or annealed. *Guardian* or approved equal.

- d> **MIRRORS:** Silvering quality float glass 6 mm thickness, recommended for high humidity usage. Double silvered protected by a coat of electro-deposited copper. Furnish with edges polished, in one piece unless otherwise specified.



2.1.2 **GLAZING MATERIALS:**

- a> **GLAZING TAPE:** Preformed butyl; with integral spacing device, 10-15 durometer hardness, papered release.
- b> **SETTING BLOCKS:** Neoprene: 70-90 durometer hardness, 100 x 10 x 6 mm.
- c> **SPACE SHIMS:** Neoprene 50 durometer hardness, 76 x 3 x 6 mm.

2.1.3 **GLAZING COMPOUND:**

- a> Modified oil type, color grey, non-hardening, knife grade for wood and metal frames.
- b> **SEALANT:** One component polysulphide, color as selected, having a shore "A" hardness of 15 to 25.

**PART III - EXECUTION**

3.1 **PREPARATION**

Examine all surfaces to which glazing will be applied. Start of work means acceptance of conditions. Examine all glass for spalling, hairline cracks and other defects, which might impair performance after installation. Clean all glass prior to installation.

3.2 **INSTALLATION**

- a. Comply with the Performance Standards stipulated in Section 08912 Glazed Aluminum Curtain Walls.
- b. All glass and glazing shall conform to all applicable codes and governing authorities including glazing safety standards.
- c. Center glass in glazing rabbet to maintain specified clearances at perimeter on all four sides. Maintain centered position of glass in rabbet and provide the required sealer thickness on both sides of glass.
- d. Provide glass thickness and heat treatment to meet the following design criteria:
  - 1. To resist temperature stress breakage.
  - 2. Maximum glass deflection to be less than 12.5 mm.
  - 3. The statistical probability of breakage at Design Wind Pressure to be less than 8 lights per 1,000 lights.
- e. Edge preparation of all glass shall conform to manufacturer's printed standards and the latest standards of the Flat Glass Marketing Association.
- f. Refer to building elevation sheets for extent of required window wall and exterior cladding mock-ups for testing and visual review. At which time all anchorage details of window wall subframe are to be reviewed.
- g. All butt joints are to have concealed back up captive sealant.
- h. Locate tong marks on glass along edge which will be concealed in glazing system.
- i. Polish exposed glass edges. Do not polish edges to receive silicone sealant.
- j. Stop bead glazing shall consist of elastic glazing compound for bedding glass in metal frames. Prior to placing glass in rabbet, apply a sufficient quantity of compound in rabbet so that excess is expelled when glass is pressed into position to ensure that the glass in rabbet is completely covered by compound. Place setting blocks and spacer shims as required. Press glass into position.

3.3 **REPLACEMENT AND CLEANING**

Upon completion of the work, all glass surfaces shall be thoroughly cleaned on both sides, and all labels, paint spots, compounds and other defacements shall be removed. Cracked, broken and imperfect glass shall be replaced at no additional cost.



**SECTION 08900  
GLAZED ALUMINUM CURTAIN WALLS**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all labor and materials for the complete fabrication, erection, glazing, weatherproofing, and testing of all aluminum curtain wall as detailed on the Architectural drawings and herein specified. Work included are:

- 1) The curtain wall as detailed, the profiles depicted therein and their dimensions as designed to conform with the specified windload together with the relationship to the structural frame and the building interior elements.
- 2) "Punch windows" within the curtain wall (with stainless steel trims).
- 3) Glass and glazing within the curtain wall.
- 4) Glass Fiber Reinforced Concrete (GFRC) panels within the curtain wall.
- 5) Aluminum panels within the curtain wall.
- 6) Metal to metal, metal to glass, metal to GFRC, and glass to glass sealant.
- 7) Caulking between peripheral members of the curtain wall to the concrete structure.
- 8) Erection of the above items.
- 9) Samples as listed above
- 10) Structural computations to show that the proposed curtain wall members meet or exceed strength and properties required.
- 11) Shop drawings.
- 12) After approval of structural computations and shop drawings by the Architects, this Contractor shall erect the mock-up for testing as stipulated in item 1.3.3 of this Section. Such tests will be made in the presence of the Owner's representative. Installation work shall proceed only after the tests reports submitted by this Contractor have been evaluated and approved by the Structural Consultants.

**1.2 GENERAL REQUIREMENTS**

**1.2.1 STORAGE, HANDLING AND PROTECTION**

- a. Before shipment from factory, cover components with heavy building paper or other adequate covering to protect finish surface from mortar, plaster, fingerprints, scratches or stains.
- b. Store aluminum components under cover, in dry spaces provided by the general contractor as close as possible to the point of installation. Locate these spaces where the stored material will not be exposed to damage by adjacent work and will permit easy access to the materials. Install the materials neatly, properly stacked on dunnage off the floor or ground, and do not remove them except for installation.

**1.2.2 OVERALL PERFORMANCE STANDARDS**

- a. Building Movement/Deflection Criteria: The following possible building structure deflections and deformations, in addition to thermal shrinkage and creep movement, must be accounted for in the design, detailing, fabrication and installation of all building cladding components.
  1. Entire window wall system is to be designed to accommodate vertical deflection of  $L/360$ , or minimum of  $\pm 9.5$  mm, and lateral deflection of  $H/175$ , or minimum of  $\pm 12.5$ mm; where L is clear span of beam and H is floor-to-floor height.
  2. Axial shortening of columns to be 1.5 mm per floor.
- b. Provision for Thermal Movements: Design, fabricate and install window wall to withstand expansion and contraction forces resulting from ambient temperature range of 100 degrees Fahrenheit. Location of expansion/ control joints shall be reviewed with Architect.





- c. Structural Properties:
1. Design, fabricate, and install component parts including anchorages so that the completed window wall assembly, including glass, will withstand the inward and outward wind loads of local building code.
  2. Wind Pressure (per National Building Code of the Philippines). Allow for 20% increase at corners. These pressures will be modified based on Wind Tunnel Study.

210 kg/m <sup>2</sup>	-	0-9m
280 kg /M <sup>2</sup>	-	9-30m
350 kg /M <sup>2</sup>	-	over 30m
  3. Aluminum supporting members for exterior GFRC work shall be designed to limit deflection of members to L/600 when subjected to full loading of stone plus other exterior wall components.
  4. All aluminum for glass shall be designed to limit deflection of horizontal members to 3mm or 25% to edge clearance, whichever is less.
  5. Coordinate window wall details to accept window-washing equipment (by Owner). Design and install continuous and intermittent tie-back system to withstand 272 kg force applied in any direction and the system shall comply with applicable local codes. All intermittent tie-backs shall be flushed with finished face of mullion.
- d. Water Infiltration:
1. The entire exterior wall system shall form two (2) continuous, distinct, and separate lines of protection against air infiltration and leakage.
  2. Provide a positive drainhole system (weeps with baffles) for condensation inside aluminum window wall members and provide a system for collecting interior condensation and weeping directly to the exterior.
  3. Provide a positive pressure equalization chamber.
  4. All weep holes are to be reinforced with an open cell, neoprene type baffle material of appropriate pores per millimeter.
  5. After completion of installation and nominal curing sealant and glazing compounds, test water leaks in accordance with AAMA (Architectural Aluminum Manufacturers Association) 501.2 -83. Perform two tests on each elevation, in locations as directed by the Architect. Conduct tests in Architect's presence.
  6. Prevent leakage maximum of 0.0017 m<sup>3</sup> per minutes per 0.093 m<sup>2</sup> of window wall module or bay.
  7. Design, fabricate, and install window wall to prevent excessive condensation on inboard face with building in nominal operation.
  8. Provide uninterrupted galvanized sheet metal vapor barrier (in areas other than unitized frames).
- e. Air Infiltration:
1. The entire exterior wall system shall form two (2) continuous, distinct, and separate lines of protection against air infiltration and leakage.
  2. Air infiltration through the wall, when tested in accordance with NAAMM 'Specifications for Performance Testing of Metal Curtain Walls', Test B, shall not exceed 0.06 cubic feet per minute per square foot of fixed wall area plus 0.25 cfm per lineal foot of crack.
- f. Seismic Loads:
1. Design, fabricate, and install parts including anchorages so that the completed window wall assembly, including glass, will withstand the following seismic loads:

Seismic Code	PNSCFB and UBC
Seismic Zone	4
Special Analysis	Static and Dynamic - Response Spectrum
Damping Coefficients	5 to 7% - probable earthquake
- g. Fire Isolation: Provide continuous perimeter fire stop (safe off material) between floor slabs and the window wall construction. The assembly shall comply with applicable local codes and regulations. Fire rating of stop to match fire rating of floor assembly (2 hours).



### 1.3 SUBMITTALS

#### 1.3.1 SHOP DRAWINGS

- a) Details for the exterior wall are shown schematically and together with the profiles to be developed are intended to establish performance and material quantities desired. The exterior wall as shown shall be a complete system including all stiffeners, fasteners, sealant, drainage systems, gasket, joining, miscellaneous pieces, and material thicknesses as required to form a high quality waterproof enclosure in accordance with the profiles shown. The window wall Contractor shall be responsible for development of final design intent shown. All proposed details and finishes for each type of window must be reviewed and accepted by the Architect prior to fabrication.
- b) Details not shown are similar in character to those detailed. Where specific dimensions, details or design intent cannot be determined, consult the Architect before proceeding with work.
- c) All details are to be coordinated with the structural framing and other building components including exterior cladding, interior finishes, and other related building components in order to provide a complete enclosure of finish materials. Structural and fireproofing requirements shall comply with applicable codes and regulations.
- d) The anchorage angles, shapes, locations, and details are suggestive and are to be engineered and detailed as required. The General Contractor is to coordinate all anchorage details with the appropriate trades.
- e) Provide aluminum brake metal closure plates with Thermal Acrylic Enamel (TAE) finish between window wall sill members and slab edges. Design of sill and closure shall accommodate slab elevation tolerances. Closures shall be 3.2mm aluminum plate with thermal acrylic enamel finish and shall be anchored to slabs with flush anchors at not greater than 0.6m on centers.
- f) Any electrical outlets required for window washing at roof terraces shall be flush electrical boxes with finished covers flush with adjacent cladding material.
- g) All required lighting protection devices shall have concealed conductor cables. Only rod portion (no base plate) shall be visible.
- h) All flashing to be stainless sheet steel metal. All vertical and horizontal joints in flashing to have flat locked soldered seams. Provide expansion joints not over 9.5mm on centers with loose lock filled with sealant. All penetration of flashing by panel attachment is to be seated.
- i) Eight (8) copies of all shop drawings shall be submitted to the Architect for his approval. These drawings shall be at full scale as far as practical, and shall show in detail the construction of all parts of the work, including glass and metal thicknesses, methods of joining, details, and all files connections and anchorage, fastening and sealing methods, metal finishes and all other pertinent information. No work shall be fabricated until the Architect has approved shop drawings for that work.

1.3.2 **SAMPLES:** Before any work is fabricated, this Contractor shall submit to the Architect for his approval the samples representing materials and finishes proposed for use in this work.

#### 1.3.3 MOCK-UPS

- a. Mock-up for Color Selection: This contractor shall furnish all labor and materials to build (at jobsite) full size mock-up of the 'Punch' window expression (1.2 m wide x 2.2 m high or biggest panel size) for finalizing colors/ textures prior to order. Aside from this, a window wall mock-up for testing will be prepared at the testing site, in accordance with the following:



- b. Window Wall Mock-up and Testing:
  1. Erect mock-up of full sized 2-storey high window wall as indicated on building exterior elevation and plan drawings.
  2. Test mock-up for air infiltration, water penetration, and structural performance.
  3. Built mock-up indicated but not less than requirements of ASTM E331 or E547 Section 8 to be used as test specimen and also for Architect's visual examination.
  4. Use same materials, finishes, details, methods and anchoring system proposed for window wall.  
Test as follows:
    - a. Air infiltration - ASTM E283
    - b. Water Penetration (Uniform Static Pressure) - ASTM E331. Conduct with 15.15 liters per minute per 0.093 m<sup>2</sup>.
    - c. Water Penetration (Dynamic Pressure) - AAMA 501.1.
    - d. Structural Performance - ASTM E330. Conduct at 1.5 times maximum design wind pressure positive and negative.
    - e. Repeat Water Penetration (Uniform Static Pressure) test after structural test to design load.
    - f. Test to failure applying load in direction stipulated by the Architect.
    - g. Record pressures and deflections during test and describe failure.
- c. Mock-up for Aluminum Panels: Prior to aluminum panel fabrication, provide panel mock-up 1 m in length for Architect's review.

#### 1.3.4 **GUARANTEE**

Before final payment is made, this contractor shall guarantee to the Owner in writing that all parts of the work will meet the specified Overall performance requirements (Part 3 of this Section). The work shall be free from defects in materials and workmanship for a period of two (2) years following its acceptance by the Architect. He shall certify in writing also that all work is in accordance with the Contract Documents and authorized alterations/ additions thereto. Should any defect develop during the guarantee period due to improper workmanship or materials under his jurisdiction, such defects will, upon written request, be repaired or replaced by this contractor at his own expense. If exploratory work is required to determine the cause of defects, the cost of such work shall be borne by this contractor only in case his work is found, in the judgment of the Architect, to be at fault.

#### 1.4 **REFERENCES**

Whenever published specifications, standards or methods are referred to, it shall be understood that reference is made to the latest edition of such publication.

#### 1.5 **CONTRACTOR**

- a. The contractor for the glazed aluminum curtain wall work is referred to throughout this section as 'this contractor', as opposed to the General Contractor, also referred to.
- b. The contractor shall have had sufficient track record in the execution of custom type monumental projects similar to the scope and nature to that specified.
- c. The contractor's proposal shall be accompanied by a written statement of any and all exceptions to, or variances from, the requirements of the drawings and specifications explaining such proposed variations/exceptions. Unless exceptions are so listed, the proposal shall be understood to represent full compliance with the requirements of the drawings and specifications.

#### 1.6 **CONTRACTOR'S RESPONSIBILITY**

- a. This contractor shall examine the contract drawings and these specifications to ensure that the work is complete. If errors, omissions, or inconsistencies are



- discovered he shall promptly notify the Architect and the General Contractor in writing, and in submitting his bid shall state any qualifications affecting it.
- b. This contractor shall coordinate his work with that of other trades and/or contractors involved, and shall promptly furnish deadlines for items to be supplied by others.
  - c. Dimensional tolerances and deviation from true plane permissible in the building frame to or over which the metal curtain walls is to be attached are defined in item 3.1 of these specifications. This contractor shall provide for these variations in the design, within erection tolerances as specified in item 7.3 of this Section.

## PART II - PRODUCTS

### 2.1 MATERIALS

- 2.1.1. Proprietary Wall Components: Aluminum Extrusions of shapes and thickness indicated and required to fulfill performance requirements.
- 2.1.2. Metal Work:
  - a. Exposed exterior aluminum shall have factory applied fluorocarbon resinous coating (1.2 mil +/-0.2 mil). Factory applied coating complying with AA M12-C12-R1x, AAMA 605.2 containing not less than 70% Atochem's Kynar resin; 25-year life expectancy. Special color and finish will be selected from Duranar XI coatings (2 coat). Colors as selected by Owner and Architect.
  - b. All interior aluminum shall have Thermal Acrylic Enamel (TAE) coating. Special color and gloss to be determined, using thermosetting acrylic enamel applied to topcoat minimum dry film thickness of 1.0 mil.
- 2.1.3. Aluminum Panels:
  - a. Prior to aluminum panel fabrication, provide panel mock-up 1 m in length for Architect review.
  - b. The location of panel joints shall be as shown on the drawings.
  - c. Deviations from flat at spandrel and columns shall not exceed 1.5mm in 305mm at any location or 3mm total for the entire face or as required by mock up review.
  - d. The contractor shall verify by testing that the alloy and thicknesses of the aluminum panel, the support anchorages, fasteners, etc. used are adequate to withstand wind loads required by local building code.
  - e. The contractor shall verify by testing that the aluminum panel joint systems used will provide a high quality waterproof enclosure equal to that required for the window wall. Provide two continuous distinct and separate lines of protection against air infiltration and water leakage.
  - f. The color, finish, and quality of all aluminum panels is to match the Architect's sample. Contractor must submit samples to Architect to establish acceptable color range.
  - g. All aluminum panels shall have the required amount of fasteners per piece to insure proper installation and strength for wind loading specified.
  - h. All details are to be coordinated with existing structural framing, roofing, window wall interior finishes and other related building materials.
  - i. Provide an interior weep system between the supporting structure and panels that will weep water into the window wall weep system and directly to the exterior at each floor.
  - j. The contractor shall coordinate locations of panel anchorage. Position of sealants and compatibility of sealants with those of any adjacent window wall construction.
  - k. All exposed panel attachments and supports shall be aluminum. All shims are to be non-ferrous.
  - l. All aluminum panels are to be reinforced to insure maximum panel flatness. Design of reinforcements to be such that 'telegraphing' of reinforcement and/or oil canning" of panels does not occur.
  - m. Outside radius dimension of bent aluminum pieces, where required, shall not exceed twice the thickness of the materials.
  - n. Areas within 5 meters of eye level will be back cut at bends to achieve crisp corners.



- o. Cut and grind exposed edges smooth, true and sharp. Provide concealed slip anchorage on backside and locate to keep plane plumb and straight.
- p. Fabricate corners from aluminum shapes to sizes and profile indicated.
- q. Mill reveals from stainless steel plate or extrude to profile indicated. Finish surface to No.4 satin finish.

2.1.3. Sealants and Glazing materials:

Described under Section 08800 Glass and Glazing.

2.1.5. Insulating Materials:

Provide semi-rigid curtain wall insulation (7.5 cm, minimum) with thermal resistance of 19 (R 19) at all locations except at vision glass window. All insulation panels are to be oversized to create a tight joint between panels and installed securely within window frame by fasteners described under Division 7 Paragraph 'Insulation'. Continuously tape all insulation to the back of aluminum.

2.1.6. Fasteners:

Stainless Steel type 300 series, selected to prevent galvanic action with the components fastened. Where exposed in finished surfaces, use oval-head countersunk crossheaded screws with screw diameter one screw size smaller than the shank diameter and color to match the adjacent surfaces, using the resinous coating finish as applicable.

2.1.7. Glass Fiber Reinforced Concrete (GFRC) Panels:

The color, character and quality of all GFRC is to match the Architect's sample. GFRC manufacturer shall submit samples color and quality of material. See Division 3 for Pre-cast: Glass Fiber Reinforced Concrete (GFRC) Panels.

### PART III - EXECUTION

#### 3.1 WORKMANSHIP

3.1.1. General: All parts of the curtain wall shall be of the materials, design, sizes and thicknesses shown or called for on the drawings and herein specified. Methods of fabrication, assembly and erection, however, unless otherwise specifically stated shall be at the discretion of this contractor, whose responsibility it shall be to guarantee satisfactory performance as herein specified.

3.1.2. Fasteners: Provide positive mechanical fasteners for all attachments other than glazing. All fasteners to be concealed except as specifically shown.

3.1.3. Protection of Metals:

- a. All dissimilar metals shall be effectively isolated from each other to avoid molecular breakdown.
- b. All aluminum stone supporting members to be completely isolated from stone.
- c. Paint clip angles, and other ferrous metal parts, which will be concealed, with zinc chromate paint.
- d. Protection against galvanic action shall be provided whenever dissimilar metals are in contact, except in the case of aluminum in contact with galvanized steel, zinc, or relatively small areas of stainless steel or nickel silver (white bronze). This protection shall be provided by:
  - 1) painting contact surfaces with one heavy coat of zinc chromate paint, then two coats of aluminum metal-and-masonry paint
  - 2) painting the contact surfaces with a heavy brush coat of bituminous paint
  - 3) application of mastic bulk compound between contact surfaces
  - 4) separating the contact surfaces by use of perforated mastic tape.
- e. Where aluminum surfaces come in contact with lime mortar, concrete or other masonry materials, paint the aluminum with alkali-resistant coating.



- f. Where aluminum surfaces come in contact with wood or other absorptive materials which may become repeatedly wet, paint aluminum with two coats of aluminum house paint and joints sealed with a good quality caulking compound.
- g. Use of Sealing Materials
  - 1. All uses of sealing materials, both in the factory and at the site, shall be in strict accord with the specific recommendations supplied by the manufacturer of the material.
  - 2. There shall be no exposed sealant at metal to metal intersections unless otherwise noted by the Architect.
  - 3. Glaze all exterior aluminum-to-aluminum filed joints with one component silicone sealant.
  - 4. Caulk all exterior/interior aluminum-to-concrete masonry with one non-acetic silicone sealant.
  - 5. All sealant joints shall be designed to accommodate minimum/ maximum size as recommended by the manufacturer for all anticipated movements.
  - 6. All sealant joints shall maintain contact with the adjoining parts within allowable dimensional changes in the joint size. All sealant joints shall maintain durability and integrity under all conditions.
  - 7. All sealants shall be installed with appropriate back-up rod and tooled as per manufacturer's recommendations.
  - 8. All surfaces to be sealed with silicone sealant shall be tested for adhesion and absorption (staining) as specified.
  - 9. Field vulcanizing is not acceptable.
  - 10. The manufacturer shall verify that all sealants used for the window wall are correct for the application shown and will be compatible with each other before, during and after curing. Color of sealants to be determined.

### 3.2 FABRICATION

- a. Shop Assembly: Insofar as practicable, fitting and assembly of the work shall be done in the shop. Work that cannot be permanently shop-assembled shall be completely assembled, marked and disassemble before shipment, to ensure proper assembly in the field.
- b. Joints in Metal Work: All exposed work shall be carefully matched to produce continuity of line and design. All joints exposed metal work, unless otherwise shown or specified, shall be accurately fitted and rigidly secured with hairline contacts.
- c. Welding:
  - 1. All welding shall be in accord with appropriate recommendations of the American Welding Society and shall be done with electrodes and/or by methods recommended by the manufacturers of the alloys being welded. Type, size and spacing of welds shall be as shown on approved shop drawings. All welds behind finished surfaces shall be so done as to minimize distortion and/or discoloration on the finished side. All weld spatter and welding oxides on finished surfaces shall be removed by descaling and/or grinding.
  - 2. Unless otherwise shown or specified, all weld beads on exposed polished surfaces shall be ground and/or polished to match and blend with finish on adjacent parent metal. Grinding and polishing of stainless steel shall be done only with clean wheels and compounds, free from iron and iron compounds.
- d. Soldering:

All soldering and/or brazing shall be done in accordance with the recommendation of the manufacturers patent materials involved. Soldering of stainless steel shall be employed only for filling or sealing of joints, and shall not be relied upon for mechanical strength. Immediately after soldering stainless



steel, all fluxes shall be removed by washing with a strong neutralizing solution, followed by clear water rinse and drying.

e. Cleaning of Stainless Steel:

1. Stainless steel surfaces, after being ground and/or polished, or where subjected to severe forming operations, shall be cleaned of all extraneous material, thoroughly hosed with clear water and dried.
2. All lubricants used in the fabrication of stainless steel shall be removed before the work leaves the shop.

### 3.3 ERECTION

- a. Bench marks for elevations and building line offset marks for alignment shall be established and permanently marked for each wall at convenient points (on each floor) by the General Contractor, for use by this contractor. Responsibility for the accuracy of these marks shall lie with the General Contractor. Should any error be found in their locations, the General Contractor shall be notified to correct the faulty locations.
- b. Skilled workmen, especially trained in this type of work shall erect all work. Before aluminum components are delivered to the site, this contractor shall examine the parts of the building structure, and shall report in writing to the Architect and General Contractor any condition which is in his opinion will prevent the proper execution of his work or endanger its permanency.
  - c. Erection work shall not proceed until such conditions are corrected or adjusted to the satisfaction of the Architect and this contractor.
  - d. All work shall be erected plumb, square and level at correct locations and in vertical and horizontal alignments, with uniform joints. All similar members shall be straight, true and aligned in the same plan. They shall be installed without undue forcing or distorting. All members shall be securely anchored in accordance with approved details.
  - e. Use only types of equipment, ropes, wedges, spacers, shims and other items during erection which shall be completely removed.
- f. Where galvanized surfaces of steel accessories are damaged due to field welds, cutting and drilling, affected areas shall be treated with a cold galvanizing compound.

#### 3.3.1. ERECTION TOLERANCES

Unless otherwise specified, all parts of the metal curtain wall when completed shall be within the tolerances stated in Item 2.01.c.3 and 4 of this specification.

#### 3.3.2. ANCHORAGE

Anchorage of the wall to the structure shall be approved methods, in strict accordance with the approved shop and/ or erection drawings. Supporting brackets shall consist of two or more parts so designed as to provide three-dimensional adjustment and accurate location of the wall components. After the wall is properly positioned, all adjustable anchorage connections shall be rigidly fixed by welding or other positive means, unless specifically required otherwise.

#### 3.3.3 REMOVAL OF DEBRIS

This contractor shall be responsible for the removal of his debris from the jobsite, and shall remove it promptly as work progresses.

#### 3.3.4. PROTECTION AND CLEANING

This contractor shall install his work in a clean and workmanlike manner; removing all mastic smears and other unsightly marks. The contractor shall be responsible for any damage to or disfiguration of the work against damage or abuse by other trades or contamination by other materials, as well as the final cleaning of the work, shall be the responsibility of the General Contractor.



**DIVISION 9**  
**FINISHES**

**SECTION 09220**  
**PORTLAND CEMENT PLASTER**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all labor, materials, equipment and the performance of all operations necessary for the completion of all plastering works indicated on drawings and this specifications.

**1.2 SUBMITTALS**

1.2.1 **SAMPLES:** Submit samples of materials for Architect's approval. Match these samples with the delivered materials prior to use.

**1.3 PRODUCT HANDLING**

1.3.1 **DELIVERY AND STORAGE OF MATERIALS:** Manufactured materials shall be delivered in original unbroken packages, containers or bundles bearing the name of the manufacturer's brand.

Cement and lime shall be stored off the ground under watertight cover and away from leaking walls and damp surfaces until ready for use.

Damage or deteriorated materials shall be removed from the premises.

**PART II - PRODUCTS**

**2.1 MATERIALS**

2.1.1 **PORTLAND CEMENT:** Shall conform with ASTM C 150, Type I or PNS 07 of an approved brand.

2.1.2 **SAND:** Shall be natural and shall be retained between No.50 and No. 100 sieves.

2.1.3 **LIME:** Shall be hydrated lime with the further requirement that the free (unhydrated) calcium oxide and magnesium oxide in the hydrated product shall not exceed eight percent by weight.

2.1.4 **WATERPROOFING:** Shall be "SAHARA" brand dry compound or its approved equivalent.

2.1.5 **PVC PLASTERING GUIDE:** Shall be "ATLANTA" brand or its approved equivalent.



## DIVISION 10 SPECIALTIES

### SECTION 10160

#### TOILET PARTITIONS AND URINAL SCREENS

##### PART I - GENERAL

###### 1.1 SCOPE

This section includes all materials, labor, equipment and the performance of all operations necessary for the furnishing and installation of all toilet partitions and urinal screens complete with accessories and fasteners as indicated on drawings and specifications.

###### 1.2 SUBMITTALS

- 1.2.1 Submit the following in accordance with Conditions of Contract and Specification sections.
- 1.2.2 Product data for materials, fabrication, and installation including catalog cuts of anchors, hardware, fastenings and accessories.
- 1.2.3 Samples of full color range for each required unit type.

###### 1.3 QUALITY ASSURANCE

- 1.3.1 **FIELD MEASUREMENT:** Take field measurements prior to component fabrication to ensure proper fitting of work.
- 1.3.2 **COORDINATION:** Furnish inserts and anchorage that must be built into other work for installation of toilet partitions and related items.

##### PART II - PRODUCTS

###### 2.1 MATERIALS

- 2.1.1 **TOILET PARTITIONS & URINAL SCREENS:** Use **SPAZIO** Toilet Partitions as manufactured by **Luxacraft Phils., Inc.** or approved equivalent. Component material shall be melamine laminate with finish faces of melamine resin impregnated paper thermally fused to the substrate core. All exposed edges shall be PVC with color matching face. Color as approved by the Architect.
- 2.1.2 **BRACKETS:** Shall be as per manufacturer's standard design for attaching panels to walls, stiles to walls and panels to stiles of the following material; stainless steel/hairline finish shoe cover and powder coated metal stile panel support.
- 2.1.3 **HINGES:** Supply stainless steel gravity hinges cast stainless steel hinges type 304. Top and bottom hinge shall consist of and opposite nylon gravity-acting cam allowing door to be set in various positions.
- 2.1.4 **LATCH AND KEEPER:** Chrome plated non-ferrous slide latch or stainless steel type 304 with indicator, **ALPHA** brand or approved equivalent.
- 2.1.5 **COAT HOOK:** Type 304 stainless steel combination coat hook and door bumper.
- 2.1.5 **TISSUE HOLDER:** Type 304 stainless steel.

###### 2.2 QUALITY CONTROL

- 2.2.1 **INSPECTION:** Upon delivery to job site, inspect for damages and irregularities. When damage is considerable, reject product and remove from site. Replace with new items at no extra cost to the Owner.

### PART III - EXECUTION

3.1 **GENERAL:** Furnish standard doors, panels and stiles fabricated for this system. Furnish units with cutouts and drilled holes to receive partition hardware as indicated

3.1.1 **DOOR DIMENSIONS:** Unless otherwise indicated, furnish 60mm thick wide in-swing doors for ordinary toilet partitions and minimum 80mm thick wide (clear opening) out-swing doors.

3.1.2 **RESTROOM PARTITIONS, STILE PANELS AND DOOR:** Melamine laminate: One-piece face sheets shall be pressure laminated to core material. Substrate core for all components shall be moisture resistant (MUF) fiberboard. Edges shall be sealed with matching PVC.

3.1.3 **FLOOR MOUNTED CONSTRUCTION:** Furnish steel anchorage devices complete with threaded rod, lock washers and leveling adjustment nuts at stiles to permit structural connection at floor. Provide stainless steel shoe cover at each stile.

### 3.2 INSTALLATION

3.2.1 **GENERAL:** Comply with manufacturer's recommended procedures and installation sequence. Install compartment units rigid, straight, plumb and level. Secure panels to walls with not less than three(3) brackets attached near top and bottom panel. Locate wall brackets so that holes for wall anchorages occur in masonry or tile joints. Secure panels in position with manufacturer's recommended anchoring devices.

3.2.2 **FLOOR MOUNTED PARTITIONS:** Set stile units with anchorages having not less than 1 1/2" penetration into structural floor, unless otherwise recommended by *Luxacraft*. Level, plumb, and tighten installation with devices furnished. Hang doors and adjust so that top of doors are level with top of stiles when doors are in closed position.

### 3.3 CLEANING

After completion of installation, all debris shall be carefully removed particularly scraps of metal, fillings of lumber, etc. The finished partitions shall retain its protective covering.



**SECTION 10671  
METAL STORAGE SHELVING**

**PART I - GENERAL**

**1.1 SCOPE**

This section includes all materials, labor, equipment and the performance of all operations necessary for the provision and installation of all metal storage shelvings as indicated on drawings and specifications.

**1.2 SUBMITTALS**

- 1.2.1 Submit the following in accordance with Conditions of Contract and Specification sections.
- 1.2.2 Product data for materials, fabrication, and installation including catalog cuts of anchors, hardware, fastenings and accessories.
- 1.2.3 Samples of full color range.

**PART II - PRODUCTS**

**2.1 MATERIALS**

All parts shall be fabricated using mild, cold-rolled, furniture grade, prime domestic steel. Shelves shall be Ga. 16 steel.

All steel parts shall be thoroughly cleaned and chemically treated with an iron phosphate coating to protect against rust and corrosion, and to ensure proper bonding of the enamel finish.

**PART III - EXECUTION**

**3.2 INSTALLATION**

Install metal shelves at the locations shown in the Drawings and in accordance with the manufacturer's instructions for a plumb, level and rigid installation. Conceal all fasteners wherever possible. Use suitable anchors to provide secure anchorage.



**SECTION 11400  
FOOD SERVICE EQUIPMENT**

**1.1 SCOPE**

This section includes all labor, materials, tools, equipment and the performance of all operations necessary for the completion of all kitchen areas as detailed on the Architectural drawings and herein specified. Work included are:

- 13) Provision of food preparation tables and counters as detailed, the profiles depicted therein and their dimensions as to conform with the other building interior elements.
- 14) Provision, installation and making ready for use all cooking equipment.
- 15) All the necessary utilities to support the kitchen activities.
- 16) Shop drawings.
- 17) Installation work shall proceed only after approval of shop drawings by the Architect.

**1.2 GENERAL REQUIREMENTS**

**1.2.1 STORAGE, HANDLING AND PROTECTION**

- a. Deliver all components covered with heavy building paper or other adequate covering to protect finish surface from mortar, plaster, fingerprints, scratches or stains. All equipment shall be packaged in their original boxes to show make and specifications.
- b. Store all items in dry spaces provided by the general contractor as close as possible to the point of installation. Locate these spaces where the stored material will not be exposed to damage by adjacent work and will permit easy access to the materials. Install the materials neatly and properly stacked.

**1.3 SUBMITTALS**

**1.3.2 SHOP DRAWINGS**

- j) The kitchen Contractor shall be responsible for development of final design intent shown. All proposed details and finishes for each type of component must be reviewed and accepted by the Architect prior to fabrication.
- k) Details not shown are similar in character to those detailed. Where specific dimensions, details or design intent cannot be determined, consult the Architect before proceeding with work.
- l) All details are to be coordinated with the other interior finishes, and other related building components in order to provide a complete enclosure of finish materials. Fireproofing requirements shall comply with applicable codes and regulations.
- m) Any electrical outlets required shall be flush electrical boxes with finished covers flush with adjacent material.
- n) All required lighting protection devices shall have concealed conductor cables.
- o) Eight (8) copies of all shop drawings shall be submitted to the Architect for his approval. These drawings shall be at full scale as far as practical, and shall show in detail the construction of all parts of the work, including metal thicknesses, methods of joining, details, metal finishes and all other pertinent information. No work shall be fabricated until the Architect has approved shop drawings for that work.

- 1.3.2 **SAMPLES:** Before any work is fabricated, this Contractor shall submit to the Architect for his approval the samples representing materials and finishes, all equipment brochures proposed for use in this work.



### 1.3.3 GUARANTEE

Before final payment is made, this contractor shall guarantee to the Owner in writing that all parts of the work will meet the specified overall performance requirements. The work shall be free from defects in materials and workmanship for a period of two (2) years following its acceptance by the Architect. He shall certify in writing also that all work is in accordance with the Contract Documents and authorized alterations/ additions thereto. Should any defect develop during the guarantee period due to improper workmanship or materials under his jurisdiction, such defects will, upon written request, be repaired or replaced by this contractor at his own expense. If exploratory work is required to determine the cause of defects, the cost of such work shall be borne by this contractor only in case his work is found, in the judgment of the Architect, to be at fault.

### 1.4 REFERENCES

Whenever published specifications, standards or methods are referred to, it shall be understood that reference is made to the latest edition of such publication.

### 1.5 CONTRACTOR

- a. The contractor for the cooking equipment is referred to throughout this section as 'this contractor', as opposed to the General Contractor, also referred to.
- b. This contractor shall have had sufficient track record in the execution of custom type monumental projects similar to the scope and nature to that specified.
- c. The contractor's proposal shall be accompanied by a written statement of any and all exceptions to, or variances from, the requirements of the drawings and specifications explaining such proposed variations/exceptions. Unless exceptions are so listed, the proposal shall be understood to represent full compliance with the requirements of the drawings and specifications.

### 1.6 CONTRACTOR'S RESPONSIBILITY

- a. This contractor shall examine the contract drawings and these specifications to ensure that the work is complete. If errors, omissions, or inconsistencies are discovered he shall promptly notify the Architect and the General Contractor in writing, and in submitting his bid shall state any qualifications affecting it.
- b. This contractor shall coordinate his work with that of other trades and/or contractors involved, and shall promptly furnish deadlines for items to be supplied by others.

## PART II - PRODUCTS

### 2.1 MATERIALS

2.1.1 **STAINLESS STEEL.** Use brush finished stainless steel (S.s.) plates, tubes and accessories of varying thickness (gauge) depending on application.

a. **Plates.**

- a.1 16 ga. S.s. for countertop plates, sinktable tops, backsplashes, sinkbowls, stiffeners, bracket supports and other applications as called for in the detailed plans and drawings.
- a.2 18 ga. S.s. for overhead shelves, range hood body panels, grease filter holders, and other applications as called for in the detailed plans and drawings.
- a.3 20 ga. S.s. for top plates, exterior cabinet body panels, cabinet doors, motor compartment covers, louvers, mid and bottom shelves, and other applications as called for in the detailed plans and drawings.
- a.4 20 ga. S.s. perforated plates for shelves, body panels and other applications as called for in the detailed plans and drawings.



- a.5 22 ga. S.s for inner body panels, range hood baffle-type grease filters and other applications as called for in the detailed plans and drawings.
- b. **Tubes.**
  - b.1 2" diameter S.s. tubes for leg gussets, frames and other applications as called for in the detailed plans and drawings.
  - b.2 1-1/2" diameter S.s. tubes for upright supports, frames, dwarf legs and other applications as called for in the detailed plans and drawings.
  - b.3 1" diameter S.s. tubes for horizontal bracings and other applications as called for in the detailed plans and drawings.
- c. **Accessories.**
  - c.1 Footing: use S.s adjustable bullet type feet.
  - c.2 Basket strainers
  - c.3 P-trap assemblies
  - c.4 Kitchen faucets: use Chrome-plated (CP) deck type concealed style swing type.
  - c.5 Grease trap: use 22 ga. S.s. including perforated pan.

## 2.2 QUALITY CONTROL

### PART III - EXECUTION

#### 3.1 WORKMANSHIP

- 3.1.1 General: All parts shall be of the materials, design, sizes and thicknesses shown or called for on the drawings and herein specified. Methods of fabrication, assembly and erection, however, unless otherwise specifically stated shall be at the discretion of this contractor, whose responsibility it shall be to guarantee satisfactory performance as herein specified.

#### 3.2 FABRICATION

- a. Shop Assembly: Insofar as practicable, fitting and assembly of the work shall be done in the shop. Work that cannot be permanently shop-assembled shall be completely assembled, marked and disassemble before shipment, to ensure proper assembly in the field.
- b. Joints in Metal Work: All exposed work shall be carefully matched to produce continuity of line and design. All joints exposed metal work, unless otherwise shown or specified, shall be accurately fitted and rigidly secured with hairline contacts.
- c. Cleaning of Stainless Steel:
  - 1. Stainless steel surfaces, after being ground and/or polished, or where subjected to severe forming operations, shall be cleaned of all extraneous material, thoroughly hosed with clear water and dried.
  - 2. All lubricants used in the fabrication of stainless steel shall be removed before the work leaves the shop.

#### 3.3 ERECTION

- b. Skilled workmen, especially trained in this type of work shall install all work. Before aluminum components are delivered to the site, this contractor shall examine the kitchen space allotment, and shall report in writing to the Architect and General Contractor any condition which is in his opinion will prevent the proper execution of his work or endanger its permanency.
- c. Installation work shall not proceed until such conditions are corrected or adjusted to the satisfaction of the Architect and this contractor.



d. All work shall be erected plumb, square and level at correct locations and in vertical and horizontal alignments, with uniform joints. All similar members shall be straight, true and aligned in the same plan. They shall be installed without undue forcing or distorting.

### 3.3.3 REMOVAL OF DEBRIS

This contractor shall be responsible for the removal of his debris from the jobsite, and shall remove it promptly as work progresses.

### 3.3.4. PROTECTION AND CLEANING

This contractor shall install his work in a clean and workmanlike manner; removing all mastic smears and other unsightly marks. The contractor shall be responsible for any damage to or disfiguration of the work against damage or abuse by other trades or contamination by other materials, as well as the final cleaning of the work, shall be the responsibility of the General Contractor.