



## Committed to Excellence

KIYOSEKI GLOBAL LLC (KG) is a full-service manufacturer and contractor of architectural aluminum & glass products that provides to the building industry design, engineering, shop drawings, fabrication and installation of curtain walls (Fully capture, two way structure glazing And four way structure glazing), Skylights, Doors & Windows, Partitions, Frameless & Spider System and Architectural Cladding.

Headquartered in the United Arab Emirates, to serve the Middle East region, we operate in a modern purpose-designed manufacturing facility, with a huge fabricating and logistic center, at SAFE ZONE area, which is currently considered as the heart of the construction area in Sharjah. (KG) is designed to face the challenges of today's complex business environment, by balancing experience with change and ongoing improvement, putting into consideration U.A.E strategic expansion plan in the construction industry.

KG is managed by a team of professionals, who have extensive experience and comprehensive portfolio in the architectural aluminum & glass works for many years.

KG management team directly involve themselves with each project from start to finish, ensuring the clients benefit from their experience, strong direction and hands-on approach to exceed expectations through quality, service, innovation and efficiency.

KG is committed to respond to its customers' needs in every way possible from offering new concepts, implementing effective solutions and communicating to the final delivery through creating quality effective solutions for its clients' requirements. Bearing in mind changing times, strict budgets and fast track programs, providing services to the architects, the consultants, the constructors and clients giving accurate pre-contract advice on design, budgeting and technical assistance. KG achieves system excellence through application of the highest standards and the best practices of the industry. Our strengths lie in the quality of our design using the latest technique softwares, professional technical and managerial staff along with our latest technology equipped in-house production and the highly trained fabrication and installation team.

## Prequalification

## Location Map

## Prequalification



**The Legal Company Name:** Kiyoseki Global - LLC

**The Legal Business Form:** Limited Liability Company

**The Board of Directors:**

- Mr. Ali Bin Haidar - Chairman
- Mr. Talaat Saab – Managing Director

**The Brand Name:** Kiyoseki

**The Logo:**



**The Business Description:** Design, manufacturing and installation of architectural Metal and glass works.

**The Contact Details:**

Kiyoseki Global LLC

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Head Office Location:

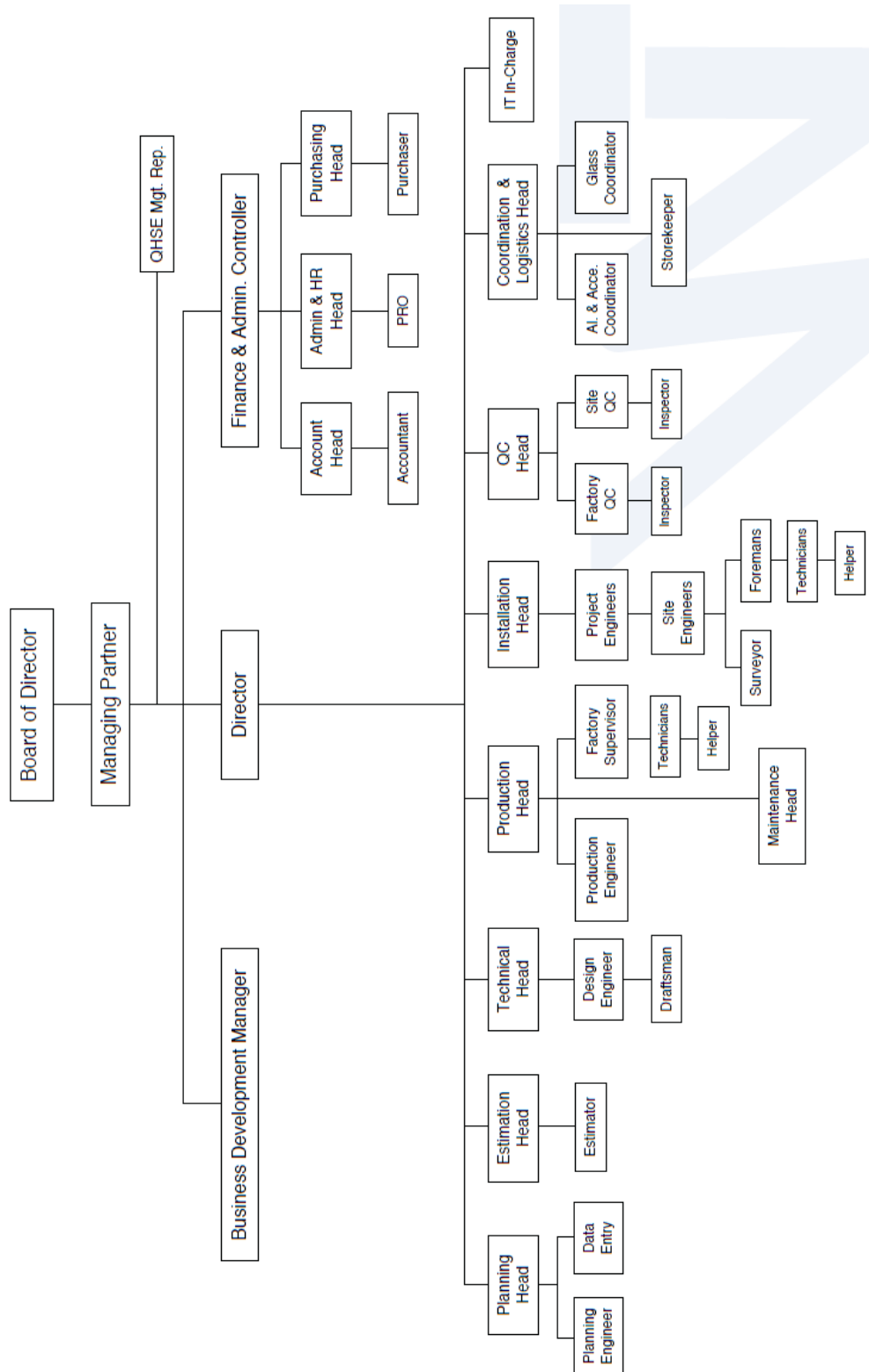
Airport Road

Dubai

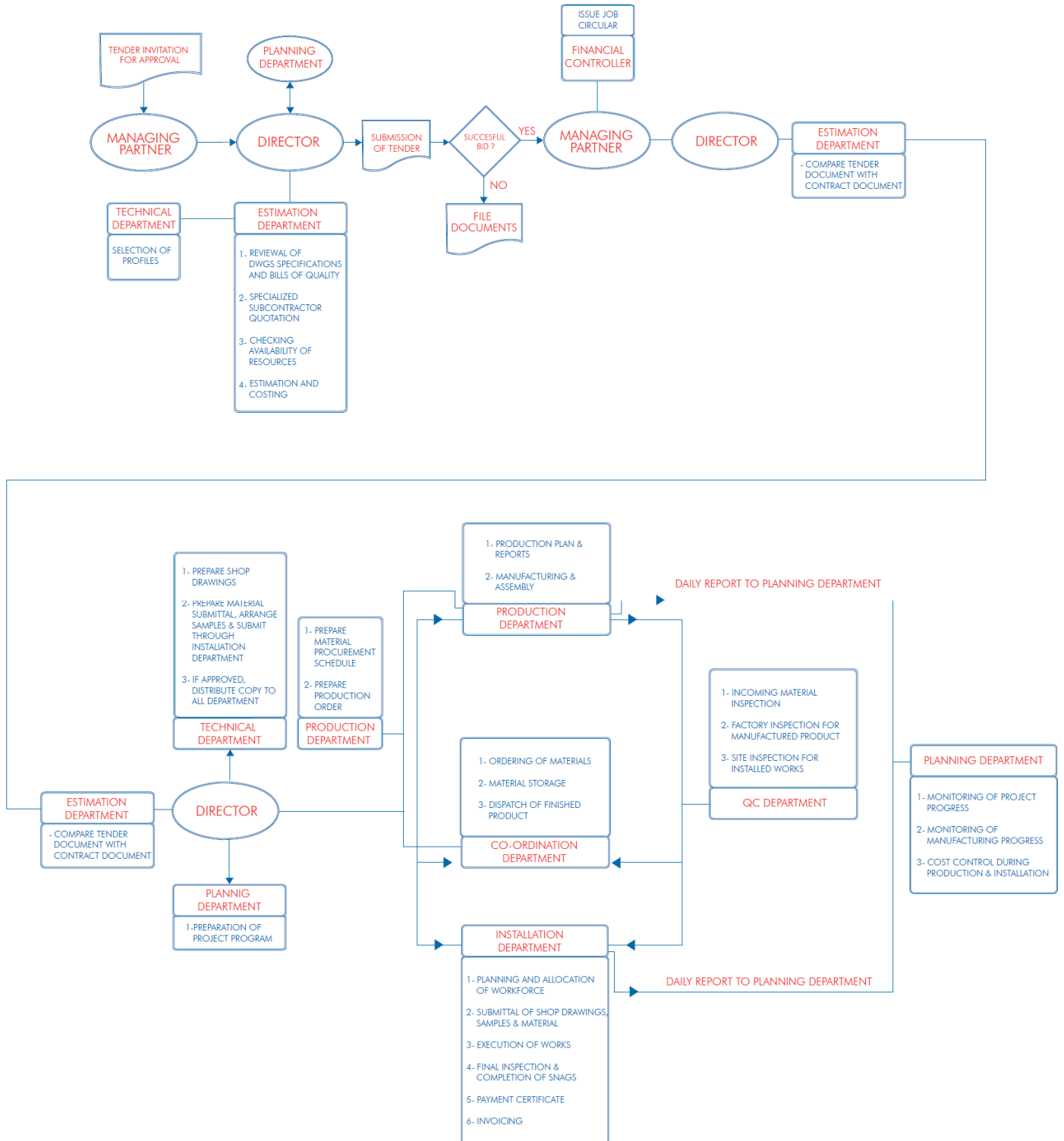
UAE

## Prequalification

## Organizational Chart



## Flowchart



## Prequalification

## **Quality Policy**

### **Committed to Total Customer Satisfaction**

The quality management strategies of (KG) incorporate with the international Standards of Total Quality Management systems, which ensures providing our Clients with products and services that meet or exceed their requirements and Expectation.

Providing Total Quality Commitment to our customers and having therefore adopted the following fundamental principles with our business:

- To ensure quality in everything we manufacture.
- To fully understand and clearly define our customer and supplier requirements, in order to meet their expectations.
- To involve all our staff, fully utilizing their skills and capabilities in developing our working practices.
- To create an environment for continuous improvement in the quality of our products & services.

Meeting the requirements of these standards requires regular reviews, and all activities are audited in a systematic manner to identify potential problems, introduce preventative solutions and provide a basis for continuous improvement.

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## **Health & Safety Policy**

### **Committed to Enjoy Healthy and Safe Working Environment**

KG management recognizes the health and safety duties under the Health and Safety at Work Article (1) of the Ministerial Decree (32), and the international regulations and standards, all the staff to be responsible for complying with health and safe regulations at the company workplaces.

KG management proposes always to comply with its duties towards its employee's health and safety as reasonable and practicable to:

- Provide and maintain a safe place of work, a safe system of work, safe appliances for work and a safe and healthy working environment.
- Provide such information and instruction as may be necessary to ensure the health and safety at work of its employees and also compliance with the Health and Safety Regulations and to promote awareness and understanding of health and safety throughout the workforce.
- Ensure safety and absence of health risks in connection with use, handling, storage and transport of articles and substances.
- Make regular risk assessments to employees.
- Take appropriate preventive/protective measures.
- Appoint competent personnel to help and secure compliance with statutory duties.

All employees of the Company agrees, as a term of their contract of employment, to comply with their individual duties the Health and Safety at Work Regulations. Failure to comply with health and safety duties, regulations, works rules and procedures regarding health and safety, on the part of any Employee, can lead to dismissal from employment; in the case of serious breaches, or repeated breaches, such dismissal may be instant without prior warning. We have identified some of the hazards that we encounter during our work and have outlined measures to reduce the risk to personnel, these hazards and measures are listed to help increase the employees awareness of health and safety and to encourage them to question the procedures used in order to maintain and improve standards.

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Personal Protective Equipment such as hard hats, gloves, protective shoes/boots, goggles, particle masks and high visibility clothing are all designed to protect our employees from various hazards. All available protective equipment must be used whenever necessary. In compliance with the First Aid Regulations, the company provides first aid cover in the event of an injury by maintaining First Aid Boxes everywhere.

## **Working on or visiting other sites**

When working on other people sites this health and safety policy will be considered the minimum standard. Any site rules imposed by the client or the principle contractor will also apply if not already covered in this policy.

## **Prequalification**



## **Procedure**

### **1. Purpose**

The purpose of this procedure is to address the mechanism of inspection and testing of KG aluminum products.

### **2. Scope**

- Physical inspections of the Aluminum Profiles.
- Processing inspection, cutting milling and punching.
- Processing inspection, crimping.
- Processing inspection, Assembly.
- Product test. • Installation inspection.
- Glass tests and inspection.

### **3. Responsibility**

Quality Control, Production, Installation & Operations Director

### **4. Action/ implementation Notes**

4.1 After receiving the Aluminum bars from the stores, all profiles will be inspected according to the criteria mentioned in inspection sheet.

- Passed items should be rank carefully at the holders and the protection tape Should be installed immediately.
- Hold and rejected items should be delivered to the cutting machine to remove the defected parts from the bar.
- Rejected Items should be returned to the stores.

## **Prequalification**

4.2 After the cutting, milling and punching processes, the Quality Control Engineer should inspect all dimensions and shapes of the profiles according to the criteria mentioned in inspection sheet.

4.3 Passed items to be delivered to the crimping and assembly section to start assembly of units.

4.4 After finishing the assembly, general inspection to be performed by the Quality Control Engineer according to the criteria mentioned in inspection sheet.

4.5 QC passed products to be shipped to the trucks with the delivery note sheets and delivered to the site.

4.6 The Site Engineer should check all the units delivered to the site, to insure that no damage was caused by the transportation.

4.7 After installation the Site Engineer should test and inspect the units according to the Installation check sheet.

4.8 Glass testing and inspection:

- Glass should be delivered to the factory from the glass supplier.
- Glass properties and specification should be guaranteed from the glass supplier.
- Factory responsibility is limited to check the glass dimensions and check the existing of any visible defects (scratches, broken edges...etc.)
- After delivering the glass to the site, the site engineer has to check the proper installation of glass units at the correct positions.

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## Factory layout

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# Aluminium Fabrication Machinery

## 1.)AUTOMATIC SINGLE HEAD CUTTING OFF MACHINE

MODEL:LUNA 450-A  
MADE IN ITALY



### TECHNICAL DESCRIPTIONS:

- Single head cutting off machine with automatic raising blade.
- Possibility to perform trimming operations.
- Three phase motor 2 HP

### STANDARD EQUIPMENT:

- Vertical pneumatic clamping set
- Full protection of the blade
- TCT Saw Blade Ø450 mm
- Trimming fence
- Air Filter- Air gun

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## **2.) END MILLING MACHINE**

**MODEL: CIAO**



### **TECHNICAL DESCRIPTIONS:**

Horizontal end milling machine with manual feeding, milling at 90°. Equipped with spindle at 2800rpm with useful stroke 250mm. Max cutter diameter 160mm. Three phase motor 1.5 HP

### **STANDARD EQUIPMENT:**

Pneumatic clamping set – Turret stop for presetting 6 milling depths – Pneumatic lubrication  
Nr.1 cutter

### **3.)BENDING MACHINE**

**MODEL: BENDA**



#### **TECHNICAL DESCRIPTIONS:**

Electromechanical bending machine for forming arcs and circles simultaneous bending operations by means of 2x motorgears. Motor 2 HP

## 4.) CUTTING OFF MACHINE WITH BLADES

MODEL: TMS 450-6  
MADE IN ITALY



CAPACITÀ DI TAGLIO / CUTTING CAPACITY /  
CAPACITÉ DE COUPE

| TMS 450G | ○   | □   | ▭                 |
|----------|-----|-----|-------------------|
| 0°       | 145 | 135 | 330x70<br>200x100 |
| 45°      | 145 | 125 | 240x55<br>185x50  |

### TECHNICAL DESCRIPTIONS:

HEAD AND VICE REVOLVING TO THE RIGHT  
AND LEFT FROM 0° TO 45°

MOTOR GUARD

DEVICE FOR PARALLEL CUT

QUICK LOCK VICE

PEDESTAL IN STEEL PLATE

400 VOLT – 50 HZ – 3PH




## 5.) MANUAL CUTTING OFF MACHINE

MODEL: TMS 400

MADE IN ITALY



CAPACITÀ DI TAGLIO / CUTTING CAPACITY /  
CAPACITÉ DE COUPE

| TMS 400 |  |  |  |
|---------|---|---|---|
| 90°     | 135   | 125   | 220x65  |
| 45°     | 130   | 115   | 170x60  |

### TECHNICAL DESCRIPTIONS:

VICE REVOLVING TO THE RIGHT AND LEFT FROM 0° TO 45°

MOTOR GUARD

DEVICE FOR PARALLEL CUT

QUICK LOCK VICE

230 VOLT - 50 HZ - 1 PH



## 7.) DOUBLE HEAD COMPRESSOR

MODEL:GS38/1000/2000/TD



|         |       |
|---------|-------|
| Lt.     | 1.000 |
| Lt./min | 2.000 |
| HP      | 10+10 |
| Volt    | 400   |
| HZ      | 50    |

## **12.) VERTICAL PANEL SAW MACHINE**

MODEL: SVP 145



### **TECHNICAL DESCRIPTIONS:**

- Max. length of cut mm 4200
- Max. height of cut mm 2200
- Max. height of horizontal cut mm 2080
- Max. depth of cut mm 60
- Motor output HP 5
- Blade Ø mm 250
- Blade speed rpm 5300

### **MACHINE COMPLETED WITH:**

- Sliding support for narrow pieces
- V.Grooving Alucobond kit with adjustable thickness stop
- Cutters Ø 220 mm V.90° with welded knives

## DUST COLLECTOR MODEL UFO-102B

### Technical Data:

|                    |  |
|--------------------|--|
| Motor:             | 2.2KW( 3HP)                                |
| Inlet diameter:    | 125mm(6") x 1<br>100mm(4") x 3             |
| Air speed:         | 53M3/min<br>(1883 CFM)                     |
| Bag volume:        | 0.3M3 (10.48ft3)                           |
| Packing:<br>Carton | 122cm x58cm x<br>58cm<br>(48" x 23" x 23") |
| Net weight:        | 77 kgs. (169 lbs.)                         |
| Gross weight:      | 82 kgs. (180 lbs.)                         |



### **13.)MANUAL FOLDING MACHINE**

**MODEL:FWS 2x2500**

**MADE IN CHINA**



#### **TECHNICAL DESCRIPTIONS:**

|                        |                  |
|------------------------|------------------|
| Max. Bending Thickness | 2 mm             |
| Max. Bending Width     | 2500 mm          |
| Min. Folding Angle     | 60°              |
| Dimension (LxWxH)      | 3400x950x1500 mm |
| Tool                   | Disport blade    |

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## 14.)MECHANICAL SHEAR MACHINE

MODEL: Q11-3mm x 1300

MADE IN CHINA



### TECHNICAL DESCRIPTIONS:

|  |                      |
|--|----------------------|
| Thickness of sheet cut                 | 0.6-3 mm             |
| Max. width of sheet cut                | 1300 mm              |
| Ultimate strength of sheet material    | 500N/mm <sup>2</sup> |
| Max. number of cutting per minute      | 20n/mtn              |
| Number of strokes of top blade         | 56n/mtn              |
| Beam per minute                        | 56n/mtn              |
| Stroke of top shear blade              | 65 mm                |
| Shear angle of top shear blade         | 2°25                 |
| Length of shear blade                  | 1345 mm              |
| Flywheel speed                         | 228 r.p.m            |
| Max. width of sheet cut to back gauge  | 350 mm               |
| Max. width of sheet cut to front gauge | 920 mm               |
| Height of table above floor            | 880 mm               |
| Distance from center line of hold-down |                      |
| To blade edge                          | 33 mm                |
| Motor power                            | 3 kw                 |
| Motor speed                            | 1440 r.p.m           |
| Overall dimensions (LxWxH)             | 1980x1505x1245 mm    |
| Net weight                             | 1380 kg              |

Prequalification



## 15.) SCREW AIR COMPRESSOR MACHINE, 30 HP

MODEL: CRS 30  
 BRAND: FIAC ITALY



### TECHNICAL DESCRIPTIONS:

MOTOR CAP: 30 HP / 22KW  
 AIR FLOW : M<sup>3</sup>/MIN 3,190  
 M<sup>3</sup>/H. 191,4  
 CFM: 113  
 AIR OUT CONNECTION: 1"  
 BAR: 10 ( 145 PSI )  
 DIMENSION: L1196 X W796 X H1133 MM  
 WEIGHT: 445 KG.

### REFRIGERANT AIR DRYER MODEL: ES/32-3200

#### TECHNICAL DATA:

|             |        |
|-------------|--------|
| Ltr. / Min. | 3,200  |
| CFM         | 111.80 |
| Bar         | 16     |
| PSI         | 230    |
| Volt        | 230    |
| Phase       | 50     |



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## MISCELLANEOUS

### Stand Drill



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## GENERAL TOOLS

### Air Drill, Air Screwdriver, Air Riveter, Grinder



3/8" Air Drill  
1800 Rpm



3/8" Heavy Duty Air Drill  
2000 Rpm



1/2" Heavy Duty Air Drill  
400 Rpm



1/4" Adjustable Screwdriver



7" Angle Grinder



4" (5") Angle Grinder

4" (5") Angle Grinder  
(Roll Type Throttle)



1/4" (6mm) Mini Die Grinder

1/4" (6mm) Mini Die Grinder  
(Front Exhaust)



7" Angle Air Polisher



6" Air Self Vacuuming  
Dust Free D/A Sander



Air Filter, Regulator & Lubricator



(Vacuuming Type)  
3/16" Air Hydraulic Riveter

## Prequalification



## Material Providers

KIYOSEKI has strong international and local network of material suppliers and system providers, who are committed to provide Kioseki with the highest quality, most reliable and competitively priced materials and products in the industry.

Our suppliers are innovative and dedicated to driving continuous improvement throughout their operations.

### **Aluminum Extruders**

1. Gulf Extrusion
2. Emirates Extrusion
3. Al Jaber Aluminum
4. Alhamad Extrusion

### **System Suppliers**

1. Vistawall International (USA)
2. Gulf Extrusion
3. Easy Safety System (German)

### **Glass Suppliers**

1. Intraco
2. Glaverbel
3. Saint Gobain
4. Emirates Glass

### **Glass Processor**

1. Emirates Glass
2. Bosco Glass Factory
3. G.G.I.
4. Technical Glass

### **Sealant Suppliers**

1. Tremco
2. Dow Corning
3. G.E.
4. Wacker
5. SEKA

### **Accessories Suppliers**

1. Savio
2. Giesse
3. MBC
4. LAVAL
6. W.S.S.

## Prequalification

**Gasket**

1. IRC
2. Vistawall

**Anchors & Fastners**

1. Hilti
2. Spit
3. Upat

**Coating Applicator**

1. Intercare
2. Dynamic Industries
3. Arabian Aluminum Products
4. Bosco Aluminum
5. White Aluminum
6. Gulf Extrusion

## General Specifications of Architectural Aluminium & Glass Works\*

The following abbreviations are used in the specifications:-

- AAMA American Architectural Manufacturers Association
- AISI American Institute of Steel Construction
- ANSI American National Standards Institute
- ASTM American Society for Testing and Materials
- BS British Standard
- CP British Standard Code of Practice
- GS General Specification for Building

The Engineer is the architectural and engineering consultant or his representative.

## Prequalification

## A - Tenders Technical Issue Requirements

A-1) The bidders are requested to submit their bidding based on the following general specifications of the metal works in addition to any particular requirements included herein.

A-2) The general specifications describe the technical requirements, the specified materials and the installation terms for all the Aluminum Works Systems including the Curtain Wall System, Doors and Windows.

The Particulars Requirements section is specified for Curtain Walls, Aluminums Doors and Windows which is related to the project.

A-3) The submitted proposals should be for recognized well known systems, while other systems may be considered as long as undergoing the necessary pre-construction tests specified hereafter.

A-4) The system to be used must comply with the International Standards and Requirements.

A-5) The Building envelope must be fully achieved by the external system to ensure the workability of the building.

A-6) The connection between the aluminum system and the building structure must be coordinated and checked during tender stage to make sure that the architectural view can be achieved.

A-7) It is the Aluminum works contractor responsibility to notify the Consultant and Contractor by any expected problems in executing their work at site during the tender stage.

## B - Scope

The works comprise the design, fabrication, transportation, assembly and installation of the items listed in the B.O.Q., drawings Specifications and other Particular Specifications. Provide full-scale testing necessary to show compliance with the performance requirements of the drawings and the specification, including but not limited to, the following:

B-1) All exterior aluminum curtain wall system, including aluminum panels, aluminum trim covers and accent strips, aluminum tubular aluminum framing, reinforcements and aluminum copings.

B-2) All glass and glazing for the above components.

B-3) All sealants, caulking, joint fillers and gaskets in conjunction with the above components for weather tight performance in the fabrication and erection of the curtain wall systems.

B-4) All anchorage of above components, including pre-set inserts in concrete, slab, bracing to or bracing of structural steel, kickers, reinforcing, etc. as required. Curtain wall contractor should be responsible for bracing structural steel when wall kickers induce rotation into structural members.

## Prequalification

B-5) Provide all necessary and required design and engineering labor for the complete and total design of the curtain wall system.

B-6) Provide all exterior curtain wall system materials and labor for the visual mockup as shown in the architectural documents. The curtain wall contractor should be responsible for the interface of the exterior wall systems, including the coordination with adjacent trades, including interior drywall, if necessary.

B-7) Field testing of installed work.

B-8) All necessary steel or aluminum reinforcement members.

B-9) All vents, weeps, weep tubes, bellows, baffles, closures, end dams, gutters, flashings, trim as shown or as may be required in conjunction with system or to join systems to adjacent construction

B-10) Fire safing and smoke seals at slab edges, including support system.

B-11) All exterior wall insulation and vapor barrier required on above items.

B-12) Patching of sprayed on fire proofing at kickers, anchor, or bracing attachments.

B-13) Entrance and vestibule doors and frames including hardware.

B-14) Protection and cleaning.

B-15) All engineering calculations and shop drawings of the system, including anchorages. Drawing should be presented so other subcontractors can coordinate their work.

### **C - Design Standards and Responsibilities:**

The drawings issued in connection with the works are listed in the Tender General & Particular Specifications. The tender documents define design intent and performance requirements. Details show preferred profiles. The contractor is responsible for the final design. Responsibilities include the following:-

C-1) Unless otherwise defined by tender documents, the appearance of exposed elements, including width and depth, should be consistent throughout the project and the overall thickness of each glass type, and the component thicknesses of each multiple layer glass type, should be consistent throughout the project.

C-2) Provide anchor adjustment capability for the full range of specified tolerances for the building structure and movable joints to accommodate the full range of manufacturing tolerances, field tolerances, thermal movements, floor sag, beam sag, and column settlement.

## **Prequalification**

- C-3) Provide corrosion protections between dissimilar materials.
- C-4 Provide drainage and ventilation to the glazing rebate.
- C-5) Masonry works enclosed with curtain walls should be sealed with a damp proof coating.
- C-6) Mullion and Transom locations and sizes of all glazed works to be as generally described in the contract drawings.
- C-7) Notify the Engineer as soon as any discrepancies are discovered.
- C-8) All materials used in the components and systems should be of a specified manufacturer's best grade.
- C-9) Design work in general requires being pre-built so that erection can proceed rapidly.
- C-10) The curtain wall Subcontractor should coordinate with the Contractor to develop concrete structure tolerance acceptable to both parties, and approved by the Engineer.
- C-11) The layout of all partitions that will affect the design of the curtain walling should be obtained from the Contractor. The curtain wall Sub contractor should provide layout information as necessary to the Main Contractor, to ensure alignment of interior partitions with the curtain wall grid.
- C-12) Poured and de-bridged thermal break is mandatory, however, thermal isolation of exterior exposed aluminum should be incorporated.

## D - Curtain Wall System

Curtain wall is a term used to describe a building façade which does not carry any dead load from the building other than its own dead load. These loads are transferred to the main building structure through connections at floors or columns of the building. A curtain wall is designed to resist air and water infiltration, wind forces acting on the building, seismic forces, and its own dead load forces. Curtain walls are typically designed with extruded aluminum members, although the first curtain walls were made of steel. The aluminum frame is typically in-filled with glass, which provides an architecturally pleasing building, as well as benefits such as day-lighting and environmental control. Other common in-fills include: stone veneer, metal panels, louvers, and operable windows or vents.

Curtain walls differ from storefront systems in that they are designed to span multiple floors, and take into consideration design requirements such as: thermal expansion and contraction; building sway and movement; water diversion; and thermal efficiency for cost-effective heating, cooling, and lighting in the building.

- D-1) Curtain wall units and the components should be produced in accordance to the approved system and submittals.

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D-2) Designed systems are based on pressure equalization and compartmentalization of the glazing rebate system.

D-3) Seal transom to mullion joints, so the glazing rebate will be sealed from the building interior.

D-4) Allow vertical and horizontal movements in the system due to thermal expansion or contraction, wind loads, building loads and long term creep.

D-5) Framing should be designed to provide glazing or re-glazing from the outside.

D-6) Seal the mullion expansion joints.

## E - Performance Requirements

E-1) General:

All systems included in these specifications should conform to the standards set forth below:

E-1-a) Operable windows within the curtain wall should meet the same design loads and water penetration requirements as the curtain wall.

E-1-b) The design pressure should be calculated in accordance with BS- CP3, Chapter V Part 2 - 1972, or BS-6063-1997, based on a design wind speed of 45m/s. but should not be less than 2.3KPA (approximately) 230 Kg/m<sup>2</sup>).

E-2) Perimeter Seals: Design and installation systems to permanently resist leakage of air and water. Perimeter seals should be sealed airtight and remain air tight under the system design loads. The primary perimeter seal should be air tight to the satisfaction of the engineer prior to placing secondary seals or closures.

E-3) Air Infiltrations: Air leakage through the work shall not exceed 1.1m<sup>3</sup>/hr. per square meter of fixed wall area when tested in accordance with ASTM E-283 at a test pressure of 300 Pa.

E-4) Water Penetrations: Water penetration, in this specification, is defined as the appearance of uncontrolled water other than condensation on the indoor face of any part of the work. "Controlled" water or condensation is that which demonstrably is drained harmlessly to the exterior of the work without endangering or wetting adjacent surfaces or insulation, and not visible in the final construction. System design shall allow instantaneous drainage of any water entering at joints, and/or any condensation occurring within the work. The wall shall be designed to allow quick drying of residual water in the joint cavities by natural air venting.

No uncontrolled water penetration shall occur when the work is tested in accordance with ASTM E-331-79 at a pressure differential of 12 psf.

No uncontrolled water penetration shall occur when the wall is tested in accordance with AAMA 501.1, using a dynamic pressure equal to 12 psf. (575Pa) Water contained within the frames of operable

## Prequalification

windows that can drain to the exterior is not considered leakage. Provision should be made to drain to the exterior face any water entering the system.

E-5) Deflection Limitations: The curtain wall system and all other aluminum works systems should be capable of withstanding building movements and weather exposures including wind loading and of performing within the following limitations, under the required design load both positive and negative specified, deflection of framing members, measured perpendicular to the plane of wall, should not exceed 1/180 or a maximum of 22mm of the unsupported span.

E-6) Thermal Movements: The curtain wall system should be capable of withstanding thermal movements resulting from an ambient temperature differential of 50 degree centigrade, without causing buckling, stresses on glass, failure of sealants, damaging loads on fasteners, reduction of performance or other detrimental effects. Calculate allowances based on the temperature at which the aluminum sections are fabricated.

E-7) Thermal Performances: The fixed light area of the curtain wall, including glass and aluminum framing, should have a condensation resistance factor, CRF, not less than 60 when tested in accordance with AAMA 1503.1

E-8) Fire Resistance Requirements:

E-8-a) Performance of panels and fire resistance assemblies under fire or high temperature exposure should be as follows. Material should not produce noxious gasses under conditions of high temperature.

E-8-b) The spandrel panel must be designed and anchored in a manner that it will stay in place and prevent passage of smoke, flame and hot gases for the fire exposure period when exposed to the ASTM E 119 time temperature curve.

E-8-c) Fire stops and safety insulation should be provided between the interior wall surface and the building structure. Separation should be provided continuously as follows:

- 1- Horizontally at each slab.
- 2- Vertically at partitions that separate two different apartment and hot areas (kitchen).

E-9) Glass Strength Glass thicknesses when shown on drawings are for convenience of detailing only and are to be confirmed by Subcontractor and/or glass manufacturer.

Provide glass for size openings indicated in thickness such that probability of breakage at "Design Wind Pressure" will not exceed 8 lights per 1000 lights (SF 2.5) for vertically glazed lites and 1lite per 1000 for slope glazed lites. Provide substantiating glass break age data in the form of calculations by the glass manufacturer.

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## F - Anchorages

F-1) Anchorage of the work to the structure should be by approved methods in strict accordance with approved shop and/ or erection drawings. Supporting brackets should be so designed as to provide adjustment and accurate location of all components. After the unit is properly positioned, all connections so designated on approved shop drawings should be properly fixed, while still allowing for horizontal thermal expansion and contraction.

F-2) Mark the mullion center-line on anchorages for accurate alignment of unitized panels (if applicable).

F-3) Framing anchors should be structurally adequate to carry the weight of the wall units, should allow for thermal movement and should meet the structural requirements.

F-4) Curtain wall anchorages in general should be designed to be fastened into the slab top surface on a bed of non-shrink grout, with approved stainless steel anchor - bolts, or into the edge of the floor slab. Anchorages may be constructed out of extruded aluminum or welded steel. Anchorages should be finished with an organic coating. Steel anchorages should be hot dip galvanized prior to finishing.

## G - Insulation and Spandrel Panel Arrangement

G-1) The thermal insulation should meet the thermal transmittance requirements.

## H - Curtain Wall System must meet the following:

H-1) For curtain wall windows a minimum size of profile to be used with a 60mm in width, to be confirmed by Structural Calculation.

H-2) For continuous curtain wall the size profile to be used is confirmed by Structural Calculation.

H-3) Rubber at corners must be sealed between the Mullion and Transom to insure the tightness of the system.

H-4) All curtain wall to be conventional, 2- way or 4-way at certain location as shown on Architectural Drawing.

## I - Glass

I-1) Vision Panel: Xmm as per specification and the Engineer requirement Glass Tempered + Xmm Air Spacer + Xmm as per specification and the Engineer requirement (inner pane to be tempered is below 80cm from F.F.L.)

## Prequalification



I-2) Spandrel Panel: Xmm Glass Tempered + 50mm Rock wool Insulation with Density as per the specification.

## J - Accessories

The system accessories and fitting must be used in a high quality standard.

## K - Aluminum Finishing

Aluminum finishing to be according to the paint manufacturers and international recognized specifications.

## Prequalification

# Kiyoseki Standards

## PART 1- GENERAL:

### A) CODES AND STANDARDS:

#### General:

- 1- AMA aluminum curtain walls design manual.
- 2- AAMA metal curtain walls, windows, storefront and entrance - guide specification manual.
- 3- AMA curtain wall manual no. 10 care and handling of architectural aluminum from shop to site.

#### Wind loads

- 1- BS 6399-2 code of practice for wind loads on buildings.
- 2- BS CP3 Ch5 Part 2-1972 wind loads.

#### Aluminum

- 1- ASTM B209 Aluminum and aluminum-alloy sheet and plate.
- 2- ASTM B221 Aluminum-alloy extruded bars, rods, wire, shapes, and tubes.
- 3- ASTM B308 Aluminum-alloy 6061-T6 standard structural shapes, rolled or extruded.
- 4- BS1470 Specification for wrought aluminum and aluminum alloys-plate, sheet and strip.
- 5- BS1474 Specification for wrought aluminum and alum. Alloys-bars, extruded tubes and sections.
- 6- BS8118 Specification for the structural use of aluminum.

#### Glass and Glazing

- 1- ANSI Z97.1 Specifications and methods of test for safety glazing material used in buildings.
- 2- ASTM C1036 Specification for flat glass
- 3- ASTM C1048 Specification for heat treated flat glass
- 4- ASTM C1172 Specification for laminated architectural glass
- 5- ASTM E773 Test method for seal durability of sealed insulating glass units.
- 6- ASTM E774 Sealed insulating glass units.
- 7- ASTM E1300 Standard practice for determining load resistance of glass in buildings.

## Prequalification

- 8- FGMA - Flat glass marketing association: Glazing manual
- 9- BS 952 Glass and glazing.
- 10- BS 6206 Spec. for impact performance requirements for flat safety glass and plastics for use in buildings.
- 11- BS 6262 Code of practice for glazing of buildings.

### **Sealants**

- 1- ASTM C794 Test methods for adhesion - in peel of elastomeric joint sealants.
- 2- ASTM C920 Elastomeric joint sealants.
- 3- BS 5889 Specification for one part gun grade Silicone based sealants.

### **Gaskets**

- 1- ASTM C509 Cellular elastomeric preformed gaskets.
- 2- ASTM C864 Dense preformed gaskets.
- 3- ASTM C1115 Silicone Gaskets.
- 4- BS 4255 Rubber for use in preformed gaskets for weather exclusion from buildings.

### **Protective Coatings**

- 1- AAMA 2605 Voluntary specification for high performance organic coatings on architectural extrusions and aluminum.
- 2- AAMA607.1 Spec. and inspection methods for clear anodic finishes for architectural aluminum.
- 3- AAMA608.1 Specification and Inspection methods for electrolytically Deposited Color Anodic finish for architectural aluminum.
- 4- BS3987 Spec. for anodic oxidation coatings on wrought alum for external architectural applications.
- 5- BS4842 Specification for liquid organic coatings application on architectural purposes.
- 6- BS6161 Method of test for anodicoxidation coatings on aluminum alloys.
- 7- BS6496 Specification for powder organic coatings on aluminum extrusion, sheet and preformed sections for external architectural purposes.
- 8- BS6497 Specification for powder organic coatings on hot dip galvanized sections and sheet for external architectural purposes.

### **Fire Protection**

- 1- BS476 Fire tests on building materials and structures.

### **Performance Testing**

- 1- ASTM E283 Rate of air leakage through exterior windows, curtain walls, and doors.
- 2- ASTM E330 Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.

## **Prequalification**

- 3- ASTM E331 Test method for water penetration of exterior windows, curtain Walls, and doors by uniformstatic air pressure difference.
- 4- AAMA 501 Method of testing for exterior walls
- 5- AAMA 501.1 Standard test method for exterior windows, and curtain walls for water penetration using dynamic pressure.
- 6- AAMA 501.2 Field check of metal curtain walls for water leakage.
- 7- BS5368 Methods of testing windows.
- 8- BS6375 Performance of windows.

### **Steel**

- 1- ASTM A36 Structural steel.
- 2- ASTM A123 Zinc (hot-dip galvanized) coatings on iron and steel products. aluminum alloy extrusions, sheet, and preformed sections for external
- 3- ASTM A525 Gen requirements for steel sheet, zinc-coated (galvanized) by the hot-dip process.
- 4- ASTM A526 Sheet steel, zinc coated (galvanized) by the hot-dip process, commercial quality.
- 5- BS729 Specification for hot dip galvanized coatings on iron and steel.

### **Fasteners**

- 1- BS4190 Specification for ISO metric black hexagon bolts, nuts and screws.

### **Miscellaneous**

- 1- BS6651 Code of practice for protection of structures against lightning.

### **B) GENERAL**

:

- 1- Metal framed systems with interior and exterior exposed metal framing.
- 2- Operable vent with sight line concealed from the exterior.
- 3- System supplier shall provide curtain wall systems, including necessary modifications to meet specified requirements and maintaining visual design concepts.
- 4- Fabricate glazing systems for exterior glazing at vision areas and exterior glazing at spandrel areas.
- 5- Perimeter conditions shall allow for installation tolerances, expansion and contraction of adjacent materials, and sealant manufacturer's recommended joint design.
- 6- Do not assume glass, sealants, and interior finishes contribute to framing member strength, stiffness, or lateral stability.
- 7- Anchors, fasteners and braces shall be structurally stressed not more than 50% of allowable stress when maximum loads are applied.
- 8- Allow for expansion and contraction due to structural movement without detriment to appearance or performance.
- 9- Water entering joints and condensation occurring within system shall drain to exterior face of wall, by drain holes and gutters of adequate size to evacuate water without infiltration to interior or the top of lower lites of glass.
- 10- Provide concealed fastening.

## **Prequalification**

- 11- Metal faces are required to be visually flat under all lighting conditions, subject to acceptance of Architect.
- 12- Provide uniform color and profile appearance at components exposed to view.
- 13- EPDM Glazing gaskets are to be provided to the interior and exterior of the glass. The gasket should create a water and air seal.
- 14- Provide pre-drilled pressure plates to ensure correct quantity and spacing of fasteners.
- 15- Stresses placed on structural silicone sealants shall be kept within sealant manufacturer's recommended maximum.
- 16- Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system are all not permitted.

#### C) PERFORMANCE REQUIREMENTS:

- 1- The curtain wall system is designed to meet the following performance standards for the fixed areas:-
  - . Air Infiltration - Infiltration shall not exceed 1.08m<sup>3</sup>/h/m<sup>2</sup> of fixed area at a static test pressure of 75Pa in accordance with ASTM E283.
  - Water penetration - There shall be no visible water on any inside surface at a test pressure of 720Pa when tested in accordance with ASTM E331.

#### D) STRUCTURAL REQUIREMENTS:

- 1- Wind loading: Design to a basic windspeed of 45m/s (factors and coefficients according to BS CP3 or BS6399 to be applied)
- 2- Maximum deflection under uniform loading at design wind pressure, shall not exceed L/175 of span or 20mm when tested in accordance with ASTM E330.
- 3- Parallel to wall deflection shall not exceed 3mm.

#### E) CAST IN INSERTS:

- 1- Furnish inserts and anchoring devices that need to be preset and built into structure.
- 2- Supply on timely basis to avoid delay in work.
- 3- Instruct other trades of proper location and position.
- 4- Furnish setting drawings, diagrams, templates and installation instructions.

#### F) SUBMITTALS:

- 1- Submit manufacturer's descriptive literature for each manufactured products.
- 2- Submit information for factory finishes, accessories and other required components.
- 3- Submit Mock-up Drawings.
- 4- Submit project drawings indicating: elevations, detailed design, dimensions, member profiles, joint locations, arrangement of units, member connections, and thickness of various components, drainage

## Prequalification

details and flow diagrams, anchor age system, interfacing with building construction, provisions for system expansion and contraction, thermal breaks. Also indicate glazing details, methods, locations of various types and glass thickness, emergency breakout locations, internal sealant requirements. Clearly indicate locations of any exposed fasteners and joints for Architect's acceptance. Clearly show where and how manufacturer's system deviates from contract drawings and specifications.

#### G) SAMPLES:

- 1- Submit manufacturer's samples indicating quality of finish in required colors.
- 2- Where normal texture or color variations are expected, include additional samples illustrating range of variation.
- 3- Submit samples of glazing gaskets, 300mm lengths.
- 4- Submit samples of sealants for color selection.
- 5- Submit manufacturer's certification stating that installed system is in compliance with specified requirements.
- 6- Submit manufacturer's printed installation instructions. (Include detailed instructions describing each step of reglazing procedures). Warranty: Submit specified warranties.

#### H) DELIVERY, STORAGE, AND HANDLING:

- 1- Protect finished surfaces to prevent damage.
- 2- Do not use adhesive papers or sprayed coatings which become firmly bonded when exposed to sun.
- 3- Do not leave coating residue on surfaces.
- 4- Deliver glass units with manufacturer's labels intact on interior side of glass. Ensure labels indicate glass thickness, unit location, glass strength and orientation of units in vertical position.
- 5- Protect glass edges and corners to prevent chipping, cracking, and other similar damages.

#### I) PROJECT CONDITIONS

- 1- Ensure ambient and surface temperatures and joint conditions are suitable for installation of materials.

#### J) MANUFACTURERS AND PRODUCTS:

- 1- Subject to compliance with requirements indicated, provide aluminum system as supplied by the system manufacturers
- 2- Aluminum: ASTM B221, alloy 6063-T5 or T6 for framework extrusions and 6061-T6 for anchor brackets and shear blocks.
- 3- Internal Reinforcing to be ASTM A36 for carbon steel or aluminum alloys as specified in this document. Shop coat steel components after fabrication with zinc chromate primer complying with FS TT-P-645.
- 4- Fasteners to be 304 grade stainless steel or Drill-flex steel fasteners with stalgard protective finish.

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- 5- Provide nuts or washers of design having means to prevent disengagement; deforming of fastener threads is not acceptable.
- 6- Shims: Non-staining, non-ferrous, type as recommended by system manufacturer.
- 7- Glazing Gaskets: Compression type design, exterior replaceable, extruded EPDM gasket complying with ASTM C509 or C864. Profile and hardness as necessary to maintain uniform pressure for watertight seal. Color of all gaskets to be manufacturer's standard black color.
- 8- Sealants to be Dow Corning, Wacker, sika or Tremco silicone and used in accordance with manufacturers recommendations.
- 9- A two hour firestop to be provided between the curtain wall and the structure to separate each floor from the floor below. This firestop to be installed in accordance with the manufacturer's specifications.

**K) FINISH:**

- 1- Finish to be in accordance with paint manufacturers and internationally recognized specification.

**L) LIFE EXPECTANCY:**

- 1- Facade to perform satisfactorily for 25years with minimum maintenance (apart from regular cleaning).

**M) WARRANTY:**

- 1- Provide written warranty in form acceptable to Owner jointly signed by manufacturer, installer and Contractor warranting work to be watertight, free from defective materials, defective workmanship, glass breakage due to defective design, and agreeing to replace components which fail within 5 years from date of Substantial Completion.
- 2- Warranty shall cover following:  
Complete watertight and airtight system installation within specified tolerances.
- 3- Glass and glazing gaskets will not break or "pop" from frames due to design wind, expansion or contraction movement or structural loading.
- 4- Glazing sealants and gaskets will remain free from abnormal deterioration or dislocation due to sunlight, weather or oxidation.

**N) MAINTENANCE MANUAL:**

The facades of all buildings require preventative maintenance in one form or another. In our environment simply there is no material that is maintenance free. Brick and stone surfaces may require tuck pointing or pressure washing to maintain their structural integrity and appearance. Facades constructed of architectural aluminum generally require maintenance in one of two forms. Periodic application of weatherproofing sealants may be required one time every ten to twenty years to prevent the penetration

## **Prequalification**



of moisture into the wall system. Maintenance relating to appearance is more frequent and should be initiated soon after construction. Any ongoing maintenance program should integrate glass cleaning with the cleaning of the architectural aluminum panels and extrusions to achieve optimum results.

Maintenance should be implemented at the conclusion of the construction process to remove general pollutants and construction soil and debris. A scheduled maintenance program should then be established to wash the complete curtain wall on a frequent basis taking into consideration the atmospheric conditions, geographical location, architectural design and features, desired appearance and budget. Commitment to a maintenance program can prevent the need for an intensive restoration cleaning.

#### I) Glass Maintenance:

The following are recommendations of the glass manufacturers for the maintenance & cleaning of this project:

- 1- The glass should never be cleaned in direct sunlight.
- 2- Only clean cloth & mild liquid detergent should be used to clean the glass.
- 3- The detergent should be neutral. After washing, the glass should be rinsed off with clean water and then wiped dry. No abrasive cleaners or ammonia solution should be used.
- 4- If any straining occurred on the glass from any means which produces a mark. Then Wall technology must be contacted immediately to come for an inspection and to advice on remedial action.
- 5- The cradle should definitely not be used when the conditions are little windy in order to reduce the possibility of breakage.
- 6- If any breakage occurs, Wall technology must be informed immediately to ascertain the reasons for breakage and liability for it.
7. If any fogging within the double glass cavity occurs, Wall technology must be informed immediately.
8. Weep holes should be rinsed frequently with clean water; water under high pressures should be applied to the holes.
9. Water should be allowed to stand on the silicone.
10. For more information, refer to the glass manufacturer's maintenance instruction attached.

#### II) Aluminum Maintenance:

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Aluminum should be cleaned only with a soft cloth or with a solution containing a Mild, Non- Alkaline liquid detergent.

### III) Sealants Maintenance:

#### 1. *Expected Life of Material*

Generally, the service life for sealant should be minimum of Ten (10) Years provided if the preparation and application was carried out in correct manner.

#### 2. *Indications of Wear and Damage*

The only indication of damage that would normally be seen is when the sealant is subjected to some Mechanical force. Changes in the surface appearance of the product will result primarily as the result of Atmospheric solution. These changes will be indicated simply by changes in color shade, which is due to dirt pick-up. The degree of change will obviously depend on the nature of local environment. No change in elastomeric properties will result if this change occurs.

3. *Method and Frequency of Inspection* It is difficult to give any absolute rules to follow on this point. However, typical inspection frequency maybe listed as follows: 1st Inspection - upon completion of sealing. 2nd Inspection - after one or two years. 3rd Inspection - five years after completion followed by sub-sequent five- yearly inspection. Method of inspection can consist of (a) visual inspection, (b) exerting high pressure on the sealant to check adhesion.

#### 4. *Routine Maintenance*

Routine maintenance, other than cleaning of the building may look necessary.

#### 5. *Method of Cleaning*

Dirt pick- up may occur as stated previously; if it occurs a slight change in shade may occur depending on local conditions and color of sealant. Any dirt pick-up should be washed of using water and necessary, a detergent. No abrasion to be used as this could damage the surface of the sealant.

#### 6. *Method of Repair and Replacement*

If an area of sealant is found to be defective during an inspection, the method of repair is straight forward in the area of affected material should be cut out using a sharp instrument. The joint faces should be examined to make sure if they are dry and clean. Another check should also be made to see if the backer rod on its place. If these conditions are fulfilled, then they maybe dunned into place and tooled off in the usual manner. Masking tape maybe needed to prevent sealant from spreading on the external faces of the joints. There is no problem in the new sealant adhering to the old sealant, provided that the old sealant is clean and dry.

#### 7. *Ordering New Material*

If for any reason material is required to repair the effects, the product and the color should be quoted.

## Prequalification

# Method Statement

## 1. PURPOSE

The purpose of this procedure is to address the mechanism of manufacturing and installation of Kiyoseki aluminum products

## 2. SCOPE

This procedure applies to the processing and installation of aluminum doors, windows and curtain walls

## 3. RESPONSIBILITY

Operations Director

## 4. ACTION/ IMPLEMENTATION NOTES

### 4.1 Aluminum Manufacturing

4.1.1 After submitting samples of the required Items, the following steps will be followed to execute and complete the Aluminum Works:

4.1.2 Preparing and submitting comprehensive set of shop drawings of the required items for the approval of Consulting Engineer comprising the following:

4.1.2.1 Windows and doors will be provided in schedule showing the elevations, dimensions, quantities details & sections numbers.

4.1.2.2 Section drawings showing the aluminum profiles, glass, gasket, accessories, each with their specifications, resources, thickness....etc.

Also showing the method of installation of frames with concrete, stone, block, wood...etc., the location of screws, sealant, water drainage holes and wood backing.

4.1.2.3 Section drawings are subject to modifications ordered by the Consultant where they are to be re-submitted after adjusting these modifications.

4.1.2.4 After final approval for all shop drawings, designs, Aluminum profiles, glass, accessories, and color, material orders is prepared to be sent to related companies to import them.

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4.1.3 After final approval for all shop drawings, designs, aluminum profiles, glass, accessories, and color, material orders is prepared to be sent to related companies to import them.

4.1.4 The size information and designs are then turned into data and entered in special computer design software where the fabrication and cutting sizes are calculated and printed to be supplied to the factory for cutting and assembly (a tolerance of 6-7mm is maintained between each frame and the structural opening). This software also estimates the quantities of gasket and accessories required for each window/door. It is worth mentioning that when this software provides a cutting list for the aluminum profiles, it orders to cut in a systematic way from each bar to reduce the waste to a minimum.

4.1.5 At this stage the fabrication process starts. Most of the fabrication processes take place in the factory, except for the glass installation of non-sliding items. The fabrication stages are:

4.1.5.1 Machine-cutting the aluminum frames, windows/door vents and glazing beds by sharp blade saws to ensure uniform, fine mitered edges.

4.1.5.2 Preparing order of glazing sizes to be sent to glass factories for cutting and double-glazing.

4.1.5.3 Punching frames and vents for handle, hinge, lock, flash-bolt and water drainage holes by special punching machines with sharp edges to ensure clean uniform openings.

4.1.5.4 Assembly of frames and vents by special crimping machine to ensure hairline-mitered joints and to prevent torsion from opening the corners when fitted in the structural opening. Thus, all corners and junctions will be airtight and sealed with a suitable sealant.

4.1.5.5 Fitting accessories, ironmongery and hardware on windows and doors (such as heavy duty hinges, locks, latches, pull handles, flush bolts, water drainage covers...etc.). These accessories are perfectly fitted in their previously punched uniform gaps.

Other items such as gasket and mohair brushes are fitted in their found on the frames and vents. In some cases, other additional hardware is requested such as floor springs and over-head door closers. Such items are installed in the site.

4.1.5.6 After fitting all the accessories, ironmongery and hardware, the glazing beds are fitted for each window/door.

4.1.5.7 All products shall be cleaned to be free of dust, oil, and any chemical materials.

4.1.5.8 Finally, all products are wrapped and protected with tape to ensure that when they are delivered and stored in the site, these windows/doors will stay free of deforms, corrosion, scratches, and any damages.

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4.1.6 While the product are being carefully handled and delivered by trucks, a clean suitable storing place is being prepared at the site where these items will be stored off-ground.

4.1.7 The installation process take place according to the following procedure:

#### **4.2 Windows/doors installation:**

4.2.1 Before installing specific Items, its structural opening is cleaned from sand, dust and any bulky materials that prevent good adhesion of sealant with plaster.

4.2.2 Anchorage plastics plugs are inserted drilled in their places and surface leveled, and drill dust is cleaned. (No anchorage will be used at sills)

4.2.3 Wood wedges backing are placed around the parameter of the frame.

4.2.4 Stainless steel screws are fastened into their plugs while adjusting the position of the frame making it vertical, aligned and with uniform tolerance around its perimeter.

4.2.5 Again, the surrounding plaster is thoroughly cleaned with a damp sponge, sealant is injected at the external and internal perimeter of the frame, and a 24 hour period is granted for the sealant to dry out and stiffen. (At this stage, it is advised to apply the final coat of paint to the plaster)

4.2.6 After drying of sealant, hinged vents are install on their hinge pins, necessary adjustment of hinges, handles, locks are undertaken to ensure perfect closure between the frame and vent, making the window/door airtight against water and air seepage.

4.2.7 Finally, glazing backing is placed in the frame/vent, glazing mounted and adjusted on it, glazing beds and gaskets applied uniformly sealing the gaps between the glass and frame/vent, and the glass is cleaned, thus the window/door is ready for inspection by the Architect and/or Consultant after lifting the protection tape.

#### **4.3 Curtain Walls Installation**

4.3.1 It is the site supervisor to check the existing scaffolding, these scaffolding should enable the technicians and supervisors to reach all the related areas of the unit to be safe and well installed.

4.3.2 To mark the brackets positions on the concrete slabs / steel structures and install the brackets of the vertical mullions, all brackets, anchors and expansion joints to be checked by the site engineer to emphasize the appropriate selection of the item.

## **Prequalification**

4.3.3 Vertical mullions are installed serially according to the positions and installation instructions. The site project supervisor to check the vertical and horizontal alignment and inclinations of the mullions using appropriate measuring tools and equipment.

4.3.4 The transom bars are installed now according to their positions. All the gaskets membranes should be installed over the mullions and transoms at this stage.

4.3.5 Again to check all the unit alignment and bracket, anchors, fasteners fixing. Depend on the system used, whether it is conventional or structural glazed curtain wall, the glass is installed according to installation instructions provided by the site engineer.

4.3.6 In conventional curtain wall system the pressure plates and cover plates are installed over the main body of the unit in lose case, where after installing the glass at certain panel the bolts and fasteners of that unit should be tied up to secure this panel.

4.3.7 In structural glazing curtain wall each panel is installed with the internal brackets at the transoms and mullions, then the gasket membranes is installed and the structural silicon to apply where it is necessary.

## Prequalification

## Completed Projects

**Project:** 3 Basements + 22 Typical + Health Club Residential Building

**Location:** Sharjah – Al Cornish

**Consultant:** Adnan Saffarini Consultant Engineers

**Aluminum & Glass Contractor:**

Bosco Aluminum and Glass LLC

**System Used:** Gulf Extrusions



## Prequalification



## Completed Projects

**Project:** 3 Towers / Armada Towers

**Location:** Dubai – Jumairah Lake Towers

**Consultant:** Adnan Saffarini Consultant Engineers

**Aluminum & Glass Contractor:**

Bosco Aluminum and Glass LLC

**System Used:** Easy Safety System / Germany



## Prequalification



## Completed Projects

**Project:** Y Tower / 3 Blocks Offices and Residential Building for EMKE Group

**Location:** Abu Dhabi – Al Muroor Road

**Consultant:** APG Consultant Engineers

**Aluminum & Glass Contractor:**

Bosco Aluminum and Glass LLC

**System Used:** Gutman System / Germany



## Prequalification

## Completed Projects

**Project:** Gr. + 5 Parking + 15 Typical Floor Residential Building

**Location:** Ajman – Al Nuaimya

**Consultant:** Itqan Consultant Engineers

**Aluminum & Glass Contractor:**

Kiyoseki Global L.L.C. – Sedam Aluminum and Glass LLC

**System Used:** Gulf Extrusions



**Prequalification**