TECHNICAL SPECIFICATIONS

BLOW OUT PANELS

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Written by : [Signature]
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Approved by : [Signature]
Date : 2003. 10. 10
D.28  BLOW OUT PANELS

D.28.1  REFERENCE CODES AND STANDARDS

All work shall be performed according to the following codes and standards, as applicable:

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<thead>
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<tbody>
<tr>
<td>ASTM A525M</td>
<td>General Requirements for Steel Sheet,</td>
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<td>CSA W47.2</td>
<td>Certification of Companies for Fusion Welding of Aluminum</td>
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D.28.2  QUALITY CLASS REQUIREMENTS

All work performed under this section, quality class shall be industrial standards.

D.28.3  MATERIALS FURNISHED BY OWNER

N/A

D.28.4  MATERIALS FURNISHED BY CONTRACTOR

A. MATERIALS

1. Pressure release blow out panels

2. Fixed Frame

3. Magnetic Latching, weather seal devices and hinges
4. Shims, anchoring devices, flashing and sill component as noted on the drawings.

B. Whether specified or not, the Contractor shall furnish and install any other miscellaneous hardware, material, and equipment required to properly install and test the Contractor furnished material.

D.28.5 CONTRACTOR FURNISHED MATERIAL SPECIFICATION
Refer to D.28 Attachment 1

D.28.6 SERVICE CONDITIONS/DESIGN REQUIREMENTS
Refer to D.28 Attachment 1

D.28.7 FABRICATION
Refer to D.28 Attachment 1

D.28.8 RECEIVING, HANDLING AND STORAGE

A. All blow out panels and related material shall be crated and protected to ensure safe delivery and storage.
   Each blow out panel assembly and its container shall be marked and tagged with an opening number, building name, elevation, and level.

B. Delivered material not ready for immediate use shall be stored off the ground, under cover, and shall be accessible at all times piece by piece inspection.

B. Contractor shall be fully responsible for the storage and protection of all blow out panels and related materials in the manner recommended by the supplier and/or manufacturer.

D.28.9 FIELD OPERATIONS

A. PREPARATION
   Before the start of installation, surfaces to receive the blow out panels shall be inspected for conditions that would adversely affect the work. Any adverse conditions found shall be corrected before proceeding with the installation.
D.28.9 FIELD OPERATIONS(CONT.)

B. INSTALLATION

1. Panels and Frames: Panels and frames shall be installed and fastened to prevent rattling and vibration. Contractor shall provide head, jamb and sill closures. Panels and frames shall be installed plumb and true, they shall be secured as necessary for the specified wind loadings.

2. Formed Flashing and Closures: The Contractor shall install all coloured or plain metal flashings, drip deflectors and closure as detailed and located on the drawings, or as required.

3. At completion of the work, the Contractor shall clean all aluminum surfaces, and lubricate moving parts. The Contractor shall check and readjust, as required, all operating items.

D.28.10 INSPECTION AND TESTING

The entire installation work of blow out panels shall be subject to inspection by Owner's inspector at any time during the course of the work. Defective or improper work shall be repaired, replaced or otherwise made good to the satisfaction of Owner, at the Contractor's expense.

D.28.11 SUBMITTALS/QUALITY VERIFICATION REPORTS AND RECORDS

A. DRAWING, DATA AND PROCEDURES

1. The Contractor shall submit shop drawings of each blow out panel assembly, details of attachment, location of hardware, material and accessories.

2. Manufacturer's standard specifications and catalog data for assemblies.

3. Manufacturer's detailed installation, operating and maintenance instructions for blow out panels with spare parts list.

4. Test procedures for operable equipment.

5. A work plan procedure and quality control instruction for blow out panels shall be submitted to Owner for approval.
D.28.11 SUBMITTALS/QUALITY VERIFICATION REPORTS AND RECORDS (CONT.)

B. QUALITY VERIFICATION REPORTS AND RECORDS

1. Inspection reports shall be submitted to Owner in which all characteristics required by the specifications appear on a checklist. All inspection shall be performed in accordance with the approved Quality Control Instructions and the results recorded.

2. The Contractor shall furnish a Certificate of Conformance stating that all work performed under this section meets the requirements of this section meets the requirements of this Contract.

D.28.12 MEASUREMENT AND PAYMENT

Measurement for payment will be the number of blow out panels installed and accepted by Owner.
D.28-Attachment1

BLOW OUT PANELS
**TECHNICAL SPECIFICATIONS**

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BLOW OUT PANELS

TECHNICAL SPECIFICATIONS

T.01 SCOPE

A. WORK INCLUDED

1. This specification covers the detail design, testing and furnishing of the blow out panel assemblies and related items.

2. The work to be performed under this specification includes, but is not limited to the following:

   a. Furnish and fabricate the complete assembly of blow out panels, and related items.
   b. Fixed Frame
   c. Magnetic Latching, weather seal devices and hinges
   d. Shims, anchoring devices, flashing and sill component as noted on the drawings.
   e. Shop priming, finish coating and delivery of the coating materials for field touch-up.
   f. Special tools and equipment for installation of the blow out panels.
   g. Drawings and instructions to enable handling and installation of the blow out panels.
   h. Services of a qualified field representative to advise on the proper handling and installation of the blow out panels in the field.

B. RELATED WORK NOT INCLUDED

The following work will be done by others:

1. Structural frames to the blow out panel

2. Caulking and sealant(Will be purchased and furnished by Section D.13, Caulking and Sealant Contractor)
T.02 SUPPLEMENTS, CODES, STANDARDS AND QUALITY REQUIREMENTS

A. GENERAL
Supplier shall control the quality of Goods and services to meet the requirements of the Specification, applicable codes and standards and other procurement documents.

B. SUPPLEMENTS
1. The supplements listed herein form a part hereof.

2. References throughout the Technical Specifications Section or the Design Drawings to specific supplements which are among those listed herein, and/or specific Articles or Paragraphs of the supplements listed herein are for convenience only and shall not relieve Supplier from all obligations of all requirements of other applicable supplements listed herein, or from all other specific Articles and Paragraphs indicated.

3. Design Drawings

<table>
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4. Reference Drawings

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<thead>
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<tr>
<td>8609–27000–5031–04</td>
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</table>

C. INDUSTRY CODE AND STANDARD EFFECTIVE DATE
All codes and standards shall be the edition in effect as of December 31, 1999 unless indicated otherwise.

D. INDUSTRY CODES AND STANDARDS
The materials shall conform to the applicable requirements of the following documents and applicable supplements(Which are referenced herein and not attached):

SHQCP-008-03 SAM HOON MACHINERY COMPANY A4(210mm x 279mm)
BLOW OUT PANELS

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E. QUALITY REQUIREMENTS
The quality class of all Supplier furnished material shall be industrial standards.

T.03 SUBMITTALS

A. DRAWING, DATA AND PROCEDURES

1. The Seller shall submit shop drawings showing thickness, dimensions, operating method, reinforcement, anchorage, fabrication and installation details for blow out panel.

2. Seller shall submit the manufacturer’s specification and data required to completely describe the blow out panel assembly and their compliance with the specification including coating applied to the blow out panel.
BLOW OUT PANELS

3. Seller shall submit test procedures for blow out panel.

4. Supplier shall, when requested, submit the structural calculations which consider wind loads.

B. QUALITY VERIFICATION REPORTS AND RECORDS

The Contractor shall furnish a Certificate of Conformance stating that all work performed under this section meets the requirements of this Contract.

T.04 DESIGN REQUIREMENTS

A. DESIGN LOADS

1. Design panel assembly and support framing to resist wind pressure of 2.0kPa with deflection not exceeding 1/180 of spans as directly related to panel assembly and support framing. The deflection requirements apply to positive or negative(suction) pressure.

2. Provide any additional bracing that may be required to meet increased load pressure because of construction conditions.

B. DESIGN CONDITION

1. The mass of the fabricated panels and attached gaskets and hardware shall not exceed 12.21 kg/㎡.

2. Design panel assembly to release at a minimum positive internal building pressure of 1.0 kPa(±10%) and allow the panels to open fully in less than 250 milliseconds when subjected to a rate of pressure rise less or equal to 65kPa per second with a maximum pressure of 6kpa. Each panel shall be equipped with restraint and hold open mechanisms designed to cushion the panels deceleration as the full open position is reached. A panel is considered fully open when it makes an angle of 60° with the vertical position.
3. The release mechanism shall consist of permanent magnets calibrated to the required design release pressure.

4. Make provisions for expansion and contraction when subject to a minimum and maximum surface temperature of −35°C and 75°C.

5. The through core "U" factor of the semi-rigid fiberglass core to be 0.66 watts per degree °C.

T.05 MATERIAL, FABRICATION AND COATING

A. GENERAL
1. Material and fabrication shall suitable for the design and operating conditions specified and shall be in accordance with the applicable requirements of this specification.

2. Material and fabrication not specifically covered by this specification shall be manufacturer’s standard, suitable for the application.

B. MATERIAL
1. Panels
   The panel shall be installed within an individual perimeter frame so that they will open outward and pivot from the top, utilizing a 0.625 in. (16mm) diameter hinge bar. The panel shall be held shut and designed to release by 1.0Kpa (±10%). The panel shall be equipped with a hold-open arm.

   The panels with semi-rigid insulated core shall consist of 1 2 in (52mm) thick aluminum faced insulated fiberglass core, panel module. The panels shall be fabricated from two 0.032 in. (0.81mm) minimum thickness 3003 or 5005 alloy aluminum face sheets and fiberglass insulation. The aluminum sheets and fiberglass boards are sprayed with contact adhesive and pressure laminated forming a sandwich type panel having an approximate thickness and weight, respectively, of 2 in. (51mm) and 2.3 lb/ft².
2. Perimeter Frame

The perimeter frame shall be fabricated from 0.063 in (1.60mm) minimum thickness 6063-T52 alloy extruded aluminum.

3. Hardware and Others

The hold-open arm to be spring activated urethane assembly which rotates to prevent panel closure after release. The arm components are fabricated from 0.156 in.(3.96mm) minimum thickness 6063-T52 alloy extruded aluminum.

The magnetic release system to be used shall consist of the panel being hinged at one end and a magnet and strike plate at the other. Each magnetic release is shop calibrated and can be statically tested in the field using a hydraulic jack or gauge. Shims are installed as necessary to achieve the desired release force to within a tolerance of ±10%.

Each panel shall be equipped with a concealed restrain/ deformable shock absorbing mechanism designed to cushion the panel's deceleration as the full sent position is reached. Each panel shall also be equipped with a concealed spring loaded blocker/hold-open mechanism to minimize the development of a vacuum in the enclosure when the health gases cool.

Exterior panels gaskets shall be pile fiber with a continuous polypropylene center fin. Interior gaskets shall consist of open cell compression foam and clad with a polyethylene liner.

4. Caulking and Sealant shall be silicone sealant and conform to the requirements of Section D.13, Caulking and Sealant (Will be purchased and furnished by Section D13, Caulking and Sealant Contractor)
B. MATERIAL

1. Design and fabricate to withstand specified wind loads.

2. All components shall be free of scratches and blemishes.

3. Panels shall be top hinged.

3. Head sill jamb and mullion frames shall be extruded aluminum construction with integral gasket retainers, reinforcing bosses, snap in closures and provision for perimeter caulking. Mullions shall be two piece assemblies to allow for independent accessibility.

5. Panels shall be made of insulated sheet metal construction

6. Panels shall be reinforced for pivot or hinge hardware and for release mechanism.

7. The panel core shall be semi rigid insulation.

8. The assembled panel shall be 2 in. (50.8mm) thick.

9. The panel assemblies shall be weather and water tight and shall be constructed such as to provide a rigid panel without waves or warps.

10. Gaskets shall be continuous around panel and frame.

11. Panels in the closed position shall not allow water or snow infiltration.

12. The release mechanism shall be mounted to the panel frame and shall be shop calibrated and tested for the design load.

13. System design shall allow for non-destructive testing in the field to verify that the panels release at the specified static design pressure.
14. The panel pressure relief system shall allow for manual (or semi- automatic) retrieval after release.

D. COATING WORK

1. Manufacturer’s standard coating system can be considered.

2. The color of finish shall be selected by the Owner.

3. The handling and storage of coating material, surface preparation, application of coating, inspection, testing and materials for touch-up shall be in accordance with the coating manufacturer’s written instruction.

T.06 SHIPPING, HANDLING, STORAGE, PACKING AND MARKING

A. GENERAL

The items procured by this specification are to be shipped, handled, stored, packed and marked in accordance with applicable requirements specified in this specification and Subpart 2.2 of ASME NQA-1, Level B for motor/control, gearing, pushbutton stations, limit switches, control circuits, reversing starter, combination safety device and weather seal, and Level C for the others. Each door assembly and its container shall be marked and tagged with an opening number, building name, elevation, level door number, manufacturer, address, rating, test number and label serial number.

B. STORAGE AND HANDLING

The Supplier shall provide storage and handling requirements at the jobsite in accordance with ASME NQA-1, Subpart 2.2, Level B for motor/control, gearing, pushbutton stations, limit switches, control circuits, reversing starter, combination safety device and weather seal, and Level C for the others.
T.07  INSPECTION AND TESTING

A. GENERAL

1. Supplier shall conduct and be responsible for the independent laboratory tests called for in the Specification as well as the applicable codes and standards.

2. Static release testing shall be performed in the manufacturers plant to verify the specified release pressure of 1.0kpa ±10%.

3. Supplier shall submit records and reports for all tests required by this Specification. These records and reports shall be prepared promptly after each test and shall be transmitted to the Buyer prior to shipment of the equipment to the Project site.

B. INSPECTION AND TESTS

The manufacturer shall furnish the dynamic test report. The dynamic test report verifies opening time versus minimum rate of pressure rise as describe in T.04 B.2