1. Design/Performance Requirements

A. Design members to withstand wind loads in accordance with current version of ASCE-7, International Building Code (IBC), and applicable local state, county and city codes.

B. Design structures for winds up to 180 mph winds with the cover off and 105 mph winds with the cover on (IBC 3105.4.2.1).

C. Design foundations in accordance with ACI and applicable code and good construction practices for the specific structure and site conditions.

D. Cooperate with regulatory agency or authority and provide data as requested authority having jurisdiction.

E. Design covers for easy removal and replacement.

F. Design covers for a maximum 5 lbs. snow load (where applicable).

G. Design covers for a maximum 5 lbs. live load as per awnings and canopies.

1.2 Framing Materials

A. American Institute of Steel Construction (AISC) or American Iron and Steel Institute (AISI) specifications.

B. Structural Tubing: Allied Tube and Conduit tubing conforming to ASTM A500, galvanized or treated with Allied's three step Flo-Coat Process.


D. Structural Steel Members: Steel Plates ASTM A36, A50 or A572.

E. Bolts, Nuts, and Washers: ASTM A325 Galvanized and A316 stainless steel. All Stainless Steel bolts shall comply with ASTM F-593, Alloy Group 1 or 2. All nuts shall comply with ASTM F-594 Alloy Group 1 or 2.

1.3 Reinforced Concrete
A. Concrete work shall be executed in accordance with the latest edition of the American 
Concrete Institute Building Code. Concrete specifications shall be as follows:
1. 28 day strength: minimum 2500 psi
2. Slump: 3-5
3. Portland cement shall conform to C-150
4. Aggregate shall conform to ASTM C-33

B. All reinforcement steel shall conform to ASTM A-615 Grade 60

C. All anchor bolts set in new concrete (when applicable) shall comply with ASTM F-1554 Grade 
55 (galvanized).

D. All non-shrink, non-metallic grout shall have a minimum 28 days compressive strength of 
4000 psi, and shall comply with the requirements of ASTM C109 when applicable

1.4 FABRICATION

A. Steel Components: Fabrication of steel components shall be in accordance with guidelines 
set forth in the AISC steel design manual and the AWS code of structural welding.

B. Welds: All shop welds shall be executed in accordance with the latest edition of the American 
Welding Society (AWS) D1.1 specifications. All welds shall be continuous where length is not 
given. All welds shall develop the full strength of the weaker member. All welds shall be made 
using E70XX.
1. All welds shall be in accordance with manufacturers design and performed prior 
to shipping. No welding shall be performed in the field.
2. Grind all corners and sharp edges.
3. Steel will require abrasive blasting and primer before application of the 
polyester powder paint finish.

C. Powder Coating: All steel shall be painted with one shop coat polyester powder painted to 
a minimum thickness of 3.5 - 4 mils.
1. Pencil hardness (ASTM D-3363)
2. Humidity (ASTM D-2247)
3. Solvent Resistance (PCI Test Method)

D. Frame Colors: Colors as selected from the manufacturer’s standard selections.

1.5 SHADE FABRIC MATERIALS

A. Apollo Sunguard Shade Cloth: High density polyethylene fabric with ultraviolet blocking 
additives.

B. Fabric is rachel knitted providing stability and fraying resistance when cut. Fabric is fabricated 
with monofilament and tape construction for additional stability.

C. Minimum Performance Properties:
1. Burst Strength: 228 to 260 kpa/37.7098 psi.
2. Fabric Mass: 200 to 195 gsm.(045 lbs/ sf)
3. Tear Strength (33.0686 psi):
   a. (warp) 83 kg 182lbs (warp) 100 kg, 220 lbs
   b. (warp) 210 kg 462lbs (warp) 182 kg, 401 lbs

D. Fabric Cover: Fabric cover fabricated with W. L. Gore Tenara UV resistant thread. Fabric 
connection points to be triple reinforced and heat sealed with vinyl interfacing inserted and 
sewn between layers of reinforcement. Fabric shall be pre-stressed prior to fabrication.
1. Lockstitch – 1200 Denier
2. Chainstitch – 2400 Denier

E. Fire Rating:
1. ASTM E 84: Class 1, Flame Spread 15, Smoke Developed 15.

4. FFPC Florida Fire Prevention Code 2012

F. Shade Percentage: 60 percent to 95 percent (varies by fabric color)

G. UVB Block: 85 percent to 98 percent (varies by fabric color).

H. Colors: Color as selected from the manufacturer's standard selections.

1.6 CABLE FASTENING AND TENSIONING MATERIALS

A. Fastening and Tensioning System:
   Quick & Easy Turnbuckle Tensioning System. Wire Rope shall conform to AISI Steel Cable Manual requirements with a Class A galvanized coating or approved substitute. ASTM A603-98. Cable shall be IWRC improved plow steel. Aircraft Grade 7x19 core wire rope. Stainless steel when specified. Breaking strength value of 7,000 lbs (1/4" diameter). Breaking strength value of 14,500 lbs (3/8" diameter) if any side exceeds 30 feet in length.

1.7 WARRANTY

A. Provide Apollo Sunguard Systems, Inc. limited 20-year non-prorated warranty for all steel frame work against all structural failure due to corrosion, deterioration, or workmanship.

B. Provide Apollo Sunguard Systems, Inc. limited 15-year non-prorated warranty for all polyethylene covers against deterioration, rot, or faulty workmanship including seam failure.

END OF DOCUMENT