

# Nicrolite™

## **PART 1 - GENERAL**

### **1.1 SUMMARY**

This document contains the specifications for an artificial climbing wall with a real rock look and feel and minimal install time.

### **1.2 REFERENCES**

- CWA General Specification for the Design and Engineering of Artificial Climbing Structures
- Uniform Building Code (UBC) 1994 Edition or code of local conformance.
- Manual of Steel Construction, Allowable Stress Design, 9th Edition, AISC

### **1.3 SYSTEM DESCRIPTION**

Artificial climbing wall designed to look and climb like real rock. Required system is to be a premium climbing wall, no wood or foam based systems will be accepted. System shall be molded and hand sculpted. No panelized system will be permitted. Climbing wall to be custom designed to the specific needs as required by the Owner for this project. Climbing wall to be designed to be shipped on a flat bed truck and assembled by mobile lift and/or crane, which ever the project requires.

### **1.4 SUBMITTALS**

Climbing wall Manufacturer will provide submittals and product data as a part of the engineering package. All engineering data, reaction load data, and primary structure reinforcing information shall be included with the engineering package.

#### **Submittals:**

- Product data including climbing wall manufacturer's specifications, standard details and installation drawings.
- Submit 2 samples of climbing wall material, minimum 12 inches by 12 inches, showing color and finish.
- Shop drawings indicating layout of climbing wall, dimensions of materials and parts, fastening and anchoring methods, and detailed location of joints where applicable.
- Certificate of Insurance as per project requirements.
- Submit examples of modular climbing handhold in both Urethane and Polyester Resin.

### **1.5 INSURANCE**

Climbing Wall Manufacturer must carry both Workers Compensation and General Liability including Professional Liability Insurance.

### **1.6 QUALITY**

Climbing wall manufacturer shall be as specified and shall have a minimum of 10 years experience in the manufacturing of artificial climbing walls. No substitutions will be permitted. Climbing wall manufacturer must be the installer no subcontracted installation will be accepted.

### **1.7 WARRANTY**

Climbing wall manufacturer shall warrant to the original purchaser for one year from the date of completion that its products are free from defects in materials and workmanship.

### **1.8 COORDINATION**

The Climbing wall manufacturer will coordinate installation with the General Contractor and Owner, to ensure climbing wall achieves the specific requirements.

### **1.9 SHIPPING**

Climbing wall manufacturer will protect products during transit, and handling to prevent damage and deformation of the climbing wall.

## **PART 2 - PRODUCT**

### **2.1 CLIMBING WALL MANUFACTURER**

Nicros, Inc. 845 Phalen Blvd, St Paul, MN. 55106 Phone (651) 778-1975, Fax (651) 778-8080 or others as approved by Owner.

### **2.2 ARTIFICIAL CLIMBING WALL SURFACE MATERIALS**

Molded and hand sculpted climbing wall system shall be made of fiberglass reinforced sand resin using a mold lay-up process and hand sculpting only. Climbing wall system shall be compatible with modular structural support system or be manufactured directly on steel space frames for easy and quick installation.

#### **Climbing Surface:**

- Molded and hand sculpted shop fabricated composite system with iso polyester resins / UV stabilized
- Natural washed sands, colored sands, expanded silicates, and other fillers
- Climbing wall system shall be attached to modular structural support system using embedded attachment plates.
- Climbing wall system must be capable of achieving various configurations including overhangs, vertical faces, below vertical slabs, arêtes and dihedrals.
- Climbing wall system shall incorporate the ability to achieve monolithic three-dimensional curvature of the finished surface.
- Climbing wall system shall provide integral molded climbing holds as well as modular climbing hold attachment locations compatible with 3/8"-16 threaded fasteners for surface mount.
- Climbing wall thickness approx. 5/8"
- Minimum ¼ inch of layered fiberglass mats. Average weight = 8.875 lbs./sq. ft. Average hot roll angle support structure weight = 2.625 lbs./sq. ft.
- Projected panel size will be based on the design and environmental requirements. Size of the panels may be very large if utilizing the crane in installation approach.

### **2.3 MODULAR SUPPORT STRUCTURE**

The support structure shall be modular in nature and capable of transferring all applied design loads back to the primary vertical support structure that lie parallel to the projected plane of the climbing surface. As an alternative, the climbing wall may be manufactured directly on steel space frames and craned into place to reduce time onsite. Integrated modular support structure shall be made of hot rolled Angle members capable of transferring all design loads from the climbing wall to the primary support structure via primary steel (Primary steel may be supplied and installed by Steel Subcontractor).

#### **Components of the modular support structure:**

- Hot rolled angle members shall be fabricated from steel angle, ASTM A36, with both ends drilled.
  - Connection hardware shall be fabricated from steel. Connection hardware shall be fiberglassed in to the climbing wall panels.
  - Hot rolled primary steel angle will be supplied and manufactured by the climbing wall manufacturer and may be installed by Steel Subcontractor. Primary support structure, if needed, will be supplied and installed by owner's Steel Subcontractor
  - Hot Rolled Primary steel shall be attached to primary support structure columns or wall as shown in climbing wall manufacturer's shop drawings.
- Finish on above strut shall be the following: (Architect to specify Finish)
- a. Plain
  - b. Paint
  - c. Galvanized
  - d. Powder Coat
- Primary support members will be sized and detailed by engineering calculations supplied by the climbing wall manufacturer. The engineering calculations will outline the reactions generated by the climbing wall.
  - Anchorage details for the primary support structure and floor anchors will be provided by climbing wall manufacturer.
  - Finish on above primary support structure shall be the following: (Architect to specify paint color)
- a. Paint
  - b. Plain
  - c. Paint
  - d. Powder Coat

## 2.4 PRIMARY SUPPORT STRUCTURE FABRICATION

### **General:**

-All structural steel and structural steel work shall conform to the specifications for design, fabrication and erection of structural steel for buildings of the American Institute of Steel Construction (AISC) Code of Standard Practice, and to the requirements of local building codes.

### **Material:**

-Steel shall consist of ASTM A36.

## 2.5 QUALITY

The Steel Subcontractor (if used) shall provide quality control procedures to the extent that he deems necessary to assure that all work is performed in accordance with the drawings provided by the climbing wall manufacturer. In addition material and workmanship at all times may be subject to inspection by the climbing wall manufacturer. Material or workmanship not in reasonable conformance with the specification may be rejected at any time during the project.

## 2.6 ANCORAGE AND FASTENERS

### **CLIMBING SURFACE CONNECTION:**

-Concealed shall be 1/2" –13, Grade 5 hex head bolts welded to a embedded mounting plate, Grade C locknuts.

### **MODULAR HANDHOLDS:**

-Polyester Resin or Urethane handhold using 3/8" – 16 socket head cap screws or flat head cap screws of appropriate length supplied by the manufacturer.

### **MODULAR HANDHOLD ATTACHMENT:**

-Nickel plated steel weld nut bonded with Plexus Adhesive to ensure easy replacement in the case of cross threading.

## 2.7 CLIMBING ANCHORS

### **Lead Bolts:**

-U.I.A.A. approved bolt hangers shall be attached to primary steel support structure and mounting bracket in accordance with engineering specifications. U.I.A.A. approved bolt hangers shall be anchored with a minimum 3/8" diameter, grade 8 bolts.

### **Belay Anchors:**

-Each belay anchor shall consist of two (2) U.I.A.A. approved super shuts attached to two horizontally adjacent mounting brackets as per "Lead Bolts" above. Minimum horizontal distance between super shuts shall be 6 inches.

## PART 3 - CONSTRUCTION

### 3.1 PRE-CONSTRUCTION INSPECTION (optional)

If climbing wall manufacturer needs to verify that all surfaces are ready to receive work and are within specified tolerances, and verify that the layout of the materials or equipment will not interfere with installed climbing wall, this must be done at the manufacturer's expense.

### 3.2 INSTALLATION

Erection of the primary steel, if installed by steel sub contractor, shall be in accordance with manufacturer's recommendations. Installation of the climbing wall must be performed by the climbing wall manufacturer.

### 3.3 MOVE OUT AND CLEAN-UP

The climbing wall manufacturer will remove all equipment, supplies and remove all debris created during installation of climbing wall.

### **3.4 INSPECTION**

-The completed climbing wall shall be inspected by the Owner or Owners representative and the manufacturer to certify that the finish product has been installed in accordance with the drawings and contract documents.

### **3.5 PROTECTION**

Climbing wall manufacturer to provide reasonable protection in a manner acceptable to the Owner or Owners representative to help reduce chance of damage by others.

## **PART 4- TECHNICAL GEAR**

### **4.1. Climbing Ropes: Dynamic ropes, unless otherwise specified:1 per 6 linear feet of wall in sufficient length**

1. Product: Standard with the climbing wall manufacturer.
2. Manufacturer: Sterling or approved equal that meets UIAA standards.

### **4.2. Climbing Harnesses: As indicated, or if not indicated, 2 harnesses per top anchor.**

1. Adjustable with double pass through buckles and gear loops.
2. Manufacturer: Edelweiss, Misty Mountain, or approved equal

### **4.3. Belay Devices:**

1. Tube style, manufactured by DMM, Trango, Petzl or approved equal

### **4.4. Locking Carabiners:**

1. Aluminum, large D ring, 25Kn major axis, 7Kn minor axis, manual locking, as manufactured by Petzl AMD, DMM Boa, or approved equal

### **4.5. Quick Draws: (Where lead routes are specified)**

1. Quicklink: 3/8" Quicklink.
2. Carabiners: Stainless Steel, wire or bent gate, 23Kn major axis, manufactured by Fixe, USA
3. Sling: 4" sling as manufactured by Petzl or equal that meets UIAA standards

### **4.6. Modular Handholds**

1. Composed of polyester resin or urethane.
  - a. Acceptable Manufacturers: Nicros, PM Climbing or approved equal.
2. Handhold selection shall be made based on strong functionality of the potential user base and shall include:
  - a. 20% Large Holds
  - b. 40% Medium Holds
  - c. 30% Small Holds
  - d. 10% Bolt-on Footholds
3. To include handhold bolt of appropriate length.

### **4.7. Rental Shoes:**

1. All purpose climbing shoes of size range to include most popular size for users, at manufacturer's wholesale price from:
  - a. La Sportiva

### **4.8. Auto Belay System**

1. (If applicable) Autobelay System – Air Pneumatic or Equivalent
  - a. (If applicable) Units installed in instructional area of climbing wall