

## **BLEACHER SITE AND ANCHORING REQUIREMENTS**

### **1) General Requirements:**

- A) The site on which the bleacher is to be placed shall consist of a minimum soil bearing of 1,000 psf.
- B) The site shall be clear of all obstacles (ie. light poles, utilities, or other obstructions), unless special construction is specifically stated in the Bid or Quote.
- C) The surface may be sloped a maximum of 1/8 inch per foot for drainage. The maximum overall out of level slope perpendicular to the seats (front to rear) shall not exceed 2" and parallel to the seats (end to end) shall not exceed 4". Variations in flatness shall not exceed 5/16" below a 10-foot straightedge.
- D) Bleachers shall be anchored to resist overturning from wind forces, and to be in compliance with many local codes.

### **2) Methods of Anchoring**

Anchoring bleachers can be accomplished in several ways at the discretion of the owner and the soil conditions at the site. It is recommended that the bleachers be attached to concrete foundations or be secured with auger type soil anchors.

#### **A) Concrete Foundations:**

Minimum concrete foundation options include: (1) a 5-inch thick reinforced concrete slab (2) a 12-inch wide by 24-inch deep concrete strip foundation under each bleacher frame or (3) sufficient drilled concrete piers to anchor the bleachers. Frost lines, soil conditions, or other conditions may indicate a need for additional depth or reinforcement of concrete. Contact us for specific concrete specifications.

#### **B) Auger Anchors:**

Auger type soil anchors are generally recommended when the owner intends to set the bleacher on wood groundsills, or where concrete may not be practical. Auger type soil anchors consist of augers that are driven into the soil, and hold down straps which secure the bleacher frames to the embedded augers. A specialized auger drive machine is required for installation of augers. When auger anchors are to be installed, it is required that the soil (stone, gravel, etc.) not contain large rocks, or other compacted material which may prohibit or severely impede such auger anchor installation.

### **3) Site Soil Requirements**

Since the soil type dictates the type of foundation or anchors that can be used, it is recommended that the owner engage the services of a local soil-testing agency to investigate and to furnish a soil report. The soil shall be described in accordance with the Unified Classification System and blow counts shall be furnished in accordance with ASTM D1586. If the owner furnishes incorrect or insufficient soil information the resultant anchoring method may prove inadequate to resist loads at the risk of the owner.

## **CONCRETE FOUNDATION SPECIFICATIONS**

### **SCOPE:**

Foundation construction is not part of BuiltRiteBleachers.com scope of work unless noted otherwise in the contract documents. The owner shall review the foundation design with the local code authorities, and coordinate with BuiltRiteBleachers.com.

### **FOUNDATION DESIGN & ANCHORS:**

- 1) The foundation designs are based on the following:
  - a. Minimum presumed soil bearing 1000 psf.
  - b. Bleacher frame dead and live load 700 lbs./ft.
  - c. Bleacher frame wind uplift load 250 lbs./ft. (up to 150 mph – exposure C)
- 2) Unless otherwise noted on the drawings the bleacher frames shall be attached to the concrete with 3/8" dia. x 2-3/4" wedge type expansion anchors. The anchors shall be embedded a minimum of 1-5/8" into the concrete.

### **CONCRETE SPECIFICATIONS:**

- 1) All concrete construction shall be in accordance with the latest edition of the *"Building Code Requirements for Reinforced Concrete ACI 318-08."*
- 2) All concrete shall have a minimum 28-day strength of  $F_c=3000$  psi.
- 3) All reinforcing bars shall be grade 60. ( $F_y = 60$  ksi)
- 4) There shall be a minimum of 3" of concrete cover on all reinforcing.
- 5) A 1/4" bituminous expansion joint material shall be placed between strip and slab foundations when adjacent to each other
- 6) The depressions in the top of the foundations between high spots shall not exceed 5/16" below a 10-foot long straightedge. The 10-foot straightedge method used to measure foundation flatness shall be in accordance with ACI 302.1R-04 *"Guide for Concrete Floor and Slab Construction"*.

### **CONCRETE SLAB SPECIFICATIONS:**

- 1) Concrete slab shall have a minimum thickness of 5" (BuiltRiteBleachers.com , recommends, and some areas may require 6" thickness) and placed on 4" of compacted gravel or compacted sand sub-base.
- 2) Concrete slab shall be reinforced with 6x6/W2.1 x W2.1 welded wire fabric at 1-1/2" concrete cover from the top. In lieu of welded wire fabric, 2" XOREX by Ribbon Technology Corporation or equal corrugated steel fibers applied at a rate of 50-lbs./cu. yd may be used. Nylon or polypropylene fibers are not recommended.
- 3) Crack control joints shall be sawed into slab to form approximate square patterns. The maximum spacing for control joints shall not exceed 12'-6" feet, unless shown otherwise shown. The bleacher frames shall not be set on control joints. The designer shall contact BuiltRiteBleachers.com to coordinate joint spacing requirements with the specific bleacher design.
- 4) The slab may be sloped a maximum of 1/8 inch per foot for drainage. The maximum overall out of level slope for the slab perpendicular to the seats (front to rear) shall not exceed 2" and parallel to the seats (end to end) shall not exceed 4".

### **CONCRETE STRIP FOUNDATION SPECIFICATIONS:**

- 1) Bleacher concrete strip foundations shall have a minimum width of 12" and a minimum depth of 24".
- 2) The strip shall be reinforced with 1 No. 6 deformed longitudinal reinforcing bar in the top and 1 No. 6 deformed longitudinal reinforcing bar in the bottom.
- 3) The maximum out of level slope for the strip foundation perpendicular to the seats shall not exceed 1/8" per foot nor 2" overall front to rear. The maximum elevation difference between the end foundations shall not exceed 4" overall, and the maximum projected slope between the end foundations shall not exceed 1/8" per foot. Top of piers shall be level with surface. All bleacher frames must be in contact with surface at all locations (front to rear).

### **CONCRETE PIER SPECIFICATIONS:**

- 1) The maximum projected slope between the piers shall not exceed 1/8" per foot. The maximum out of level top of pier elevations shall not exceed 2" perpendicular to the seats (front to back), nor 4" parallel to the seats (end to end) between the end piers.
- 2) The quantity, size, reinforcement and design of the piers shall be site specific, and coordinated with BuiltRiteBleachers.com.