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**Wisconsin**  
Department of Commerce

Evaluation #

200504-B Revised  
(Replaces 990004-B)

Safety & Buildings Division  
201 West Washington Avenue  
P.O. Box 2658  
Madison, WI 53701-2658

## Wisconsin Building Products Evaluation

Material

JWI Bleachers  
(Standard 3-, 5-, 10- and 15-Row Non-elevated)

Manufacturer

JW Industries, Inc.  
5662 Glendale Ave.  
Green Bay, WI 54313

### SCOPE OF EVALUATION

**GENERAL:** This report evaluates the Standard 3-, 5-, 10- and 15-Row non-elevated bleachers manufactured by JW Industries, Inc.

The IBC requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Egress Width (general):** The Standard 3-, 5-, 10- and 15-Row non-elevated bleachers have been evaluated for conformance in accordance with **ss. IBC 1003.2.3 and 1003.2.8.**
- **\*Guardrails:** The Standard 3-, 5-, 10- and 15-Row non-elevated bleacher guardrails have been evaluated in accordance with **s. IBC 1003.2.12, Exception 7.** and **s. IBC 1008.12.** (See **LIMITATIONS OF APPROVAL section**)
- **Bleacher Foot boards:** The Standard 3-, 5-, 10- and 15-Row non-elevated bleacher foot boards were evaluated in accordance with **s. IBC 1008.13.**
- **Bench Seating:** The Standard 3-, 5-, 10- and 15-Row non-elevated bleacher bench seating was evaluated in accordance with **s. IBC 1008.14.**
- **Bleacher Structure:** The Standard 3-, 5-, 10- and 15-Row non-elevated bleachers are designed and constructed in accordance with **s. IBC 1604.1, s. IBC 1604.2 and s. IBC Table 1607.1.**

### DESCRIPTION AND USE

**GENERAL:** The Standard 3-, 5-, 10- and 15-Row non-elevated bleacher systems are fabricated from aluminum structural sections (6061-T6), and extruded aluminum seats and foot boards (alloy 6063-T6). Models covered include: 3R19A, 3R25A, 3R31A, 3Rcustom, 5R19A, 5R25A, 5R31A, 5Rcustom, 10R19A, 10R25A, 10R31A, 10Rcustom, 15R19A, 15R25A, 15R31A, 15Rcustom, also included are bleacher lengths greater than 31 feet in length.

Each row of assemblies, both longitudinal and transverse, are essentially moment resisting frames made up of vertical aluminum angle legs with rigid welded connections and horizontal channel type foot planks.

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The frames are factory-assembled. The main framing members (beams, bracing supports and columns) consist of 2" x 2" x 3/16" 6061-T6 aluminum alloy. The joints within each unit are fixed. Due to the small size of members, adequate fixity of the joints is accomplished by welding.

Clear anodized seat planks and mill finish foot planks are 1 3/4" x 9 1/4" nominal extruded aluminum of 6063-T6 alloy. Seat planks are attached to uprights with clips, 5/16" x 1 1/4" carriage bolts, locks and nuts. Seat spacing is 24 inches, back to back with an 8-inch rise per seat. Foot planks are securely attached to the frames with nuts, bolts, lock washers and clips.

Sill plates consist of 2" x 4" and 2" x 6" Southern Yellow Pine (treated).

Plank ends are covered with 6063-T6 aluminum end caps secured with 3/16" pop rivets.

### **STRUCTURAL CALCULATIONS**

Calculations for the Standard 3-, 5-, 10- and 15-Row non-elevated bleacher systems were prepared by Mark P. Marchi, P.E., Wisconsin E-33647.

Static load analysis in accordance with the applicable design procedures in **IBC Chapter 16** of current **Wisconsin Amended ICC Code**. See **IBC Table 1607.1** and NFPA 102 for static loads for the bleachers and railings (also s. **IBC 1607.7**). Allowable stresses for beams, posts, cantilevers, and deck supports were designed in accordance with the Aluminum Association, Inc. (AAI) Specifications for Aluminum Structures. Computer programs were used to determine section properties and the allowable stress for most components of the bleacher support structure.

#### **Design Loads:**

- Dead Load: Weight of bleacher.
- Uniform Live Load: A uniformly distributed vertical live load of not less than 100 pounds per square foot of gross horizontal projection s. **IBC Table 1607.1, 28**.
- Seat and foot board Live Load: 120 lb./ft s. **IBC Table 1607.1, Note c**.
- Horizontal Sway: Parallel to seats (deck length), 24 pounds per lineal foot s. **IBC Table 1607.1, Note c**.  
Perpendicular to seats (deck length), 10 pounds per lineal foot s. **IBC Table 1607.1, Note c**.
- Handrails: 200 lb. any direction s. **IBC Table 1607.1.1**. (Also designed for 50 lb./lineal foot uniform horizontal load applied at the top rail, s. **IBC 1607.7.1**.)
- Guardrails: 200 lb. any direction s. **IBC Table 1607.1.1**. (Also designed for 50 lb./lineal foot uniform horizontal load applied at the top rail, s. **IBC 1607.7.1**.)
- Guardrail In-Fill Area: 50 Lbs. on 1 ft<sup>2</sup> s. **IBC 1607.7.1.2**.

Deck performance calculations are also on file with the department.

### **LIMITATIONS OF APPROVAL**

The **IBC** limitations below are in accordance with the current **Wisconsin Amended ICC Code**:

**Aisle handrails:** shall be not be less than 34-inches high and not more than 38-inches high (Per s. **IBC 1003.3.3.11.1**, JWI handrails are 36-inches high. **Note:** Aisle handrails shall not obstruct/impede exiting from bleachers and shall be discontinuous at intervals not exceeding 5 rows to facilitate access to seating and permit crossing from one side of the aisle to the other).

**End rails:** shall be 42-inches high with mid-rails that prevent passage of a sphere four inches in diameter.

**Back rails:** shall be 42-inches high and prevent passage of a sphere four inches in diameter.

\***Guardrails** shall be constructed to prevent the passage of a sphere larger than 4-inches in diameter in accordance with s. **IBC 1008.12**. Guardrail design and placement shall comply with the requirements of s. **IBC 1008.12**. Guarding between the foot boards and seat boards is also required.

All bleachers must be provided with aisles, in accordance with **s. IBC 1008.7**. **Exiting via the seat boards is not permitted.**

Except as noted below, calculations and drawing details shall be submitted on a job-to-job-basis showing floor and or wall anchorage loads and how attached, respectively, in accordance with **s. Comm 61.30**.

In accordance with **s. Comm 61.30**, anchorage details shall be shown on the plans indicating how the bleachers are attached to the wall or floor. If installation is in an older building, (more than 4 years old), bleacher plans shall show the construction of the wall and/or floor to which the bleacher section will be anchored. This material approval also waives anchorage calculations to solid concrete walls and lightweight concrete block only (see **DESCRIPTION AND USE** section). Both wall/floor anchorage details shall be shown on plans on a job-to-job basis.

The Standard 3-, 5-, 10- and 15-Row non-elevated bleachers are approved for plan submittal without structural calculations showing that dead and live load support can be safely carried by the supporting structure in accordance with **s. Comm 61.30**.

**Additional information required with plans submitted on a job-to-job basis:**

Where the rise of a seat exceeds 11-inches, intermediate steps shall be provided the full width of the aisles. The steps shall have a rise of not more than 11-inches and a tread of not less than 10-inches nominal width. In no case shall the angle of seating exceed 45 degrees. Per **s. IBC 1008.9.2**, the maximum riser height is 8". Per **s. IBC 1008.9.3** the minimum tread width is 11". The resulting maximum slope is 8 on 11 or 36 degrees.

This approval is not for an individual project but for the design concept only. Plans are required for each project indicating the approval number, guardrail detail, the necessity, size and location of bleacher aisles and exit passage ways, anchorage methods and construction details (framing plans) required to construct the bleachers from the plans.

This approval will be valid through December 31, 2010, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

The occupant capacities of buildings and rooms within buildings are established by exit width, toilets and the class of construction of the building. The capacity of the bleachers **cannot exceed** the allowable capacity of the room or building.

Aisle widths located within the bleachers are determined by **s. IBC 1008.5**, or use the minimum in **s. IBC 1008.7.1**.

This approval does not address barrier-free requirements. Accessible seating in accordance with the applicable requirements in **IBC Chapter 11** shall be reviewed during building plan review.

**DISCLAIMER**

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date: May 25, 2005

Approval Date: April 11, 2005 By: \_\_\_\_\_

Lee E. Finley, Jr.  
Product & Material Review  
Integrated Services Bureau