Interpretation: 11-1

Subject: ANSI B30.11-1980

Date Issued: May 27, 1986


Reply: The Manual of Steel Construction specifies the parameters for the design, fabrication, and erection of structural steel for buildings. The Specifications for Underhung Cranes and Monorail Systems includes considerations for crane and monorail equipment only. It does not include consideration for the design of the supporting structure.

Interpretation: 11-2

Subject: ANSI B30.11-1980

Date Issued: December 11, 1986

Question (1): Should the same wire rope or hoist chain, hook, and other inspection requirements of B30.2 be applied to equipment covered by the scopes of B30.7, B30.11, and B30.17?

Question (2): Inspection requirements for hoists (B30.16) do not require documented monthly inspections of the wire rope or chain. Since off center loading as well as other factors of misuse are quite possible, we would like to know why.

Question (3): What is the rationale for requiring monthly wire rope or chain inspections rather than basing the frequency of usage?

Before answering the three questions above, several facts concerning inspection requirements and the B30 series of standards are furnished for information.

- Section 1910.179 of the Federal Register adopted portions of the 1967 edition of B30.2.0. The Department of Labor has stated that Section 1910.179 applies only to the types of overhead cranes defined in that ANSI standard.
- ANSI Standards B30.11 and B30.16, and ANSI/ASME Standards B30.7 and B30.17 were developed after the adoption of Section 1910.179 of the Federal Register.
- The B30.11 and B30.17 Standards do not include rope inspection requirements and reference B30.16 for the hoisting device.
- The latest editions of B30.2, B30.7, and B30.16 have consistent wire rope, hoist chain, and hook inspection requirements and are based on frequency of usage and conditions.

Reply (1): Yes.

Reply (2): Arbitrary documented monthly inspections are an undue burden and not related to safety without consideration of frequency of use, condition of the component, or environment. All types of misuse, including off center loading, are not recommended.

Reply (3): Current editions of B30.2, B30.7, and B30.16 require wire rope or chain inspections based on frequency of usage.
Interpretation: 11-3

Subject: ANSI B30.11-1980

Date Issued: December 16, 1988

Question (1): Does para. 11-1.3.2(d), which states that "means shall be provided to restrain the track against ... lateral and longitudinal movement," require that there be no movement of either runway on a hanger rod suspended underhung system?

Reply (1): The purpose of sway bracing is to limit sufficiently the lateral movement of runway or monorail track in hanger rod suspended underhung systems to maintain proper alignment of tracks and to prevent damage to the suspension components or contact between system equipment and support structure under normal operating conditions. Longitudinal bracing is employed to limit the movement in the direction of the center line of runway rails.

Question (2): Is it required that both runways have sway bracing to prevent lateral movement?

Reply (2): Sway bracing is not required, or recommended, on both runways of a two-rail crane system. Bracing of only one runway allows the other runway to float to compensate for slight variations in rail alignment, crane deflections, and building variations.
Interpretation: 11-4

Subject: ASME/ANSI B30.11-1988

Date Issued: December 16, 1988

Question (1): Is the following interpretation of para. 11-1.1.2, Rated Load Markings — Monorails, correct? “Within any given span on a monorail where more than one hoistway apparatus exists, and where each such hoisting apparatus is rated the same as monorail between supports, stops must be installed to prevent both hoisting apparatuses from being operated in same span, therefore preventing overloading of monorail in this area.”

Reply (1): Para. 11-1.1.2, Rated Load Markings — Monorails, states: “The rated load of each hoist on a monorail shall be marked in accordance with ASME/ANSI B30.16. Combined loads on hoists shall not exceed the rated load of the monorail.” The methods to meet this requirement are dependent upon the application and the conditions involved in that application and require analysis by a qualified person.

Question (2): Is the following interpretation of para. 11-1.3.4, Welded Construction, correct? “Welding of monorails is sufficient, without bolting, as long as welding and welder conform to ANSI/AWS D14.1 and ANSI/AWS D1.1.”

Reply (2): On the basis that the interpretation of para. 11-1.3.4, Welded Construction, pertains to the installation, and not the manufacture of monorails, we refer to the portion of the paragraph that states: “Where field welding of track supports is done, welding shall be done in accordance with ANSI/AWS D1.1.” If a system is to be welded in place, all procedures must be in accordance with ANSI/AWS D1.1, and any special instructions of the monorail manufacturer, based on the rated load of the monorail and the specific application.
Interpretation: 11-5

Subject: ASME/ANSI B30.11-1988

Date Issued: June 15, 1989

Question: Are bumpers required on underhung cranes that are being operated near the end of runways?

Reply: Bumpers of the compressible, energy absorbing, type are not required as standard equipment on underhung cranes. Bumpers are required only in certain geographic areas by specification or as an individual user requirement.

The stops covered in para. 11-1.3.1(g) are normally rigid members and are, as stated, "to prevent the carrier or crane from inadvertently coming off the track or contacting an obstruction. Stops shall be provided at open ends of tracks, such as at interlocking crossovers, track spurs, track openers, and track switches. Stops shall resist impact forces of a fully loaded carrier or crane traveling at 50% of the rated full-load speed."
**Interpretation: 11-6**

**Subject:** ASME/ANSI B30.11-1988

**Date Issued:** December 13, 1990

Question (1): Do subparas. 11-1.9.3(b)(3), 11-1.9.5(c)(2), and 11-1.9.5(c)(3) require "power-on" and "power-off" switches or buttons to be located in the pendant of all floor operated cranes?

Reply (1): No, not all floor controlled cranes require power-on, power-off buttons in the pendant station. The requirement for these buttons is determined by the rules listed in the NEC, Article 610, Cranes and Hoists, Section 610-32, Disconnecting Means for Cranes and Monorail Hoists.

Question (2): Does a festoon cable (flat or round, or a cable reel) constitute a runway conductor? [See subpara. 11-1.9.5(c).]

Reply (2): A flat or round festoon cable and a cable reel can constitute a runway conductor system.

Question (3): Does subpara. 11-1.9.5(c) only refer to feed rail systems (single-conductor bottom or side entry, multi-conductor enclosed bar)?

Reply (3): Subparagraph 11-1.9.5(c) refers to all runway conductor systems including but not limited to feed rail systems.
**Interpretation: 11-7**

Subject: ASME/ANSI B30.11-1988

Date Issued: August 21, 1992

Question (1): In Section 11-0.2 Definitions, the definition of *crane* is "a machine for lifting and lowering a load and moving it horizontally . . . ."

Would a portable chainfall with a hook hung from a trolley on an "I" beam be considered a crane or is a crane lifting device always an integral part of the trolley?

Reply (1): Yes, the hook mounted hoist and monorail trolley, as a unit, is being considered a monorail type crane. The trolley is the supporting machine and the hoist is the load lifting and lowering machine.

Question (2): Would a hoist trolley integral mechanism mounted on a davit be considered a crane?

Reply (2): Yes, a hoist with an integral trolley mounted on a jib crane, davit, is a jib crane. The jib crane and the trolley are the supporting structure and the hoist is the load lifting and lowering machine.
Interpretation: 11-8

Subject: ANSI/ASME B30.11-1988

Date Issued: December 17, 1992

Question (1): For the situations described below, how can we provide safeguards against an overload?

Situation 1 — A “U” or horseshoe-shaped monorail has a marked capacity of 1 ton. The monorail has two 1-ton capacity hoists, one on each leg but with the ability to traverse the monorail and be on the same leg (section) of the monorail.

Situation 2 — A base plate mounted freestanding jib crane marked 1 ton capacity has two hoists mounted on it, each having 1 ton capacity. The primary hoist is an electric chain and the second unit is a mechanical chain type.

Reply (1): The paragraph which addresses load weight of the crane is:

11-3.2.1 Load Weight. The equipment shall not be loaded in excess of its rated load except for test purposes as provided in para. 11-2.2.2 or for planned engineered lifts as provided in para. 11-3.2.4.

The paragraphs which address rated load markings are:

11-1.1.1 Rated Load Markings — Crane. The rated load of the crane shall be marked on the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on the hoist or its load block so that the rated load marking shall be legible from the ground or floor. The combined load on all hoists on a crane shall not exceed the rated load of the crane.

11-1.1.2 Rated Load Markings — Monorails. The rated load of each hoist on a monorail shall be marked in accordance with ASME/ANSI B30.16. Combined loads on hoists shall not exceed the rated load of the monorail.

The combination of load weight and markings defines the requirements for crane loading. In addition, paras. 11-1.1.1 and 11-1.1.2 specifically state combined loads on hoists shall not exceed the rated load of the crane or monorail.

Safeguards can be provided by correctly marking the hoist, crane, and monorail, and training operators in accordance with the requirements of the paragraphs noted.

Question (2): For the situations described in Question (1), what markings or warning signs should be provided to alert the operator to the potential overload?

Reply (2): The markings, which are required by the paragraphs referenced in Reply (1) and the training of operators in proper use of the equipment in accordance with requirements, are necessary to alert operators not to overload cranes.
Interpretation: 11-9

Subject: ASME B20.1b-1992, Conveyors and Related Systems, Scope
ASME/ANSI B30.11-1988, Monorails and Underhung Cranes, Scope

Date Issued: October 18, 1993

Question: Is there a conflict between ASME/ANSI B30.11 and ASME B20.1 as to which standard applies to monorails?

Reply: To date there has been no misunderstanding between the B20 and B30 Committees regarding which pieces of equipment utilizing a single track are considered cranes/hoists and those that are a variation of a trolley conveyor often referred to as a monorail conveyor. In identifying the category one must go beyond the track configuration and access the function of the equipment and operational characteristics.
Interpretation: 11-10

Subject: ASME B30.11-1993, Monorails and Underhung Cranes

Date Issued: September 22, 1994

Question: Please advise on a situation where a continuous monorail is fitted with multiple hoists, where the rated load of each hoist is equal to the rated load of the monorail, but where the hoists are spread apart when used for a pick such that no two hoists are positioned on the same rail span.

Reply: Paragraph 11-1.1.2 Rated Load Markings — Monorails states, "The rated load of each hoist on a monorail shall be marked in accordance with B30.16. Combined loads on hoists shall not exceed the rated load of the monorail." Therefore, the combined, marked rated load of the hoists on the monorail may very well exceed the rated load of the monorail; however, the effect of combined loads on the hoists shall not exceed the rated load of the monorail.

When combining loads on hoists, the manufacturer or a qualified person must confirm that the effect of each different loading configuration does not exceed the rated load of the monorail system, including all components of the system.

Interpretation: 11-11

Subject: Application of the B30 Standard

Date Issued: March 16, 1995

Question: Is it acceptable to use any ASME B30 volume during inspection of a specific crane/hoist if a discrepant item cannot be identified in one volume?

Reply: No, it is not acceptable to use any ASME B30 volume during inspection of a specific crane/hoist.

The B30 volumes that apply to the equipment you have referenced: Underhung, Bridge and Trolley Two Beam, and Underhung Bridge, are the following:
(1) ASME B30.11 Monorails and Underhung Cranes addresses the bridge and trolley of an underhung crane.
(2) ASME B30.16 Overhead Hoists (Underhung) addresses the hoist used on an underhung crane.
Interpretation: 11-12

Subject: ASME B30.11-1993, Monorails and Underhung Cranes

Date Issued: March 13, 1998

Question (1): Paragraph 11-1.3.2(f) states: "All track and track supports built after the issuance of this Standard should conform to the minimum design parameters as specified in the Manual of Steel Construction of ANSI MH27.1."

Can the AISC Manual of Steel Construction be used alone to design track and track supports?

Reply (1): No.

Question (2): Are both standards to be used with the most restrictive requirements from each applying to the design of track and track supports?

Reply (2): No. The method and design basis to design track and track supports are dependent upon the monorail type being considered. The determination of the appropriate standard or specification to use as a design basis is the responsibility of the system designer. Therefore, the word "should" is used in para. 11-1.3.2(f).
Interpretation: 11-13

Subject: ASME B30.11-1998, Section 11-1.1, Markings
Date Issued: January 19, 2001

Background: Assuming a system is comprised of the following setup: jib crane — 750 lb, trolley — 1,000 lb, hoist — 500 lb

Question (1): How should this unit be marked or rated load?

Reply (1): The crane and the hoist must be marked with their rated load in compliance with ASME B30.11 and ASME B30.16, respectively.

Question (2): May you mark the entire system’s rated load with the lowest rated load of any single component?

Reply (2): No. The rated load marking of each component should be retained and protected and not changed to suit a temporary situation. When rated load markings are changed to suit a temporary situation, the original rated load markings can be lost. This might cause the hoisting equipment to be improperly marked or over rated load marked in other subsequent temporary applications. The operator of the hoisting system must be adequately trained to determine the maximum rated load of the system from the rated load markings and make sure the maximum load does not exceed the rated load of the component with the least rated load.
**Interpretation: 11-14**

Subject: ASME B30.11-1998, Para. 11-1.2.2, Clearances Between Parallel Cranes

Date Issued: May 30, 2001

Background: Our organization is currently designing a bridge crane system where we desire to have two bridge cranes that overlap each other. Components are to be conveyed through the work center on a common roller conveyer. The bridges are to be positioned such that operators on opposite sides of the common conveyer can access components and return to work stalls. The bridges will be at different elevations having 4 ft of overlap.

The lower bridge offers no interference with the upper bridge; the potential issue lies in the hoist on the upper bridge. If the hoist on the upper bridge is positioned in the 4 ft of overlap [as shown in Fig. 11-14], the lower bridge could hit the hoist if it travels on the runway. The potential for a collision is minimal since the operator will only enter this zone once every 1½ hr to access another part.

Question: Does the scenario above constitute a clearance issue as defined in para. 11-1.2.2(a)?

Reply: Yes, because no means to prevent collision between the hoist on the higher crane with the lower crane is present.

![Diagram of Overlapping Bridge Cranes](image)

**Fig. 11-14 Overlapping Bridge Cranes**
Interpretation: 11-15

Subject: ASME B30.11-1993, Para. 11-1.3.4, Welded Construction

Date Issued: May 30, 2001

Question: Is a load test required for the following example?

A modification to a monorail support structure is being made because of an under-designed connection in the support structure. A welded connection to the top of the monorail beam will be removed and a new connection to the monorail beam will be installed at the same location, but the support structure will need to be changed to provide adequate strength at the support point. Basically, is the Standard considering the weld to the monorail beam and the monorail support structure as part of the monorail load supporting components?

Reply: Paragraph 11-1.3.4 is titled “Welded Construction.” Paragraph 11-1.3.5 is titled “Modifications.” The Committee believes you are referring to para. 11-1.3.5 “Modifications” for this interpretation. Also, please note that ASME B30.11-1993 has been replaced with ASME B30.11-1998. Since ASME B30.11-1998 became effective on June 29, 1998, our interpretation is based on this volume.

Section 11-2.2(a), Load Test, states the following: “New, reinstalled, altered, repaired and modified equipment should be load tested prior to initial use as determined by a qualified person.” The word “should” signifies that the load test is recommended but not mandated. Whether a load test is required should be determined by a qualified person, depending on the facts in the situation.

Interpretation: 11-16

Subject: ASME B30.11-1998

Date Issued: June 8, 2001

Question: When an owner/user of an underhung crane has permanent units in place (bridge, trolley, and hoist) with conflicting capacities (rated loads and markings), may a temporary marking be placed over the permanent markings on the higher rated load units that states the rated load of the lowest rated load unit?

Reply: The ASME B30.11 and ASME B30.16 Standards do not specifically address this situation. However, if the provisions of para. 11-1.3.5, Modifications, are followed, the components of the subject hoisting system could be rerated in conformance with this paragraph to obtain consistent rated capacity markings.

Interpretation: 11-17

Subject: ASME B30.11-1998, Chapter 11-1, Construction and Installation

Date Issued: June 11, 2001

Question: Is fall restraint or means of retaining the bumpers required on B30.11 type cranes?

Reply: Bumpers are not required on the bridge of an underhung crane because the mass and speed of most underhung cranes do not necessitate an energy-absorbing device at the location of contact between the crane bridge and the runway stop or another crane. Therefore, there is no provision for bridge bumpers in ASME B30.11-1998. When bumpers are specified for an underhung crane, the requirements for bumpers found in ASME B30.2 or ASME B30.17 should be followed.
Interpretation: 11-18

Subject: ASME B30.11-2004
Date Issued: September 26, 2005

Background: The following statement appears in para. 2-1.14.3 of ASME B30.2, para. 11-3.2.3 of ASME B30.11, and para. 16-1.2.6 of ASME B30.16:

“No less than two wraps of rope shall remain on the drum at each anchorage of the hoist(ing) drum when the hook is in its extreme low position unless a lower-limit device is provided, in which case no less than one wrap shall remain.”

Question (1): When the hook is in its “extreme low position,” does this mean that the hook is at its lowest point of travel when all of the rope has been unwound, except for the required wraps?

Reply (1): Yes.

Question (2): When the hook is in its “extreme low position,” does this mean that the hook must be capable of traveling all the way to the ground with no load?

Reply (2): No.
Interpretation: 11-19

Subject: ASME B30.11-1998, Monorails and Underhung Cranes
Date Issued: September 26, 2005

Question (1): Could you provide clarification and opinion to para. 11-3.1.5(a) of ASME B30.11? We need to better understand what “divert attention while engaged in operating the equipment” means.

Reply (1): Commonly used terminology is not specifically defined in B30.11; however, it is the B30.11 Subcommittee’s opinion that it is commonly acceptable for crane operators to be engaged in the activities of attaching the load to the hook and handling the load. Oftentimes these activities might require the operator to let go of the pendant and set it aside within easy reach as various tasks are performed by the crane operator during the load handling operation process. Therefore, we do not think activities related to handling the load will divert the attention of the crane operator and compromise safe crane operation.

Question (2): Could you provide clarification for the term “unattended” as described in para. 11-3.2.5(a) of ASME B30.11? Does it mean that the pendant control must be in the operator’s possession 100% of the time, or within arm’s reach, or within eyeshot?

Reply (2): Since the B30.11 Volume does not cover a definition for “unattended,” we refer to ASME B30.16-2003, Overhead Hoists (Underhung) and B30.2-1996, Top Running, Bridge, Single or Multiple Girder, Top Running Trolley Hoist for a clarification of the term “unattended.”

ASME B30.16-2003, Section 16-0.2 Definitions, defines “unattended” as follows:

“unattended: a condition in which the operator of a hoist is not at the operating control devices (pendant station or hand chain). If, however, the control devices are within an unobstructed distance of 26 ft (8.0 m) and within sight of the operator, the hoist should be considered attended.”

ASME B30.2-1996, Section 2-0.2: Definitions, defines “unattended” as follows:

“unattended: a condition in which the operator of a crane is not at the operating control devices. However, on a floor-operated crane, if the operating control devices are within sight of the operator and within a distance equal to the span of the crane, the crane should be considered attended.”
Interpretation: 11-20

Subject: ASME B30.11-2004, Monorails and Underhung Cranes, Section 11-1.1
Date Issued: September 29, 2008

Question (1): Does the monorail beam itself require a capacity marking? If it is required, is it required regardless of the number of hoists or the type of trolley (manual vs. powered)?

Reply (1): No.

Question (2): Is it assumed the monorail beam capacity is that of the hoist when only one hoist is installed on the beam and as such explicit marking of the beam capacity is not required (similar to the requirements set forth in para. 11-1.1.1 for cranes)?

Reply (2): No, the capacity of the beam shall not be assumed.

Question (3): Is the capacity required to be explicitly marked on the beam when two or more hoists are installed on the same monorail beam?

Reply (3): No.