



ICC ORANGE EMPIRE CHAPTER CODE INTERPRETATION COMMITTEE

DATE: NOVEMBER 20, 2008

QUESTION AND CODE SECTION:

Should a T-bar ceiling system be required to be engineered?
Is a Special Inspection during the installation required?

BACKGROUND:

Under the previous 2001 CBC, T-bar systems were installed based on prescriptive requirements and inspected by the local building inspector. Suspended ceiling requirements are also contained in the 2007 CBC, but there are potential issues in that it refers to other standards affecting the manufacture, design and installation of a T-bar system.

PURPOSE

The Orange Empire Chapter Code Interpretation Committee has decided that this issue is worthy of the Chapter's review and consideration. It is the intent of this interpretation to clarify the code requirements for a T-bar ceiling system. The pertinent portions of the referenced standards will be discussed to derive an acceptable interpretation of the intent of the 2007 CBC to provide a code-compliant ceiling system.

DISCUSSION:

Historically, T-bar systems have been approved based on prescriptive measures. Plans usually include an approved listing for the system, without specific engineering; and the system is inspected after all supports and appurtenances have been installed prior to the installation of the ceiling tiles. The new 2007 CBC, based on the 2006 IBC, has eliminated the prescriptive requirements and instead has substituted references to ASTM C 635, C 636 and ASCE 7-05 standards as well as Ceilings & Interior Systems Construction Association (CISCA) – Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies to regulate T-bar systems. The potential issues arise due to the complexity of referencing multiple standards and the apparent new requirements.

In order to clarify the standards with respect to previous prescriptive requirements, the salient features of concern to building officials will be compared and analyzed. There are three main concerns that will be reviewed:

Manufacture
Design
Inspection

Manufacture

ASTM C 635 and C 636 refer to the manufacture of T-bar system components, including the material and size. In order to assure compliance and streamline local approval, the manufacturer has typically obtained a listing from ICC Evaluation Service. The designer and the Building Official can then rely on the listing to ensure that the manufacture complies with the standard.

Design

The design may be either by prescriptive means or by a structural analysis. ASTM C 635 and C 636 and ASCE 7-05 refer to a designed system. They do not require that the system is engineered.

The standards indicate that in lieu of a “designed” system, there are prescriptive alternatives (CISCA - Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies) that are acceptable. Additional requirements are stipulated in ASCE 7-05, Section 13.5.6.2.2 when located in seismic design categories D through F. These prescriptive details are very similar to previous codes and include but are not limited to the following minimums:

Heavy duty T-bar grid system shall be used.

Splays must be installed at the prescribed intervals.

Struts must be installed at 12-foot centers.

Light fixtures weighing 56 pounds or more must be independently supported to carry 100% of the lighting fixture weight.

Refer to ASCE 7-05 Section 13.5.6.2.2 for detailed requirements.

Inspection

ASCE 7-05 section 13.5.6.2.2(h) refers to Appendix 11A – section 11A.1.3.9, which requires a periodic special inspection during the installation of a T-bar system. This is a new requirement and presents a potential issue. At this time, there is no certification program for T-bar systems. A certified building inspector is expected to have the expertise to inspect and approve a T-bar system after the system has been installed and before the tiles are placed.

It is important to recognize that the 2007 CBC did not adopt the referenced Appendix Chapter 11A. CBC Chapter 35, which adopts specific standards, has specifically omitted

ASCE Appendix 11A. Consequently, unless the local jurisdiction has specifically adopted ASCE Appendix 11A, the requirement for a special inspector is not enforceable.

RECOMMENDATIONS:

To approve plans containing a T-bar ceiling system, the system must merely be in accordance with the approved standards ASTM C 635, C 636 and ASCE 7-05 standards as well as CISCA – Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies.

To approve the installation of a conventional T-bar system, the local building inspector should have the authority and a special inspection should not be required.