

## Recommended Grid Support for 1' x 8' Light Fixtures

### Introduction

Realizing a preference on the part of architects to specify 8' light fixtures for retail outlet ceiling system installations, ROCKFON has developed the #278 and #1278 cross tee components. These components, along with selected 200 or 1200 system components, can safely support preferred 8' light fixtures, as well as appropriate acoustical material.

In order to develop a set of recommendation guidelines from which a contractor could select the most appropriate for a given situation, ROCKFON, in conjunction with an independent laboratory, has

conducted tests to determine the load-carrying capacity of various ceiling system configurations incorporating the 8' tee.

The tests were conducted per the guidelines established by ASTM C635 "Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings", and the results are listed below. In order to determine the most appropriate configuration, the type of ceiling grid components to be installed, as well as the weight of the acoustical material to be supported by the grid, must be known.

### 1. Guideline #1 (211/278)

**Recommended Use:** To support 1' x 8' light fixtures and either 2' x 4' **fiberglass** ceiling panels weighing .25 lbs./sq. ft. or less, or 2' x 4' **stone wool** ceiling panel or other weighing less than 1.0 lb./sq. ft.

#### **Component Placement:**

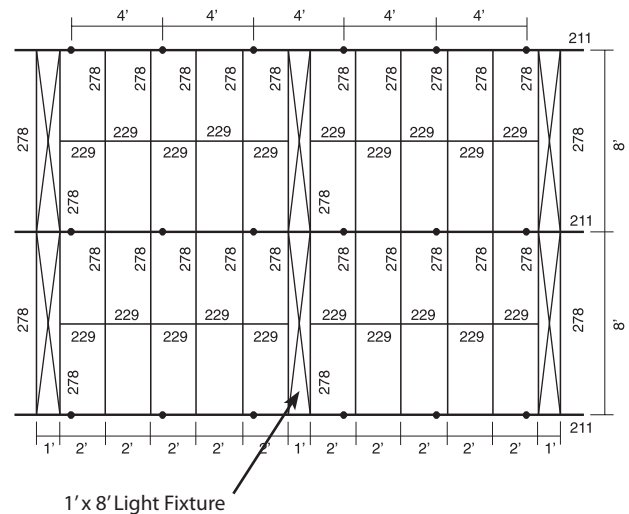
**211 Main Runner** - Installed 8' O.C.

**278 Cross Tee** - Installed 2' O.C. for modules containing **fiberglass** ceiling panels or **stone wool** ceiling board, and 1' O.C. for modules containing 1' x 8' light fixtures.

**229 Cross Tee** - Installed at midpoint of 278 Cross Tee.

**12 ga. Hanger wire** - Attached 4' O.C. along length of Main Runner and at the midpoint of the 278 cross tees that frame the 1' x 8' light fixtures, per ASTM C636.

*Note: If mineral board is used with the 278 cross tee, additional 12 ga. hanger wires must be placed at the midpoint of every 278 cross tee.*



● - Hanger Wire Location

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### 2. Guideline #2 (211/1278)

**Recommended Use:** To support 1' x 8' light fixtures and 2' x 4' fiberglass ceiling panels weighing .25 lbs./sq. ft. or less.

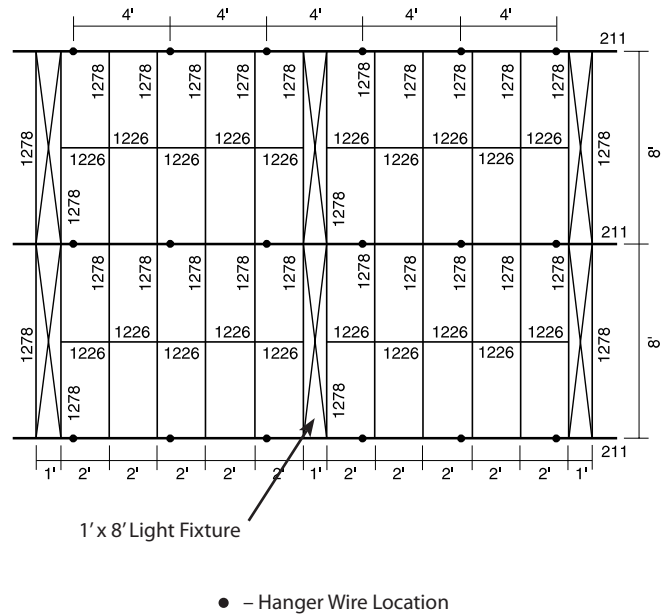
**Component Placement:**

**211 Main Runner** - Installed 8' O.C.

**1278 Cross Tee** - Installed 2' O.C. for modules containing fiberglass ceiling panels and 1' O.C. for modules containing 1' x 8' light fixtures.

**1226 Cross Tee** - Installed at midpoint of 1278 Cross Tee.

**12 ga. Hanger wire** - Attached 4' O.C. along length of Main Runner.



*Note: If mineral board is used with the 1278 cross tee, additional 12 ga. hanger wires must be placed at the midpoint of every 1278 cross tee.*

### 3. Load Data

Cross Tee Load Test Data Based on 1/360 Span Deflection

Cross Tee	Tee Dimensions		Metal	ALLOWABLE LOAD ■
	Length	Height		SIMPLE SPAN - lb/ft
278	8'	1 1/2"	.015	2.1
1278	8'	1 1/2"	.015	1.8

■To convert data into lb/ft<sup>2</sup>, divide on center spacing of component into lb/ft.

Light Fixture Load Test Data Based on 1/360 Span Deflection

Light Fixture	Maximum Allowable Fixture Weight in Lbs. for a Continuous Row Application
1' x 8'	30.0

**Important:**

All load tests were conducted with light fixtures weighing approximately 30 lbs. each. Due to the placement of main runner components 8' O.C., and the resulting load-bearing demands placed upon the grid components, ROCKFON recommends that the components in each of the above-noted installation configurations be required to support no more than the weight of the appropriate acoustical material and light fixtures weighing 30 lbs. maximum. If additional load-bearing requirements arise, consult ROCKFON for pertinent recommendations, or independently support the additional weight so that the allowable loading capacity of the grid components is not exceeded.

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### 4. Additional Comment on Deflection

The allowable vertical deflection criteria for a suspended ceiling component has been established as 1/360 span of the component. An 8' cross tee will have an allowable vertical deflection twice that of a 4' cross tee. The 1/360 span allowable vertical deflection is an arbitrary aesthetic criteria based on the ASTM C635 standard. Although this component (8' cross tee) may meet the deflection criteria, its allowable vertical deflection is still twice that of a 4' long component. Therefore the 8' component's midspan vertical deflection may appear excessive when compared to a 4' cross tee component.

*Note: ROCKFON cannot recommend the use of mineral board with the 1278 cross tee installed in a manner as illustrated above. Testing revealed that the 1278 cross tee would exceed the 1/360 span deflection criteria if it were used to support a mineral panel (see section above entitled "Additional Comment on Deflection"). In addition, for certain installation configurations, the deflection of those 1278 cross tees supporting such board/tile would exceed that of the tees supporting the 8' light fixtures, thus raising aesthetic concerns.*