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## ***White Paper on Weight Supporting Ceiling Receptacles***

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## Contents

Weight Supporting Ceiling Receptacles for Luminaire or Fan Installations .....	2
What Problem Is Being Solved? .....	2
Efficiency Improvements .....	3
NEC Introduction to the Technology .....	4
NEMA WD 6 Configurations.....	5
Installation and Use.....	5
NRTL Listing .....	7
Summary of Advantages.....	7

## Figures

Figure 1	Luminaire Installation .....	2
Figure 2	Luminaire with Compatible Weight Supporting Attachment Fitting (WSAF).....	3
Figure 3	Close-Up of Mounted Ceiling Luminaire .....	3
Figure 4	WSCR and WSAF Configurations and Rating from NEMA WD 6 .....	5
Figure 5	Cover-Plate Components of the New Technology .....	6
Figure 6	Weight Supporting Ceiling Receptacle and Weight Supporting Attachment Fitting for a Fan Installation (left) and a Luminaire Installation (right).....	6

## Weight Supporting Ceiling Receptacles for Luminaire or Fan Installations

The concept of the weight supporting ceiling receptacle (WSCR) comes from both a safety concern for installers—in particular the do-it-yourselfer (DIY)—and a desire to improve on the efficiency of installations and future changes. The WSCR and weight supporting attachment fitting (WSAF), as shown in Figure 1, are intended for connecting luminaires and ceiling paddle fans. This device accomplishes both improved safety and efficiencies.



**Figure 1**  
**Luminaire Installation**

The concept of connecting luminaires or paddle fans to a ceiling receptacle is not new. The receptacle and plug are used to maximize the security of the connection, avoid maintenance issues, and allow easier replacement or relocation as needed without having to deal with disconnecting and reconnecting the circuit wiring. However, they are never used to mount or support the fixture.

The WSCR with WSAF provides another method of connection to the electrical supply that includes a means for both supporting and locking the weight of the luminaire or paddle fan into the receptacle. In fact, the assembly has a two-stage attachment point; both positions will support the full rated weight of 50 or 70 pounds. The first support point holds the weight of the luminaire or paddle fan but, other than the equipment grounding path, it is not connected to the electrical supply. The second position makes the connection to all the supply conductors to provide power to the luminaire or paddle fan. This dual connection allows the WSCR with the WSAF to also act as a local disconnect for the luminaire or paddle fan for maintenance or servicing in a de-energized (safe) state.

Approximately 30% of changes on luminaires or ceiling paddle fans are done by DIYers. Another 30% are done by “professionals,” but they are not electrical professionals (handymen, painters, etc.). With over half of these installations being done by essentially untrained individuals, there is great opportunity for incorrect installations. These incorrect installations can lead to shock and fire hazards, as well as physical injuries in trying to accomplish the installation overhead and on a ladder.

This technology is a quick connect and disconnect hanging support system for connection of ceiling (paddle) fans, luminaires, and possibly other electrical devices in the future. The receptacle supports the weight of a fixture or a paddle fan, reducing the potential of stress to the branch circuit conductors during installation, or replacement, and minimizing exposure to physically hazardous installation conditions.

### What Problem Is Being Solved?

While the initial installation of luminaires or paddle fans is generally completed by an electrician and done before systems are energized, the same is not true for changes made to luminaires and paddle fans. Not having to disconnect and reconnect the wiring for each unit when the luminaire or paddle fan is changed is safer. Working on a ladder or other means to reach the equipment as well as potentially being exposed to energized conductors poses hazards to anyone completing this work.