



We have had several recent projects across the country that has had issues with the fastening of the metal deck to steel joists. **Sometimes it is the type of steel joists and how the steel flange is constructed, and other times it is the actual installation of the fastening system.** Many times, we see the powder-actuated fasteners not fully engaged into the steel deck, on angle, and too close to the edge of the steel. We have also seen the wrong fastener into thicker structural steel. This bulletin will discuss our lessons learned and what is a correct installation of the PAF's.

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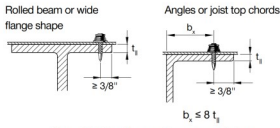


Figure 7: Edge Distance Recommendations

Deck should be marked in order to correctly locate the PAF as shown above.



Joist top cord angle. Easier to install PAF. This joist is IDEAL. (Vulcraft, Can Am, or sim)



Joist top cord bent plate. Hard to install PAF. This type of Joist is typically a concern. (New Millennium)



Incorrect Installation - On an angle



Incorrect Installation - Not Fully Engaged

Lessons Learned for Proper Fastening of PAF

- ALWAYS REVIEW INSTALLATION PROCEDURES from the manufacturer prior to the installation.
- Verify that each installer using the PAF machine has an updated certification card.
- When installing through multiple layers of metal deck, it is important that all the layers be tight against one another prior to the PAF installation. There should not be a visible gap between layers or between steel.
- Review the proper location for the fastener at the steel beams and flanges ($\geq 3/8"$ from edge)
- The depth of the fasteners should follow the diagrams to the right, per the manufacturer installation instructions. (The red plastic should "Flower")
- Prior to the start of installation, the installer should test the power adjustment of the unit. Using the correct power cartridge is critical.
- Rolled top flanges (vs angles) of the joist will create difficulty for the installer.

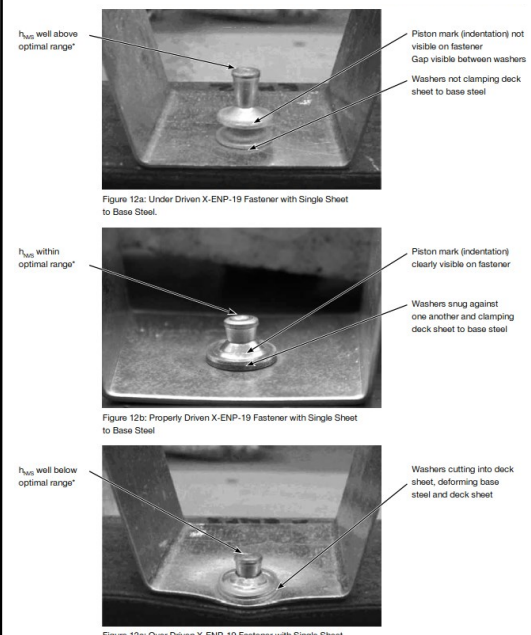


Properly driven fastener
A flowering of the top hat seen from top and side views indicates a proper driven X-HSN24 fastener.

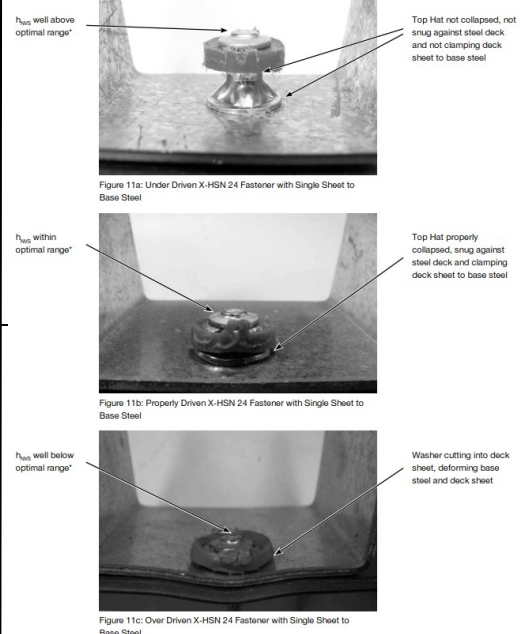
Contact the Quality Department to discuss the manufacturer for the joists to determine if there is an issue with the construction of the joist and using PAF systems for fastening. When this is the case, The Quality Department recommends using a different form of attachment, such as puddle welds or screws.

- Discuss having the deck installer mark the location of the joists. Getting the pin in the correct location is critical for a proper installation and reduce the likelihood of re-shooting the deck.
- Discuss making sure that the gun is perpendicular to the deck for proper installation. When the gun is on an angle, the pin will skip and be installed on an angle and/or not fully engage into the steel.
- The pins have a maximum and minimum steel thickness associated with their use. Always double check the thickness prior to the installation.
- Make sure that we perform a Quality Pre-installation meeting with the installing contractor's Foreman and the Hilti Representative, going over the proper installation methods.

The Quality Department recommends a first work in place review by our team and the Hilti Representative. This will not only produce a better installation overall, it will serve as a mock-up for new tradesman.



Example of Hilti X-ENP-19 Installation



Example of Hilti X-HSN-24 Installation

