Idle Plastic Pallet Storage

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Idle plastic pallets present hazard

Idle plastic pallets can be a severe fire hazard and high challenge to sprinkler systems if they're not properly stored or protected. Most plastic pallets are made of polypropylene or high density polyethylene (HDPE), which can burn rigorously and liberate twice as much heat as ordinary combustibles. Additionally, the vertical and horizontal flue openings of the pallets permit air (oxygen) to feed the burning surfaces. For this reason, the storage configuration and sprinkler protection provided are extremely important. Both idle wood and idle plastic pallets present a severe fire hazard, however plastic pallets pose the greater hazard due to the higher heat generation when they burn. In the rare instances where plastic pallets are product tested and listed for reduced fire hazard, they may be stored or protected as wood pallets or in accordance with their listing.

The storage arrangement for idle plastic pallets are listed in order of preference below:

1. **Outside the building:** Outdoor storage with a 50 feet minimum separation distance is preferred. Smaller separation distances may be acceptable if the quantity and storage heights are kept low or if the building has a blank masonry exposed wall without windows or openings.
2. **Detached Building:** A shed, a low value building or trailer may be used for idle pallet storage. The separation distance between the pallet storage and the primary building should be based upon the quantity stored, height of piles and building construction or fire resistance of facing exterior walls. Primary buildings with exterior facing walls of combustible or steel construction cannot withstand the radiated heat of a potential fire as well as a blank masonry wall. Recommended separation distance is usually 20-50 feet for small to moderate quantities.
3. **Cut-off Room:** A cut-off room is a room located with at least one exterior wall and having three-hour fire rated walls separating from the remainder of the building.
4. **Open Storage Areas:** Uncompartmented storage within the building.

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Sprinklered buildings

Protection for indoor storage of plastic idle pallets can be provided by either Standard Spray sprinklers or Early Suppression Fast Response (ESFR) sprinklers depending upon the storage location, configuration and storage or building height.

Storage inside the building in open areas

- High temperature rated Ordinary Hazard Group (Ordinary Hazard Group - 2) – spray sprinklers can be used for protection of pallet pile storage up to four feet high. Each pile should include no more than two stacks of pallets and each pile separated by eight feet from other pallet piles or 25 feet from other commodity*
- Large orifice (16.8K) sprinklers that provide a density of 0.6/2000 gpm/ft2 or greater may be used with a maximum pallet storage height of 10 feet high*
- ESFR K-14.0 designed sprinklers may be used for pallet storage up to 25 feet, or ESFR K16.8 designed sprinklers may be used for pallet storage height up to 35 feet*

Storage in a cut-off room

- Standard spray sprinklers designed to 0.6 gpm/ft2 for the entire room, or protection of 0.3 gpm/ft2 if high expansion foam is used. Pile storage heights should not exceed 12 feet high*

Rack storage

- Idle plastic pallets should not be stored in racks due to the extreme fire hazard, unless they are properly protected by ESFR sprinklers*

Non-sprinklered buildings

Indoor storage of plastic pallets in non-sprinklered primary buildings creates a significant fire hazard and is generally discouraged. A very small quantity up to four feet may be acceptable, especially in cut-off rooms.

**The sprinkler design data provided in this bulletin is for informational purposes only and there may be differences or limitations for use in your situation. Consult with a qualified sprinkler design contractor and the most recent edition of NFPA 13, Standard for the Installation of Sprinkler Systems for complete specifications and limitations for your application.*

Reference: NFPA 13, Standard for the Installation of Sprinkler Systems.