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Dear Sir,

**D.O.Lr.No.24/DGFS/AP/2025, Dt:11-04-2025.**

Sub: A.P.State Disaster Response and Fire Services Department- Fire accidents that occurred in **Warehouses** - Lessons Learnt - Fire Safety Measures-Advisory.

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May I draw your kind attention to the following major Wal-Mart Store fire accident that happened in our State.

**Wal-Mart Store Fire:** A major fire broke out in Wal-Mart (Best Price) Store in Vijayawada on 10.09.2016. Eight fire tenders were deployed and operated continuously for over 24 hours to extinguish the flames. The fire spread rapidly, making it extremely difficult for the fire-fighting teams to control. The Store was constructed in a total extent of approx.5 acres of land with around 6,000 Sq.Mtrs built-up area. Though the conventional automatic sprinkler system was installed in the Store, the entire material turned into ashes, and even the structure collapsed.

This incident highlights a critical lesson that, in large warehouses typically with heights ranging from 20 to 50 feet the conventional water sprinklers are ineffective in controlling fires. By the time the heat reaches the sprinkler level and activates the system, temperature at the floor level may already exceed 200°C, causing significant damage to the materials stored. Therefore, installing water-based sprinkler systems in such environments is not advisable. In addition, these systems are susceptible to corrosion in coastal areas and are difficult to maintain in regions like Rayalaseema, where water availability is limited. These are genuine and pressing challenges that need to be addressed when planning fire safety infrastructure for warehouses.

Therefore, the following advisory:

**(a) Partitioning:**

In any Warehouse there should be a partition @ 750 Sq.Mtrs., for FMCG goods and others the partition can be @ 1000 Sq.Mtrs. But if non-inflammable materials such as steel items, automobile parts are stored then the partition limits may be relaxed.

Why partitioning?

Partitioning plays a critical role in fire safety by ensuring that any fire is contained within a single compartment of up to 1,000 m<sup>2</sup>. This containment not only simplifies firefighting efforts but also minimizes damage, limiting losses to only the materials stored within the affected partition.

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In the absence of proper partitioning, a fire can rapidly engulf the entire warehouse, making it extremely difficult to control. This poses a serious threat, not only to the facility but also to nearby businesses and residential areas, while potentially destroying all stored goods, as mentioned in the above Walmart incident.

Given these risks, implementing fire partitions is essential, especially when storing flammable materials such as FMCG products. This can be achieved through various methods, including the use of automatic fire-rated shutters, fire-rated glass, or other certified fire-resistant barriers.

**b) Ensure Electrical Safety:**

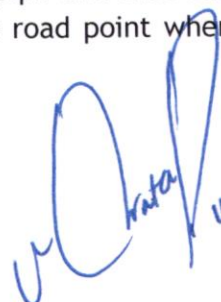
- i) Install MCBs (Miniature Circuit Breakers)
- ii) Proper grounding and lightening protection.
- iii) Use FRLS cables.
- iv) Install  $\text{CO}_2$ /clean agent / Aerosol automatic flooding system in all electrical panels.

**c) Fire Fighting Tools:**

- i)  **$\text{CO}_2$  Extinguishers** to fight small fires: 4.5 Kg  $\text{CO}_2$  Fire Extinguishers are to be provided for every 100 Sqm in clearly marked, visible and accessible locations.
- ii) **Water:** Utility corridor with fire rated CPVC water pipeline with gravity water flow in all compartments and around the warehouse having tapping points be run along the periphery of the building so as to meet any emergency with 8 HP mobile pumps with emergency power back up to spray water either to cool or to douse the fire.
- iii) **Hybrid Firefighting System:** We found that the fire in a Warehouse building can be put off with injection of liquid  $\text{CO}_2$  into the building with the help of a pipeline.

The liquid  $\text{CO}_2$  is not only affordable (Rs.9 per Kg or Rs.1 Lakh per truck load) but also widely available @ 22 locations across the state in distilleries as liquid  $\text{CO}_2$  is a by-product of liquor making process. So, it is available except in Guntur, Bapatla, Palnadu & Satya Sai Districts. We Can make available by purchasing a  $\text{CO}_2$  mobile tanker in these major Warehouse districts through your co-operation.

To effectively inject liquid  $\text{CO}_2$  into any Warehouse during fire accident, we need to pre-install a delivery pipe line that can deliver the gas to all parts of the Warehouse from the road point where the liquid  $\text{CO}_2$  tanker can be safely parked.

  
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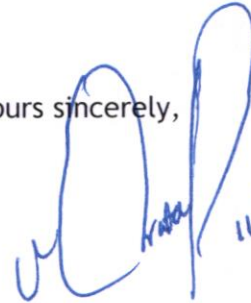
However, if people are stuck inside warehouse, then we cannot use  $\text{CO}_2$ , but we can use Foam and DCP powder. The above pipeline system is to be capable of handling all the three.

The above are affordable, easy to install and maintain besides being effective in minimising the damage and putting off fire quickly.

Therefore, I request you to kindly pre-install suitably designed pipe line for using Foam, DCP and liquid  $\text{CO}_2$  to put off any fire. And, **the above meets the satisfaction of the Director General to get fire NOC definitely not the installation of Water Sprinklers.**

With regards,

Yours sincerely,

 11/4/2025

(Madireddy Pratap, IPS.,)