

THE QUESTION OF EFFICIENCY

Efficiency, in the world of commercial real estate, is determined on a cost per square foot (sf) basis, either the occupier cost per sf, per person, or by the revenue per sf generated.

In a distribution network, efficiency is measured by all the components that get the correct product to the end user at the lowest possible cost, and in the shortest amount of time. These chiefly include the costs of transportation, inventory and labor, which, together, often accounts for 75-80% of operating costs; real estate might factor in at five percent or less.

Once a major distribution hub in the 18th and 19th centuries, the Washington/Baltimore region has evolved, becoming a highly-entrepreneurial, service-based economy, due in no small part to the presence of the Federal government, and a well-educated work force. With some notable exceptions, the majority of the industrial inventory in the region is typically occupied by locally-grown companies servicing the mid-Atlantic region, or “last-mile” points of larger distribution networks, focused on providing goods and services to local residents and businesses.

Whether you are the general manager of a branch location for a multi-national distributor, or the owner of a 40-year-old regional company, your concerns are the same: How long will it take my employees to get to work? How long will it take me to get my products or services to my customers? How much space do I need to maintain the highest levels of customer service?

If you are an owner, asset manager or property manager of industrial real estate, you understand the value that your property offers to these businesses, and how it compares to similar properties around you.

One measure of efficiency, space utilization, affects every occupier of every kind of commercial real estate, but to a larger degree, occupiers of industrial and big-box retail, and has become more of a concern in recent years.

In the Washington/Baltimore region, a modern “Class-A” building can generally be described as one that meets the following minimum criteria:

- Concrete exterior walls
- Heavy-duty concrete floor slab
- 40’ minimum column spacing
- 120’ minimum building depth
- 24’ minimum warehouse clearance
- 100’ minimum truck court
- Parking for 10-15% office occupancy

Other non-critical, but valuable features include skylights or clerestory windows, providing natural light, trailer parking, reinforced floors and LEED features, such as a reflective roof or insulated walls.



There is one additional feature that increasingly influences property values and decision-making: the fire protection and life safety systems.

The National Fire Protection Association, or NFPA, is the predominant organization recognized as the governing body in the fire protection and life safety industry. NFPA develops and publishes hundreds of codes and standards that are recognized as the definitive resources for authorities having jurisdiction (AHJ) and fire service professionals around the world; they include NFPA 13, 20, 25 and 30. Each of these codes and standards has a direct, and in some cases, profound impact on the design and development for the built retail and warehousing environment. In particular, NFPA 13, the Standard for the Installation of Sprinkler Systems, provides comprehensive requirements for the storage of commodities in various configurations, and at various heights, to help prevent the loss of life and property.

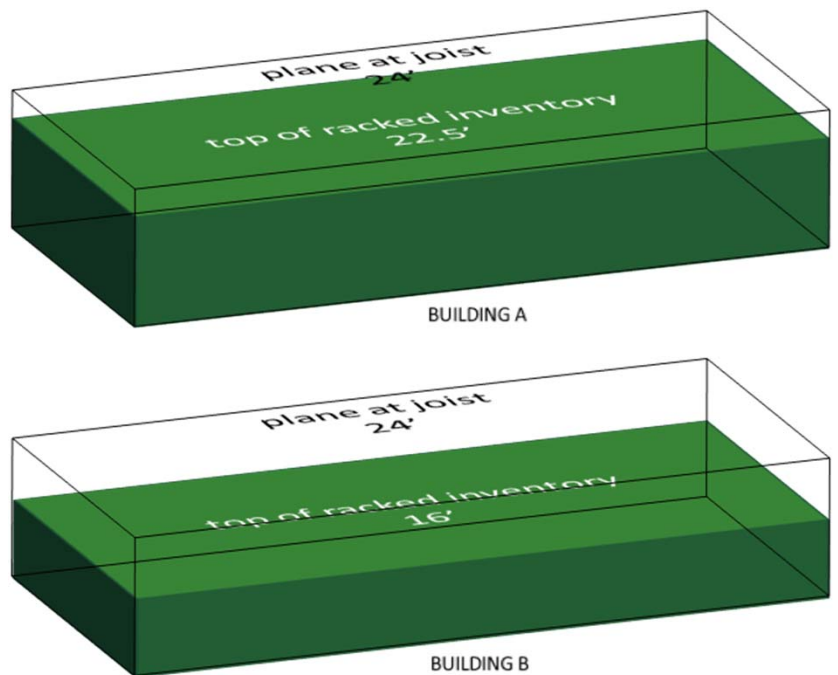
For a distribution or bulk storage occupant, NFPA 13 essentially dictates how inventory can be stored, given the design attributes of a sprinkler system, taking into account such factors as the type of inventory being stored, how the inventory is packaged, and the configuration of the storage system (i.e. racking, shelving, etc.).

An efficient warehouse space would maximize the inventory that can be stored in the provided CUBIC area, giving consideration to the vertical storage capacity. Consider a distribution company looking at two 75,000 sf buildings, each with 24' clearance, and each with the same asking rental rate of \$6.00 per sf, triple net, annually. The annual cost per sf would be identical: \$450,000.

Now consider that Building A has a sprinkler system that is rated to allow storage to 22.5' above the finished floor (AFF), resulting in a storage capacity of roughly 1.7 million cubic feet, or a cost of \$0.225 per cubic foot, while Building B has a sprinkler system that is rated to allow storage to only 16' AFF, resulting in a storage capacity of only 1.2 million cubic feet. The cost per cubic foot for Building B is thus \$0.375 per cubic foot, or nearly 67% more than Building A. All else being equal (i.e. the location is similar and has similar access to that company's customers, employees and vendors), Building B is 67% less efficient than Building A.

Until the mid-1980s, sprinkler systems were designed by contractors based on prescriptive specifications written by a mechanical or electrical engineer. This prescriptive specification was generic, instructing contractors vying for the bid award to design and install the fire protection system to the minimum standard found in NFPA 13. In the world of contracting, it is no secret that the lowest bid is usually awarded the project. This resulted in systems that were designed not in the best interest of the owner or client, but of the sub-contractor motivated to submit proposals based solely on cost.

In many cases, retail and warehouse occupancies were, and continue to be designed in such a manner that does not permit storage over 12' AFF. Designs submitted to the AHJ are reviewed and approved for permitting based on this minimum, since it is not within the scope of the AHJ to define the occupancy. They review and approve designs based on what the architect, or in the case of fire sprinkler systems, the fire protection contractor, designates the occupancy to be. If it is left as speculative, a generic hazard is assigned, leaving the owner with a system limited to the minimum that the successful sub-contractor prescribed.



Earlier warehouses were designed for the uses of the day, which often meant picking inventory in shelves, or in racks using ladders, and storing bulkier items on the floor. For safety reasons, inventory was typically not stored more than 12' AFF.

As customers' needs changed over time, so too did the need to stock larger and more varied inventories, which prompted companies to install rack systems, allowing them to store more commodities within the same floor area. By using forklifts, or similar material-handling equipment, companies are capable of stacking inventory as high as the reach of that equipment. However, earlier sprinkler systems were not designed to protect these new and varied types of commodities stacked to such heights.

In many cases, what was piled storage (product stacked on top of itself, usually involving pallets) has now been converted to rack systems, and many of those involve solid shelving configurations. The addition of solid shelving in the rack system creates obstructions to a vertical storage configuration, inhibiting water discharged from the sprinkler system from reaching the lower levels of the stacked commodities, giving the fire time to grow and spread.

In existing buildings, the design density – the rate of water dispersed over a specified area, measured in gallons per minute per sf (gpm/sf) – can be modified, based on the hazard level of the commodities being stored by adding a fire pump, larger pipe, or larger-orifice sprinkler heads (or a combination of the three).

In the late 1980s, Early Suppression Fast Response (ESFR) technology was introduced to the sprinkler industry. The premise of ESFR technology is based on providing increased amounts of water earlier in the development of the fire. The technology was authored by Factory Mutual Global, an insurance rating corporation. Based on several full-scale tests, design criteria were established that were soon after incorporated into NFPA 13.



ESFR technology offers an alternative to the standard storage-sprinkler system by allowing exemptions from the use of in-rack sprinklers (required for solid shelving), while allowing equal or higher levels of storage and varied commodity configurations. The use of ESFR systems in speculative storage and warehouse facilities, including big-box retail stores, usually provides increased flexibility to storage commodities and configurations.

Using ESFR systems, however, poses a challenge to certain types of storage occupancies. There are distinct design and installation requirements for ESFR systems, such as limitations to sprinkler spacing and increased restrictions for obstructions to spray patterns. Most notably, they are PROHIBITED for use in rack storage using solid shelving. The last restriction should be carefully considered, as it can significantly inhibit the leasing options to potential occupants.

Furthermore, the use of ESFR systems often requires the design to include a fire pump. Most urban water supplies are not capable of meeting the minimum water supply requirements for ESFR systems. As such, booster pumps are a common solution. The addition of pumps to a sprinkler system must be included in the life-cycle costs of a building, as they can significantly increase the costs of inspection, testing and maintenance required by NFPA codes.

Over the past several years, local distribution strategies have shifted from a more urban-centric model – goods and services being sold primarily in the District of Columbia or Baltimore and the immediate surroundings – to a model commensurate with the growth of the outer suburbs. This shift gave companies, large and small, the opportunity to upgrade to more modern facilities in the outer suburbs, where industrially-zoned land was more plentiful, leaving behind large vacant blocks of functionally-obsolete space closer to the urban core.

At the end of the first quarter of 2014, the total industrial inventory in the Washington/Baltimore region was approximately 520 million sf in 12,702 buildings, comprised of 397 million sf of distribution, manufacturing and warehouse space, and 123 million sf of flex/R&D space. The inventory stretched from the Maryland-Pennsylvania border in the north, to the North Anna River south of Fredericksburg, Virginia, and along I-81 from Hagerstown, Maryland to Front Royal, Virginia, including Berkeley and Jefferson Counties in West Virginia.



Since we are focusing on the impacts of fire sprinkler design on storage efficiency, the following statistics are applicable only to the non-flex/R&D portion of the regional inventory.

Only 15% of the buildings in the region have 24' clearance or greater, accounting for 39% (156 million sf) of the total inventory. Of the 20 million sf of direct leasing completed throughout the region in 2013, 59% (11.8 million sf) was in buildings with at least 24' clearance. Of the 91.1 million sf of direct

leasing completed from 2009 through 2013, 61% (55.1 million sf) was in buildings with at least 24' clearance.

Considering only buildings built since 1995, which make up 25% of the total non-flex/R&D inventory, 35% (60.1 million sf) were built with at least 24' clearance, accounting for 60% of space built during that period. Of the 6.2 million sf of direct leasing completed in these buildings in 2013, 84% (5.2 million sf) was in buildings with at least 24' clearance. Of the 28 million sf of direct leasing completed from 2009 through 2013, 86% (23.9 million sf) was in buildings with at least 24' clearance.

What these statistics demonstrate is that occupants have realized the intrinsic value of modern construction, and are willing to pay for the added utility rather than continue to operate in less than ideal conditions. This flight-to-quality, giving less attention to rent than to functionality, is expected to continue. As a result, owners of the vacated older inventory are found at a major competitive disadvantage and faced with the prospect of making substantial capital investments in facilities that have long-since surpassed their useful lives.

One step owners of vacant space can take is to consult with a licensed fire protection engineer to understand the design limitations of older systems and the costs and time frame needed to make renovations that meet the needs of the most typical occupant. Design densities are typically noted on construction drawings, but design criteria will be more difficult to identify for systems that are 20 to 40 years old.

Within a matter of weeks, and for a very reasonable fee, a fire protection engineer can conduct an on-site inspection of your property and the fire sprinkler system, prepare a design criteria report that identifies the maximum capability of the existing system, and provide recommendations for making improvements to accommodate higher-density, or more specific storage commodities and configurations.

Having this information is indispensable in the financial management of your asset, in preparing a successful marketing strategy to dispose of your vacant space, and ultimately in achieving your investment or occupancy objectives.

For additional information on the Washington/Baltimore market, or if you require assistance with the acquisition or disposition of a distribution, flex/R&D, manufacturing or warehouse facility, please contact:

EDGE Commercial Real Estate

8618 Westwood Center Drive, Suite 405
Tysons Corner, VA 22182
703-334-5600 main

Joshua Katz, Vice President
703-334-5608 direct
jkatz@edgecre.com

656 Quince Orchard Road, Suite 700
Gaithersburg, MD 20878
301-222-0200 main

Ken Fellows, Principal
301-222-0210 direct
kfellows@edgecre.com



For additional information on NFPA 13, or to consult with a fire protection engineer about your facility, please contact:

ORCUS Fire Protection

2033 Auburn Sky Court
League City, TX 77573

Marcelo D'Amico, President
832-860-1255 direct
marcelo@orcusfire.com

Steven Scandaliato, SET, CFPS
520-971-2322 direct
steven@orcusfire.com



This report shall not be reproduced or redistributed without the express consent of Sutton & Associates, Inc. d/b/a EDGE Commercial Real Estate.

The market data referenced in this report was gathered from sources deemed to be reliable. However, Sutton & Associates, Inc. d/b/a EDGE Commercial Real Estate makes no warranties or guarantees as to its accuracy.