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Standard Guide for Strategic Warehousing¹

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1. Scope

1.1 This guide provides strategic considerations for effectively managing warehouse facilities and the contents of warehouses (collectively “warehousing assets”).

1.2 This guide does not override or increase requirements specific to governmental authorities. To the greatest extent practicable, the guidance in this standard should be considered by these entities where efficiencies may be gained.

1.3 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E2715 Practice for Moveable Property Storage

E2135 Terminology for Property and Asset Management

3. Terminology

3.1 *Definitions:* For additional definitions related to property and asset management, refer to Terminology E2135.

3.1.1 *business case, n*—the sum of an entity’s review and analysis of pertinent facts and alternatives regarding a plan of

action to be followed. The resources put into the business case depend on the complexity of the situation and the potential impact of the decision. A formal business case may be written out in a structured and logical manner, whereas an informal business case may be developed simply through conversations and deliberations.

3.1.2 *material handling equipment (MHE), n*—equipment that relate to the movement, storage, control and protection of warehousing assets (for example, materials, goods, equipment, and products) throughout the process of manufacturing, distribution, consumption and disposal.

Modified from Wikipedia

3.1.3 *warehouse, n*—buildings or facilities used for storage of personal property assets, including supply distribution centers, material storage facilities, and structures used for storage of vehicles, equipment, and surplus assets. Also included are underground or earth-covered ammunition storage bunkers and magazines. This category excludes water reservoirs and petroleum or gas storage tanks which are storage structures.

3.1.4 *warehousing, v*—the activity of storing, handling, or otherwise utilizing a warehouse to focus on the management of personal property assets contained within.

3.1.5 *warehousing assets, n*—the warehouse facility and the materials or moveable assets housed within the facility.

4. Summary of Guidance

4.1 Effective warehousing activities require a sound business case decision to store moveable assets for short- or long-term storage, operational staging, and other reasons.

4.2 This guide outlines the scope of strategic warehousing activity; the numerous considerations provided here are not developed in detail as there is much to be said on each aspect. This guide is intended to ensure the entity is aware of the scope of warehousing considerations.

4.3 Entities should be able to realize significant cost savings and increases in efficiency when warehouse facilities and warehouse contents (collectively “warehousing assets”) are managed strategically and holistically.

4.4 Strategic management of these warehousing assets and activities goes beyond simply providing needed items in an effective manner and at minimum cost; it also entails an overall

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

perspective that asks “do these items need to be warehoused?” or “do these items need to be warehoused in this facility?” Savings and efficiency gains may be realized when the size of the warehouse facility is reduced to the smallest size feasible due to efficient operation of the warehousing activity and most effective use of the space available.

4.5 This guide also provides the operational practices that an entity should consider to make their warehousing activities effective and contribute to the entity’s mission, and also suggests metrics to gauge the efficiency of a warehouse or warehousing program.

5. Significance and Use

5.1 This guide provides the considerations for the management of warehouses and warehouse contents.

5.2 The central objective of this guide is to ensure that warehousing activities appropriately contribute to the mission of the entity.

5.3 Measuring and managing the effectiveness of an entity’s warehousing activities should result in sustained usefulness of warehoused assets, reduced administrative costs, improved accountability, and enhanced operational performance.

5.4 This guide makes a differentiation between the physical warehouse facility (also called “Real Property”) and the contents of the warehouse (also called “Personal Property,” “moveable asset,” “product,” or similar term that differentiates the contents of the warehouse from the physical structure of the warehouse itself). Considerations of both these aspects of the warehousing function must be coordinated to lead to effective warehousing activities.

6. Strategic Considerations

6.1 *Is warehousing needed?*—Are the items being warehoused necessary to contribute to the entity’s mission? Often, entities continue a warehouse activity largely because it is easier to not make a hard decision and continue an operational activity than to go through the considerable effort of dismantling a non-essential warehousing activity.

6.2 *Should warehouse functions be consolidated (centralized) or decentralized?*—Depending on the costs and benefits associated with operating warehouses in different locations, effectiveness might be gained if activities can be consolidated at centralized “hubs” (in lieu of numerous locations essentially providing the same function) or decentralized (if less expensive locations may be utilized in lieu of more expensive warehouses). Calculate full cost/benefit factors and use the proper business tools to arrive at an optimum solution.

6.3 *Are there alternatives to warehousing these moveable assets?*—The entity should consider alternatives such as just-in-time purchasing, enhanced supply chain management, or sharing warehouse activities with different organizations within the same entity or with other entities.

6.4 *Should the entity apply advanced storage, picking, inventory management, or recordkeeping technology, or combinations thereof?*—Automation can reduce the personnel costs

to operate a warehouse activity or increase effectiveness, or both. Options may affect the warehouse structure itself or just the stored assets.

6.5 *Lifecycle costs must be considered*—A business case decision must look at costs and benefits throughout the lifecycle of the warehouse activity. For example, short term savings in leasing an older warehouse facility may be offset in the long term by decreased flexibility to meet entity needs and limitations of the structure itself to employ more efficient operations. Future warehousing needs (increased or decreased activity) should be considered. Also see 7.1.3.

6.6 *Knowing the operational requirements*—Presumed throughout the previous sections of this paragraph is that the entity acquiring, using, or disposing of the warehouse facility is fully aware of the entity’s operational requirements. In actuality, this awareness cannot be presumed in planning a warehousing activity. The facility must reflect and address the entity’s carefully-considered needs. The warehousing facility is a tool for the effective management of the assets and materials stored and managed within, the ownership, lease, or management of the warehouse facility, or combinations thereof, is not an end in itself.

7. Assets in a Warehousing Activity (Warehousing Assets)

7.1 *Aspects Related to the Warehouse Facility:*

7.1.1 *General Type of Construction*—The type of construction of the structure itself should reflect the need of the entity to store the moveable assets, while at the same time minimizing entity costs.

7.1.2 *Location*—Considerations include:

7.1.2.1 *Proximity to Operational Requirements* to minimize transportation costs and the time to move assets between the warehouse facility and the places where the assets are needed. Also, consider the risk and liability of catastrophic disasters on population centers if storing hazardous materials.

7.1.2.2 *Access to Services* such as needed utilities and most efficient transportation arteries.

7.1.3 *Facility Layout*—Considerations include:

7.1.3.1 *Vertical Dimension*—Higher ceilings increase the volume of the storage capacity without increasing the footprint of the facility. Higher ceilings may also be necessary for storing tall or large assets. Taller facilities might lead to cheaper costs/square foot, which may lead to reduced carrying costs.

7.1.3.2 *Horizontal Dimension*—A basic measurement of warehousing space providing the physical footprint of the facility. In general, large and heavy objects would be stored on the floor, and so the horizontal dimension would directly indicate the storage capacity.

7.1.3.3 *Best Fit of Items to be Housed*—There may be circumstances where the shape of the items to be stored don’t dictate a squared storage area, such as when storing bulk materials. Warehousing costs may be reduced if such layouts are utilized.

7.1.3.4 *Aisles versus Storage Space*—In planning the facility layout, the ratio of storage space to aisle space may be a key metric. The higher the ratio, in general, the more efficient the