

## 10-1 The Principles of Material Handling\*

1. Planning principle. Plan all material handling and storage activities to obtain maximum overall operating efficiency.
2. System principle. Integrate as many handling activities as is practical into a coordinated system of operations, covering vendor, receiving, storage, production, inspection, packaging, warehousing, shipping, transportation, and customer.
3. Material flow principle. Provide an operation sequence and equipment layout optimizing material flow.
4. Simplification principle. Simplify handling by reducing, eliminating, or combining unnecessary movement and/or equipment.
5. Gravity principle. Utilize gravity to move material wherever practical.
6. Space utilization principle. Make optimum utilization of building cube.
7. Unit size principle. Increase the quantity, size, or weight of unit loads or flow rate.
8. Mechanization principle. Mechanize handling operations.
9. Automation principle. Provide automation to include production, handling, and storage functions.
10. Equipment selection principle. In selecting handling equipment, consider all aspects of the material being handled—the movement and the method to be used.
11. Standardization principle. Standardize handling methods as well as types and sizes of handling equipment.
12. Adaptability principle. Use methods and equipment that can best perform a variety of tasks and applications where special purpose equipment is not justified.
13. Dead weight principle. Reduce ratio of dead weight of mobile handling equipment to load carried.
14. Utilization principle. Plan for optimum utilization of handling equipment and manpower.
15. Maintenance principle. Plan for preventive maintenance and scheduled repairs of all handling equipment.
16. Obsolescence principle. Replace obsolete handling methods and equipment when more efficient methods or equipment will improve operations.
17. Control principle. Use material handling activities to improve control of production inventory and order handling.
18. Capacity principle. Use handling equipment to help achieve desired production capacity.
19. Performance principle. Determine effectiveness of handling performance in terms of expense per unit handled.
20. Safety principle. Provide suitable methods and equipment for safe handling.

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## 2. The Systems Principle

All material handling equipment should work together so that everything fits. This is the systems concept. The boxes fit the pallets, the pallets fit the rack, and the pallets fit the workstation. A toy company purchased parts manufactured on the outside, but these outside suppliers sent the parts into the toy company in the toy company's cartons. This company used only four