



FEDERATION EUROPEENNE DE LA MANUTENTION
Section IX
SERIES LIFTING EQUIPMENT

FEM
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**Basic data and criteria for the construction of
automatic high bay warehouses with distribution
systems**

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1 Introduction and Objective

The construction of automated high bay warehouses with distribution systems includes the following phases:

- Project specification phase
- Planning phase
- Invitation to tender
- System Installation
- Tests/start-up/acceptance of the system
- Operation of the system

Each phase builds upon the results of the previous one. This document describes each individual phase.

To support a trusting cooperation between the individual project participants, this document provides a guideline for the necessary operation steps. Furthermore, it is to provide assistance in verifying that the entire process is complete.

This document is a compilation of facts without any claim to completeness. Experiences resulting from working with this document must lead to further completions of the document.

This document suggests who shall be responsible within the individual phases.

In the event of implementation, it is vital for the customer to entrust the responsible people with the elaboration of the results of the individual phases and to supervise execution.

Deviations from this document are to be fixed from case to case.

2 Scope

This document applies to automated high bay warehouses with distribution systems.

It is limited to technical equipment including interfaces to other system components. Such technical equipment includes, for example:

- Warehouse management- and material flow systems
- Racks
- Roof and wall with self-supporting racks including smoke and heat venting systems, lightning conductor
- Sprinkler systems
- Storage and retrieval machines including appropriate aisle equipment
- Transport systems
- System controls

In the concrete case of non-compliance with this rule, precise arrangements need to be made. It is urgently recommended to proof the operability of the entire system regardless of the operating state.

3 Definitions

It was decided to do without definitions. In case of unclarity of definitions please contact the secretariat of the product group.

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4 Project Phases

4.1 Project specification

In this project phase, the customer describes the task to be carried out and the relevant general framework.

- Formulating the planning objective
- Existing situation
- Economic objectives (e.g.: budget, performance, expected cost savings, competitive advantages)
- Operational requirements (e.g.: safety, quality, environmental conservation)
- Definition of the planning scope (interfaces/ environment data)
- General framework, restrictions
- Degree of automation
- Time frame
- Location
- Financing
- Mode of intended operation
- Other basic specifications

4.2 Planning phase

In this project phase, different solutions are developed and assessed. A system is selected and the fundamentals for detailed planning and tendering are developed.

4.2.1 Concept development

- Determination and approval of the planning basis
- Actual performance analysis with regard to:
 - material flow
 - load units
 - data flow
 - handling
 - restrictions
 - rules, laws, regulations, standards
- Assessment of initial specifications
- Concept development
 - material flow planning

Responsibility

Customer

CU
Planner

Planner
Planner