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 NIOC PETROPARS	PARS OIL AND GAS COMPANY SOUTH PARS GAS FIELD DEVELOPMENT PHASE 1						 DAELIM  IDRO
	DOCUMENT TITLE		DOCUMENT NO.				
Material Control Procedure	Proj. NO.	Fac.	Area	DIS	DOC	Seq.	Rev.
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MATERIAL CONTROL PROCEDURE

2	Oct. 8, 2000	Approved for Construction	H.J.Jung	C.S.Kim	Y.S.Kim	
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1. SCOPE

This procedure covers that the project material control to be followed by home office and the field office.

2. PURPOSE OF MATERIAL CONTROL

The purpose of material control is to ensure that all materials to be supplied where and when required, in a satisfactory condition, so that the construction activity could be completed by the date of project turnover.

The measures are shown in Appendix 1, WorkFlow for Material Control.




3. DEFINITION AND ABBREVIATION

3.1 Definition

In this Procedure, the following words and expressions are used, and they have the respective meanings hereby assigned to them, except where the context otherwise requires:

- 1) "Company" means the Petropars limited, the Owner selected the Company as a general Contractor for implementing the Project.
- 2) "Contractor" means the Consortium of Industrial Development and Renovation Organization of Iran ("IDRO") and Daelim Industrial Co., Ltd. ("Daelim") who shall execute the project.
- 3) "Materials" shall mean all goods, commodity, equipment, machinery, plant, materials (whether project or consumable materials), apparatuses or other things to be supplied under the Contract for the incorporation into and completion of the work including chemicals, catalysts, lubricants, hydraulic fluids, solvents, refrigerants, oils and greases where applicable.
- 4) "FMCS" means the Field Material Control System to control ordinary piping materials.
- 5) "M/I Slip" means material issue slip, a written request for Materials, to be prepared by the Construction Sub-Contractor(s) and to be approved by Contractor.
- 6) "Site" means the premises and places on, under, in over, or through which the work in to be executed or carried out.
- 7) "Plant", shall mean permanent facilities, designed, constructed and completed as a result of execution of the work under the Contract.

3.2 Abbreviation

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B/M : Bill of Material	MRD : Material Required Date
DMCS : Daelim Material Control System	MRR : Material Receiving Report
DPL : Dummy Packing List	MTO : Material Take-Off
DWG : Drawing	OSI & D: Overage, Shortage, Incorrect & Damage
ETA : Estimated Time of Arrival	P/L : Packing List
FMR : Field Material Request	P/O : Purchase Order
IDBS : Instrument Data Base System	T/I : Transfer In
MCM : Material Control Manager	T/O : Transfer Out
M/I : Material Issue	W/H : Warehouse

4. ORGANIZATION AND RESPONSIBILITIES

4.1 Organization

The organization for material control is shown in Appendix 2, Organization for Material Control.

4.2 Basis & Responsibilities

4.2.1 Basis




The procedure is based on the following criteria:

- Utilization of Daelim Material Control System (DMCS)
- Utilization of Daelim Material Code System
- Field Material Control Procedure SP1-100-0000-00-PC-PR-105 REV.1

4.2.2 Responsibilities

The material work is planning and management of materials from cradle to grave starting with engineering activities, through procurement, receiving, issuing and installation. Successful materials management is a key factor for this project's success. In order to continue the materials management properly, a management team should be formed in the beginning of the project to provide material control plan and execute activities from engineering through installation at the job site.

- Development of the material responsibility matrix
- Coordination of the requisition plan which identifies and schedules each engineering requisition by discipline
- Management and set up of the Daelim Material Control System, (DMCS)

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- destination codes
- end use identifies
- operation
- Coordination of a bulk MTO plan needed to support both scheduled requisition issues and project controls for cost control sampling
- Development of approved bidders lists
- Request For Quotation preparation
- Bid analysis
- Supplier data control
- Expediting
- Source inspection
- Shipping
- Receiving
- Storing
- Inventory control
- Preservation
- Issuing

The Project Materials Controller is responsible for all materials management activities and reports directly to the Project Manager. The Project Material Controller is instrumental in setting up the documentation requirements, systems, and coordination with the Field material controller.




The Project Material Controller is empowered to reach throughout the project's organization to ensure, activities that affect the material management program are planned and executed. He will ensure proper integration of the workflow expecting field construction productivity improvement, surplus elimination, so that the Company receives outstanding values.

The materials management function will be located with the home office task force during the design stage of the project. A Field Materials Control Manager will be assigned to the project team after project contract awarded and will move to the job site upon completion of major home office work.

5. CLASSIFICATION OF MATERIALS

The materials to be controlled and classified for coding as follows:

- (1) Equipment and instruments, such as pressure vessels, heat exchangers, compressors, pumps, panel-mounted instruments, control valves, switch-gear, transformers, air

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conditioners and etc.

- (2) Bulk materials, such as pipes, valves, flanges, electric cables, bolts and nuts
- (3) Shop prefabricated materials, such as steel structures, and materials for field-erected tanks

The materials in each category shall be numbered or coded so that the persons engaged in material control at the home office and the field office may easily identify them.

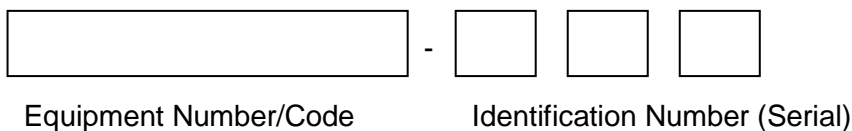
6. IDENTIFICATION SYSTEMS

6.1 Identification of Equipment and Tagged item

An equipment number and material code will identify equipment and tagged items. These numbers are assigned at the start of the project and are used consistently throughout the execution of the project. For information of structure, refer to Appendix 3.

6.2 Identification of Equipment Components

The vendor shall submit a list of equipment for shipment within two months after placement of the purchase order. Using the supply list form, the vendor shall list the equipment number as well as accessories such as auxiliary equipment, baseplates, sliding plates, loose type piping materials, piping spools and spare parts for construction and commissioning. The items on the list shall be identified by the following numbering system:






6.3 Identification of Bulk Materials

The material code system as shown in appendix 4 shall be used to identify the bulk materials and the material identification tag shall be used at jobsite.

The identification tag shall content all kind of information such as purchase order number, item number, description, size and material code.

For information of structure and sample sketch of tag, please refer to Appendix 4 –1 & 4-2.

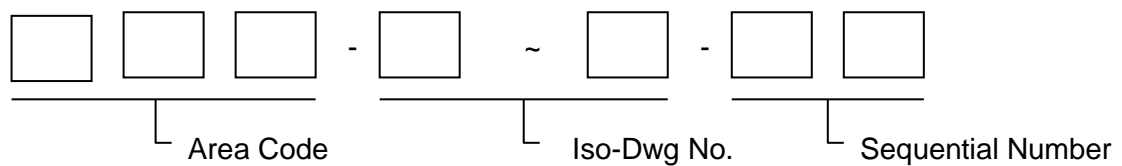
- For Piping bulk-materials
- For Electric bulk materials
- For Instrument bulk materials

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- For Steel structure

6.4 Piece Number for Prefabricated Materials

In case, shop prefabrication is required, a piece number must be used for identification of materials. The following numbering system is generally used for pipe spools:



This piece number shall be clearly painted on the material surface and this number must remain until the material is installed at the site.

6.5 Color Identification

Piping materials, such as pipes, valves, and flanges, shall be color-coded for easy identification in the shop and on the job site. For details of the color codes, refer to Marking for piping materials (SPE-4200-05)

7. MATERIAL CONTROL AT THE HOME OFFICE




7.1 Principal Activity (Engineering & Procurement)

The principal material control activity at the home office shall be as following:

- Engineering specification
- Material take-off
- Material coding as specification
- Material requisitions
- Material package plan set-up
- Purchasing

7.1.1 Engineering Specification

The Engineering section will develop the material specifications for the project. The material specifications will be created on the basis of "basic engineering" and may require updating through detail design.

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7.1.2 Material Take-off

Engineering Team shall use an on-line equipment and material take-off system. Integrated files will be used to maintain descriptions for equipment and instrument tag numbers and for bulk material part numbers.

7.1.3 Material Coding as per Specification

The Contractor will establish the material code for all commodity material. These numbers will be correlated to the DMCS (Daelim Material Control System) in the home office and field office in order to maintain consistency for efficient material control.

7.1.4 Requisitioning

Provides automated generation of project requisitions, including ;

- Deliverable Items List
- Summarized Material List (Itemized breakdown by Vendor Source)

7.1.5 Purchasing

A detail procurement statement shall be reported to Contractor and Company periodically as per the attached formats.

- Procurement Status Report (A/B) : refer to Appendix 5

7.1.6 Expediting




An on-line capability to maintain and report the current material delivery status for project purchase orders items by the DMCS

7.2 Material Management

The Contractor will organize a Material Management Team at early stage of the project to provide proper plan and execute activities from engineering through installation at the job site.

Major material management functions include:

- Coordination of the requisition plan which identifies and schedules each engineering requisition by discipline
- Management and set up of the Daelim Material Control System, (DMCS)
- Document preparation
- Coordination with the field material management team to generate material look ahead schedules, expedite missing material and support the construction plan

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- Material management activities and reports to project in order to check the material status
- Checking the quantities of bulk materials taken off from the client's specifications
- Checking equipment and machinery numbers taken off from the client's specifications
- Preparing long time delivery items for monitoring the delivery status.
- Establishing purchasing priority plan for materials and equipment as per construction schedule.
- Checking the purchasing and shipping status.

7.3 Allowances

All material quantities shall include an allowance for field cutting losses, waste, spoilage, theft, loss during transit and etc. This allowance shall vary according to the category or size of material and shall be established by the engineering department responsible for requisitioning the material. It shall be added to the net quantity taken off from the client's specifications and P&I diagram and shall be based on the following factors:

- Accuracy of the bill of materials
- Skill of workers at the job-site
- Availability of local materials
- Site conditions and nature of materials

For a sample of the allowances, refer to Appendix 6, Piping Material Allowances.




7.4 Control of Shop Prefabrication

Materials that are prefabricated at a shop not on the job-site must be controlled piece by piece during the prefabrication and shipping stages. To help simplify control work, the engineering departments shall do a separate takeoff for these materials. If more than one shop is selected for prefabrication, separate material requisitions shall be prepared for each prefabrication shop.

7.5 Project Material Status Report

All requisitioned materials shall be summarized on a report, which shall be issued periodically to the key personnel concerned. This report shall show the current status of procurement and shall cover requisitioning, purchasing, expediting, shipping, and receiving at the job-site. The project material controller can be kept up-to-date on the status of materials by this report, which shall be updated and sent monthly from the field office.

7.6 Control of Spare Parts

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The spare parts for plant operation are to be selected by the client from the list of spare parts recommended by vendor.

These spares shall be procured separately on individual requisitions. The spare parts for plant operation must arrive at the job-site and be stored in the client's warehouse before mechanical completion of the plant.

8. MATERIAL CONTROL AT THE FIELD OFFICE

8.1 Introduction




The Field Material Team (FMT) is responsible for the receiving, storing, and issuing all materials and equipment.

Material Management's goal is not only to assist in the planing and scheduling but most importantly, in communication. Listed below are the topics that are covered with the construction team on site to ensure a smooth transition from warehousing to construction:

The field material team shall be responsible for material control at the field office. Their principal activities shall be as follows:

- Checking of actual Construction Schedule
- Confirming the material receiving schedule
- Receiving and storing materials at the jobsite
- Material Shorts/Change/Revision/Management
- Protecting materials from damage and corrosion during storage
- Preservation
- Allocating bulk materials in stock against requests for material issue
- Forecasting future material use at the jobsite
- Originating field material requisitions and issuing them to the field buyer
- Estimating surplus materials and arranging for their disposal
- Checking the inventory
- Material Issuing
- Spare Parts

A construction kick-off meeting and regular follow-up meetings are held between field material team and construction staff to review the forecast delivery dates for all materials. Changes recommended by construction, which reflects detailed construction plans are noted and forwarded to expediting/procurement for assistance in improving forecast delivery dates.

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The frequency of material look-ahead-requirements is established between construction and material management staff. Generally, this results in a three month look-ahead schedule that is reviewed monthly and a two week look-ahead schedule that is reviewed weekly. A three-month look-ahead schedule allows material management to review inventory on hand and forecast delivery dates so they can expedite material purchases/delivery and advise construction of anticipated shortages that may affect the construction plan. The two-week look-ahead schedule allows material management to stage materials for issue that will be needed in the near future, and provides a final chance to advise construction of shortages that may affect the work plan

The warehouse supervisor shall perform a program of continuous inspections to ensure good housekeeping practices are followed in all storage areas. This includes, but is not limited to:

- Application of material location designations
- Prompt removal of trash and debris
- Designation of eating areas
- Application of rodent & pest control measures
- Traffic/access control

8.2 Information

The following documents contain detailed delivery information and shall be gathered by the home office and forwarded to the field office:

- (1) Project Material Status Reports
- (2) Shipping and Transportation
- (3) Packing Lists




Field Material Team should check availability of shipping documents at site office, if document is not available, immediate action is required to obtain missing shipping documents.

Refer to Field Material Control Procedure (FMCP) SP1-100-0000-00-PC-PR-105 for detail instructions.

8.3 RECEIVING MATERIAL

8.3.1 Preparation

Assistant warehouse supervisors and clerks who handle materials must be completely familiar with the materials and the precautions to be taken when handling these materials.

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The storage of materials shall be planned in advance by the Field Material Team based on the telexed shipping advice and other information furnished by the home office. Such planning shall enable the team as to where and how the materials are to be stored. The unloading and storage plan shall be informed to warehouse crews.

Arrangements for mobilizing workers, equipment, and vehicles to handle large quantities of materials shall be confirmed in advance to avoid delay of unloading work.

8.3.2 Receiving

The material controller and/or warehouse supervisor shall carry the visual inspection in the following manner:

- Check that the cargo has been delivered intact
- Check the package number against the number on the purchase orders data.
- Check the materials unpacked against the packing list.
- Preparing of material receiving report (refer to Appendix 7)

For equipment, the field supervisor or field engineer in charge shall carry this inspection. (Refer to Appendix 8)

Extra care shall be taken to ensure that alloy materials are properly identified and should not be mixed with others.

When any discrepancies are found, OSI&D report should be provided. For a sample of the OSI & D Report, refer to Appendix 9.

All materials that are received in satisfactory condition shall be stored according to category in the designated place. Alloy materials shall be stored in specially designated areas.




Damaged or defective materials shall be stored separately and clearly noted in writing to avoid inadvertent use.

8.4 Storage

8.4.1 Introduction

Storage areas are established to control and protect material and equipment. Location control system shall be used, which allows for quick retrieval and issuance of material. Where necessary, in-storage inspection and maintenance will be performed and properly documented to ensure proper storage requirements. Only authorized personnel will be permitted in storage areas.

All material is stocked and maintained in accordance with acceptable safety facilities and good

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housekeeping standards in a neat and orderly manner to provide efficiency in physical checking and movement; and in a manner to ensure reasonable protection from damage, deterioration, or theft. Material stored inside is segregated by commodity (i.e., piping, electrical, instruments). Like items are stored together where practical.

Outside storage areas are established for the storage of some items, such as bulk items.

Materials stored outside will be adequately protected from weather or any other local hazard to which they may be subjected. The cardinal rule for outside storage is to keep material out of the mud, sand, or snow. This may be accomplished by using; wood pallets, standard 40 inches by 48 inches (1000mm x 1200mm); also cribbage or dunnage can be used to meet specific project needs. Outside pallets racks can be utilized, if permitted.

Similar material will be grouped and stored together when practical. The following groups are provided as a guide:




- Prefabricated pipe
- Prefabricated structural steel, including platforms, ladders and pipe supports
- Equipment (vessels, exchangers, pumps, compressors, drivers, etc.)
- Package units - all components parts should be stored together
- Cable
- Piping materials 4 inches over should normally be stored in outside laydown areas. Valves, fittings, flanges, and accessories will be stored by size. All valves will be stored in a vertical position with the valve inlets capped to prevent entry of moisture or sand. Flanges will be adequately spaced to prevent damage to beveled edges, and suitably protected against corrosion.
- All special service valves and other critical materials will be stored in separate areas by their size and service.
- Chemical and lubricant drums will be stored in a horizontal position to prevent ingress of moisture through the bung.

8.4.2 Fire Prevention

The fire prevention is repeatedly emphasized. To protect materials from fire, an adequate number of fire extinguishers shall be maintained at all times at strategic locations in the warehouse.

The number of fire extinguishers shall be increased when hazardous materials are to be stored. All warehouse personnel shall be trained in the use of fire extinguishers. Smoking shall be strictly prohibited, except in smoking huts or in those locations specially approved for such purpose.

8.4.3 Prevention of Deterioration

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To prevent deterioration of materials during storage, the following measures shall be taken;

- Protection from Dust
All precision instruments and delicate materials shall be adequately protected from dust by enveloping with a suitable protective covering, such as made from polyvinyl chloride.
- Protection from Rain and Moisture
Any materials that are susceptible to serious damage by rain and moisture shall be stored indoors on wooden sleepers set on the floor. Cement lining material, refractory material, and other similar materials shall be covered with tarpaulins or other similar waterproof sheets.
- Protection from Rust
Surfaces that are not coated with rust preventive, or that have lost their coating shall be coated with oil, paint, or another similarly suitable protective material. Materials that are to be stored on the ground should be laid on wooden sleepers or other suitable supports.
- Protection from Sunlight
Products with a petrochemical base, such as unplasticized polyvinyl chloride pipes, wrapping tape, etc., which will deteriorate due to exposure to sunlight, shall be adequately protected.

8.4.4 Prevention of Pilferage

All materials, particularly those that can be carried by hand or from which valuable parts may be removed, shall be stored in a manner that will discourage pilferage. To ensure this, the following measures shall be taken:

- Indoor Storage
 - (a) Materials shall be stored neatly in a regular pattern, whenever possible, so that any lost may be easily noticed. All aisles shall be kept free from view-obstructing articles.
 - (b) Valuable items shall be stored in an indoor warehouse fitted with lockable doors.
 - (c) During warehousing activities, a minimum number of entrance doors shall be opened.
- Outdoor Storage
 - (a) Storage area for certain designated items shall be fenced.
 - (b) Entrances for vehicles shall be guarded, and will be restricted to the minimum number necessary to accomplish the job.
 - (c) All items shall be stored neatly to offer a clear view down the aisles. Wherever

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possible, the material shall be marked with paint so that any lost may be easily noticed.

- (d) Floodlights shall be provided for night protection.
- (e) Guards shall patrol the storage area during the night

8.5 Inventory

8.5.1 Preparation

The following steps shall be taken prior to taking the inventory:

- Put the stock in order
- Arrange loose materials, such as bolts and gaskets, in-groups of ten or fifty for each type and size.

8.5.2 Frequency of Inventory

The inventory work shall be carried every three (3) months for each category of material, but inventory periodicity can be adjusted by MCM, when required.

8.5.3 Notification

The material controller shall notify the field supervisors, suppliers, subcontractors, and other pertinent personnel one-week in advance of the overall inventory of the date and period when the warehouse will be closed.




8.5.4 Inventory

All warehouse personnel shall participate in the inventory and shall work in teams of two, except when prescribed otherwise. One person shall do the counting while the other shall enter the figures in the quantity column alongside the specification and size of the material.

If different specification materials are discovered during the inventory, details shall be recorded on a separate sheet of paper and the quantity for that material shall not be included in the count.

Afterwards, an investigation shall be conducted to determine why this material was incorrectly stored.

The warehouse supervisor shall take all necessary precautions to see that no materials are omitted from the inventory.

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8.6 Material Issuing

When the Construction Subcontractor has prepared the M/I slip, they should have approval from Contractor's field supervisor and MCM.

The field supervisor shall check particulars on the material issue slip against the following documents:

For equipment:	Equipment components list or equipment list
For bulk materials:	Bill of materials, isometric drawing, or construction drawing
For prefabricated materials:	Isometric drawing, identification list, or construction drawing

After the field supervisor has approved for the material issue slip, the assistant warehouse supervisor shall write in the location of the stock.




- For piping materials, all material issue slips shall bear the area code, number of the pipeline where the material is to be used.
- For shop prefabricated materials, equipment, and machinery, all material issue slips shall bear the area code and identification number or equipment component number.

After the assistant warehouse supervisor has checked the entries and signatures on the slip, the storekeepers shall issue the material. At the same time, the assistant warehouse supervisor shall check the quantity of that particular material remaining and issuing data input to system. No material shall be issued without the signature of the field supervisor.

8.7 Field Procurement Procedures

8.7.1 Policy

- The Contractor should try to purchase approved vendor's products.
- In case, non approved vendor's products are available in local market, the Contractor should have Company approval in advance for the purchasing of non approved vendor's products.
- Field procurement procedures must conform to all policies, procedures, principles, and practices that meet project-specific guidelines.
- The basic function of field procurement personnel is to ensure the project's needs for materials, supplies, equipment, equipment rentals and services are filled in a professional and cost-effective manner.

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For preparing the Field Purchase Requisition, refer to Appendix 10.

8.8 Traceability and Preservation

8.8.1 Responsibilities

The Field Material Team is responsible for taking the necessary measures and precautions, for material preservation and traceability, in accordance with appropriate instruction received from the specialist engineers and vendor's recommendations.

Within the quality assurance framework, the quality assurance engineer will check that the measures adopted comply with the existing quality assurance program and applicable regulations.

8.8.2 Traceability of materials

Quick traceability must be ensured by a correct identification procedure allowing an easy material withdrawal. It is therefore important that all types of material will be clearly marked and/or tagged by any mean, so that positioning and handling activities will be effected with maximum speed and simplicity.

8.8.3 Preservation

The preservation function is to store the materials and equipment in good conditions, which are to be prevented from erosion, malfunction, breakage, missing, robbery, fire and etc.




The field material control team will develop a project specific preservation & maintenance plan.

Detail preservation procedure shall be referred to Field Material Control Procedure.

9. SYSTEMS

DMCS (Daelim Material Control System)

Daelim Material control system (DMCS) is used to control the project's equipment and materials. It is an on-line interactive computer system to be used for material requirements, procure materials and equipment, provide fabrication and delivery status, and controlling of material receiving, storage and issuance.

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For information of system, refer to Appendix 11, DMCS work flow.

DMCS provides detailed, up-to-date information for project personnel to control the scheduled engineering activities and material control.

Problem areas are identified through exception reports, and work planning is aided with status reports, up-to-date information is provided for all project materials, including shipping, destination, and end use identification. Status is monitored from the requirement takeoff stage through material receipt and issuance at the construction site.

The current status of all required vendor documents is provided. Overdue data is accurately identified on exception reports.

DMCS is designed to be very flexible in the support of unique project reporting requirements.

Data input can be performed directly by the different user groups (engineering, procurement, field construction sites, etc.) and by a centralized Material Control Team.

DMCS consists of five different modules, (BMCS, MRCS, PMCS, FMCS, MTCS) which can be used independently, as required for the project, or together as an integrated material control system as bellows:

- BMCS (Bill of Material Control System)
- MRCS (Material Requisition Control System)
- PMCS (Procurement Management Control System)
- FMCS (Field Material Control System)
- MTCS (Material Tracking Control System)

9.1 BMCS (Bill of Material Control System)



9.1.1 Engineering Specification

The system provides a method of identifying classes of specification such as type, size, grade, material, etc. of item and controls material requirement processed from drawings. Additional information is also processed to help the design, material control, construction, and operation phases of the project.

9.1.2 Material Code (Material Catalog)

The catalog is used for identification and control of all materials. All items must be correctly identified in the material master file before they use for a specification, bill of material, requisition, purchase order, receiving & issuing work in warehouse.

A material code and an abbreviated item description identify items in the material master file (catalog); a detailed description can be used for requisition and purchasing. The catalog ensures that all phases of the material control function identify material consistency and any

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change made to this catalog is automatically reflected in all other affected information processing areas.

9.1.3 Material Requirements

The material requirements function of the system is used to identify all material needed for the project. The requirements identify both material quantities needed and the location at which the material will be used on the site.

The material requirements can be fed into the system as they are identified and are automatically transferred from 2-D/3-D CAD drawings by the CAD modeler.

All the material from the drawing is identified into a bill of material (B/M), and then we are used to identify material for requisition, purchase order and to control the material issue from the warehouse.

The B/M is processed for traceability and identification such as why material was purchased, where it was used and when it is necessary.

9.2 MRCS (Material Requisition Control System)

9.2.1 Package Planning

As material requirements are identified, they can be automatically fed into material requisition packages. Requisitions are modified as required and can be used for request of price and delivery from vendors. This requisition is planned for vendors to specify their quoted prices and delivery times.

9.2.2 Contingency

To achieve efficient procurement and to comply with the client's requirements, this system utilizes Daelim's various systems and experience. The system is advanced in terms of computerization and supplies sufficient information such as construction allowance to take precautions against a contingent situation at the initial steps of execution of a project.




9.3 PMCS (Procurement Management Control System)

9.3.1 Requisitions & Planning

The system gives a definitive selection of vendor in terms of project duration and process specification by the collected data and systematic criteria based on the experience.

Then the requisition is processed to a purchase order and the purchase order is used to track the material through the purchasing process and to identify whether the materials are received at the jobsite.

The purchase order identifies the material quantity and its price from a selected vendor.

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This system is used for evaluating the capability and maintaining a register of each local and foreign vendor by feeding the grade against its performance and quality to the system after completion of each project.

9.3.2 Inspection & Shipping Control

The status of purchase orders or requisitions can be accessed at any time either by their identification number or by the material code.

Based on the construction schedule, PMCS will compare actual situation with the purchase order and continuously monitor/analyze to ensure that ordered materials are as per the specification and expedite to ensure on time delivery to the site.

9.4 FMCS (Field Material Control System)

9.4.1 Field material control system and application

FMCS is specialized to control all materials which are required in implementing the project in order to ensure the correct handling, to reduce manpower, to receive/issue the material, to confirm the balance of the stock quantity of the materials.

FMCS is closely associated with the followings;

- Material receiving
- Inspection
- Planning & reservation
- Location control
- Warehousing
- Issuing of material




9.4.2 Receiving of material

When material is received at the Job Site, the data shall be fed into FMCS through the material receiving function. The material shall be received and checked against the applicable purchase order. An inspector allocated from field quality control will carry out a detail inspection and OSI & D status shall be identified immediately, and a receiving report shall be prepared for distribution.

9.4.3 Issuing of material

Material can be issued from the warehouse for field use by several methods. The first and most common method is by material issue slip that includes a B/M.

In case of issuing material according to B/M, the issuance can be selected by either

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entire B/M or individual items.

As materials are requested for issuing, a material issue slip is automatically printed, and will identify type of material, size, quantity and storing location.




9.5 MTCS (Material Tracking Control system)

9.5.1 Material Tracking and Monitoring

The system is a powerful combination tool that controls systematically the total systems from the B/M and design through to the complete deliverable. MTCS is consistently tracking and monitoring all material information which is related with the required total material quantity, material order, delivery, warehouse-in, storage and warehouse-out from the stage of design to construction.

This MTCS has the following functions in detail;

- Quantity tracking (design, procurement, site material in/out)
- Material order date, expected shipping date and site arriving date and warehouse in/out date control
- Information of the all material status to project
- Monitor all sorts of material information though inquiring from the beginning stage, minimize the surplus material & urgent required material and complete project within the project target.

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10. APPENDIXES

- Appendix 1 : WorkFlow for Material Control
- Appendix 2 : Organization for Material Control
- Appendix 3: : Material Code Structure (Equipment & Tagged Item)
- Appendix 4 : Material Code Structure (Bulk)
- Appendix 5 : Procurement Status Report A/B
- Appendix 6 : Piping Material Allowance (Sample)
- Appendix 7 : MRR (Material Receiving Report)
- Appendix 8 : Field Material Inspection Report
- Appendix 9 : Overage, Shortage, Incorrect & Damage Report
- Appendix 10 : Field Purchase Requisition
- Appendix 11 : DMCS Work Flow