

PERMIT TO WORK SOFTWARE

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Sr. No.	INDEX	Page No.
1	Introduction	2
2	Objectives	2
3	Silent Features	2
4	Area of application	2
5	Advantages	2
6	Modules	3
7	Reports	4
8	System Requirement	4
9	Appendix	4

1. INTRODUCTION

“Safe System of Work” is a term being more widely used to describe the formalized processes and systems used at the work site to manage potentially hazardous work activities. These include Permit-to-Work systems, Job Risk Assessment processes (Job safety analysis), isolation control (lock out/tag out) processes, confined space entry and excavation processes as well as hazardous material handling processes.

The traditional means of implementation for such systems is a paper based, form driven approach with many drawbacks such as time consumption, poor communication, less integration of system. To overcome such drawbacks E-Square has come up with Permit to Work software.

Permit to Work software (PTW) is a procedural implementation to attain a safe system of work being necessary to prevent accidents and incidents on any construction site or an operational plant. It ensures that risks involved in any work are clearly understood and managed that makes **PTW** a very competitive and accurate tracking system, which is the key for successful implementation of any Permit to Work Program.

2. OBJECTIVE

- To improve and simplify paper based Permit to work system.
- To support authorized person in speedy decision making for permit issue on basis of complete and simplified data.

3. SILENT FEATURES

1. The inbuilt structural approach of the **PTW** identifies hazards associated with an activity to be undertaken and simultaneously notify the management to either eliminate the hazards or to manage them.
2. Different construction or maintenance works goes on any project site simultaneously. The whole project site too consists of different work areas. **Project Map** module is used to identify type of work and issued permit for each of these work areas.

4. AREA OF APPLICATION

- Construction Phase
- Commissioning Phase
- Plant Startup Phase

5. ADVANTAGES

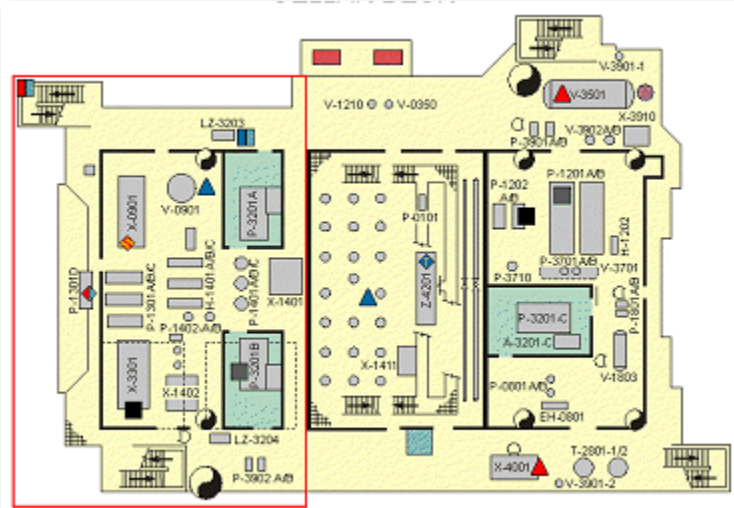
- Simplified paper work avoids complexity in work.
- Management gets the complete idea of different type of works (*Cold work, *Hot work, * Confined space entry) going on instantly through project map module of PTW and thus fast decision making can be done on issue work permit in other areas.
- Fast and accurate decision making conserves time.
- More integration of system.
- Reduces communication gap.

6. MODULES

1) Project Map Generation

Authorized person identifies each area of Project site with their simple graphical view. This map is used in the software modules for:

- Work location reference.
- Decision support for authorized person at the time of permit issue according to work status for adjacent locations and type of permit issued for them.
- Status of project according to currently issued permits and type of work is going on.



EXAMPLE OF SIMPLE GRAPHICAL VIEW

2) Application

Work in-charge will fill up application form in software according to following details.

- Location of work
- Type of work

3) Permit Issue

Authorized person will fill up data in software from following certificates and documents.

- Application Form
- Electrical Isolation Certificate
- Mechanical Isolation Certificate
- Excavation Certificate
- Confined space entry Certificate
- *JHA report (Job Hazard Analysis)
- Other concern department clearance
- Equipment requirement
- *PPE List (Personal Protective Equipments)
- *LOTO (Lock out Tag out) Details

4) Work Monitoring

Permit controller will fill up following data into software for particular permit

- Gas test Data for confined space
- Isolated equipment condition
- Remarks

5) Permit Reminder

- Software reminds authorized person for permit to be returned if it is incomplete or canceled before its validity.
- Permit expiry reminder.

6) Completion/Cancellation of Permit

Authorized person fill following data into permit completion form

- Safety status of location for work
- Work completion/cancellation date
- Isolation Certificate cancellation details
- Remarks

7. REPORTS

1. Permit List report

- Issue and Completion Date wise
- Company wise
- Location wise
- Permit status wise
- Type of Permit wise

2. Permit Closed out report

3. Location history report (Permits issued)

4. Current status of Project site with color code of permit

8. SYSTEM REQUIREMENTS

- Operating System: Windows 2000 professional
- Database: Microsoft Access 2000/Microsoft SQL Server

9. APPENDIX

TECHNICAL TERMS

Cold work

Cold Work is any work that is hazardous, but however does not pose potential fire, explosion or asphyxiation risk or require isolation. Work such as designated scaffolding, bunkering, cleaning, over side working, painting (unless needle gunning), insulation work, pressure testing, non live maintenance operations, personnel lifting by crane, or work which comprises of the removal of critical safety systems from service for example - fire & gas, public address, life saving of fire fighting systems.

Hot work

Hot work is any type of work that produces or has the potential to produce an ignition source, and work for which there may be a risk of a fire explosion, or which involves the emission of toxic fumes due to the application of heat.

Hot work shall include but not be limited to the following: burning, welding, heating, grinding (specific locations) needle gunning, working on combustion operated equipment in active state. Hot work permits may be issued with Confined Space Entry and Lock Out Tag Out (LOTO) Certificates.

Confined space entry

An enclosed or partially enclosed space which,

- is at atmospheric pressure during occupancy
- is not intended or designed primarily as a place of work
- it may have restricted means of entry or exit.
- may have atmosphere which contains potentially harmful levels of contaminant
- may not have a safe oxygen level
- may include conditions, which may cause engulfment.

Confined spaces include but are not limited to storage tanks, tank cars, process vessels, boilers, pressure vessels, silos and other tank like compartments. Open topped spaces such as pits or degreasers, pipes, sewers, shafts, ducts and similar structures and shipboard spaces entered through small hatchways or access points.

JHA report (Job Hazard Analysis)

A Risk assessment in the form of **Job Hazard Analysis (JHA)** shall be prepared for all activities requiring a PTW. The **JHA** shall be in the format of the works contractor organization. The **JHA** shall be submitted to the AP at the time of applying for a PTW. This is 24 hours prior to the planned commencement of the work.

The purpose of the **JHA** is to identify hazard potential and the probability for occurrence of each hazard that is identified. If the risk level cannot reduce and the risk rating remains either medium or high then additional reduction measures shall be considered.

The **JHA** shall be registered with the manager HSES office and a copy held in the MPO by the AP. A copy of the **JHA** report sheet may be attached to the appropriate PTW.

LOTO (Lock out Tag out)

Lockout/tag out is specific set safety related practices and procedures which reduce the risk of harm from the unexpected activation of machinery or electrical systems during maintenance activities. These procedures require workers engaged in service activities to disconnect the affected systems and either lock or tag the systems to prevent them from being reactivated by other workers who are unaware of the maintenance.

PPE List (Personal Protective Equipments)

PPE is an acronym for Personal Protective Equipment, and refers to whatever protective equipment may be used to insulate an individual from the chemical, thermal, explosive or other hazards presented by the environment in which he or she is working. In most instances, the PPE will comprise such items as safety glasses, laboratory coat, protective shoes and chemical-resistant gloves.