EXPRO National Manual for Projects Management

Volume 11,Chapter 3

Project Powder Actuated Tools Procedure

Document No. EPM-KSS-PR-000037 Rev 003

Document Submittal History:

Revision:	Date:	Reason For Issue
000	28/08/2017	For Use
001	03/12/2017	For Use
002	19/11/2018	For Use
003	09/08/2021	For Use

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Table of Contents

1.0 PURPOSE

The purpose of this procedure is to give guidance on the safe use of Powder Actuated Tools. It will give guidance on the training requirements needed to ensure that the equipment used is operated in a safe manner.

2.0 SCOPE

The scope of this procedure applies to all works performed under all Government Construction Contracts executed throughout the Kingdom of Saudi Arabia.

3.0 DEFINITIONS

Definitions	Description
Authorized Personnel	Trained and Certified to use equipment
JHA	Job Hazard Analysis
ANSI	American Nation Standards Institute
PPE	Personal Protective Equipment
WMS	Work Method Statement

4.0 REFERENCES

- 29 CFR 1915.135 Powder Actuated Fastening Tools.
- 29 CFR1926.302 (e) (1) Training
- ANSI A103 Standards

5.0 RESPONSIBILITIES

5.1 Project Manager

Project Manager's responsibilities include the following:

- Overall responsibility for this procedure and for supporting this process and verifying all Project entities actively participate.
- Providing the personnel, facilities, and other resources necessary to effectively accomplish this procedure.

5.2 Site Construction Manager

The Site Construction Manager is responsible for monitoring that the site is in compliance with applicable Health, Safety, Security and Environment HSSE requirements by:

- Providing the resources to implement the requirements of this procedure.
- Communicating with management concerning Project HSSE expectations concerning powder actuated tools storage, handling and use practices.
- Providing leadership regarding HSSE requirements and expectations for Managers, Project Supervisors, Superintendents and other leadership.

5.3 HSSE Manager

Site HSSE Manager's responsibilities include the following:

- Auditing this procedure.
- Confirming that this procedure meets the government requirements and regulations in the location of the Project facility.

5.4 Project Personnel

Project personnel's responsibilities include the following:

- Knowing and understanding the Environmental Safety and Health requirements of this Procedure that apply to the work they perform.
- Requesting additional information and further clarification before starting work if personnel receive assignments they do not understand.
- Complying and abiding by this Procedure for any work they perform.

6.0 INTRODUCTION

Lacking proper equipment safeguards and safe operating procedures, powder-actuated fastening tools can be as dangerous as a small caliber firearm.

This procedure outlines the specific safety requirements that must be followed whenever powder-actuated tools are used, the tool selection must be in accordance with ANSI A103 standards.

Nothing contained herein, is intended to take the place of or conflict with any specific manufacturer requirements. In the event of a conflict, the most stringent rule shall always apply.

7.0 RISK ASSESSMENTS

Before any Project/Work Activity/ commences it is important that Risk Assessments are completed prior to beginning any work.

Risk assessments must be conducted at the Planning Stage:

- Project Risk Assessment.
- Work Method Statements (WMS)
- Job Hazard Analysis (JHA).

It is imperative that prior to beginning of any work activity, a pre-start briefing occurs to discuss the contents of the WMS/JHA which includes mitigations of for other hazards noted by the crew at the jobsite. The discussion shall also include job steps, expected hazards associated with the activity, and the mitigation and protection methods that shall be implemented to prevent incidents.

The Hierarchy of control shall be used to reduce the likelihood of an incident occurring.

- ***Elimination*** (Remove the Hazard)
- ***Substitution/Isolation*** (Replacing material, process or hazard with a lower risk one/ separate people from the hazard (such as through guarding, distance, etc.)
- ***Engineering Controls*** (Redesign or replacement of plant and equipment)
- ***Administration Controls*** (Procedures, training, signage)
- ***PPE- Personal Protective Equipment***

No work is to commence until the above has been implemented and signed by the relevant Supervisor in charge.

8.0 SAFETY PRECAUTIONS

The following safety precautions shall be adhered to when operating Powder-actuated Tools:

- Only personnel who have been trained and certified in the operation of the particular tool in use shall be allowed to operate a powder-actuated ("explosive powered") tool.
- The authorized person must ensure that correct caliber is used. When the tool is removed from the container box it should be checked to ensure the cartridge is not loaded.

- The tool shall be inspected each day before loading to see that the safety devices are in proper working condition. The method of inspection shall be in accordance with the manufactures operating manual.
- A Job Hazard Analysis shall be completed for tasks requiring the use of powder actuated tools, and it shall be reviewed by personnel assigned to the affected task.
- Any tool that is found not to be in proper working order, or develops a defect while ion use, shall be immediately removed from service, tagged “Out of Service,” and not used until properly repaired
- In the event of a misfire, the tool shall be held in the operating position against the working surface for not less than one full minute. If it is uncertain that the tool is defective, it shall be unloaded, placed in its container, and returned to the tool room (or other such lo-cation) with a “DANGER-DO NOT USE” tag attached.
- If the powder-actuated tools are to be used in areas occupied by other personnel, ensure that no one is endangered. All personnel in the affected area must be notified prior to firing/using the tool. Warning signs shall be posted in areas where powder-actuated tools are being used.
- Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face block, or hollow tile. All manufacturers’ instructions shall be followed.
- A thorough and complete study of the job (per the required JHA) shall include the type of material, its thickness, and general condition. Also, occupied areas behind the firing location shall be cleared prior to task start.
- The use of powder-actuated tools on materials or surfaces that may be completely penetrated by the fastening stud shall be avoided.
- Provide solid protection behind the stud when driving into concrete 2 inches (5 cm) or less in thickness, or steel ¼ inch (.6 cm) or less in thickness.
- Fasteners shall not be driven directly into materials such as brick or concrete, closer than 3 inches (7cm) from the edge or corner, or into steel surfaces closer than ½ inch (1.25 cm) from the edge or corner, unless a special guard or fixture is used.
- The operator shall know what is behind the surface or between the surfaces or walls into which the stud is being driven (e.g., electrical wires, fluid lines, gas lines, personnel, etc.).
- A tool shall never be loaded until it is ready for use and all safety devices are verified to be operational.
- All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer.
- A tool shall never be carried from one job to another loaded.
- The operator shall never point or direct a tool in the direction another person, whether it is loaded or un-loaded.
- Tools shall not be fired when there is an obstruction in the barrel.
- The operator shall never fire a tool into a pre-drilled hole.
- At no time, shall a tool be left unattended unless it is in its proper container and locked or otherwise secured.
- A powder-actuated tool shall never be tested with the breech plug still in the barrel.
- A fastener shall not be used without a cap or guide.
- A long breech plug charge shall never be used in a short breech barrel.
- PPE for using powder actuated tools shall include a full-face shield approved hearing protection, and hand protection.
- Tools shall not be used in an explosive or flammable atmosphere.

8.1 Misfires

In the event of a misfire, the operator should comply with the following requirements:

- In the event of a misfire, observe the manufacturers misfire precautions and procedures. When the manufacture has not provided specific instructions, the operator should comply with the following:
    - First wait 10 seconds, then release the powder-actuated tool from its depressed position.
    - Second, release the powder -actuated tool from the work surface without changing the direction in which the tool is pointing.
    - Finally, remove the charge and store it safely for later disposal.

- Any charges which have misfired should not be used again. Rather they should be returned to the supplier for destruction.

If numerous misfires occur from one batch of charges, that batch should be returned to the supplier for destruction.

9.0 STORAGE

- The tool shall be stored in a lockable, fireproof cabinet, the access to the cabinet should be kept clear of any obstacle.
- Proper warning signs should be placed on the storage place “Danger, No Smoking or open flame).
- Storage area must be well ventilated; temperature conditions must be monitored and in compliance with the manufacturer instructions.
- The tool and cartridge should be stored separately, the tool and the cartridges must be kept in boxes, no loose cartridges should be allowed.
- Powder actuated tools and cartridges shall not be left on the job site, projects must produce work instructions to control issue and return process as a minimum the following requirements apply:

    - A log with signatures must be maintained for issuing and returning powder actuated tools.
    - Only authorized persons are allowed to draw and return the tools and cartridges.
    - Used cartridges must be collected and returned to the store, damaged tools and cartridges must be ladled.
    - Lost tools or cartridges must be reported to the site manager immediately.

10.0 TRAINING

All personnel who will use a powder actuated tool must be trained and be able to demonstrate competence in its safe operation.

Personnel must receive training and be certified in the use and operation of the specific powder actuated tool to be used.

Training and certification for one type does not allow personnel to operate all types of powder actuated tools. Only the specific tool for which training has been provided is authorized for use.

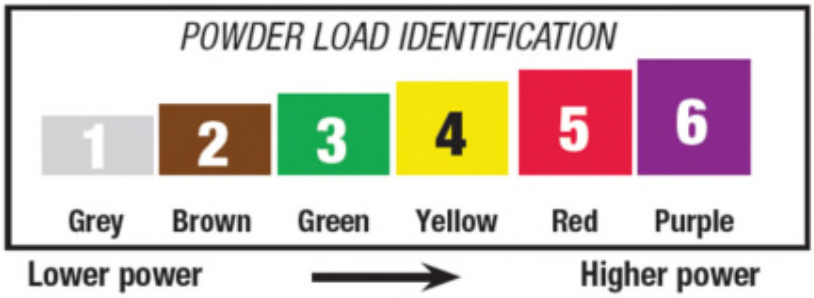
All training records must be made available upon request from all relevant parties.

11.0 ATTACHMENTS

1. Pictures

Attachment 1 - Pictures

Explosive Caps Color Codes



Explosive Caps Colour Codes

Examples of Powder Actuated Tools

Example of Lockable Cabinets