

Rubach Plasterers Pty Ltd SAFE WORK PROCEDURE

Workplace:

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TASK / OPERATION: Operation of Powder Actuated (PA) hand held fastening tools

Overall Risk Rating After Controls

4 Acute

3 High

2 Moderate

1 Low

Personal Protective Equipment

Foot Protection	Hearing Protection	Eye Protection	Face Protection
			

Day Operations – Normal Requirements:

Safety footwear, hearing protection, eye protection (safety glasses with side protectors), face protection (face shield if preferred).

Safety Notes

PA hand-held tools are used to drive a fastener (such as pin, stud or bolt) through building materials using explosive force derived from the detonation of a cartridge containing explosives. They are extremely powerful and dangerous tools that can cause serious injuries and death.

Main hazards:

- explosion
- being hit by ejected materials (sometimes sharp)
- puncture wounds to hands (or bystanders which can be fatal)

Procedure (in steps):	Possible Hazards or Risks of Each Step	RB	Safety Controls	RA	Responsible Officer
NOTE: RB = Risk Rating before controls implemented - RA = Risk Rating after controls are implemented.					
1. Preparation	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns - electric shock Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	<p>Inspect intended work surface. Do not fire into chipped (spalled) or uneven surfaces where tool may slip.</p> <p>Designate work area.</p> <ul style="list-style-type: none"> - place barricades/cordon off area opposite to work surface to prevent persons accessing. - Place rigid signs at least 50ft from work. Signs must be minimum of 300mm high and 500mm wide and display the following: <ul style="list-style-type: none"> • Caution. Explosive Power Tool in use+ • Lettering to be 50mm for Caution and 30mm for all others. • Company name/logo <p>Assess whether a PA tool is suitable for job. Conduct centre punch test. Use fastener as centre punch and apply average hammer blow to intended work surface.</p> <ul style="list-style-type: none"> - If fastener flattened = too hard - If penetrated easily = too soft - If made small indent = suitable. <p>Note: Do not fire into brittle surfaces such as cast iron, tile, glass or rock as these can shatter and cause sharp fragments to eject from work surface.</p> <p>Inspect work environment. Ensure:</p> <ul style="list-style-type: none"> - adequate lighting - adequate space for task - non-flammable atmosphere - no excessive heat (or open flames near-by) - no hidden pipes or electrical wires behind intended work surface 	2M	

Procedure (in steps):	Possible Hazards or Risks of Each Step	RB	Safety Controls	RA	Responsible Officer
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1. Preparation (continued..)	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns - electric shock Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	Inspect work environment. Ensure: <ul style="list-style-type: none"> - ground clear of tripping hazards, debris or tools. - Intended work surface is cleared of tools/debris. Ensure cartridges are: <ul style="list-style-type: none"> - colour-coded and numbered - suitable for model of PA tool - marked to be compliant with AS 1873. 3 and 4. Ensure correct cartridge is selected for task (intended material, and distance). Start at lower powder level and work up if in doubt. <p>Note: Persons who are colourblind should choose appropriate cartridge by number . not colour.</p> Clear non-essential persons from area. Only allow certified operators to work in close proximity to PA operator. Ensure PPE is provided to these workers.	2M	
2. Pre-operational inspection	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	3H	Inspect PA tool. Check: <ul style="list-style-type: none"> - unloaded - trigger present and free movement - spall guard in place - muzzle shield in place and good condition - damage to housing or any other component. If damaged, take out of service and follow tag out/lock out procedures. <p>Inspect fasteners. Ensure appropriate for task and suitable for PA model.</p>	2M	

Procedure (in steps):	Possible Hazards or Risks of Each Step	RB	Safety Controls	RA	Responsible Officer
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2. Pre-operational inspection (Continued)	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	3H	Inspect PPE. Ensure: <ul style="list-style-type: none"> - Safety glasses are free of dirt, cracks. Allow clear visibility and have side protectors in place. - Ear muffs fit correctly over ear and cushions provide good seal, not cracked or damaged. Conduct function check: <ul style="list-style-type: none"> - check tool is unloaded - test several times by depressing nozzle on hard surface and pulling trigger - listen for click - check barrel has fully opened. 	2M	
3. Loading	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	Follow manufacturer's instructions. Never load with finger on trigger. Load fastener before cartridge. Only load at intended work site. Do not carry a loaded PA tool to another work area. Unload before traveling. Do not use loose loads. Load directly from box. Do not carry load box in pocket with other hard items (could cause detonation). Open loading chamber. Load cartridges. Do not use excessive force. If cartridge does not load, carefully remove and check chamber for blockages.	2M	

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3. Loading	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	To close . depress perpendicular against work surface. Use both hands to push down Do not push against any surface other than intended work surface. Do not close tool by exerting force at front end of barrel. Once loaded . do not leave unattended	2M	
4. Operation	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	Never point PA tool at persons (even if unloaded). Ensure well balance secure footing. Place PA tool securely and perpendicular onto work surface Operate as per manufacturer's instructions. Note: Use weakest charge when firing into untried materials for first time. Do not fire without a fastener. After firing, replace fastener before replacing cartridge. Keep hands/body parts away from away from fastener end of tool. Keep head away from PA tool. Use spall guard wherever possible.	2M	

Procedure (in steps):	Possible Hazards or Risks of Each Step	RB	Safety Controls	RA	Responsible Officer
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4. Operation (continued)	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	Check manufacturer's recommendations before firing into: <ul style="list-style-type: none"> - concrete or steel base - masonry joints - existing holes Do not fire too close to an edge or another fastener (general min. 75mm) Concrete: <ul style="list-style-type: none"> - check with concrete manufacturer or structural engineer for suitability and placement requirements. - Do not fire if less than 100mm (or less than 3 times shank penetration). Steel: <ul style="list-style-type: none"> - Seek advice if steel grade above 350. - Do not fire within 16mm of edge - Do not fire within 25mm of other fastener - Do not fire within 100mm of heat effected zone (such as welds or flame cuts) - Do not fire if less than 4mm thick (or 3mm if using specialised fasteners). 	2M	
5. Misfire	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	Follow manufacturer's instructions. General: <ul style="list-style-type: none"> - Hold in depressed position for 30 seconds - Release but keep in same direction - Carefully remove charge and store in can of water for disposal. Never put in trash. If several misfires in one batch . do not use. Return to supplier.	2M	

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6. Clean-up and Storage	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - chemical splashes Legislation breach	2M	Ensure PA tool is unloaded. Clean tool. Use detergent oil and wire brush to remove dirt and carbon build-up. Wear safety goggles. Inspect for any damage. Remove from service if detected. Place charges and tool in case and store in a locked/secured manner.	1L	
7. Maintenance	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	2M	Disassemble and inspect tool as per manufacturer's instructions (usually once per week if used for entire week) Disassemble and inspection to be done by certified operators only. Check all components. Check piston for mushrooming or deformity. Replace as required. Perform function test before next use. Undertake complete overhaul by manufacturer 6 monthly (or more depending on volume of use). Do not use until manufacturer provides written certification that PA tool is suitable for use.	1L	

Procedure (in steps):	Possible Hazards or Risks of Each Step	RB	Safety Controls	RA	Responsible Officer
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8. Emergency Procedures	Personal Injury: <ul style="list-style-type: none"> - struck by ejected material - puncture wounds - explosion/fire - burns Property Damage <ul style="list-style-type: none"> - fire/explosion Legislation breach	4A	If PA tool jammed, do not attempt to unload. Store inside locked case and contact manufacturer. Develop and implement an emergency response plan for the site. Include: <ul style="list-style-type: none"> - assembly points - communication - responsible persons - emergency contacts (including nearest medical facility) - first aid training and equipment 	2M	

References:

OHS Legislation in all States
 AS/NZS 1873 - 1994 Parts 1-4 Powder Actuated Hand held fastening tools, fasteners, and explosive charges.
 AS/NZS 1270 - 2004 Acoustics Hearing Protectors
 AS 1319 . 1994 Safety Signs for Occupational Environment
 AS/NZS 1337 . 1992 Eye Protectors for Industrial Applications
 OSHA 29 CFR 1915.135 Powder Actuated Tools
 OSHS . NZ 1995 Code of Practice Powder Actuated Hand Held Tools
 RAMSET Model 721 PA Tool . Operating and Safe Operating Instruction Manual
 RAMSET . 2007 Powder Actuated Tools . Safety Principles