

National Occupational Skill Standard (NOSS)

Occupational Title : Tile Marble Fixer

Level : 1

Sector : Construction

Sub - Sector : Building flooring

NOSS ID/NSCO ID :

ISCO NO :



Council for Technical Education and Vocational Training

NATIONAL SKILL TESTING BOARD

Madhyapur Thimi-17, Sanathimi, Bhaktapur, Nepal

Developed: 14-02-2021 (02-11-2077)



DACUM Panel

S.No.	Name	Designation	Organization
1.	Mr. Tarapati Sharma	Member	Private Contractor
2.	Mr. Rahamad Mallik	Member	Bindawashni Marble House
3.	Mr. Gyanu Karki	Member	Bindawashni Marble House
4.	Mr. Krishna Prasad Lakhaju	Member	Private Contractor
5.	Mr. Radhya Shyam Khusu	Member	Private Contractor
6.	Mr. Bholu Ghimire	Member	
7.	Mr. Arjun Ghimire	Member	
8.	Mr. Rajendra Machamasi	Member	Private Contractor

DACUM Facilitator/Co-facilitator:

1. Mr. Ishwor Chandra Ghimire, Skill Testing Officer, NSTB, Bhaktapur.
2. Mr. Bhumaheshwor Ranjitkar, Sanitary Instructor, BSET, Kathmandu.

DACUM Workshop on 3 & 4 September 2009



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Customized DACUM Panel

S.No.	Name	Designation	Organization
1.	Mr. Tarapati Sharma	Member	Private Contractor.
2.	Mr. Rahamad Mallik	Member	Bindawashni Marbal House.
3.	Mr. Gyanu Karki	Member	Bindawashni Marbal House.
4.	Mr. Suresh Barma.	Member	Bindawashni Marbal House.
5.	Mr. Bigyan Lama.	Member	
6.	Mr. jaya Narayan Sharm	Member	
7.	Mr. SR Hasan Ali	Member	Shobha Bhagawati Hardware, Kathmandu.
8.	Mr.SK Ajad	Member	Shobha Bhagawati Hardware, Kathmandu.
9.	Mr. SR Mohammad Hossian	Member	Nepa Marble House, Kathmandu.
10.	Mrs. Nishi Shrestha	Member	Sanitary Instructor, BSET, Kathmandu.

DACUM Facilitator/Co-facilitator:

1. Mr. Ishwor Chandra Ghimire Skill Testing Officer, NSTB, Bhaktapur.
2. Mr. Bhumaheshwor Ranjitkar, Sanitary Instructor, BSET, Kathmandu.

Customized DACUM Workshop on 27 October 2009



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The Occupational Profile Developed by:

No	Name	Designation	Organization
1.	Er. Iswer Raj Onta	Coordinator	Construction Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur
2.	Mr. Chandra Bhakta Nakarmi	Director	National Skill Testing Board Sanothimi, Bhaktapur.
3.	Mr. Tarapati Sharma	Member	Private Contractor.
4.	Er. Arna Raj Silwal	Member	Training Centre Nepal, Kathmandu.
5.	Mr. Yaduvansi Lal Karna	Member	New Civil Engineering, Kathmandu.
6.	Er. Nirmal Neupane	Member	Skill for Employment Project, Kathmandu.
7.	Mr. Ishwar Chandra Ghimire	Member	Skill Testing Officer, NSTB, Sanothmi, Bhaktapur.
8.	Er. Gunananda Jha	Member Secretary	Construction Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur

Recommended by Construction Technical Sub Committee: 2009



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The National Occupational Skill Standard Developed by:

No	Name	Designation	Organization
1.	Er. Kishor Kumar Shakya	Coordinator	Construction Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur
2.	Mr. Tek Bahadur Malla	Director	National Skill Testing Board Sanothimi, Bhaktapur
3.	Er. Pradeep K.C.	Member	C.E. Construction Tripureshwor, Kathmandu
4.	Mr. Laxman Chaudhary	Member	Kathmandu Upatyaka Khanepani Limited (KUKL) Tripureshwor, Kathmandu
5.	Mr. Dal Bahadur B.K.	Member	Peace Technical Training Center Gwarko, Lalitpur
6.	Mr. Krishna Thapa Magar	Member	C.E. Construction Tripureshwor, Kathmandu
7.	Mr. Nirajan Karki	Member	Peace Technical Training Center Gwarko, Lalitpur
8.	Ms. Nishi Manandhar	Member-Secretary	Construction Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur
9.	Mr. Tulsi KC	Member	Sr. Skill Testing Officer National Skill Testing Board, Sanothimi, Bhaktapur
10.	Mr. Suresh Maharjan	Member	Skill Testing Officer National Skill Testing Board, Sanothimi, Bhaktapur
11.	Mr. Kishor Chandra Sharma	Member	Skill Testing Assistant National Skill Testing Board, Sanothimi, Bhaktapur

Recommended by Construction Technical Sub Committee: 14 February 2021 (02 Falgun 2077)



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1	Occupational Title: Tile Marble Fixer Level: 1
2	Job Description: Tile Marble Fixer, L-1, fixes tiles and marble on floor and wall.
3	UNITS OF COMPETENCY: <ol style="list-style-type: none"> 1. Fix tiles on floor and wall. 2. Fix marble on floor and wall. 3. Perform communication. 4. Develop professionalism. <p><i>*Note: Units 3 and 4 are not for testing purpose.</i></p>
4	Qualifying Notes/Prerequisites: <ul style="list-style-type: none"> • Physical Requirements: Sound health • Entry Requirements: As per NSTB rules. Additional Information: <ul style="list-style-type: none"> • Assessment Types: Performance test only. • Assessment Duration: 4 Hours (Single Competency) 5 to 6 hours (All Competency) • Recommended Group Size: 8 to 10 candidates



5	Unit No: 1 Unit Title: Fix tiles on floor and wall.	Unit code:
	Elements of competency	Performance standards
	1.1 Prepare tools, equipment and materials	1.1.1 Personal protective equipment (PPE) used in accordance with task requirement. 1.1.2 Tools and equipment collected and checked for working condition in accordance with task requirement. 1.1.3 Quantity of tiles determined based on area of tiles and surface. 1.1.4 Materials collected and prepared in accordance with task requirements.
	1.2 Prepare cement mortar	1.2.1 Platform prepared near work area. 1.2.2 Impurities removed from cement and sand. 1.2.3 Dry cement and sand thoroughly mixed in a ratio to homogeneous mixture. 1.2.4 Clean water added to dry mixture and thoroughly mixed to uniform consistency.
	1.3 Prepare background surface	1.3.1 Surface cleaned and watered. 1.3.2 Dust, dirt and grease removed from the surface. 1.3.3 Old paint removed from surface without damaging masonry surface 1.3.4 Cracks, holes and voids on background surface filled uniformly. 1.3.5 Floor screeded and levelled in a ratio 1:2:4 at required area with a maximum thickness of 5cm. 1.3.6 Slope of 1:100 maintained in background surface towards outlets. 1.3.7 Mortar applied uniformly on the surface. 1.3.8 Rough texture prepared on the levelled surface for the proper bonding of tile. 1.3.9 Background surface laid out from the centre point for tile fitting.
	1.4 Cut tiles	1.4.1 Tiles checked for size, patterns and damage . 1.4.2 Tiles dipped into water for at least 15 minutes. 1.4.3 Tiles measured and marked as per dimension.



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		1.4.4 Tiles cut along the mark without jagged edges, sharp points and damage to surface. 1.4.5 Rough and sharp edges removed from edge of cut tiles.
	1.5 Lay tiles	1.5.1 Cement slurry prepared and floor slurred. 1.5.2 Tiles placed and fixed matching pattern with uniform spacing in level and plumbline. 1.5.3 Tile spacer placed between each tile to maintain uniform spacing. 1.5.4 Extra portion of tiles marked and cut along the mark without jagged edges, sharp points and damage to surface. 1.5.5 Tile fitting inspected for defects and replaced defect tiles.
	1.6 Fill tile joints	1.6.1 Dust and debris removed from Joints. 1.6.2 Grout color selected according to color of tile. 1.6.3 Grout prepared and applied in accordance with manufacturer specification. 1.6.4 Excess grout wiped out from the surface.
	1.7 Clean work area	1.7.1 Tools and equipment cleaned, stored and record maintained. 1.7.2 Work area cleaned and waste disposed in accordance with 3R's principle .
6	Task Performance Requirements (Tools, Equipment and Materials): <ul style="list-style-type: none"> Measuring tape, pen, paper, register, calculator, pencil, eraser, sharpener, compass, wheel barrow, measuring box, trowel, builder's square, Mason's thread, peg, level pipe, straight edge, hawk, mortar pan, cement, sand, mixing board, step ladder, scraper, chipping hammer, chalk line box, rope, notched spreader, spirit level, plumb bob, water, water drum, bucket, jug, paw, tile cutter, grinder, drill machine, drill bit, tile nippers, grout float, grout finishing tool, tile sponge, tiles, chips, grout, sealer, caulking compound, polythene, adhesive, tile spacers, masking tape, insulation tape, rubber mallet, shovel, float, line and pins, brush, wire brush, mason square, screw driver, pliers, phase tester, chisel, hammer, G clamp, strip channel, sieving net, cotton cloth, cleaning agent, broom, dust bin, dust pan, file, diamond wheels, diamond hole saw cutter, extension cord, toolbox, first aid kit and personal protective equipment (PPE). 	



7	<p>Safety and Hygiene (Occupational Health and Safety):</p> <ul style="list-style-type: none"> • Use personal protective equipment. • Safe handling of materials, tools and equipment. • Safe handling of tiles. • Safe handling of debris. • Apply safety precautions while working at height.
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8	Required Knowledge		
	Technical Knowledge	Applied Calculation	Graphical Information
	<ul style="list-style-type: none"> Tools and equipment: <ul style="list-style-type: none"> Types Uses Safe handling Tile: <ul style="list-style-type: none"> Introduction Classification Quality Size Marking and cutting method Tile fitting process Design patterns Grouting and finishing Common defects of tile fitting Measurement system Tile estimation Surface preparation for tile fitting Layout technique 	<ul style="list-style-type: none"> Convert imperial unit to metric unit and vice versa Calculate required number of tiles 	<ul style="list-style-type: none"> Read and interpret tile layout drawing Read and interpret manufacturer specification



	<ul style="list-style-type: none"> • Cement mortar <ul style="list-style-type: none"> ○ Use and importance ○ Ratio ○ Setting time ○ Mixing Process • Use and importance of plaster • Use and importance of screeding • Use and Importance of horizontal and vertical levelling • Use and importance of adhesive • Waste management • Occupational health and safety rules and regulations • Use and importance of first aid kit 		
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9	Assessment of Competency						
	Unit: 1 Unit Title: Fix tiles on floor and wall						
	Candidate Details			Assessors Detail			
	Candidate's Name: Registration Number: Symbol No: Test Centre:			Assessors' Name 1. 2. 3.		ID/License No:	
Element of competency		Performance Standards		Standard Met	Standard Not Met	Evidence Type	Comments
1.1 Prepare tools, equipment and materials		1.1.1 Personal protective equipment (PPE) used in accordance with task requirement. 1.1.2 Tools and equipment collected and checked for working condition in accordance with task requirement. 1.1.3 Quantity of tiles determined based on area of tiles and surface. 1.1.4 Materials collected and prepared in accordance with task requirements.					
1.2 Prepare cement mortar		1.2.1 Platform prepared near work area. 1.2.2 Impurities removed from cement and sand. 1.2.3 Dry cement and sand thoroughly mixed in a ratio to homogeneous mixture. 1.2.4 Clean water added to dry mixture and thoroughly mixed to uniform consistency.					



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1.3 Prepare background surface	<p>1.3.1 Surface cleaned and watered.</p> <p>1.3.2 Dust, dirt and grease removed from the surface.</p> <p>1.3.3 Old paint removed from surface without damaging masonry surface</p> <p>1.3.4 Cracks, holes and voids on background surface filled uniformly.</p> <p>1.3.5 Floor screeded and levelled in a ratio 1:2:4 at required area with a maximum thickness of 5cm.</p> <p>1.3.6 Slope of 1:100 maintained in background surface towards outlets.</p> <p>1.3.7 Mortar applied uniformly on the surface.</p> <p>1.3.8 Rough texture prepared on the levelled surface for the proper bonding of tile.</p> <p>1.3.9 Background surface laid out from the center point for tile fitting.</p>				
1.4 Cut tiles	<p>1.4.1 Tiles checked for size, patterns and damage.</p> <p>1.4.2 Tiles dipped into water for at least 15 minutes.</p> <p>1.4.3 Tiles measured and marked as per dimension.</p> <p>1.4.4 Tiles cut along the mark without jagged edges, sharp points and damage to surface.</p> <p>1.4.5 Rough and sharp edges removed from edge of cut tiles.</p>				
1.5 Lay tiles	<p>1.5.1 Cement slurry prepared and floor slurred.</p> <p>1.5.2 Tiles placed and fixed matching pattern with uniform spacing in level and plumbline.</p> <p>1.5.3 Tile spacer placed between each tile to maintain uniform spacing.</p> <p>1.5.4 Extra portion of tiles marked and cut along the mark without jagged edges, sharp points and damage to surface.</p> <p>1.5.5 Tile fitting inspected for defects and replaced the defect tiles.</p>				



1.6 Fill tile joints	1.6.1 Dust and debris removed from the Joints.				
	1.6.2 Grout color selected according to color of tile.				
	1.6.3 Grout prepared and applied in accordance with manufacturer specification.				
	1.6.4 Excess grout wiped out from the surface.				
1.7 Clean work area	1.7.1 Tools and equipment cleaned, stored and record maintained.				
	1.7.2 Work area cleaned and waste disposed in accordance with 3R's principle .				

WT- Written Test

OQ- Oral Question

PT- Practical Test

DO – Direct Observation

SR- Supervisor's report

SN–Simulation

RP- Role Play

PG –Photographs

VD- Video

CT – Certificates

TS – Testimonials (Reward)

PP – Product Produced

CS – Case Study



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Range Statement

Variable	Range
Personal protective equipment	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Helmet • Mask • Apron • Goggles • Gloves • Safety shoes • Safety belt • Knee pads • Earplug
Ratio	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Vertical surface: 1:3 ratio • Horizontal surface: 1:4 ratio
Tiles	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Floor tiles • Wall tiles
Damage	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Crack • Hole • Faded colour



Uniform spacing	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Wall tile: 2-3mm • Floor tile: 3-5mm
Defects	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Loose tiles • Cracked tiles • Buckled tiles • Faded tiles • Spacing alignment
3R's principle	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Reduce • Reuse • Recycle



5	Unit No: 2 Unit Title: Fix marble on floor and wall	Unit code:
	Elements of competency	Performance standards
	2.1 Prepare tools, equipment and materials	2.1.1 Personal protective equipment (PPE) used in accordance with task requirement. 2.1.2 Tools and equipment collected and checked for working condition in accordance with task requirement. 2.1.3 Quantity of marble determined based on area of surface to be laid. 2.1.4 Materials collected and prepared in accordance with task requirements.
	2.2 Prepare cement mortar	2.2.1 Platform prepared near work area. 2.2.2 Impurities removed from cement and sand. 2.2.3 Dry cement and sand thoroughly mixed in a ratio to homogeneous mixture. 2.2.4 Clean water added to dry mixture and thoroughly mixed to uniform consistency.
	2.3 Prepare background surface	2.3.1 Surface cleaned and watered. 2.3.2 Dust, dirt and grease removed from the surface. 2.3.3 Old paint removed from surface without damaging masonry surface 2.3.4 Cracks, holes and voids on background surface filled uniformly. 2.3.5 Floor screeded and levelled in a ratio 1:2:4 at required area with a maximum thickness of 5cm. 2.3.6 Slope of 1:100 maintained in background surface towards outlets. 2.3.7 Mortar applied uniformly on the surface. 2.3.8 Rough texture prepared on the levelled surface for the proper bonding of marble. 2.3.9 Background surface laid out from the center point for marble fitting.
	2.4 Cut marble	2.4.1 Marble checked for size, thickness, patterns and damage . 2.4.2 Marble measured and marked as per dimension. 2.4.3 Marble cut along the mark without jagged edges, sharp points and damage to surface



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		2.4.4 Rough and sharp edges removed from edge of cut marbles.
	2.5 Lay marble	2.5.1 Cement slurry prepared and floor slurred. 2.5.2 Marble placed and fixed matching pattern in level and plumbline. 2.5.3 Extra portion of marble marked and cut along the mark without jagged edges, sharp points and damage to surface. 2.5.4 Marble fitting inspected for defects and replaced the defect marble.
	2.6 Perform finishing work	2.6.1 Dust and debris removed from the Joints. 2.6.2 Sharp edges of marble grinded to required mould . 2.6.3 Grout color selected according to color of marble. 2.6.4 Grout prepared and applied in accordance with manufacturer specification. 2.6.5 Marble surface cleaned and excess grout wiped out from the surface. 2.6.6 Entire marble surface polished from the corner to achieve uniformly shiny surface.
	2.7 Clean work area	2.7.1 Tools and equipment cleaned, stored and record maintained. 2.7.2 Work area cleaned and waste disposed in accordance with 3R's principle .
6	Task Performance Requirements (Tools, Equipment and Materials): <ul style="list-style-type: none"> Measuring tape, pen, paper, register, calculator, pencil, eraser, sharpener, compass, wheel barrow, measuring box, trowel, builder's square, Mason's thread, peg, level pipe, straight edge, hawk, mortar pan, cement, sand, mixing board, step ladder, scraper, chipping hammer, chalk line box, rope, notched spreader, spirit level, plumb bob, water, water drum, bucket, jug, paw, drill machine, drill bit, marble cutter, grinder, grinding wheel, buffing pad, wax, sandpaper, file, grout float, grout finishing tool, sponge, marble, chips, adhesive, grout, sealer, caulking compound, polythene, masking tape, insulation tape, rubber mallet, shovel, float, line and pins, brush, wire brush, mason square, screw driver, pliers, phase tester, chisel, hammer, G clamp, strip channel, sieving net, cotton cloth, cleaning agent, broom, dust bin, dust pan, diamond wheels, diamond hole saw cutter, extension cord, toolbox, first aid kit and personal protective equipment (PPE). 	



7	<p>Safety and Hygiene (Occupational Health and Safety):</p> <ul style="list-style-type: none"> • Use personal protective equipment. • Safe handling of materials, tools and equipment. • Safe handling of marble. • Safe handling of debris. • Apply safety precautions while working at height.
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8	Required Knowledge		
	Technical Knowledge	Applied Calculation	Graphical Information
	<ul style="list-style-type: none"> Tools and equipment: <ul style="list-style-type: none"> Types Uses Safe handling Marble: <ul style="list-style-type: none"> Introduction Types Quality Size Marking and cutting method Marble fitting process Design patterns Finishing (grinding, moulding and polishing) Common defects of marble fitting Measurement system Marble estimation Surface preparation for marble fitting Layout technique 	<ul style="list-style-type: none"> Convert imperial unit to metric unit and vice versa Calculate required quantity of marble 	<ul style="list-style-type: none"> Read and interpret marble layout drawing Read and interpret manufacturer specification



	<ul style="list-style-type: none"> • Cement mortar <ul style="list-style-type: none"> ○ Use and importance ○ Ratio ○ Mixing process ○ Setting time • Use and importance of plaster • Use and importance of screeding • Use and Importance of horizontal and vertical levelling • Use and importance of adhesive • Waste management • Occupational health and safety rules and regulations • Use and importance of first aid kit 		
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9	Assessment of Competency						
	Unit: 2 Unit Title: Fix marble on floor and wall						
	Candidate Details			Assessors Detail			
	Candidate's Name: Registration Number: Symbol No: Test Centre:			Assessors' Name 1. 2. 3.		ID/License No:	
Element of competency		Performance Standards		Standard Met	Standard Not Met	Evidence Type	Comments
2.1 Prepare tools, equipment and materials		2.1.1 Personal protective equipment (PPE) used in accordance with task requirement. 2.1.2 Tools and equipment collected and checked for working condition in accordance with task requirement. 2.1.3 Quantity of marble determined based on area of surface to be laid. 2.1.4 Materials collected and prepared in accordance with task requirements.					
2.2 Prepare cement mortar		2.2.1 Platform prepared near work area. 2.2.2 Impurities removed from cement and sand. 2.2.3 Dry cement and sand thoroughly mixed in a ratio to homogeneous mixture. 2.2.4 Clean water added to dry mixture and thoroughly mixed to uniform consistency.					



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2.3 Prepare background surface	<p>2.3.1 Surface cleaned and watered.</p> <p>2.3.2 Dust, dirt and grease removed from the surface.</p> <p>2.3.3 Old paint removed from surface without damaging masonry surface</p> <p>2.3.4 Cracks, holes and voids on background surface filled uniformly.</p> <p>2.3.5 Floor screeded and levelled in a ratio 1:2:4 at required area with a maximum thickness of 5cm.</p> <p>2.3.6 Slope of 1:100 maintained in background surface towards outlets.</p> <p>2.3.7 Mortar applied uniformly on the surface.</p> <p>2.3.8 Rough texture prepared on the levelled surface for the proper bonding of marble.</p> <p>2.3.9 Background surface laid out from the centre point for marble fitting.</p>				
2.4 Cut marble	<p>2.4.1 Marble checked for size, thickness, patterns and damage.</p> <p>2.4.2 Marble measured and marked as per dimension.</p> <p>2.4.3 Marble cut along the mark without jagged edges, sharp points and damage to surface.</p> <p>2.4.4 Rough and sharp edges removed from edge of cut marbles.</p>				
2.5 Lay marble	<p>2.5.1 Cement slurry prepared and floor slurred.</p> <p>2.5.2 Marble placed and fixed starting at the right corner matching pattern in level and plumbline.</p> <p>2.5.3 Extra portion of marble marked and cut along the mark without jagged edges, sharp points and damage to surface.</p> <p>2.5.4 Marble fitting inspected for defects and replaced the defect marble.</p>				
2.6 Perform finishing work	<p>2.6.1 Dust and debris removed from the Joints.</p>				



	2.6.2 Sharp edges of marble grinded to <i>required mould.</i> 2.6.3 Grout color selected according to color of marble. 2.6.4 Grout prepared and applied in accordance with manufacturer specification. 2.6.5 Marble surface cleaned and excess grout wiped out from the surface. 2.6.6 Entire marble surface polished from the corner to achieve uniformly shiny surface.				
2.7 Clean work area	2.7.1 Tools and equipment cleaned, stored and record maintained. 2.7.2 Work area cleaned and waste disposed in accordance with <i>3R's principle.</i>				

WT- Written Test

OQ- Oral Question

PT- Practical Test

DO – Direct Observation

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SN–Simulation

RP- Role Play

PG –Photographs

VD- Video

CT – Certificates

TS – Testimonials (Reward)

PP – Product Produced

CS – Case Study



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Range Statement

Variable	Range
Personal protective equipment	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Helmet • Mask • Apron • Goggles • Gloves • Safety shoes • Safety belt • Knee pads • Ear plug
Ratio	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Vertical surface: 1:3 ratio • Horizontal surface: 1:4 ratio
Damage	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Crack • Hole • Faded color • Buckling
Defects	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Loose marble • Cracked marble • Faded marbles • Wearing and tearing



Required mould	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Half mould • Full mould • Chamfered
3R's principle	<p><i>May include but not limited to:</i></p> <ul style="list-style-type: none"> • Reduce • Reuse • Recycle

