

ASSESSMENT GUIDELINES

Unit 22203

Demonstrate knowledge of stone, brick and block requirements for use in hard landscape work.

Level 3, Credit 6, Version 1

Demonstrate knowledge of stone, brick and block requirements for use in hard landscape work.

Unit standard 22203
Level 3, Credit 6, Version 1

Level of performance required for this unit standard

This is a level 3 unit standard. At this level trainees are expected to demonstrate the following abilities when completing assessment tasks:

- To work under general supervision, with some independence; with significant responsibility for the standard of the outcome achieved.
- To apply technical skills and knowledge to complete the task to the specified standard, in a familiar context.
- To interpret available information, and use discretion and judgment.

Workplace assessment:

For guidelines on Workplace Assessment, please refer to the NZHITO Workplace Assessors Manual, and for further information, please contact: NZHITO, P O Box 8638, Christchurch. Ph 03 9644 735, Fax 03 9644 737, Website www.hortito.org.nz

Special notes:

1. The New Zealand Standards applicable to this unit standard are: NZS 4210:2001 *Masonry construction: Materials and workmanship*, and NZS 4230:2004 *Design of reinforced concrete masonry structures*, available from <http://www.standards.co.nz>.
2. Legislation relevant to this unit standard may include but is not limited to the Building Act 2004 and the Building (Forms) Regulations 2004.

Unit 22203: Demonstrate knowledge of stone, brick and block requirements for use in hard landscape work. (Apprentice copy)

ELEMENT	Competent	Range of evidence an assessor should consider
<p>Element 1 Describe types and working characteristics of natural stone used in landscape features. Range: four types of natural stone commonly available for landscape work.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define and describe the types of natural stone used for landscape work. Range: common names, geological name, method of forming, descriptive characteristics, regional availability. ▪ Describe the working characteristics of types of natural stone. Range: hardness, grain, durability, workability, absorption.
<p>Element 2 Sketch and label mortared and dry stone construction details.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Draw in freehand the dry stone construction elements used in building walls, and label the drawing to identify the requirements of each element. Range: elements – bonds, ties, corner details, end details, batter, filling, coping. ▪ Use labelled freehand drawings to show the ratio formula applied to the construction of dry stone walls. ▪ Draw in freehand the mortared stone construction elements used in the building of stone features, and label the drawing to show the requirements of each element. Range: three of – walls, storage areas, seats, columns and piers; elements – foundations, joints, joint finishes, bonds, ends and corner, drainage, top finish. ▪ Draw in freehand the construction details for features using mortared stone with reinforced concrete backing and label the drawing to show the requirements of the elements involved. Range: elements – formwork, reinforcing, stone placement, drainage, top finish. ▪ Identify stone structures in terms of whether or not they require consent under the Building Act 2004 and the Building (Forms) Regulations 2004, and identify the conditions under which an engineering certificate must be obtained for their construction.
<p>Element 3 Describe requirements for mixing and using mortar in stone construction in accordance with NZS 4210:2001.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define in terms of the characteristics of each, the materials used in mortar mixes to meet the requirements of the standard. Range: materials – sand, cement, water, additives. ▪ Identify methods for measuring material proportions for the mixing of mortar, that meet the requirements of the standard. Range: volume, weight. ▪ Describe the steps in hand mixing mortar that meet the requirements of the standard. Range: steps – establishing mixing surface, proportioning dry material, mixing dry material, adding water and any additives, mixing to readiness for use. ▪ Describe the steps in machine mixing mortar that meet the requirements of the standard. Range: steps – setting of mixer to avoid spillage, proportioning of material, loading of mixer, mixing time, safety requirements. ▪ Describe the methods of preventing mortar deterioration between mixing and use, in terms of the reasons for their application. Range: mixing rate to suit usage rate, covering, tempering, remixing before initial set takes place.

<p>Element 4 Explain the process of brick and block production.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Identify the processes involved in the production of clay bricks, in terms of the characteristics of each process. Range: processes – obtaining clays from source, preparation of clays, shaping of bricks, firing, post-firing handling. ▪ Identify the processes involved in the production of concrete blocks and bricks, in terms of the characteristics of each process. Range: processes – obtaining materials, mixing materials, moulding, curing, post-manufacture handling.
<p>Element 5 Identify the requirements for brick and block landscape features. Range: three of – garden and retaining walls, seats and steps, fences and columns, storage features, barbecues.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Identify brick and block landscape features in terms of whether or not they require consent under the Building Act 2004. ▪ Define the conditions under which an engineering certificate must be obtained for the construction of brick and block landscape features. ▪ Show by way of labelled freehand drawings, methods of block and brick construction in landscape work including end and corner details. Range: three of – stack bond, English bond, stretcher bond, Flemish bond, header bond. ▪ Show in clearly labelled freehand drawings methods of constructing elements of brick and block landscape features. Range: foundations, reinforcing, walls, piers, capping. ▪ Ensure that where drawings show work covered by NZS 4230:2004, the details shown conform to that standard.

_____ (Name of Apprentice)

is **Competent / Not yet competent** in Unit Standard 22203, version 1

Signed (Assessor): _____

WPA Registration Number: _____ Date: _____

Unit 22203: Demonstrate knowledge of stone, brick and block requirements for use in hard landscape work. (Assessor copy)

ELEMENT	Competent	Range of evidence an assessor should consider
<p>Element 1 Describe types and working characteristics of natural stone used in landscape features. Range: four types of natural stone commonly available for landscape work.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define and describe the types of natural stone used for landscape work. Range: common names, geological name, method of forming, descriptive characteristics, regional availability. ▪ Describe the working characteristics of types of natural stone. Range: hardness, grain, durability, workability, absorption.
<p>Element 2 Sketch and label mortared and dry stone construction details.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Draw in freehand the dry stone construction elements used in building walls, and label the drawing to identify the requirements of each element. Range: elements – bonds, ties, corner details, end details, batter, filling, coping. ▪ Use labelled freehand drawings to show the ratio formula applied to the construction of dry stone walls. ▪ Draw in freehand the mortared stone construction elements used in the building of stone features, and label the drawing to show the requirements of each element. Range: three of – walls, storage areas, seats, columns and piers; elements – foundations, joints, joint finishes, bonds, ends and corner, drainage, top finish. ▪ Draw in freehand the construction details for features using mortared stone with reinforced concrete backing and label the drawing to show the requirements of the elements involved. Range: elements – formwork, reinforcing, stone placement, drainage, top finish. ▪ Identify stone structures in terms of whether or not they require consent under the Building Act 2004 and the Building (Forms) Regulations 2004, and identify the conditions under which an engineering certificate must be obtained for their construction.
<p>Element 3 Describe requirements for mixing and using mortar in stone construction in accordance with NZS 4210:2001.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Define in terms of the characteristics of each, the materials used in mortar mixes to meet the requirements of the standard. Range: materials – sand, cement, water, additives. ▪ Identify methods for measuring material proportions for the mixing of mortar, that meet the requirements of the standard. Range: volume, weight. ▪ Describe the steps in hand mixing mortar that meet the requirements of the standard. Range: steps – establishing mixing surface, proportioning dry material, mixing dry material, adding water and any additives, mixing to readiness for use. ▪ Describe the steps in machine mixing mortar that meet the requirements of the standard. Range: steps – setting of mixer to avoid spillage, proportioning of material, loading of mixer, mixing time, safety requirements. ▪ Describe the methods of preventing mortar deterioration between mixing and use, in terms of the reasons for their application. Range: mixing rate to suit usage rate, covering, tempering, remixing before initial set takes place.

<p>Element 4 Explain the process of brick and block production.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Identify the processes involved in the production of clay bricks, in terms of the characteristics of each process. Range: processes – obtaining clays from source, preparation of clays, shaping of bricks, firing, post-firing handling. ▪ Identify the processes involved in the production of concrete blocks and bricks, in terms of the characteristics of each process. Range: processes – obtaining materials, mixing materials, moulding, curing, post-manufacture handling.
<p>Element 5 Identify the requirements for brick and block landscape features. Range: three of – garden and retaining walls, seats and steps, fences and columns, storage features, barbecues.</p>	<p>Yes/No</p>	<ul style="list-style-type: none"> ▪ Identify brick and block landscape features in terms of whether or not they require consent under the Building Act 2004. ▪ Define the conditions under which an engineering certificate must be obtained for the construction of brick and block landscape features. ▪ Show by way of labelled freehand drawings, methods of block and brick construction in landscape work including end and corner details. Range: three of – stack bond, English bond, stretcher bond, Flemish bond, header bond. ▪ Show in clearly labelled freehand drawings methods of constructing elements of brick and block landscape features. Range: foundations, reinforcing, walls, piers, capping. ▪ Ensure that where drawings show work covered by NZS 4230:2004, the details shown conform to that standard.

_____ (Name of Apprentice)

is **Competent / Not yet competent** in Unit Standard 22203, version 1

Signed (Assessor): _____

WPA Registration Number: _____ Date: _____

Please send this page to your NZHITO Regional Manager, who will forward it to National Office to register the credits on your NZQA Record of Learning.

Unit 22203: Demonstrate knowledge of stone, brick and block requirements for use in hard landscape work.

(Name of Apprentice)

is Competent in Unit Standard 22203. (version 1)

Signed (Assessor):

WPA Registration Number: _____

Date: _____