Note – if you are not sure, to add a comment, click '**where**' on the document you are making the comment about, click on the '**Review**' tab, then click on the '**New Comment**' option.

Developer's Pack
National Occupational Standards

for

Steelfixing (Construction)

Project 2019

VR166, VR534, VR535, VR811

Development Legend
Initial proposed changes - Red
1st Meeting – Green
2nd Meeting – Blue
3rd Meeting – Red underlined
4th Meeting – Green underlined
5th Meeting – Blue underlined
Suggestions from other occupational representatives in red italics

October 2019

constructionskills

Contents

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Nb: All proposed 'generic template' changes from existing NOS highlighted in red. Some of these are related to the look/style of the NOS, as above; most are changes that most construction occupations have felt are appropriate to knowledge, understanding and skills. They may or may not be applicable to a particular NOS. Where I believe you may have a choice to make, I have made a 'comment', otherwise, I would anticipate that you would probably want to accept the proposed change.

Much of this standard will appear to be the same or similar to other standards, but it should be considered in the context of the particular standard. The core standards, covering construction generally, used to derive the core units of the VQ (NVQ/SVQ) relate to:
VR641 – Conform to general workplace health, safety and welfare
VR642 – Conform to productive practices
VR643 – Move, handle or store resources

Knowledge, understanding and skills specific to the standard I have highlighted in orange. You will need to consider in particular whether being able to meet the standard (in addition to the more general aspects) would currently demonstrates an effective worker, ie does it remain 'fit for purpose'. OR has the occupation changed, so that the standard needs changing?

COSVR166
Cut and bend reinforcement steel to shape

Overview

~~This standard is about~~

~~1 interpreting information~~

~~2 adopting safe and healthy working practices~~

~~3 selecting materials, components and equipment~~

~~4 preparing, cutting and bending reinforcement steel to standard shapes using recognised codes~~

This standard is about cutting and bending steel reinforcement to shape prior to fixing in-situ or prefabricating reinforcing steel sections; interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment

This standard is for people working in the occupational area of steelfixing and can be used by operatives, supervisors and managers

Performance criteria

You must be able to:

P1 interpret the given information relating to the work and resources to confirm its relevance

P2 comply with the given, relevant legislation and official guidance to carry out your work and maintain safe and healthy work practices

P3 select the required quantity and quality of resources for the methods of work

P4 comply with organisational procedures to minimise the risk of damage to the work and surrounding area

P5 comply with the given contract information to carry out the work efficiently to the required specification

P6 complete the work within the allocated time, in accordance with the programme of work

Knowledge and understanding

You need to know and understand:

Performance Criteria 1

Interpretation of information

K1 the organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources**, and how they are implemented

K2 the types of **information**, their source and how they are interpreted

K3 the organisational procedures to solve **problems** with the **information** and why it is important they are followed

You need to know and understand:

Performance Criteria 2

Safe work practices

K4 the level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

K5 ~~the types of fire extinguishers and how and when they are used~~

note: this has been added as a 'template' change to NOS for most occupations. Those supporting in the draft for VR811 (fixing reinforcement steel to complex designs) considered that this should not be added. As such, I have 'crossed through' this.

K6 how **emergencies** should be responded to and who should respond

K7 the organisational **security procedures** for tools, equipment and personal belongings

K8 what the accident reporting procedures are and who is responsible for making the report

K9 why, when and how **health and safety control equipment** should be used

K10 how to comply with environmentally responsible work practices to meet current **legislation and official guidance**

You need to know and understand:

Performance Criteria 3

Selection of resources

K11 the characteristics, quality, uses, sustainability, limitations and defects associated with the **resources** and how defects should be rectified

K12 how the **resources** should be used and how any **problems** associated with the **resources** are reported

K13 the organisational procedures to select **resources**, why they have been developed and how they are used

K14 the **hazards** associated with the **resources** and **methods of work** and how they are overcome

Performance Criteria 4

Minimise the risk of damage

You need to know and understand:

K15 how to **protect work** from damage and the purpose of protection

K16 why **disposal of waste** should be carried out safely and how it is achieved

Performance Criteria 5

Meet the contract specification

You need to know and understand:

K17 how **methods of work**, to meet the specification, are carried out and **problems** reported

K18 how **maintenance** of tools and equipment is carried out

Performance Criteria 6

Allocated time

You need to know and understand:

K19 what the **programme** is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

Additional Information

Scope/range related to performance criteria

Performance Criteria 1

1 interpretation of drawings, specifications, schedules, ~~bending schedules~~ *(as VR811)* method statements, risk assessments and manufacturers' information related to the work to be carried out

Performance Criteria 2

2 avoidance of risk by complying with the given information relating to the following

- 2.1 methods of work
- 2.2 safe use of health and safety control equipment
- 2.3 safe use, storage and handling of materials
- 2.4 safe use and storage of tools and equipment
- 2.5 specific risks to health

Performance Criteria 3

3 selection of resources associated with own work

- 3.1 materials, components and fixings
- 3.2 tools and equipment

Performance Criteria 4

4 protection of the work and its surrounding area from damage

5 maintain a clear and tidy work space ~~minimise damage and maintain a clean work space~~

6 disposal of waste in accordance with current legislation

Performance Criteria 5

7 demonstration of work skills to measure, mark out, cut and bend

8 use and maintain hand tools, portable power tools and ancillary equipment

9 cut and bend reinforcement steel to given working instructions to standard shapes using recognised codes by the use of at least one of the following

- 9.1 hand bending machines
- 9.2 power bending machines

Performance Criteria 6

10 completion of own work within the estimated, allocated time to meet the

needs of other occupations and/or client

Scope/range related to knowledge and understanding

Disposal of waste

1 environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance

Emergencies

2 operative's response to situations in accordance with organisational authorisation and personal skills when involved with

2.1 fires, spillages, injuries

2.2 emergencies relating to occupational activities

Fire extinguishers

3 ~~water, CO2, foam, powder and their uses~~ *note: this 'knowledge requirement' has been added as a 'template' change to NOS for most occupations. Those supporting in the draft for VR811 (fixing reinforcement steel to complex designs) considered that this should not be added. As such, I have 'crossed through' this.*

Hazards

4 those identified by risk assessment, method of work, manufacturers' technical information, statutory regulations and official guidance

Health and safety control equipment

5 identified by the principles of protection for occupational use, types and purpose of each type, work situations and general work environment

5.1 collective protective measures

5.2 personal protective equipment (PPE)

5.3 respiratory protective equipment (RPE)

5.4 local exhaust ventilation (LEV)

Information

6 drawings, specifications, site instructions, specifications, *(added in VR811)* schedules, ~~bending schedules~~ *(removed in VR811)* method statements, risk assessments, manufacturers' information, ~~oral/written information,~~ current regulations and ~~official~~ organisational guidance associated with cutting and bending steel reinforcement to shape

Legislation and official guidance

7 this relates to the operative's responsibilities regarding potential accidents

and health hazards and the environment whilst working in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and ~~/~~ storage of materials and by manual handling and mechanical lifting

Maintenance

8 operative care of hand tools~~, and/or~~ portable power tools and ancillary equipment

Methods of work

9 application of knowledge for safe and healthy work practices, procedures and skills relating to the method/area of work and materials used to:

9.1 extract details from steel fixing drawings (hardcopy, digital and ~~B~~building ~~I~~information ~~M~~odelling)

9.2 complete work to agreed quality criteria

9.3 identify grades of steel

~~9.4 work to given tolerance~~

9.5 measure, mark out, cut and bend reinforcement steel standard shapes using recognised codes

9.6 use hand bending machines and power bending machines

9.7 incorporate reinforcement coupler and continuity systems

9.8 provide information for Building Information Modelling (BIM)

9.9 recognise and determine when specialist skills and knowledge are required and report accordingly

~~9.10 determine specific requirements for structures of special interest, traditional build (pre 1919) and historical significance~~ *(as VR811, not considered relevant in steelfixing)*

9.11 ~~identify and follow the installation quality requirements~~ *(as VR811, covered by 9.2 and 9.5)*

9.12 work with, around and in close proximity to plant and machinery???

9.13 ~~direct and guide the operations and movement of plant and machinery~~ *(as VR811, steelfixer would not be expected to do this)*

9.14 use hand tools, portable power tools and equipment

9.15 work at height

9.16 use access equipment

10 team work and communication

11 needs of other occupations associated with cutting and bending steel

Problems

12 those arising from information, resources and methods of work

12.1 own authority to rectify

12.2 organisational reporting procedures

Programme

13 types of progress charts, timetables and estimated times

14 organisational procedures for reporting circumstances which will affect the work programme

Protect work

15 protect work against damage from general workplace activities, other occupations and adverse weather conditions

Resources

16 materials, components and equipment relating to types, quantity, quality, sizes and the sustainability of standard and/or specialist:

16.1 reinforcement steel

16.2 bending machines (hand or machine operated)

16.3 hand tools, ~~and/or~~ portable power tools and equipment

17 confirm resources and materials conform with the specification

18 methods of calculating quantity, length, area and wastage associated with the method/procedure to cut and bend reinforcement steel

Security procedures

19 site, workplace, company, and operative ~~and vehicles~~ *(as VR811, not standard for steelfixer)*

COSVR166
Cut and bend reinforcement steel to shape

Developed by	ConstructionSkills
Version number	~~3~~ 4
Date approved	~~January 2013~~
Indicative review date	~~January 2018~~
Validity	Current
Status	Original
Originating organisation	ConstructionSkills
Original URN	VR166
Relevant occupations	Construction and Building Trades
Suite	Steelfixing (Construction)
Key words	Hand-bending; Power-bending; Machine bending; Recognised-codes; Reinforcing-steel

COSVR534
Fix steel in-situ

Overview

~~This standard is about~~

~~1 interpreting information~~

~~2 adopting safe and healthy working practices~~

~~3 selecting materials, components and equipment~~

~~4 installing in situ, reinforcing steel or prefabricated reinforcing steel sections for concrete structures~~

This standard is about fixing in-situ reinforcement steel and prefabricated reinforcing steel sections for concrete structures; interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment

This standard is for people working in the occupational area of steelfixing and can be used by operatives, supervisors and managers

Performance criteria

You must be able to:

P1 interpret the given information relating to the work and resources to confirm its relevance

P2 comply with the given, relevant legislation and official guidance to carry out your work and maintain safe and healthy work practices

P3 select the required quantity and quality of resources for the methods of work

P4 comply with organisational procedures to minimise the risk of damage to the work and surrounding area

P5 comply with the given contract information to carry out the work efficiently to the required specification

P6 complete the work within the allocated time, in accordance with the programme of work

Knowledge and understanding

You need to know and understand:

Performance Criteria 1

Interpretation of information

K1 the organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources**, and how they are implemented

K2 the types of **information**, their source and how they are interpreted

K3 the organisational procedures to solve **problems** with the **information** and why it is important they are followed

You need to know and understand:

Performance Criteria 2

Safe work practices

K4 the level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

K5 ~~the types of fire extinguishers and how and when they are used~~
note: this has been added as a 'template' change to NOS for most occupations. Those supporting in the draft for VR811 (fixing reinforcement steel to complex designs) considered that this should not be added. As such, I have 'crossed through' this.

K6 how **emergencies** should be responded to and who should respond

K7 the organisational **security procedures** for tools, equipment and personal belongings

K8 what the accident reporting procedures are and who is responsible for making the report

K9 why, when and how **health and safety control equipment** should be used

K10 how to comply with environmentally responsible work practices to meet current **legislation and official guidance**

You need to know and understand:

Performance Criteria 3

Selection of resources

K11 the characteristics, quality, uses, sustainability, limitations and defects associated with the **resources** and how defects should be rectified

K12 how the **resources** should be used and how any **problems** associated with the **resources** are reported

K13 the organisational procedures to select **resources**, why they have been developed and how they are used

K14 the **hazards** associated with the **resources** and **methods of work** and how they are overcome

Performance Criteria 4

Minimise the risk of damage

You need to know and understand:

K15 how to **protect work** from damage and the purpose of protection

K16 why **disposal of waste** should be carried out safely and how it is achieved

Performance Criteria 5

Meet the contract specification

You need to know and understand:

K17 how **methods of work**, to meet the specification, are carried out and **problems** reported

K18 how **maintenance** of tools and equipment is carried out

Performance Criteria 6

Allocated time

You need to know and understand:

K19 what the **programme** is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

Additional Information

Scope/range related to performance criteria

Performance Criteria 1

1 interpretation of drawings, specifications, schedules, ~~bending schedules~~ *(as VR811)*, method statements, risk assessments and manufacturers' information related to the work to be carried out

Performance Criteria 2

2 avoidance of risk by complying with the given information relating to at least three of the following

2.1 methods of work

2.2 safe use of health and safety control equipment

2.3 safe use of access equipment

2.4 safe use, storage and handling of materials

2.5 safe use and storage of tools and equipment

2.6 specific risks to health

Performance Criteria 3

3 selection of resources associated with own work

3.1 materials, components and fixings

3.2 tools and equipment

Performance Criteria 4

4 protection of the work and its surrounding area from damage

5 maintain a clear and tidy work space ~~minimise damage and maintain a clean work space~~

6 disposal of waste in accordance with current legislation

Performance Criteria 5

7 demonstration of work skills to sort, measure, mark out, fit, position and secure

8 use and maintain hand tools, portable power tools and ancillary equipment

9 installation in situ, of reinforcement steel or prefabricated sections of reinforcement steel to given working instructions in order to form at least four of the following concrete structures

9.1 beams

9.2 bases

9.3 columns

9.4 slabs

9.5 staircases

9.6 walls

Performance Criteria 6

10 completion of own work within the estimated, allocated time to meet the needs of other occupations and/or client

Scope/range related to knowledge and understanding

Disposal of waste

1 environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance

Emergencies

2 operative's response to situations in accordance with organisational authorisation and personal skills when involved with

2.1 fires, spillages, injuries

2.2 emergencies relating to occupational activities

Fire extinguishers

3 ~~water, CO2, foam, powder and their uses~~ *note: this 'knowledge requirement' has been added as a 'template' change to NOS for most occupations. Those supporting in the draft for VR811 (fixing reinforcement steel to complex designs) considered that this should not be added. As such, I have 'crossed through' this.*

Hazards

4 those identified by risk assessment, method of work, manufacturers' technical information, statutory regulations and official guidance

Health and safety control equipment

5 identified by the principles of protection for occupational use, types and purpose of each type, work situations and general work environment

5.1 collective protective measures

5.2 local exhaust ventilation (LEV)

5.3 personal protective equipment (PPE)

5.4 respiratory protective equipment (RPE)

Information

6 drawings, specifications, site instructions, specifications, *(added in VR811)* schedules, ~~bending schedules~~ *(removed in VR811)* method statements, risk assessments, manufacturers' information, ~~oral/written information,~~ current regulations and ~~official~~ organisational guidance associated with fixing steel reinforcement in-situ

Legislation and official guidance

7 this relates to the operative's responsibilities regarding potential accidents

and health hazards and the environment whilst working in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and ~~/~~ storage of materials and by manual handling and mechanical lifting

Maintenance

8 operative care of hand tools, ~~and/or~~ portable power tools and ancillary equipment

Methods of work

9 application of knowledge for safe and healthy work practices, procedures and skills relating to the method~~/~~ and area of work and materials used to:

9.1 extract details from steel fixing drawings (hardcopy, digital and B~~b~~uilding I~~i~~nformation M~~m~~odelling)

9.2 complete work to agreed quality criteria

9.3 identify grades of steel

~~9.4 work to given tolerance~~

9.5 fix steel in situ for horizontal and vertical elements

9.6 relate shaped steel to bending schedules

9.7 identify sequence of fixing

9.8 identify integration and interface with embedded items

9.9 prepare mesh and steel bar for in situ installation

9.10 prepare prefabricated steel sections for in situ installation

9.11 install mesh, steel bar, spacers, cover block and ties in situ

9.12 position chairs, cover blocks and spacers

9.13 secure reinforcement steel in situ

9.14 secure prefabricated sections of reinforcement steel in situ

9.15 incorporate reinforcement coupler and continuity systems

9.16 move and position steel

9.17 sort, store and protect steel and fixings

9.18 provide information for Building Information Modelling (BIM)

9.19 recognise and determine when specialist skills and knowledge are required and report accordingly

9.20 ~~determine specific requirements for structures of special interest, traditional build (pre 1919) and historical significance~~ *(as VR811)*

9.21 ~~identify and follow the installation quality requirements~~ *(as VR811)*

9.22 work with, around and in close proximity to plant and machinery

9.23 ~~direct and guide the operations and movement of plant and machinery~~ *(as VR811)*

9.24 use hand tools, portable power tools and equipment

9.25 work at height

9.26 use access equipment

10 team work and communication

11 needs of other occupations associated with installing in-situ, reinforcement steel or prefabricated reinforcement steel sections

Problems

12 those arising from information, resources and methods of work

12.1 own authority to rectify

12.2 organisational reporting procedures

Programme

13 types of progress charts, timetables and estimated times

14 organisational procedures for reporting circumstances which will affect the work programme

Protect work

15 protect work against damage from general workplace activities, other occupations and adverse weather conditions

Resources

16 materials, components and equipment relating to types, quantity, quality sizes and the sustainability of standard and/or specialist:

16.1 pre-cut and bent components, reinforcement steel, tie wire and spacers

16.2 hand tools, ~~and/or~~ portable power tools and equipment

17 confirm resources and materials conform with the specification

18 methods of calculating quantity, length, area and wastage associated with the method/procedure to install reinforcement steel or prefabricated reinforcement steel in situ

Security procedures

19 site, workplace, company, and operative ~~and vehicles~~ *(as VR811)*

COSVR534
Fix steel in-situ

Developed by	ConstructionSkills
Version number	~~2~~ 3
Date approved	~~January 2013~~
Indicative review date	~~January 2018~~
Validity	Current
Status	Original
Originating organisation	ConstructionSkills
Original URN	VR534
Relevant occupations	Construction and Building Trades
Suite	Steelfixing (Construction)
Key words	Steelwork; Prefabricated; Reinforcing; Reinforcement; Concrete-structures; Beams; Bases; Columns; Slabs; Staircases; Walls

COSVR535
Prefabricate reinforcement steel sections

Overview

~~This standard is about~~

~~1 interpreting information~~

~~2 adopting safe and healthy working practices~~

~~3 selecting materials, components and equipment~~

~~4 prefabricating reinforcing steel for concrete structures~~

~~5 bracing and preparing prefabricated sections of reinforcement steel for lifting and movement to installation~~

This standard is about prefabricating reinforcement steel sections for concrete structures, bracing and preparing prefabricated sections of reinforcement steel for lifting and movement to installation, interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment

This standard is for people working in the occupational area of steelfixing and can be used by operatives, supervisors and managers

Performance criteria

You must be able to:

P1 interpret the given information relating to the work and resources to confirm its relevance

P2 comply with the given, relevant legislation and official guidance to carry out your work and maintain safe and healthy work practices

P3 select the required quantity and quality of resources for the methods of work

P4 comply with organisational procedures to minimise the risk of damage to the work and surrounding area

P5 comply with the given contract information to carry out the work efficiently to the required specification

P6 complete the work within the allocated time, in accordance with the programme of work

Knowledge and understanding

Performance Criteria 1

Interpretation of information

You need to know and understand:

K1 the organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources**, and how they are implemented

K2 the types of **information**, their source and how they are interpreted

K3 the organisational procedures to solve **problems** with the **information** and why it is important they are followed

Performance Criteria 2

Safe work practices

You need to know and understand:

K4 the level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

K5 ~~the types of **fire extinguishers** and how and when they are used~~ *(as VR811)*

K6 how **emergencies** should be responded to and who should respond

K7 the organisational **security procedures** for tools, equipment and personal belongings

K8 what the accident reporting procedures are and who is responsible for making the report

K9 why, when and how **health and safety control equipment** should be used

K10 how to comply with environmentally responsible work practices to meet current **legislation and official guidance**

Performance Criteria 3

Selection of resources

You need to know and understand:

K11 the characteristics, quality, uses, sustainability, limitations and defects associated with the **resources** and how defects should be rectified

K12 how the **resources** should be used and how any **problems** associated with the **resources** are reported

K13 the organisational procedures to select **resources**, why they have been developed and how they are used

K14 the **hazards** associated with the **resources** and **methods of work** and how they are overcome

Performance Criteria 4

Minimise the risk of damage

You need to know and understand:

K15 how to **protect work** from damage and the purpose of protection

K16 why **disposal of waste** should be carried out safely and how it is achieved

Performance Criteria 5

Meet the contract specification

You need to know and understand:

K17 how **methods of work**, to meet the specification, are carried out and **problems** reported

K18 how **maintenance** of tools and equipment is carried out

Performance Criteria 6

Allocated time

You need to know and understand:

K19 what the **programme** is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

Additional Information

Scope/range related to performance criteria

Performance Criteria 1

1 interpretation of drawings, specifications, schedules, ~~bending schedules~~ *(as VR811)* method statements, risk assessments and manufacturers' information related to the work to be carried out

Performance Criteria 2

2 avoidance of risk by complying with the given information relating to at least five of the following

- 2.1 methods of work
- 2.2 safe use of health and safety control equipment
- 2.3 safe use of access equipment
- 2.4 safe use, storage and handling of materials
- 2.5 safe use and storage of tools and equipment
- 2.6 specific risks to health

Performance Criteria 3

3 selection of resources associated with own work

- 3.1 materials, components and fixings
- 3.2 tools and equipment

Performance Criteria 4

4 protection of the work and its surrounding area from damage

5 ~~minimise damage and maintain a clean work space~~ maintain a clear and tidy work space

6 disposal of waste in accordance with current legislation

Performance Criteria 5

7 demonstration of work skills to measure, mark out, fit, position, brace and secure

8 use and maintain hand tools, portable power tools and ancillary equipment

9 prefabricate reinforcement steel sections to given working instructions

- 9.1 bases
- 9.2 columns
- 9.3 beams
- 9.4 slabs

9.5 walls

10 incorporate at least two of the following into prefabricated steel sections

10.1 temporary construction bars

10.2 bracing

10.3 lifting points

Performance Criteria 6

11 completion of own work within the estimated, allocated time to meet the needs of other occupations and/or client

Scope/range related to knowledge and understanding

Disposal of waste

1 environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance

Emergencies

2 operative's response to situations in accordance with organisational authorisation and personal skills when involved with

2.1 fires, spillages, injuries

2.2 emergencies relating to occupational activities

Fire extinguishers ????

~~3 water, CO2, foam, powder and their uses~~ *(as VR811)*

Hazards

4 those identified by risk assessment, method of work, manufacturers' technical information, statutory regulations and official guidance

Health and safety control equipment

5 identified by the principles of protection for occupational use, types and purpose of each type, work situations and general work environment

5.1 collective protective measures

5.2 personal protective equipment (PPE)

5.3 respiratory protective equipment (RPE)

5.4 local exhaust ventilation (LEV)

Information

6 drawings, specifications, site instructions, specifications, *(added in VR811)* schedules, ~~bending schedules (~~*removed in VR811)* method statements, risk assessments, manufacturers' information, ~~oral/written information,~~ current regulations and ~~official~~ organisational guidance associated with prefabricating reinforcement steel sections

Legislation and official guidance

7 this relates to the operative's responsibilities regarding potential accidents and health hazards and the environment whilst working in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement~~/~~ and storage of

materials ~~and~~ by manual handling and mechanical lifting

Maintenance

8 operative care of hand tools and/or portable power tools and ancillary equipment

Methods of work

9 application of knowledge for safe and healthy work practices, procedures and skills relating to the method/area of work and materials used to:

- 9.1 prefabricate reinforcement from pre-cut and bent components to form sections for bases, columns, beams, slabs and walls
- 9.2 extract details from steel fixing and temporary works drawings (hardcopy, digital and building information modelling)
- 9.3 complete work to agreed quality criteria
- 9.4 identify grades of steel
- ~~9.5 work to given tolerance~~
- 9.6 follow construction sequence including temporary works design
- 9.7 fix prefabricated reinforcement steel sections for horizontal and vertical elements
- 9.8 form associated wire ties
- 9.9 identify other fixings, clamps, U bolts
- 9.10 fix, secure and remove temporary construction bars
- 9.11 fix and secure bracing for section movement
- 9.12 fix and secure lifting points for section movement
- 9.13 incorporate embedment's into prefabricated steel sections
- 9.14 incorporate reinforcement coupler and continuity systems
- 9.15 move and position steel
- 9.16 sort, store and protect steel and fixings
- 9.17 provide information for Building Information Modelling (BIM)
- 9.18 recognise and determine when specialist skills and knowledge are required and report accordingly
- 9.19 ~~determine specific requirements for structures of special interest, traditional build (pre 1919) and historical significance~~ *(as VR811)*
- 9.20 ~~identify and follow the installation quality requirements~~ *(incl above)*
- 9.21 work with, around and in close proximity to plant and machinery
- 9.22 ~~direct and guide the operations and movement of plant and machinery~~ *(as VR811)*
- 9.23 use hand tools, portable power tools and equipment
- 9.24 work at height

9.25 use access equipment

10 team work and communication

11 needs of other occupations associated with prefabrication of reinforcement steel sections

Problems

12 those arising from information, resources and methods of work

12.1 own authority to rectify

12.2 organisational reporting procedures

Programme

13 types of progress charts, timetables and estimated times

14 organisational procedures for reporting circumstances which will affect the work programme

Protect work

15 protect work against damage from general workplace activities, other occupations and adverse weather conditions

Resources

16 materials, components and equipment relating to types, quantity, quality, sizes and the sustainability of standard and/or specialist:

16.1 pre-cut and bent components, reinforcement steel, tie wire and spacers

16.2 hand tools, ~~and/or~~ portable power tools and equipment

17 confirm resources and materials conform with the specification

18 methods of calculating quantity, length, area and wastage associated with the method/procedure to prefabricate reinforcement steel sections

Security procedures

19 site, workplace, company, and operative ~~and vehicles~~ *(as VR811)*

COSVR535
Prefabricate reinforcement steel sections

Developed by	ConstructionSkills
Version number	~~2~~ 3
Date approved	~~January 2013~~
Indicative review date	~~January 2018~~
Validity	Current
Status	Original
Originating organisation	ConstructionSkills
Original URN	VR534
Relevant occupations	Construction and Building Trades
Suite	(Steelfixing Construction)
Key words	Steelwork; Reinforcing; Concrete-structures; Beams; Bases; Columns; Slabs; Walls; Temporary construction bars; Bracing; Lifting points

COSVR811
Fixing reinforcement steel in-situ to complex designs

Overview

This standard is about fixing reinforcement steel in-situ to complex designs, which would include densely populated structures (less than 100mm centres, less than 100mm spacing and a minimum of 4 layers of reinforcement steel), circular, elliptical or conical structures, stairs and cast-in embedments; bracing and preparing complex prefabricated sections for lifting into place for fixing in-situ; interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment

This standard is for people working in the occupational area of steelfixing and can be used by lead operatives, supervisors and managers

Performance criteria

You must be able to:

P1 interpret the given information relating to the work and resources to confirm its relevance

P2 comply with the given, relevant legislation and official guidance to carry out your work and maintain safe and healthy work practices

P3 select the required quantity and quality of resources for the methods of work

P4 comply with organisational procedures to minimise the risk of damage to the work and surrounding area

P5 comply with the given contract information to carry out the work efficiently to the required specification

P6 complete the work within the allocated time, in accordance with the programme of work

Knowledge and understanding

Performance Criteria 1

Interpretation of information

You need to know and understand:

K1 the organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources**, and how they are implemented

K2 the types of **information**, their source and how they are interpreted

K3 the organisational procedures to solve **problems** with the **information** and why it is important they are followed

Performance Criteria 2

Safe work practices

You need to know and understand:

K4 the level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

K5 how **emergencies** should be responded to and who should respond

K6 the organisational **security procedures** for tools, equipment and personal belongings

K7 what the accident reporting procedures are and who is responsible for making the report

K8 why, when and how **health and safety control equipment** should be used

K9 how to comply with environmentally responsible work practices to meet current **legislation and official guidance**

Performance Criteria 3

Selection of resources

You need to know and understand:

K10 the characteristics, quality, uses, sustainability, limitations and defects associated with the **resources** and how defects should be rectified

K11 how the **resources** should be used and how any **problems** associated with the **resources** are reported

K12 the organisational procedures to select **resources**, why they have been developed and how they are used

K13 the **hazards** associated with the **resources** and **methods of work** and how they are overcome

Performance Criteria 4

Minimise the risk of damage

You need to know and understand:

K14 how to **protect work** from damage and the purpose of protection

K15 why **disposal of waste** should be carried out safely and how it is achieved

Performance Criteria 5

Meet the contract specification

You need to know and understand:

K16 how **methods of work**, to meet the specification, are carried out and **problems** reported

K17 how **maintenance** of tools and equipment is carried out

Performance Criteria 6

Allocated time

You need to know and understand:

K18 what the **programme** is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

Additional Information

Scope/range related to performance criteria

Performance Criteria 1

1 interpretation of complex drawings, specifications, schedules, method statements, risk assessments and manufacturers' information related to the work to be carried out

Performance Criteria 2

2 avoidance of risk by complying with the given information relating to the following

- 2.1 methods of work
- 2.2 safe use of health and safety control equipment
- 2.3 safe use of access equipment
- 2.4 safe use, storage and handling of materials, tools and equipment
- 2.5 specific risks to health

Performance Criteria 3

3 selection of resources associated with own work

- 3.1 materials, components and fixings
- 3.2 tools and equipment

Performance Criteria 4

4 protection of the work and its surrounding area from damage

5 maintain a clear and tidy work space

6 disposal of waste in accordance with current legislation

Performance Criteria 5

7 demonstration of work skills to coordinate, prepare, sort, measure, mark out, fit, fix, embed, position and secure

8 use and maintain hand tools, portable power tools and ancillary equipment

9 coordination and installation of in situ reinforcement steel to complex designs, to given working instructions, for the following

- 9.1 slabs, bases, beams or walls with a high density (less than 100mm centres, less than 100mm spacing and more than 4 layers) of reinforcement steel
- 9.2 slabs, bases, beams or walls with a circular, elliptical or conical shape
- 9.3 stairs utilising multi layered reinforcement steel (excluding mesh),

including risers and landing

9.4 cast-in embedments

10 installation of steel reinforcement to given working instructions utilising the following

10.1 slash tie

10.2 hairpin tie

10.3 crown tie

10.4 splice tie

10.5 ring tie

11 installation of steel reinforcement utilising reinforcement couplers

12 coordination and incorporation of the following into complex prefabricated steel sections

12.1 temporary construction bars

12.2 bracing

12.3 lifting points

Performance Criteria 6

13 completion of own and teams work within the estimated, allocated time to meet the needs of other occupations and/or client

Scope/range related to knowledge and understanding

Disposal of waste

1 environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance

Emergencies

2 operative's response to situations in accordance with organisational authorisation and personal skills when involved with
- 2.1 fires, spillages, injuries
- 2.2 emergencies relating to occupational activities

Hazards

3 those identified by risk assessment, methods of work, manufacturers' technical information, statutory regulations and official guidance

Health and safety control equipment

4 identified by the principles of prevention for occupational use, types and purpose of each type, work situations and general work environment
- 4.1 collective protective measures
- 4.2 local exhaust ventilation (LEV)
- 4.3 personal protective equipment (PPE)
- 4.4 respiratory protective equipment (RPE)

Information

5 complex drawings including accessing drawings from Building Information Modelling (BIM) systems, site instructions, specifications, schedules, method statements, risk assessments, manufacturers' information, current regulations and organisational guidance associated with fixing reinforcement steel in situ to complex designs

Legislation and official guidance

6 this relates to the operative's responsibilities regarding potential accidents, health hazards and the environment whilst working in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and storage of materials by manual handling and mechanical lifting

Maintenance

7 operative care of hand tools, portable power tools and ancillary equipment

Methods of work

8 application of knowledge for safe and healthy work practices, procedures and skills relating to the method and area of work and materials used to

- 8.1 coordinate and lead on fixing reinforcement steel in-situ to complex designs
- 8.2 extract details from steel fixing drawings (hardcopy, digital and Building Information Modelling) and conveying the information to others
- 8.3 identify, communicate and follow the installation quality requirements
- 8.4 plan and sequence steel fixing and embedment works
- 8.5 prepare steel bar and resources for in situ installation
- 8.6 fix steel in situ to complex designs:
  - 8.6.1. slabs, bases, beams or walls with a high density (less than 100mm centres, less than 100mm spacing and more than 4 layers) of reinforcement steel
  - 8.6.2. slabs, bases, beams or walls with a circular, elliptical and conical shape
  - 8.6.3. stairs utilising multi layered reinforcement steel (excluding mesh), including risers with a turn, return or curved and landing
- 8.7 integrate and interface steel reinforcement with embedment items
- 8.8 determine appropriate bracing for complex reinforcement steel sections, fix and secure for section movement:
  - 8.8.1. temporary bars
  - 8.8.2. permanent support bars or riders
  - 8.8.3. lifting support bars or rakers
- 8.9 determine appropriate lifting points for complex reinforcement steel sections, fix and secure for section movement
- 8.10 position and secure prefabricated steel sections for in situ installation
- 8.11 provide information for Building Information Modelling (BIM)
- 8.12 incorporate reinforcement coupler and continuity systems
- 8.13 recognise and determine when specialist skills and knowledge are required and report accordingly

8.14 work with, around and in close proximity to plant and machinery
8.15 use hand tools, portable power tools and equipment
8.16 work at height
8.17 use access equipment

9 team coordination, team work and communication

10 needs of other occupations associated with in situ reinforcement steel and prefabricated reinforcement steel sections

Problems

11 those arising from information, resources and methods of work
11.1 own authority to rectify
11.2 organisational reporting procedures

Programme

12 types of progress charts, timetables and estimated times

13 organisational procedures for reporting circumstances which will affect the work programme

Protect work

14 protect work against damage from general workplace activities, other occupations and adverse weather conditions

Resources

15 materials, components and equipment relating to types, quantity, quality, sizes and the sustainability of standard and/or specialist
15.1 reinforcement steel including pre-cut and pre-bent
15.2 tie wire, spacers, embedments, fittings and fixings
15.3 hand tools, portable power tools and equipment

16 confirm resources and materials conform with the specification

17 methods of calculating quantity, length, area and wastage associated with the method and procedure to fix reinforcement steel in situ to complex designs

Security procedures

18 site, workplace, company and operative

COSVR811
Fixing reinforcement steel in-situ to complex designs

Developed by	ConstructionSkills
Version number	1
Date approved	???
Indicative review date	2024
Validity	Current
Status	Original
Originating organisation	ConstructionSkills
Original URN	VR811
Relevant occupations	Construction and Building Trades
Suite	Steelfixing (Construction)
Key words	Steel reinforcement; Prefabricated steel reinforcement; Steel Reinforcing; Concrete-structures; Beams; Bases; Columns; Slabs; Staircases; Walls; Embedments; Couplers; Bracing