**Fire Damper and Smoke Control Damper systems**

**NOS Development Consultation**

BSE Skills Ltd, in partnership with BESA, has been contracted to research and develop a suite of technical National Occupational Standards (NOS) for those whose role includes working on **Fire Dampers and Smoke Control Dampers** across the UK.

Draft NOS have been developed (see below) by a team of UK industry experts (employers, trade associations, unions and other key UK stakeholders) to capture the relevant TECHNICAL COMPETENCES.

|  |  |
| --- | --- |
| **Ref** | **Title** |
| BSEFSD01 | Develop, test and agree building services engineering project designs |
| BSEFSD02 | Install and test Fire Dampers and Smoke Control Dampers  |
| BSEFSD03 | Inspect and test Fire Dampers and Smoke Control Dampers  |
| BSEFSD04 | Commission Fire Dampers and Smoke Control Dampers  |
| BSEFSD05 | Identify and rectify faults in Fire Dampers and Smoke Control Dampers  |
| BSEFSD06 | Maintain Fire Dampers and Smoke Control Dampers |

Taking part in this important consultation is quick and easy – just follow these three simple steps:

* **STEP 1**: Read through the Draft NOS (see Appendix 1)
* **STEP 2:** Complete the Consultation Framework(on page 2)by telling us:
	+ Section 1: a little bit about yourself and your organisation (just the basics)
	+ Section 2: whether the NOS are fit for purpose (FFP) or could be improved (CBI) and what that improvement should be
	+ Section 3: anything further which is not accommodated elsewhere
* **STEP 3:** Return the completed Consultation Framework in Microsoft Word to**alan.mcdonald7@ntlworld.com**by **noon on Friday 18 November**

**Section 1: About You**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Position (job title)** | **Organisation** | **Location (HQ in UK)** | **No. of (direct) employees** | **Email** |
|  |  |  |  |  |  |

**Section 2: Your feedback on the NOS (mark X in FFP or CBI column)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NOS Ref.** | **NOS Title** | **FFP** | **CBI** | **Suggested Improvement** |
| **Performance Criteria** | **Knowledge/Understanding** | **Scope** |
| BSEFSD01 | Develop, test and agree building services engineering project designs |  |  |  |  |  |
| BSEFSD02 | Install and test Fire Dampers and Smoke Control Dampers  |  |  |  |  |  |
| BSEFSD03 | Inspect and test Fire Dampers and Smoke Control Dampers  |  |  |  |  |  |
| BSEFSD04 | Commission Fire Dampers and Smoke Control Dampers  |  |  |  |  |  |
| BSEFSD05 | Identify and rectify faults in Fire Dampers and Smoke Control Dampers  |  |  |  |  |  |
| BSEFSD06 | Maintain Fire Dampers and Smoke Control Dampers |  |  |  |  |  |

**Section 3: Additional Feedback/Detail**

|  |  |  |
| --- | --- | --- |
| **Q** | **Question** | **Response** |
| 1 | What should be added to the list of NOS? |  |
| 2 | What should be removed for the list of NOS? |  |
| 3 | Should we combine any of the NOS into a single NOS? |  |
| 4 | Other comments/feedback? |  |

Many thanks for participating in this project. Your personal data will be destroyed at the end of the project.

**Appendix 1: FIRE DAMPER AND SMOKE CONTROL DAMPER NOS**

|  |  |  |
| --- | --- | --- |
| **Ref** | **NOS** | **Page** |
| BSEFSD01 | Develop, test and agree building services engineering project designs | 4 |
| BSEFSD02 | Install and test Fire Dampers and Smoke Control Dampers  | 10 |
| BSEFSD03 | Inspect and test Fire Dampers and Smoke Control Dampers  | 15 |
| BSEFSD04 | Commission Fire Dampers and Smoke Control Dampers  | 20 |
| BSEFSD05 | Identify and rectify faults in Fire Dampers and Smoke Control Dampers  | 25 |
| BSEFSD06 | Maintain Fire Dampers and Smoke Control Dampers | 31 |

**BSEFSD01: Develop, test and agree project designs for Fire Damper and Smoke Control Damper Systems**

**Overview**

This standard is for those who manage the development, testing and agreement of project design solutions for Fire Dampers and Smoke Control Dampers systems.

The individual undertaking the work must be able obtain and analyse information on project options and project design parameters and identify opportunities and constraints. They will be able to identify and select resources which will balance cost and quality and consider how they will influence the design solutions.

They will calculate, analyse and test the different designs to identify the most appropriate solution. They must be able to present the recommended building services engineering design to justify the choice in line with the project brief. They must also discuss the choice of design and agree any changes with the client and record these changes. They will also be able to interpret how the overall design concept can be met and advise all relevant others on the implications and constraints of accepting, modifying or rejecting design proposals.

**Performance Criteria - You must be able to:**

1. access current and relevant information about the project requirements and resources
2. allocate research tasks, as appropriate, to relevant others and self
3. analyse all research finding and develop detailed proposals including risk assessments
4. select, for further development by the project team, those design concepts which meet the requirements of the design brief and also resolve a number of opportunities and constraints on development
5. communicate the detailed design options to relevant others
6. identify, with relevant others, the most appropriate solutions in terms of the project requirements and resources
7. select tests which will give relevant information about how the design options match the parameters of the project brief
8. refine design options which meet the opportunities and constraints of the project requirements and resources and test them until their ability to meet the design parameters is established
9. reject any design options which fail to meet the design parameters and identify possible alternatives
10. present recommendations, proposals and design options and show how they are justified by the requirements of the project requirements and resources
11. assess and justify the features and benefits of the recommended design solution, including any environmental technologies selected for use
12. explain how the overall design concept can meet the opportunities and constraints in the project brief, the aesthetic requirements of the client and the project requirements and resources
13. inform relevant others of the implications and constraints of accepting, modifying or rejecting design proposals
14. agree and incorporate all final recommendations and requirements into the detailed design solution
15. confirm with relevant others what the recommended design solution will cost and how long it will take to implement
16. agree the detailed design solution with relevant others
17. complete and safely store all relevant documentation in accordance with organisational requirements
18. deal promptly and effectively with any problems within the scope and limitations of your own competence, responsibilities and accountability and report those which cannot be solved

**Knowledge & Understanding - You need to know and understand:**

1. the current legislation, guidelines, policies, procedures and protocols which are relevant to your working practice and to which you must adhere
2. the scope and limitations of your own competence, responsibilities and accountability as it applies to your job role
3. how to access and interpret all relevant work instructions and information
4. specific procedures for reporting issues which are beyond your competence, responsibilities and accountability
5. the fire strategy, compartmentation requirements and fire penetration seal requirements relevant to the damper
6. information, options and design parameters which are relevant to the development of a project brief
7. how to identify those parts of a project which require detailed design
8. the factors, criteria and procedures which influence design and work activities, including resource availability
9. The types of documentation and methods to present research and design evaluation data and conclusions to relevant others
10. The design parameters, concepts and approaches and how to assess them against a project brief considering relevant factors, criteria and procedures
11. The resource implications of the different design options
12. The opportunities for and constraints on the use of environmental technologies
13. The different methods for communication around design
14. The implications of modifying a project brief
15. The types of design approaches that are likely to contribute to design ideas
16. How to sources information and ideas, where existing design options do not meet a project brief
17. how to develop design options
18. how to identify and use relevant design software packages
19. the types of tests which give relevant information about the design options
20. the different methods to refine and test design options
21. how to identify and reject design options which fail to meet the design parameters
22. the different techniques to record test results
23. the different methods to use to present recommendations, proposals, design options and associated information
24. the features and benefits of design solutions, including any environmental technologies
25. how recommendations, proposals and design options can be justified by the requirements of a project brief
26. what evidence may be valid to support changes to agreed criteria
27. the types of approaches to prompt relevant others to ask questions and make comments during a presentation
28. how to agree and record any amendments and variations from an original project brief
29. the different methods to inform relevant others about:
* how well design concept proposals match criteria in a project brief
* a designer’s creative interpretation of a project brief and overall design concept
* implications and constraints of accepting, modifying or rejecting design proposals
* how much more advice, research and consultancy will be necessary to produce a detailed design which is acceptable
1. the costs involved in a detailed design solution
2. the organisational procedures for:
* communicating the use, safety and control of the system to relevant others
* confirming with relevant others those necessary variations to the planned programme of work that may have the potential to introduce a hazard and/or impact on the installation work to be undertaken
* confirming with relevant others the correct actions to be taken to confirm that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation work be undertaken
* obtaining customer/client acceptance of the installed system and its associated equipment, accessories and components post work activity and how to deal with cases where acceptance is not received
* the safe transport and/or disposal of any waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions and legislation
1. how to complete and safely store all relevant documentation in accordance with organisational requirements

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Information**

* client information (provided by the client including the invitation to tender, any
* contractual drawings and specifications)
* functional (user instructions, including the circumstances when professional expertise should be called upon)
* health and safety
* instructions (verbal, written)
* planning and pre-planning
* quotations
* statutory consents
* technical (design documentation, software, plans, installation specifications, equipment specifications, manufacturers' data, manufacturer’s instructions, tender documents, surveys, BIM data, physical models)

**Factors**

* environmental
* physical
* requirements (e.g. client and user needs, regulatory, legal, timescales, BIM protocols, contractual, cost, management of hazards and risks)
* technical

**Criteria**

* access
* delivery (e.g. installation processes, schedule, resource availability, quality control, initial cost, performance)
* design and in use performance (e.g. aesthetics, structural forms, component life, whole life cost)
* environmental
* fire protection
* heritage protection

**Procedures**

* communication with relevant others
* estimating
* implementing and monitoring requirements related to listed buildings or conservation areas
* information management
* project management
* risk assessment and management

**Documentation**

* graphical
* non graphical

**Test(s)**

* comparative
* computer modelling
* physical
* simulation
* statistical

**Present**

* data
* electronically
* verbally
* visually
* written reports

**Systems**

* fire dampers
* smoke control dampers

**Relevant others**

* building control
* client representatives
* clients
* colleagues
* consultants
* contractors and subcontractors
* customers/clients
* design team/fire engineer
* employees
* financers
* investors
* local people who may be affected by the work
* members of the public
* occupiers/users
* other contractors/trades
* regulatory authorities
* site/contract manager
* supervisors
* work colleagues

**Client**

* architect
* consultant(s)
* contract manager
* main/sub-contractor
* other trades and services at the work site
* purchaser of installation and/or maintenance services or their representative

**BSEFSD02: Install and test Fire Dampers and Smoke Control Dampers**

**Overview**

# This standard is for those who install Fire Damper And Smoke Control Dampers into ductwork systems.

# The person performing this work must be able to comply with the correct procedures and practices for installing and testing Fire Damper And Smoke Control Dampers. This work must be in accordance with the current versions of the appropriate industry standards and regulations; the specification; industry recognised working practices; the working environment and the natural environment. They must know and understand the methods, procedures and techniques for fitting, fixing and connecting components and accessories and the pipework requirements of the fire protection systems.

**Performance Criteria - You must be able to:**

1. verify that the job information and documentation are current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
2. confirm that the site services are compatible with the system design
3. produce a risk assessment and method statement in accordance with organisational procedures for the work to be carried out, including the identification and use of personal protective equipment
4. confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present
5. select the equipment, components and accessories to be installed ensuring they are:
* of the right type and size
* fit-for-purpose
* in accordance with the system design
* suitable for the working environment in which they are to be installed
1. determine at the outset, that the plans for positioning and fixing equipment, components and accessories are in accordance with:
* the system design
* the working environment
* manufacturer instructions
1. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades
2. measure and mark out locations for fitting and fixing the selected equipment, components and accessories in accordance with:
* the system design
* manufacturer instructions
1. prepare, fit, fix and connect the Fire Damper And Smoke Control Damper equipment, components and accessories using suitable jointing methods in accordance with:
* the system design
* the working environment
* manufacturer instructions
1. adjust, as appropriate, safety and control features of the system
2. confirm the integrity of the installed system using appropriate testing
3. confirm with the relevant others:
* those necessary variations to the planned programme of work
* the correct actions to be taken to ensure that any variations to the planned programme of work will minimise the potential for hazard and risk
1. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
2. comply with organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Knowledge and Understanding - You need to know and understand:**

1. the operation, applications, advantages and limitations of different Fire Damper and Smoke Control Damper systems
2. the applications, advantages and limitations of system equipment, components and accessories in relation to the working environment
3. the appropriate industry standards and regulations relevant to installing and testing the systems
4. the fire strategy, compartmentation requirements and fire penetration seal requirements relevant to the damper
5. how to verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
6. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with:
* the system design
* the conditions of the working environment
* organisational procedures
* activities of other personnel on site
1. the methods for determining the type and size of equipment, components and accessories for the system
2. how to interpret diagrams and drawings of the system to:
* locate site services
* identify the planned location of the system equipment, components and accessories
1. the organisational procedures for confirming, before work starts, that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and for taking appropriate action if a risk is present
2. the methods, techniques and jointing methods for fitting, fixing and connecting the selected equipment, components and accessories in accordance with:
* the system design
* the working environment
* manufacturer instructions
* when required, appropriate welding techniques
1. the appropriate testing procedures for confirming the system’s integrity
2. the methods and techniques for adjusting safety and control features
3. the organisational procedures for confirming with the relevant others the appropriate actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum negative impact on the installation work to be undertaken
4. how to implement organisational procedures for the safe transport and/or disposal of any waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
5. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working Environment (Internal and/or External)**

* Domestic
* Non-domestic
	+ Agricultural
	+ Commercial
	+ Horticultural
	+ Industrial
	+ Leisure and entertainment
	+ Marine and offshore
	+ Pre-1919 traditional/historic buildings
	+ Public services establishments
	+ Residential medical and care facilities

**Site services**

* Electricity
* Gas
* Oil
* Water

**Systems**

* Fire dampers
* Smoke control dampers

**Equipment, components and accessories**

* Access equipment
* Consumables
* Generators
* Hand tools
* Lifting equipment
* Power tools
* Supports and fixings
* Transformers for low voltage hand-tools

**Organisational Procedures**

* Accident reporting
* Communication with relevant others
* Customer service
* Emergencies
* Implementing and monitoring health & safety requirements and issues
* Implementing and monitoring issues relating to the natural environment
* Information management
* Project management
* Risk assessment management

**Site**

* Existing building or structure
* New build construction – building or structure

**Inspection and testing**

* Visual inspection
	+ Cleanliness
	+ Seal arrangement
	+ Accessibility
* System functionality
* Damper functionality

**Fixings**

* Breakaway joints
* Compression
* Flanges
* Grooved
* Threaded
* Fire stopping products

**Relevant others**

* building control
* client representatives
* customers/clients
* design team/fire engineer
* members of the public
* other contractors/trades
* site/contract manager
* supervisors
* work colleagues

**BSEFSD03: Inspect and test Fire Dampers and Smoke Control Dampers**

**Overview**

This standard is for those who inspect and test Fire Damper and Smoke Control Dampers.

The person carrying out this work must be able to comply with the processes and procedures for initial and periodic inspection and testing of the Fire Damper and Smoke Control Damper system in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must know, understand and apply the correct methods and procedures for the inspection and testing of Fire Damper and Smoke Control Damper systems and equipment, including the:

* identification and use of the correct instruments
* completion of the relevant documentation
* recording of relevant data and information.

**Performance Criteria - You must be able to:**

1. confirm a programme of work with relevant others in accordance with organisational procedures
2. determine and obtain the resources required, as relevant, to undertake:
* initial inspection and testing
* periodic inspection and testing
1. select the instruments to be used for carrying out the relevant tests
2. confirm that the instruments are fit for purpose and have a current calibration certificate
3. conduct a visual inspection on the fixtures, fittings and ductwork to confirm they are correctly located and secured correctly
4. conduct a visual inspection on the Fire Damper and Smoke Control Damper electrical cable, conductor and wiring systems to confirm they are correctly located, secured and labelled
5. conduct a visual inspection on the Fire Damper and Smoke Control Damper equipment, accessories and components to confirm they are correctly located, secured and labelled
6. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by the inspection and testing process
7. identify the correct means of electrical isolation prior to commencing the inspection and/or testing process
8. complete safe isolation as and when required to ensure the safe inspection and testing of the Fire Damper and Smoke Control Damper system
9. perform the tests, in the correct sequence, on the Fire Damper and Smoke Control Damper system
10. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
11. comply with organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Knowledge and Understanding - You need to know and understand:**

1. the operation, applications, advantages and limitations of different Fire Damper and Smoke Control Damper systems
2. the organisational procedures to confirm a programme of work with the relevant others
3. how to determine and obtain the resources required, as relevant, to undertake:
* initial inspection and testing
* periodic inspection and testing
1. how to select the instruments to be used for carrying out tests
2. how to confirm that the test instruments are fit for purpose and have a current calibration certificate
3. the fire strategy, compartmentation requirements and fire penetration seal requirements relevant to the damper
4. the methods and procedures for conducting a visual inspection on the fixtures, fittings and to confirm they are correctly located and secured
5. the methods and procedures for conducting a visual inspection on the Fire Damper and Smoke Control Damper electrical cable, conductor and wiring systems to confirm they are correctly located, secured and labelled
6. the methods and procedures for conducting a visual inspection on Fire Damper and Smoke Control Damper equipment, accessories and components to confirm they are correctly located, secured and labelled
7. the industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by the inspection and testing process
8. the correct procedures for safe isolation
9. the methods and processes to perform the tests, in the correct sequence, on the Fire Damper and Smoke Control Damper system
10. how to implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
11. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working Environment (Internal and/or External)**

* Domestic
* Non-domestic
	+ Agricultural
	+ Commercial
	+ Horticultural
	+ Industrial
	+ Leisure and entertainment
	+ Marine and offshore
	+ Pre-1919 traditional/historic buildings
	+ Public services establishments
	+ Residential medical and care facilities

**Site services**

* Electricity
* Gas
* Oil
* Water

**Systems**

* Fire dampers
* Smoke control dampers

**Equipment, components and accessories**

* Access equipment
* Consumables
* Generators
* Hand tools
* Lifting equipment
* Power tools
* Supports and fixings
* Transformers for low voltage hand-tools

**Organisational Procedures**

* Accident reporting
* Communication with relevant others
* Customer service
* Emergencies
* Implementing and monitoring health & safety requirements and issues
* Implementing and monitoring issues relating to the natural environment
* Information management
* Project management
* Risk assessment management

 **Site**

* Existing building or structure
* New build construction – building or structure

**Inspection and testing**

* Visual inspection
	+ Cleanliness
	+ Seal arrangement
	+ Accessibility
* System functionality
* Damper functionality

**Relevant others**

* Building control
* Client representatives
* Customers/clients
* Design team/Fire Engineer
* Members of the public
* Other contractors/trades
* Site/contract manager
* Supervisors
* Work colleagues

**BSEFSD04: Commission Fire Dampers and Smoke Control Dampers**

**Overview**

This standard is for those who commission Fire Damper and Smoke Control Damper systems and equipment.

The person carrying out this work must be able to comply with the processes and procedures for the commissioning and handing over of a Fire Damper and Smoke Control Damper system and equipment in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must know, understand and apply the correct methods and procedures for the commissioning and handing over the Fire Damper and Smoke Control Damper system and equipment including the:

* identification and use of the correct instruments
* completion of the relevant documentation
* recording of relevant data and information
* identification and consideration of the customer’s need for Fire Damper and Smoke Control Damper systems and equipment configuration
* planning of the resources required to carry out the commissioning process

**Performance Criteria - You must be able to:**

1. identify the customer/client’s requirements
2. plan the commissioning process
3. determine and obtain the resources required to undertake the process
4. ensure methods and organisational procedures are implemented correctly
5. verify that the customer/client’s requirements are met
6. resolve any problems identified
7. specify methods and organisational procedures which conform with customer/client requirements
8. confirm that conditions are suitable for commissioning to take place
9. complete the commissioning process
10. record and assess information in accordance with organisational procedures
11. ensure that the results are recorded in the appropriate information systems and passed to relevant others
12. ensure that the Fire Damper and Smoke Control Damper system and equipment are ready for hand over to the customer/client
13. identify and explain any variations
14. obtain customer/client acceptance of the Fire Damper and Smoke Control Damper system and equipment in accordance with organisational procedures
15. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
16. comply with organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Knowledge and understanding - You need to know and understand:**

1. the operation, applications, advantages and limitations of different Fire Damper and Smoke Control Damper systems
2. the requirements for the commissioning process
3. the resources required to undertake the commissioning process
4. methods, organisational procedures and systems to:
* record and assess information
* ensure that the results are recorded in the appropriate
* information systems and passed to relevant others
1. the correct methods and organisational procedures for implementing the commissioning process
2. the fire strategy, compartmentation requirements and fire penetration seal requirements relevant to the damper
3. conditions that are suitable to implementation
4. how to resolve any problems identified
5. how to ensure that the Fire Damper and Smoke Control Damper system and equipment are ready for hand over to the customer/client
6. methods for providing clear and accurate information to relevant others
7. how to implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
8. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working Environment (Internal and/or External)**

* Domestic
* Non-domestic
	+ Agricultural
	+ Commercial
	+ Horticultural
	+ Industrial
	+ Leisure and entertainment
	+ Marine and offshore
	+ Pre-1919 traditional/historic buildings
	+ Public services establishments
	+ Residential medical and care facilities

**Site services**

* Electricity
* Gas
* Oil
* Water

**Systems**

* Fire dampers
* Smoke control dampers

**Equipment, components and accessories**

* Access equipment
* Consumables
* Generators
* Hand tools
* Lifting equipment
* Power tools
* Supports and fixings
* Transformers for low voltage hand-tools

**Organisational Procedures**

* Accident reporting
* Communication with relevant others
* Customer service
* Emergencies
* Implementing and monitoring health & safety requirements and issues
* Implementing and monitoring issues relating to the natural environment
* Information management
* Project management
* Risk assessment management

 **Site**

* Existing building or structure
* New build construction – building or structure

**Resources**

* instruments
* labour
* materials and other consumables
* plant and equipment

**Information**

* contractual
* customer/client information – drawings; diagrams; user instructions; specifications
* environmental considerations
* functional – operational instructions
* health and safety
* statutory consents
* technical – design documentation; plans; installation specifications; equipment specifications; manufacturers’ data; manufacturers’ instructions; BIM data

**The commissioning process**

* tests and testing
* trials
* configuration
* hand-over

**Documentation**

* handover agreements
* manufacturers’ instructions
* operational instructions

**Relevant others**

* building control
* client representatives
* customers/clients
* design team/fire engineer
* members of the public
* other contractors/trades
* site/contract manager
* supervisors
* work colleagues

**BSEFSD05: Identify and rectify faults in Fire Dampers and Smoke Control Dampers**

**Overview**

This standard is for those who identify and rectify faults in Fire Damper and Smoke Control Damper systems and equipment

The person carrying out this work must be able to carry out the processes and procedures for the identification and rectification of faults in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must understand and apply the correct methods and procedures when identifying and rectifying faults in electrical systems and equipment, including:

* the identification and use of the correct instruments
* how to identify and locate faults
* how to rectify the faults that are identified, located and diagnosed
* the completion of the relevant documentation
* the recording of relevant data and information.

**Performance Criteria - You must be able to:**

1. obtain clear and detailed information about the reported fault(s) and any components which need to be replaced from relevant sources of information and documentation
2. advise relevant others clearly and accurately about the potential disruption and consequences of carrying out the processes and procedures for the identification and rectification of faults
3. confirm a programme of work with the relevant others in accordance with organisational procedures
4. determine and obtain the resources required, as relevant, to undertake:
* the identification and location of the fault(s)
* the rectification of the fault(s)
1. select the instruments to be used
2. confirm that the instruments are fit for purpose and have a current calibration certificate
3. identify the correct means of electrical isolation prior to commencing the fault identification and rectification process
4. complete safe-isolation as and when required to ensure the safe fault identification and rectification in Fire Damper and Smoke Control Dampers
5. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by:
* the identification and location of the fault(s)
* the rectification of the fault(s)
1. identify, locate, diagnose and rectify faults
2. repair, remove and replace in accordance with industry recognised methods and procedures, as appropriate:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. inspect and test, as appropriate and in accordance with industry recognised methods and practices the repaired and/or replaced:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. confirm rectification, or otherwise, of the fault
2. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
3. comply with organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified
1. provide clear and accurate information to relevant others about the Fire Damper and Smoke Control Damper system and equipment in terms of:
* operational status
* hand over to the customer/client
* any variations to the original system and/or its equipment
* customer/client acceptance of the completed work in accordance with organisational procedures
* relevant documentation being completed and recorded in the appropriate information systems in accordance with organisational procedures

**Knowledge and understanding - You need to know and understand:**

1. the operation, applications, advantages and limitations of different Fire Damper and Smoke Control Damper systems
2. how to obtain clear and detailed information about the reported fault(s) and any components which need to be replaced from sources of information and documentation
3. the organisational procedures and industry practices when carrying out the processes for the identification and rectification of faults for:
* advising relevant others about the potential disruption and consequences
* confirming a programme of work with relevant others
* ensuring the coordination of site services and the activities of other trades affected
1. how to determine and obtain the resources required, as relevant, to undertake:
* the identification and location of the fault(s)
* the rectification of the fault(s)
1. how to select the instruments to be used
2. how to confirm that the instruments are fit for purpose and have a current calibration certificate
3. the fire strategy, compartmentation requirements and fire penetration seal requirements relevant to the damper
4. the correct procedures for safe isolation
5. the techniques to identify, locate, diagnose and rectify faults
6. how to repair, remove and replace in accordance with industry practices:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. how to ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. the methods and processes to inspect and test, as appropriate and in accordance with industry practices, the repaired and/or replaced:
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring system
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. how to implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
2. the organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified
1. how to provide clear and accurate information to relevant others about the Fire Damper and Smoke Control Damper system and equipment in terms of:
* operational status
* hand over to the customer/client
* any variations to the original system and/or its equipment
* customer/client acceptance of the completed work in accordance with organisational procedures
* relevant documentation being completed and recorded in the appropriate information systems in accordance with organisational procedures

**Scope - the contexts and circumstances below identify where and when the NOS could apply:**

**Working Environment (Internal and/or External)**

* Domestic
* Non-domestic
	+ Agricultural
	+ Commercial
	+ Horticultural
	+ Industrial
	+ Leisure and entertainment
	+ Marine and offshore
	+ Pre-1919 traditional/historic buildings
	+ Public services establishments
	+ Residential medical and care facilities

**Site services**

* Electricity
* Gas
* Oil
* Water

**Systems**

* Fire dampers
* Smoke control dampers

**Equipment, components and accessories**

* Access equipment
* Consumables
* Generators
* Hand tools
* Lifting equipment
* Power tools
* Supports and fixings
* Transformers for low voltage hand-tools

**Organisational Procedures**

* Accident reporting
* Communication with relevant others
* Customer service
* Emergencies
* Implementing and monitoring health & safety requirements and issues
* Implementing and monitoring issues relating to the natural environment
* Information management
* Project management
* Risk assessment management

 **Site**

* Existing building or structure
* New build construction – building or structure

**Inspection and testing**

* Visual inspection
	+ Cleanliness
	+ Seal arrangement
	+ Accessibility
* System functionality
* Damper functionality

**Relevant others**

* building control
* client representatives
* customers/clients
* design team/fire engineer
* members of the public
* other contractors/trades
* site/contract manager
* supervisors
* work colleagues

**BSEFSD06: Maintain Fire Dampers and Smoke Control Dampers**

**Overview**

This standard is for those who maintain Fire Damper and Smoke Control Damper systems and equipment.

The person carrying out this work must be able to carry out maintenance activities in accordance with proceduresandthe current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment.

They must understand and apply the correct methods and procedures for the maintenance of Fire Damper and Smoke Control Damper systems and equipment, including:

* routine and non-routine maintenance
* the identification and use of the correct instruments
* how to identify and locate faults
* how to rectify the faults that are identified, located and diagnosed
* the completion of the relevant documentation
* the recording of relevant data and information.

**Performance Criteria - You must be able to:**

1. obtain clear and detailed information about the Fire Damper and Smoke Control Damper system and equipment to be maintained from relevant sources of information and documentation
2. confirm a programme of work with relevant others in accordance with organisational procedures
3. advise relevant others clearly and accurately about the potential disruption and consequences of carrying out the maintenance activity
4. determine and obtain the resources required, as relevant, to undertake the maintenance activity
5. select the instruments to be used
6. confirm that the instruments are fit for purpose and have a current calibration certificate
7. identify the correct means of electrical isolation prior to commencing the maintenance activity
8. complete safe isolation as and when required to ensure the safe maintenance of electrical cables, conductors and/or wiring system and the associated equipment, accessories and components
9. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by the maintenance activity
10. carry out maintenance activity
11. repair, remove, replace and/or maintain in accordance with industry practices:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. ensure, if the maintenance activity cannot be completed immediately, the safety of the relevant:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. complete the specified maintenance activity in accordance with industry recognised methods and practices
2. inspect and test, as appropriate and in accordance with industry recognised methods and practices the repaired, replaced and/or maintained:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers’ and manufacturers’ instructions
2. comply with organisational procedures for:
* completion of the relevant documentation
* the recording of relevant data and information
* informing relevant others
* addressing issues and problems identified
1. provide clear and accurate information to relevant others about the Fire Damper and Smoke Control Damper system and equipment in terms of:
* hand over to the customer/client
* any variations to the original system and/or its equipment
* customer/client acceptance of the completed work in accordance with organisational procedures
* relevant documentation being completed and recorded in the appropriate information systems in accordance with organisational procedures

**Knowledge and understanding - You need to know and understand:**

1. the operation, applications, advantages and limitations of different Fire Damper and Smoke Control Damper systems
2. how to obtain clear and detailed information about the reported fault(s) and any components which need to be replaced from sources of information and documentation
3. how to obtain clear and detailed information about the reported fault(s) and any components which need to be replaced from sources of information and documentation
4. the organisational procedures and industry practices when carrying out the maintenance activity for:
5. advising relevant others about the potential disruption and consequences
6. confirming a programme of work with relevant others
7. ensuring the coordination of site services and the activities of other trades affected
8. how to determine and obtain the resources required to undertake the maintenance activity
9. how to select the instruments to be used
10. how to confirm that the instruments are fit for purpose and have a current calibration certificate
11. the correct procedures for safe isolation
12. the techniques for the maintenance of Fire Damper and Smoke Control Damper systems and equipment including how to identify, locate, diagnose and rectify faults
13. how to repair, remove, replace and maintain, in accordance with industry practices:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. how to ensure, if the maintenance activity cannot be completed immediately, the safety of the relevant:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. the methods and processes to inspect and test, as appropriate and in accordance with industry practices the repaired, replaced and/or maintained:
* Fire Damper and Smoke Control Damper fixtures, fittings and ductwork
* Fire Damper and Smoke Control Damper electrical cables, conductors and/or wiring systems
* Fire Damper and Smoke Control Damper equipment, accessories and components
1. how to provide clear and accurate information to relevant others about the Fire Damper and Smoke Control Damper system and equipment in terms of:
* hand over to the customer/client
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**Site services**

* Electricity
* Gas
* Oil
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**Systems**

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**Equipment, components and accessories**

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**Organisational Procedures**

* Accident reporting
* Communication with relevant others
* Customer service
* Emergencies
* Implementing and monitoring health & safety requirements and issues
* Implementing and monitoring issues relating to the natural environment
* Information management
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* Risk assessment management

 **Site**

* Existing building or structure
* New build construction – building or structure

**Inspection and testing**

* Visual inspection
	+ Cleanliness
	+ Seal arrangement
	+ Accessibility
* System functionality
* Damper functionality

**Relevant others**

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* work colleagues