

What's New December 2016

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A full record of the content revisions can be obtained within the report that is produced when you run the update routine on your user specifications.

Detailed PDF guidance documents can be found by clicking on the 'Sustainability' or 'Technical Design Guides' icons in the 'Guidance' toolbar.

Unless stated otherwise, section or clause guidance is accessed via the right-hand window.

Content Specific to BSRIA BG 56 Based Specifications

Section 1	Summary
Introduction	<ul style="list-style-type: none"> • NES can now produce specifications following BSRIA's model specification format (BG 56) which was produced in consultation with BESA and CIBSE to meet the needs of "the user" of specifications. It comprises five parts: <ul style="list-style-type: none"> ◦ PART A - Preliminaries ◦ PART B - Project specific scope of works for the whole building/project. ◦ PART C - Project specific materials, equipment and processes (including schedules) ◦ PART D - Workmanship / materials (possibly applicable to multiple projects) ◦ PART E - Tender deliverables
NES Master Specifications	<ul style="list-style-type: none"> • The latest update of NES consists of two master specifications <ul style="list-style-type: none"> ◦ The first is arranged by CAWS (Common Arrangement of Work Sections) ◦ The second is arranged following the principles in BG 56. With the exception of the BG 56 specific PART B sections detailed below and in section 2 of this What's New document, the clauses in this master specification are the same clauses as those contained in the CAWS master and retain the same NES Part 1, Z Part 2, Part 3 or Y reference clause number. ◦ In both specification formats a BS appendix can be included at the end of each section of the specification. <p>Refer to separate CAWS – BG 56 NES Master Content Reference Document for details of CAWS and corresponding BG 56 section references.</p>
BG 56 Specific Sections	<ul style="list-style-type: none"> • The following sections have been developed specifically for PART B: <ul style="list-style-type: none"> ◦ B1 - Introduction, project team and programme ◦ B2 - Services generally, energy and other strategies, drawings and Contractor design requirements ◦ B3 - Surveys and investigations ◦ B4 - Strip out, removal and demolition ◦ B5 - Builders Work ◦ B6 - Design criteria and standards ◦ B7 - Testing, commissioning, handover and aftercare ◦ B8* - Detailed services systems descriptions and requirements, control strategies and operating regimes <p style="text-align: right;"><i>(*This section is equivalent to Part 1 clauses in a CAWS specification)</i></p>

Content Specific to BSRIA BG 56 Based Specifications

Section 2 Details of New Content

PART B (BG 56 Format) Project Specific Scope of Works

B1 - Introduction, Project Team and Programme

- Predominantly user written clauses covering: General description of the project, building type and use, building flexibility and future proofing together with details of the site, the project team and project programme.

B2 - Services Generally, Energy and Other Strategies, Drawings and Contractor Design Requirements

- Predominantly user written clauses covering: details of all tender design and other drawings such as record drawings, the tender stage design status to RIBA Plan of Work 2013, any services related strategies or reports together with any design works required to be undertaken by the installation contractor or any specialist sub-contractors or equipment manufacturers.

B3 - Surveys and Investigations

- Clauses for specifying underground services work (100.xxx series). These are based on clauses in CAWS Work Section C12 and reference PAS 128 (specification for underground utility detection, verification and location).
- Clause for specifying other building services survey works (200.100). This is based on CAWS clauses in Work Section C14.

B4 - Strip out, Removal and Demolition

- Predominantly clauses for users to write, with some headings provided, for specifying:
 - Removal and disposal of services
 - Strip out works, demolition
 - Removal for materials for re-use and disconnection of existing mains services
- The clauses are based on CAWS clauses in work sections C10, C20, C21 and C90.

B5 – Builders Work

- Three clauses 010.100, 010.110 and 010.120 where the following can be detailed:
 - General scope of builders work
 - Demarcation of responsibilities for each item / type of builders work on the project, covering: trenches, fixing of plant and equipment, supports / anchors, bases for plant and equipment, cutting / forming holes and chases, sealing of holes, sleeves for services, fire stopping and maintenance access facilities
- Clauses for detailing trenches, pipe ways and pits for engineering services which have been taken from CAWS clauses in Work Section P30.

B6 – Design Criteria and Standards

- Predominantly clauses for the user to expand and provide details of:
 - General building services design criteria
 - External and internal comfort conditions for control and plant selections, plant operation and ventilation rates / filtration grades
 - External and internal noise criteria
 - Maintained illuminance levels
 - System operating pressures and cleanliness classes
 - Cold and hot water storage
 - Rainfall intensity for the design of rainwater drainage
 - Power density for small power design and cooling load calculation
 - Fire detection classification / type of systems and any sprinkler protection requirements.
 - Energy metering requirements for the whole building
 - Type / detail of any environmental assessment scheme that would be applied to the project

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Section 2 Details of New Content

B7 - Testing, Commissioning, Handover and Aftercare

- This section is intended to be an overview of the commissioning requirements of the whole project and should be used in conjunction with clauses in the PART A Preliminaries and the detailed sections in PART C and D to which it cross refers:
 - Sections C1.10.20 / D1.10.20 (CAWS Ref' Y51) and sections C2.8.10 / D2.8.10 (CAWS Ref' Y81) give details for standards, tolerance for test results and requirements for static testing, performance testing, and commissioning of mechanical and electrical systems.
- B7 contains clauses that can be used for providing details of the following:
 - Commissioning management plan / management specialist
 - Details of the commissioning team and demarcation of responsibilities
 - Environmental assessment scheme (e.g. BREEAM) details associated with commissioning
 - A summary of the scope of the commissioning works and commissioning specification
 - Details of any off site factory testing
 - Details of any required mock-up testing
 - Mechanical and electrical systems performance, capacity and environmental testing
 - Commissioning allowances / margins used in the design and scheduled plant duties
 - Any requirements for whole building integrated testing and "Black Building" testing
 - Handover, fine tuning during initial occupation, aftercare and requirements for seasonal commissioning
 - Soft landings requirements, either GSL for BIM Level 2 or BSRIA soft landings framework
 - Any required building performance studies against benchmarks

B8 - Detailed Services Systems Descriptions and Requirements, Control Strategies and Operating Regimes

- This section is where a detailed description of all building services systems on the project is contained. This should include the design philosophy, operating regime and control strategy for each system.
- This section is equivalent to Part 1 clauses for each work section in a CAWS specification but all brought together in one section.

Content Common to CAWS and BG 56 Based Specifications

Section 1	Summary
Detailed Technical Guidance	<p>New or enhanced existing guidance:</p> <ul style="list-style-type: none"> • BIM level 2 in A10 and A64 • Compressed air reference BS ISO 8573-1 in S30 and S31 • Thermal stores / buffer vessels in T20 • Chilled ceilings in new work section U62 • Access control in W40 reference The National Security Inspectorate Code of Practice <p style="text-align: right;"><i>See Section 2 for details</i></p>
Work Section Updates	<p>Key points:</p> <ul style="list-style-type: none"> • New Work Sections N30 Packaged Plant Rooms added • New Work Section N31 added for off-site pre-fabricated plant / modules • New Work Section U62 for chilled ceilings added - previously part of U61 • Clause updates in A10 and A64 for soft landings and BIM level 2 • Clause updates / new clauses in A30 for tendering / BIM requirements • Existing updated and new clauses in A13 to enable common design criteria to be better defined for the complete project • Various sections updated to refer to appropriate EU Ecodesign legislation for energy related products • Clauses for calorifiers and heat exchangers updated / rationalised in Y22 and Y23 • Compressed air sections S30 and S31 generally updated • Part 3 clauses added to T20 and T61 for primary heat / cooling distribution central plant (heat exchangers, thermal stores) and distribution pipelines • All Z Part 2 sections "General" clauses updated to correctly reference Y.1000 series Y ref' clauses • Clauses for circuit breakers in Y71 / Z Part 2 amended and schedule added for LV circuit breakers • HV Section V11 reviewed and updated in line with industry standards and schedules added for dry type and liquid cooled transformers <p style="text-align: right;"><i>See Section 2 and Section 3 for details of schedules</i></p>
Standards and Regulations Updates (only significant standards listed here)	<p>Some significant documents covered by the update include:</p> <ul style="list-style-type: none"> • Government Soft Landings / BSRIA Soft Landings Framework • EU Regulations for various products that implement EU Directive 2009/125/EC <p>Some significant standards covered by the update include:</p> <ul style="list-style-type: none"> • BS 1192:2007+A2, BS 1192-4, PAS 1192-3, PAS 1192-5 and other BIM related codes / standards • BS ISO 8573-1 reference compressed air contaminants and purity classes • PD IEC/TS 61936-2 and various parts of PD CLC/TS 50568, BS EN 62271, BS EN 61850, BS EN 62056 and BS EN 62769 reference High Voltage control, monitoring and integration <p style="text-align: right;"><i>See Section 4 for details of all changes to British Standards and ref documents</i></p>

Content Common to CAWS and BG 56 Based Specifications

Section 2

Details of Work Section Updates & Audits

Soft Landings – A10 and A64

- Clauses A10:110.000 and A64:100.010 "THE PROJECT" enhanced to enable:
 - Either Government Soft Landings for BIM level 2 or BSRIA Soft Landings Framework details to be detailed
 - The environmental assessment scheme (if any) applicable to the project
- Clause A10:140.000 enhanced to allow the following project team members to be defined:
 - Client Representative
 - Client Appointed Commissioning Management Specialist
 - Soft Landings Champion (Government Soft Landings)
 - Soft Landings Champion (BSRIA Soft Landings Framework)
 - BREEAM or other environmental assessor
 - Principal Designer
 - M&E Designer
- Clauses 100.052, 054, 055, 056, 058, 085 and 086 added to A64 for additional project team members.

BIM requirements – A10 and A64

- The title of clauses A10:110.000 and A64:100.010 have been expanded to include "BIM REQUIREMENTS"
- Content added to clauses A10-110.000 and A164 100.010 to enable BIM requirements on the project / relevant standards applicable to be defined. A reference to the project EIR (Employer's Information Requirements) document can also be included in these clauses.
- Guidance note added to clauses A10:110.000 and A64:100.010 with details of BIM level 2, link to www.bim-level2.org and explanatory notes for the BIM codes and standards.

Tendering / Sub-Contract Pricing – A30

- The following clauses have been removed from this work section which reference SMM7, quantities, pricing of sub-contract preliminaries and bills of quantities as they are all out-of-date:
 - 210.000, 220.000, 240.000, 250.000, 260.000, 270.000, 280.000
- Clause 120.000 updated – out-of-date codes removed and the following added:
 - NBS Guide to Tendering: for construction projects 2011
 - JCT Tendering Practice Note 2012
- Clause 290.000 now titled "Pricing of Subcontract Specification and Drawings".
- Clause 331.000 on schedule of rates amended – by adding "based on rates used to build up the tender".
- Minor amendments / clause title changes where noted to the following clauses:
 - 360.000 – Programme
 - 370.000 – Tender stage method statements (example list of works requiring method statements added)
 - 400.000 – Selection of manufacturers/suppliers (reference to BS EN ISO 9001 added)
 - 410.000 – Clause title changed and clause text changed / supplemented
 - 420.000 – Clause title changed to "Technical Information to Support the Tender" and lines added to enable users to add detail of what information should be submitted, by discipline
 - 430.000 – Clause title changed to "Quality Control Method Statement and Resources" and minor amends to text
 - 440.000 – Two additional lines added for options on detail of the location of the Pre-construction information (PCI) in accordance with CDM Reg's 2015
 - 460.000 – Clause title changed to "During the Defects Liability Period" and clause text changed / supplemented to reference BESA SFG 20 and two additional lines added to clause
- The following new clauses have been added:
 - 295.000 Tender Pricing Documents

Content Common to CAWS and BG 56 Based Specifications

Section 2 Details of Work Section Updates & Audits

- 362.000 Organisation Line Diagram
- 364.000 Schedule of Key Personnel
- 366.000 Operating Procedure Statements
- 600.000 Building Information Model (for user to add detail)
- 610.000 BIM Employers Information Requirements (EIR) (for user to add detail)
- 620.000 BIM Execution Plan (for user to add detail reference PAS 1192-2)

Description of the Works and Common Design Criteria – A13

- “Common Design Criteria” added to title of A13 – Description of the works.
- New schedule of common design criteria linked from clauses 210.000, 220.000, 230.000 230.200, 240.300.
- Title of 220.000 changed to “External Environmental Design Conditions” and content significantly enhanced to cover conditions for plant selection as well as room load calculations.
- Clause 220.100 added for external noise criteria.
- Title of 230.000 changed to “Internal Environmental Design / Comfort Conditions” and content added (previously contained no content).
- Clause 230.100 added for internal noise criteria.
- Clause 230.200 added for ventilation design criteria covering fresh air rates for occupants, limiting air velocities and category of thermal environment.
- Clause 240.100 added for power density of small power for electrical capacity and cooling loads.
- Clause 240.200 added for internal lighting to enable illuminance levels, and daylighting requirements to be specified.
- Clause 240.300 added to enable fire detection category and type of system required in the building to be specified.

Contractors / Sub-contractors Cost Items – A40 – A44

- The reference to SMM7 has been removed
- Clauses 120.000 - 160.000 added to correspond with A40, A41, A42, A43, and A44 in CAWS and the list in BSRIA BG56 Appendix D (A4.1 – A4.5).

Packaged Plantrooms – N30

- New work section added where a specification for the plant room frame / envelope / service requirements can be written covering:
 - Construction / thermal insulation
 - Acoustic criteria
 - Ventilation requirements
 - Frost protection requirements
 - Drainage requirements
 - General electrical / lighting requirements
 - Interface requirements with building BMS / fire alarms
 - Demarcation of responsibilities for design, manufacture, installation and testing
 - Manufacturers of plant / equipment required in the plant room – specified elsewhere in the specification
 - Transportation / protection requirements
 - Off-site and on-site inspection and testing
- The section also includes clauses where reference can be made to which CAWS or BG 56 sections are to be read in conjunction with this for details, duties and standards applicable to equipment, materials and engineering systems within the packaged plantrooms.

Content Common to CAWS and BG 56 Based Specifications

Section 2 Details of Work Section Updates & Audits

Off-Site Pre-Fabricated Plant and Service Modules – N31

- New work section added where a specification for plant assemblies / skids, external pipework distribution modules or multi-service modules for ceiling voids, floor voids or risers can be written covering:
 - Construction
 - Acoustic criteria
 - General electrical / lighting requirements
 - Interface requirements with building BMS / fire alarms
 - Demarcation of responsibilities for design, manufacture, installation and testing
 - Manufacturers of plant / equipment required on the skid or modules specified elsewhere in the specification
 - Transportation / protection requirements
 - Off-site and on-site inspection and testing
- The section also includes clauses where reference can be made to which CAWS or BG 56 sections are to be read in conjunction with this section for details, duties and standards applicable to equipment, materials and engineering systems within the packaged plantrooms.

EU Ecodesign Legislation for Energy Related Products

- Reference has been added to existing clauses in the following sections to the appropriate EU Regulations for the following products that implement EU Directive 2009/125/EC:
 - Y40 – Air handling units (fans) and associated Z Part 2 clauses
 - Y41 – Fans and associated Z Part 2 clauses
 - B20 – Boilers up to 400kW, fans and small packaged ventilation units with heat recovery
 - S11 – Water heaters up to 400kW and hot water storage tanks up to 2000l
 - S12 – Boilers up to 400kW, water heaters up to 400kW & hot water storage tanks up to 2000l
 - T10 – Boilers up to 400kW
 - T14 – Heat pumps
 - T32 – Boilers up to 400kW, electric motors
 - T60 – Electric motors
 - T69 – Electric motors
 - U19 – Fans, electric motors
 - U39 – Fans, electric motors
 - T41 – Fans, electric motors
 - U60 – AC units up to 12 kW
 - T70 – AC units up to 12 kW
 - Y20 – Circulators and centrifugal pumps and associated Z Part 2 clauses
 - Y92 – Electric motors and associated Z Part 2 clauses
 - Y73 – Lamps and associated Z Part 2 clauses
- New clauses:
 - Y40.1020, U19:200.005, U39:200.005, T41:200.005 on fan selection and efficiency
 - T32:200.006, U19:200.005, U39:200.005, T41:200.006 on electric motors
 - Y73.1000 lamps to comply with regulations
- Future NES updates will include reference to other EU regulations implementing the energy related products directives that have been published but are currently not enforced. These include:
 - Local space heating units
 - Solid fuel local space heating units
 - Solid fuel boilers

Content Common to CAWS and BG 56 Based Specifications

Section 2 Details of Work Section Updates & Audits

Calorifiers and Heat Exchangers – Z Part 2 Clauses and Y22 / Y23 Reference Clauses

- Clauses 222.020 and Y22.2010#, 2010A and 2010B for calorifiers removed from Y22 / Z Part 2:222.xxx series of clauses
- 2060 series of clauses for calorifiers in Y23 / enhanced so that Y22 only has heat exchangers associated with heating systems (LTHW or MTHW) and calorifiers are only referred to in Y23 associated with hot water systems.

Compressed Air and Instrument Air – S30 / S31

- New clause 300.005 added to S30 and S31 to permit the purity classes in accordance with BS ISO 8573-1 to be specified, that correspond to solid particles size, water vapour pressure and oil contamination.
- Clause guidance for 300.005 includes table of limiting size of solid particles, water and oil contamination (taken from BS ISO 8573-1).
- Acoustic tests to BS EN ISO 3746 added to S30:300.040.
- General update of clauses for compressors, driers, filters and packaged units in S30 and S31 including standards, refrigerants types of compressor.
- References to relevant parts of BS ISO 12500 added to air filter clauses in S30 and S31, and non-relevant standard removed.
- Reference to BS ISO 7183 added to air drier clauses in S30 and S31
- Clauses S30:310.065 and S31:310.055 added for water separators with reference to BS ISO 12500-4 in S30 and S31.
- New clause 320.005 for safety of installation added to S31.

Primary Heat Distribution – T20

- Text removed from Part 1 clauses 100.030 and 100.040
- Part 3 added to the work section to enable the section to be used to specify primary heat exchangers, thermal stores / buffer vessels and the pre-insulated underground pipelines instead of using Z Part 2 clauses. Clause details as below:
 - 300.001 – Pressure equipment directive clause
 - 300.010 – Design clause, where users can detail extent of design to be undertaken by the equipment manufacturers and installation contractor
 - 300.015 – Installation roles and responsibilities, including the “Pre-Insulated Underground Pipeline Manufacturer” and “Installation Specialist”
 - 310.010 – Plate heat exchangers
 - 310.020 – Thermal stores / buffers vessels including link to new schedule and guidance on use of rules of thumb for sizing this plant with reference made to CIBSE AM15 for biomass boiler applications
 - 310.030 – Pre-insulated underground pipelines
 - 310.040 – Workmanship for underground / buried pipework
- Section guidance edited and enhanced.

Primary / Secondary Cooling Distribution – T61

- Text removed from Part 1 clauses 100.010, 100.030 and 100.040.
- Part 3 added to the work section to enable the section to be used to specify primary cooling heat exchangers, thermal stores / buffer vessels and the pre-insulated underground pipelines instead of using Z Part 2 clauses. Clause details as below:
 - 300.001 – Pressure equipment directive clause
 - 300.010 – Design clause, where user can detail extent of design to be undertaken by the equipment manufacturers and installation contractor
 - 300.015 – Installation roles and responsibilities, including the “Pre-Insulated Underground Pipeline Manufacturer” and “Installation Specialist”

Content Common to CAWS and BG 56 Based Specifications

Section 2 Details of Work Section Updates & Audits

- 310.010 – Plate heat exchangers
- 310.020 – Thermal stores / buffers vessels
- 310.030 – Pre-insulated underground pipelines
- 310.040 – Workmanship for underground / buried pipework
- Section guidance edited and enhanced.

Chilled Beams and Chilled Ceilings – U61 / U62

- Work Section U61 updated to cover chilled beams only, content on chilled ceilings moved to new work Section U62 for chilled ceilings.
- New clause added to U61:300.032 Hybrid Passive Radiant / Convective Chilled Beams.
- Minor enhancements to other U61 clauses and schedules to allow quantities of beam to be included in clauses.
- Clause 300.030 title changed to include “Convective” (Passive Chilled Beams).
- Additional types added to 300.040 Active Chilled Beams.
- U61 section guidance updated – chilled ceiling content moved to U62.
- New Work Section U62 created which can be used for projects which have chilled ceiling panels only and projects where chilled beams are used in conjunction with chilled ceiling panels to offset higher perimeter zone cooling loads. Content includes clauses for the following:
 - Design conditions applicable, chilled ceiling panels, convective perimeter passive chilled beams, hybrid passive radiant / convective perimeter beams, and chilled rafts/sails, technical submission documentation and installation
 - Links to schedules for chilled ceiling panels and perimeter beams
 - Section guidance included

All Z Part 2 Sections “GENERAL” Clauses and all 1000 Series of Y Ref’ Clauses

- The list of clauses below has been modified to reference each individual Y clause in the “1000 series” rather than just YXX.1000:
 - 210.010, 211.010, 220.010, 221.010, 222.010, 223.010, 224.010, 225.010, 230.010, 240.010, 242.010, 244.010, 245.010, 246.010, 250.010, 251.010, 252.010, 254.010, 260.010, 261.010, 262.010, 263.010, 271.010, 272.010, 273.010, 274.010, 280.010, 281.010, 282.010, 290.010, 291.010
- YXX.1000 clauses that were just a heading and contained no content have been removed.
- Ref to Y92.1010 on motor standards added to 220.030.
- Ref to Y92.1010, Y92.2020 and Y92.2030 added to 240.030.
- Ref to Y92.1010 added to 241.020.
- Ref to Y92.1010 added to T60:310.130.

HV Supply / Distribution / Public Utility Supply – V11

- The section has been reviewed in line with latest standards and industry practices. Superseded standards have been addressed throughout.
- Three new schedules have been introduced:
 - Ring Main Units – to improve in the specification of combined ring main units. This is now used in clause 310.080
 - Dry-Transformer and Liquid-Transformer – these have been referenced from clauses 310.270, 310.280 and 310.290, and the clauses consolidated accordingly
- BS EN 61936 series has been included as a key design requirement in clause 100.020.
- Clause 100.021 has been updated to reflect the changes in assessment of annual growth of electrical consumption in line with latest HTMs.
- A new clause 300.002 has been included with general system safety requirements, and accompanying healthcare clause 300.001 updated accordingly.
- Clause 300.025 has been updated to include the Fluorinated Greenhouse Gases Regulations 2015.

Content Common to CAWS and BG 56 Based Specifications

Section 2 Details of Work Section Updates & Audits

- New clause 300.090 Control, Monitoring and Integration, added covering requirements for protocols and integration with telecontrol, SCADA, metering data and other integration needs.

Public Address / Sound Amplification – W12

- The Royal National Institute for the Deaf has been renamed "Action for Hearing Loss". This has been reflected in Clause 310.250.

Access Control – W40

- Section guidance enhanced, referring to The National Security Inspectorate (NSI) Code of Practice for Design, Installation and Maintenance of Access Control Systems, NCP 109, along with related NSI and NACOSS publications.

Structured Cabling System – W70 and A33 / A64 ref CENELEC Standards

- Clause 300.020A deleted as it duplicated content in 300.020
- Clause 300.005 title changed to "Precedence and Application of Standards" to differentiate it from clause 300.030 on standards and clause text re-written / expanded for clarity.
- Clauses A33:171.000 and A64:710.110 enhanced to refer to CENELEC standards for safety and compatibility for electrical, data network and information technology installations, and equipment.

LV Switchgear and Distribution Boards – Y71 and Z Part 2 Clauses

- New schedule added for LV Circuit Breakers has been added for MCCB's and ACBs.
- New schedule linked from Z Part 2 Clause 271.050 which has also been simplified to account for the new schedule and clause level guidance added.
- Y71.2090# set to pre-delete.

Content Common to CAWS and BG 56 Based Specifications

Section 3 Schedules

Below is a summary of the updates to schedules in Excel that can be activated by clicking on the links from NES clauses.

Some guidance has been incorporated into many of the schedules in the form of "comments" that are displayed when hovering over certain cells.

For this update the following key changes have been made:

- All NES schedules as have been updated to a common formatting theme
- All schedules are now orientated as landscape for ease of publishing
- The CAWS reference has been removed from all schedules so they can be used in either a CAWS or BSRIA BG 56 specification
- The technical content of all schedules has been reviewed / updated for this release, the list below covers significant amendments / changes to existing schedules and new schedules.

For a complete listing and print preview of all NES schedules refer to document NES Building Services Schedules, located on the Guidance tool bar, under Other Resources.

Types

U – Existing schedule that has been significantly updated

N – New schedule

Section Reference		Schedule Name	Type	Details
CAWS	BG 56			
A13	A1.4	Common Design Criteria	N	For use in conjunction with updated existing and new clauses for external and internal comfort, noise / conditions, ventilation criteria and lighting levels
T20	C1.4.110	Thermal Storage Vessels	N	For use with new clause 310.020 in primary heat distribution section
U62	C1.4.370	Chilled Ceiling Panels, Rafts and Sails	N	Linked from new Work Section U62 in CAWS covering Chilled Ceilings, Rafts and Sails. U61 previously covered both chilled ceilings and chilled beams, now only covers chilled beams
Y71	C2.6.50	LV Circuit Breakers	N	Covers MCCB's and ACBs, for use in conjunction with Z Part 2 Clause 271.050, which has also been simplified in line with use of the schedule.
V11	C2.1.20	Dry Transformers	N	Covers dry-type for use in conjunction with clauses 310.270, 310.280 and 310.290, and the clauses consolidated accordingly.
V11	C2.1.20	Liquid-Cooled Transformers	N	Covers liquid-cooled type for use in conjunction with clauses 310.270, 310.280 and 310.290, and the clauses consolidated accordingly.
V11	C2.1.20	Ring Main Units (RMUs)	N	To improve in the specification of combined ring main units, for use in conjunction with clause 310.080

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
A10, A64	A1.1		New Addition	Construction Industry Council (CIC) BIM Protocol
A10, A31, A64	A1.1, A3.2	BS 1192:2007+A1:2015 Collaborative production of architectural, engineering and construction information. Code of practice	Amendment 2	BS 1192:2007+A2:2016 Collaborative production of architectural, engineering and construction information. Code of practice
A10, A64	A1.1		New Addition	BS 1192-4:2014 Collaborative production of information. Fulfilling employer's information exchange requirements using COBie. Code of practice
A10, A64	A1.1		New Addition	PAS 1192-3:2014 Specification for information management for the operational phase of assets using building information modelling
A10, A64	A1.1		New Addition	PAS 1192-5:2015 Specification for security-minded building information modelling, digital built environments and smart asset management
A10, A64	A1.1		New Addition	Government Soft Landings (GSL) & BSRIA Soft Landings Framework
A13	A1.4		New Addition	BS 4142:2014 Methods for rating and assessing industrial and commercial sound
A30	A3.1		New Addition	JCT Tendering Practice Note & NBS Guide to Tendering: for construction projects
A30	A3.1		New Addition	BESA SFG20
B20, S33, T10, T32	C1.3.20, C1.4.30,	BS 5482-1:2005 Code of practice for domestic butane- and propane-gas-burning installations. Installations at permanent dwellings,	Partially Replaced (still remains current)	BS 6891:2015 Specification for the installation and maintenance of low pressure gas installation

Content Common to CAWS and BG 56 Based Specifications

Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
		residential park homes and commercial premises, with installation pipework sizes not exceeding DN 25 for steel and DN 28 for corrugated stainless steel or copper		pipework of up to 35 mm (R1¼) on premises
B20, R30, S12, S30, S31, S51, S52, S53, T31, T32, T33, T40, T41, T69, U19, U39, V12, W60, W69, Y10, Y11, Y20, Y22, Y44, Z PART 2	C1.1.80, C1.5.10, C1.5.20, C1.5.50, C1.5.60, C1.5.70, C1.4.10, C1.4.130, C1.4.150, C2.1.30, C1.7.10, D1.8.10, D1.8.20, D1.8.40, D1.4.120, D1.4.490, C1.8.10, C1.8.20, C1.8.40	BS 21:1985 Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads (metric dimensions)	Withdrawn, Superseded	<p>BS EN 10226-1:2004 Pipe threads where pressure tight joints are made on the threads. Taper external threads and parallel internal threads. Dimensions, tolerances and designation</p> <p>BS EN 10226-2:2005 Pipe threads where pressure tight joints are made on the threads. Taper external threads and taper internal threads. Dimensions, tolerances and designation</p> <p>BS EN 10226-3:2005 Pipes threads where pressure-tight joints are made on the threads. Verification by means of limit gauges</p>
P30			New Addition	OFTEC Technical book 3: Domestic & Commercial Requirements for Oil Storage & Supply Equipment
R11, T20, T61, U16, U39, U41, Y10, Z PART 2	B8.1.20, C1.4.110, C1.4.385, C1.4.240, C1.4.320, D1.8.10, C1.4.120	BS 476-15:1993, ISO 5660-1:1993 Fire tests on building materials and structures. Method for measuring the rate of heat release of products	Withdrawn, Superseded	BS ISO 5660-1:2015 Reaction-to-fire tests. Heat release, smoke production and mass loss rate. Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)

Content Common to CAWS and BG 56 Based Specifications

Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
S30, S33, S51, S52, S53, T14, T16, T19, T33, T60, Z PART 2	C1.5.10, C1.3.20, C1.5.50, C1.5.70, C1.4.90, C1.4.100, D1.4.130, C1.4.380, C1.2.20	BS EN 13445-8:2014 Unfired pressure vessels. Additional requirements for pressure vessels of aluminium and aluminium alloys	Amendment 1	BS EN 13445-8:2014+A1:2014 Unfired pressure vessels. Additional requirements for pressure vessels of aluminium and aluminium alloys
S30, S33, S51, S52, S53, T14, T16, T19, T33, T60, Z PART 2	C1.5.10, C1.3.20, C1.5.50, C1.5.70, C1.4.90, C1.4.100, D1.4.130, C1.4.380, C1.2.20		New Addition	BS EN 13445-10:2015 Unfired pressure vessels. Additional requirements for pressure vessels of nickel and nickel alloys
S30, S31, V32	C1.5.10, C1.5.20	BS EN ISO 3746:2009 Acoustics. Determination of sound power levels of noise sources using sound pressure. Survey method using an enveloping measurement surface over a reflecting plane	Withdrawn, Superseded	BS EN ISO 3746:2010 Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Survey method using an enveloping measurement surface over a reflecting plane
S30, S31	C1.5.10, C1.5.20	BS ISO 1217:2009 Displacement compressors. Acceptance tests	Amendment 1	BS ISO 1217:2009+A1:2016 Displacement compressors. Acceptance tests
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 12500-1:2007 Filters for compressed air. Test methods. Oil aerosols
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 12500-2:2007 Filters for compressed air. Test methods. Oil vapours
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 12500-3:2009 Filters for compressed air. Test methods. Particulates
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 12500-4:2009 Filters for compressed

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
				air. Methods of test. Water CD-ROM
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 7183:2007 Compressed-air dryers. Specifications and testing
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-1:2010 Compressed air. Contaminants and purity classes
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-2:2007 Compressed air. Test methods for oil aerosol content
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-3:1999 Compressed air. Test methods for measurement of humidity
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-4:2001 Compressed air. Test methods for solid particle content
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-5:2001 Compressed air. Test methods for oil vapour and organic solvent content
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-6:2003 Compressed air. Test methods for gaseous contaminant content
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-7:2003 Compressed air. Test method for viable microbiological contaminant content
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-8:2004 Compressed air. Test methods for solid particle content by mass concentration
S30, S31	C1.5.10, C1.5.20		New Addition	BS ISO 8573-9:2004 Compressed air. Test methods for liquid water content

Content Common to CAWS and BG 56 Based Specifications

Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
T14, T60, T69,	C1.4.70, C1.4.380,	BS EN 12735-2:2010 Copper and copper alloys. Seamless, round tubes for air conditioning and refrigeration. Tubes for equipment	Withdrawn, Superseded	BS EN 12735-2:2016 Copper and copper alloys. Seamless, round tubes for air conditioning and refrigeration. Tubes for equipment
T20, T32, T61, T69, Y10, Z PART 2	C1.4.110, C1.4.385, D1.8.10, C1.8.10	BS EN 448:2009 District heating pipes. Pre-insulated bonded pipe systems for directly buried hot water networks. Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene	Withdrawn, Superseded	BS EN 448:2015 District heating pipes. Preinsulated bonded pipe systems for directly buried hot water networks. Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene
V11	C2.1.20		New Addition	Health & Safety Executive Guide HSG85 Electricity at Work: Safe Working Practices
V11	B8.8.20		New Addition	PD IEC/TS 61936-2:2015 Power installations exceeding 1 kV a.c. and 1,5 kV d.c. d.c.
V11	C2.1.20		New Addition	BS EN 547-1:1996+A1:2008 Safety of machinery. Human body measurements. Principles for determining the dimensions required for openings for whole body access into machinery
V11	C2.1.20		New Addition	BS EN 547-2:1996+A1:2008 Safety of machinery. Human body measurements. Principles for determining the dimensions required for access openings
V11	C2.1.20		New Addition	BS EN 547-3:1996+A1:2008 Safety of machinery. Human body measurements. Anthropometric data

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
V11	C2.1.20	BS 7844-1:1996 Three-phase dry-type distribution transformers 50 Hz, from 100 to 2500 kVA with highest voltage for equipment not exceeding 36 kV. General requirements and requirements for transformers with highest voltage for equipment not exceeding 24 kV	Withdrawn, Superseded	BS EN 50541-1:2011 Three phase dry-type distribution transformers 50 Hz, from 100 kVA to 3150 kVA, with highest voltage for equipment not exceeding 36 kV. General requirements
		BS 7844-2:1996 Three-phase dry-type distribution transformers 50 Hz, from 100 to 2500 kVA with highest voltage for equipment not exceeding 36 kV. Supplementary requirements for transformers with highest voltage for equipment equal to 36 kV		
V11	C2.1.20	BS 7844-3:1998 Three-phase dry-type distribution transformers 50 Hz, from 100 to 2500 kVA with highest voltage for equipment not exceeding 36 kV. Determination of the power rating of a transformer loaded with non-sinusoidal current	Withdrawn, Superseded	BS EN 50541-2:2013 Three phase dry-type distribution transformers 50 Hz, from 100 kVA to 3150 kVA, with highest voltage for equipment not exceeding 36 kV. Determination of loadability of a transformer loaded with non-sinusoidal current
V11	C2.1.20		New Addition	BS EN 60076-19:2015 Power transformers. Rules for the determination of uncertainties in the measurement of the losses on power transformers and reactors
V11	C2.1.20		New Addition	BS EN 61850 Communication networks

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
				and systems for power utility automation (Parts 3, 4, 5, 6, 7-2, 7-3, 7-4, 7-410, 7-420, 8-1, 10)
V11	C2.1.20		New Addition	BS EN 61968 Application integration at electric utilities. System interfaces for distribution management (Parts 1, 3, 4, 6, 8, 9, 11, 13 & 100)
V11	C2.1.20		New Addition	BS EN 62053-24:2015 Electricity metering equipment (a.c.). Particular requirements. Static meters for reactive energy at fundamental frequency (classes 0,5 S, 1 S and 1)
V11	C2.1.20		New Addition	BS EN 62056 Electricity metering data exchange (Parts 1-0, 3-1, 5-3, 6-1, 6-2, 7-6, 8-3, 9-7, 21, 42, 46, 47, 53)
V11	C2.1.20	BS EN 60265-1:1998, IEC 60265-1:1998 Specification for high-voltage switches. Switches for rated voltages above 1 kV and less than 52 kV	Withdrawn, Superseded	BS EN 62271-103:2011 High-voltage switchgear and controlgear. Switches for rated voltages above 1 kV up to and including 52 kV
V11	C2.1.20	BS EN 60265-2:1994 Specification for high-voltage switches. Specification for high-voltage switches. High-voltage switches for rated voltages of 52 kV and above	Withdrawn, Superseded	BS EN 62271-104:2015 High-voltage switchgear and controlgear. Alternating current switches for rated voltages higher than 52 kV
V11	C2.1.20		New Addition	BS EN 62769 Field Device Integration (FDI) (Parts 1, 2, 3, 4, 5, 6, 7, 101-1, 101-2, 103-1, 103-4, 109-1)
V11	C2.1.20		New Addition	BS HD 60269-2:2013, BS 88-2:2013 Addition of standard as mentioned during V11 update GK

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
V11	C2.1.20		New Addition	BS HD 60269-3:2010+A1:2013, BS 88-3:2010 Low-voltage fuses. Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications). Examples of standardized systems of fuses A to F
V11	C2.1.20		New Addition	PD CLC/TS 50568 Electricity metering data exchange (Parts 4, 8)
W12	C2.3.50	BS EN 60118-1:1995, IEC 60118-1:1995 Hearing aids. Hearing aids with induction pick-up coil input	Withdrawn, Superseded	BS EN 60118-0:2015 Electroacoustics. Hearing aids. Measurement of the performance characteristics of hearing aids
X30, X31, X32, Y92	C3.2.50, C3.2.60, C3.2.70, D4.30		New Addition	BS EN 60034-27-3:2016 Rotating electrical machines. Dielectric dissipation factor measurement on stator winding insulation of rotating electrical machines
Y11, Y23, Z PART 2	D1.8.20, D1.2.22, C1.8.20	BS EN ISO 4126-5:2013 Safety devices for protection against excessive pressure. Controlled safety pressure	Amendment 1	BS EN ISO 4126-5:2013+A1:2016 Safety devices for protection against excessive pressure. Controlled safety pressure relief systems (CSPRS)
Y11, Y23, Z PART 2	D1.8.20, D1.2.22, C1.8.20	BS EN ISO 4126-7:2013 Safety devices for protection against excessive pressure. Common data	Amendment 1	BS EN ISO 4126-7:2013+A1:2016 Safety devices for protection against excessive pressure. Common data
Documents/Standards Referenced for Products that Implement EU Directive 2009/125/EC:				
B20, T41, T69, U19, U39, Y40, Y41	D1.4.450, D1.4.460	EU Regulation 327/2011	Current – added to further NES clauses	
B20, Y41	D1.4.460		New Addition	EU Regulation 1253/2014

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
B20, S12, T10, T14, T32	C1.4.30, C1.4.70		New Addition	EU Regulation 813/2013
T10, T14, T32, S12	C1.4.30, C1.4.70,		New Addition	EU Regulation 811/2013
T14, T32, T41, T60, T69, U19, U39, Y92	C1.4.70, C1.4.380, D4.30		New Addition	EU Regulation 4/2014
T14, T32, T41, T69, U19, U39, Y92	C1.4.70, D4.30	EU Regulation 640/2009	Current – added to further NES clauses	
T14, T32, T41, U19, U39, Y92	C1.4.70, D4.30	BS EN 50347:2001 General purpose three-phase induction motors having standard dimensions and outputs. Frame numbers 56 to 315 and flange numbers 65 to 740	Current – added to further NES clauses	
		BS EN 60034-30:2009 Rotating electrical machines. Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code)		
		BS EN 60034-30-1:2014 Rotating electrical machines. Efficiency classes of line operated AC motors (IE code)		
T41, U19, U39, Y40, Y41, Z PART 2	D1.4.450, D1.4.460, C1.4.450	BS EN ISO 12759:2015 Fans. Efficiency classification for fans	Current – added to further NES clauses	
T41, U19, U39, Y40, Y41, Z PART 2	D1.4.450, D1.4.460, C1.4.450	BS EN ISO 5801:2008, BS 848-1:2007 Industrial fans. Performance testing using standardized airways	Current – added to further NES clauses	
T41, U19, U39, Y40, Y41	D1.4.450, D1.4.460	BS 848-9:2007, ISO 13348:2007 Fans for general purposes. Tolerances, methods of	Current – added to further NES clauses	

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Section 4 Detail Changes to Reference Documents

Work Section		Reference Document - Current	Status of Current Reference	Reference Document - New
CAWS	BG 56			
		conversion and technical data presentation		
Y73	D2.2.50	EU Regulation 2015/1428	Current – added to further NES clauses	
Z PART 2	C2.2.50	BREEAM New Construction 2014, Issue ID Hea 01 Visual Comfort	Current – added to further NES clauses	
Z PART 2	C2.2.50	BREEAM Refurbishment and Fit-out 2014, Issue ID Hea 01 Visual Comfort	Current – added to further NES clauses	