

General Specification for Building
2017 Edition (Incorporating Corrigendum No. GS 2017-02)

The 2017 edition (incorporating Corrigendum No. GS 2017-02) of the General Specification for Building has incorporated updates and revisions to the 2017 edition (incorporating Corrigendum No. GS 2017-01). Please refer to the summary of major changes for the revisions.

Electronic version of this 2017 edition (incorporating Corrigendum No. GS 2017-02) can be viewed on the ArchSD Internet website.

In view of the revisions and new additions, there will be an introductory period of about 3 months in preparation for full implementation of this 2017 edition (incorporating Corrigendum No. GS 2017-02) as contract document on 1 April 2020. In summary,

- For tenders to be invited on or after 1 April 2020, this 2017 edition (incorporating Corrigendum No. GS 2017-02) shall be used.
- Existing contracts (including contracts using previous editions tendered before 1 April 2020) will not be affected.

GENERAL SPECIFICATION FOR BUILDING 2017 EDITION

Major Changes from GS 2017 to Corrigendum No. GS 2017-02

Clause No.	Sub-heading of Clause	Major Changes
Section 1 – Preliminaries		
1.27	Watchmen	Add “in compliance with the following requirements” at the end of the first paragraph. Add sub-clauses (a) to (d) after the first paragraph.
After 1.67	New heading added	Add a new heading “SUNDRY REQUIREMENTS”.
1.68	Records of Inspection	Add a new clause regarding records of inspection.
1.69	Red Imported Fire Ants	Add a new clause regarding collect, control and monitor red imported fire ants.
Section 5 – Piling Work		
5.01	General	Replace sub-clause (v)(c) with “The following criteria shall also be satisfied for the design: (c) Minimum dead load – 2.0 x adverse imposed load including soil load – 1.5 x uplift due to the highest anticipated groundwater table (or 1.1 x uplift due to the highest possible groundwater table) – 1.5 x adverse wind load ≥ 0 (d) Minimum dead load – adverse imposed load including soil load – uplift due to the highest anticipated groundwater table – adverse wind load ≥ 0 ”. Insert sub-clause (xii) “The point load test to determine the uniaxial compressive strength (UCS) of rock core samples in association with Clause 5.01(xi)(a) and (b) shall be executed by an Accredited Laboratory, who shall submit test reports directly to the SO in sealed envelopes.”.
5.02	Design submission	Insert sub-clause (i)(e) “Details of grout mix and pressure grouting, where applicable.”. Replace sub-clause (v) with “If hydraulic hammer is used, the following shall apply: In addition to those stated in Clause 5.02 (i) above, submit two copies each of the following: (a) Details of piling equipment to be used which shall include the model number, hammer weight, drop height, and theoretical energy output etc. (b) Unless approved otherwise by the SO, Hiley Formula shall be used in assessing the allowable load capacity of the piles proposed. (c) The efficiency of drop of the hydraulic hammer used in the Hiley Formula shall be taken as 90% unless a higher value can be verified in accordance with Clause 5.14 (iv). Under no circumstances shall the efficiency of drop be greater than 98%. (d) The coefficient of restitution shall not be taken as greater than 0.8.”.
5.06	Negative skin friction	Replace definition of “L” in sub-clause (i) with “Depth from ground level to top of dense alluvial sand or top of in-situ CDV or CDG, which should make reference to the ground investigation information of the adjacent borehole(s). The Contractor must satisfy himself on the values of L adopted in his design.”.

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5.08	Minimum spacing / nos. of piles	Insert sub-clause (vii) with “The requirements on minimum spacing of piles, stipulated to be satisfied in the design of piles, need not cater for the construction requirements on maximum permitted tolerances as specified in Clause 5.23 (ii) and (iii).”.
5.14	Percussion piles	Replace sub-clause (v) with “If reasonable values of design final set cannot be obtained from the Hiley Formula with E_h and e so chosen and subject to the approval of the SO, all the piles falling into this category shall be driven to a set less than 2.5mm or 1.0mm per blow as the case may be. All these piles shall be subjected to DPT and the allowable load capacity of the piles shall be assessed by CAPWAP analysis. For steel H-piles, the measured driving stress...”. Delete from sub-clause (ix) “and the measured driving stress of the piles shall be greater than 2 times the design working compressive stress for the allowable load capacity of the pile during the DPTs”.
5.19	Large diameter bored piles	Replace the 2nd paragraph of sub-clause (iv) with “For design purposes, the maximum bearing pressure of piles on bedrock shall not exceed the following: (a) 3 MPa for Grade III or better rock (granite and volcanic) with total core recovery greater than 50% for any one metre within the rock mass. (b) 5 MPa for Grade III or better rock (granite and volcanic) with total core recovery greater than 85% for any one metre within the rock mass and minimum uniaxial compressive strength (UCS) not less than 25 MPa (equivalent point load index strength PLI50 not less than 1 MPa). (c) 7.5 MPa for Grade II or better rock (granite and volcanic) with total core recovery greater than 95% for any one metre within the rock mass and minimum uniaxial compressive strength (UCS) not less than 50 MPa (equivalent point load index strength PLI50 not less than 2 MPa). The point load index strength of rock is the equivalent value for 50 mm diameter cores. (d) 3 MPa for Grade III or better meta-sedimentary rock with total core recovery greater than 85% for any one metre within the rock mass.”.
5.20	Non-percussion cast in-situ concrete piles	Replace “600” with “610” in sub-clause (i).
5.21	Minipiles	Add to the end of sub-clause (i) with “The number of steel reinforcing bars shall not be more than 5 with bar diameter not exceeding 50mm.”. Replace sub-clause (ii) with “Not used.”. Replace the 4th and 5th paragraph of sub-clause (iii) with “Design bond strength between bedrock and grout shall not exceed 0.7 MPa for grout having minimum cube strength of 30 MPa at 28 days. No reduction on the design bond strength shall be required for grouting underwater. Bedrock shall be that defined in Clause 5.21(xx). If a different bond strength value is proposed, submit the details of the design parameters, proposed testing methods of the trial piles (including loading tests) for justification of the proposed parameters and test programme, all to the satisfaction of the SO. All tests for this purpose shall be at the Contractor’s own expense and no extension of time shall be granted whatsoever. The maximum allowable compressive stress of the reinforcement shall not exceed 225 MPa for ribbed steel reinforcing bars in Grade 500. The maximum allowable bond stress between grout and reinforcement for ribbed steel reinforcing bars in Grade 500 shall not exceed 0.8 MPa. No reduction on the maximum allowable bond stress shall be required for grouting

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		underwater. In calculating the allowable load capacity of the pile due to bond, the effective diameter of a group of bars (with spacing between adjacent bars less than 25mm) shall be equivalent to the diameter of a bar of equal total area.”. Delete from the last sentence of sub-clause (vi) “and shall comply with the Particular Specification for Mechanical Couplers.”. Replace sub-clause (xx) with “Bedrock is defined as rock mass of at least 5m or the length of rock socket plus 500mm thick, whichever is greater and being Grade III or better rock (as defined in GEOGUIDE 3, “Guide to Rock and Soil Descriptions” prepared by Geotechnical Engineering Office and published by GIS, Hong Kong) with a total core recovery greater than 85% for any one metre within the rock mass and minimum uniaxial compressive strength (UCS) not less than 25MPa (equivalent point load index strength PLI_{50} not less than 1MPa). The point load index strength of rock is the equivalent value for 50mm diameter cores. The rock socket shall be formed in granite or volcanic rock.”. Replace sub-clause (xxi)(b) with “Grout shall have minimum cube strength of 30 MPa at 28 days. Grout having minimum cube strength less than 30 MPa shall not be accepted.”. Replace the 3rd and 4th paragraph of sub-clause (xxiii) with “Grouting of the pile shall be completed within the same day when the pile toe has been inspected and agreed by the SO, and shall be in one continuous operation and under no circumstances shall a pile be left partially grouted. No un-grouted rock sockets shall be of a clear distance less than 3m from a pile being grouted.”. Replace the 2nd paragraph of sub-clause (xxv) with “If required by the SO, test results shall be checked by periodic verification using another approved laboratory to conduct identical testing of grout from the same samples, selected by the SO.”.
5.22	Rock-socketed Steel H-piles	Replace the 4th and 5th paragraph of sub-clause (iii) with “Design bond strength between bedrock and grout shall not exceed 0.7 MPa for grout having minimum cube strength of 30 MPa at 28 days. No reduction on the design bond strength shall be required for grouting underwater. Bedrock shall be that defined in Clause 5.21 (xx). If different bond strength value is proposed, submit details of the design parameters, proposed testing methods to the trial piles (including loading tests) for justification of the proposed parameters and test programme to the satisfaction of the SO. All tests for this purpose shall be at the Contractor’s own expense and no extension of time shall be granted whatsoever. The maximum allowable average bond stress between grout and steel H-pile shall be 0.48 MPa for grout having minimum cube strength of 30 MPa at 28 days when the shear bars details shown in Annex “E” is applied. No reduction on the maximum allowable average bond stress shall be required for grouting underwater.”. Replace sub-clause (xxiii) with “The pile shall be deemed to have failed the coring test if :- (a) The concrete core exhibits honeycombing which means interconnected voids arising from, for example, inadequate compaction or lack of mortar ; or (b) The concrete core exhibits discontinuity of grout; or (c) When any sample section of the core with length/diameter ratio of 1.2 is taken for compressive testing, the sample has an estimated in-situ cube strength converted in accordance with CS1 from the compressive strength of the grout core, less than 75% of the specified cube strength. In case the coring test failed to demonstrate the continuity of grout due to breaking up of the core during coring, subject to the approval of the SO, the grout quality might alternatively be

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		proven by CCTV inspection. All time and cost incurred shall be borne by the Contractor.”.				
5.29	Loading tests	Replace the 1 st paragraph of sub-clause (i) with “The SO may order not less than 1% of nos. of piles installed (minimum one number or more piles), other than large diameter bored piles, to be load tested to twice the allowable load capacity (for both vertical piles and raking piles). Loading tests of piles shall be carried out by a Testing Firm employed direct by the Employer. The Contractor shall co-ordinate the works with the Testing Firm and comply with the following requirements:”.				
Annex D	Typical detail of large diameter bored pile	Add the following notes: “Not less than 6 longitudinal bars distributed” to section A-A. “L* : Lap length for ribbed steel reinforcement bars shall cater for the effect of concrete strength reduction where groundwater is likely to be encountered during concreting or where concrete is placed underwater.”.				
Section 6 – Structural Concrete Work						
6.33	Aggregates	Replace paragraph 4 as follows: - “The flakiness index of coarse natural aggregates, when determined to CS3 shall not exceed 30.”				
6.42.1	Submission	After sub-clause (xv), add sub-clause (xvi) as follows: - (xvi) Certificates/documents showing that the production and supply of aggregates are certified to the ISO 9001 standard in accordance with Section 6 of CS3 .				
6.49	Transporting and placing	Replace last paragraph as follows: - “Place underwater concrete in accordance with the requirements given in Code of Practice for Structural Use of Concrete issued by the Buildings Department.”				
6.55	Concrete cubes	In sub-clause (iii), (vii), (viii) and (ix), replace “Table 6.12” with “Table 6.9”				
6.56	Workability	Replace the table of testing method for workability as follows: - <table><tr><td>Normal Workability (designed slump value from 20 mm to 200 mm)</td><td>High Workability (designed flow value from 340 mm to 600 mm)</td></tr><tr><td>Slump Test (For designed slump value >175 mm and ≤ 200mm, see Note to Clause 2.1.1 of CS1)</td><td>Flow Table Test</td></tr></table> In sub-clause (ii), insert “, up to the limit of after ± 50 mm” after “whichever is greater.”	Normal Workability (designed slump value from 20 mm to 200 mm)	High Workability (designed flow value from 340 mm to 600 mm)	Slump Test (For designed slump value >175 mm and ≤ 200mm, see Note to Clause 2.1.1 of CS1)	Flow Table Test
Normal Workability (designed slump value from 20 mm to 200 mm)	High Workability (designed flow value from 340 mm to 600 mm)					
Slump Test (For designed slump value >175 mm and ≤ 200mm, see Note to Clause 2.1.1 of CS1)	Flow Table Test					
Section 13 – Carpentry and Joinery						
13.01.3	Known Licensed Source	- Suggest to include PEFC – China as one of the Known Licensed Source to increase supply sources of timber and the specification is revised accordingly.				

Clause No.	Sub-heading of Clause	Major Changes
13.12	Plywood	- Classification of "moisture and weather-resistant (M.R.)" in paragraph 2 is defined in BS 1203:1979 . Under BS 1203:2001 , there are four durability classes (H1 to H4) of adhesive and H2 is identical to "M.R." as per their description and performance requirement. The specification is revised accordingly.
13.13	Marine plywood	- Typo error – " TypeI " should be read as Type I .
13.14	Blockboard	- No M.R. classification in BS EN 204 and BS EN 301 and the specification is revised accordingly.
13.21	Laminated plastic Sheet	- Class HG & Class VG have not been defined in any Parts in BS EN 438, the most similar classification method can be found in BS EN 438 Part 3, named Classes HGS, HGF & HGP and VGS, VGF & VGP . (Remarks: BS EN 438 Part 3 is only applicable for laminates less than 2mm thick, while Part 4 is for laminates of thickness 2mm or greater.)
13.23	Proprietary suspended ceiling systems	- <u>Table 13.2</u> prEN 10327 is a draft standard for public consultation which was then formally released as BS EN 10327 in 2004, BS EN 10327:2004 was then replaced by BS EN 10346 in 2009, the current version is BS EN 10346:2015 . - <u>Table 13.2</u> BS EN 10169-3 is replaced by BS EN 10169:2010+A1:2012 . - Notes above <u>Table 13.3</u> , typo error - "See para. 4.32 of BS EN 13964" should be read as See para. 4.3.2 .
13.25	Screws	- BS 1476 and BS 1494 have been withdrawn and the specification is revised accordingly.

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13.29	Adhesive	- The terminology “synthetic resin adhesive” was not used in BS EN 204:2016. Instead, it classifies thermoplastic resin based wood adhesives for non-structural applications into durability classes (D1 to D4) based on the dry and wet strengths of bond-lines measured under specified conditions after various conditioning treatments, which is different from the classification M.R in BS 1204-1. - The specification is revised as follows:- “(a) For internal use: thermoplastic resin wood adhesives classified as durability class of D1 or D2 in BS EN 204 in accordance with moisture content of timber as given in Clause 13.03 (b) For external use or internal use under very damp conditions: thermoplastic resin wood adhesives classified as durability class of D3 or D4 in BS EN 204.” - Delete the clause “Adhesive for fixing laminated plastic sheet shall be synthetic resin adhesive classified as type I in BS EN 301” as BS EN 301 is for load bearing timber structure.
13.29.1	Resin for MDF panels	- “European E1” has not been defined in BS EN 13986 and should be read as Class E1.
13.61	Fire resisting timber door	- To include thermal insulation of Classification I1 of BS EN 1634-1 another compatible standard to BS 476. - BS 476 in paragraph 2 should be read as BS 476 Part 20-23.
13.62	Smoke and intumescent seals	- Doors with smoke seal should comply with BS EN 1634-3, BS EN 14600, ISO 5925-1, UL 1784 or AS 1530:Part 7 as stated in FS Code 2011 issued by BD.
Section 14 – Ironmongery		
14.97	Door viewer	Replace “less then” with “less than”.
Section 16 – Curtain Walls		
16.00	Generally	After the first paragraph, add a new paragraph as follows: - “The use of glass in curtain walls shall be to Code of Practice for Structural Use of Glass including its latest amendments and revisions issued by the Buildings Department, except otherwise stated.”
16.09	Provision of drawings and calculations	Replace sub-clause (ii) (a) to (c) as follows: - (a) Analysis and design for all applicable loads on glass elements, framing members and their connections. (b) Analysis and design for all applicable loads on anchors, including anchors embedded in concrete.

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		(c) Section property computations for glass elements and framing members. In sub-clause (iv)(f), insert “compliance certificate comprising” after “Prior to construction, provide glass manufacturer’s” In sub-clause (iv)(g), insert after the first sentence “The quality documents as required in items (a) and (b) of Clause 20.01.03 shall also be provided.”.
16.21	Sealants	In sub-clause (i) for capping sealant, replace standard of testing method “ASTM D412” with “ASTM C1184” and delete the 6th row containing “Tear Strength”, “ASTM D624” and “4KN/m min (20 Ib/in)”. In sub-clause (iii) for caulking sealant, replace standard of testing method “ASTM D412” with “ASTM C1184” and delete the 7th row containing “Tear Strength”, “ASTM D624” and “4KN/m min (20 Ib/in)”. In sub-clause (v) for structural sealant, replace standard of testing method “ASTM D412” with “ASTM C1184” and delete the 6th row containing “Tear Strength”, “ASTM D624” and “4KN/m min (20 Ib/in)”.
16.40	Application of sealant and gasket	After the last paragraph, insert new paragraph as follows: - “Structural sealant for glazing shall be applied strictly according to the recommendations outlined in the sealant manufacturer’s print review and adhesion test report. Glass manufacturer shall carry out deglazing test in accordance with the sealant manufacturer’s recommended testing percentage to confirm the factory production quality of the structurally glazed glass panes before transportation to Site for installation. Submit the deglazing test report from the glass manufacturer to confirm the compliance.”
16.47	Criteria for framing members and anchors at glass and stone	Replace sub-clause (iii)(a) as follows: - (a) Perpendicular to the plane of the wall, net deflection of framing members shall not exceed: (i) 1/180 of the span or 20mm, whichever is the less, for span not greater than 7.2m. (ii) 1/360 of the span for span greater than 7.2m. (iii) 1/90 of the span or 20mm, whichever is the less, for cantilever type member.
16.50	Criteria for structural silicone	In sub-clause (iv), insert “long-term loads such as the” after “Structural silicon shall not be used to support”.
16.74	Field tests on actual buildings	In sub-clause (iii) insert “on-site application of” before “structural silicone”. Replace sub-clause (v) as follows: - Structural adequacy of anchorages shall be tested to 1.5 times the unfactored loading of Clause 16.46 without failure. The test shall be carried out in accordance with BS 5080-1 and BS 5080-2 unless otherwise approved by the SO. The number of tests shall be at least 1% of the anchorages or 5 numbers, whichever is more, of each type and size of the anchorages installed. Each sample anchorage shall be tested for tensile load by pull-out test and/or shear load by shear load test, as appropriate. The sample anchorage shall not show any signs of separation, plastic deformation or deleterious effect, and shall have at least 80% recovery of the total deformation upon removal of the test load. If the loading test of any sample anchorage fails, the failure mode shall be recorded and the cause shall be determined and reported to the SO. Propose remedial measures, including justification calculations for any design and method statement, for

Clause No.	Sub-heading of Clause	Major Changes
		agreement with the SO prior to carrying out any remedial works. For remedial anchorage, carry out load test in accordance with the above requirements, except that the sampling rate shall be at least 5% of the remedial anchorages or 5 numbers, whichever is more, of each type and size of the anchorages. For remedial anchorage using drill anchors, the load shall be maintained for at least 60 minutes under maximum test load. The sample anchorage shall not be used for permanent work unless agreed by the SO. Employ an independent laboratory to carry out the testing of anchorages, and provide any necessary labour and attendance. The independent laboratory shall submit test reports directly to SO in sealed envelopes within 3 days after the testing.
Section 17 – Metal Work		
17.07	Aluminum alloy	- Sentence amendment for paragraph 3: “Aluminum alloy sections for structural purposes shall be to BS 1161.”
17.08	Brass rods and sections	- Typo error: The “designation CZ 106” should be changed to “designation CW 106C”.
17.09	Stainless steel	- Words added: “No. 2R for smooth, bright and reflective finish, No. 2B for mill finish, No. 1G or 2G for polish and low-reflective finish with fine grit and No. 1P or 2P for bright reflective mirror polished finish with a high degree of image clarity, or otherwise as required.”
17.12	Adhesive for metal	- Sentence amendment: “Peel or stripping strength to ASTM D903 .”
17.19	Brazing	- The word “ BS EN 14324 ” should be highlighted in bold.
Section 18 – Finishes		
18.01	Cement	- Add “(Type CEM I)” after “Ordinary Portland Cement shall be to BS EN 197-1”
18.15	Spatterdash	- Delete “such as a styrene-butadiene rubber (SBR) latex, an ethyl vinyl acetate (EVA) emulsion or an acrylic emulsion” after “Spatterdash shall consist of (1:2) cement: coarse sand with an approved bonding agent”
		- Add “Method statement shall be submitted for approval if the otherwise.” after “Apply spatterdash to concrete vertical surfaces and soffits within 48 hours after striking formwork.”
18.87	Dividing strip	- Revise “aluminium” to “aluminum” and add “Grade 316” after “brass,”.
18.98	Dividing strip	- Revise “Strips shall not be haunched prior to laying the base.” to “Strips shall be firmly fixed in position prior to laying the base.”
18.125	Fixing stone paving slabs	- Revise “Bed stone paving slabs with one coat of approved sealer at back of stone slab on screeds.” to “Bed stone paving slabs with one coat of approved sealer to all faces of stone slab.”
18.130	Semi-flexible PVC tiles	- BS EN 654 was withdrawn and replaced by BS EN ISO 10595:2012.
18.131	Vinyl tiles	- BS EN 649 was withdrawn and replaced by BS EN ISO 10581:2013.
18.132	Unbacked flexible PVC vinyl sheet	- BS EN 649 was withdrawn and replaced by BS EN ISO 10581:2013.
18.133	Foam backed vinyl sheet	- BS EN 649 was withdrawn and replaced by BS EN ISO 10581:2013.

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18.140	Polish	- Add “approved” after “Apply two coats of ”
18.150	Physical properties	- BS 4223:1989 was withdrawn without replacement. “Total Mass” item is therefore suggested to be deleted. For item on “Number of Tufts”, it is suggested to delete BS standard and leaving the min. 1000 tufts requirement as it is.
18.155	Underlay	- BS 5808 was withdrawn and replace by BS EN 14499 and the specification is revised accordingly.
18.169	Fire and safety requirements	- PNAP APP-83 refers to FRC Code, which is replaced by FS Code 2011 and the specification is revised accordingly.
18.184	Non-slip homogenous floor ties	- In the sub-clause (d) Slip resistance, the requirement for anti-slip property is deleted.
Section 19 – Sanitary Appliances		
19.08.02	Solid surfacing wash basins	Replace “BS ISO 19712-2 & 3” with “ BS ISO 19712-2 & BS ISO 19712-3”
19.09.01	Kitchen sinks	Replace “BS EN 13310” with “BS EN 13310:2015+A1”
Section 20 - Glazing		
20.01	Glass generally	After first paragraph, insert new paragraphs as follows: - “Glass shall be from a manufacturer with quality assurance systems covering all aspects from manufacturing, testing and inspection. For each batch of glass supplied to site, submit a certificate from the glass manufacturer confirming compliance with the requirements detailed in this Specification.” “Glass functioning as protective barrier shall be subjected to impact test by the glass manufacturer to satisfy Class 1 requirement in accordance with BS EN 12600 without glass breakage. For laminated glass of different pane thickness or insulating glass unit of different types of glass panes, impact test shall be carried out on both faces unless the risk of impact is from one side only.”
20.01.03	Insulating glass	At the end of sub-clause (i), add the following: - Tin side of the glass panes shall be located on the outermost surfaces of insulating glass units for future surface stress measurement. Submit the following quality documents produced by the glass manufacturer: - (a) Details of insulating glass units, including construction details, primary and secondary seals, gas filling, corner treatment, nature of spacers, evacuation and assembly process provided by the glass manufacturer. (b) Test report/certificate indicating compliance with ASTM E2190 with respect to specification and seal durability for insulating glass units.
20.01.09	Criteria for glass	Replace sub-clause (ii) as follows: - “Structural design of glass shall be in accordance with the Code of Practice for Structural Use of Glass including its latest amendments and revisions issued by the Buildings Department.” Delete sub-clause (i) and (iv) and re-numbering the sub-clauses.

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20.01.13	Thickness & weight of glass	At end of last paragraph under Table 20.1, add “In addition, the glass thickness shall comply with manufacturing specification and shall not be less than the minimum thickness adopted in design calculation.”
20.07	Heat strengthened glass	At end of sub-clause (1), add “Heat strengthened glass shall be manufactured by a factory with ISO 9001 quality assurance certification.” At end of sub-clause (ii), add “Submit the glass manufacturer’s quality control record on measurement of surface compressive stress by Grazing Angle Surface Polarimeter (GASP) with valid calibration certification in accordance with ASTM C1279.” Replace sub-clause (iii)(e) and (h) as follows: - (e) Location and identification number of the oven; (h) Quantity and size of glass subject to the heat soaking process and records of breakages of panels in the tests with corresponding oven numbers; and
20.08	Fully tempered glass	At end of sub-clause (i), add “Fully tempered glass shall be manufactured by a factory with ISO 9001 quality assurance certification.” At end of sub-clause (ii), add “The manufacturer’s quality control records during glass production shall include the following: -“ (a) Measurement of surface compressive stress by GASP with valid calibration certification in accordance with ASTM C1279. (b) Fragmentation test carried out to each batch of tempered glass in accordance with BS EN 14179-1 after the heat soak treatment. At end of sub-clause (iii)(c), add “and the manufacturer’s quality control records as stated in Clause 20.08(ii).”
20.11	Laminated safety and security glass	After last sub-clause (viii), insert next sub-clause (ix) as follows: - (ix) Laminated glass shall be subjected to boil test by the glass manufacturer in accordance with the requirements in Clause 8.1.6 of the Code of Practice for Structural Use of Glass issued by the Buildings Department to confirm the lamination quality before the production of glass. Submit the compliance test report for the glass delivered to site.
20.26	Structural sealant glazing	Replace first sentence as follows: - “Structural sealant glazing shall comply with Code of Practice for Structural Use of Glass and APP-37 issued by Buildings Department.”
Section 21 - Painting		
21.10	Add “& Anti-mould performance” after “Anti-mould acrylic emulsion paint”	Add a new sub-clause in the second para. as follows: - “Painted surfaces with exposure to indoor environment shall comply with Rating 0 requirement of BS3900-G6.”
21.28	Non-toxic paint	To delete “as approved by the UK National Water Council” from the clause.

Clause No.	Sub-heading of Clause	Major Changes
Section 22 – Internal Fittings and Fixtures		
22.01	Construction of the system	Replace “All adhesives shall comply with VOC content stipulated in the Air Pollutions Control (VOC) Regulation of Hong Kong and shall not contain the following substances regulated in Montreal Protocol on Substances that Deplete the Ozone Layer(particularly CFCs, HCFCs, 1,1,1-trichloroethane and carbon tetrachloride.” with “All adhesives shall comply with VOC content stipulated in the Air Pollutions Control (VOC) Regulation of Hong Kong and shall not contain the following substances regulated in Montreal Protocol on Substances that Deplete the Ozone Layer, particularly CFCs, HCFCs, 1,1,1-trichloroethane and carbon tetrachloride.” Add “All painting shall be anti-mould paints. For details of anti-mould paint, refer to Section 21 - Painting.”
22.07	Lining panels	In sub-clause (a), replace “Gypsum plasterboard shall comply A3 with BS EN 520+A1 ” with “Gypsum plasterboard shall comply with BS EN 520+A1 ”
22.19	Finishes	Replace “When required to be painted, gypsum plasterboard panels shall be prepared and two coats of paint applied.” with “When required to be painted, gypsum plasterboard panels shall be prepared and two coats of anti-mould paint applied.” Replace “When required to be painted, plywood, chipboard and hardwood surfaces shall be knotted, primed, stopped and two coats of paint applied.” with “When required to be painted, plywood, chipboard and hardwood surfaces shall be knotted, primed, stopped and two coats of anti-mould paint applied.”
22.28	Hanging components	Replace “The screen panel assembly shall be capable of carrying a total of load 454 kg minimum.” with “The screen panel assembly shall be capable of carrying a total load of 454 kg minimum.”
22.29	Screen fabric	Replace “For other materials, fabric and form shall have the surface spread of flame of Class 1” with “For other materials, fabric and form shall meet Class 1 rate of surface spread of flame, BS 476 : Part 7”
22.31	Panel connector	Replace “It shall be in metal construction and finished with paint coating.” with “It shall be in metal construction and finished with anti-mould paint coating.”
22.35	Generally	Replace “The materials used to manufacture slim-line venetian blinds shall comply with BS 3415 and shall be free from visible defects e.g. dents, scratches, etc.” with “The materials used to manufacture venetian blinds shall comply with BS EN 13120+A1 and shall be free from visible defects e.g. dents, scratches, etc.”
22.38	Slats	Replace “The material and profile of any slat in the assembled blind shall be such as to provide the strength and flexibility in accordance with BS 3415.” with “The material and profile of any slat in the assembled blind shall be such as to provide the strength and flexibility in accordance with BS EN 13120+A1.”
22.39	Bottom rail	Replace “The ends of the bottom rail shall be enclosed withplastic end-caps.” with “The ends of the bottom rail shall be enclosed with plastic end-caps.”
22.82	Panels	In sub-clause (a), replace “45 mm thick (minimum) and not exceeding 900 mm in width for end hung partitions or not exceeding 1200 mm for centrally hung partitions, consisting of hardwood frame and selected hardwood edging with plywood facing finished with either veneers, plastic laminate, vinyl cloth or paint as specified.” with “45 mm thick (minimum) and not exceeding 900 mm in width for end hung partitions or not exceeding 1200 mm for centrally hung partitions, consisting of hardwood frame and selected hardwood edging with plywood facing finished with either veneers, plastic laminate, vinyl cloth or anti-mould

Clause No.	Sub-heading of Clause	Major Changes
		paint as specified.”
Section 24 – External Works		
24.01	Roads, car-parks and paved areas generally	3 rd para.: Replace “General Specification for Buildings (2012 Edition)” with “General Specification for Buildings (2017 Edition)”
24.02	Insitu concrete paving	2 nd para: Replace “Highways Department Standard Drawing No. 1102A” with “Highways Department Standard Drawing No. H1102 latest version”
24.05	Tack coat	Replace: “Tack coat of anionic and cationic emulsions shall be to BS 434-1 & BS 434-2 respectively and of the following types: (a) Anionic bitumen emulsion, Class A1-40 of Table 1, BS 434-1 (b) Cationic bitumen emulsion, Class K1-40 as in Clause 4.2 of BS 434-2” with “ Tack coat of anionic and cationic emulsions shall be to BS EN 13808 & BS 434-1: 2011 + A1: 2016 respectively and of the following types: (a) Anionic bitumen emulsion, Class A1-40 of Table 1, BS 434-1: 2011 + A1: 2016 (b) Cationic bitumen emulsion, Class K1-40 as in Clause 4.2 of BS EN 13808”
24.09	Generally	3 rd para.: “Highways Department Standard Drawings H1101 and latest revision...”
24.31	Cable ducts	2nd para.: Space pipes which form multiple cable ducts shall be 100 50 mm (minimum) apart. Leave in position one 6 mm diameter nylon draw cord in each length of duct. <i>(Note: From experience, the main purpose of the gap between cable ducts are for backfilling and maintenance. 50mm could be considered enough, 100mm is rather difficult to achieve on site or require a lot of underground space.)</i>
Section 25 – Landscape Work		
25.02(d)	Test for manufactured soil conditioner	Add “Sampling” before the “tests”. After the last paragraph, insert new paragraph as follows:- “The manufactured soil conditioner to be sampled and tested shall be selected by the SO’s supervisory staff at the appropriate level. The sampled soil shall be placed in tamper evident bag, and on the same day, the SO’s supervisory staff at appropriate level shall supervised the delivery of the sampled soil to the approved laboratory. Test results must be supplied directly to the SO in sealed envelope, not via the Contractor.”

Clause No.	Sub-heading of Clause	Major Changes
25.02(j)	Test for Topsoil	Add “Sampling” before the “tests” and add “Test report shall be in the format as per the typical declaration of analysis in BS3882.” before the last sentence. After the last paragraph, insert new paragraph as follows:- “Topsoil to be sampled and tested shall be selected by the SO’s supervisory staff at the appropriate level. The sampled soil shall be placed in tamper evident bag, and on the same day, the SO’s supervisory staff at appropriate level shall supervised the delivery of the sampled soil to the approved laboratory. Test results must be supplied directly to the SO in sealed envelope, not via the Contractor.”
25.02(k)	Test for Fabricated Soil Mix	Add “Sampling” before the “tests”. After the last paragraph, insert new paragraph as follows:- “Fabricated Soil Mix to be sampled and tested shall be selected by the SO’s supervisory staff at the appropriate level. The sampled soil shall be placed in tamper evident bag, and on the same day, the SO’s supervisory staff at appropriate level shall supervised the delivery of the sampled soil to the approved laboratory. Test results must be supplied directly to the SO in sealed envelope, not via the Contractor.”
25.09(a)	Stockpile areas	Replace sub clause (a) as follows- “Approval of stockpile areas from SO regarding the locations, materials and duration to be stockpiled prior to the commencement of any stockpiling of materials should be sought.”
25.09(e)	Forming, handling and storage of soil heaps	Revise the sub-heading of sub clause (e), by adding “and storage of” After the last sentence, insert as follows:- “Should any landscape soiling materials be stored off-site, a method statement specifying the storage location, the amount to be stored, the quantity to be mixed with other materials, sampling and inspection schedule shall be agreed with the SO.”
25.25(b)	Landscape softworks	Revise the first sentence of sub clause (b) as follows:- “Landscape Softworks refer to a series of planting works of a horticultural or arboricultural nature,.....”
25.69(g)(i)	Tree protection zones	Replace sub clause (g) (i) as follows:- ”Tree Protection Zone” (hereinafter referred to as TPZ) is considered as the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority. Methods generally used include: (1) the “dripline method”, i.e. the tree canopy dripline is used to define the boundary of the of the TPZ and the entire area within the dripline is considered the TPZ; (2) the “tree height method”, i.e. the circular area with the radius equal to the height of the tree; and (3) the “trunk diameter method”, i.e. multiply the trunk diameter at 1.4m by 6 to 18 to determine the radius of the TPZ. The method and the extent of TPZ shall be agreed by the SO”
25.69.2(b)	Site supervisory staff and preservation and protection of existing trees	Revise the second sentence of sub clause (b) as follows:- “The person assigned shall be working full-time/part-time on the Site whenever there is landscape softworks as stipulated in clause 25.25(b)”

Clause No.	Sub-heading of Clause	Major Changes
Section 26 – Geotechnical Works for Soil and Rock Slopes		
26.01	Inspection Scaffolding	In sub-clause (a), insert “, metal” after “bamboo”
26.18	Spraying concrete	In sub-clause (c), replace “15m” with “15m ² ”
26.34	Material	Replace sub-clause (d) with “Reinforcement connectors shall be of a proprietary type approved by the SO and shall be of type 1 mechanical couplers conforming to the Code of Practice for Structural Use of Concrete.”
26.61	Geotextile filter	In sub-clause h(ii), replace “geotextile filterin” with “geotextile filter”.
26.70	Particular requirements	Replace “Submit as-built topographical survey, site formation layout, details drawings and design calculation to the SO and they shall cover the following:” with “Conduct a topographical survey of all slopes and retaining walls formed, modified or partially modified under the Contract upon their completion or at any other time as appropriate during the construction period. Such survey shall be completed upon the substantial completion of the Works, and shall be submitted together with the as-built site formation layout, details drawings and design calculations to the SO not more than 28 days, or such other time as stated in the Contract, after the completion of the survey. The submission shall cover the following:”
Appendix 9	Sheet 2 of 4	Details of Steel Angle Base amended. Note 9 added.
Appendix 9	Sheet 4 of 4	Details of Base Plate amended. Note 1 added.
Index		
Index 2	Subjects and Clause Numbers	Not used.
Index 3	List of Standards for Sections 1, 3, 5, 6, 7, 8, 13, 15 & 26	General update.
Index 4	List of Ordinances, Regulations, Codes and Standards for Section 16 and 20	General update.