APPENDIX 1

SfB BASIC CLASSIFICATION TABLES

APPENDIX 1 : SfB BASIC CLASSIFICATION TABLES

TABLE 0 BUILT ENVIRONMENT	TABLE 1 ELEMENTS	TABEL 2/3 CONSTRUCTION FORM/MATERIALS	TABEL 4 ACTIVITIES AND REQUIREMENTS
LAND, PLANNING	**SUBSTRUCTURE**	**CONSTRUCTION FORM**	**ACTIVITIES**
0 Land, planning, landscape in general	**(1-) Substructure**	E Cast in situ	(A) Administration, management
00 Land	(10) Vacant		
01 Vacant	(11) Excavations	F Bricks, blocks	(B) Construction plant
02 International and national planning	(12) Vacant		
03 Regional planning, development areas	(13) Floor beds	G Structural units	(C) Vacant
04 Vacant	(14) Vacant		
05 Urban and rural planning in general	(15) Vacant	H Sections, bars	(D) Construction operations
06 Land use planning	(16) Foundations		
07 Vacant	(17) Pile foundations	I Tubes, pipes	**REQUIREMENTS**
08 Landscape	(18) Vacant		
09 Vacant	(19) Vacant	J Wires, mesh	(E) Requirements in general
	SUPERSTRUCTURE	K Quilts	(F) Layout, shape, dimensions
CIVIL ENGINEERING	**(2-) Primary elements**	L Foils, papers and membrane	(G) Appearance, aesthetics
	(20) Vacant		
1 Civil engineering works, transport	**External vertical skin**	M Foldable sheets	(H) Physical, chemical, biological factors
	(21) External walls, walls in general		
10 Departments, internal and external spaces	**Internal vertical subdivisions**	N Overlap sheets, tiles	(I) Air water control
11 Railway works	(22) Internal walls, partitions		
12 Road works	**Internal horizontal subdivisions**	P Thick coatings (eg plaster)	(J) Heat, cool in general
13 Sea, river, canal works	(23) Floors, galleries		
14 Air travel works	**Vertical circulation (non-mechanical)**	R Rigid sheets	(K) Strength, statics stability
15 Extraction, power works, communication	(24) Stairs, ramps, shafts		
16 Agricultural works	**Ceilings**	S Rigid tiles	(L) Mechanics, dynamics
17 Public health engineering works	(25) Vacant		
18 Other engineering works	(26) Vacant	T Flexible sheets, tiles	(M) Sound, quiet, in general
19 Vacant	**External horizontal envelope**		
	(27) Roofs	U Finishing papers, fabrics	(N) Light, dark, in general
BUILDING TYPES	(28) Frames		
	(29) Vacant	V Thin coatings (eg paint)	(O) Vacant
2 Transport, industrial buildings			
20 Departments, internal and external spaces	**(3-) Secondary elements**	X Components	(P) Vacant
21 Railway buildings	(30) Vacant		
22 Road transport buildings	(31) External openings	Y Products in general	(Q) Radiation
23 Sea, river, canal transport buildings	(32) Internal openings		
24 Air travel buildings	(33) Secondary elements, floors	**MATERIALS**	(R) Fire
25 Extraction, power, communication buildings	(34) Balustrades		
27 Factories	(36) Vacant		

28 Warehouses, storage bldngs, depositories
29 Vacant

3 Administrative, commercial buildings
30 Departments, internal and external spaces
31 Official administration buildings
32 Office buildings
33 Vacant
34 Shops etc
35 Vacant
36 Vacant
37 Consumer service works etc
38 Public service buildings
39 Vacant

4 Health and welfare buildings
40 Departments, internal and external spaces
41 Hospitals
42 Other health buildings
43 Vacant
44 Homes
45 Vacant
46 Animal welfare buildings in general
47 Vacant
48 Prison buildings
49 Vacant

5 Refreshment, entertainment, recreation buildings
50 Departments, internal and external spaces
51 Refreshment buildings
52 Entertainment buildings
53 Community buildings
54 Swimming pools
55 Vacant
56 Sports buildings
57 Vacant
58 Vacant
59 Vacant

6 Religious buildings
60 Departments, internal and external spaces
61 Religious building complexes
62 Cathedrals
63 Churches, chapels
64 Mission halls, meeting houses, masonic halls

(37) Secondary elements, roofs
(38) Vacant
(39) Vacant

(4-) Finishes
(40) Vacant
(41) External wall finishes
(42) Internal wall finishes
(43) Floor finishes
(44) Stair finishes
(45) Ceiling finishes
(46) Vacant
(47) Roof finishes
(48) Vacant
(49) Vacant

SERVICES

(5-) Services
(50) Vacant
(51) Refuse disposal in general;
(52) Drainage
(53) Hot and cold water
(54) Gas, compressed air
(55) Refrigeration
(56) Space heating
(57) Ventilation and air conditioning
(58) Vacant
(59) Vacant

(6-) Installations
(60) Vacant
(61) Vacant
(62) Power
(63) Lighting
(64) Comminications
(65) Vacant
(66) Transport
(67) Vacant
(68) Security
(69) Vacant

FITTINGS

(7-) Fixtures
(70) Vacant
Circulation' fittings
(71) 'Circulation' fixtures

e Natural stone
f Precast concrete
g Clay
h Metal
i Wood
j Natural fibre
m Mineral fibre
n Plastics
o Glass

In formless products
p Loose fill
q Cement, concrete
r Gypsum
s Bituminous materials

Agents, chemicals
t Fixing, joining agents
u Protective materials
v Painting materials
w Other chemicals
x Plants
y Any and all materials

(T) Vacant
(U) Special requirements
(V) Building surrounds etc
(W) Maintenance, alteration
(X) Vacant
(Y) Economics, time requirements
(Z) Vacant

65 Other non-residential religious buildings
66 Monestaries, convents, nunneries, abbeys
67 Funerary sepulchral architecture
68 Vacant
69 Vacant

7 Educational, cultural, scientific buildings
70 Departments, internal and external spaces
71 Schools
72 Universities, colleges
73 Research, scientific centres
74 Professional and learned societes' buildings
75 Zoos, museums, art galleries, etc
76 Library buildings
77 Information, exhibition buildings in general
78 Studios etc
79 Vacant

8 Residential buildings in general
80 Departments, internal and external spaces
81 Housing, dwellings in general
82 Vacant
83 Vacant
84 Special residential in general
85 Hotels etc
86 Residential buildings other than 81/85
87 Mobile homes
88 Ancillary buildings
89 Vacant

9 Buildings, architecture, spaces in general
90 External spaces
91 Circulation spaces
92 Room spaces in general
93 Cooking spaces
94 Sanitary spaces
95 Cleaning spaces
96 Storage spaces
97 Ancillary spaces and buildings
98 Spaces by position
99 Internal spaces in general

General
(72) General room fixtures
Culinary
(73) Culinary fixtures
Sanitary
(74) Sanitary fixtures
Cleaning
(75) Cleaning fixtures
Storage
(76) Storage fixtures
(77) Vacant
(78) Vacant
(79) Vacant

(8-) Loose equipment
(80) Vacant
(81) 'Circulation' loose equipment
(82) General room loose equipment
(83) Culinary loose equipment
(84) Sanitary loose equipment
(85) Cleaning loose equipment
(86) Storage loose equipment
(87) Vacant
(88) Vacant
(89) Vacant

(9-) Building and site
(90) Site only (garden furniture, walkways, paving, fencing, etc)
(91) Vacant
(92) Vacant
(93) Vacant
(94) Vacant
(95) Vacant
(96) Vacant
(97) Vacant
(98) Vacant
(99) Vacant

APPENDIX 2

UNICLASS TABLE J : WORK SECTIONS FOR BUILDINGS

APPENDIX 2 : UNICLASS TABLE J: WORK SECTIONS FOR BUILDINGS

A Preliminaries/General conditions

A1 The project generally
- A10 Project particulars
- A11 Documentation
- A12 The site/Existing buildings
- A13 Description of the work

A2 The Contract
- A20 The Contract/Subcontract

A3 Employer's requirements
- A30 Tendering/Sub-letting/Supply
- A31 Provision, content and use of documents
- A32 Management of the Works
- A33 Quality standards/control
- A34 Security/Safety/Protection
- A35 Specific limitations on method/ sequence/timing/use of site
- A36 Facilities/Temporary works/ Services
- A37 Operation/Maintenance of the finished building

A4 Contractor's general cost items
- A40 Management and staff
- A41 Site accommodation
- A42 Services and facilities
- A43 Mechanical plant
- A44 Temporary works

A5 Work by others or subject to instruction
- A50 Work/Materials by the employer
- A51 Nominated sub-contractors
- A52 Nominated suppliers
- A53 Work by statutory authorities
- A54 Provisional Work
- A55 Dayworks

A6 Preliminaries for specialist contracts
- A60 Demolition contract preliminaries
- A61 Ground investigation contract preliminaries
- A62 Piling contract preliminaries
- A63 Landscape contract preliminaries

A7 General specification for work packages
- A70 General specification for building fabric work
- A71 General specification for building services work

B Complete buildings/structures/units

B1 Prefabricated buildings/structures/units
- B10 Prefabricated buildings/structures
- B11 Prefabricated building units

C Existing site/buildings/services

C1 Investigations/Surveys
- C10 Site survey
- C11 Ground investigation
- C12 Underground services survey
- C13 Building fabric survey
- C14 Building services survey

C2 Demolition/Removal
- C20 Demolition
- C21 Toxic/hazardous material removal

C3 Alteration-support
- C30 Shoring/Facade retention

C4 Repairing/Renovating/Conserving concrete/masonry
- C40 Cleaning masonry/concrete
- C41 Repairing/Renovating/Conserving masonry
- C42 Repairing/Renovating/Conserving concrete
- C45 Damp proof course renewal/insertion

C5 Repairing/Renovating/Conserving metal/ timber
- C50 Repairing/Renovating/Conserving metal
- C51 Repairing/Renovating/Conserving timber
- C52 Fungus/Beetle eradication

C9 Alteration-composite items
- C90 Alterations-spot items

D Groundwork

D1 Ground stabilisation/dewatering
- D11 Soil stabilisation
- D12 Site dewatering

D2 Excavation/filling
- D20 Excavating and filling
- D21 Landfill capping

D3 Piling
- D30 Piling

D4 Ground retention
- D40 Embedded retaining walls
- D41 Crib walls/Gabions/Reinforced earth

D5 Underpinning
- D50 Underpinning

E In situ concrete/Large precast concrete

E0 Concrete construction generally
- E05 In situ concrete construction generally

E1 Mixing/Casting/Curing/Spraying in situ concrete
- E10 Mixing/Casting/Curing in situ concrete
- E11 Sprayed concrete

E2 Formwork
- E20 Formwork for in situ concrete

E3 Reinforcement
- E30 Reinforcement for in situ concrete
- E31 Post tensioned reinforcement for in situ concrete

E4 In situ concrete sundries
- E40 Designed joints in situ concrete
- E41 Worked finishes/Cutting to in situ concrete
- E42 Accessories cast into in situ concrete

E5 Structural precast concrete
- E50 Precast concrete frame structures

E6 Composite construction
- E60 Precast/Composite concrete decking

F Masonry

F1 Brick/Block walling
- F10 Brick/Block walling
- F11 Glass block walling

F2 Stone walling
- F20 Natural stone rubble walling
- F21 Natural stone ashlar walling/dressings
- F22 Cast stone walling/dressings

F3 Masonry accessories
- F30 Accessories/Sundry items for brick/ block/stone walling
- F31 Precast concrete sills/lintels/copings/ features

G Structural/Carcassing metal/timber

G1 Structural/Carcassing metal
- G10 Structural steel framing
- G11 Structural aluminium framing
- G12 Isolated structural metal members

G2 Structural/Carcassing timber
- G20 Carpentry/Timber framing/First fixing

G3 Metal/Timber decking
- G30 Metal profiled sheet decking
- G31 Prefabricated timber unit decking
- G32 Edge supported/Reinforced woodwool slab decking

H Cladding/Covering

H1 Glazed cladding/covering
- H10 Patent glazing
- H11 Curtain walling
- H12 Plastics glazed vaulting/walling
- H13 Structural glass assemblies
- H14 Concrete rooflights/pavement lights
- H15 Rainscreen cladding/overcladding

H2 Sheet/board cladding
- H20 Rigid sheet cladding
- H21 Timber weatherboarding

H3 Profiled/flat sheet cladding/covering
- H30 Fibre cement profiled sheet cladding/covering
- H31 Metal profiled/flat sheet cladding/ covering
- H32 Plastics profiled sheet cladding/ covering
- H33 Bitumen and fibre profiled sheet cladding/covering

Q Paving/Planting/Fencing/Site furniture

Q1 Edgings/Accessories for pavings
- Q10 Kerbs/Edgings/Channels/Paving accessories

Q2 Pavings
- Q20 Granular sub-bases to roads/pavings
- Q21 In situ concrete roads/pavings/bases
- Q22 Coated macadam/Asphalt roads/pavings
- Q23 Gravel/Hoggin/Bark roads/pavings
- Q24 Interlocking brick/block roads/pavings
- Q25 Slab/Brick/Sett/Cobble pavings
- Q26 Special surfacings/pavings for sport/general amenity

Q3 Planting
- Q30 Seeding/Turfing
- Q31 Planting
- Q32 Planting in special environments
- Q35 Landscape maintenance

Q4 Fencing
- Q40 Fencing

Q5 Site furniture
- Q50 Site/Street furniture/equipment

R Disposal systems

R1 Drainage
- R10 Rainwater pipework/gutters
- R11 Foul drainage above ground
- R12 Drainage below ground
- R13 Land drainage
- R14 Laboratory/Industrial waste drainage

R2 Sewerage
- R20 Sewage pumping
- R21 Sewage treatment/sterilisation

R3 Refuse disposal
- R30 Centralised vacuum cleaning
- R31 Refuse chutes
- R32 Compactors/Macerators
- R33 Incineration plant

S Piped supply systems

S1 Water supply
- S10 Cold water
- S11 Hot water
- S12 Hot and cold water (small scale)
- S13 Pressurised water
- S14 Irrigation
- S15 Fountains/Water features

S2 Treated on site water supply
- S20 Treated/Deionised/Distilled water
- S21 Swimming pool water treatment

S3 Gas supply
- S30 Compressed air
- S31 Instrument air
- S32 Natural gas
- S33 Liquefied petroleum gas
- S34 Medical/Laboratory gas

S4 Petrol/Oil storage
- S40 Petrol/Diesel storage/distribution
- S41 Fuel oil storage/distribution

S5 Other supply systems
- S50 Vacuum
- S51 Steam

S6 Fire fighting – water
- S60 Fire hose reels
- S61 Dry risers
- S62 Wet risers
- S63 Sprinklers
- S64 Deluge
- S65 Fire hydrants

S7 Fire fighting – gas/foam
- S70 Gas fire fighting
- S71 Foam fire fighting

T Mechanical heating/Cooling/Refrigeration systems

T1 Heat source
- T10 Gas/Oil fired boilers
- T11 Coal fired boilers
- T12 Electrode/Direct electric boilers
- T13 Packaged steam generators
- T14 Heat pumps
- T15 Solar collectors
- T16 Alternative fuel boilers

T2 Primary heat distribution
- T20 Primary heat distribution

T3 Heat distribution/utilisation – water
- T30 Medium temperature hot water heating
- T31 Low temperature hot water heating
- T32 Low temperature hot water heating (small scale)
- T33 Steam heating

T4 Heat distribution/utilisation – air
- T40 Warm air heating
- T41 Warm air heating (small scale)
- T42 Local heating units

T5 Heat recovery
- T50 Heat recovery

T6 Central refrigeration/Distribution
- T60 Central refrigeration plant
- T61 Chilled water

T7 Local cooling/Refrigeration
- T70 Local cooling units
- T71 Cold rooms
- T72 Ice pads

U Ventilation/Air conditioning systems

U1 Ventilation/Fume extract
- U10 General ventilation
- U11 Toilet ventilation
- U12 Kitchen ventilation
- U13 Car parking ventilation
- U14 Smoke extract/Smoke control
- U15 Safety cabinet/Fume cupboard extract
- U16 Fume extract
- U17 Anaesthetic gas extract

U2 Industrial extract
- U20 Dust collection

U3 Air conditioning – all air
- U30 Low velocity air conditioning
- U31 VAV air conditioning
- U32 Dual-duct air conditioning
- U33 Multi-zone air conditioning

U4 Air conditioning – air/water
- U40 Induction air conditioning
- U41 Fan-coil air conditioning
- U42 Terminal re-heat air conditioning
- U43 Terminal heat pump air conditioning

U5 Air conditioning – hybrid
- U50 Hybrid system air conditioning

U6 Air conditioning – local
- U60 Air conditioning units

U7 Other air systems
- U70 Air curtains

V Electrical supply/power/lighting systems

V1 Generation/Supply/HV distribution
- V10 Electricity generation plant
- V11 HV supply/distribution/public utility supply
- V12 LV supply/public utility supply

V2 General LV distribution/lighting/power
- V20 LV distribution
- V21 General lighting
- V22 General LV power

V3 Special types of supply/distribution
- V30 Extra low voltage supply
- V31 DC supply
- V32 Uninterrupted power supply

V4 Special lighting
- V40 Emergency lighting
- V41 Street/Area/Flood lighting
- V42 Studio/Auditorium/Arena lighting

V5 Electric heating
- V50 Electric underfloor/ceiling heating
- V51 Local electric heating units

V9 General/Other electrical work
- V90 General lighting and power (small scale)

W Communications/Security/Control systems

W1 Communications – speech/audio
- W10 Telecommunications
- W11 Paging/Emergency call
- W12 Public address/Conference audio facilities

W2 Communications – audio-visual
- W20 Radio/TV/CCTV
- W21 Projection
- W22 Information/Advertising display
- W23 Clocks

W3 Communications – data
- W30 Data transmission

W4 Security
- W40 Access control
- W41 Security detection and alarm

W5 Protection
- W50 Fire detection and alarm
- W51 Earthing and bonding
- W52 Lightning protection
- W53 Electromagnetic screening
- W54 Liquid detection alarm
- W55 Gas detection alarm
- W56 Electronic bird/vermin control

W6 Central control
- W60 Central control/Building management

X Transport systems

X1 People/Goods
- X10 Lifts
- X11 Escalators
- X12 Moving pavements
- X13 Powered stairlifts
- X14 Fire escape chutes/slings

X2 Goods/Maintenance
- X20 Hoists
- X21 Cranes
- X22 Travelling cradles/Gantries/Ladders
- X23 Goods distribution/ Mechanised warehousing

X3 Documents
- X30 Mechanical document conveying
- X31 Pneumatic document conveying
- X32 Automatic document filing and retrieval

Y Services reference specification

Y1 Pipelines and ancillaries
- Y10 Pipelines
- Y11 Pipeline ancillaries

Y2 General pipeline equipment
- Y20 Pumps
- Y21 Water tanks/cisterns
- Y22 Heat exchangers
- Y23 Storage cylinders/Calorifiers
- Y24 Trace heating
- Y25 Cleaning and chemical treatment

Y3 Air ductlines and ancillaries
- Y30 Air ductlines/ancillaries

Y4 General air ductline equipment
- Y40 Air handling units
- Y41 Fans
- Y42 Air filtration
- Y43 Heating/Cooling coils
- Y44 Air treatment
- Y45 Silencers/Acoustic treatment
- Y46 Grilles/Diffusers/Louvres

Y5 Other common mechanical items
- Y50 Thermal insulation
- Y51 Testing and commissioning of mechanical services
- Y52 Vibration isolation mountings
- Y53 Control components-mechanical
- Y54 Identification – mechanical
- Y59 Sundry common mechanical items

Y6 Cables and wiring
- Y60 Conduit and cable trunking
- Y61 HV/LV cables and wiring
- Y62 Busbar trunking
- Y63 Support components – cables

Y7 General electrical equipment
- Y70 HV switchgear
- Y71 LV switchgear and distribution boards
- Y72 Contractors and starters
- Y73 Luminaires and lamps
- Y74 Accessories for electrical services

Y8 Other common electrical items
- Y80 Earthing and bonding components
- Y81 Testing and commissioning of electrical services
- Y82 Identification – electrical
- Y89 Sundry common electrical items

Y9 Other common mechanical and/or electrical items
- Y90 Fixing to building fabric
- Y91 Off-site painting/Anti-corrosion treatments
- Y92 Motor drives – electric

Z Building fabric reference specification

Z1 Fabricating
- Z10 Purpose made joinery
- Z11 Purpose made metalwork
- Z12 Preservative/Fire retardant treatments for timber

Z2 Fixing/Jointing
- Z20 Fixings/Adhesives
- Z21 Mortars
- Z22 Sealants

Z3 Finishing
- Z30 Off-site painting
- Z31 Powder coatings
- Z32 Liquid coatings
- Z33 Anodising

APPENDIX 3

OCCS TABLES

APPENDIX 3 : OCCS TABLES

No./Title	Definition	Examples
01 Facilities	Constructed entity or space to serve specific function organized by use or function	Retail store Airport Elementary school Water treatment plant Highway
02 Constructed Entities	Definable unit of built environment with inherent site and primary use organized by physical form	Building Tower Bridge Tunnel
03 Spaces	Part of constructed entity with specific use delineated by either physical or abstract boundaries organized by physical form	Rooms: Corridor, atrium, stairway Plaza Street right-away Airport air traffic space
04 Elements	Major physical part of constructed entity which fulfills characteristic predominating function of constructed entity organized by primary function	Foundation Tunnel lining Bridge deck Partitions HVAC system Lighting system
04A Designed Elements	Designed or constructed solution of element, technical solution to element organized by primary function/type of work	Brick veneer/metal stud exterior wall Fireproofed structural steel frame/steel deck/concrete fill floor BUR membrane/expanded polystyrene insulation/gypsum sheathing roofing
05 Work Results	One or several parts of constructed entity viewed as result of particular skills and techniques applied to construction products and/or resources used organized by type of work	Asphaltic concrete paving CIP concrete Glazed aluminum curtain wall BUR roofing Metal stud/gypsum board VAV HVAC system Railroad track system
06 Products	Components and "kits of parts" for incorporation into constructed entity in permanent manner organized by function	Aggregate, Cement Ready-mixed concrete Boiler, Pump, Valve, Pipe Electric cable, Transformer Prefabricated brick veneer panel Manufactured building
07 Process Phases	Project phases to measure time line relating to design, construction, operation, renovation, and decommissioning (life cycle) of built environment	Conceive, Design Construction Operation, Maintenance Renovation Demolition
08 Process Services	Processes and procedures relating to design, construction, commissioning, maintenance, renovation, decommissioning, (life cycle) of built environment	Site analysis, Space program Conceptual cost estimate Site clearing Project closeout Duct cleaning

APPENDIX 4

WORK SECTIONS OF THE SWEDISH AMA98 SYSTEM

APPENDIX 4: WORK SECTIONS OF THE SWEDISH AMA98 SYSTEM

PRODUCT TABLE 1

A	Marketing, testing, technical documentation etc.
B	Preparatory work, auxiliary work, excavation etc.
C	Filling, reinforcement, piling etc
D	Earthworks, surfacing etc.
E	In situ concrete structures
F	Brickwork and blockwork
G	Carcassing of precast units
H	Structural elements of profiled sections
I	Pipes, tubes, ducts etc.
J	Electrical conduits and wiring etc.
K	Thermal insulation etc.
L	Waterproofing
M	Flat sheet products for roof and façade Cladding
N	Tiles, profiled materials etc. for roof and façade cladding
O	Lining etc. of board and sheet material
P	Plasterwork, painting, protective treatment etc.
Q	Covering and cladding products – buildings
R	Apparatus in heating and cooling systems etc.
S	Sanitary fittings etc. in piped systems
T	Apparatus, ducts, terminals etc. in air handling systems
U	Control and monitoring equipment in technical systems
V	Apparatus, machinery etc. in electrical Systems
W	Apparatus, machinery etc. in materials and passenger handling systems
X	Individual objects as secondary elements
Y	Fittings, furnishings etc.
Z	Building sundries of miscellaneous bulk and continuous materials and individual objects

Sub-division of Product Table 1

A	*Marketing, testing, documentation etc.*
A7	Marketing, testing etc.
A8	Technical documentation
B	*Preparatory work, auxiliary work excavation etc.*
B1	Investigation, trial works, surveying
B2	Auxiliary works
B3	Relocation, demolition, dismantling etc.
B4	Tree felling, clearing etc.
B5	Excavation in soil
B6	Excavation in rock
G8	Carcassing of units of mixed materials
C	*Filling, reinforcement, piling etc.*
C1	Filling for buildings, paved surfaces etc.
C2	Filling etc. for pipes, ducts, culverts etc.
C3	Filter course, reshaping or regulating course, separating course
C4	Soil reinforcement
C5	Rock reinforcement
C6	Piling
C7	Pervious slabs for drainage purposes
D	*Earthworks, fixtures above ground etc.*
D1	Separating course, sub-base, base course etc.
D2	Surfacing etc.
D3	Planted areas
D4	Edge strips, gutters, surface markings etc.
D5	Precast units for site steps, walls etc.
D6	Fixtures above ground
D7	Reinstatement
E	*In situ concrete structures*
E1	Formwork
E2	Reinforcement, waterbars etc.
E3	Concrete cast in fixed formwork
E4	Concrete cast in sliding formwork
F	*Brickwork and blockwork*
F1	Brickwork of sandlime bricks
F2	Concrete brickwork, concrete blockwork etc.
F3	Blockwork of autoclaved aerated concrete blocks, lightweight aggregate concrete blocks etc.
F4	Brickwork
F6	Brickwork and blockwork of refractory materials
F7	Brickwork and blockwork of miscellaneous materials
G	*Carcassing of precast units*
G1	Carcassing of natural stone units
G2	Carcassing of concrete units, artificial Stone units etc.
G3	Carcassing of autoclaved aerated concrete units, lightweight aggregate concrete units etc.
G4	Carcassing of burnt clay units
G5	Carcassing of metal units
G6	Carcassing of timber, wood fibre and wood chipboard units
G7	Carcassing of units of miscellaneous materials
M3	Aluminium sheeting for roof and façade cladding

H Structural elements of profiled sections
H1 Structural elements of metal sections
H5 Structural elements of timber sections
H6 Structural elements of plastic sections
H7 Structural elements of sections of miscellaneous materials
H8 Structural elements of sections of heterogeneous materials

I Pipes and tubes, duct etc.
I1 Pipes and tubes, single
I2 Pipes and tubes, composite
I3 Pipes for special media
I4 Flues of pipes, precast units etc.
I5 Arrangement for the anchorage, expansion, protection etc of pipes
I6 Arrangements for the isolation, emptying, venting etc. of underground pipes
I7 Underground manholes etc.

J Electrical conduits and wiring
J2 Installation materials
J3 Conduits, cable entries etc. for electrical Wiring
J4 Wiring, cables etc
J5 Junction boxes, connectors, etc
J8 Earthing, potential equalisation and lightning protection

K Thermal insulation etc
K1 Thermal insulation of underground Constructions
K2 Thermal insulation of building structures
K3 Thermal insulation of in situ cold stores and deep freeze stores
K4 Thermal insulation of building services
K5 Precast insulation units for cold stores and deep freeze stores
K6 Special thermal insulation
K7 Sound insulation
K8 Finishes on thermal insulation of building services

L Building felt, fabric, foil etc. for Waterproofing
L1 Protective layers and drainage layers of building felt, fabric, foil etc.
L2 Watertight layers of building felt, fabric, foil etc.
L3 Damp proofing of building felt, fabric, foil etc.
L4 Windtight layers of building felt, fabric, foil etc.
L5 Vapour barriers of building felt, fabric, foil etc.

M Flat sheeting products for roof and façade Cladding
M1 Metallised steel sheeting for roof and façade cladding
M2 Stainless steel sheeting for roof and façade cladding
M4 Copper sheeting for roof and facade cladding
M5 Lead sheeting for roof and façade cladding
M6 Zinc sheeting for roof and facade cladding
M8 Plastics sheet products (for accessories)

N Tiles, profiled material etc for roof and façade cladding
N1 Slate for roof and façade cladding
N2 Cement bound materials for roof and façade cladding
N3 Burnt clay for roof and façade cladding
N5 Profiled metal for roof and facade cladding
N6 Profiled timber for roof and facade cladding
N7 Profiled plastic for roof and facade cladding

O Lining etc. of board and sheet material
O1 Lining etc. of cement and plaster based boards
O2 Lining etc. of metal panels
O3 Lining etc. of boards of wood laminates
O4 Lining etc, of boards of organic fibre, expanded stone etc.
O5 Lining etc. of boards of inorganic fibre, expanded stone etc.
O6 Lining etc. of sheets of plastic, plastic laminates etc.
O7 Glazing
O8 Lining etc. of boards of sheets of miscellaneous materials

P Plaster, rendering, protective treatment etc.
P1 Plaster, rendering
P2 Painting
P3 Protective treatment by coating
P4 Protective treatment by impregnation
P5 Electrochemical protection
P7 Miscellaneous protective treatment

Q Covering and cladding products - buildings
Q1 Coverings and cladding of jointed tiles
Q2 Coverings of wood, wood fibre board and wood chipboard
Q3 Coverings of textile materials, cork, linoleum, rubber, plastic etc.
Q5 Cladding of miscellaneous materials
Q6 Coverings of jointless materials
Q7 Cladding of jointless materials
Q8 Covering and cladding products of composite materials
V5 Electrical machinery, batteries, etc
V6 Electric heating appliances

R0 Devices of composite function in heating systems, tapwater systems etc.
R1 Vessels and tanks
R2 Apparatus for cleaning and treating liquids, compressed air etc.
R3 Pumps, air compressors etc.
R4 Boilers
R5 Burners, heating appliances
R6 Heat exchangers, radiators, etc
R7 Refrigeration plants and heat pumps
R8 Components etc. in refrigeration and heat pump systems

S *Sanitary fittings etc. in piped and ducted systems*
S1 Gullies etc. in buildings
S2 Baths, bidets, washbasins, WC pans etc.
S3 Kitchen sink units, laundry sinks, bucket sinks
S4 Pipe fittings etc. for water, gas and compressed air
S5 Gas cookers

T *Apparatus, ducts, equipment etc. in Air handling systems*
T0 Equipment of composite function in air handling systems
T1 Ventilation duct systems, silencers, dampers etc.
T2 Inlet and extract terminals, gratings hoods etc.
T3 Air cleaners
T4 Air humidifiers, air dehumidifiers
T5 Heat exchangers
T6 Fans
T7 Terminal appliances

U *Control and monitoring equipment in technical systems*
U0 Equipment of composite function for the control and monitoring of technical systems
U1 Transducers
U2 Controllers
U3 Actuators
U4 Valves
U5 Monitoring equipment
U6 Measuring instruments
U7 Control and monitoring equipment in refrigeration and heat pump systems
U8 Computer centers, peripheral equipment etc. in control and monitoring systems

V *Apparatus, machinery etc. in electrical systems*
V1 Switching equipment and switching apparatus
V2 Electric relays and circuit breakers etc.
V3 Lighting fittings, lamp holders etc.
V4 Switches, control switches, socket outlets etc.
V7 Apparatus in telecommunications installations

W *Apparatus, machinery etc. in materials and passenger handling systems*
W1 Load carrying equipment – arrangements for fixing, suspension etc.
W2 Hoisting and traction equipment, guides etc.
W3 Safety equipment
W4 Power plant, machinery, gearing etc.
W5 Load carrying equipment etc.
W6 Control centres
W7 Control and indicating equipment etc.

X *Individual objects as secondary elements*
X1 Objects mounted in floor openings etc.
X2 Objects mounted in wall openings etc.
X3 Objects mounted in roof openings etc.
X4 Screens, apparatus enclosures etc.
X5 Canopies etc,
X6 Stairs, ladders, handrails, roof walkways etc.
X7 Miscellaneous individual objects as secondary elements

Y *Fittings and furnishings etc.*
Y0 Fittings and furnishings of composite function
Y1 Technical fittings
Y2 Signs, signboards etc.
Y3 Storage units
Y4 Table units
Y5 Seating units
Y6 Beds etc.
Y7 Textile units etc.
Y8 Miscellaneous fittings and furnishings

Z *Building sundries of miscellaneous bulk and continuous materials and individual objects*
Z1 Building sundries of miscellaneous bulk materials
Z2 Building sundries of miscellaneous continuous materials
Z3 Building sundries of miscellaneous individual objects

PRODUCT TABLE 2

Principal groups

0 Complex
1 Earthworks etc.
2 (Reserved)
3 Buildings
4 (Reserved)
5 Heating, cooling, ventilation and sanitation systems
6 Electrical installations
7 Transport installations
8 Control and monitoring installations
9 (Vacant for e.g. project specific application)

1 Earthworks etc.
10 Complex
11 Earthworks
12
13
14 Structural elements above and below ground
16 Surfacing etc.
17
18 Fixtures above ground
19 Other earthworks etc.

Subdivision of Principal Group 1 along vertical axis of grid

10 Complex
11 Earthworks
14 Structural elements above and below ground
16 Surfacing etc.
18 Fixtures above ground
19 Other earthworks etc.

Subdivision of Principal Group 1 along the horizontal axis of the grid

3 BUILDINGS

30 COMPLEX
32 SUBSTRUCTURE
32.0 Complex
32.2 Excavation, filling
32.3 Soil reinforcement, piling etc.
32.4 Foundations
32.5 Underground ducts, tunnels
32.8 Secondary elements, foundations
32.9 Foundations. Others.

33 LOADBEARING STRUCTURE
33.0 Complex
33.1 Loadbearing walls
33.2 Columns
33.4 Structural floors, beams
33.6 Stairways, lift shafts
33.8 Secondary elements in the loadbearing structure
33.9 Loadbearing structures. Others.

34 ROOFS; climatic envelope and secondary elements
34.0 COMPLEX
34.1 Secondary loadbearing elements, roof sheeting
34.2 Internal climatic envelope in roofs
34.3 External climatic envelope in roofs
34.4 Roof terminations
34.5 Secondary elements in roof openings
34.7 Roof terraces
34.8 Secondary elements on or in roofs
34.9 Roofs; climatic envelope and secondary elements. Others

35 EXTERNAL WALLS; climatic envelope and secondary elements
35.0 Complex
35.1 Internal climatic envelope in external walls
35.3 External climatic envelope in external walls
35.5 Secondary elements in openings in external walls
35.8 Secondary elements on or in external walls
35.9 External walls; climatic envelope and secondary elements. Others.

36 INTERNAL SPACE ENCLOSURE ETC; secondary elements
36.0 Complex
36.2 Subfloors etc.
36.3 Internal walls etc.
36.4 Ceilings
36.5 Secondary elements in openings in internal walls etc.
36.6 Internal stairs, fittings to stairs
36.8 Internal fittings to buildings
36.9 Internal space enclosure etc.; secondary elements. Others.

37 INTERNAL COVERINGS, CLADDING AND LINING, FITTINGS
37.0 Complex
37.2 Coverings, cladding on floors and stairs
37.3 Coverings, cladding and lining on walls
37.4 Coverings, cladding and lining on ceilings
37.8 Internal fittings in rooms
37.9 Internal coverings, cladding and lining, fittings. Other.

33.7 Loadbearing roof structure

39 OTHER BUILDING ELEMENTS

5 Heating, cooling, water supply and sanitation systems
50 Complex
51
52 Tapwater and drainage systems
53 Sprinkler systems
54 Gas and compressed air systems
55 Refrigeration and heat pump systems
56 Heating systems
57 Air handling systems
58
59 Other heating, cooling, water supply and sanitation systems

Vertical linear subdivision of Group 52
52.1 Tapwater Systems
52.5 Drainage systems

Subdivision of Group 52 along horizontal axis of grid
52/0/ Tapwater and drainage systems/ Complex/
52/2/ Tapwater and drainages systems/ Central equipment/
52/4/ Tapwater and drainage systems/ Ductwork/
52/5/ Tapwater and drainage systems/ Pipework/
52/8/ Tapwater and drainage systems/ Local equipment/
52/9/ Tapwater and drainage systems/ Others/

Vertical and horizontal subdivision can be combined, e.g.
52.1/5/ Tapwater systems/Pipework/

Subdivision of Group 53 along horizontal axis of grid
53/0/ Sprinkler systems/Complex/
53/2/ Sprinkler systems/Central Equipment/
53/4/ Sprinkler systems/Ductwork/
53/5/ Sprinkler systems/Pipework/
53/8/ Sprinkler systems/Local equipment/
53/9/ Sprinkler systems/Others/

Subdivision of Group 54 along horizontal axis of grid
54/0/ Gas and compressed air systems/ Complex/
54/2/ Gas and compressed air systems/ Central equipment/
54/4/ Gas and compressed air systems/ Ductwork/
54/5/ Gas and compressed air systems/ Pipework/
54/8/ Gas and compressed air systems/ Local equipment/
54/9/ Gas and compressed air systems/ Others/

Subdivision of Group 55 along horizontal axis of grid
55/0/ Refrigeration and heat pump systems/ Complex/
55/2/ Refrigeration and heat pump systems/ Central equipment/
55/4/ Refrigeration and heat pump systems/ Ductwork/
55/5/ Refrigeration and heat pump systems/ Pipework/
55/8/ Refrigeration and heat pump systems/ Local equipment/
55/9/ Refrigeration and heat pump systems/ Others/

Subdivision of Group 56 along horizontal axis of grid
56/0/ Heating systems/Complex/
56/2/ Heating systems/Central equipment/
56/4/ Heating systems/Ductwork/
56/5/ Heating systems/Pipework/
56/8/ Heating systems/Local equipment/
56/9/ Heating systems/Others/

Vertical linear subdivision of Group 57
57.1 Air inlet systems
57.2 Air extract systems

Subdivision of Group 57 along horizontal axis of grid
57/0/ Air handling systems/Complex/
57/2/ Air handling systems/Central equipment/
57/4/ Air handling systems/Ductwork/
57/5/ Air handling systems/Pipework/
57/8/ Air handling systems/Local equipment/
57/9/ Air handling systems/Others/

Vertical and horizontal subdivision can be combined, e.g.
57.5/8/ Air extract systems/Local Equipment/

6 ELECTRICAL INSTALLATIONS
60 Complex
61
62 Power supply installations
63 Lighting, electric heating and motor control installation
64 Telecommunications installations
65
66 Potential equalisation installation
67
68
69 Other electrical installations

Vertical linear subdivision of Group 62
62.1 Electrical distribution networks
62.2 Distribution and transformer stations

62.3 Capacitor installations
62.4 Rectifier installations
62.5 Standby power installations
62.51 Installations with engine driven generator sets
62.52 Installations with turbine driven generator sets
62.53 Installations with secure power source

Subdivision of Group 62 along horizontal axis of grid
62/0/ Power supply installations/Complex/
62/2/ Power supply installations/Central equipment/
62/4/ Power supply installations/Conduit systems/
62/5/ Power supply installations/Wiring systems/
62/8/ Power supply installations/Local equipment/
62/9/ Power supply installations/Others/

Vertical and horizontal subdivision can be Combined, e.g.
62.5/2/ Standby power installations/Central equipment/

Vertical linear subdivision of Group 63
63.1 Lighting installations
63.2 Electric heating installations
63.3 Motor control installations

Subdivision of Group 63 along horizontal axis of grid
63/0/ Lighting, electric heating and motor control installations/Complex/
63/2/ Lighting, electric heating and motor control installations/Central equipment/
63/4/ Lighting, electric heating and motor control installations/Conduit systems/
63/5/ Lighting, electric heating and motor control installations/Wiring systems/
63/8/ Lighting, electric heating and motor control installations/Local equipment/
63/9/ Lighting, electric heating and motor control installations/Others/

Vertical and horizontal subdivision can be combined, e.g.
63.1/5/ Lighting installations/Wiring systems/

Vertical linear subdivision of Group 64
64.1 Signalling installations
64.11 Entry signal installations
64.12 Call signal installations
64.14 Absence indicator installations
64.15 Scoreboard installations
64.16 Queue position indicator installations
64.17 Radiopaging installations
64.18 Inductive loop paging installations
64.2 Control installations
64.28 Entry and access control installations
Vertical linear subdivision of Group 66
66.1 Lightning protection installations

64.3 Telephone installations
64.31 External telephone installations
64.33 Telephone recording etc. installations
64.34 Internal telephone installations
64.35 Telephone entry installations
64.38 Intercom installations

64.4 Sound and vision transmission installations
64.41 Loudspeaker installations
64.42 Central radio installations
64.43 Central aerial installations
64.44 Close circuit television installations
64.45 Cable television installations
64.46 Sound transmission via magnetic fields (communication circuits)
64.47 Mobile radio installations
64.48 Miscellaneous sound and vision transmission installations

64.5 Time signalling installations, time recording installations etc.
64.51 Time signalling installations
64.52 Time recording installations
64.53 Rest period signalling installations
64.54 Wake-up alarm installations
64.55 Timer installations

64.6 Alarm installations
64.61 Fire alarm installations
64.62 Intruder alarm and assault installations
64.64 Emergency signal alarm
64.65 Security guard control installations
64.66 Fire door control installations
64.67 Security alarm installations
64.68 Miscellaneous alarm installations

Subdivision of Group 64 along horizontal axis of grid
64/0/ Telecommunications installations/ Complex/
64/2/ Telecommunications installations/ Central equipment/
64/4/ Telecommunications installations/ Conduit systems/
64/5/ Telecommunications installations/ Wiring systems/
64/8/ Telecommunications installations/ Local equipment/
64/9/ Telecommunications installations/ Others/

Vertical and horizontal subdivision can be combined, e.g.
64.31/4/ External telephone installations/ Conduit systems/

Vertical and horizontal subdivision can be combined, e.g.

66.2 Installations for protection against static electricity
66.3 Installations for EMP protection
66.4 Installations for equipotential environment

Subdivision of Group 66 along horizontal axis of grid
66/0/ Potential equalization installations/ Complex/
66/2/ Potential equalization installations/ Central equipment/
66/4/ Potential equalization installations/ Conduit systems/
66/5/ Potential equalization installations/ Wiring systems/
66/8/ Potential equalization installations/ Local equipment/
66/9/ Potential equalization installations/ Others/

Vertical and horizontal subdivision can be combined, e.g.
66.1/5/ Lightning protection installations/ Wiring systems/

7 TRANSPORT INSTALLATIONS
70 Complex
71 Lift installations
72
73 Passenger conveyor installations
74 Lift table installations
75 Goods conveyor installations
76
77 Installations with mechanical doors, gates etc.
78
79 Other transport installations

Vertical linear subdivision of group 71
71.1 Rope lift installations
71.2 Hydraulic lift installations
71.3 Chain lift installations
71.4 Rack and pinion drive lift installations
71.5 Screw gear lift installations
71.6 Lifting platform installations
71.61 Wheelchair lift installations
71.62 Lifting platform installations for goods

Subdivision of Group 71 along horizontal axis of grid
71/0/ Lift installations/Complex/
71/2/ Lift installations/Central equipment/
71/4/ Lift installations/Conduit systems/
71/5/ Lift installations/Wiring systems/
71/8/ Lift installations/Local equipment/
71/9/ Lift installations/Others/

Subdivision of Group 75 along horizontal axis of grid
75/0/ Goods conveyor installations/Complex/
71.2/5/ Hydraulic lift installations/Wiring systems/

Vertical linear subdivision of Group 73
73.1 Escalator installations
73.2 Inclined travelator and moving pavement installations

Subdivision of Group 73 along horizontal axis of grid
73/0/ Passenger conveyor installations/ Complex/
73/2/ Passenger conveyor installations/ Central equipment/
73/4/ Passenger conveyor installations/ Conduit systems/
73/5/ Passenger conveyor installations/ Wiring systems/
73/8/ Passenger conveyor installations/ Local equipment/
73/9/ Passenger conveyor installations/ Others/

Vertical and horizontal subdivision can be combined, e.g.
73.1/5/ Escalator installations/Wiring systems/

Vertical linear subdivision of Group 74
74.1 Lift table installations, scissors
74.2 Lift table installations, other

Subdivision of Group 74 along horizontal axis of grid
74/0/ Lift table installations/Complex/
74/2/ Lift table installations/Central equipment/
74/4/ Lift table installations/Conduit systems/
74/5/ Lift table installations/Wiring systems/
74/8/ Lift table installations/Local equipment/
74/9/ Lift table installations/Others/

Vertical and horizontal subdivision can be combined, e.g.
74.1/5/ Lift table installations, scissors/ Wiring systems/

Vertical linear subdivision of Group 75
75.1 Installations with driverless trucks
75.2 Box and parcel conveyor installations
75.3 Pneumatic conveyor installations
75.31 Pneumatic tube installations
75.4 Winding machine, tracked car haulage etc. installations
75.5 Crane installations
75.51 Overhead travelling crane installations
75.55 Hoisting crane installations

Vertical and horizontal subdivision can be combined, e.g.
83.1/2/ Operating systems/Complex/

75/2/ Goods conveyor installations/Central equipment/
75/4/ Goods conveyor installations/Conduit systems/
75/5/ Goods conveyor installations/Wiring systems/
75/8/ Goods conveyor installations/Local equipment/
75/9/ Goods conveyor installations/Others/

Vertical and horizontal subdivision can be combined, e.g.
75.32/8/ Pneumatic tube installations/Local equipment/

Subdivision of Group 77 along horizontal axis of grid
77/0/ Installations with mechanical doors, gates etc./Complex/
77/2/ Installations with mechanical doors, gates etc./Central equipment/
77/4/ Installations with mechanical doors, gates etc./Conduit systems/
77/5/ Installations with mechanical doors, gates etc./Wiring systems/
77/8/ Installations with mechanical doors, gates etc./Local equipment/
77/9/ Installations with mechanical doors, gates etc./Others/

8 CONTROL AND MONITORING SYSTEMS
80 Complex
81
82
83 Control systems
84 Monitoring systems
85
86
87
88
89 Other control and monitoring systems

Vertical linear subdivision of Group 83
83.1 Operating systems
83.2 Program control systems
83.3 Regulatory systems

Subdivision of Group 83 along horizontal axis of grid
83/0/ Control systems/Complex/
83/2/ Control systems/Central equipment/
83/4/ Control systems/Conduit systems/
83/5/ Control systems/Wiring systems/
83/8/ Control systems/Local equipment/
83/9/ Control systems/Others/

Vertical linear subdivision of Group 84
84.1 Operational display systems
84.2 Measuring systems
84.3 Operational alarm systems
84.31 Fault signal systems

Subdivision of Group 84 along horizontal axis of grid
84/0/ Monitoring systems/Complex/
84/2/ Monitoring systems/Central equipment/
84/4/ Monitoring systems/Conduit systems/
84/5/ Monitoring systems/Wiring systems/
84/8/ Monitoring systems/Local equipment/
84/9/ Monitoring systems/Others/

Vertical and horizontal subdivision can be combined, e.g.
84.32/2/ Fault signal systems/Central equipment/

APPENDIX 5

WORK SECTIONS OF THE BRITISH NBS AND NES SYSTEMS

APPENDIX 5: WORK SECTIONS OF THE BRITISH NBS AND NES SYSTEMS

A *Preliminaries/General Conditions (JCT)*

A Main Contract Preliminaries/General conditions
A1 The project generally
A20 The contract
A30 Tendering/Subletting/Supply
A31 Provision, content and use of documents
A32 Management of the Works
A33 Quality standards/control
A34 Security/Safety/Protection
A35 Specific limitations on methods/sequence/ timing
A36 Facilities/Temporary work/Services
A37 Operation/Maintenance of the finished building
A4 Contractor's general cost items
A5 Work by others or subject to instruction

C *Demolitions/Alterations/Renovation*

C05 Demolitions contract preliminaries
C10 Demolishing structures
C20 Alterations – spot items
C41 Chemical dpcs to existing walls
C52 Fungus/Beetle eradication

D *Groundwork*

D20 Excavating and filling

E *In situ concrete/Large precast concrete*

E05 In situ concrete construction generally
E10 In situ concrete mixes, casting and curing
E20 Formwork for in situ concrete
E30 Reinforcement for in situ concrete
E40 Designed joints in in situ concrete
E41 Worked finishes to in situ concrete
E42 Accessories cast into in situ concrete
E60 Precast/Composite concrete floors/ roof decks

F *Masonry*

F10 Brick/Block walling
F20 Natural stone rubble walling
F21 Natural stone ashlar walling/dressings
F30 Accessories/Sundry items for brick/block/stone walling
F31 Precast concrete sills/lintels/ copings/features

G *Structural/Carcassing metal/timber*

G10 Structural steel framing
G12 Isolated structural metal members
G20 Carpentry/Timber framing/First fixing
G30 Metal profiled sheet decking
G32 Edge supported/reinforced wood wool slab decking

H *Cladding/Covering*

H10 Patent glazing
H13 Structural glass assemblies
H20 Rigid sheet cladding
H21 Timber weatherboarding
H30 Fibre cement profiled sheet cladding/covering
H31 Metal profiled/flat sheet cladding/covering
H32 Plastics profiled sheet cladding/covering
H41 Glass reinforced plastics panel cladding/features
H42 Precast concrete panel cladding /features
H51 Natural stone slab cladding/features
H60 Plain roof tiling
H61 Fibre cement slating
H62 Natural slating
H65 Single lap roof tiling
H71 Lead sheet coverings/flashings

J *Waterproofing*

J20 Mastic asphalt tanking/damp proof membranes
J21 Mastic asphalt roofing/finishes
J30 Liquid applied tanking/damp proof membranes
J40 Flexible sheet tanking/damp proof membranes
J41 Built-up felt roof coverings

K *Linings/Sheathing/Dry partitioning*
K10 Plasterboard dry lining
K11 Rigid sheet flooring/sheathing/sarking/ linings/casings
K12 Under purlin/Inside rail panel linings
K13 Rigid sheet fine linings/paneling
K20 Timber board flooring/sheathing/ linings/casings
K21 Timber strip/board fine flooring/ linings
K31 Plasterboard fixed partitions/inner
K32 Framed panel cubicle partitions
K40 Suspended ceilings
K41 Raised access floors

L *Windows/Doors/Stairs*

L1- Windows/Rooflights/Screens Louvres
L2- Doors/Shutters/Hatches
L3- Stairs/Walkways/Balustrades
L40 General glazing

M *Surface finishes*
M10 Cement sand/Concrete screeds/ toppings
M13 Synthetic anhydrite screeds
M20 Plastered/Rendered/Roughcast coatings
M30 Metal mesh lathing/anchored reinforcement for plastered coatings
M40 Stone/Concrete/Quarry/Ceramic tiling/Mosaic
M41 Terrazzo tiling/In situ terrazzo
M50 Rubber/Plastics/Cork/Lino/Carpet tiling/sheeting
M51 Edge fixed carpeting
M52 Decorative papers/fabrics
M60 Painting/Clear finishing
M61 Intumescent coatings for fire protection of steelwork

N *Furniture/Equipment*
N10 General fixtures/furnishings/ equipment
N13 Sanitary appliances/fittings

P *Building fabric sundries*
P10 Sundry insulation/proofing work/ fire stops
P11 Foamed/Fibre/Bead cavity wall insulation
P20 Unframed isolated trims/skirtings/ sundry items
P30 Trenches/Pipeways/Pits for buried engineering services
P31 Holes/Chases/Covers/Supports for services

Q *Paving/Planting/Fencing/Site furniture*
Q10 Stone/Concrete/Brick kerbs/edgings/channels
Q20 Granular sub-bases to roads/pavings
Q22 Coated macadam/Asphalt roads/ pavings
Q24 Interlocking brick/block/roads/ pavings
Q25 Slab/Brick/Sett/Cobble pavings
Q30 Seeding/Turfing
Q31 Planting
Q40 Fencing
Q50 Site/Street furniture/equipment

R *Disposal Systems*
R10 Rainwater pipework/gutters
R11 Foul drainage above ground
R12 Drainage below ground
R13 Land drainage
R14 Laboratory/Industrial waste drainage
R20 Sewage pumping
R21 Sewage treatment/sterilization
R30 Centralised vacuum cleaning
R31 Refuse chutes
R32 Compactors/Macerators
R33 Incineration plant

S *Piped supply systems*
S10 Cold water
S11 Hot water
S12 Hot and cold water (small scale)
S13 Pressurized water
S14 Irrigation
S15 Fountains/Water features
S20 Treated/Deionised/Distilled water
S21 Swimming pool water treatment
S30 Compressed gas
S31 Instrument air
S32 Natural gas
S33 Liquid petroleum gas
S34 Medical/Laboratory gas

S40 Petrol/Oil – lubrication
S41 Fuel oil storage/distribution
S50 Vacuum
S51 Steam
S60 Fire hose reels
S61 Dry risers
S62 Wet risers
S63 Sprinklers
S64 Deluge
S65 Fire hydrants
S70 Gas fire fighting
S70 Foam fire fighting

T *Mechanical heating/Cooling/ Refrigeration systems*
T10 Gas/Oil fired boilers
T11 Coal fired boilers
T12 Electrode/Direct electric boilers
T13 Packaged steam generators
T14 Heat pumps
T15 Solar collectors
T16 Alternative fuel boilers
T20 Primary heat distribution
T30 Medium temperature hot water heating
T31 Low temperature hot water heating
T32 Low temperature hot water heating (small scale)
T33 Steam heating
T40 Warm air heating
T41 Warm air heating (small scale)
T42 Local heating units
T50 Heat recovery
T60 Central refrigeration plant
T61 Primary/Secondary cooling distribution
T70 Local cooling units
T71 Cold rooms
T72 Ice pads

U *Ventilation/Air Conditioning Systems*
U10 General supply/extract
U11 Toilet extract
U12 Kitchen extract
U13 Car parking extract
U14 Smoke extract/Smoke control
U15 Safety cabinet/Fume cupboard extract
U16 Fume extract
U17 Anaesthetic gas extract
U20 Dust collection
U30 Low velocity air conditioning
U31 VAV air conditioning
U32 Dual duct air conditioning
U33 Multizone air conditioning
U40 Induction air conditioning
U41 Fan coil air conditioning
U42 Terminal re-heat air conditioning
U43 Terminal heat pump air conditioning
U50 Hybrid system air conditioning
U60 Free standing air conditioning units
U61 Window/Wall air conditioning units
U70 Air curtains

V *Electrical supply/power/lighting systems*
V10 Electricity generation plant
V11 HV supply/distribution/public utility supply
V12 LV supply/public utility supply
V20 LV distribution
V21 General lighting
V22 General LV power
V30 Extra low voltage supply
V31 DC supply
V32 Uninterrupted power supply
V40 Emergency lighting
V41 Street/Area/Flood lighting
V42 Studio/Auditorium/Arena lighting
V50 Electric underfloor heating
V51 Local electric heating units
V90 General lighting and power (small scale)

W *Communications/Security/Control Systems*
W10 Telecommunications
W11 Staff paging/location
W12 Public address/Sound amplification
W13 Centralised dictation
W20 Radio/TV/CCTV
W21 Projection
W22 Advertising display
W23 Clocks
W30 Data transmissions
W40 Access control
W41 Security detection and alarm
W50 Fire detection and alarm
W51 Earthing and bonding
W52 Lightning protection
W53 Electromagnetic screening
W60 Monitoring

W61 Central control
W62 Building automation

X *Transport systems*
X10 Lifts
X11 Escalators
X12 Moving pavements
X20 Hoists
X21 Cranes
X22 Traveling cradles
X23 Goods distribution/Mechanised warehousing
X30 Mechanical document conveying
X31 Pneumatic document conveying
X32 Automatic document filing and retrieval

Y *Services reference specification*
Y10 Pipelines
Y11 Pipeline ancillaries
Y20 Pumps
Y21 Water tanks/cisterns
Y22 Heat exchangers
Y23 Storage cylinders/calorifiers
Y24 Trace Heating
Y25 Cleaning and chemical treatment
Y30 Air ductlines
Y31 Air ductline ancillaries
Y40 Air handling units
Y41 Fans
Y42 Air filtration
Y43 Heating/Cooling coils
Y44 Humidifiers
Y45 Silencers/Acoustic treatment
Y46 Grilles/Diffusers/Louvres
Y50 Thermal insulation
Y51 Testing and commissioning of mechanical services
Y52 Vibration isolation mountings
Y53 Control components – mechanical
Y54 Identification – mechanical
Y60 Conduit and cable trunking
Y61 HV/LV cables and wiring
Y62 Busbar trunking
Y63 Support components – cables
Y71 LV switchgear and distribution Boards
Y72 Contactors and starters
Y73 Luminaires and lamps
Y74 Accessories for electrical services
Y80 Earthing and bonding components
Y81 Testing and commissioning of electrical services
Y82 Identification – electrical
Y90 Fixing to building fabric

Z *Building fabric reference specification*
Z Building fabric reference specification
Z10 Purpose made joinery
Z11 Purpose made metalwork
Z12 Preservative/Flame retardant treatment
Z20 Fixings/Adhesives
Z21 Mortars
Z22 Sealants

APPENDIX 6

WORK SECTIONS AND EXAMPLES OF THE AUSTRALIAN NATSPEC SYSTEM

WORK DIVISION	WORK GROUP	WORK SECTION
Preliminaries & General work	Preliminaries	Tendering
		Preliminaries (CIC-1)
		Preliminaries (ABIC MW-1)
		Preliminaries (SBW-2)
		Preliminaries (JCC)
		Preliminaries (AS 2124)
		Preliminaries (AS 4000)
		Preliminaries (AS 4305)
		Quality
		Package definitions
	General technical requirements	General requirements
		Adhesives, sealants and fasteners
		Fire-stopping
		Metals and pre-finishes
		Heavy duty galvanized coatings
		Termite control
		Timber finishes and treatment
Site & groundwork	Site preparation	Demolition
		Site preparation
	Earthwork	Earthwork
		Service trenching
	Substructure	Piling
Structure & carcass work	Concrete construction	Monolithic stabilized earth walling
		Earth block walling
		Concrete formwork
		Concrete reinforcement
		Concrete post-tensioning
		In situ concrete
		Concrete finishes
		Precast concrete
	Timber construction	Structural timber
		Light timber framing
		Timber flooring and decking
	Steel construction	Structural steel
		Light steel framing
	Brick & block construction	Brick and block construction
	Stone construction	Stone masonry
		Stone repair
Enclosure work	Insulation & waterproofing	Insulation and barriers
		Waterproofing
		Sprayed mineral fire protection
	Roofing & cladding	Roofing
		Cladding
	Walling systems	Stone cladding
		Curtain walls
		Structural glazing
	Openings	Doors and hatches
		Overhead doors
		Windows
		Glazing
		Door and window hardware
	Lining	Lining
	Space systems	Suspended ceilings
		Access floors

		Partitions
		Operable walls
		Glass blockwork
Finishing work	Trowelled coatings	Terazzo
		Plastering
		Cementitious toppings
	Block & tile finishes	Block parquet
		Mosaic parquet
		Tiling
	Floor coverings	Floor sanding
		Resilient finishes
		Carpets
	Paint & film coating	Painting
		Paper hanging
Commissioning work	Custom-made fixtures	Tapestries
		Metal fixtures
		Stainless steel benching
		Timber fixtures
	Loose furniture	Miscellaneous furniture
	Signs & display	Signs and display
	Specialized equipment	Extinguishers and blankets
Hydraulic installations	Stormwater installations	Storm water
	Wastewater installations	Wastewater
	Freshwater installations	Freshwater
		Irrigation
	Gas installations	Fuel gas
		Medical gas, air and suction
	Fire installations	Hydrants
		Hose reels
		Sprinklers
Electrical installations	Electrical installations	Domestic electrical installations
		Generating sets
		Uninterruptible power supply
		Switchboards
		Wiring and accessories
		Luminaries
		Emergency evacuation lighting
	Communication & security installation	Telecommunications cabling
		Master antenna television
		Lightning protection
		Fire detection and alarms
		Emergency warning and intercom
		Electronic security
Mechanical installations	Local HVAC	Packaged equipment
	Central HVAV	Chillers
		Water heating boilers
		Cooling towers
		Fans
		Air filters
		Pumps
		Air coils
		Tanks and vessels
		Refrigeration
		Ductwork
		Mechanical piping
		Water treatment
		Liquid fuels

Australia

		Mechanical commissioning
External work	Fences & walls	Fences and external walls
	Landscaping	Landscaping
		Trees supply
	Paving & roads	Paving
		Road base and sub base
		Asphalt road surfacing
		Sprayed bituminous road surfacing
		Concrete road surfacing
		Roadwork ancillaries
Multi-trade schedules		

EXAMPLE OF TEXT FROM THE AUSTRALIAN NATSPEC SYSTEM
BASIC: BRICK & BLOCK CONSTRUCTION

1. GENERAL

1.1 CROSS REFERENCES
General
Refer to the General requirements section.

Related sections
Refer to the following sections: >

1.2 STANDARD
General
Materials, construction and detailing: To AS 3700

1.3 INTERPRETATION
Definitions
Face units: Masonry units used in face work, including purpose-made units such as squints, sills and thresholds.

Face work: Masonry in which the form, or form and colour, of the face units and joints is visible in the completed works.

2. QUALITY

2.1 INSPECTION
Witness points
Stages: Give sufficient notice so that inspection may be made at the following stages:

- Damp-proof courses, in position.
- Flashings, in position.
- Bottoms of cavities, after cleaning out.
- Bottoms of core holes, before grouting.
- Control joints, ready for insertion of joint filler.

Hold points

2.2 SAMPLES
Masonry unit samples
General: Submit faces units of each type illustrating the range of variation available, including colour, texture, surface irregularities, defective arises, and shapes.

Number of each type: 6

Face work sample panels
General: Provide in a suitable position a sample panel of each type of face work including face or pointing mortar.

Face work type: >

Location: >

Minimum size (face of panel) (mm): >

3. MATERIALS AND COMPONENTS

3.1 MATERIALS AND COMPONENTS
Bricks and block schedule

Attribute	Type of unit: Clay bricks	Concrete masonry Units	Calcium silicate bricks
Source			
Location			
Manufacturing dimension (mm)			
Form			
Compressive strength (Mpa)			
Dimensional category to AS 1225 (clay bricks)		-	-
Characteristic expansion to AS 1225 (clay bricks)		-	-
Durability class to AS 1225 (clay bricks)		-	-
Grading to AS 2733 (concrete masonry units)	-		-

Clay bricks below damp-proof course
Durability class: Exposure, to AS 1225

Steel components
Corrosion resistance rating to AS 3700:

- Steel products (including reinforcement) at least:
  >

Mortar materials
Sand: Fine aggregate with a low clay content and free from efflorescing salts, selected for colour and grading.

Sand for face work:

- Colour: >
- Grading: >
- Source: >

Additives: Do not use additives.

Cement type to AS 3972: GP.
White cement: Iron salts content = 1%

Coloured mortar:

- Colour: >
- Location: >
- Premixed mortar: >

Mortar mix table

Mortar proportions (cement:lime:sand)	Location
1:0:5 + water thickener	Concrete or calcium silicate masonry
1:0:4 + water thickener	Grouted and reinforced masonry
1:0 – 0:25:3	Underpinning, high strength masonry
1:1:6	Other masonry

4. EXECUTIVE

4.1 CONSTRUCTION GENERALLY

Cleaning

General: Clean masonry progressively as the work proceeds. Clean face work to remove mortar smears, stains and discoloration. Do not use acid.

Concealed work

Joints: Cut flush, and leave unstruck.

Sills and thresholds

Bedding: Solidly bed masonry sills and thresholds and lay them so that the top surfaces drain away from the building. Set out so that no unit is cut smaller than ¾ full width.

Sill units: >

Threshold units: >

Joints and cutting

Set out: Set out masonry with joints of uniform width and minimize cutting of masonry units.

Holes, sleeves and chases: Build in during erection.

Depth of raking (other than face work):

>

Rods

76 mm high units: 7 courses to 600 mm.

90 mm high units: 6 courses to 600 mm.

190 mm high units: 3 courses to 600 mm.

Bonds

Single leaf: Stretcher bond.

Face work: Stretcher bond.
Existing work: >

Tolerances (mm): >

Built in steel door frames

Fill the backs of jambs and heads solid with mortar as the work proceeds.

5. COMPONENTS

5.1 FACEWORK

Single face walls

Location: >

Double face walls

General: Select face units for uniform width and double-face qualities in single leaf masonry with face work both sides. Before starting, obtain a ruling as to which is the preferred wall face, and favour that face should a compromise be unavoidable.

Location: >

Commencement

Position: Commence at least 1 full course for block work, or 2 full courses for brickwork, below adjacent finished ground level.

Perpends

Alignment: vertically align perpends in alternate courses.

Perforations

Exposed: Use solid face units where perforations would otherwise be visible.

Joints

Surface: Work with a jointing tool to a dense smooth surface, except where the surface is to be bagged.

Joint profile: >

Depth of raking: >

Colour mixing

General: Where the colour of the face units is visible, evenly distribute the colour range of units. Prevent colour concentrations and "banding:.

5.2 SUBFLOOR

Bearer support

Piers: Support bearers on engaged and free standing masonry piers at 1800 mm maximum centres.

Engaged piers:

- Brickwork: 230 x 110 mm, bonded to walls.
- Block work: 390 x 90 mm, bonded to walls

Free standing piers table

Height (mm)	Brickwork (mm)	Block work (mm)
< 1500	230 x 230	390 x 190
1500 – 2700	350 x 350	390 x 390

Accessing openings

General: In internal walls, leave door width openings beneath doorways to give access to under floor areas.

Air vents type
Brickwork:

- Terra cotta: Perforated, 230 x 160 mm.
- Concrete framed: Bronze wire mesh in concrete frames, 470 x 160 mm.
- Cut brick: 2 cut bricks laid vertically and evenly spaced in a 230 mm wide x 2 course high opening, backed with bronze wire mesh built in.

Block work:

- Vent blocks: Purpose-made vent blocks.
- Concrete framed: Bronze wire mesh in concrete frame 390 x 190 mm.

Air vents location
Ventilation rate: At least 8400 m² free ventilation area per linear meter of wall.

Location: Below damp-proof course, within 600 mm of corners, elsewhere as required by ventilation rate, to internal and external walls.

Cavity walls: Provide matching vents in the internal leaves located as near as practicable to the vents in the external leaves.

5.3 PRECAST DOOR THRESHOLDS

Location >

Profile >

Finish to exposed faces
Off steel forms.

Concrete mix
1:2:4 cement: coarse aggregate 10 mm size: fine aggregate.

5.4 DAMP-PROOF COURSES

Material
Standard: To AS/NSZ 2904

Type:

Location
General: Provide damp-proof courses in the following locations, if applicable:

- Walls adjoining infill floor slabs on membranes: In the course above the underside of the slab in internal walls and inner leaves of cavity walls. Project 40 mm and dress down over the membrane turned up against the wall.

- Cavity walls built off slabs on ground: In the bottom course of the outer leaf, continuous horizontally across the cavity and up the inner face bedded in mortar, turned 30 mm into the inner leaf 1 course above. Project 10 mm beyond the external slab edge and turn down at 45 °.

- Masonry veneer construction: In the bottom course of the outer leaf, continuous horizontally across the cavity. Fasten to the inner frame 75 mm above floor level.

Project 10 mm beyond the external slab edge and turn down at 45°.

- Internal walls built off slabs on ground: In the first course above floor level.

- At timber floors: In the first course below the level of the underside of ground floor timbers in internal walls and inner leaves of cavity walls.

Installation
General: Lay in long lengths. Lap full width at angles and intersections and at least 150 mm at joints. Step as necessary, but not exceeding 2 courses per step. Sandwich damp-proof courses between mortar.

Junctions: Preserve continuity of damp-proofing at junctions of damp-proof courses and waterproof membranes.

Location: At least 150 mm above adjacent finished ground level.

Lap sealing:

5.5 **CAVITY WALLS**

Minimum cavity width
Masonry walls: 50 ± 10 mm.

Masonry veneer walls: 25 mm, between the masonry leaf and the load bearing frame and 40 mm between the masonry leaf and sheet bracing.

Openings
Closure: Do not close the cavity at the jambs of external openings.

Cavity fill
Height: Fill the cavity to 1 course above adjacent finished ground level with mortar weathered towards the outer leaf.

Flashings material
Standard: To AS/NZS 2904.

Type: >

Flashings location
General: Provide flashings and weathering in the following locations, if applicable:

- Floors: Full width of outer leaf immediately above slab or shelf angle, continuous across cavity and up the inner face bedded in mortar, turned 30 mm into the inner leaf 2 courses above. Where the slab supports the outer skin and is not rebated, bed the flashing in a suitable sealant.

- Under sills: 30 mm into the outer leaf bed joint 1 course below the sill, extending up across the cavity and under the sill.

- Over lintels to openings in cavity walls: Full width of outer leaf immediately above the lintel, continuous across cavity, turned 30 mm into the inner leaf 2 courses above. Extend at least 50 mm beyond the lintels.

- Over lintels to openings in masonry veneer construction: Full width of outer leaf immediately above the lintel, continuous across cavity. Turn up against the inner frame and fasten to it. Extend at least 50 mm beyond the lintels.

- At abutments with structural frames or supports: Vertical flashing in the cavity using 150 mm wide material, wedged and grouted into a grove in the frame opposite the cavity.

- At stiles where cavities are closed: Full height flashing extending 75 mm beyond the closure into the cavity, interleaved with the sill and head flashing at each end. Fix to frame stiles.

Flashings installation
General: Sandwich flashings between mortar except where on lintels or shelf angles.

Lap sealing: >

Pointing: Point up joints around flashings, filling voids.

Weep holes
Form: Open perpends.

Maximum spacing: 720 mm.

Location: Provide weep holes to external leaves of cavity walls in the course immediately above flashings, and cavity fill, and at the bottoms of unfilled cavities.

Wall ties
Material: >

Wall ties category table

Category to AS 2699	Service conditions
Light duty	Masonry veneer
Medium duty	Normal cavity construction and at abutments
Heavy duty	Cavities > 60 mm wide

Wall ties installation
Fixing of masonry veneer ties at abutments:

- To timber frames: Clouts or integral spikes.
- To concrete: Masonry anchors.
- To steel frames: >
- To structural supports: >
- Special requirements for cyclone areas:

>
Spacing: >

Embedment of wall ties
Cavities > 60 mm wide: 75 mm minimum.

Flexible wall ties
Type: Where ties or anchors extend across control joints, use ties or anchors which do not impair the effectiveness of the joint.

5.6 AUTOCLAVED AERATED CONCRETE WALLS

General
Type: A proprietary system which

- has a current Australian Building Product and System Certification Scheme certificate; or
- has a current technical opinion issued by the Australian Building systems Appraisal Council stating that the system is suitable for use in walls in buildings.

5.7 CONTROL JOINTS

Filler material
Type: Use compatible sealant and bond breaking backing materials which are non-staining to masonry. Do not use bituminous materials with absorbent masonry units.

Foamed materials: Closed-cell or impregnated, not water-absorbing.

Bond breaking materials: Non-adhesive to sealant, or faced with a non-adhering material.

Primer: Required.

Slip joints: >

Installation
Cleaning: Clean joints thoroughly before sealing.

Joint width:

- Vertical joints: >
- Horizontal joints: >

Sealant depth: 0.67 – 1.0 times joint width.

Control joints schedule

Joint code	Joint width	Joint filler		
		Primer	Backing rod	Sealant

6. REINFORCEMENT

6.1 BED JOINT REINFORCEMENT

Reinforcement
Material: galvanized welded wire mesh.

Width: Equal to the width of the masonry leaf, less 15 mm cover from each exposed surface of the mortar joint.

Installation
General: Lap 450 mm at splices. Fold and bend at corners so that the longitudinal wires are continuous. Stop 200 mm short of control joints.

In brickwork: Extend 450 mm beyond each side of openings.

Location:

- In third bed joint above bottom of wall.
- In second bed joint below top of wall.
- In first 2 bed joints above and below openings.
- In first 2 bed joints above and below head and sill flashings to openings.

Maximum vertical intervals: 500 mm.

6.2 REINFORCED MASONRY

General

Designation: Masonry strengthened with embedded steel reinforcement, other than bed joint reinforcement.

Reinforcement tolerances: >

Cleaning core holes

Block work: Use purpose-made cleanout blocks or machine cut a cleaning hole at the base of each reinforced core. Locate on the side of the wall which is to be rendered or otherwise concealed. Cover the hole with formwork and grout the core.

Bond beams

Type: Use bond beams made from purpose-made hollow concrete blocks with reinforcement grouted in place.

Reinforcement: Two 12 mm diameter galvanized rods.

7. LINTELS

7.1 STEEL LINTELS

Material

Type: Mild steel galvanized, class Z600.

Steel flats and angles

General: Comply with the **Steel lintels table**.

Steel lintels table

Maximum span (mm)	Lintel dimension (mm)
950	50 x 10
1050	75 x 10
1200	75 x 75 x 8
1350	90 x 90 x 8
1500	90 x 90 x 8
1650	100 x 75 x 8
1800	100 x 75 x 8
2100	125 x 75 x 10
2400	125 x 75 x 10
3000	150 x 90 x 12

Cold-formed lintels

Type: Proprietary flat-base type designed to AS 1538.

Type tests: Required.

Tension bars

Type tests: Required.

Installation

General: Provide 1 lintel to each wall leaf. Do not cut on site. Keep lintels 6 mm clear of heads and frames. Pack mortar between the angle up stand and supported masonry units.

Minimum bearing each end:

- Span 1800 mm: 150 mm.
- Span > 1800 mm, 300 mm: 230 mm.

Propping: To prevent deflection or excessive rotation, temporarily prop proprietary cold-formed lintels until the masonry reaches its required strength.

- Minimum propping period: 3 days.

8. FINISHES

8.1 BAGGING

Dry bagging

Preparation: Cut joints flush before bagging.

Application: Apply laying mortar to the surface using a hessian bag or similar. Flush up irregularities, but leave the minimum amount of mortar on the surface.

APPENDIX 7

CONTENTS AND EXAMPLES OF THE NETHERLANDS STABU SPECIFICATION SYSTEM

APPENDIX 7: CONTENTS AND EXAMPLES OF THE NETHERLANDS STABU SPECIFICATION SYSTEM

Following is an extract of the tables used in the STABU system:
- table of headings for work sections
- table of headings for elements - based on NL-SfB
- table of headings for elements - based on SROW (dwelling renovation)
- table of specification groups - A (general)
- table of specification groups - B (products)
- table of specification groups - D (building parts)
- table of specification groups - F (functions)
- table of specification groups - M (site equipment)
- table of specification groups - R (workmanship/assembly)
- table of specification groups - V (spaces)

TABLE OF HEADINGS FOR WORK SECTIONS

This table is used to label and organise complete specifications and conditions. Project specifications may be sorted using this table. The sections use two digits, leaving numbers 9 free to the users. Complete specification labels have another 4 digits to the number of the heading.

00 GENERAL
Orientation, general information, related work

01 CONTRACTUAL CONDITIONS
Conditions related to Standard Contract Conditions, Assurances, price adjustments, drawings, calculations

02 PERFORMANCE SPECIFICATIONS (reservation)

03

04

05 BUILDING SITE
Temp. buildings, temp. employees, cleaning and maintenance, lay out of the building site, temp. works and services.

06 CONSERVATION
Only general conditions

10 SHORING AND DEMOLISHMENT
General, total/partial demolishment, shoring, gaps and grooves

12 GROUND WORKS
General, surface cleaning, ground removal/ supplementing/compressing, ground treatment, foils and fabrics

14 EXTERNAL SEWERAGE AND DRAINAGE
General, functional descriptions, testing, existing Works, pipeworks, gutters, pits, separators, tanks, insulation

15 TRAFFIC SURFACES
General, edgings, pavings, conducting constructions

16 GARDENING
General, maintenance, applying/removing

17 EXTERIOR FURNITURE
General, minor buildings, furniture, sporting/playing equipment, decorations/advertising, art objects, fences

20 FOUNDATION PILES AND GROUND RETAINING WALLS
General, foundation piles prefabricated/in situ, ground retaining walls sections/in situ

21 IN SITU CONCRETE
General, repairing, protection, formwork, steel/ concrete floors, reinforcement, concrete, pre-/ post tensioning, treatment, insulation, accessories

22 MASONRY
General , existing work, masonry works, treatment reinforcement, accessories, insulation, moisture proofings

23 STONE ELEMENTS
General, floor-, roof-, wall-elements, stairs, balustrades, coverings, panellings, accessories, joints

24 STRUCTURAL TIMBERWORK
General, beams, levellings/linings, coverings, paneling, rafters, wood elements, moisture proofings, accessories

25 METAL CONSTRUCTION WORK
General, framework, sections and sheets, moisture proofings, accessories

26 CHIMNEYS
General, existing work, chimneys, openings

27 WINDOWS AND DOORS
General, frames/windows/doors, accessories, rooflights, glazing systems, industrial/commercial doors, movable walls, accessories

31 CLADDINGS
General, existing work, cladding constructions, moisture proofings

32 STAIRS AND BALUSTRADES
General, fixed/movable stairs, ladders, balustrades, accessories

33 ROOF COVERINGS
General, flexible sheet coverings, metal sheet coverings, accessories

34 GLAZING
General, glazing, additional glazing

35 NATURAL STONE, TERRAZZO ELEMENTS
General, floor-elements, stairs, balustrades, mason work, insulation, moisture proofings, accessories

36 JOINTS
General, joints

37 POST INSULATION
General, insulation coverings

38 OUTSIDE BLINDS AND SHUTTERS
General, movable blinds/screens/canopies, fixed screens, shutters

40 PLASTERWORK
General, existing work, preparation, plasterboards and grids, plasterwork, plaster/insulation systems

41 TILING
General, wall tiling, floor tiling, stair tiling, special tiling, joints, insulation, moisture proofings, accessories

42 FLOORING
General, existing work, mortar floors, insulated floors, Monolithic floors, floor panels, raised floors, Accessories

43 METAL AND PLASTIC PRODUCTS
General, openings, frames, sections, products

44 PARTITIONING AND CEILING SYSTEMS
General, ceilings, partitions

45 DECORATIONAL TIMBERWORK
General, levellings and linings, panelling, finishing, insulation, damp proofing

46 PAINTING
General, existing work, new work

47 FIXED FURNISHINGS
General, cupboards, wardrobes, kitchen, entrances signs and symbols, decoration, advertising

48 UPHOLSTERING, FLOOR COVERINGS, DECORATION
General, existing work, wall papering, upholstering floor coverings, internal blinds and fabrics

50 GUTTERS, RAINWATER REMOVAL
General, functional descriptions, drawings/calculation testing, gutters,pipes, accessories

51 INTERNAL WASTE WATER REMOVAL
General, functional descriptions, drawings/calculation testing, pipes, gutters, pits, separators, pumps, accessories, insulation

52 WATER SUPPLY INSTALLATION
General, functional descriptions, drawings/calculation testing, pipes, pumps, waterheaters, watertanks, accessories, insulation

53 SANITARY EQUIPMENT
General, functional descriptions, closets, urinals, showers, baths, bidets, washbasins, sinks, taps, valves, accessories

54 FIRE FIGHTING INSTALLATIONS
General, functional descriptions, drawings/calculation testing, pipes, accessories, mobile equipment

55 GAS SUPPLY INSTALLATIONS
General, functional descriptions, drawings/calculation testing, pipes, gas tanks and bottles, accessories

56 PRESSURED AIR AND VACUUM INSTALLATIONS
General, functional descriptions, drawings/ calculations, testing, pipes, pressured air devices, accessories

57 TECHNICAL EQUIPMENT (reservation)

60 HEATING INSTALLATION
General, functional descriptions, drawings/ calculations, testing, pipes, channels terminal devices, heating devices, oil tanks, accessories, insulation, control devices

61 VENTILATION AND AIR TREATMENT INSTALLATIONS
General, functional descriptions, drawings/ calculations, testing, channels, ventilation and air treatment devices, shutters/grills, accessories, insulation

62 COOLING/REFRIGERATION INSTALLATION
General, functional descriptions, drawings/ calculations, testing, pipes, cooling devices, refrigerators, terminal devices, storage devices, accessories, insulation

68 CONTROL INSTALLATIONS
General, functional descriptions, drawings/ calculations, testing, measuring/detection/ registration devices, control devices, transformers

69 ELECTRICAL INSTALLATIONS
General, functional descriptions, drawings/ calculations, testing, transformation devices, batteries, no-break systems, conduits, conductors, switches, contactors, terminal devices, earthing and lightning installations

78 BUILDING MANAGEMENT SYSTEMS
General, functional descriptions, drawings/ calculations, testing, applications, hardware

80 LIFTS
General, functional descriptions, drawings/ calculations, testing, cabins, drives, constructions, control, doors, accessories

81 ESCALATORS AND MOVING PAVEMENTS (reservation)

82 LIFTING AND HOISTING INSTALLATIONS (reservation)

83 GOOD TRANSPORTS AND DISTRIBUTION INSTALLATIONS (reservation)

84 CLEANING INSTALLATION
General, functional descriptions, drawings/calculatior testing, rails, carriers, platforms/cabins, ladders

TABLE OF HEADINGS FOR ELEMENTS – BASED ON NL-SFB

This table is used to organise complete specification and conditions. Project specifications may be sorted using this table. The sections use two digits, and two additional digits for subsections (the following list is detailed with only one additional digit)

(11) SOIL PROVISIONS
(11.0) soil provisions; general
(11.1) soil provisions; ground
(11.2) soil provisions; water

(13) FLOORS ON GROUND
(13.0) floors on ground; general
(13.1) floors on ground; non structural
(13.2) floors on ground; structural

(16) FOUNDATIONS
(16.0) foundations; general
(16.1) foundations; footings and beams
(16.2) foundations; retaining walls

(17) PILED FOUNDATIONS
(17.0) piled foundations; general
(17.1) piled foundations; not-driven piles
(17.2) piled foundations; driven piles

(21) EXTERNAL WALLS
(21.0) external walls; general
(21.1) external walls; non structural
(21.2) external walls; structural

(22) INTERNAL WALLS
(22.0) internal walls; general
(22.1) internal walls; non structural
(22.2) internal walls; structural

(23) FLOORS
(23.0) floor; general
(23.1) floor; non structural
(23.2) floor; structural

(24) STAIRS AND RAMPS
(24.0) stairs and ramps; general
(24.1) stairs and ramps; stairs
(24.2) stairs and ramps; ramps
(24.3) stairs and ramps; ladders and step irons

(27) ROOFS
(27.0) roofs; general
(27.1) roofs; non structural
(27.2) roofs; structural

(28) MAIN LOAD BEARING CONSTRUCTION
(28.0) main load bearing construction; general
(28.1) main load bearing construction; columns and beams
(28.2) main load bearing construction; walls and floors
(28.3) main load bearing construction; space structures

(31) OPENINGS IN EXTERNAL WALLS
(31.0) opening in external walls; general
(31.1) opening in external walls; not filled
(31.2) opening in external walls; filled with windows
(31.3) opening in external walls; filled with doors
(31.4) opening in external walls; filled with window walls

(32) OPENINGS IN INTERNAL WALLS
(32.0) opening in internal walls; general
(32.1) opening in internal walls; not filled
(32.2) opening in internal walls; filled with windows
(32.3) opening in internal walls; filled with doors
(32.4) opening in internal walls; filled with window walls

(33) OPENINGS IN FLOORS
(33.0) openings in floors; general
(33.1) openings in floors; not filled
(33.2) openings in floors; filled

(34) BALUSTRADES AND BANNISTERS
(34.0) balustrades and bannisters; general
(34.1) balustrades and bannisters; balustrades
(34.2) balustrades and bannisters; bannisters

(37) OPENINGS IN ROOFS
(37.0) openings in roofs; general
(37.1) openings in roofs; not filled
(37.2) openings in roofs; filled

(38) BUILT-IN PACKAGES
(38.0) built-in packages; general
(38.1) built-in packages

(41) EXTERNAL WALL FINISHES
(41.0) external wall finishes; general
(41.1) external wall finishes

(42) INTERNAL WALL FINISHES
(42.0) internal wall finishes; general
(42.1) internal wall finishes

(43) FLOOR FINISHES
(43.0) floor finishes; general
(43.1) floor finishes; raised floors
(43.2) floor finishes; non-raised floors

(44) STAIR AND RAMP FINISHES
(44.0) stair and ramp finishes; general
(44.1) stair and ramp finishes; stair finishes
(44.2) stair and ramp finishes; ramp finishes

(45) CEILING FINISHES
(45.0) ceiling finishes; general
(45.1) ceiling finishes; suspended ceilings
(45.2) ceiling finishes; non-suspended ceiling

(47) ROOF FINISHES
(47.0) roof finishes; general
(47.1) roof finishes; finishes
(47.2) roof finishes; coverings

(48) FINISH PACKAGES
(48.0) finish packages; general
(48.1) finish packages

(51) HEAT SOURCE
(51.0) heat source; general
(51.1) heat source; local
(51.2) heat source; central
(51.3) heat source; supplied heat
(51.4) heat source; total energy systems
(51.5) heat source; special

(52) REMOVAL
(52.0) removal; general
(52.1) removal; rain water removal
(52.2) removal; toilet water removal
(52.3) removal; waste water removal
(52.4) removal; combined water removal
(52.5) removal; special
(52.6) removal; refuse disposal

(53) WATER
(53.0) water; general
(53.1) water; drinking water supply
(53.2) water; hot water supply
(53.3) water; industrial water supply
(53.4) water; steam and condensers
(53.5) water; water treatment

(54) GASSES
(54.0) gasses; general
(54.1) gasses; fuel
(54.2) gasses; compressed air and vacuum
(54.3) gasses; medical
(54.4) gasses; technical
(54.5) gasses; special

(55) COOLING SOURCE AND DISTRIBUTION
(55.0) cooling source and distribution; general
(55.1) cooling source and distribution; local
(55.2) cooling source and distribution; central
(55.3) cooling source and distribution; distribution

(56) HEAT DISTRIBUTION
(56.0) heat distribution; general
(56.1) heat distribution; water
(56.2) heat distribution; steam
(56.3) heat distribution; air
(56.4) heat distribution; special

(57) AIR CONDITIONING
(57.0) air conditioning; general
(57.1) air conditioning; natural ventilation
(57.2) air conditioning; local induced draught
(57.3) air conditioning; central induced draught
(57.4) air conditioning; local mechanical ventilation
(57.5) air conditioning; central mechanical ventilation
(57.6) air conditioning; local
(57.7) air conditioning; central

(58) CLIMATE AND SANITARY CONTROL
(58.0) climate and sanitary control; general
(58.1) climate and sanitary control; specific control
(58.2) climate and sanitary control; central signaling, measuring and steering

(61) CENTRAL ELECTRICAL SERVICES
(61.0) central electrical services; general
(61.1) central electrical services; energy, emergency supply
(61.2) central electrical services; earthing
(61.3) central electrical services; conducting
(61.4) central electrical services; energy, high volta
(61.5) central electrical services; energy, low voltag
(61.6) central electrical services; energy, very low voltage
(61.7) central electrical services; lightning conductir

(62) ELECTRICAL POWER
(62.0) electrical power; general
(62.1) electrical power; high voltage
(62.2) electrical power; low voltage, not guarded
(62.3) electrical power; low voltage, guarded
(62.4) electrical power; low voltage, stabilised
(62.5) electrical power; low voltage, compensated

(63) LIGHTING
(63.0) lighting; general
(63.1) lighting; standard, not guarded
(63.2) lighting; emergency, decentral
(63.3) lighting; special, not guarded
(63.4) lighting; standard, guarded
(63.5) lighting; emergency, central
(63.6) lighting; special, guarded
(63.7) lighting; advertising

(64) COMMUNICATION
(64.0) communication; general
(64.1) communication; signals
(64.2) communication; sound
(64.3) communication; visual
(64.4) communication; data
(64.5) communication; integrated systems
(64.6) communication; antenna systems

(65) PROTECTION
(65.0) protection; general
(65.1) protection; fire
(65.2) protection; burglar
(65.3) protection; nuisance
(65.4) protection; social alarm
(65.5) protection; environmental nuisance, detection and alarm

(66) TRANSPORT
(66.0) transport; general
(66.1) transport; elevators
(66.2) transport; escalators, conveyers
(66.3) transport; goods
(66.4) transport; documents

(67) BUILDING MANAGEMENT SYSTEMS
(67.0) building management systems; general
(67.1) building management systems; tending, signaling
(67.2) building management systems; computerizing
(67.3) building management systems; climate/sanitary equipment, remote control

(71) FIXED TRAFFIC EQUIPMENT
(71.0) fixed traffic equipment; general
(71.1) fixed traffic equipment; standard
(71.2) fixed traffic equipment; special

(72) FIXED USER EQUIPMENT
(72.0) fixed user equipment; general
(72.1) fixed user equipment; standard
(72.2) fixed user equipment; special

(73) FIXED KITCHEN EQUIPMENT
(73.0) fixed kitchen equipment; general
(73.1) fixed kitchen equipment; standard
(73.2) fixed kitchen equipment; special

(74) FIXED SANITARY EQUIPMENT
(74.0) fixed sanitary equipment; general
(74.1) fixed sanitary equipment; standard
(74.2) fixed sanitary equipment; special

(75) FIXED MAINTENANCE EQUIPMENT
(75.0) fixed maintenance equipment; general
(75.1) fixed maintenance equipment; standard
(75.2) fixed maintenance equipment; special

(76) FIXED STORAGE EQUIPMENT
(76.0) fixed storage equipment; general
(76.1) fixed storage equipment; standard
(76.2) fixed storage equipment; special

(81) NON-FIXED TRAFFIC EQUIPMENT
(81.0) non-fixed traffic equipment; general
(81.1) non-fixed traffic equipment; standard
(81.2) non-fixed traffic equipment; special

(82) NON-FIXED USER EQUIPMENT
(82.0) non-fixed user equipment; general
(82.1) non-fixed user equipment; standard
(82.2) non-fixed user equipment; special

(83) NON-FIXED KITCHEN EQUIPMENT
(83.0) non-fixed kitchen equipment; general
(83.1) non-fixed kitchen equipment; standard
(83.2) non-fixed kitchen equipment; special

(84) NON-FIXED SANITARY EQUIPMENT
(84.0) non-fixed sanitary equipment; general
(84.1) non-fixed sanitary equipment; standard
(84.2) non-fixed sanitary equipment; special

(85) NON-FIXED CLEANING EQUIPMENT
(85.0) non-fixed cleaning equipment; general
(85.1) non-fixed cleaning equipment; standard
(85.2) non-fixed cleaning equipment; special

(86) NON-FIXED STORAGE EQUIPMENT
(86.0) non-fixed storage equipment; general
(86.1) non-fixed storage equipment; general
(86.2) non-fixed storage equipment; general

(90) SITE
(90.0) site
(90.1) soil provisions
(90.2) buildings
(90.3) enclosures
(90.4) site finishes
(90.5) site services, mechanical
(90.6) site services, electrical
(90.7) site equipment, standard
(90.8) site equipment, special

(0-) INDIRECT PROJECT PROVISIONS
(0-.0) indirect project provisions
(0-.1) site preparation
(0-.2) equipment handling provisions
(0-.3) risk assurance
(0-.4) project organisation
(0-.5) trade organisation

TABLE OF HEADINGS FOR ELEMENTS - BASED ON SROW (DWELLING RENOVATION)

This table is used to organise complete specificatio and conditions. Project specifications may be sorte using this table. The sections use two digits, and tw additional digits for subsections.

1. TEMPORARY PROVISIONS, WORK AND SITE

11 SITE

111 enclosures
1111 enclosures
1112 entrances
1113 guard

112 advertising
1121 boards

113 temporary roads
1131 approach
1132 site roads

114 earth shapes
1141 revetment
1142 drainage

115 cabin
1151 cabin, supervision
1152 cabin, project management
1153 cabin, employees
1154 cabin, material
1155 supply, assembling, disassembling,removal
1156 connections
1157 equipment

116 .....

117 personal provisions
1171 managers
1172 supervisors
1173 employees for general purposes
1174 additional provisions

118 other cost
1181 not available site sections
1182 execution costs
1183 taxes

12 WORK

121 delivery
1211 drying
1212 cleaning
1213 delivery works

122 climate protection
1221 roof constructions
1222 coverings
1223 heating

123 dimensioning
1231 boundary survey
1232 batter boards
1233 grade stakes

126 assurance
1261 assurance for the employer
1262 work assurance
1263 security

13 MACHINERY, EQUIPMENT

131 big machinery
1311 transport machines
1312 machines for ground works
1313 tools
1315 supply, assembling, disassembling, remov

132 small machines
1321 transport machines
1322 machines for ground works
1323 tools
1325 supply, assembling, disassembling, remov

133 additional means
1331 scaffoldings
1332 traffic plates
1335 supply, assembling, disassembling, remov

134 other machinery, equipment
1341 for the employer
1342 work equipment
1345 supply, assembling, disassembling, remov

136 assurance
1361 machinery/equipment assurance

2. MAIN STRUCTURE

21 FOUNDATIONS

211 load bearing construction
2111 piles
2112 soil improvement
2113 foundation rings

212 foundation constructions
2121 foundations
2122 upgoing foundation works
2123 soil insulation
2124 finishes
2125 provisions
2126 side aspects

22 FLOORS

221 floors on soil
2111 floors on soil
2114 finishes
2115 provisions
2116 side aspects

222 structural slabs
2221 construction
2223 surfaces
2224 finishes
2225 provisions
2226 side aspects

223 structural slabs between apartments
2231 construction
2233 surfaces
2234 finishes
2235 provisions
2236 side aspects

225 openings in floors
2252 hatches
2255 provisions
2256 side aspects

23 INNER WALLS

231 inner wall constructions
2311 walls
2313 surfaces
2314 finishes
2315 provisions
2316 side aspects

233 columns and beams
2331 columns
2332 beams
2333 frames
2334 finishes
2335 provisions
2336 side aspects

234 inner channels
2342 breasts
2343 channels
2444 finishes
2445 provisions
2446 side aspects

235 openings in inner walls
2351 frames, complete
2352 doors
2353 windows
2354 finishes
2355 provisions
2356 side aspects

236 doors(if necessary)
2361 rotating doors
2362 rotating/dropping doors
2363 double doors
2364 sliding doors
2365 overhead doors
2366 folding doors

237 windows
2371 rotating windows
2372 rotating/dropping windows
2373 double windows
2374 sliding windows
2375 dropping windows
2376 awning windows
2377 pivoting windows
2378 extra (?) windows

24 stairs
241 outer stair constructions
2411 outer stairs
2412 steps
2414 finishes
2415 provisions
2416 side aspects

242 inner stair constructions
2421 inner stairs
2422 steps
2424 finishes
2425 provisions
2426 side aspects

245 outer ramp constructions
2451 outer ramps
2454 finishes
2455 provisions
2456 side aspects

246 inner ramp constructions
2461 inner ramps
2464 finishes
2465 provisions
2466 side aspects

248 balustrades
2481 balustrades for stairs
2482 balustrades for steps
2483 bannisters
2484 finishes
2485 provisions
2486 side aspects

25 OUTER WALLS

251 cavity walls
2511 outer wallsides
2512 inner wallsides
2513 surfaces
2514 finishes
2515 provisions
2516 side aspects

252 massive walls
2521 outer walls
2523 surfaces
2524 finishes
2525 provisions
2526 side aspects

253 columns and beams
2531 columns
2532 beams
2533 frames
2534 finishes
2535 provisions
2536 side aspects

254 awning constructions
2541 awnings
2544 finishes
2545 provisions
2546 side aspects
2547 roof finishes

255 openings in outer walls
2551 frames, complete
2552 doors
2553 windows
2554 finishes
2555 provisions
2556 side aspects

256 doors (if necessary)
2561 rotating doors
2562 rotating/dropping doors
2563 double doors
2564 sliding doors
2565 overhead doors
2566 folding doors

257 windows (if necessary)
2571 rotating windows
2572 rotating/dropping windows
2573 double windows
2574 sliding windows
2575 dropping windows
2576 awning windows
2577 pivoting windows
2578 additional windows

258 bay windows
2581 bay windows, complete
2583 windows
2584 finishes
2585 provisions
2586 side aspects
2587 roofs

26 BALCONIES AND GALLERIES

261 balcony construction
2611 balconies
2613 surfaces
2614 finishes
2615 provisions
2616 side aspects

262 outer gallery constructions
2621 outer galleries
2623 surfaces
2624 finishes
2625 provisions
2626 side aspects

263 inner gallery constructions
2631 inner galleries
2633 surfaces
2634 finishes
2635 provisions
2636 side aspects

264 loggia constructions
2641 loggias
2644 finishes
2645 provisions
2646 side aspects

265 walk bridge constructions
2651 walk bridges
2653 surfaces
2654 finishes
2655 provisions
2656 side aspects

268 balustrades
2681 balustrades for balconies
2682 balustrades for galleries
2683 screens
2684 finishes
2685 provisions
2686 side aspects

27 ROOFS

271 roof constructions
2711 roofs
2713 surfaces
2714 finishes
2715 provisions
2716 side aspects

272 gutter constructions
2721 gutters
2724 finishes
2725 provisions
2726 side aspects

273 eaves constructions
2731 eaves
2734 finishes
2735 provisions
2736 side aspects

274 outer channels
2741 chimneys
2742 holes
2744 finishes
2745 provisions
2746 side aspects

275 roof openings
2751 roof lights
2752 roof hatches
2753 roof windows
2754 finishes
2755 provisions
2756 side aspects

276 attic constructions
2761 frames, complete
2763 windows
2764 finishes
2765 provisions
2766 side aspects
2767 roofs
2768 side wings

277 windows (if necessary)
2771 rotating windows
2772 rotating/dropping windows
2773 double windows
2774 sliding windows
2775 dropping windows
2776 awning windows
2777 pivoting windows
2778 additional windows

278 balustrades
2781 balustrades
2784 finishes
2785 provisions
2786 side aspects

4 COMPLETION

42 NON STRUCTURAL FLOORS AND FLOOR FINISHES

421 inner floors and floor finishes
4211 secondary floors
4214 finishes
4215 provisions
4216 side aspects

422 outer floors and floor finishes
4221 secondary floors
4224 finishes
4225 provisions
4226 side aspects

43 INNER WALLS AND WALL FINISHES

431 inner walls and wall finishes
4311 separation walls
4312 additional walls
4314 finishes
4315 provisions
4316 side aspects

435 openings in inner walls
4351 frames, complete
4352 doors
4353 windows
4354 finishes
4355 provisions
4356 side aspects

436 doors (if necessary)
4361 rotating doors
4363 double doors
4364 sliding doors
4366 folding doors

437 windows (if necessary)
4371 rotating windows
4374 sliding windows
4375 dropping windows
4376 awning windows
4377 pivoting windows

44 CEILINGS

441 ceiling constructions
4411 frames
4413 surfaces
4414 finishes
4415 provisions
4416 side aspects

45 EQUIPMENT/FURNITURE

451 individual kitchen equipment
4511 under cupboards
4512 upper cupboards
4513 blades
4514 finishes
4515 provisions
4516 side aspects

452 common kitchen equipment
4521 under cupboards
4522 upper cupboards
4523 blades
4524 finishes
4525 provisions
4526 side aspects

453 cupboards
4531 hanging-cupboards
4532 laying-cupboards
4533 combined cupboards
4535 cupboards completions
4536 side aspects
4537 work cupboards
4538 letter boxes

454 distribution cabinets
4541 individual
4542 common
4543 mounting boards
4546 completions
4547 side aspects

5 MECHANICAL INSTALLATIONS

51 WASTE REMOVAL

511 waste removal installation
5112 channels
5114 finishes
5115 provisions
5116 side aspects

52 INNER WASTE WATER REMOVAL

521 inner waste water removal
5212 conduits
5214 finishes
5215 provisions
5216 side aspects

53 WATER AND SANITARY INSTALLATIONS

531 individual water supply installations
5311 boilers
5312 water conduits
5313 water treatment
5314 finishes
5315 provisions
5316 side aspects

532 common water supply installations
5321 boilers
5322 water conduits
5323 water treatment
5324 finishes
5325 provisions
5326 side aspects

533 sanitary installations
5331 sanitary equipment
5333 plumbing fixtures
5334 finishes
5335 provisions
5336 side aspects

54 GAS SUPPLY INSTALLATIONS

541 individual gas supply installations
5411 gas devices
5412 gas conduits

5413 gas fittings
5414 finishes
5415 gasmeters
5416 side aspects

542 common gas supply installations
5421 gas devices
5422 gas conduits
5423 gas fittings
5424 finishes
5425 gasmeters
5426 side aspects

55 RAIN WATER REMOVAL

551 rain water removal
5512 conduits
5514 finishes
5515 provisions
5516 side aspects

56 HEATING INSTALLATIONS

561 individual warm water heating installations
5611 heaters
5612 conduits
5613 discharge canals
5614 finishes
5615 provisions
5616 side aspects

562 common warm water heating installations
5621 heaters
5622 conduits
5623 discharge canals
5624 finishes
5625 provisions
5626 side aspects

563 heating terminals
5631 heating terminals
5633 fittings
5634 finishes
5635 provisions
5636 side aspects

564 air heating installations
5641 heaters
5642 conduits
5643 discharge canals
5644 finishes
5645 provisions
5646 side aspects

57 AIR TREATMENT INSTALLATIONS

571 natural ventilation
5712 channels
5714 finishes
5715 provisions
5716 side aspects

572 mechanical ventilation
5721 ventilators
5722 channels
5724 finishes
5725 provisions
5726 side aspects

6 NON MECHANICAL AND OTHER INSTALLATIONS

63 ELECTRICAL INSTALLATIONS

631 individual electrical installations
6311 electrical devices
6312 conduits
6313 grounding
6314 switches
6315 control
6316 side aspects
6317 low voltage installations
6318 fixtures

632 common electrical installations
6321 electrical devices
6322 conduits
6323 grounding
6324 switches
6325 control
6326 side aspects
6327 low voltage installations
6328 fixtures

64 COMMUNICATION INSTALLATIONS

641 telephone installations
6411 apparatus
6412 conduits
6413 grounding
6414 switches
6415 control
6416 side aspects

642 cable television installation
6421 apparatus
6422 conduits

6423 grounding
6424 switches
6425 control
6426 side aspects

643 antenna installations
6431 apparatus
6432 conduits
6433 grounding
6434 switches
6435 control
6436 side aspects

644 broadcasting installations
6441 apparatus
6442 conduits
6443 grounding
6444 switches
6445 control
6446 side aspects

67 TRANSPORT INSTALLATIONS

671 lift installations
6711 lift devices
6714 equipment
6715 provisions/control
6716 side aspects

672 conveyors
6721 apparatus
6724 equipment
6725 provisions/control
6726 side aspects

673 cleaning installations
6731 devices
6734 equipment
6735 provisions/control
6736 side aspects

68 PROTECTIVE INSTALLATIONS

681 lightning protection
6812 conduits
6813 grounding
6815 provisions
6816 side aspects

682 fire protection conduits
6823 conduits
6824 finishes
6825 provisions
6826 side aspects

683 fire fighting equipment
6831 fire lines
6832 apparatus

8 SITE

81 SITE SOIL

811 site soil
8114 ground works
8116 revetments

814 site stairs
8141 stairs
8142 heights
8144 finishes
8145 provisions
8446 side aspects

82 PREFABRICATED BUILDINGS

821 storage building constructions
8211 storage buildings
8214 finishes
8215 provisions
8216 side aspects

822 garages
8221 garages
8224 finishes
8225 provisions
8226 side aspects

83 SITE FURNISHINGS

831 enclosure constructions
8311 enclosure
8314 finishes
8315 provisions
8316 side aspects

832 terrace separation constructions
8321 terrace separations
8324 finishes
8325 provisions
8326 side aspects

833 pergola constructions
8331 pergolas
8334 finishes
8335 provisions
8336 side aspects

835 entrances in enclosures
8351 gates (small)
8352 gates
8354 finishes
8355 provisions
8356 side aspects

836 letter boxes
8361 letter boxes
8364 finishes
8365 provisions
8366 side aspects

837 washing line constructions
8371 washing line constructions
8374 finishes
8375 provisions
8376 side aspects

84 SITE FINISHINGS (on the ground)

841 pavements
8414 pavements
8415 provisions
8416 side aspects

842 planting
8424 planting
8425 provisions
8426 side aspects

85 SITE INSTALLATIONS (mechanical)

852 water drainage
8522 conduits
8524 finishes
8545 provisions
8546 side aspects

853 water and sanitary installations
8531 individual water installations
8532 common water installations
8533 sanitary installation
8537 site provisions

854 gas installations
8541 individual gas installations
8542 common gas installations
8547 site provisions

855 site drainage
8551 gutters
8552 drainage
8554 finishes
8555 provisions
8556 side aspects

856 heating installations
8561 individual warm water installations
8562 common warm water installations
8563 heating installations
8564 air heating installations
8567 site provisions

86 SITE INSTALLATIONS (non mechanical)

861 individual eledtrotechnical installations
8611 grounding
8612 site devices
8613 site cabling
8614 switches
8615 control
8616 side aspects
8617 site provisions
8618 fixtures

862 common electrotechnical installations
8621 grounding
8622 site devices
8623 site cabling
8624 switches
8625 control
8626 side aspects
8627 site provisions
8628 fixtures

863 communication installations
8631 telephone installations, site provisions
8632 cable television installations, site provisions
8633 antenna installations, site provisions
8634 broadcasting installations, site provisions
8635 communication installations, site provisions
8636 side aspects

SPECIFICATION GROUPS

Specification groups are used for all kind of specifications. They are identified by a letter, indicating the main group, followed by six digits. Each group may have a number of members, where each member is indicated by digit-letter combination of the form: 999.x99. The letter is used to indicate the type of specification:

a conditional specification
b performance specification
c descriptive specification
f proprietary specification

The members of a group are regarded as belonging to the same family, which makes them, to a certain extent, interchangeable.

The following lists of tables contain only the first two levels (2 digits) of the specification groups. The total number of groups is about 3000.

TABLE OF SPECIFICATION GROUPS – A (GENERAL)

Main group A contains references to standards and other Publications used in specifications, and contractual conditions.

A000000 GENERAL

A100000 STANDARDS
A110000 DUTCH STANDARDS
A120000 CEN STANDARDS
A130000 EUROPEAN STANDARDS
A140000 IEC STANDARDS
A150000 ISO STANDARDS
A170000 TECHNICAL APPROVAL DOCUMENTS
A180000 OTHER PUBLICATIONS
A200000 REGULATIONS/CONDITIONS
A210000 CONTRACTUAL CONDITIONS IN ADDITION TO UAV (standard conditions)
A220000 DRAWINGS, CALCULATIONS, DOCUMENTATION
A300000 PROJECT INFORMATION
A310000 LOCATIONAL INFORMATION
A320000 TENDERING INFORMATION

TABLE OF SPECIFICATION GROUPS – B (PRODUCTS)

Main group B contains product specifications.

B000000 MATERIALS AND PRODUCTS, GENERAL

B100000 BASIC MATERIAL
B110000 HARDENING/STIFFENING MATERIALS
B120000 LOOSE MATERIAL
B130000 CONSERVING/PROTECTING FLUIDS
B180000 PLANTS, SEEDS, ETC.
B200000 BASIC PRODUCTS
B210000 RIGID BLOCKS, TILES, SHEETS
B220000 FLEXIBLE BLOCKS, TILES, SHEETS
B230000 QUILTS, MATS, CONTINUOUS FLAT
B240000 PIPES, SECTIONS
B250000 BARS, WIRES
B260000 CHAINS, BANDS, STRIPS
B270000 CHANNELS, CONDUITS

B300000 CONSTRUCTION PRODUCTS - 1
B310000 MINOR BUILDINGS
B320000 INDIVIDUAL CONSTRUCTION ELEMENTS
B330000 FLOOR ELEMENTS
B340000 WALL ELEMENTS
B350000 ROOF ELEMENTS
B360000 STAIRS, LADDERS
B370000 CEILING SYSTEM ELEMENTS

B400000 CONSTRUCTION PRODUCTS - 2
B410000 WINDOWS/DOORS
B420000 ACCESS/BARRIER/CONDUCTING ELEMENTS
B430000 CLADDING/PANELLING/COVERING ELEMENTS
B440000 UPHOLSTERING/DECORATION PRODUCTS
B480000 FURNITURE

B500000 MECHANICAL INSTALLATION PRODUCTS
B510000 VALVES
B520000 MEASURING/DETECTION/CONTROL DEVICES
B530000 ENERGY TRANSFORMATION DEVICES
B540000 LIQUID/GAS DISTRIBUTION/ TREATMENT DEVICES
B550000 TERMINAL DEVICES
B560000 STORING DEVICES

B600000 ELECTRICAL INSTALLATION
B610000 TRANSFORMATION/STORING DEVICES
B620000 TERMINAL DEVICES

B630000 ELECTRONIC/COMMUNICATION DEVICES/SOFTWARE

B700000 TRANSPORT INSTALLATIONS PRODUCTS
B710000 LIFTS
B720000 LIFTING AND HOISTING DEVICES

B800000 ACCESSORIES
B810000 FXING ACCESSORIES
B820000 CONNECTING ACCESSORIES
B830000 IRONMONGERY

TABLE OF SPECIFICATION GROUPS – D

(BUILDING PARTS)

Main group D contains names of parts of the building/facilit which may be distinguished as a identifiable part which cou have it's own specification. The members of each group are further decompositions and specializations of the group

D000000 BUILDING/INSTALLATION PARTS, GENERA

D100000 OUTER SPACE
D110000 TRAFFIC SURFACE
D120000 UNPAVED SURFACE
D130000 WATER SURFACE
D140000 OUTSIDE CONSTRUCTIONS
D150000 OUTSIDE INSTALLATIONS
D170000 OUTSIDE FURNITURE
D200000 BUILDING/FACILITY SERVICES

D210000 INDIVIDUAL CONSTRUCTION PARTS
D220000 FLOORS
D230000 WALLS
D240000 ROOFS
D250000 STAIRS/RAMPS
D260000 CEILINGS/ACOUSTICAL ELEMENTS
D270000 CHANNELS/SHAFTS

D300000 BUILDING INSTALLATIONS
D310000 REMOVAL/SUPPLY INSTALLATIONS
D320000 CLIMATE INSTALLATIONS SERVICES
D330000 TOTAL-ENERGY INSTALLATIONS
D340000 ELECTRICAL ENERGY SUPPLY/EARTHING INSTALLATIONS
D350000 LIGHTING INSTALLATIONS
D360000 COMMUNICATION INSTALLATIONS
D370000 MANAGEMENT/CONTROL INSTALLATIONS
D380000 TRANSPORT INSTALLATIONS

D400000 PROPRIETARY INSTALLATIONS

D500000 BUILDING DECORATION/FURNITURE
D510000 BUILDING DECORATION
D520000 FIXED BUILDING FURNITURE
D530000 FIXED TECHNICAL EQUIPMENT
D540000 INVENTORY

TABLE OF SPECIFICATION GROUPS – F (FUNCTIONS)

Main group F contains functional requirements and performance specifications bound to building parts.

F000000 FUNCTIONS, GENERAL

F100000 OUTER SPACE
F110000 TRAFFIC SURFACES
F120000 UNPAVED SURFACES
F130000 WATER SURFACES
F140000 OUTSIDE CONSTRUCTIONS
F150000 OUTSIDE NETWORKS
F160000 OUTSIDE SERVICES

F200000 BUILDING/FACILITY
F220000 FLOORS
F230000 WALLS
F240000 ROOFS
F250000 STAIRS/RAMPS
F260000 CEILINGS/ACOUSTICAL PROVISIONS

F300000 BUILDING SUPPLY/REMOVAL SERVICES
F310000 WATER SUPPLY
F320000 FUEL SUPPLY
F330000 ENERGY SUPPLY
F340000 TELECOMMUNICATIONS SUPPLY
F350000 WATER REMOVAL
F360000 GAS REMOVAL

F400000 BUILDING CONTROL SERVICES
F410000 HEATING SERVICES
F420000 COOLING/REFRIGERATION SERVICES
F430000 AIR TREATMENT/VENTILATION SERVICES
F440000 LIGHTING SERVICES
F450000 TELECOMMUNICATIONS SERVICES
F460000 BUILDING MANAGEMENT SERVICES
F470000 CLEANING/MAINTENANCE SERVICES
F480000 TRANSPORT SERVICES

TABLE OF SPECIFICATION GROUPS - M (SITE EQUIPMENT)

Main group M contains specifications about site equipment, as far as this could be of importance for specifications. For this reason the group is not very detailed at this moment, but this is of course possible when there is a need for.

M000000 EQUIPMENT, GENERAL

M100000 SITE OFFICES, SHEDS, FACILITIES
M110000 SITE OFFICES, SHEDS
M120000 FENCES, TEMP. PARTITIONS
M130000 SCAFFOLDINGS
M140000 TEMP. TRAFFIC PROVISIONS
M150000 SILO'S, TANKS
M160000 FORMWORK PRODUCTS

M200000 ENERGY SUPPLY
M210000 GENERATORS
M220000 ENERGY DISTRIBUTION EQUIPMENT
M230000 LIGHTING EQUIPMENT
M240000 COMMUNICATION EQUIPMENT
M250000 HEATING- AND DEHYDRATION EQUIPMEN
M260000 WATER SUPPLY

M300000 MACHINERY
M310000 CRANES, LIFTS- AND HOIST EQUIPMENT
M320000 TRANSPORT EQUIPMENT
M330000 PILING EQUIPMENT
M340000 COMPRESSORS, CLEANING EQUIPMENT

M400000 TOOLS
M410000 HAND TOOLS

M500000 INSTRUMENTS
M510000 MEASURING INSTRUMENTS
M520000 TESTING EQUIPMENT

M700000 TRANSPORT CARRYING EQUIPMENT

TABLE OF SPECIFICATION GROUPS – R (WORKMANSHIP/ASSEMBLY)

Main group R contains specifications about the quality of the work (RESULTS), such as workmanship quality, mounting tolerances, etc.

R000000 RESULTS, GENERAL
R010000 CLEANING, MAINTENANCE WORK
R020000 MEASURING
R030000 ADDITIONAL REQUIREMENTS

R100000 CUTTING, DRILLING, SHORING AND DEMOLISHING
R110000 CUTTING, DRILLING
R120000 SHORING
R130000 DEMOLISHING

R200000 SITE WORK
R210000 GROUND WORK
R220000 PAVINGS
R230000 GARDENING

R400000 CONSTRUCTION WORK
R410000 PILING, UNDERGROUD CONSTRUCTIONS
R420000 MAIN CONSTRUCTION WORKS
R430000 FINISHINGS, COMPLETIONS
R440000 DECORATION, UPHOLSTERING

R500000 MECHANICAL INSTALLATIONS
R510000 PIPING
R520000 CHANNELLING
R550000 INSTALLING DEVICES
R560000 INSTALLING TERMINALS
R570000 INSTALLING COMBINED DEVICES
R600000 ELECTRICAL INSTALLATIONS
R630000 CONDUITS
R650000 COMMUNICATION AND CONTROL/ MANAGEMENT INSTALLATIONS

TABLE OF SPECIFICATION GROUPS - V (SPACES)

Main group V will contain names of spaces which could be identified inside and outside the building, which could have its own specification. This table is not yet available yet.

EXAMPLE OF TEXT FROM THE NETHERLANDS STABU SYSTEM

This example is given in two of the possible arrangements. The first arrangement uses NL-SfB for headings, whereas the second arrangement uses the work section headings. Because it concerns only one specified item (piling foundation) the automatic adjustment (splitting up or combining) of specifications is not shown.

ARRANGEMENT USING NL-SfB - ELEMENTS

(17) PILED FOUNDATIONS
(17.2) Piled foundations; driven piles
(17.21) Driven piles, constructive
PILED FOUNDATION quantity: 86
according to drawing nr. 123
SPECIFICATION 20.31.12-a.01

0. PILE DRIVING
Direction: vertical.
Lowest point (m): 10,50 – N.A.P.

1. WOODEN PILE SOFTWOOD (BRL 2302/02)
Wood type (NEN 5491): pine.
Quality (NEN 5491): B.
Pile length (m): 9.50.
Pile must be peeled.
Quality certificate KOMO required.

2. CONCRETE EXTENSION PILE
Diameter (s) (mm): 250.
Length (s) (m): 2,50.

6. DRIVE PLAN
Drive plan provided by contractor.
Number of plans to provide:
- for approval: 3.
- final: 2.

ARRANGEMENT USING WORK SECTIONS

20. FOUNDATION PILES AND GROUND RETAINING WALLS
20.31 PILE FOUNDATION USING PREFABRICATED PILES
20.31.12-a DRIVEN PILES, WOODEN PILE, CONCRETE EXTENSION PILE

0. PILE DRIVING
Direction: vertical.
Lowest point (m): 10,50 – N.A.P.
Height wooden pile head (m): 1,50 – N.A.P.

1. WOODEN PILE SOFTWOOD (BRL 2302/02)
Wood type (NEN 5491): pine.
Quality (NEN 5491): B.
Pile length (m): 9.50.
Pile must be peeled.
Quality certificate KOMO required.

2. CONCRETE EXTENSION PILE
Diameter (s) (mm): 250.
Length (s) (m): 2,50.

6. DRIVE PLAN
Drive plan provided by contractor.
Number of plans to provide:
- for approval: 3.
- final: 2.

.01 PILED FOUNDATION quantity: 86
according to drawing nr. 123

APPENDIX 8

CONTENTS AND EXAMPLES OF THE AMERICAN MASTERSPEC SPECIFICATION SYSTEM

APPENDIX 8: CONTENTS AND EXAMPLE OF THE AMERICAN MASTERSPEC SPECIFICATION SYSTEMS

CONTENTS OF THE USA MASTERSPEC SPECIFICATION SYSTEM

07570 Traffic topping
07600 Flashing and sheet metal
07700 Roof specialties and accessories
07710 Manufactured roof specialties
07720 Roof accessories
07901 Joint sealants
07905 Paving joint sealants

DIVISION 8 DOORS AND WINDOWS
08111 Standard steel doors and frames
08114 Custom steel doors and frames
08211 Flush wood doors
08212 Panel wood doors
08305 Access doors
08311 Aluminum sliding glass doors
08312 Wood sliding glass doors
08314 Sliding metal fire doors
08331 Overhead coiling doors
08340 Overhead coiling grilles
08351 Folding doors
08360 Sectional overhead doors
08410 Aluminum entrances and storefronts
08450 All-glass entrances
08460 Automatic entrance doors
08470 Revolving entrance doors
08510 Steel windows
08520 Aluminum windows
08525 Aluminum architectural windows
08610 Wood windows
08710 Door hardware
08800 Glazing
08825 Decorative glass
08830 Mirrored glass
08920 Glazed aluminum curtain walls

DIVISION 9 FINISHES
09200 Lath and plaster
09215 Veneer and plaster
09250 Gypsum drywall
09270 Gypsum board shaft wall systems
09300 Tile
09400 Terrazzo
09511 Acoustic panel ceilings
09512 Acoustic tile ceilings
09513 Acoustical snap-in metal pan ceilings
09521 Acoustical wall panels
09546 Linear metal ceilings
09549 Suspended decorative grids
09550 Wood flooring
09590 Resilient wood flooring systems
09600 Interior stonework
09635 Brick flooring
09660 Resilient tile flooring
0966 Sheet vinyl floor coverings
09675 Conductive resilient flooring
09678 Resilient wall base and accessories
09680 Carpet
09690 Carpet tile
09800 Special coatings
09900 Painting
09920 Interior painting
09921 Multicolored interior coatings
09950 Wall coverings
09980 Wood veneer wall coverings
09990 Impact-resistant wall coverings

DIVISION 10 SPECIALTIES
10100 Visual display boards
10155 Toilet compartments
10180 Stone toilet partitions
10190 Cubicles
10200 Louvers and vents
10250 Service wall systems
10265 Wall surface protection systems
10270 Access flooring
10350 Flagpoles
10416 Directories and bulletin boards
10425 Signs
10436 Exterior post and panel signs
10500 Metal lockers
10522 Fire extinguishers, cabinets and accessories
10550 Postal specialties
10605 Wire mesh partitions
10615 Demountable partitions
10652 Folding panel partitions
10653 Fire-rated folding panel partitions
10655 Accordion folding partitions
10675 Metal storage shelving
10681 High density storage and shelving systems
10750 Telephone specialties
10753 Wall-mounted telephone enclosures
10800 Toilet and bath accessories

DIVISION 11 EQUIPMENT
11030 Teller and service equipment
11050 Library equipment
11054 Library stack systems
11060 Portable theater and stage equipment
11062 Stage curtains
11100 Mercantile equipment
11132 Projection screens
11150 Parking control equipment
11160 Loading dock equipment
11400 Food service equipment
11452 Residential appliances
11460 Unit kitchens
11610 Laboratory fume units
11910 Mailroom equipment and furniture

DIVISION 12 FURNISHINGS
12052 Upholstery fabrics
12320 Restaurant & cafeteria casework
12345 Laboratory casework
12372 Kitchen casework
12511 Horizontal louver blinds
12512 Vertical louver blinds
12520 Shades
12530 Window treatment hardware

12540 Draperies and curtains
12611 Systems furniture
12620 Furniture
12625 Hospital furniture
12626 Hotel and motel furniture
12627 Library furniture
12630 Restaurant furniture
12631 Metal casegoods
12632 Wood and laminate casegoods
12676 Custom rugs
12680 Foot grilles
12690 Floor mats and frames
12700 Multiple seating
12710 Auditorium and theater seating
12760 Telescoping bleachers
12800 Interior plants and plantings
12900 Building accessories

DIVISION 13 SPECIAL CONSTRUCTION
13052 Saunas
13122 Metal building systems

DIVISION 14 CONVEYING SYSTEMS
14100 Dumbwaiters
14210 Electric traction elevators
14240 Hydraulic elevators
14310 Escalators
14560 Chutes

DIVISION 15 MECHANICAL
15010 Basic mechanical requirements
15050 Basic mechanical materials and methods
15100 Valves
15125 Pipe expansion joints
15135 Meters and gages
15140 Supports and anchors
15170 Motors
15250 Mechanical insulation
15300 Fire protection
15410 Plumbing piping
15430 Plumbing specialties
15440 Plumbing fixtures
15453 Plumbing pumps
15455 Water storage tanks
15457 Water softeners
15460 Water heaters
15481 Compressed-air systems
15483 Fuel oil systems
15488 Natural gas piping systems
15510 Hydronic piping
15520 Steam and condensate piping
15530 Refrigeration piping
15540 HVAC pumps
15556 Cast-iron boilers
15557 Scotch marine boilers
15558 Electric boilers
15570 Boiler accessories
15575 Breechings, chimneys and stacks
15580 Feedwater equipment
15610 Furnaces
15620 Fuel-fired heaters
15670 Condensing units
15683 Reciprocating chillers
15685 Centrifugal chillers – water cooled
15711 Factory fabricated cooling towers
15743 Air cooled condensers
15755 Heat exchangers
15781 Packaged heating and cooling units
15782 Rooftop heating and cooling units
15786 Water source heat pumps
15830 Terminal units
15850 Air handling
15854 Central-station air-handling units
15860 Centrifugal fans
15865 Axial fans
15870 Power ventilators
15886 Air cleaning
15891 Metal ductwork
15893 Fibrous glass duct systems
15910 Duct accessories
15932 Air outlets and inlets
15933 Air terminals
15971 Electric control systems
15973 Pneumatic control systems
15985 Sequence of operation
15990 Testing, adjusting and balancing

DIVISION 16 ELECTRICAL
16010 Basic electrical requirements
16050 Basic electrical materials and methods
16110 Raceways
16111 Cable trays
16120 Wires and cables
16121 Control/signal transmission media
16122 Undercarpet flat cabling systems
16123 Optical fibre cabling systems
16135 Cabinets, boxes and fittings
16143 Wiring devices
16170 Circuit and motor disconnects
16190 Support devices
16195 Electrical identification
16420 Service entrance
16425 Switchboards
16426 Low-voltage power switchgear
16438 Rectifiers and inverters
16452 Grounding
16460 Transformers
16470 Panelboards
16475 Overcurrent protective devices
16477 Fuses
16481 Motor controllers
16482 Motor-control centres
16495 Transfer switches
16515 Interior lighting
16525 Exterior lighting
16610 Uninterruptible power supply systems
16621 Diesel generator systems
16631 Central battery inverter systems

16670 Lightning protection systems
16721 Fire alarm systems
16730 Clock and program systems
16740 Telephone systems
16760 Intercommunication systems
16770 Public address systems
16775 Sound masking systems
16780 Television systems
16851 Electrical heating terminals

EXAMPLE OF TEXT FROM THE USA MASTERSPEC SPECIFICATION SYSTEM

 MASTERSPEC 4/91

SECTION 09950 – WALL COVERINGS

THIS SECTION USES THE TERM 'ARCHITECT'. CHANGE THIS TERM AS NECESSARY TO MATCH THE ACTUAL TERM USED TO IDENTIFY DESIGN PROFESSIONAL AS DEFINED IN THE GENERAL AND SUPPLEMENTARY CONDITIONS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Condition and Division 1 Specification Sections, apply to this Section

SUMMARY

This section includes the following:

ADJUST LIST BELOW TO SUIT PROJECT

Vinyl wall covering

Textile wall covering

Wallpaper

Prime coats for substrates are specified in Division 9 Section "Painting"

Wood veneer wall coverings are specified in Division 9 Section "Wood Veneer Wall Coverings"

DELETE THE FOLLOWING IF NO ALLOWANCE. IF ALLOWANCE ARE USED, DELETE DATA SHEETS AT END OF THIS SECTION

Allowances: Wall covering materials, adhesives and edge moulding are specified by a cash allowance. Refer to Division 1 Section "Allowances" for cash amounts and general requirements.

DELETE THE FOLLOWING IF NO ALTERNATES

Alternates: Wall covering materials and installation are included in an Alternate. Refer to Division 1 Section "Alternates" for a description of the alternate and the general requirements for acceptance of alternates.

SUBMITTALS

General: Submit the following in accordance with conditions of Contract and Division 1 Specification Sections.

Product data for each type of product specified. Indicate data on physical characteristics, durability, fade resistance and flam resistance characteristics.

Shop drawings show location and extent of each wall covering type. Indicate termination positions.

SELECT FROM FOLLOWING 2 PARAGRAPHS. USE FIRST OPTION FOR DESCRIPTIVE SPEC WHERE MFR AND CATALOG NUMBER ARE NOT SPECIFIED OR WHEN WALL COVERING IS SPECIFIED BY ALLOWANCE. USE 2ND OPTION FOR PROPRIETARY SPEC – WITH DATA

Samples for initial selection purposes of each type of wall covering required, in manufacturer's standard sizes showing full range of colours, textures and patterns available

Samples for verification purposes of each type, colour, texture and pattern of wall covering and moulding accessory required, prepared on samples of size indicated below:

Full width sample, not less than 36 inches long of each wall covering specified. Show complete pattern repeat

12 inch long sample of each moulding accessory

Product certificates signed by wall covering manufacturer certifying materials furnished comply with specified requirements

Certified test reports showing compliance with the requirements for fire performance characteristics and physical properties

Maintenance data for inclusion in "Operating and Maintenance manual" specified in Division 1. Include the following:

Methods for maintaining wall covering

Precautions for use of cleaning materials and methods that could be detrimental to Finishes and performance

QUALITY ASSURANCE

ALL VINYL WALL COVERINGS COMPLYING WITH FS CCC-W-408A ARE CLASS A (FLAME SPREAD NOT MORE THAN 25)

Fire Performance Characteristics: Provide wall coverings with the following surface burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting organisations acceptable to authorities having jurisdiction. Identify wall coverings with appropriate markings of applicable testing and inspecting organisation.

Flame Spread: 25 or less

Smoke Developed: 450 or less

IF THE FOLLOWING IS RETAINED, INDICATE LOCATION, SIZE AND OTHER DETAILS OF MOCK-UPS ON DRAWINGS OR BY DESCRIPTION BELOW

Field-Constructed Mock-ups: Before installation, prepare mock-ups for each finish on substrates required to verify selections made under sample submittals. Approved mock-ups set quality standards for installation and aesthetic effect. Comply with the following requirements:

Use specified materials

Locate mock-ups as directed by architect

Retain and maintain mock-ups in undisturbed condition as a standard for judging completed Work.

When directed, demolish and remove mock-ups from Project site.

DELETE ABOVE OR BELOW

Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of Completed work

PROJECT CONDITIONS

Maintain a constant temperature not less than 60 deg F (16 deg C) in installation areas for at least 10 days before and 10 days after installation.

EXTRA MATERIALS

EXTRA MATERIALS MAY NOT BE ALLOWED ON PUBLICLY FUNDED PROJECTS

Furnish extra materials from same production runs as wall covering installed. Package materials with protective covering and identify with labels describing contents. Deliver extra materials to Owner.

Rolls: Furnish quantity of full-size units equal to 10% of amount installed.

PART 2 – PRODUCTS

WALL COVERING MATERIALS

WALL COVERING DATA SHEETS ARE AT THE END OF THIS SECTION

Refer to Wall Covering Data Sheets at the end of this section. Data sheets specify manufacturers style, colour, pattern, size and related requirements for wall covering materials.

Available Products: Subject to compliance with requirements, wall coverings that may be incorporated in the Work include, but are not limited to, the products specified in each Wall Covering Data Sheet.

RETAIN ABOVE FOR NONPROPRIETARY OR BELOW FOR SEMIPROPRIETARY SPECIFICATION. REFER TO DIVISION 1 SECTION "MATERIALS AND EQUIPMENT".

Products: Subject to compliance with requirements, provide one of the products specified in each Wall Covering Data Sheet.

ADHESIVES

General: Manufacturer's standard for use with specific wall covering and substrate application.

Characteristics: Mildew-resistant, nonstaining and strippable

ACCESSORIES

M31 SPECIFIES FINE SATIN MECHANICAL FINISH AND A31 SPECIFIES CLEAR ANIDIC COATING

Metal Moulding: Comply with ASTM B 221, aluminium alloy 6063-T5 for extrusions, finish AA-M31A31, with one-piece cap and wall flange tapering to feather edge.

DELETE THE FOLLOWING IF NOT REQUIRED TO CORRECT INADEQUATE SUBSTRATE CONDITIONS

Wall Liner: Manufacturer's standard nonwoven, synthetic underlayment.

PART 3 – EXECUTION

PREPARATION

Acclimatise wall covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

Follow manufacturer's printed instructions for surface preparation.

Prepare substrates to achieve a smooth, dry, clean surface free from flaking, unsound coatings, cracks and defects

Painted surfaces: Treat areas susceptible to pigment bleeding.

Metals: If not factory primed, clean and apply rust inhibitive zinc primer.

Moisture Content: Maximum of 5% on new plaster, concrete and concrete masonry units when tested with an electronic moisture meter.

Allow new plaster to cure. Treat areas of high alkalinity.

Check painted surfaces for pigment bleeding. Sand gloss, semi-gloss and eggshell finishes with fine sandpaper

DELETE THE FOLLOWING IF NOT REQUIRED TO CORRECT INADEQUATE SUBSTRATE CONDITIONS

Install wall liner with no gaps or overlaps, where required by wall covering manufacturer. Form smooth wrinkle-free surface for finished installation. Do not begin wall covering installation until wall liner has dried.

INSTALLATION

Follow manufacturer's printed instructions for installation

Install wall coverings with no gaps and overlaps.

APPENDIX 9

REQUEST TO PARTICIPATE IN A RESEARCH REPORT ON BUILDING CLASSIFICATION AND SPECIFICATION SYSTEMS: QUESTIONNAIRE FOR COMPLETION BY SENIOR PERSONNEL IN ARCHITECTURAL, ENGINEERING AND QUANTITY SURVEYING PRACTICES IN SOUTH AFRICA

DEPARTMENT OF CONSTRUCTION ECONOMICS

Tel: (012) 420 2584
Fax: (012) 420 3598
mmaritz@postino.up.ac.za

University of Pretoria

Pretoria 0002 Republic of South Africa
Faculty of Engineering, Built-environment
and Information Technology

REQUEST TO PARTICIPATE IN A RESEARCH REPORT ON BUILDING CLASSIFICATION AND SPECIFICATION SYSTEMS

QUESTIONNAIRE FOR COMPLETION BY SENIOR PERSONNEL IN ARCHITECTURAL, ENGINEERING AND QUANTITY SURVEYING PRACTICES IN SOUTH AFRICA

To all respondents:

I hereby courteously request your participation in a research project on building classification and specification systems. The attached questionnaire is part of a study being undertaken by myself and will be used in my doctoral thesis, which is being supervised by Professors Carl Klopper and Thys Siglé from the University of Pretoria

The questionnaire should take approximately 15 minutes to complete

The purpose of this research is, *inter alia*, to:

- *Establish whether a need exists for a comprehensive unified classification system for use in procurement documentation in the construction industry in South Africa*
- *To devise an alternative arrangement of work sections in procurement documentation*
- *To explain and thereby assist specifiers and measurers in applying the various standard/model documentation that are currently in use in South Africa more effectively*
- *To evaluate the current status with regard to building product specification*
- *To provide new concepts in information analyses, mainly as a result of the advancement of computerization and to bring it in line with international developments*

Please note that responses shall be treated in such a way that all respondents remain anonymous

Thanking you in anticipation

Sincerely,

M J MARITZ
SENIOR LECTURER

April 2002

RESPONDENT NUMBER (OFFICE USE ONLY)	V1					1-4

ANSWERS TO BE COMPLETED BY PROJECT MANAGERS, ARCHITECTS, QUANTITY SURVEYORS, ENGINEERS, ETC IN THEIR CAPACITY AS SPECIFICATION DRAFTERS

Please indicate by marking the appropriate square with a CROSS:

LINE OF BUSINESS			Office use only:		
Architectural services	*158*	1			
Quantity Surveying services	*58*	2	V2		5
Engineering services	*25*	3			
Project Management services	*11*	4			
Academic/Research environment	*10*	5			
Other Please specify:	*9*	6			

SIZE OF ORGANISATION										
How many people are employed in your organisation (local branch only if more than one)?										
0 – 5	*155*	1	10 – 20	*38*	3	50 – 100	*4*	5	V3	6
5 – 10	*47*	2	20 – 50	*13*	4	> 100	*14*	6		

ECONOMIC SECTOR					
The economic sector in which your organisation falls					
Private	*210*	1	V4		7
Public	*40*	2			
Academic	*20*	3			
Others (please specify)	*1*	4			

LOCATION										
In which province in the RSA is your organisation located (local branch only if more than one)?										
East Cape	*3*	1	Kwazulu-Natal	*42*	4	Northern Cape	*0*	7	V5	8
Free State	*11*	2	Limpopo	*0*	5	North West	*6*	8		
Gauteng	*141*	3	Mpumalanga	*4*	6	Western Cape	*63*	9		

INFORMATION CONCERNING THE DRAFTING OF SPECIFICATIONS FOR THE WORKS

For each statement that follows, please CIRCLE the number that corresponds to your response.
(Before proceeding to answer please read through Questions 1 and 2 first)

1 = Strongly Disagree
2 = Moderately Disagree
3 = Undecided
4 = Moderately Agree
5 = Strongly Agree

QUESTION 1		SCALE					Office use only:		
The following statements relate to the drafting of specifications for the Works		1 *	2 * *	3 * * *	4 * * * *	5 * * * * *			
1.1	The present state of affairs is satisfactory: Specification drafting is handled effectively by our organisation and nothing has to change	1	2	3	4	5	V6		9
1.2	Specification drafting should be the responsibility of the designer (architect/engineer)	1	2	3	4	5	V7		10
1.3	Specific expertise and appropriate experience are essential requirements which the drafter of specifications should possess	1	2	3	4	5	V8		11
1.4	The existence and application of the "Model Preambles for Trades" (1999) published and issued by the Association of South African Quantity Surveyors are well-known facts	1	2	3	4	5	V9		12
1.5	The quantity surveying profession is the most preferable profession for drawing up and publishing the above-mentioned "Model Preambles for Trades"	1	2	3	4	5	V10		13
1.6	The above-mentioned "Model Preambles for Trades" is a comprehensive and up-to-date document and is therefore in no need of expansion or constant revision	1	2	3	4	5	V11		14
1.7	The existence and application of standard specifications published and issued by public authorities (E.g. PW371 - 1993 from the Department of Public Works) are well-known facts	1	2	3	4	5	V12		15
1.8	Standard specifications issued by public authorities are comprehensive and up-to-date documents and are therefore in no need of expansion or constant revision	1	2	3	4	5	V13		16
1.9	There should only be one comprehensive and up-to-date national building specification in South Africa	1	2	3	4	5	V14		17
1.10	Such a national building specification should be written, revised and published by a private company and private and public users should become subscribers to it to make it independently sustainable	1	2	3	4	5	V15		18
1.11	Such a national building specification should be written, revised and published by an appointed committee under the auspices of an umbrella body for all the building professions such as the CBE (Council for the Built Environment)	1	2	3	4	5	V16		19
1.12	Separate standard specifications are something of the past as all relevant information can be obtained from the Internet or from product libraries such as QPL, SPECXpert, etc	1	2	3	4	5	V17		20

RELEVANT COMMENTS:	V18	21-22
	V19	23-24

QUESTION 2		SCALE					Office use only:		
In most developed first-world countries, e.g. the United Kingdom (NBS), the United States of America (MasterSpec) and Australia (NATSPEC), comprehensive specification systems are available on a subscription basis for subscribers to download information from the system to create **particular specifications**		1 *	2 * *	3 * * *	4 * * * *	5 * * * * *			
2.1	The South African building industry needs a similar comprehensive specification system	1	2	3	4	5	V20		25
If you **totally disagree** with the statements posed in questions 1.9 and 2.1 above please do not complete the rest of Question 2 and continue to Question 3									
2.2	Preference is to be given to a specification system classified in accordance with the recognised and customary trades adopted up to now in local standard specifications etc (E.g. "Model Preambles for Trades", "PW371", "Standard System of Measurement", etc)	1	2	3	4	5	V21		26
2.3	Such a specification system should rather follow recently developed international classification standards as opposed to the traditional trade classification mentioned in 2.2 above	1	2	3	4	5	V22		27
2.4	It will become increasingly important for information transfer to be standardised world-wide	1	2	3	4	5	V23		28
2.5	It will become increasingly necessary for consulting firms in South Africa, currently working or intending to work with overseas partners, to exchange information using systems that are compatible with each other	1	2	3	4	5	V24		29
2.6	A comprehensive local specification system, based on recent international classification developments, will assist drafters of specifications and others applying standard/model documentation more effectively	1	2	3	4	5	V25		30
2.7	Specifiers and other users would be prepared to pay an annual subscription fee for the use of such a comprehensive specification system	1	2	3	4	5	V26		31
RELEVANT COMMENTS:							V27		32-33
							V28		34-35

Please indicate by marking the appropriate square with a CROSS:

QUESTION 3

Office use only:

The following questions relate to the management of product information sourcing

3.1 How often do you use the product information systems listed below?

		Daily	Often	Seldom	Never			
1	Autospec	0	18	32	221	V29		36
2	Building Centre	0	36	71	164	V30		37
3	Building Info Service	0	24	58	189	V31		38
4	Classidex	9	26	40	196	V32		39
5	Data Build	1	26	54	190	V33		40
6	E-Spec	1	11	39	220	V34		41
7	Ezee-Dex	1	10	26	234	V35		42
8	Internet	41	88	78	64	V36		43
9	Kompass	2	4	15	250	V37		44
10	Nation Builder	6	35	74	156	V38		45
11	Own Library In-house system	100	116	24	31	V39		46
12	Quantarc	0	0	12	259	V40		47
13	QPL	0	25	26	220	V41		48
14	Dialog	2	4	12	253	V42		49
15	Sabinet	2	8	18	243	V43		50
16	Specifile (incl SpecXpert)	87	156	18	10	V44		51
17	Specifying Dynamics	5	60	59	147	V45		52
18	Specifying Techniques	2	26	41	202	V46		53
19	Specilink	3	42	57	169	V47		54
20	Yellow pages	14	119	97	41	V48		55
21	Other (please specify)	3	8	4	256	V49		56

3.2 Do you feel that the current available product information services satisfy your information needs?

YES	113	1	NO	158	2	V50		57

3.3 Do you feel that the proliferation of individually customised product information systems (see list in 3.1 above) is:

ESSENTIAL	40	1	OF SOME HELP	156	2	WASTE OF MONEY	75	3	V51		58

3.4	Do you think that a unified classification system for the South African construction industry for organising information in libraries and projects and for structuring files in databases will assist specification drafters, measurers, etc in locating information more effectively?								
		YES	*268*	1	NO	*3*	2	V52	59
3.5	Does the local information structures need to explore new concepts in information analysis as a result of the Internet and computerisation in general?								
		YES	*253*	1	NO	*18*	2	V53	60
RELEVANT COMMENTS:								V54	61-62
								V55	63-64

QUESTION 4								Office use only:	
Recent trends in developed first-world countries e.g. the United Kingdom (Uniclass) and the United States of America (OCCS) have seen the development of classification systems for organising library materials and for structuring product literature and project information									
4.1	Do you think that an appropriate classification system for the construction industry is an essential tool for architects, engineers, quantity surveyors, designers, contractors – anyone who needs to organise information?								
		YES	*267*	1	NO	*4*	2	V56	65
4.2	Are you familiar with the CI/SfB system for classification of construction information used locally since the early sixties?								
		YES	*92*	1	NO	*179*	2	V57	66
4.3	Do you believe that the South African construction industry should develop its own classification system along similar lines as those developed in the United Kingdom and the United States of America?								
		YES	*240*	1	NO	*25*	2	V58	67
4.4	Do you believe that the South African construction industry with its limited resources will be able to develop and maintain such a new classification system?								
		YES	*184*	1	NO	*80*	2	V59	68
RELEVANT COMMENTS:								V60	69-70
								V61	71-72

PERSONAL DATA (OPTIONAL)	
Name:	
Address:	
Postal code:	
Company/Institution:	
Telephone: E-mail:	

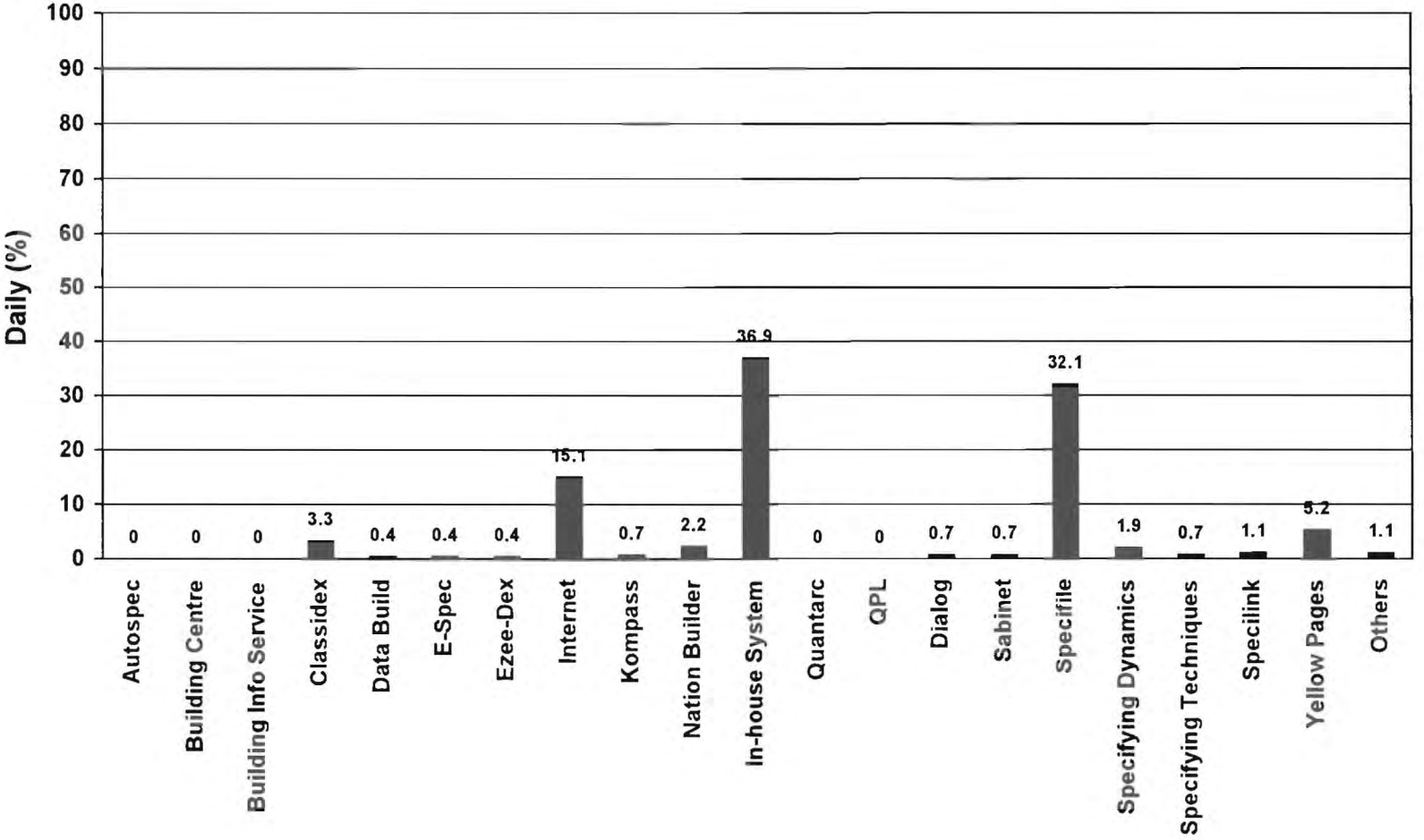
APPENDIX 10

INFORMATION SOURCES USED BY RESPONDENTS:

QUESTION 3.1 IN QUESTIONNAIRE

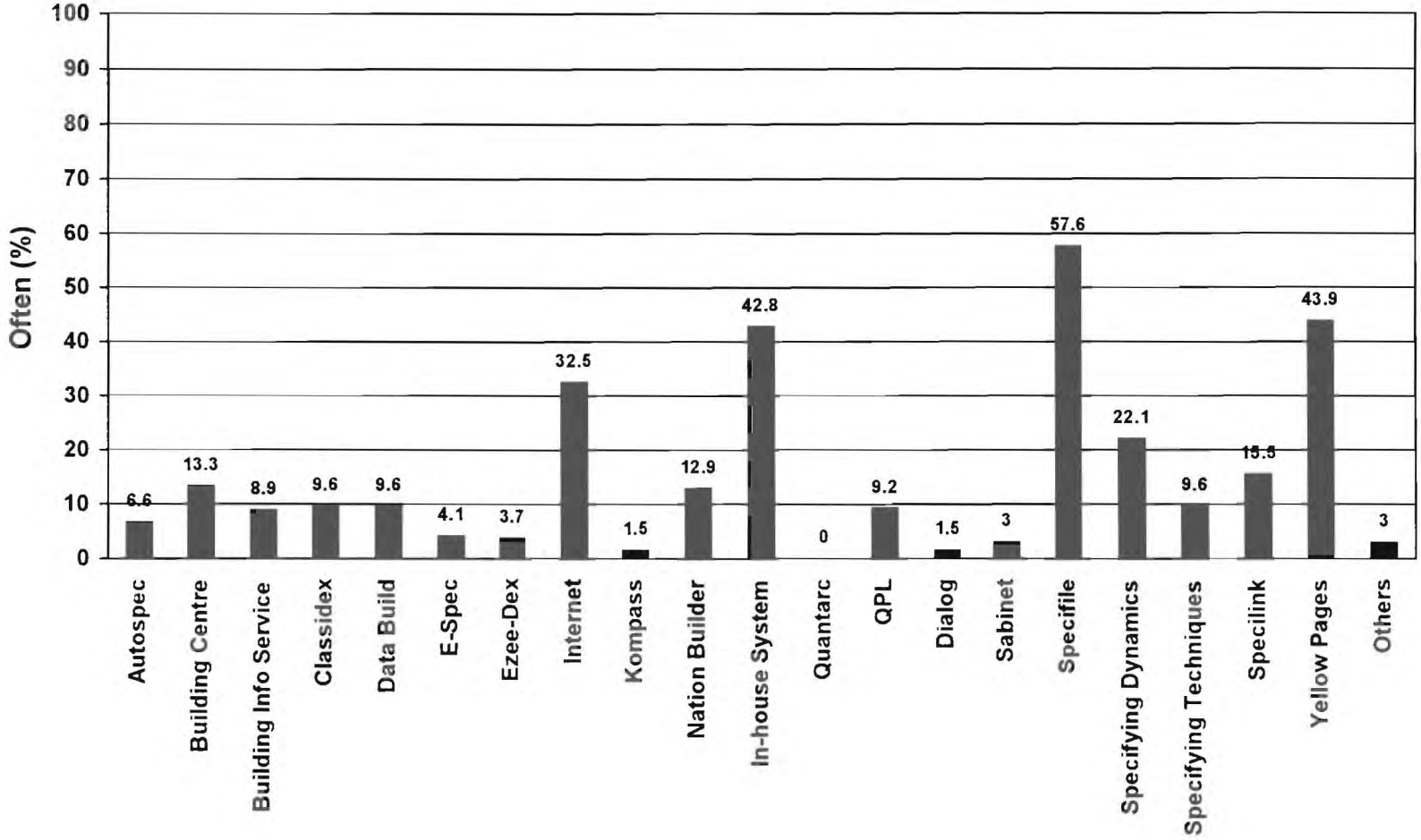
INFORMATION USED BY RESONDENTS

Question 3.1: How often do you use the product information sources listed below?



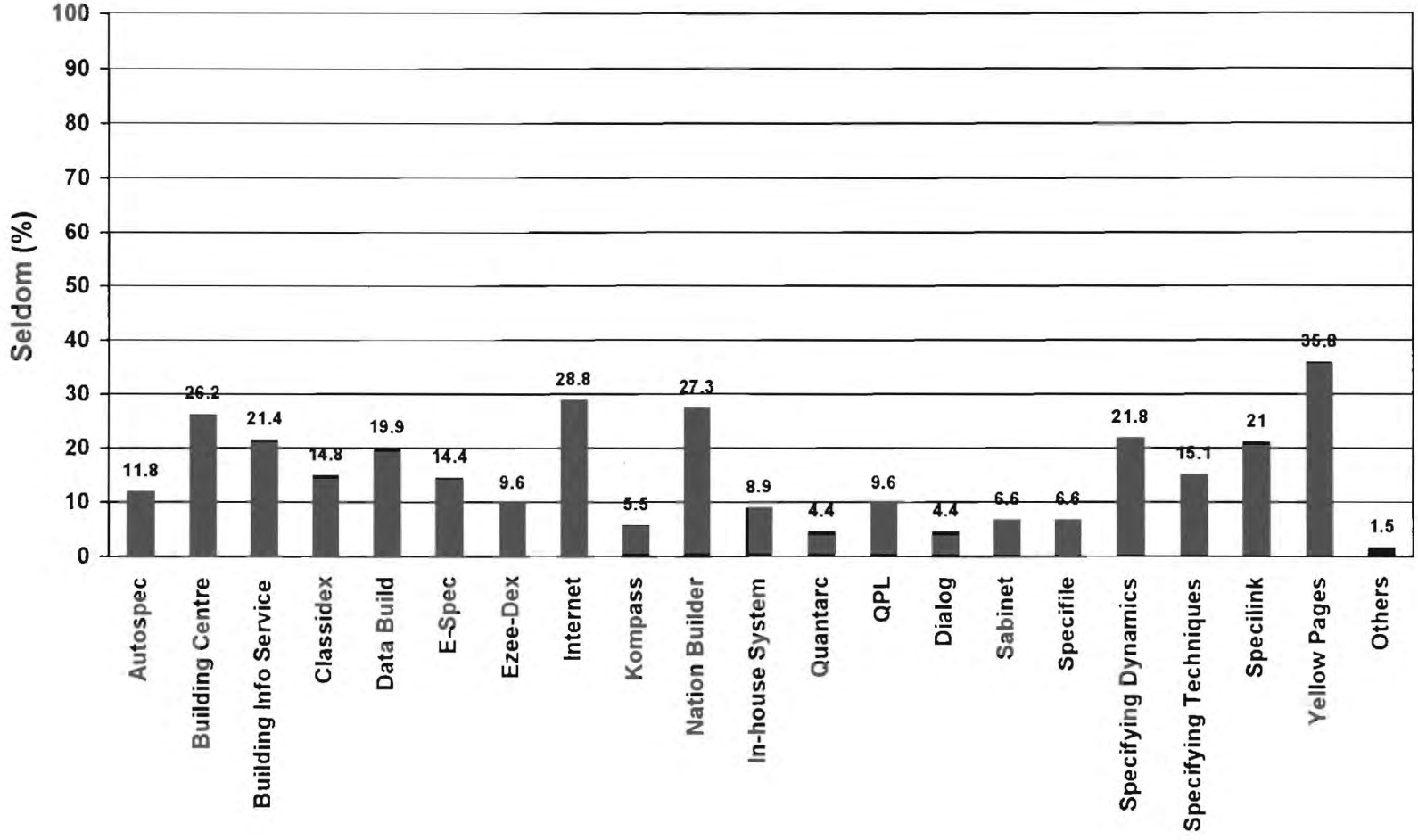
INFORMATION USED BY RESONDENTS

Question 3.1: How often do you use the product information sources listed below?



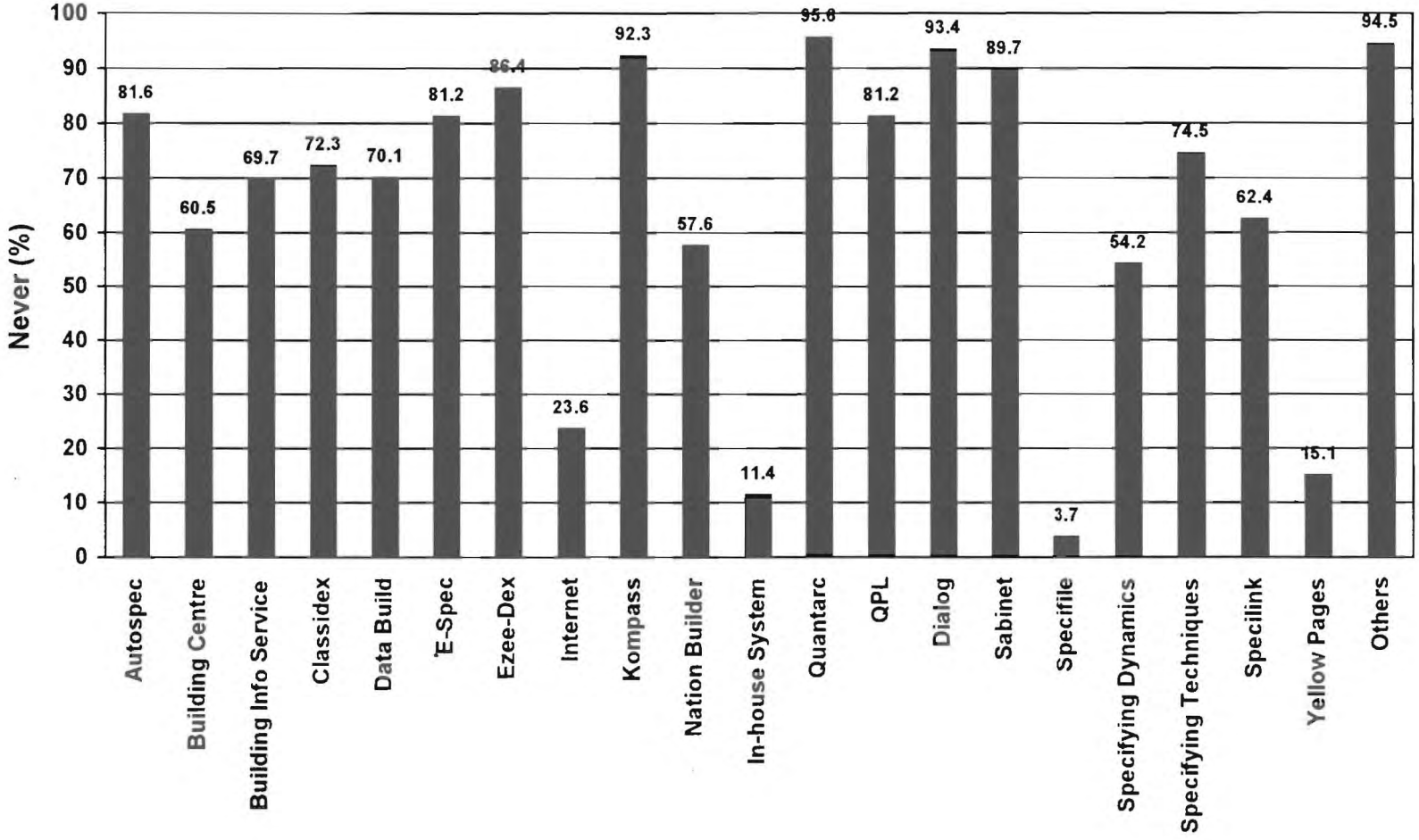
INFORMATION USED BY RESONDENTS

Question 3.1: How often do you use the product information sources listed below?



INFORMATION USED BY RESONDENTS

Question 3.1: How often do you use the product information sources listed below?



APPENDIX 11

LIST OF INTERVIEWEES: FIRST STAGE SURVEY

APPENDIX 11: LIST OF INTERVIEWEES: FIRST STAGE SURVEY

1 Professor John Bennett

Date of interview:	12 June 2000
Employer:	Reading University Department of Construction Management Faculty of Urban and Regional Studies
Position and status:	Head of Department Author and co-author of many construction industry related books, standard documentation, etc
Contact details:	j.bennett@reading.ac.uk

2 Mr. Chris Floyd

Date of interview:	13 June 2000
Firm:	De Leeuw Floyd (Norwich)
Position and status:	Director Senior quantity surveyor with specialised knowledge of procurement documentation in the UK
Contact details:	dlfnor@compuserve.com

3 Mr. Karl de Leeuw

Date of interview:	13 June 2000
Firm:	De Leeuw & Jupp (London)
Position and status:	Director Senior quantity surveyor with specialised knowledge of procurement documentation in the UK and RSA
Contact details:	dlijlon@compuserve.com

4 Mr. Tony Winter

Date of interview:	14 June 2000
Firm:	Dearle & Henderson (Maidstone)
Position and status:	Director Senior quantity surveyor with specialised knowledge of procurement documentation in the UK
Contact details:	tonywinter@maidstone.d-h.co.uk

5 Mr. Alastair Collins

Date of interview:	14 June 2000
Firm:	Davis Langdon & Everest (London)
Position and status:	Director and CEO Senior quantity surveyor in one of the world's largest quantity surveying firms, with specialised knowledge of procurement documentation in the UK and elsewhere
Contact details:	alastair.collins@davislangdon-uk.com

6 Mr. Stephen Hattam

Date of interview:	14 June 2000
Firm:	Gardiner & Theobald (London)
Position and status:	Associate Senior quantity surveyor in one of the world's largest quantity surveying firms, with specialised knowledge of procurement documentation in the UK and elsewhere
Contact details:	StephenH@Gardiner.com

Further data were collected from experts in the study field based in the UK, USA, Australia, Singapore and the Netherlands, in addition to the data collected during the abovementioned structured interviews, by means of e-mail correspondence and personal contact. Most of these discussions are ongoing as the persons mentioned hereunder are all actively involved in the maintenance and further research and development of classification systems, some more specifically in developing and applying object-orientated technology:

Mr. John Cann	NBS Services (Newcastle) j.cann@nbsservices.co.uk
Mr. Andrew Packer	Portsmouth University (Portsmouth) Andrew.packer@port.ac.uk
Mr. Tony Norton	RICS (London) Tnorton@rics.org.uk
Dr. Francois Grobler	University of Urbana/Champagne (Illinois) Francois.grobler@erdc.usace.army.mil
Mr. John Horridge	NATSPEC (Sidney) jhorridge@natspec.info
Mr. Mal January	Building Catalogue (Sidney) maljanuary@constructoz.com
Dr. Goh Bee Hoa	National University of Singapore (Singapore) bdggohbh@nus.edu.sg
Mr. Kees Woestenenk	Stichting STABU (Ede) kwoestenenk@stabu.nl

09 Process Participants	Parties carrying out processes and procedures occurring in relation to life cycle of built environment	Owner, Architect, Contractor Process Engineer Acoustical Consultant Masonry Contractor Facility Manager
10 Process Aids	Tools, systems, media, and other items used to carry out processes and procedures relating to life cycle of built environment	Computers CAD software Construction crane Floor polisher
11 Process Information	Data addressed during life cycle of built environment	Report, Cost estimate Drawing, Project manual Article, Book, Catalog Proposal, Contract, Change order
12 Attributes	Items of other tables are objects or activities (nouns or verbs). Attributes are characteristics or modifiers of objects or activities (adjectives or adverbs).	Material: Wood, plastic, metal, etc. Form: Section, board, sheet, etc. Mass/Density Size/Configuration Color