Unit 9668 V5
Title: Apply principles from published data to the provision of services for medium and large buildings
Level: 5 Credits: 10

Special notes

1 Assessment against this unit standard should be for examples of a small building as described in the Phase 2 Consultation - Small Building Scenarios or against a building benchmarked against the listed scenarios and agreed to by your assessor prior to assessment commencing.

2 Range of buildings - new and existing.

3 Range of services may include but are not limited to - reticulation (plumbing including sanitary plumbing and refuse disposal; cold and hot water supply; drainage including roof drainage, storm water drainage, foul water drainage), electricity, gas, ventilation, heating, active and passive solar systems, energy efficiency, mechanical services, telecommunications, central vacuum system, transport systems (lifts, elevators, hoists), air conditioning, active fire protection, fire protection of services, security systems, access control, plant room, specialist systems (such as for hospitals).

4 Published data are supplied by an established authority and can be applied in standard construction situations that are acceptable in New Zealand where a specific design may not be required. Published data relevant to this unit standard include Building Research Association of NZ (BRANZ) reports, and manufacturer's instructions and industry specifications.

5 Medium buildings are light to medium weight commercial or industrial buildings up to three levels above ground which utilise commercial or industrial materials, construction techniques, and services.

6 Large buildings are high-rise, large and complex buildings of more than three levels above ground levels, and/or complex specialist structures of large spans or volume, such as stadiums, theatres, manufacturing venues, and bridges.

7 Assessment of this unit standard can be by simulation and/or observation.

8 All aspects of this unit standard have to comply with the Health and Safety in Employment Act 1992, the Resource Management Act 1991, and their subsequent amendments.

9 Reference documents:
New Zealand Building code and any subsequent amendments http://www.dbh.govt.nz/building-code-compliance-documents
New Zealand Building Code Handbook http://www.dbh.govt.nz/UserFiles/File/Publications/Building/Compliance-documents/handbook.pdf
Building officials' guide to the Building Act http://www.dbh.govt.nz/UserFiles/Image/Publications/publications-covers/building/building-officials-guide.pdf
New Zealand Standard http://www.standards.co.nz/default.htm

10 All activities must comply with: any policies, procedures, business protocols, and requirements of the organisation/s involved; ethical codes and standards of relevant professional bodies.

Element 1

Explain purposes of services in medium and large buildings.

Range: purposes may include but are not limited to - comfort, health, safety, security.

Performance Criteria		Candidate	Assessor
1.1	Purposes of services are identified with reference to the requirements of medium and large building types.	Identify the purpose, function and requirements of services for two buildings. purposes may include but are not limited to - comfort, health, safety, security Buildings must include scenario 3 and one other. Use sketches and/or photos as appropriate. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation.	The description should identify the purpose, function and requirements of all services in the subject buildings. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation. Buildings must include scenario 3 and one other. Sketches and/or photos should be used as appropriate.
1.2	Components of services are identified in terms of their function. Range: components may include but are not limited to - ducting, wiring, outlets, piping.		

Element 2

Explain principles of operation of services relevant to the construction of medium and large buildings.

Performance Criteria	Candidate	Assessor
2.1 Operating principles are explained in terms of their effects on building design, construction, and people. 2.2 Explanation of services identifies their safety features. Range: may include but is not limited to - fire resistance, water, gas cut-off valves.	Explain the operating principles, effects and safety features of three services in a building equivalent to scenario 3. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation. Effects relate to the impact on building design, construction. Identify relevant sections and clauses of the building code. Use sketches and/or photos as appropriate.	The explanation appropriately covers: ☐ operating principles including effects on building design, construction, and people; ☐ safety features including fire resistance, water, gas cut-off valves ☐ Identifies relevant sections and clauses of the building code. The operating principles and safety features are explained for three services in a building/s equivalent to scenario 3. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation. Sketches and/or photos should be used as appropriate.

Element 3 Explain principles of coordination and placement of services for medium and large buildings.		
Performance Criteria	Candidate	Assessor
3.1 Principles of coordination and placement of services are explained in terms of their compatibility for medium and large buildings.	Explain the need for coordination in the placement of services and access requirements for use and servicing in a building equivalent to scenario 3. Include an explanation of the sequence of construction and remedies to avoid conflicts and cross contamination between services. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation. Use sketches and/or photos as appropriate.	The explanation appropriately covers: ☐ the need for coordination in the placement of services ☐ access requirements for use and servicing ☐ the sequence of construction ☐ remedies to avoid conflicts and cross contamination between services The explanation relates to a building equivalent to scenario 3. Services may include but are not limited to - HVAC, Plumbing & drainage, water supply, fire safety and egress and one other service from the following list: (lifts, escalators and travelators), (industrial liquid waste), (hazardous materials and processes), emergency power supply, smoke extraction systems and escape route pressurisation. Sketches and/or photos should be used as appropriate.
3.2 Principles regarding the placement of services in medium and large buildings are explained in terms of requirements for ease of access for use and servicing.		
3.3 Principles of coordination between consultants are explained in terms of their requirements for the project.		

Comment [WUL1]: Recommend it be deleted

Element 4 Demonstrate knowledge of legislative requirements relevant to services in medium and large buildings.			
4.1	Legislative requirements are analysed to determine the provision of services for medium and large buildings.	Evidence of unit standard results for: 24164, 24165, 25166 ,24167, 24168, 24169, 24170, 24171, New Unit 1 and New Unit 2 would provide sufficient evidence for competency in this element.	Sight evidence of unit standard results for units 24164, 24165, 25166 ,24167, 24168, 24169, 24170, 24171, New Unit 1 and New Unit 2.
4.2	Situations are identified where the expertise of other professionals is required.		

Integration of the Key Competencies within this unit standard.

1 Collecting, analysing and organising information The capacity to locate, sift and sort information in order to select what is required and to present it in a useful way, and evaluate both the information itself and the sources and methods used to collect it.	Candidates will need to source manufacturers information including product specifications and producer statements. Drawings may be copied from supplied documentation but a mix of copied drawings and sketched details is preferred. Drawings must always be supported by candidate descriptions.
6 Using mathematical ideas and techniques The capacity to use mathematical ideas, such as number and space, and techniques such as estimation and approximation, for practical purposes.	values and simple calculations of bracing in one wall