NAMP DHB Asset Condition Self Assessment

Data Standard and Methodology

Prepared for Ministry of Health
Prepared by Beca Limited

14 June 2019

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Contents

1 Project Overview 1
2 Purpose and Use of This Document 2
3 Inspection Categories 2
3.1 Inspection Categories 2
3.2 High Level Methodology Options 2
4 Data Collection 3
5 Asset Hierarchy 3
6 Rating of Assets 6
6.1 Rating/ Assessment method 6
6.2 Measurement 9
6.3 Anticipated Life Expectancy / Replacement Year 9
7 Data Collection Process 10
7.1 Data Capture Set up 10
8 Assumptions and Exclusions 10

Appendices

Appendix A – Quickbase Userguide
Appendix B – Photographic Examples of Condition

Revision History

Revision Nº	Prepared By	Description	Date
	Jamie Bell	First draft for discussion	11 Jun 2019
A	**Jamie Bell**	MoH comments incorporated, Updated as working copy for NAMP Project DHB Self Assessment Project.	14 Jun 2019

Document Acceptance – Beca

Action	Name	Signed	Date
Prepared by	**Jamie Bell**		14 Jun 2019
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on behalf of	Beca Limited		

Document Acceptance - MoH

Action	Name	Signed	Date
Accepted by			…../……/……

1 Project Overview

Background

The Ministry of Health oversees 20 District Health Boards (DHBs) with over one thousand buildings across the country. To assist with funding priorities, it is important that the Ministry has an understanding of the general condition of these buildings. The National Asset Management Plan is being created to guide a programme for replacement and renovation of these buildings.

The Ministry has undertaken an assessment of the most critical buildings. The DHBs are to undertake self assessments for the condition review on the remainder of the buildings.

Review Purpose

The main uses of this condition review are understood to be:

- To inform the MoH on the general condition of the critical buildings within the NZ health estate
- To be a base for future development of building condition
- To assist in making decisions between projects vying for a finite capital spend budget
- To provide for comparison between DHBs
- To inform long term high level budget planning for larger projects (>$10M)

It should be noted that this project is only one part of a wider assessment including other workstreams addressing aspects such as clinical fit for purpose and capacity & demand. The self assessment is only to undertake a 'triage' of what is existing to identify more significant condition issues. It does not include master planning or assessment of performance or resilience. Neither does the self assessment include assessment of accessibility, code compliance or fire engineering.

Envisaged Reporting Requirements

The DHB self assessment will supplement the survey data obtained by the Ministry of Health for the critical buildings.

An electronic database has been created for the self assessment with reporting in an electronic dashboard type format as well as some site summary reporting..

The data collected from the critical building and DHB self assessments will be able to be interrogated to provide high level summaries for yet to be determined search/reporting criteria and format.

Risks

With a qualitative assessment such as this, the ratings given will be based on limited information and may contain errors and omissions. However, a portfolio view will give an indication of trends and areas most in need of early attention or further investigation. In addition, there are risks around the potential to 'lose' key 'bad aspects' of a building in an overall 'averaged' assessment. For instance, external roof top plant may have deteriorated more than internal components and an 'average' rating may conceal some poor components. Outcomes will need to be viewed in this light.

2 Purpose and Use of This Document

The purpose of this document is to:

- define the assets that will be assessed during the data collection, as provided by MoH
- define the various ratings that need to be assigned to those assets (and their corresponding elements) during the data collection process
- explain the methodology for implementing the data collection
- provide a reference document to establish the project setup
- assist with quality control during the data collection process
- aid training as a document for inducting the assessors into the process and provide a handy reference when assessing asset elements.

3 Inspection Categories

3.1 Inspection Categories

The disciplines that are to be included in the asset self assessment include:

- Building Fabric - A site knowledge based review, with further inspection by the site team if necessary
- Mechanical services - As for building fabric
- Electrical Services - As for building fabric
- Structure - Out of scope of this self assessment – being undertaken by the MoH separately.

3.2 High Level Methodology Options

There are multiple levels at which data could be collected for each site, with increasing detail requiring greater time, resource and cost. These self assessments must be balanced against the benefit and use intended for the findings of the data.

4 Data Collection

The data collection for this self assessment is at a lower level of detail than is typical for an asset / condition survey. It is intended only as an overview for MoH use. Future expansion of the database scope to include additional information would be necessary for the data to be of use for District Health Boards for activities such as maintenance or building upgrade planning.

Data collection templates have been set up for each category (discipline) to lead the assessors through the elements of their discipline. It is important that those who are completing the self assessment have sufficient experience to be able to form an opinion as to the general condition.

Additional sources of information as below may be used for specific issues:

- Previous reports
- Site drawings and manuals
- More detailed site inspection
- BWOF records

For each building, data will be collected by one of the following methods:

- **Site knowledge** – estimation based on experience and prior knowledge of the building.
- **Visual inspection** – for above ground assets where access is available, if necessary for the assessor.
- **Documentation** – Use of documented information (e.g. recent detailed reports).
- **Estimated** – for above ground assets where access is unavailable or inaccessible and for below ground assets where there are gaps in the available information.

The assets (i.e. Buildings) to be assessed and data to be collected for each of these assets will be loaded into the collection software prior to the self assessment.

The main part of the data collection during the DHB self assessments is the assigning of appropriate ratings to condition with reference to individual buildings. Sitewide infrastructure has already been assessed. In practise this means the self assessment for plant is limited to the individual building being assessed (i.e. a boiler/chiller/generator/etc which serves that building only). The methodology for determining these ratings is given below.

5 Asset Hierarchy

The hierarchy for classification of the assets has been discussed in detail with the MoH team and to optimise the level of information required:

- DHB
- Campus (Site)
- Building
- Asset group (discipline) E.g. Fabric or Mechanical or Electrical
- Category E.g. Roof or heating plant

Elements E.g. guttering or heating pump are not being assessed individually

Refer to Appendix A for the software user guide.

The proposed hierarchy is provided in greater detail in table 1 below.

Table 1: Proposed Data Standard Hierarchy

Hierarchy	Description	By
DHB ID		MoH
DHB Name		MoH
Site/ campus		MoH
MoH Building ID		MoH
DHB Building ID		MoH/DHB
Building Name		MoH
Building Data	Basic Building Data including: • Age • Footprint (m^2) • Number of levels • Total GFA across all levels (m^2)	MoH/DHB

Category	Element	By
Fabric – external	Assess general condition of: • Walls / cladding • Roofing and decking (refer note) • Windows and doors Note: Decking refers to a full deck installed over a roof membrane only	DHB
Fabric - internal	Assess general condition grade for the building. • Internal fitout (walls/finishes/etc)	DHB
Heating Ventilation and Air Conditioning (HVAC)	Assess general condition of: • Boiler plant in building • Heating distribution • Cooling plant in building • Cooling distribution • HVAC systems (local and central) • BMS Controls	DHB
Plumbing	Assess general condition of: • Hot water building plant • Hot water building distribution • Cold water building storage tanks • Cold water building distribution • Medical gases and vacuum building • Medical gases and vacuum distribution • Sprinklers	DHB
Electrical Power	Assess general on condition of: • Building main switchboard • Local distribution boards • Submain cabling • Building UPS • Building generator	DHB
Electrical lighting	*Lighting and emergency lighting considered as part of fabric fitout overview (i.e. not reviewed).*	N/A

Category	Element	By
Extra Low Voltage (ELV) - Security, Nurse call, Data etc	*Not considered as part of assessment, due to rate of change of these services with time*	N/A
Seismic (Earthquake) restraint	Building overview rating (Low / Medium / High) – the degree to which seismic restraint issues are known	DHB
Asbestos Issues	Building overview rating (Low / Medium / High) – the degree to which asbestos issues are known / observed	DHB
Fire Compartmentation Integrity	Building overview rating (Low / Medium / High) – the degree to which fire separation issues are known / observed	
Vertical Transport (Lifts)	Assess general condition of: • Lifts and Escalators	DHB
Fire Alarm	Assess general condition of: • Fire Alarm System	DHB

For the above fabric categories, the following element data will be considered (where relevant).

For all of the above fabric, mechanical and electrical element, the following will be considered (where relevant).

Element data	Criteria	By
Condition rating (see note 1 below):	1 (very good) 2 (good) 3 (Average/fair) 4 (Poor) 5 (very poor)	DHB
Condition variability:	1 (all similar condition - default) 2 (some variability) 3 ('patchwork' replacement)	DHB
Estimate of time to replacement	• 0-2 years • 2 to 5 year • 5 to 10 year • 10+ years	DHB
Comments	Free text field (to be used by exception)	DHB

Note 1: For this high level assessment, the condition ratings given will be the general professional opinion of the assessor.

6 Rating of Assets

6.1 Rating/ Assessment method

6.1.1 Building Fabric Assessment

A visual (non-destructive), or site knowledge based desktop assessment to report on the external building envelope condition, significant maintenance items and internal assessment consisting of reviewing surface finishes, fixed fittings and access routes. Assessment is limited to building roof (and full decking over roof membrane), cladding and windows undertaken from level, accessible areas such as pavement, balconies or roof plant area with fall prevention barriers.

The assessment findings are to be represented in building envelope (exterior) and building fitout/ interior categories.

6.1.2 Asbestos Assessment

A general assessment of the extent that asbestos issues are known / observed across the building as defined by;

Low – Low (or no) likelihood of issues (i.e. no asbestos present or has been cleared)

Medium – Limited issues known/observed

High – Significant issues known/observed

6.1.3 Fire Safety Assessment

A general assessment of the integrity of fire separations will be sought from the assessor as defined by;

Low – Low (or no) likelihood of issues are known/observed

Medium – limited issues are known/observed

High – Significant issues are known/observed

6.1.4 Services Assessment

For mechanical and electrical building services, the DHB will comment on an average condition representative of each element.

6.1.5 Condition Definitions

A one to five condition rating scale (where one indicates an asset is in very good condition and five indicates very poor condition) is being used for the DHB self assessment. This one to five rating scale will be used to report asset condition; regardless of whether the condition is assessed visually, from documentation or estimated.

Photo examples for a range of condition ratings are given in Appendix B.

The condition definitions assigned to the building envelope, fire and services are as follows:

Table 3.1: Condition Definitions

Rating	Condition	Definition
1	Very Good	Assets displaying no deterioration or only normal routine maintenance required. New or near new condition. Some wear or discoloration but no evidence of damage. Can include repaired assets where the repair is as good as the original.
2	Good	Assets displaying limited deterioration which does not affect their use, or where limited restoration has been performed. Minor reactive maintenance may be required. Acceptable physical condition, with minor deterioration or damage that may affect performance (includes most repaired assets)
3	Fair/Moderate/Average	Assets which have deteriorated to a degree where maintenance is obviously due, but not to the extent where the function is significantly impaired or very substantial repairs are needed. Failure unlikely in near future but further deterioration is likely
4	Poor	Repair or renewal is required in the short term. Significant deterioration or damage is evident and severely impacting performance. Asset is barely serviceable and failure likely in short term
5	Very Poor	Immediate repair or renewal required. Asset is not in use or unserviceable (i.e. has failed) or failure is imminent. Asset may pose occupational health and safety problems. Requires urgent attention.

Below are provided NAMS definitions for additional information/ explanation (Considered complementary to table 3 .1 above:

Table 3.2: NAMS Condition Definitions

Element	Condition Grade				
	1 Very Good	2 Good	3 Moderate	4 Poor	5 Very Poor
Estimated Proportion of life consumed	Up to 45%	Between 45% to 90%			Up to 90%
External fabric/ envelope	Fabric constructed with sound materials, appear true to line and level. No evidence of deterioration or discoloration.	Showing minor wear and tear and minor deterioration of surfaces.	Appearance affected by minor cracking, staining, or minor leakage. Indications of breaches of weather proofing. Minor damage to coatings.	Fabric damaged, weakened or displaced. Appearance affected by cracking, staining, rust, overflows, or breakages. Breaches of weatherproofing evident. Coatings in need of heavy maintenance or renewal.	Fabric is badly damaged or weakened. Appearance affected by cracking, staining, rust, overflows, leakage, or damage, breaches of waterproofing. Coatings badly damaged or non-existent.
Internal finishes/ fitout and lighting			Appearance affected by minor cracking, staining, or minor leakage, some dampness or mildew. Minor damage to wall / ceiling finishes.	Fabric damaged, weakened or displaced. Appearance affected by cracking, staining, dampness, leakage, or breakages. Breaches of waterproofing evident. Finishes of poor quality and in need of replacement.	Fabric badly damaged or weakened. Appearance affected by cracking, staining, leakage, or wilful damage. Breaches of waterproofing. Finishes badly damaged, marked and in need of replacement.
Services	All components operable and well maintained.	All components operable.	Occasional outages, breakdowns or blockages. Increased maintenance required.	Failures of plumbing electrical and mechanical components common place.	Plumbing electrical and mechanical components are unsafe or inoperable.

6.1.6 Seismic Restraint of Building Services

Seismic rating is to be captured as an overall score (low / medium / high) for mechanical and electrical services separately for each building. This is a general opinion as restraint will vary throughout most buildings.

The Building Code requires new services to be seismically restrained to NZS 4219:2009. An overall assessment for the building services seismic restraint will be made based on a perceived risk profile (low/medium/high. This will not address levels of compliance with relevant standards.

The risk profile is defined by;

Low – Low likelihood of issues (ie seismic restraint of services have been addressed)

Medium – Limited issues known/observed

High – Significant issues known/observed (ie gravity support / fixing questionable and no seismic restraint present

6.2 Measurement

No measurement is proposed to be undertaken as part of this high level assessment – floor areas provided by the MoH and the relevant DHB will be used.

6.3 Anticipated Life Expectancy / Replacement Year

This will be given as a general age bracket, typical for systems or components of this type. This will also be by its nature averaged and of use for general reader guidance and high level building budget overview rather than for maintenance planning.

7 Data Collection Process

The data collection process is explained within the guide provided in Appendix A.

7.1 Data Capture Set up

Asset information gathered during the DHB self assessment s will be recorded on a web based software tool "Quickbase". The templates that are to be used have been developed and tested before the DHB's self assessment commences.

8 Assumptions and Exclusions

The following assumptions are part of the methodology and will be included in final reporting:

The DHB self assessment is to inform high level MoH decision making, not DHB detailed asset management purposes.

The DHB self assessments are of a high level nature only and will rely heavily on site knowledge and experience, supplemented by visual inspection if necessary. It is not intended that detailed inspections of wall framing, ceiling voids, floor voids or other parts of the asset which were covered, unexposed or inaccessible is required. The self assessment should not be construed as a detailed building condition survey for specific asset repair and maintenance budget planning, since service and location specific methodology around replacement is likely to be required.

The DHB self assessment data will provide an 'indicative assessment' generalising the current condition by discipline only. Its purpose is to support general system level commentary to assist in directing master planning decisions.

The self-assessment is not intended to provide assessment of:

- Performance or reliability
- Capacity of plant or systems
- Fitness for purpose
- Operational efficiency of specific plant or systems.
- Resilience and redundancy of systems

It is assumed that a building, its services (and any alterations) have been designed and constructed in accordance with the Building Code current at the time of the construction.

Aspects Excluded

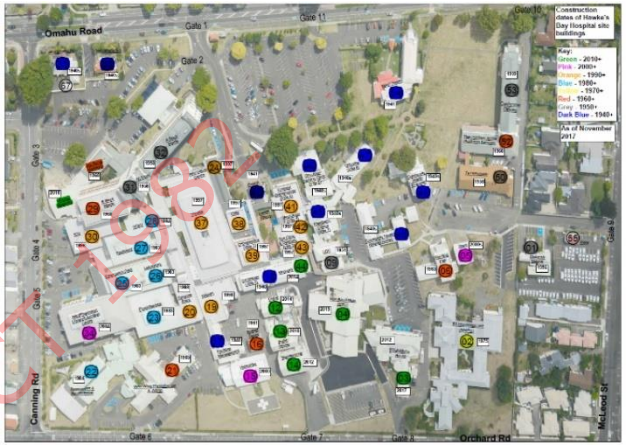
A number of aspects were not requested to form part of the survey/assessment scope and are noted as excluded from the assessment. These include:

- Clinical Equipment
- Cool Rooms and Refrigeration Equipment
- Information and Communication Technology (data and comm's)
- Nurse Call Systems
- Other General Equipment (e.g. kitchen)
- Other Specialised Equipment (e.g. biosafety and fume cabinets, Lamson Tube system)
- Security Services
- On site Structural engineering reviews
- Carriageways or civil works

A

Appendix A – Quickbase Userguide

How to Guide: HART Building Condition Assessment Tool



This guide outlines how to complete a condition assessment for a Ministry of Health building using Quick Base. The guide outlines the definitions for the fields for each assessable element as well as how to conduct an assessment.

There are two steps to be completed as part of this assessment:

A. Assess Building Conditions
Provide a brief assessment of the condition of the elements in each building on your campus. Definitions of condition and variability are below. Note that some buildings have already been assessed by Beca and therefore do not need to be completed. These are listed on the 'Home' page.

B. Upload Campus Maps
Upload a PDF or JPEG image of a site plan for each campus. This should clearly identify the location of each building on the campus with the building name. An example is shown on the right.

Contact us:

For inquiries regarding condition assessments please contact Leigh Halstead at Leigh.Halstead@health.govt.nz

For inquiries regarding Quick Base usage including changing DHB references, adding/removing a new building for assessment, or adding other users, please contact nampsupport@beca.com

Definitions

Condition Rating Definitions

For assessing buildings, please use the following definitions to guide you:

Rating	Condition	Definition
1	Very Good	• Assets displaying no deterioration or only normal routine maintenance required. • New or near new condition. • Some wear or discoloration but no evidence of damage. • Can include repaired assets where the repair is as good as the original.
2	Good	• Assets displaying limited deterioration which does not affect their use, or where limited restoration has been performed. • Minor reactive maintenance may be required. • Acceptable physical condition, with minor deterioration or damage that may affect performance (includes most repaired assets)
3	Average	• Assets which have deteriorated to a degree where maintenance is obviously due, but not to the extent where the function is significantly impaired or very substantial repairs are needed. • Failure unlikely in near future but further deterioration is likely
4	Poor	• Repair or renewal is required in the short term. • Significant deterioration or damage is evident and severely impacting performance. • Asset is barely serviceable and failure likely in short term
5	Very Poor	• Immediate repair or renewal required. • Asset is not in use or unserviceable (i.e. has failed) or failure is imminent. • Asset may pose occupational health and safety problems. • Requires urgent attention.

Variability Definitions

The 'Element Variability' field is the extent of variability in the condition across the building, i.e. is the condition assessment consistent across the building or isolated to some locations.

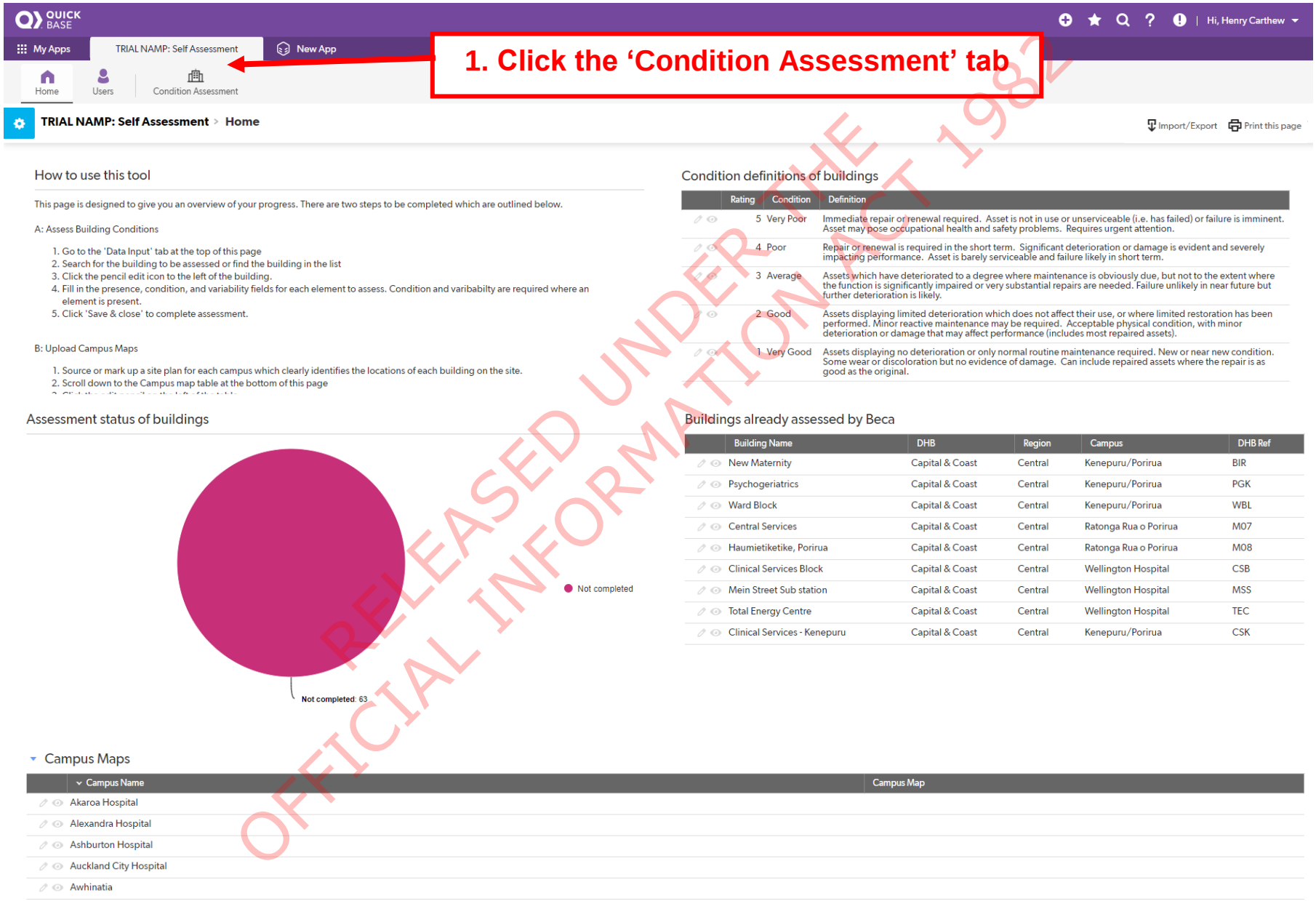
Rating	Definition
1	All Similar Condition
2	Some variability
3	'Patchwork' Replacement

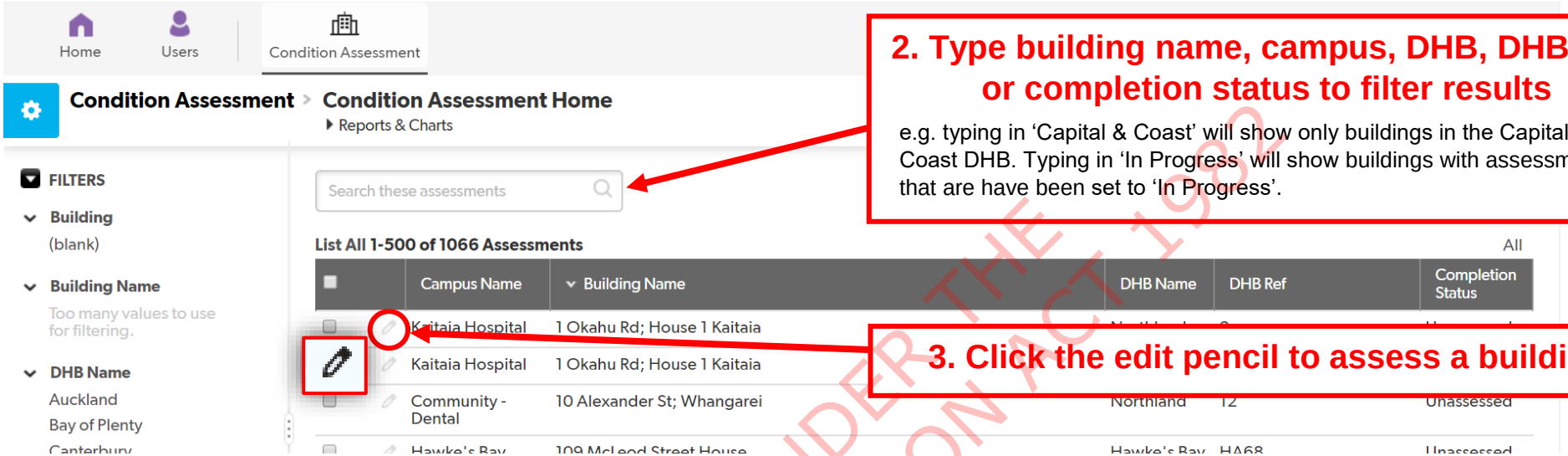
Asbestos, Fire and Earthquake Risk Definitions

A general assessment of the extent that asbestos, fire and earthquake risks are known and observed across the building.

Rating	Definition
Low	Low likelihood of issues
Medium	Limited issues observed/known
High	Significant known issues

A. Assessing Building Conditions

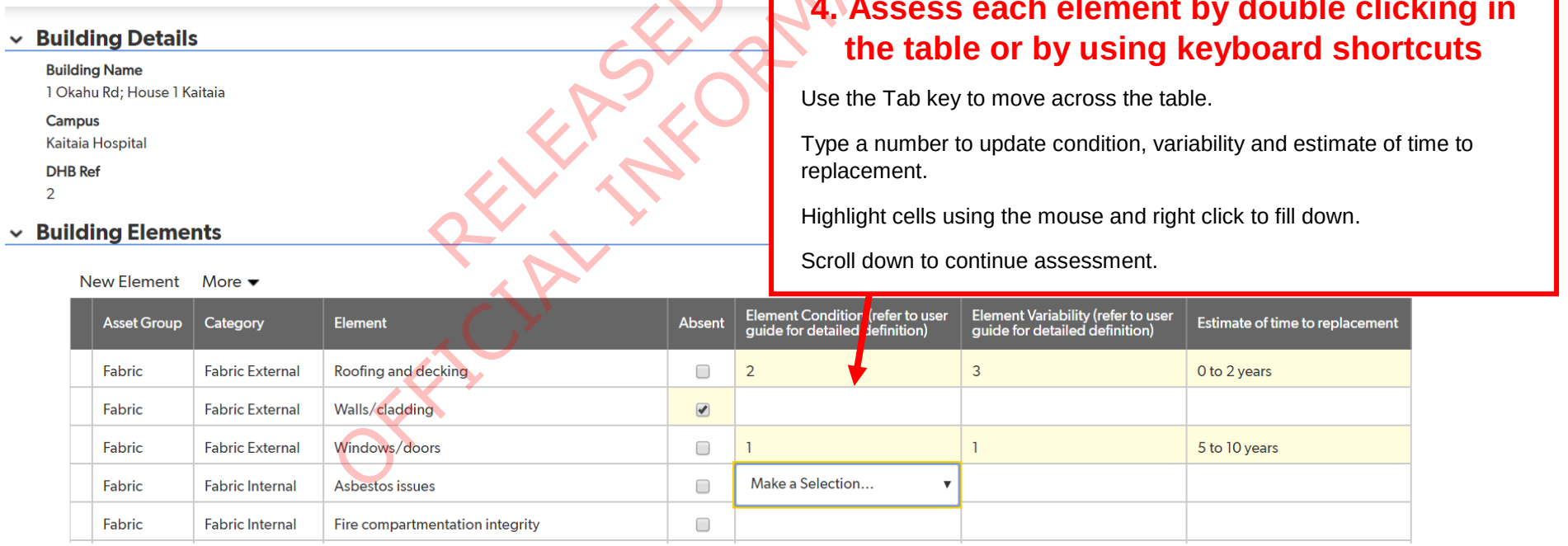




2. Type building name, campus, DHB, DHB Ref, or completion status to filter results

e.g. typing in 'Capital & Coast' will show only buildings in the Capital & Coast DHB. Typing in 'In Progress' will show buildings with assessments that are have been set to 'In Progress'.

3. Click the edit pencil to assess a building



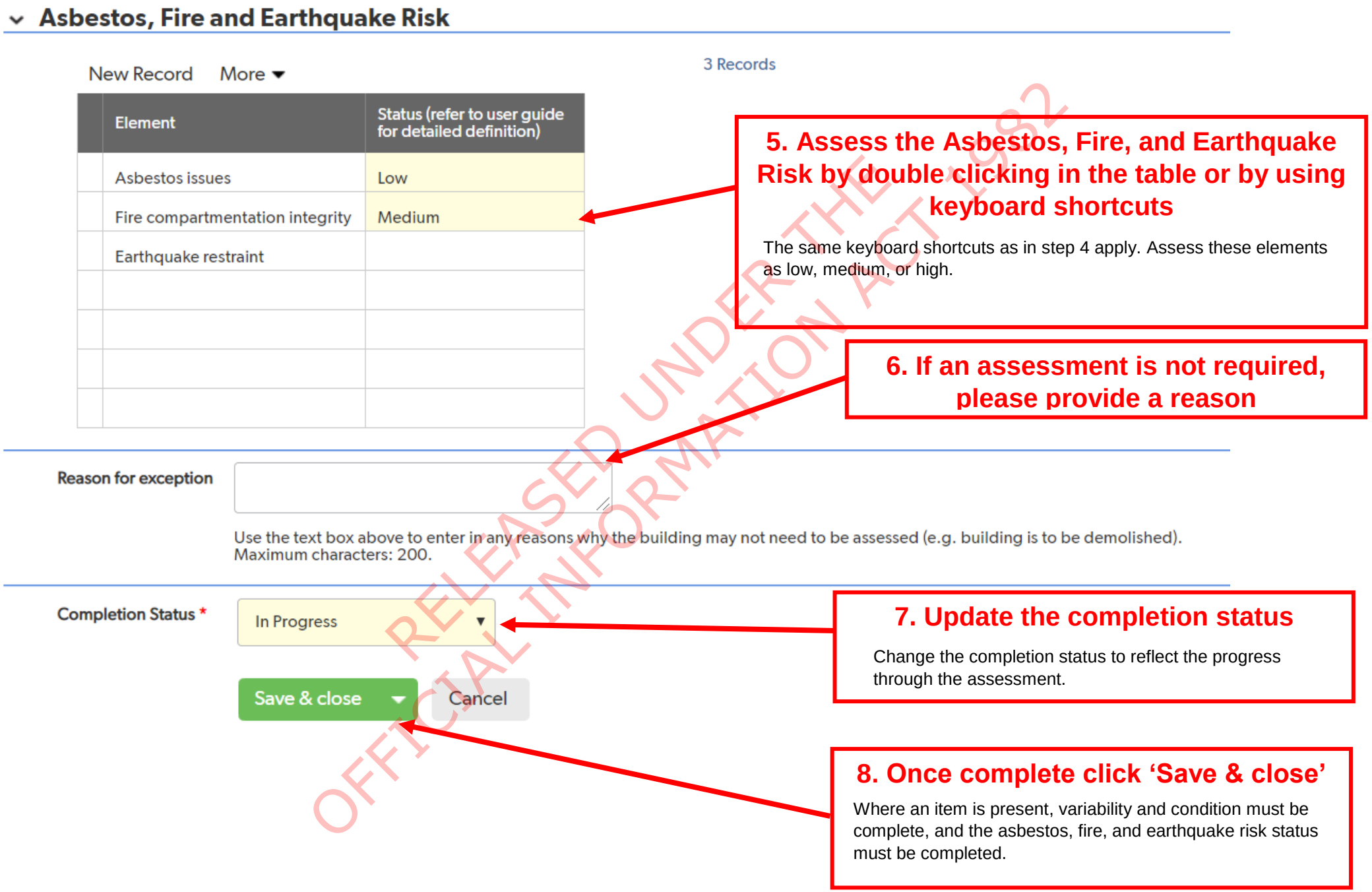
4. Assess each element by double clicking in the table or by using keyboard shortcuts

Use the Tab key to move across the table.

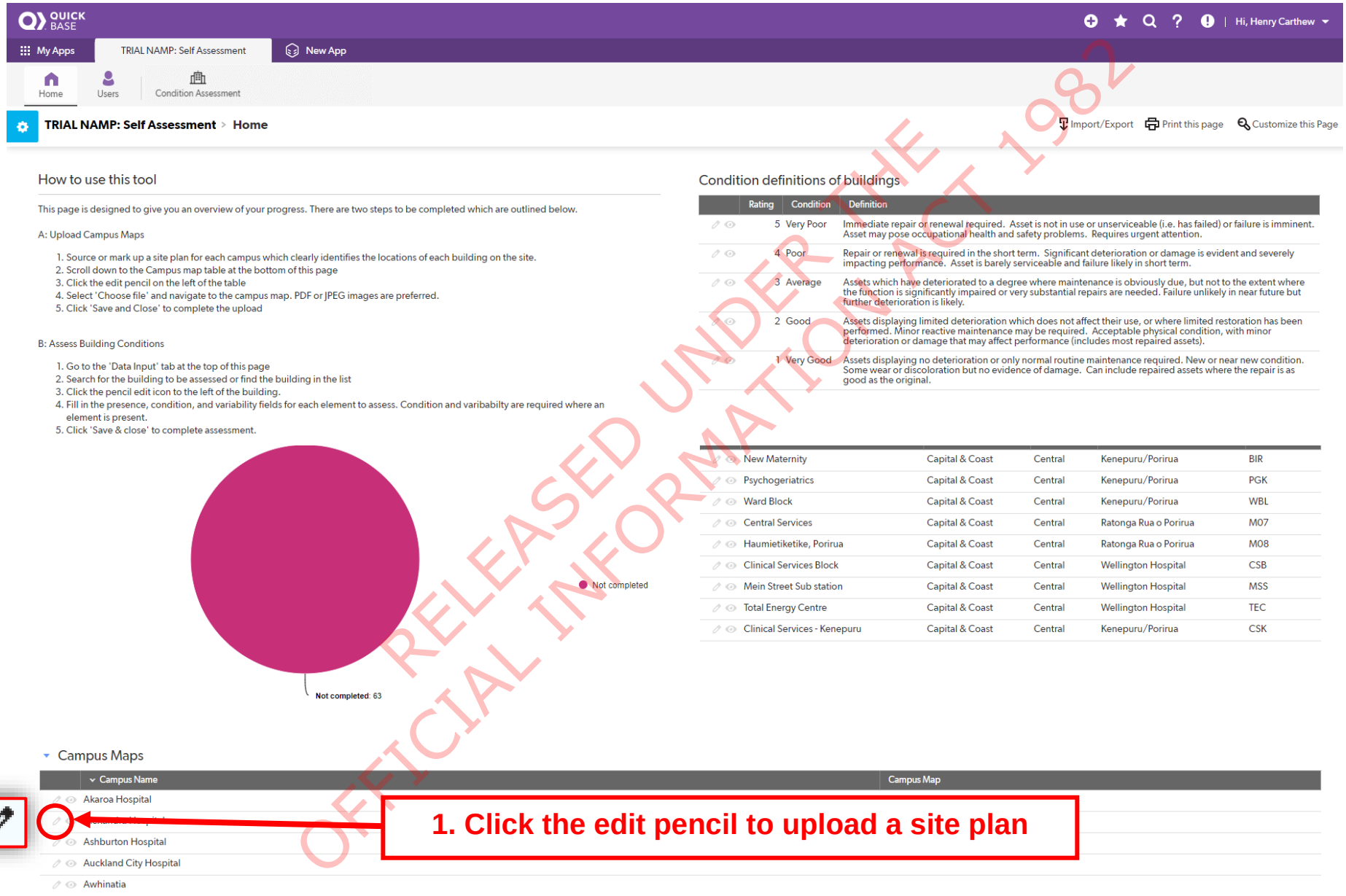
Type a number to update condition, variability and estimate of time to replacement.

Highlight cells using the mouse and right click to fill down.

Scroll down to continue assessment.



B. Uploading Campus Maps

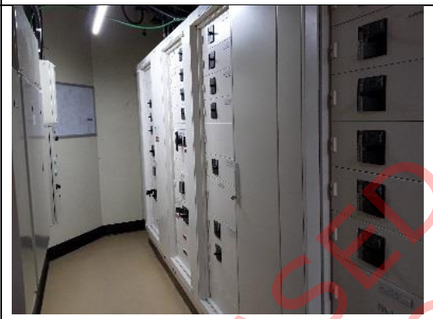


B

Appendix B – Photographic Examples of Condition

NAMP - Condition examples of element ratings - all disciplines

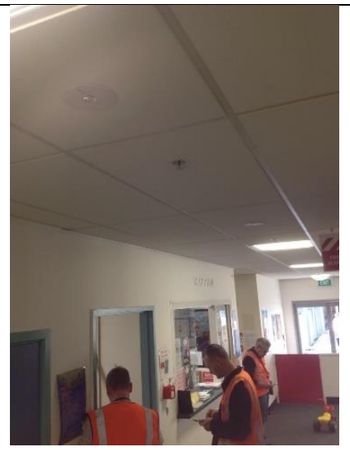
Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Boilers	 New, surface clean, free of damage, no surface rust,	 Visibly good condition. Aged but evidence of replacement and refurbishment. In good working order	 Aged asset at/near economic life expiry. In working order but further deterioration is likely	 Surface showing signs of deterioration, old controls, aged condition can anticipate at/near useful economic life. Discussion also with operator on frequency of failure etc, not new	
AHU		 Generally clean and tidy appearance, no damage evident, not new	 Unclean / untidy appearance, unclad in accessed areas, prone to damage, signs of insulation deterioration, old	 Unclean / untidy appearance, signs of insulation deterioration, very old	

Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Pipework	 New, good spatial layout and accessible for maintenance. Level access. Seismic restraint and support. Pipework clad	 Good spatial layout and accessible for maintenance. Seismic restraint evident support. Pipework clad. Unlevel access. Not new	 Variable condition, support and restrain non seismic and/or missing. Some deterioration evident. Variable layout (crossovers etc). Not new		 Old, evident has been subject to numerous localised 'bandaid' type maintenance. Unclean, dirty, missing components. Poor layout and arrangement
Switchboard	 New condition	 In new condition and generally appears to be well maintained. Maintenance access is slightly restricted, but compliant.		 Whilst in good condition, reliability is unknown and replacement equipment is unavailable	 In poor overall condition with unknown reliability

Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Distribution Board		 In new condition and generally appears to be well maintained			 Beyond its economic life with older equipment that will require replacement
MCC		 In new condition and generally appears to be well maintained		 Whilst in moderate condition, reliability is unknown and replacement equipment is unavailable	 Poor condition, reliability is unknown and replacement equipment is unavailable. Visibly deteriorated, components not working

Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Fabric – External roof		 Surface clean, free of damage and/or deflection, no surface rust, no standing water, not new	 Surface dirty	 Standing water	 Loose membrane, standing water
Fabric – External cladding		 Surface clean, free of damage and/or deflection, no surface rust, not new		 Vertical crack in monolithic cladding	
Fabric – External window/door		 Clean, free of corrosion, seals intact, not new	 Minor corrosion		

Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Fabric – Internal wall		 No signicficant damage, minor scuffing, not new		 Vertical cracking	 Water ingress
Fabric – Internal floor		 Fee of penetrations/damage, welded joints in good order, not new		 Welded joint opening	

Element example	1 - Very Good	2 - Good	3 - Average	4 - Poor	5 - Very Poor
Fabric – Internal ceiling	 Tiles and grid in good condition, no evidence of water or other damage, new or near new condition	 Tiles and grid in good condition, no evidence of water or other damage		 Water damage	