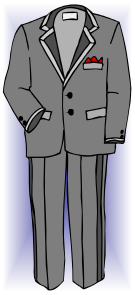
Issue 118, July 11, 2003

AMQ International

Strategic Asset Management

The what, why and how of the

FUNCTIONAL LIVES OF BUILDINGS



Consider that suit hanging at the back of the wardrobe unworn

- It doesn't fit (you've gained a few pounds)
- It is out of fashion (who wears lapels that wide!), and
- It is not needed in your more casual lifestyle.

But it still has lots of wear left in it, right?
(It ought to have, you paid a lot for it!)

What you have here is an asset that is **physically OK,** but **functionally kaput.**

And the fact that it is hanging at the *back* of the wardrobe tells you that

functional life is more important than physical life.

It is the same with BUILDINGS and **we have created a special template to enable you to understand and assess the functional life of your buildings.**

A 'FUNCTIONAL LIFE' TEMPLATE

For your convenience the full size template is available at **www.amqi.com** in the resource library under **"Tools and Templates"** - you can easily fill it in on line and print the results for your own use—OR, print then submit your findings to us and we will send you our complete analysis—see back page—but read this easy introduction first!

In this issue we look at

- What functional lives are
- Why they are becoming so much more important, and
- **How to estimate them for Buildings**
- **How to find out what others are doing**

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WHAT ARE "FUNCTIONAL LIVES"?

The functional life of an asset is the period of time over which an asset is able to deliver the required service at the required standard. Few assets nowadays are in use until they reach the stage of absolute physical failure or incapacity; rather they cease to be economically viable in far less time than this because of

- Changes in service delivery requirements
- Regulatory requirements (e.g. health and safety, access, environmental etc) or
- Technical change

WHY ARE THEY IMPORTANT?

Twenty or more years ago when life cycle costing was being developed and expanded, the emphasis was on 'maintaining' or 'preserving' the asset, so the focus was on estimating physical lives. Most of the estimation was carried out by engineers examining the physical characteristics of the asset.

Today we recognise that assets are only valuable insofar as they provide a service. The emphasis is now on service delivery, or providing desired outcomes. (see SAM issue 115) This has changed the focus to estimating how long an asset can provide a desired service, ie its functional life.

Functional lives are needed to support an OUTCOME FOCUS. They are also needed if we wish to develop reliable estimates of future renewal timing and reliable depreciation estimates.

How to Estimate (a "SAM" template for you to use)

Estimating functional lives is **more difficult** than estimating physical lives because it requires

- **Estimating demand changes**
- as well as traditional supply changes

In this issue we work through the issues that will determine functional lives for your building assets. We have focussed on those assets used in the provision of health, housing, education and justice, but the ideas (and the associated working template that we provide in "Tools and Templates" can be equally extended to all buildings, e.g. recreational facilities, shopping centre complexes, etc. (*see Resource Library at www.amgi.com)*

Just an hour The buildings template will take less than an hour to complete thoughtfully. You can simply record the findings of your asset management team - but the results will be more valid, if you also seek the input of those officers who deal directly with clients.

For full benefits, seek wide inputs If you want policy makers and finance officers to understand the issues involved, they should complete the template, too. Your combined inputs will give you the range of economic lives you are seeking – but much more than that, they will help you to see your assets through the eyes of others.

The Building Assets Functional Life Survey is in six parts. On the next 6 pages, we explain the rationale behind the questions and illustrate the template with a selection of one or two questions.

PART ONE: GENERAL

WHO IS DOING THE ESTIMATING?

In general, we anticipate that the role and the experience of the person completing the template will have a considerable bearing on the answers provided. The wider the range of participants you select in estimating your economic lives, the more valid and acceptable will be the results (*you also get the added benefit of a wider understanding amongst respondees of asset management issues*)

Suggested respondees are:

- Asset manager
- Maintenance supervisor
- Person responsible for service strategy
- Person responsible for asset management strategy (if different from asset manager)
- Business planners and managers
- Finance directors

If you provide many services, it is important to understand what services your respondees have in mind. Establish this up front.

***(Note** in the template, we are focussing on health, housing, education and justice – if these are not the assets that interest you, you can modify the template to represent the services that you provide. We have kept to very broad categories as in the example below. Too fine a sub-division will make it very difficult for you to get sufficient responses to inform your decision making.)*

***1c** Please choose and answer with respect to **ONE** of the following **service groups. Note**: if you are involved in more than one service group, eg both acute and aged care, please complete a separate survey for each or else choose one as your **primary** response*

Acute Health Care	Aged Residential Care
School Education	TAFE
Police Services	Law Courts
Corrections	Housing

Different services will call upon different assets. Don't leave it to chance, have your respondees also tell you what **assets** they have in mind in filling in the template. Finally, establish your respondee's experience credentials. How long have they been involved with these services/assets?

HOW DO YOU USE THE INFORMATION PROVIDED?

You could simply average all of the response you get but you may not want to. You may wish to weight different answers differently – ie those with longer experience, or those closest to the service need or asset issues. Or you may simply wish to make your own assessments using the responses as inputs to your own decision-making.

PART TWO:
THE *GENERAL* RELATIONSHIP BETWEEN 'ASSET AGE' AND 'SERVICE DELIVERY'

In your answers to the following questions we are interested in those functional changes that will impact on the nature of the asset required and thus result in the need for a change to be made to existing assets.

Thus where changes in demand (increases, decreases or composition) will require a modification, replacement or abandonment of some existing stock, this is of importance and we would like you to take it into account. If, however, changes in demand will leave the current assets unchanged but simply result in more of them, this does not affect functional lives.

Similarly if you believe that demographic changes will result in more or less use being made of certain assets but will not result in a change to the asset itself, then there is no change to the functional life. On the other hand, *if the nature of the changed use will impact on the suitability and functionality (and thus on the longevity) of the asset, then this is of importance.*

Please answer with respect to the services and assets that you indicated as your area of interest in Questions 1b and 1c, **2.** We are interested in your general views on changes in the requirements for the building assets you are responsible for (or that provide the service outputs of interest to you), in meeting these service outputs.

2a *Please describe the major current pressures for change impacting on the suitability and functionality of these building assets* ……

……...

……..…..

2b *Also describe the anticipated future pressures for change expected to impact on the suitability and functionality of these assets* ……...……

……...

……..…..

2c *In how many years time do you expect these future changes to influence changes in building design*
……..……..……

The rest of the template mainly consists of 'tick the box' questions.

PART 3:
THE RELATIONSHIP BETWEEN 'BUILDING COMPONENT AGE' AND 'SERVICE DELIVERY'

In this part of the survey we look separately at four major **building components:**

Building structure (Building structure includes the foundations, load bearing walls, floors, stairs, roofing and the external façade etc.)

Site Services (Site services include car parks, access ways, landscaping, energy, telecom, water and sewer /drainage etc.)

Building Services (Building services include air-conditioning, heating and ventilation, lifts, plant, trunk plumbing, power, communications, fire services etc.)

Fit-Out (Fit out includes internal non-load bearing walls or partitions, ceilings, floor and wall surfaces, blinds & curtains, lighting fixtures, power and communications points, plumbing fixtures, special service outlets, built-in furnishings, etc. – but excludes loose furniture and equipment used by the building occupants**)**

And for each component separately we ask the following question (illustrated here by reference to building structure)

3a With respect to the services and assets that you indicated as your area of interest in Questions 1b and 1c, do you consider that a building's ongoing functional capability is related to its age?

If **YES**, is this because (tick any that apply)

- Degradation of the physical condition of the building (even when well maintained) impacts adversely on service delivery
- Changes in building technology or service delivery technology impact adversely
- Changes in the functional requirements for service delivery impact adversely
- Changes in the regulatory and policy requirements for buildings (health, safety, access, sustainability etc.) impact adversely
- Other (please explain)……..

If **NO**, is this because (tick any that apply)

- Service quality is largely independent of building condition
- Building condition does not change very significantly over time for these assets
- Technological changes have little or no impact on service quality
- Service delivery functional requirements do not change appreciably over time
- Other (please explain)……

Note on the uses of life estimates for depreciation and for renewal forecasts:

Depreciation Many agencies adopt a simple asset life that is applied uniformly across building structure, site services, plant services and fit-out. (e.g. 50 years is a commonly adopted figure for building depreciation) Using a simple average (or preferably a weighted average) works well for depreciation and using the template will help your organisation get a more reliable assessment of what this actual weighted average is.

Renewal Forecasting Estimating the likely future timing of renewal for the purpose of asset management plans and cash flow predictions, however, requires that the estimator know, not simply the overall average, but the life of each of the components that are to be separately renewed. The detailed questions in the template are mostly for the purpose of renewal forecasting, although they will also help to inform a more valid assessment of depreciation.

PART FOUR:
ESTIMATION OF FUNCTIONAL LIVES

Here we focus on getting an appreciation of the RANGE of economic lives as they apply to each component (ie building structure, site services, building services, fit-out)

What do you consider are the typical ages at which functional changes START to impact on service delivery and the typical ENDING age at which assets become functionally obsolete.

Remember that we are only looking at those functional changes that impact on the ability of the asset to do its job.

5 Building structure (remember that building structure includes the foundations, load bearing walls, floors, stairs, roofing and the external façade etc.)

Starting Age

5a I would say that the typical starting age for impact on service delivery by the condition, design or configuration of **building structure** (to the nearest 5 years) would be:

About …….. years, or else,
no typical age or
not able to estimate or
other ……..…

Ending Age

5b I would say that the asset age at which the **building structure** would become effectively functionally obsolete (to the nearest 5 years) would be:

About …….. years, or else,
no typical age or
not able to estimate or
other ……..……..…

Drivers of obsolescence

Which particular part or parts of the building structure most impact service delivery as they age?

5c Which, if any, of the building components listed above for **building structure**, do you consider to be the most significant driver(s) of service degradation over time? (tick any that apply)

Foundations	Load bearing walls
Floors	Stairs
Stairs	Roofing
External facade	Other ……...
Other ……	Other ……...

PART FIVE:
EFFECTS OF THE TYPE OF CONSTRUCTION ON FUNCTIONAL LIFE ESTIMATES

"All oils ain't oils" and equally, not all buildings are alike either. In particular, the functional life may well differ depending on whether the building in question is:

- A single storey building
- Medium density (2-4 storey building)
- High density (5 or more storey building)
- Outbuilding
- Relocatable

Refining the Estimates
Rather than prescribe what construction type your respondees should think of when filling in the template, what we have done is to allow people to answer in accord with the construction type they feel most comfortable with – and then, if any adjustments need to be made for other construction types – to let them have the opportunity to recognise them.

So, for example, (again, using building structure as the example)

10a. In my answer to Question 5, I estimated a range of from to years for the functional life of building structure. With this basic range I would now estimate the following ranges for typical asset structure for these construction types.

Single Storey building	*Same* ☐	*N/A* ☐	*from …… to ……*
Medium Density (2-4 storey building)	Same	N/A	from …… to ……
High Density (5 or more storey building)	Same	N/A	from …… to ……
Outbuilding	Same	N/A	rom …… to ……
Relocatable	Same	N/A	from …… to ……

And, recognising that certain portfolios may have some common stereotypes with lives differing from the general run given so far, the template provides

11. If there are any common typical building stereotypes in your portfolio (eg. LTC Schools, Pre-Cast Concrete Housing, Terapin Buildings, Postwar Hospitals) which exhibit their own characteristic functional lives differing from those above, please list them here, with their associated life cycles.

Part Six:
EFFECTS OF SPECIAL FUNCTIONAL FACTORS

Finally, we look in detail at different functional areas within the assets. The template takes examples from health, housing, education and justice – but you can use the samples given to make a selection for yourself if your service area is different from these.

For example, with Acute HealthCare

12. If there are any typical special functional areas within your building assets (eg. specialised areas, general-purpose areas, administration/support, public zones, commercial facilities) which exhibit their own characteristic functional lives differing from those already provided, please indicate the typical effect on those life cycles.

The functional areas specified below are those applying to Victorian Government building assets. Please enter your own functional areas if they differ significantly (at the or……)

Please answer only those sections below which relate to the assets in your portfolio.

Acute Health Care

General Wards / Inpatient,	*or ……., generally*	*years longer / shorter*
Administration / Support,	*or ……., generally*	*years longer / shorter*
Clinical / Specialist,	*or ……., generally*	*years longer / shorter*
Day Treatment,	*or ……., generally*	*years longer / shorter*
Education / Research,	*or ……., generally*	*years longer / shorter*
Child Care / Community,	*or ……., generally*	*years longer / shorter*
Commercial,	*or ……., generally*	*years longer / shorter*
(Other)	……., generally	years longer / shorter

Want to know the general results of the Survey of Functional Lives?

The template you will find on the web allows you to

1. print off a copy and fill it in for your own purposes,
2. copy and amend to suit your own needs

and

3. to complete the template online and submit your results.

If you choose to complete the online survey and submit, we will send you an analysis of all the other results from your responding class (ie, if you are an asset manager, you will get an analysis of other asset managers; if your are a finance executive, or a policy person you will get the results from other finance executives or policy persons)

If you want to see the results from all responding classes, just ensure that someone in that class responds from your organisation. Complete the templates on the website at www.amqi.com and submit.