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INTRODUCTION

Even the best trained and most experienced librarian or curator is likely to confront difficulties in dealing with architectural drawings. They are, after all, produced by specialists, and they will nearly always include elements which only a trained architect will understand. In fact even an architect will be unable to understand some aspects of drawings a century old.

But the curator does not need to understand all this detail. This manual attempts to summarise those issues which need to be understood for the purpose of selecting which drawings to acquire or retain, how to catalogue and logically organise them, how to describe them to the public, how to make them most accessible, and how to conserve them.

One of the problems is that they are conserved for differing reasons. They may be historically important in the sense that they contain information of research value. For most individuals and organisations the construction of a building is a major step, and *ipso facto* an important part of that person’s or body’s history.

They may be works of art, and indeed presentation drawings are regularly reproduced in publications, and bought and sold as objects of virtue or decorative value. A particular association may enhance this – a company may want to hang a perspective of its first factory in the present boardroom, or an individual to exhibit an elevation of the ancestral seat in the drawing room.

They may also be of current use. Architects who are renovating a building can save a huge amount of labour if accurate drawings of the structure already exist.

An admonition: curators are much given to referring to collections of ‘architectural plans’. That is not correct. A plan is a specific type of drawing, but what you collect are ‘architectural drawings’.
DRAWINGS COLLECTONS

The collection of architectural drawings is very uneven in Australia, but there is no doubt about the demand for them. They are used by architectural historians and by local historians, and sometimes by practising architects who are called upon to work on the buildings in question. Some are used in the media and for exhibition purposes.

ICAM is concerned to promote the collection of drawings and to encourage the development of uniform standards and approaches. The time is ripe for this because very few architectural drawings worthy of collection will henceforth be generated. Future records will be digital, a situation which presents its own opportunities and challenges, not pursued here.

We can look to a number of overseas models. To take two contrasting ones, the Royal Institute of British Architects collection grew up over time, based largely upon the collections of individual members, and now holds over a million drawings, which are housed at the Victoria & Albert Museum London [See https://www.architecture.com/RIBA/Visitus/Library/Collections/Drawings.aspx]. In contrast the Canadian Centre for Architecture [CCA] was funded and established from scratch in 1979, and has had to search for its collections [See http://www.cca.qc.ca/en/collection/294-institutional-overview].

In Australia a third model was that of the University of Melbourne Archives. This began as a business archive, and for a time offered a service whereby business could lodge their records and obtain access to them as required, for which they would pay an annual fee. Only one architectural practice, Bates Smart, took this up, but other deposited collections also contained architectural drawings, most notably those the major builders Clements Langford.
Architectural firms have their own records, but increasingly tend to discard older material, and only in some cases after filming or digitising it. Some institutions and businesses retain substantial collections relating to their own buildings, notably some of the churches and the banks. But these tend to be threatened by lack of funding and priority, and by mergers and takeovers. One of the roles of the public collectors should be to keep track of such vulnerable holdings elsewhere, in the hope that – when the time comes - the owners will donate them to an appropriate institution rather than wantonly destroy them.

Officially generated drawings are in a quite different situation. The Commonwealth and the various state archives have regular procedures for acquiring and curating non-current records, and there are large collections of plans for government projects in the National Archives of Australia and state records offices, held in accordance with federal and state acts of parliament. Even in the face of funding cuts or other crises these are unlikely to be destroyed without public knowledge. But there are exceptions, as with the records of the Melbourne and Metropolitan Board of Works in Victoria (not architectural drawings as such, but important plans nevertheless).

New South Wales has collections at the State Library, the Museum of Applied Arts and Sciences (the Powerhouse Museum) and Sydney Living Museums. The State Library collection is well established, one of the first significant acquisitions being the Blacket collection, donated in 1922, and it is still actively collecting, including large archives. Collecting initiatives of the State Library have included the Architectural Archives Project in 1984-5 (in association with the Royal Australian Institute of Architects (NSW Chapter), and Foundations for Architecture, 1996 onwards. Sydney Living Museums and the Museum of Applied Arts and Sciences collect on a much smaller scale. Regionally, the University of Newcastle Library has Hunter Valley material, including the very large collection from the Maitland-based
practices of three generations of Penders (J W, W H and Ian); the University of New England has some material concentrating on that area.

Victoria has three main collections of non-government architectural drawings, the Melbourne University Archives, as above, the State Library, and the RMIT Design Archives. The State Library had accumulated some significant holdings of its own, but was then lent and finally given the Melbourne University Architectural Collection, acquired mostly by the active pursuit of drawings by an academic, David Saunders, in the 1960s. After that the Urban Conservation projects survey in the 1970s under another academic, Miles Lewis, identified and indexed in detail collections still held by architects and private owners. The owners were encouraged to donate them to the State Library, and the Library was alerted to the existence of them all, as a result of which holdings such as the Tompkins, Shaw and Evans collection were acquired over time. The other collection, the RMIT Design Archives, which was established in 2007, focuses on Melbourne-based architecture and design practices in the period after World War II. The most significant regional collection is that of the Ballarat architect Peter Vernon, whose father inherited material from a number of practices in the central goldfields region.

In Western Australia the State Library has a substantial collection of architectural drawings. Another large collection is held by the Resource Centre of the School of Design and Built Environment at Curtin University, while the University Library holds the Summerhayes Collection of about five hundred drawings. The University of Western Australia archives has another collection.

Collecting institutions in New Zealand include:

- The University of Auckland, concentrating on the upper North Island, particularly Auckland, or where the architect has a strong connection with University of Auckland School of Architecture.
- Turnbull Library/ National Library of New Zealand, with a strong focus on the lower North Island, particularly Wellington.
Macmillan Brown Library, Canterbury University, focused on the Canterbury region).

Other institutions such as the Hocken Library at the University of Otago have historical collections of architectural material, but do not appear to be actively collecting.

Material has not been supplied for other states, but we are aware of collections at the Architecture Museum at the University of South Australia, and the Queen Victoria Museum & Art Gallery, Launceston.

THE GENERATION OF BUILDINGS

To effectively collect architectural drawings it is necessary to understand the processes which gave rise to them. Were the drawings mere proposals, never put into effect? Were they firm intentions, signed onto as part of a building contract? Were they changes to contract drawings, brought about by a change of intention, a need to reduce costs or some technical or legal difficulty? Were they produced solely to publicise the building or to attract tenants? Were they produced for the purpose of later alterations to the building? It is not uncommon to encounter two or more different drawings of essentially the same thing, and to be unable to determine how they relate chronologically, and which shows the structure as built.

The term 'architect' was not a protected one until the early decades of the twentieth century (depending upon the state), and the people designing buildings or producing drawings might be primarily engineers, surveyors or draftsmen, rather than trained architects. The important distinction is that they were acting in a professional role, as distinct from owners who might prepare their own drawings, or builders who did so for the purpose of speculative development, or so as to offer a design and construct package
to clients. Drawings in those categories are worth collecting, but they are relatively rare, and will not be separately considered here.

**Student exercises**

![Student exercises by Margaret Feilman, Western Australia, 1940-1; ‘Design for a University Boat-House’, ‘Design for a Nursery School’: State Library of Western Australia.](image)

Before the establishment of diploma and degree courses in the early to mid-twentieth century, most architects were trained as pupils articled to established practitioners, and on completion of their articles, and passing prescribed examinations, might become members of the institute of architects in their colony or state, or even of the Royal Institute of British Architects. During their period of articles trainee architects might in their own time join sketching clubs, enter competitions set by the relevant institute, or attend classes such as those of the Melbourne University Architectural Atelier. These drawings often survive, and can be confusing, because they tend to represent structures which were not even under serious consideration, much less actually built. But they can be important
in illustrating the early development of architects who were later to become prominent.

Public relations

Olaff Nicholson’s trade cards, State Library of Victoria. The architect Olaff Nicholson of Melbourne, and later Western Australia, had a selection of small cards showing fairly standard house designs. He could doubtless tell a client what one of these was likely to cost, and discuss what modifications might be made to it. Some of them have such modifications sketched on in pencil.

One of Olaff Nicholson’s cards: at the bottom left of the plan a pencilled extension is shown, doubtless the result of discussion with a client.
Although there are some professional inhibitions about this, architects advertise and promote their services (and did do even more freely in the past). They may write articles, such as the many which appeared in the *Australian Home Beautiful* purporting to convey ideas about beach house design, or efficient kitchen layout, but which were really as much as anything about bringing that architect’s name and ideas to public attention. When they are short of work architects may draw up ideal schemes, and keep these in the office to act as a starting point in discussions with new clients. When you find an unidentified and perhaps generalised drawing in a collection, this may be the explanation (this seems to be rarer in New Zealand).

*The kiteflyer*

Matthew Flinders Square, Melbourne, a proposal by the architects Montgomery King & Trengrove, 1961. City of Melbourne Archives.
The kiteflyer is a more targeted form of self-promotion, with a more or less specific commission in view. When there is public discussion of city improvements, or the need for a new opera house, an architect may draw up an attractive scheme – usually little more than a perspective view – and release it to the press. It is unlikely that they will get the job as a result, but they will probably get publicity. Indeed sometimes these schemes are less self-serving, and are genuine contributions to the public debate.

A more dubious practice, but not an unknown one, is to target a specific property owner. Say that a flat developer has bought a new site, then the
The architect may approach them – ‘I just happen to have roughed up a scheme for forty units on this site, which might suit your purposes and save you some time.’ But these kiteflyers are somewhat exceptional. For the range of drawings produced for a client in the regular way, see below.

The brief

However the job was obtained, or the architect selected, the work will proceed only when there is as brief setting out the client’s requirements and preferences. In the case of a private house it might be entirely oral, but for a large project the client will provide considerable detail - schedules of the rooms required, standards for circulation, particular elements which must be incorporated, and so on. This is generally in writing, but it may include drawings – such as a university master plan which governs the siting and maximum dimensions of the building, or a drawing by the hospital’s in-house architect showing the currently applicable space standards for wards. Sometimes the architect has to elicit the brief by questioning, and this may also result in drawings – sketches which are by the architect but are not really part of the design process, simply records of the client’s requirements.
Competitions

From the client’s point of view a competition may produce more and better ideas to choose from, obtained at less cost than by commissioning an architectural firm. From the architect’s point of view winning or being placed brings public recognition and prestige and – depending upon the conditions – the prospect of being engaged for the job. Architectural competitions are of two basic sorts, public and private, but with intermediate grades between the two.

Generally, if a list of known architects have been invited to compete in a private competition or competition by invitation, one can assume that they have already been vetted and are considered suitable. There is therefore a moral imperative, if not always an explicit requirement, to appoint the winner to carry out the work. In the nineteenth century it was quite common in Australia, perhaps less so in New Zealand) to hold a private competition for the design of an ordinary house. There would be no public announcement of the competition in the press, but the result was sometimes reported, and may be traced through the Australian Architectural Index, on line: https://aai.app.unimelb.edu.au/apex/f?p=199:10
By the twentieth century competitions had ceased to be held for small or almost any private projects.

A public competition is more likely to be held for a prestigious public building. Generally it will be open to registered architects or to members of the [Royal] Australian Institute of Architects or, at earlier dates, the relevant colonial or state institute. There may be a cash prize or prizes, but there may not be a guarantee that the winner will be commissioned, or that the
work will proceed at all. If the winner is a young or inexperienced architect they may be given the job but required to work in association with a more senior practitioner.

From the late twentieth century to the present day the *ideas competition* has become common: it provides cash prizes but with no intention that it will lead directly to a commission. But sometimes it is part of a two stage competition, and a handful of the competitors from the first stage will be selected to prepare more detailed designs in response to a more comprehensive brief. The winner is then appointed to carry out the work and the others are paid a specified fee to cover their time and effort.
‘Melbourne Mansions’, 91-101 Collins Street Melbourne, by Inskip & Butler, 1906, from an original drawing now lost. This was a pioneering block of flats for which the developer, Geoffrey Syme, held an architectural competition in 1903. He retained the architects Inskip & Butler to judge the designs, and they reported in May 1904. The winners were Reed, Smart & Tappin, but nothing further was heard by the competitors until about two months later, when it was learnt that Inskip & Butler were themselves preparing a scheme. This caused an uproar, and Walter Butler was suspended for twelve months by the Royal Victorian Institute of Architects, while G C Inskip, a former president, resigned to avoid suspension.

There is the potential risk for the competitors that their ideas will be stolen and that they will receive no commission and little or no cash. In the nineteenth century there were frequent complaints of this sort (and the press coverage of these can be very useful for the historian). In the twentieth century the Royal Australian Institute of Architects promoted standard competition conditions, and encouraged its members to blackball those competitions which did not comply. This was the case in the competition for the design of Canberra. Although many esurient local architects competed regardless of the blackball, most prominent firms did not. Thus the field was much reduced and overseas entrants considerably advantaged.
Usually the brief for a major competition will be developed much as above, but by or with the involvement of senior architects, who will then of course be disbarred from competing. The same or other architects may be amongst the completion judges, and therefore also disbarred.

The brief for the Parliament House, Canberra, competition, was a major compilation of material, and competitors had to pay a substantial cash deposit to receive a set of the documents. These did not include architectural drawings as such, but site plans and other necessary information.
The problem for the curator is that competition entries are necessarily anonymous, and will bear only a letter or a motto, such as ‘Excelsior’, ‘Tried and True’ or ‘Carpe Diem’. But the judges may have written their own sequence of numbers onto the entries, and a corresponding list of authors may have been preserved. Otherwise newspaper reports or letters to the editor may name some of the entrants. These will be critical, saying, for example, that ‘Invicta’ was the only entry which truly satisfied the brief (and doubtless planted by Mr Invicta himself).

**The design**

Between the time when the architect is engaged by the client, and that when the contract drawings are done, comes the most interesting part - the design of the building. These – if they still exist - are the drawings the historian will want to look at to understand the architect’s thinking and creative process. The initial concept is developed in sketch designs, and it is then worked up in more detail in design development drawings.

That at least is the theory, but in practice the distinction is not quite so clear-cut. And if the developing design doesn’t work out satisfactorily, or is rejected by the client, the process will have to start again. Once the design has been substantially established more elaborate presentation drawings
may be prepared to sell the scheme to the client committee or board, to be publicly exhibited or released to the press, or to be used in soliciting donations. The presentation drawings are often the most glamorous and are the ones that building owners will want to display or authors to use in publications. They are often works of art in their own right.

Renderers

A coloured illustration of a building, more like a work of art than a technical drawing, tends to be called a rendering (and the term can be used even of a black and white drawing of artistic pretensions). Many architects would employ a specialist renderer (sometimes a trained architect, sometimes not) to prepare presentation drawings, and perspectives in particular. Therefore if such a rendering is signed one cannot assume that the author is a member of the architect’s staff. Harold Herbert, the watercolourist, did such work. Robert Haddon, who worked at different times in Hobart, Adelaide, Perth and Melbourne, is another good example. By 1904 his Melbourne practice was called the Central Drawing Office, and he called himself a consultant architect. This reflects the fact that he sometimes had an input into the actual design of buildings which were notionally the work of other architects. A country architect especially, who might have limited experience and capacity, might engage a metropolitan consultant like Haddon. On the other hand Paul Wallace, who rendered Roy Grounds’s Academy of Sciences in Canberra, was an employee of the firm.
Consultants

Although an ordinary house in the nineteenth century might be conceived entirely by the architect, today even a small building will require the input of a structural engineer, and a large building may require separate consultants for geotechnical work, heating, electrical, information systems, parking, town planning and any number of other matters.


These drawings will commonly be found in the architect’s files but be readily recognisable by their different format. They tend to be of lesser interest than the architect’s drawings, because they are merely working out the technical details. But sometimes, for example in the early days of steel framing, they are of considerable significance.
Permits and approvals

Princess Theatre, Spring Street, Melbourne, by William Pitt 1886, approval stamp of the Central Board of Health; proposed addition of a winter garden [conservatory], 1901, stamp of the now Board of Public Health, referring to a letter requiring amendment of the design: State Library of Victoria WD THE 15.3; WD THE 15.7. The amended design is also included in the set of drawings, and without this evidence the existence of the two versions would be unexplained.

In the early nineteenth century there may have been no requirement to obtain any sort of official approval before constructing a building, or else there was a fairly general requirement, like that in the Macquarie towns in New South Wales for the approval of the Government Surveyor. If drawings were submitted at all, they were generally stamped by the authority and then returned to the applicant. The reason is that cheap methods of plan replication did not exist, and producing tracings was an expensive procedure. If one can generalise, it tends to be after World War I that authorities begin to retain the submitted drawings.
Proposed alterations to shop, Rostrevor Flats, Perth, by Cavanagh & Cavanagh, July 1943: State Library of Western Australia [detail]. The pencil note (by the architect’s office) and the red ink note overlying it (by the building surveyor) tell us that the building surveyor has approved the work subject to conditions which have been written on the back of the sheet, and the architects have received the drawing back from the Town Clerk’s Department on 2 September 1943.

The first permits related to the building process, and were issued by municipal building surveyors and inspectors. But the number of approvals required increased over time. The establishment of reticulated sewerage systems gave rise to a requirement to apply for a permit for any alterations affecting the sewerage connections. Early in the use of electricity electrical drawings were required to be submitted to the city’s electrical engineer. Town planning permits were not generally required until after World War II, but even a private house might require town planning approval.

Since about the 1970s some buildings have required separate heritage approval, and even where demolition is permitted the owner may be required to have survey drawings prepared, for the record.

A public building is likely to have required separate approval by an authority (in Victoria from the 1870s, the Health Department or the Central Board of Health) which will be concerned with ventilation, fire escapes, the arrangement and spacing of seating, &c.
Thus within the architect’s files, or possibly those of the client, there may be drawings which have been stamped and returned. At later dates there will be no stamped drawings, but there should be copies of those that were submitted, some of them prepared specifically for approval purposes. In the latter case copies of the same drawings should be held in the archives of the relevant authorities, or in the state archives, although all too often they have been destroyed.

**Tenders**

A building is put out to tender to identify the builder who will undertake the work at the least cost. But of course there are cases where the client is also the builder, as might be the case with a big housing developer, or they may even, as with the developer A V Jennings, and the major banks, have an architect employed on their staff. In such cases the drawings are more likely to survive in company records than in architectural collections as such.

Tenders are ‘called’, not ‘let’ (a common error even in the Australian Architectural Index). Then, as a result of the tendering process, contracts are ‘awarded’ or ‘let’.

Rather as with architectural competitions, in the nineteenth century public tenders might be called even for an ordinary private house. These will be press advertisements, which can be located through Trove (or in New Zealand, Papers Past) or the Australian Architectural Index. The alternative approach is call tenders privately – that is, to approach a few known builders to give a price. In is then normal to accept the lowest tender (unless they are all too high). In some cases the letting of the contract is reported, but usually in the trade press, such as the *Real Property Annual*, rather than the daily press.
There will nearly always be subcontractors for work which the builder himself can’t do, such as plumbing and electrical. Who he engages and how he runs the work is up to him. But sometimes for really specialised work the owner and architect need to choose the subcontractor rather than leave it to the builder. When the builder is told who to engage, this is a ‘nominated subcontractor’. For example, before World War I there were systems of reinforced concrete protected by patents, and you could not really get competing prices for the same work. A price might be negotiated, or separate tenders called. The amount would be included in the contract price plus a percentage to the builder for administering it.

Sometimes (especially in time of war, or rapid inflation) the job involves unpredictable elements, or has not been fully worked out and documented in advance, and the builder agrees to do it on a ‘cost plus’ basis. He charges for his actual outgoings for material and labour, plus a percentage for administering the work, supplying scaffolding and power &c.
Contracts

Detail of a drawing for shops and dwellings, with contract signatures of 1 March 1881:
Miles Lewis collection.

The contract signatures on the previous drawing.

Typically the drawings which went out to tender, or a revised version them, will now form the basis of the contract. The contract is an agreement between the owner or ‘proprietor’ and the builder or ‘contractor’, by which the latter undertakes to build the structure as illustrated and described, for a specified price, and the former to pay for it. The architect is not a party
to the contract, although he or she is named in it as the person to give
directions on certain matters, approve work, authorise payments, &c.

The contract documents comprise:

- the contract or legal agreement itself
- the drawings
- the specification (or written description of the work).

In principle these documents are all signed by the proprietor (possibly with
more than one signature in the case of a partnership), by the building
contractor (again, possibly with more than one signature), and by a
witness, or by two witnesses if the main signatures were executed at
different times or places.

Although the contract documents must be fully detailed, because the price
is based upon them, there may be some items not fully decided, where
they do not affect the cost. These are referred to by phrases like ‘paint in
best enamel in two colours as directed’ or ‘hard burnt bricks to architect’s
approval’.

Although the architect is not a party to the contract, it is often signed in his
office and he or she is often a witness. Sometimes the witness is a more
junior member of staff who actually prepared the drawings, and although it
does not constitute proof, this is often a useful indicator of who, in a large
office, was the principal designer of the work. But this can be misleading: in
the major Victorian practice of Reed & Barnes, Joseph Reed, who was the
designer, rarely if ever witnessed the contract signatures: this was done by
Frederick Barnes, who was the partner more responsible for business
matters.
Municipality of Kalgoorlie, Proposed Town Hall, by C W James & Tom Roberts, sheet 4, State Library of Western Australia [detail]. The contractors, William John Williams, Charles O’Donnell and John Williams [Williams, O’Donnell & Co] have signed on 14 September 1907. The witness, illegible, has signed [necessarily] on the same date. This would have been the set of drawings retained by the municipality as proprietor [not as the approval authority] and carries no contract signature on behalf of the proprietor. That would be on the identical set of drawings held by the contractors.

Often the proprietor will hold a set of drawings signed by the contractor, but not bother to sign them himself, and the contractor similarly hold drawings signed only the by proprietor. It should not be inferred, merely because the signatures are incomplete, that these are not the final contract drawings.
**Standardised designs**

A W Hawksley Ltd, drawing no S.D.31025 'Utility Building - B.H. Type', elevation and section, 23 June 1949: courtesy Terry Sawyer. Hawksley buildings were made in England and used across Australia for schools, post offices, hospitals and other purposes.

Many designs are standardised in some way. Nineteenth century building societies and twentieth century lending institutions issued standard house designs. A borrower might not be required to conform to them, but there was an incentive to do so because it was quicker, and made it easier to get a loan approved. Public housing authorities and project builders also used standard designs. Some building types, like schools, were also commonly standardised. After World War II large numbers of prefabricated buildings of standardised forms were imported from Europe, houses and schools especially.
Where there are many copies of the same design, the drawings may be of little interest, but where they are scarce they are of considerable importance. Sometimes they are also of architectural merit. In Victoria the RVIA-Age Small Homes Service disseminated house designs, many of which were by architects who were then or were later to become prominent, such as Robin Boyd. Copies of some of these designs are hard to find and it is important not to unthinkingly destroy them.

**Public works**

Public works tend to be designed by permanent staff in government departments, and sometimes smaller government works are carried out by *day labour*, people directly employed by the government rather than by contract. Because government-generated drawings tend to be in public...
archives they are of less concern to collecting institutions. But the drawing conventions are the same.

**DRAWING PURPOSES**

In curating a set of architectural drawings (and even more so in planning any exhibition of them) it is useful to understand the purpose each type of drawing. In the main these will comprise:

- sketch designs or concept drawings
- design development drawings
- presentation drawings
- working or contract drawings
- details
- variations

And in some cases drawings which are produced after the building is completed. These are known as ‘as constructed’ drawings.

**sketch designs**


Sketch designs are the first ideas of the architect, and present the greatest challenge to the curator, for they are generally the least coherent and the worst identified and dated drawings. Many will have disappeared entirely, like the crucial sketch on a paper napkin done during lunch at the club. But so important is the design process that some prominent overseas architects have retrospectively fabricated drawings of this sort specifically
for deposit in a public archive (just as in Australia the composer George Dreyfus, recreated his composition notes).


The curator is likely to be faced with many versions of the same thing, produced as the ideas were developed, and can only hope to give some sort of generic description of them. Most will be unlabelled, and some perhaps totally unidentifiable and not attributable to a specific project. The chronological sequence will rarely be clear. But if there is a relevant living person available, especially the client or the architect, their recollection may be crucial in developing some sort of structure.

Many of these drawings are likely to be on the most ephemeral material, like old and brittle butter paper, perhaps with overlays fixed on with yellowing sticky tape. There may be a great temptation to simply throw them out, but this should not be done without careful consideration.
Sketch designs, commonly known as *esquisses*, were also done by architects in training, usually during a set class time of a few hours, and these can be of special interest in the case of an architect who was later to become prominent.

*design development*

As with sketch designs, the design development drawings are important because they shed light upon the creative process, but they are less difficult to deal with. They tend to be more easily recognisable, and are often properly labelled, because the designer will if necessary use them to discuss ideas with colleagues, the client, or even consultants. They also tend to be on more substantial material, such as detail paper or cartridge paper, indeed sometimes even regular linen, tracing paper, or film.
Presentation drawings tend to be the most impressive of all, because they are used to sell the scheme to the client and/or the public. They may also
be used to obtain development, ‘in-principle’ or planning approvals for the project. Whether the scheme has been built in the form of the presentation drawings or not, these drawings should be kept.

They may be mounted or framed. They nearly always include at least one perspective view. The architect may have engaged a specialist architectural renderer to prepare the perspective, and although this is probably the least significant drawing in a technical sense, it is the one most likely to be chosen as an exhibit or as a book illustration.

Models may also be produced, either within the architect’s office or by a specialist model-maker.

**working drawings**

Working drawings are those from which the structure is actually built, and they form part of the contract. But you cannot rely upon identifying them from the contract signatures, because the copies held in the architect’s office, and used to run the job, will not have been signed (the signed copies being held by the proprietor and the contractor). But they are easily recognised because of their comprehensive nature and the fact that they form part of a numbered sequence,

Generally the numbering sequence will be something like:

- site plan
- floor plans: basement or foundations; ground floor; upper floors; roof
- elevations
- sections
- details
- schedules
- drawings by consultants (or, more likely, numbered in a separate sequence by each consultant)
These drawings must be unambiguous and comprehensive, and the dimensions will be fully described (by means to be discussed below). A typical scale would be 1/8th in = 1 ft [1:96], or the metric equivalent, 1:100.

**details**

Where the scale or scales of the principal drawings is too small to properly show the necessary information, there will be separate drawings of details, such as sections of window joinery.

**variations**

There will almost always be variations after the contract has been signed, for reasons such as the client changing their mind, or certain components or materials being temporarily unavailable on the market. The price of each variation will be agreed between the proprietor and the contractor, on the advice of the architect, and they will then form part of the contract. The new drawing may replace one which is very similar, but the date will indicate that it supersedes the other (which sometimes is actually marked ‘superseded’).
DRAWING TYPES

plans

J C Stewart house, ‘Hawthorn’ (the later ‘Urangeline’, Barkers Rd, Kew, Melbourne, contract drawing by Reed, Henderson & Smart, 1882-3: Bates Smart Collection, University of Melbourne Archives. There is a small basement plan, a ground floor plan (left) and a first floor plan (right). The roof plan is drawn over the first floor plan. Unusually, the ground floor plan has indications of the directions in which the floor bearers and joists are to run.
Union Bank, Junee, New South Wales, by Inskip & Butler, sheet 1, 1 March 1905; State Library of Victoria WD/BAN/1/2. On the left is a combined ground floor and site plan which shows the angled property boundary, paving, surface drain, underground tank, and stable.

The plan shows the building as if it was sliced through horizontally, usually at about a metre high, and in any case above window sill height, to ensure that the windows are shown. Obviously this would not include a high window or a transom light over a door, but these higher openings will be visible in the elevations and sections, and if necessary their plans will be shown in separate detail drawing.

There will be plans of each floor of the building, and commonly a foundation plan showing the footings of the building and any features such as drains in the sub-floor area. There may be a plan of the roof space, if it contains significant features, and there will be a plan of the roof itself, as seen from above. However the roof plan is usually simple, almost
diagrammatic, and it is sometimes simply drawn onto the floor plan immediately below. Or shown at a smaller scale as part of the site plan.

There will often be a site plan, particularly where the site is much larger than the building, showing the boundaries of the property, the position of the building, ground levels, outbuildings and other features such as water tanks or electrical substations and paving, fencing or site work which forms a part of the contract, and the means of access to the adjoining streets. This may establish the precise location of the building where the address given on the other sheets does not do so.

The floor plans will all be of one scale, but the site plan commonly of a smaller scale so as to fit conveniently onto a sheet. Were the roof is simple in form it may be shown only on the site plan and not in a separate drawing.

reflected plans

Where there is elaborate ceiling decoration, or exposed roof framing, this may be shown in a reflected plan, either on the relevant floor plan or in a separate drawing. This is not a picture of the ceiling as if taken with a camera from below, but a projection of the ceiling design down onto the floor, which means that it is a mirror image.
elevations

St Peter’s Anglican Cathedral, King William Road, North Adelaide, by William Butterfield: Butterfield’s original design, c 1849: north elevation.

These are views of the building side-on, with no perspective distortion (or as if seen from infinite distance), which means that all elements which are parallel with the picture plane, such as (usually) door and window openings, are to scale and can if necessary be measured from the drawing.

For a rectangular building there will be four such elevations and they will commonly, and most conveniently, be to the same scale as the plan. Detail drawings may show elements such as doors and windows in elevation at a larger scale.
sections

Retford Hall, Darling Point, Sydney, by Edmund Blacket, 1886, sections and part elevation: State Library of New South Wales PXD 206/vol. 1/item 15.
Sections are vertical slices through the building, which show the structure of the walls and any other elements which are cut through, as well as, in elevation, the facing interior walls. ‘Cross-section’ is often used as a general term but otherwise a ‘cross’ or ‘transverse’ section may be distinguished from a ‘long’ or ‘longitudinal’ section.

There is no set number of sections: there may be only one, but if there are two they are usually at right angles. The place where the cut is made is a matter of judgement, but it is likely to be wherever the most useful information will be shown. For example it may be placed so as to cut through a staircase and thus show the dimensions of the treads and risers. Sections may also be staggered, as will be discussed below.

It is usual for the place where the section is taken to be shown on the plan by a broken line with a set of arrows and letters at either end to identify it. For example Section A-A is shown on the plan as a line with A> and <A at each end (as can be seen on the plans illustrated above). The arrows indicate the direction of view. After the first section ‘A-A’, a second one would be labelled ‘B-B’, though there is another convention which would show them as ‘A-B’ and ‘C-D’. Thus the curator can determine from the floor plan the sections which have been prepared, and should therefore be found in the set of drawings.
Olderfleet building, Collins Street, Melbourne, by William Pitt, c 1888, ‘1/2 [ie ¼ in – 1 ft]
Detail of Flech [sic] Roof of Offices for P K McCaughan Esqre Collins St West City’:
Melbourne University Architectural Collection, State Library of Victoria.
Detailed drawings are used to give fuller information on any element of the building – doors, windows, and other joinery being the most common. They are likely to show these in plan, section, and elevation, and occasionally even in projection or perspective. Often they are not all to the same scale, which can at first sight be confusing.
Where a detail has been prepared for an element or area of the building such as the joinery, footings or eaves, chimneys it is common for a circle to be drawn around this on the plan, elevation or section, and for it to be given a number. In this way the details are tied into the principal drawings.

**schedules**

Some sets of drawings, especially for more complex buildings contain a set of drawn schedules or tables. These typically show schematic drawings for details for like doors or windows, and lists of the locations to which they apply, so that forty of one and twenty of the other can be ordered from the joinery workshop. Typically these are on sheets to match the set of drawings. They are generally of lower significance than the other drawings and may not need to be kept.

**projections**

![Axonometric and Isometric Projections](image)

The axes in an axonometric projection and in an isometric projection: Miles Lewis
A cube seen in axonometric projection, isometric projection, and perspective: Miles Lewis.

Projections are much rarer than the drawing types discussed so far, and tend to be used to show technical features such as complex metal joints, but they may also be used to illustrate the complete building in three dimensions. They show a picture, but unlike a perspective they are in scale, and measurements can be taken from them.

To consider the simplest case first, in an axonometric projection the plan is tilted to 45°, but it is totally undistorted. The side elevations are distorted, but all the vertical dimensions are unchanged, and so are the horizontals, if measured in the 45° direction (diagonals, however, have been shortened or lengthened).

The axonometric is only a special case of the more general category of isometric projections, which may have axes on an angle other than 45°. In practice only finds isometric drawings only with axes at 30°, which gives something a bit more like a picture or perspective view. The dimensions in elevation are correct in the direction of the axes, just as for the axonometric, but the plan is squashed, and dimensions are also correct only in the axial directions.
perspectives

A perspective is done to give a visual impression of the design, usually for the benefit of the client, so it tends to be found mainly amongst presentation drawings.


Australia Hotel, Perspective Sydney by C B Dellit, two point perspective rendering, c 1890: Staste Library of New South Walers: ML 800.

A perspective is a picture essentially as the eye would see it, in which any set of parallel lines disappears at a single point. There may be one, two or (rarely) three such *vanishing points* in a given drawing. Most views of a building in the landscape, or in the urban context, are perspectives.
measured drawings


Where an architect is called upon to modify an existing building, they will usually have to begin by measuring it and recording its form. This produces what are called ‘existing conditions’ or ‘survey’ drawings. This record may be fairly rudimentary, and only sufficient to locate the new work correctly.

Urrbrae House, Netherby, South Australia, mainly by C. J Marryat & E. H Woods, 1890-1: survey elevations by Adelaide University 2007
In contrast student measured drawings, or those done for competition purposes, may be very detailed, very beautiful, and very useful to the historian. The University of Auckland Library has a large collection of student measured drawings of New Zealand buildings from the 1930s onwards, and these are frequently used by architectural historians and other researchers.

Measured drawing surveys differ from other architectural drawings in one major respect. They show only what the surveyor has been able to see. They do not show the footings underground. They do not show the internal structure of the walls. They do not show the interior of the sub-floor, ceiling and roof spaces unless the surveyor has been into them.

Sometimes when work has progressed very quickly or when original drawings have not been kept, a set of ‘as constructed’ drawings will be prepared on completion of the project. Such a set forms a valuable record of what is there, or what was there in the case of buildings that have been
demolished, but, adversely, will provide little or no insight into the architect's design process.

A structure measured up for the purpose of removal: the Kenney Cottage, Berkeley, California, surveyed by Berkeley Architectural Heritage Association, drawing A3.1.

Other reasons for a measured drawing is to prepare a building for removal and/or dismantling and re-erection, or to satisfy a requirement imposed by a heritage authority.
Models are created mainly for public or commercial buildings. Although this may be a problem for curators, they should if possible be kept by the same institution as the relevant drawings.

Specifications

The specification describes the work to be done by the builder and the materials to be used, and it is an important part of the contract documentation. But the reality is that it contains much standard text, and usually little of interest to the researcher. For any major set of drawings it should be kept, but otherwise not necessarily so. Some examples should be kept even of standard specifications, where they usefully illustrate common building practice, paint colours &c.

Sometimes specifications contain explanatory sketches, or relevant cuttings from trade literature, which may be of considerable reference value.
INTERPRETATION OF DRAWINGS

**dating and sequence**

In the nineteenth century the number of drawings produced for any job was small, and even a building like a church might be covered in as few as three sheets. They will usually be numbered in a simple sequence 1 …, and this makes it easy to know if any are missing. On the other hand, they often lack essential information such as the address or date.

But by the mid-twentieth century the number of sheets had multiplied enormously, and so had the number of revisions of each sheet, as they could now be printed easily. This means that it can be major task for the curator to sort out which drawings came first, and which were actually used in construction.

Typically the main drawings are on tracing paper and there will be a number of prints of each one on file. Whether it is worth keeping any of the prints may be questionable, as they will contain little unique information, and they are usually on less durable stock than the original sheet, and are liable to fading. But sometimes they have had unique information or colouring added to them manually, or they may show significant information which was erased in a revision of the original sheet.

A contract or other important drawing in the mid- to late twentieth century will have a title block containing some or all of the following:

- the name and address of the building
- a job number allocated by the architect’s office
- a descriptive title, say ‘plan of first floor toilets’
- a number placing it in the sequence of drawings, especially in a contract set
• (sometimes) a suffix to the drawing number, to indicate a revision: 13, 13A, 134B …

• the name or initials of the person who drafted the sheet

• the name or initials of the principal architect or partner in charge

• the date of the drawing

• a note of any revision.

Sometimes there will be a small table setting out the date and nature of each revision, and its author (not necessarily the original author of the sheet, eg '12 May 1958. Redesign of toilet extraction system. N.B.P.’

dimensions

The conventions for showing dimensions are very varied. They will normally be in feet and inches, or in metres and millimetres (not centimetres).

Often they are shown in multiple bars so that smaller and larger dimensions can be separately indicated. Whether the ends of each dimension are shown by arrows, dots, or other means is a matter of taste.

Sometimes a modular grid is shown, especially in a large spreading building like a factory. There may be a five metre square module, with
structural columns at each intersection. Then other elements, like stairs, can be located by a dimension from the nearest grid lines.

*broken sections*

5 Wellington St, Kew, Melbourne: detail of first floor plan by Wu Wai Hong & Sun Ho, showing a broken section.

The nature of a section has been explained above, but there is one aspect which can confuse the viewer. Sometimes the line is staggered in plan so as to show or to avoid certain features. This is readily understood on plan, but the drawing which results, a *broken section*, can be confusing because there is no vertical line at the point where the change occurs, and one needs to be alert for it, and read the plan and section in conjunction.
conventions for materials

Architectural Drawings: a Manual: October 2018


There are set ways of showing materials by means of colour and hatching or linework. Practices of this sort were fairly loose until they were standardised in the mid-twentieth century. The Australian and New Zealand standards were similar, and in more recent times have been published as joint documents. The black and white hatching was necessary because most drawings were coloured, if at all, well after they were drafted, and because all prints were produced in black and white, though some were coloured afterwards.
‘Proposed Residence in Mount St. Perth for Everard Darlot Esq. M.L.A.’, by J Talbot Hobbs, architect and surveyor [undated]: State Library of Western Australia. The different colours on the roof indicate that terra cotta tiles were used on the faces visible from the street, and corrugated iron on the rear.

The important point to note is that solid colour is used for materials shown in section including materials cut through in plan (which is also a type of section). Lighter versions of the same colours are used in elevation.
House at Carrum, Victoria, by Zdenko Strizic, 1959, section: Architecture and Arts, January 1960, p 26A. The double diagonal hatching in the walls indicates brickwork, and the texture in the footings indicates concrete (though the steel reinforcement is not shown).

Walls which are shown solid, rather than according to these conventions, are probably those of a pre-existing structure, to which additions are being made.

**north.**

A plan was, and still is today, usually arranged so that north was as near as practicable at the top of the sheet. But the precise direction was indicated by a north point.

If the proposed building was just too long in the north-south direction, the convention of putting north at the top might be ignored. If the building was skew to the cardinal points it would still be drawn with its main lines parallel with the sides of the sheet, and then the north point might have had to be rotated up to 45° in either direction. The site plan however might not be orientated in exactly the same way, which make it more important to have a north point on every plan sheet.
North points take many forms from an elaborate design to a simple arrow, and are sometimes so decorative as to be difficult to recognise (there are stories about a north point that was coloured red, as for brickwork, so the builder actually constructed it).

**stair directions**

![Diagram of stair directions](image)

Eildon, 61 Grey St, St Kilda, Melbourne detail of ground floor plan with stairs to the basement below and the first floor above: Jason Ng and Sim Jeng Han.

The convention for a stair (or even a single step or a ramp, where applicable), is that an arrow indicates the upward direction. It does **not indicate to or from** the floor shown in the plan. Note the section break indicating that this is not a single stair: two separate flights are shown.
other symbols

Apart from section arrows, staircase direction arrows and north points (all discussed above), there may be an arrow next to sliding door, indicating the direction of slide, and an arc for a hinged door, indicating both the side where hinges are located, and the direction in which it swings - i.e. in or out of the room).

The representation of hinged window sashes: Miles Lewis.

On a hinged window sash there may two angled lines like two sides of a triangle: they notionally start from the two hinges on one edge and meet at latch point on the opposite side, but they do not purport to show the hinge
and latch positions accurately. In the illustration the blank panes are fixed and do not open. The others have hinges indicated at the bottom and a latch at the top, meaning that these are awning windows, in which the top swings open.

Many other symbols are found on drawings, such as those for electric power outlets and lights, but it is generally unnecessary for the curator to understand them.

**abbreviations**

Abbreviations found on drawings include:

- **bt**: boundary trap (sewers)
- **bv**: brick veneer
- **cbd**: cupboard
- **dpc**: damp proof course
- **dt**: disconnector trap (sewers)
- **gci**: galvanized corrugated iron
- **gpo**: general power outlet (power point)
- **io**: inspection opening (generally in drains and sewers)
- **lb**: lavatory basin (ie washbasin)
- **robe**: wardrobe
- **rsj**: rolled steel joist
- **wb**: weatherboard
- **wc**: water closet
In sorting out unsigned drawings the lettering face used by the draftsman can give clues. The L H Vernon collection at Ballarat contains drawings by a number of practices, many of them related to each other. Investigating the collection in 1976 Robyn Waymouth noted the lettering faces used in the dated and signed drawings, and used these in identifying the unsigned drawings. Other elements such as north points can similarly serve as diagnostics.
changes of intention

St Paul's Cathedral, Melbourne, elevation to Flinders St, by Reed Henderson & Smart, detail of flap showing alternative side window treatment: State Library of Victoria, H2016.180/12.

In the days before plan printing, changes to drawings were not made lightly, and in the case of an elevation the contemplated alteration might be drawn on a flap of paper which could be folded up and down. These were not uncommon, though they easily become detached from the drawing and lost. They are of great interest because they show the architect’s thought process.
MEDIA

papers and films

Pre-metric paper sizes: F W Ware & W L Richardson [eds], Ramsay’s Architectural and Engineering Catalogue (2nd ed, Ramsay’s Standard Catalogue Service Pty Ltd, Melbourne 1949), §2.5.

The main materials upon which drawings are done are:

- **Cartridge paper:** the basic opaque white drawing paper, suitable for ink, watercolour washes &c, but not for high quality rendering. Not suitable for printing. Sold in both sheets and rolls.

- **Butter paper:** very poor quality thin acidic paper used for ephemeral purposes, resembling baking paper, goes brown and brittle, sold in small sheets.

- **Detail paper:** heavier, whiter and more durable than butter paper, with a pleasant texture for drawing on, partly opaque and difficult for tracing, but capable of producing prints.

- **Linen:** premium drafting material in the late nineteenth and early twentieth century, glazed linen which can be used for tracing: the shiny surface can be difficult for ink, and more so for washes, which are better applied to the reverse side. It is sufficiently transparent to print copies from it. Sold in 30, 36, 40, 42, 54 inch [0.76, 0.915, 1.015, 1.067, 1.372 m] widths.

- **Tracing paper,** reasonably durable and reasonably transparent, suitable for plan printing, available in the early twentieth century. Cheaper than linen, which it largely replaces by the mid-twentieth century. Available with a smooth or textured surfaces, or in an especially transparent and durable version.

- **Drafting film,** a plastic material similar in appearance to tracing paper but more durable and more dimensionally stable, which began to replace tracing paper in the last quarter of the twentieth century.
Watercolour paper, suitable for high quality wash rendering and for artistic work generally. The best and for a time almost the only brand was Whatman’s, and it can sometimes be dated by the watermark when seen against the light. It is relatively heavy with a textured surface and, if untrimmed, the typical irregular edge of handmade paper. James Whatman made the paper from about 1740, followed by his son, also James, until 1759, but their products are rarely found in Australia. Their (legitimate) successors were the former assistants Hollingsworth Brothers and William Balston, who carried on separate operations, each maintaining the Whatman’s brand, and in Balston’s case adding the words ‘Turkey Mills’. Whatman’s paper, including the watermark, was forged in France, Germany and Austria, and the National Gallery of Australia holds examples of these forgeries.

**pencils**

The pencils used by architects are substantially the same as those in general use. Most drafting was done in 2H or harder, but softer pencils were used for sketch designs and annotations. Drafting pencils of the propelling type, with replaceable lead, were also used in the twentieth century. Compasses could also be fitted with lead.
**drafting pens and compasses**

The traditional ruling pen has a nib in two parts which are moved together or apart by means of a screw, and this controls the thickness of the line that results. Compasses were fitted with the same type of nib. It requires experience and skill to use these without blotting. For irregular shapes and lettering a more conventional nib was used, but the line thickness could not be so finely controlled.

After World War II various proprietary pens (*Rapidograph; Rotring*) came into use, generally with a reservoir of ink like a fountain pen, or a replaceable cartridge, but with a tubular nib which delivered a line of reasonably uniform thickness even in freehand work. They were particularly suitable for stencilled lettering.

**inks**

Until the twentieth century Indian ink (the universal black ink) came in a solid block and had to be mixed as required by the draftsperson. It was only gradually replaced by bottled liquid ink, and was not fully superseded until after World War II.

**scales**

Scales for measuring on drawings were traditionally of ivory and came to a fine edge which could by laid directly against the linework of the sheet. The edge was delicate and the instrument expensive, so they were **not supposed to be** used for ruling. It is a common error to refer to them as ‘scale rules’.
**stencils**

Detail from Harry Seidler’s entry in the Melbourne Olympic Stadium competition: *Architecture and Arts*, February-March 1953, p 38

Detail from the Borland, Irwin, McIntyre, Murphy, Murphy winning entry in the Melbourne Olympic Pool competition: *RVIA Bulletin*, December 1952 / January 1953, p 9

The large stencilled letters of both are in the Egyptian face, fashionable at the time.

Stencils were widely used for larger faces of lettering, such as the title of a drawing or the letters indicating sections. They were very subject to fashion and can therefore be of some help in dating drawings.

**edge binding**

The ‘Durex’ edge binder: F W Ware & W L Richardson [eds], *Ramsay’s Architectural and Engineering Catalogue* (2nd ed, Ramsay’s Standard Catalogue Service Pty Ltd, Melbourne 1949), §2.2 [details].
In the 1940s the ‘Durex’ edge binder was introduced. This finished the edge of the sheet in a white tape folded over, half on the front and half on the back. It was designed to prevent tearing and damage, but it will be reprehended, and probably removed, by a modern conservator.

**watercolours**

The wash rendering of drawings was done in artists’ watercolours using predominantly the traditional earths (umber, ochre, &c) and simple mineral compounds (cobalt blue), rather than aniline dyes, and they are mostly quite durable.

**adhesives**

From the 1960s a range of letters and other shapes were available in plastic adhesives, including items like cars, trees and people [Letraset]. They were generally transferred to the sheet and burnished, but occasionally sprayed over with a glaze. When not properly fixed they may chip or peel off.
prints

An electrically operated printing machine for duplicating drawings: Ernest Wunderlich [ed], *Forty Years of Wunderlich Industry 1887-1927* (Wunderlich, Sydney 1927) p 158.

In the nineteenth century drawings were laboriously replicated by tracing. In the twentieth systems of plan printing were introduced. They required reasonable transparency in the originals – printing could not be done from cartridge paper - and this is what gave rise to the use of tracing paper for original drawings.
At first printing was done manually in the architect’s office, requiring the sheets to be put into ammonia-filled cupboards or exposed to sunlight on the roof, but subsequently machines were introduced. These were expensive, and they were used in larger offices, while most architects relied upon commercial plan printers, who would usually provide a collection and delivery service. The basic types were printed by contact with the original transparent sheet, and unaltered in scale:

- **Blueprint:** a process originating in 1861 but rarely found in Australia before 1900. The original type used ferro-gallate gum sensitized paper. This was clamped in a frame with the translucent original, and exposed briefly to sunlight. This produces a negative image in which black lines print out white on a solid blue background, and half tone cannot be reproduced. Other ferric compounds have also been used, such as ammonium ferric citrate, developed using potassium ferricyanide, and (in papers manufactured in Australia by Max Wurcker) ferro-prussiate. The blue colour tends to make it impractical to do additional work on the printed sheet. The prints are the same size as the original, subject to minor changes due to the soaking involved in the process.

- **Vandyke print** [sepia print; brown print]: this was patented in Germany in 1895 by Arndt & Troost, and involves coating a canvas with ferric ammonium citrate, tartaric acid, and silver nitrate, then exposing it to ultraviolet light. The canvas is washed with water, and hypo to keep the solutions in place. The image has a Vandyke
brown colour. An earlier form, the kallitype, uses ferric oxalate instead of ferric ammonium citrate, and was patented by W W J Nicol in 1889.

- Diazo or blue-line prints, with blue lines on a white background, begin to supersede blueprints from the early 1940s. The image is positive with a faintly purple background colour and a smell of ammonia resulting from the process.

- Helio print. These are prints produced by a heliographic copier, in which artificial light substitutes for exposure to the sun and the sheets pass through rollers. This can apply to copies of the previous types, but it was mainly used for cyanotype and diazo prints. Larger sized drawings could be conveniently reproduced on these machines.

- Arculin ammonia print. These were produced in Australia by Max Wurcker. Presumably ‘Arculin’ was a brand name, and the process was diazo or similar.

- Dyeline. This is a version of the diazo which tends to supersede the bluer helio and ammonia prints from the 1940s onwards. It has near-black lines on a white or off-white background, and will take wash rendering. The paper resembles cheap cartridge, is only moderately durable, and discolours to a light brown. The prints are the same size as the original.

- Photostat: a quasi-photographic process used to copy from opaque materials which could not be printed by contact. It produced both a negative and positive, and could print at reduced or increased size, on only moderately durable paper. It was limited to a maximum size of 24 by 18 inches [601 x 457 mm] but was soon followed by the Photomax, with a maximum size of 80 x 40 inches [2.03 x 1.02 m]. Neither is common amongst regular architectural drawings.
COLLECTING & ORGANISING


*taxation incentives*

Drawings may be bought by the collecting institution or donated by the owner. In the latter case there is an incentive to the owner to donate it, and thus receive a tax concession (not applicable in New Zealand). But potential donors tend to get inflated expectations, and they need to understand that the scheme applies only to works to which a market value can be attributed.

It will be necessary to refer to the current information on the Cultural Gifts Program, run by the [Federal] Department of Communications and the Arts: [https://www.arts.gov.au/funding-and-support/cultural-gifts-program](https://www.arts.gov.au/funding-and-support/cultural-gifts-program)

At the time of writing the essential provisions are
That the proposed recipient institution must confirm its desire to receive the material (which in the case of architectural drawings may be only a small selection of what is on offer)

That it must be valued by two approved valuers, who are in principle paid by the owner, though sometimes the collecting institution assumes the burden.

The adopted valuation is the average of the two.

The valuation is based upon market prices, which can be very difficult to establish.

**copyright**

Material which is subject to copyright protection is a serious burden to a collecting institution. In broad terms copyright protection persists for seventy years after the death of the creator or creators (that is, the last of them surviving), or in New Zealand, fifty years. But where the drawings were produced by a firm of which a legal successor still exists, the situation is murky.

There is so rarely a serious issue that some institutions will now risk (after making any reasonable enquiry) publishing material on line, on the basis that it can be taken down again if a problem arises.

Good practice now is to accept no new material, by purchase, by donation, or even on loan, unless the apparent copyright owner has signed a full release.
collecting policy

The recipient institution should have a collecting policy indicating in principle what it will actively seek, what it may accept, and what will absolutely exclude.

It may for example actively seek, and possibly buy, drawings prior to a specified date, drawings by certain prominent designers, drawings relating to specified public projects, or drawings of buildings highly rated by the National Trust or government authorities. Such collections would still be subject to selection and weeding.

It may accept good examples of domestic design, building technology &c when offered as donations, but not actively seek them.

It may exclude any drawings relating to buildings which are not within the state and have no special connection with it.

There should always be scope for varying this policy if there is a special reason for doing so.
selection

Perhaps the greatest skill of the curator is exercised in deciding what to accept and how much of it. You may need to be somewhat brutal, and risk offending the donors or the aficionados.

If there is a collecting policy in place the decisions are easier, but otherwise some considerations are:

- Is the building one of great public importance or notoriety? [such as any parliament house]

- Is it historically important? [the birthplace of Alfred Deakin, the meeting place of the Eight Hour Day activists – BUT, even if it is, did the form of the building influence, or was it influenced by, the historical event].

- Is the building exceptionally early in date, by the standards of the area? [although early date is not in itself significant, it does tend to correlate with rarity in buildings, and even more so in drawings]

- Has the building been influential? [such as the prototype of a large run of state housing designs]

- Does the building typify something significant which is not already represented in the collection? [a post-World War II war prefabricated school]

- Has the building been recognised as being of architectural merit by way of architectural awards or publication in architectural journals? [Sydney Opera House]

- Is the building, although not of special merit, by an important architect? [tread carefully here: there are very few architects in Australasia of such importance that even their mediocre work is important]

- Is the building of local significance, as with a church or a bank in a country town

- Is it technically significant? [an early or unusual example of prestressing, solar design, curtain walling, &c]

- Do the drawings themselves constitute a sufficiently complete set, or include sufficiently fine examples, as to be worth preserving for their own sake?
• Are any of the drawings of artistic merit such as would be in demand on the open market?

**weeding**

Once it is determined that the building, or the drawings themselves, are of sufficient importance to be worth collecting, the question is how many. Not only is storage space usually limited, but an over-fat collection imposes considerable costs in cataloguing and conservation, and is actually harder for the researcher to use.

In general terms, keep original drawings, and discard prints unless they have a demonstrable value. More specifically, look for:

• Design development sketches, including anything that sheds light upon the creative process.

• Presentation drawings, especially perspective views and other coloured renderings.

• Signed contract drawings as a complete numbered set, or failing that working drawings, which should constitute an identical set.

• Drawings of technical significance (sometimes including copies of details from trade literature, or actual extracts pasted in).

Generally avoid:

• Drawings showing minor variations in detail.

• Duplicate copies [see below]

• Unlabelled and inexplicable drawings (best to check first with an architectural historian).

• Drawings by engineering or other consultants, where not known to be of significance.
Consider preserving the contract and specification in any case where they seem to be important. If there was a legal dispute over the building the contract may be significant. The specification often contains valuable technical information, as discussed above.

**Duplicates**

`Playground Area – El Caballo Blanco’, J W Elischer architect’, 1981, bundle of unprocessed drawings at the Conservation Department State Library of Western Australia: including original and dyeline. The dyeline on top is damaged, but four sheets down is the tracing paper original of the same drawing, in fair condition.

In early collections duplicates are fairly rare, but there may be tracings. In the twentieth century there are usually multiple prints. As a rule the original, on tracing paper or similar material, is likely to be more durable than the prints, and in any case is more authentic. But the original is damaged it may be worth preserving a print containing the missing information.

Minor proposed variations, or detailed explanations for the contractor, may be added onto prints. Sometimes a print is used as the basis for what
becomes effectively a new drawing, as when the electrical installation is drawn onto a print of the basic plan, or the plans, elevations and sections are coloured to indicate the materials (in accordance with the conventions described above). These changes will only rarely make the prints worthy of preservation.

**conservation**

Left: as repaired with Japanese tissue on the back of the sheet. Right: missing portion filled with Japanese tissue, but with no attempt to re-create the missing linework

Conservation Department, State Library of Western Australia.

Conservation is a distinct technical discipline, with its own principles and code of ethics (essentially, to do as little as possible), but the drawings curator needs to know a little about the common procedures, and, for example, be able to warn a donor of the likely delays in integrating new drawings into the institution’s collections. Some of these procedures are:

- **Quarantine** - new acquisitions which have mould or parasites should be quarantined, and not brought into the main collection areas until treated.

- **Sterilisation** to kill moulds and parasites such as silverfish. Fumigation with ethylene oxide leaves chemical residues, and is no
longer done). Common alternatives are anoxia or freezing, which require specialist equipment and knowledge. On a basic level, careful surface vacuuming using appropriate PPE and HEPA filters will remove mould spores. Storage in the appropriate environment, where the temperature and humidity are stable and controlled, will also play a large part in preventing the occurrence of insects and mould.

- Removal of deleterious attachments, such as sticky tape (including edge binding tape), pins and staples.

- Relaxation – to flatten out sheets, especially those which have been stored as rolls.

- Deacidification, where the paper stock is acidic (especially butter paper), and liable to deterioration. But this is a wet treatment and rarely carried out on architectural drawings. The emphasis is usually on providing archival quality housing.

- Cleaning – the removal of loose dust, and in some cases stains and markings.

- Repair – tears are generally repaired by adhering material to the reverse face: the purpose is to arrest the tearing process and enable the sheet to be safely handled and to be stored without snagging adjacent sheets.

- Infill – for similar reasons, where there are missing sections they are filled in with neutral material, but there is no attempt to replicate the missing linework.

- Mounting the sheet onto a more durable backing material is done for fragile works of art, but rarely for architectural drawings, and is in any case unsuitable for translucent or transparent materials such as linen or tracing paper.

- Housing in an alkaline buffered folder, which can slow deterioration of highly acidic paper. But this is not suitable for blueprints, to which alkaline conditions are detrimental.

- Encapsulation, or enclosing the sheet in an acid-free plastic [Mylar] envelope, which was once a standard practice, is now done only for specific reasons (such as when, despite treatment, the sheet remains fragile, or there is mould dust or loose pigment likely to affect adjoining sheets.
**existing storage**

When a collection arrives at an institution it may be in its original storage, and it may be tempting to keep it there at least as an interim measure. This should if possible be avoided.

For all architectural drawings the aim should be to store them in plan chest drawers in a controlled environment, as soon as possible. There may be necessary exceptions, such as presentation drawings in historic frames, but these should be minimised.

![A 'Planex' vertical plan chest](image)

In an architectural office the drawings may have been stored in ordinary horizontal plan chests, if not always of library standard. These will be of no ongoing use because the drawings should be stored in whatever form of cabinet has been adopted as standard by the collecting institution. Older drawings especially may be in suspended in a vertical plan file: usually a set is bound at the left margin with timber strips, and screws through the sheets, and these timbers become the hanger from which the drawings are suspended. Although this is a reasonably safe system of storage, it is cumbersome, as the drawings cannot be copied or reordered without
dismantling the grips, and the top and front surfaces of the chest must be kept clear for opening.

Drawings may also have been stored in cylinders, usually stored horizontally. If this is done properly it is a good way of keeping them free of dust and reasonably accessible, but they may become permanently curled up and liable to break when flattened, if not subjected to relaxation as discussed above. The poor man’s version of this omits the cylinders and has the rolls of drawings wrapped or held by rubber bands, but piled together and very liable to damage.

Perhaps the worst case is an important collection of the work of Grounds, Romberg and Boyd in the State Library of Victoria, where, in the original architectural office, the drawings had been folded and punched to fit into standard letter files. They are now in a manuscripts rather than a drawings collection, and a project to flatten them is underway.
finding guides

The drawings of the Tasmanian architect Alexander North, held in the North Family Archive Melbourne, in a cabinet designed by the architect himself: Miles Lewis. 1100 sheets have been sorted by the owners, interleaved with tissue paper, digitised and entered on an Excel spreadsheet, which will be of great assistance to any future curator. In this view smaller items associated with the collection have been added.

It is essential to acquire, with any collection of drawings, whatever lists or finding guides may exist, because this will have a great effect upon the amount of work required to process the drawings. The original architect’s office will have had a system – a ledger, filing cards, or whatever – but the present owner may have failed to appreciate it, or even thrown it away. At the other extreme, more recent owners may have prepared digital spreadsheets.

rehousing

As has been said, the aim should be to store drawings in plan chest drawers as soon as possible after acquisition. Within each drawer they can be housed in folders or in plastic bags or wrapped individually in acid-free tissue.
Alkaline buffered card folders are made of a chemically refined wood-free fibre based card which is acid-free and buffered to pH 8.5 with 3% calcium carbonate, with an alkaline Aquapel size. It is lightfast, with excellent cutting, folding and tearing properties. For Australia and New Zealand respectively, see:
Archival Survival
Conservation Supplies
https://www.conservationsupplies.co.nz/

Chemically inert plastic bags (polypropylene, polyethylene, or terephthalate [Mylar]) have the advantage that their transparency makes it easier to identify required sheets. However Mylar is very expensive, and some curators lack faith in the properties of cheaper material such as polypropylene.

Ideally an appropriately sized piece of archival support board, such as rag board, is included under the drawing or drawings in each bag. It may be desirable to keep a single drawing in a bag if it is fragile or if it is regularly required by users.

Otherwise a number of related drawings can be placed in single bag. Good practice is to put the drawings in numerical order based on drawing numbers assigned by the architect, where applicable, but for more complex situations see the notes on arrangement below. The drawings should be separated into bags based on groupings such as concept design, working drawings, contract sets. The accession number can be written on the back of each drawing in pencil, put on bottom left so that it is bottom right in the bag when drawing is turned over.

Put drawings in bags so that the seam is on the left and drawings can be taken out consistently to the right. Label on the bottom left so that original drawing label, usually on the bottom right, is not obscured.
arrangement

The curator will need to arrange the drawings both physically and digitally. So far as possible these arrangements should be the same, but there may have to be exceptions for mounted and framed drawings, oversized sheets &c. Collecting institutions will have their own systems and practices, but it is suggested here that the digital set, at least, be fronted with a perspective or presentation drawing which will be easily recognised by the user. Otherwise the architect’s own numbering should if possible be followed, and this usually puts the site plan on top followed by floor plans, elevations, sections, and details. If here is not a coherent and comprehensive numbering system available a logical arrangement should be adopted, thus:

- perspective view or other iconic drawing for easy recognition
- sketch designs
- design development drawings
- presentation and publicity drawings
- tender or contract set of working drawings, including details
- variations
- sub-consultants

authorship

Curators who are used only to books, works of art, &c, may have difficulty with assigning authorship (or creatorship) of architectural drawings, because they are in most cases collegial productions. The building may have been designed by the firm, say Fortescue & Mortby. The design
concept may have been that of an employee, not even a full partner, say Alfred Wortley. But the aesthetic design may not have been the real innovation - it was the firm’s specialist in retail design, Cuthbert Spencer, who came up with the critical concept of flatted shops on a common service spine. But remember that what you are preserving are the drawings, not the building, and the creator of the drawings was the chief draftsperson, Cynthia Smythe – that is, except for the splendid perspective rendering by Arthur Toad, who is known as an artist in his own right.

Your aim should be to identify a principal creator, and any appropriate number of contributing creators. Start from the presumption that the firm of Fortescue & Mortby is the creator, because everything done by an employee has normally been signed off by the partner who is responsible for the project, and all authorship rights for the work of employees reside with the firm. And even if the renderer, Arthur Toad, was an external contractor, he has explicitly or implicitly assigned his rights to the firm.

But this does not mean that the future historian will not need to know about the other contributors. You will want to record Wortley, Spencer and Toad, though not Smythe.

**accessioning and cataloguing**

The institution will have its own standards for accessioning and cataloguing, but they will not necessarily be sufficient to deal with architectural drawings. The following, based upon the State Library of Victoria’s procedures, is a good exemplar, though it may not be fully applicable elsewhere.

A spreadsheet prepared by the library’s IT department is used to enter material in a format that enables it to be entered in the library catalogue. This is an Excel sheet with fields with the following headings:
• Accession number, e.g. LTAD (location of drawings in library collection)/ 162 (collection no) /276 (Project or site number) / 1 (sheet no)

• Creator. This is the name of the architect’s collection e.g. Peter Johnson Collection.

• Title. Use the title of the job as shown on the drawings where this is consistent, or pick something that describes the job in a consistent manner eg ‘Stands and Buildings for the Scout Jamboree 1934’.

• Client [proprietor]

• Date year(s) of the project

• Number of drawings

• Media, Ink on linen; tracing paper; blueprints etc.

• Location. Address of the project site

• Contents and Description. Describe the content of the drawings, not the buildings. You could add the drawing number, eg 1 of 9; and the content, if possible as indicated on the subtitle of the drawing - site plan, floor plan, elevations, detailed sections (you are on safer ground using the existing descriptions rather than creating your own, but this is not always practicable). Use the date exactly as stated on the drawing.

• associate documents, such as specifications, contract, correspondence, photographs (and an indication if these are housed separately)

• Additional creator 1. Could be another architect involved in the project, an engineer or a landscape architect.

• Additional creator 2. As for additional creator 1

• Comment. eg marked as job no, range and scope of drawings, description of the job, other references, if the building is extant or demolished, etc.

scanning and digitisation
The process of digitisation is a specialist one, but some general points can be made here [Kevin – flat bed copying, flow process, &c?]

**DIGITAL ARCHIVES**

Most architectural drawings are nowadays created digitally, and are unlikely to reveal the personal hand and the creative process of the designer, and we must simply accept that what they will record will be impoverished in these respects.

The best means of preserving such records (as distinct from the digitisation of existing hard copy drawings), has been a matter of much debate. The problem is that they are generated by software which rapidly goes out of date. One approach has been to archive the digital record and the software together, but one cannot be confident of running the software on a future computer, and the apparent security of this system is probably illusory.

The now more favoured approach is to strip the records of their original programming characteristics and turn them into simple records (something like a pdf file). In this form they can be retained in a digital objects management system which regularly updates all its content as required.

For current information on digitisation practice refer to: ????

**GLOSSARY**

architect

Generally, a building designer, but from the early twentieth century a legally protected term for a practitioner trained to standards prescribed by an architects registration board or equivalent state body. Any other practitioner may be referred to as a ‘designer’.

architectural drawings
All drawings produced by an architect in the creation of a building. The generic term is *not* ‘architectural plans.’

**articles**
The apprenticeship served by a trainee (‘articled pupil’) in the office of an established architect. The articles are the legal document signed by the parties, covering:
- sometimes, but not always, an upfront payment to the architect by the pupil (or their parents)
- a modest wage to be paid to the pupil
- an undertaking by the pupil to be diligent, honest &c
- an undertaking by the architect to provide suitable experience
- a period, typically four years

**atelier**
French for studio or workshop. A class in design and presentation, commonly conducted after office hours and attended by articled pupils. It was generally confined to aesthetic matters and the attendees produced presentation-type drawings. It did not cover technical topics or include lectures.

**Australian Architectural Index**
An on-line data base derived from periodicals and other sources and covering buildings in Australia, their architects, available illustrations and other documentation. It has little coverage after the 1850s and is (so far) based largely on Victorian sources, but nevertheless with significant interstate data.


**Australian Institute of Architects [AIA]**
Formerly the Royal Australian Institute of Architects [RAIA]. The professional association of architects, which represents the profession and protects the interests of members in issues such as fees, the conduct of competitions, &c. It has a code of ethics, monitors the standards of architectural courses in universities and elsewhere (granting or withholding recognition), and makes awards for good design &c. It tends to represent employers, and there have been other bodies competing for the membership of junior architects, draftspersons &c. The RAIA was created by the amalgamation of institutes already formed in the separate colonies and states.

**axonometric projection**
A representation in three dimensions, with the plan tilted at 45° and all vertical and horizontal dimensions to scale [see above ***]
blueprint
The most common of those reproduction processes in which a negative image is obtained from a drawing, with white linework on, in this case, a blue background. The scale of the original drawing is unaltered. [see above ***]

brief
The instructions issued by a client commissioning a building design (or elicited from them by questioning).

butter paper
A cheap, light, and brittle semi-opaque paper resembling kitchen baking paper, available in only moderate sizes, and used generally for preliminary sketching and other ephemeral purposes.

carpentry
Structural timberwork in a building, as distinct from joinery.

cartridge paper
An opaque white drafting paper, suitable for pencil, ink and watercolour, but from which prints cannot be made.

competition private, limited, or by invitation
A competition in which selected architects are invited to submit designs. The advantage for the entrant is the much greater prospect of winning than in a large public competition, which in turn justifies the expenditure of greater effort. The advantage for the proprietor is that the winner will be one of those already chosen as suitable for the work, and the quality of the entrants will be high. Sometimes all entrants are paid a fee, usually on the basis that their drawings will be retained and the chosen designer will be free to make use of the work will be available.

competition, public
A competition which either open to any practitioner (including surveyors, engineers &c), or restricted to registered architects. If the winning design is by a junior or otherwise unsuitable person, an established practitioner may be engaged to work with them in developing the design.

competition two stage
A competition in which a small number of architects are selected in open competition, and are then paid a fee to develop their proposals in a limited competition, as above.
consultant
An engineering, landscape, interior design, acoustic or other practitioner, not being an employee of the architect’s firm, who is engaged to contribute specialised input to the project. Their work is usually coordinated by the architect and their input may form part of the contract, or they may be engaged at a later stage as for interior or landscape work.

contract
The legal agreement between the proprietor, or owner, and the builder, or contractor, whereby the former undertakes to make the site available and pay for the work in specified stages, while the latter agrees to complete the work for a specified price, and within a specified time. The architect is not a party to the contract, but is identified in it as the person who will supervise the work, ensure its quality, certify the amount completed for the purposes of payment, and settle disputes arising between the parties (there is thus an inherent conflict between the role of the architect as agent for the proprietor, and as arbiter between the parties). Together with the legal agreement itself, the drawings and specifications form a part of the contract.

contract signatures
The signatures of the contracting parties as placed upon the contract documents by the parties. These may be multiple, if the proprietor is a partnership or joint ownership such as married couple, or if the builder is a partnership. The signatures will be witnessed. Commonly the main contract document will be signed at the foot, and every page of it and of the specifications, and every drawing, will be initialled.

contract variation – see variation

contractor
The person (or corporate entity) undertaking to complete the building work.

copyright
The intellectual property in the design, which normally remains with the architect or creator, notwithstanding the right assigned to the proprietor to use the design in a specific case. For example, if an architect has been engaged to design a single house, the proprietor does not have the right to build replicas of it unless there is a specific agreement to this effect.
Cost plus
Cross-section – see Section
Cultural Gifts Program
Day labour
deacidification
Design development
Detail drawing
Detail paper
Digitisation
Drafting pen
Draftsman [draftsperson]
dyeline
elevation
encapsulation
esquisse
existing conditions
film, drafting
fumigation
geotechnics
helio
ICAM
Isometric projection
joinery
Kiteflyer
Letraset
Letting [a contract]
Linen [for drawing]
Measured drawing, measured survey
Mylar
Nominated subcontractor
Permit, building
Permit, planning
Perspective [one two and three point]
Picture plane
plan
Presentation drawings
Projection [see axonometric, isometric]
Proprietor
Reflected plan
relaxation
Renderer
Rendering
reticulation
Royal Australian Institute of Architects [RAIA]: see Australian Institute of Architects [AIA]

Royal Victorian Institute of Architects [RVIA]
Ruling pen
Scale [drawing instrument]
Section
Section, broken or staggered
Sketch design
Small Homes Service
Specification
Stencil
Subcontractor
Suspension file
tender
title block
tracing paper
Valuer, of drawings
variation
Whatman's paper
Witness
Working drawing
REFERENCES

Note: I have incorporated here a number of references located and cited by Sarah Cox in her postgraduate dissertation, below.

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