Preparation of "As Found" Drawings

By: Robert M. Patterson, P. Eng.

August 1982

Foreword

Since its inception in 1977, the British Columbia Heritage Trust has been developing new ways to "support, encourage and facilitate the conservation, maintenance and restoration of heritage property in the Province." One is the Publications Assistance Program which provides aid for production costs of publications dealing with B.C. history. In addition, the Trust has inaugurated this Technical Paper Series

Although a great deal of general information on heritage subjects is already available, there has been a growing request for concise treatment of specialized subjects within the British Columbia context. Themes are therefore drawn from the fields of history, archaeology, architecture and preservation technology. The British Columbia Heritage Trust invites suggestions for further studies in this series.

Martin Segger
Series Editor

Table of Contents

Introduction

1. Project Planning

2. Techniques - Hand Measurements
2. Techniques - Drawings
2. Techniques - Photographs

3. Report and Conclusion
Preparation of "As Found" Drawings

Introduction

The British Columbia Heritage Trust has prepared this manual to provide an explanation of the techniques used in recording buildings by means of "as found" drawings. The manual is written for interested laymen, students and practitioners in the fields of heritage conservation who wish to increase their knowledge of this valuable tool. It is hoped that the manual will encourage individuals and organizations to undertake the recording of buildings in which they have a particular interest.

The term "as found drawings" means a set of line drawings that accurately and in some detail delineates the subject building (or artifact) in its existing condition. Another term that is used synonymously is "measured drawings," which points out the fact that such drawings are produced from measurements taken from the building. These drawings are therefore distinct from so-called "design" drawings, which are produced prior to and for the purpose of construction of a building.

There are several methods of graphic documentation of buildings. Ordinary black and white or colour photography is useful as a general record. Its use, however, is limited to unobstructed views of the exterior and interior. The resulting images are usually in perspective and are therefore not "to scale." Photogrammetry, a specialized form of photography, utilizes photographic images and special techniques to produce scale drawings directly. It is a costly but effective method for certain applications. "As found" drawings, however, form the most complete record. Scale line drawings delineate not only the external and internal appearance, but also provide plans, sections, construction details, dimensions and annotations as to materials and condition. They are correspondingly more costly to make and their accuracy is dependent on the skill and care of the recorder.

The scope of an "as found" recording project will depend upon the intended purpose of the drawings. Drawings made in preparation for restoration or as an archival record of architecturally significant buildings...
will be extensive. In addition to the documentation of the appearance of external and internal habitable spaces, the drawings will illustrate cellars, attics and structural details. They will also include irregularities due to movement, wear and decomposition, such as cracks in plaster and wear patterns in floor boards. Drawings sets of this type often run to fifty or more sheets per building, along with supplementary photographs and a written report. On the other hand, a lesser degree of coverage acceptable in drawings for other purposes, such as the CIHB (1) or HABS (2) surveys. The HABS standards (3) allow the recorder to select a group of significant features in any one building, resulting in a drawing output of between one and twenty sheets of drawings per building. For certain projects, one major aspect of a building may be documented; for example, a particularly significant room or facade.

In referring to the extensive coverage above, it is not our intention to intimidate or discourage the reader. On the contrary, the reader is encouraged to make simple but accurate drawings of appropriate and worthy buildings which are of interest to him and to which he has access. It is only through actual practice of the techniques outlined in this paper that skills are developed and good judgement achieved.

1 Canadian Inventory of Historic Buildings
2 Historic American Buildings Survey
3 McKee, H.J., Recording Historic Buildings
1. Project Planning

Site Inspection

A preliminary step in any recording project is the initial site visit. Equipped with tape measure, sketching gear, flashlight and penknife, the recorder sets out on a systematic tour of the entire premises, the object being to observe and note down briefly the design, materials and present condition of the building. Since the history of the structure is important, attention is paid to signs of past alterations and additions. Quite often the exploration of roof and crawl spaces will yield such clues as, for example, changes in framing patterns, timber sizes or species, modifications to chimneys and masonry, or traces of old construction as indicated by nail holes or dirt marks, which will be useful in piecing together the history of the structure. Structural movements, such as leaning walls or sagging eaves and floors, can be checked visually and noted, as should signs of dampness and decay. Careful probing with a knife will reveal where deterioration has occurred.

Within each room of the building note should be taken of the finishes and detail. These include the flooring, baseboards, wainscoting, picture rails, cornices, windows and doors and their trim, fireplaces, mantels and any special structural or decorative features. It is important to note the complexity and the repetitiveness of design of these elements.

It is wise at this point to take enough dimensions, e.g. length and width of principal rooms, ceiling heights, typical window and sill heights, and overall exterior dimensions, to allow the drafting of a set of rough floor plans. These will be valuable in organizing one's observations and in planning the number, type and scale of the drawings in the contemplated recording program.

The recorder should also inspect the exterior. Note should be taken of the number and types of windows and doors, the exterior cladding, the eave details, the roof design and roofing materials, the chimneys, and the extent
and type of decorative detail.

Before leaving the site, the boundaries of the survey should be considered. If a survey of the site is to be included as a part of the drawings, note should be taken of the contours, the number of trees and any other features which will be of importance in the land survey.

The gathered information is then sorted and grouped in logical categories. The recorder will find it useful to consider the following questions, and is referred to the section on Techniques for further information on answering them:

- What are the logical boundaries of the survey?
- What are the most appropriate survey methods for defining the configuration of the building?
- What are the best survey methods for delineating the details of the building? Are specialized techniques such as photogrammetry called for?
- Will the site survey require the services of a professional land surveyor? Is a surveyor needed to establish gridlines or to define the exterior shape of the building(s)?
- How many plans, elevations and sections will be needed to delineate the building? What are appropriate scales? Will these views fit on the standard drawing sheets?
- How many detail drawings are required? How many types of detail are there and how much variation is there within each type?
- What are the practical problems of access (interior and exterior) for measurement, lighting and facilities for the measuring crew?

Research of Existing Records

After the site visit, the recorder should obtain whatever existing records of the building are readily available from libraries, archives, historical societies and private and government offices. These will include existing design drawings (if any), land registry plot plans, and archival drawings, maps, and photographs.

Existing design drawings are a useful supplement to the preliminary survey. They should be checked for conformity with the building. Legal plot plans, available from the Land Registry office, indexed according to legal description, will illustrate the latest land survey, giving the date and surveyor responsible, and may form the basis of the site plan and
topographic survey. Archival material, particularly old photographs, sometimes on site, can often clarify the sequence of construction or indicate missing features. Extensive research in this area is properly undertaken by a historian as a separate supplemental study.

**Standards of Completeness**

The determination of the degree of detail to be recorded depends primarily upon the intended purpose of the drawings. It is an important decision because it strongly affects the amount of time spent in the recording process. Although drawings preparatory to overall restoration may require recording in minute detail, many projects cannot afford nor do they require such coverage. For general survey purposes, it is often sufficient to choose a representative sample of details for recording, but this should include both the outstanding features and typical details of the building.

The options of overall degree of detail, or the designation of specific areas of increased coverage, should be investigated, and in the end, firmly establish as project policy decisions. The unqualified recorder is well advised to consult his sponsoring organization and restoration architect on this matter.

The following is a hypothetical example of a possible resolution of a problem of this nature: a building is found to have a number of windows generally of a standard type, yet each one has variations resulting from repairs and modifications. Each window is measured and recorded in the field notes. However, in consultation it is deemed sufficient to draw the window most closely resembling the original, leaving a discussion of the variations of the others to the report.

**Project Planning and Estimating**

In a recording project of any size, it is highly desirable to prepare a comprehensive plan which includes:

- an outline of recording procedures
- a list of drawings
- an estimate of number and type of photographs
- a progress schedule (bar chart)
- an estimated time budget and/or cost.

Whether the work is undertaken on a remunerative basis or not, the
establishment of a time budget is essential, since there is generally a limited amount of time or money available for any particular project. This budget will include time for preliminary studies, layout work, sketching, measurement, photography, drawing and report. In addition, the following aspects should be allowed for: travel, start-up time (e.g. access to building), training, indexing of notes and photographs, and checking at various stages including return visits to the site. Additionally, one must figure the cost of tools, drawing supplies, photographic materials land processing, blueprinting, and other reproduction techniques.

The results of the planning phase are generally summarized in a project brief which forms the basis for funding and promotion and serves as a reference guide throughout the project for all parties involved.
2. Techniques

Hand Measurement

The objective of measurement is to obtain those dimensions which, when plotted to scale, will produce the views (plans, elevations and sections) that will accurately and completely delineate the building. To do this requires a knowledge of both basic drafting principles and elementary survey techniques.

The first step is to define the overall form of the plan, i.e., the shape of the exterior perimeter and the interior spaces in horizontal section. Subsequently, the elevations and sections are produced. Detail is filled in on all views as they are completed.

There are two distinct approaches in current practice to the problem of establishing the accurate geometry of the plan of a building. The first method, called the grid system, involves the establishment of the rectilinear grid through and around the building. Measurements are taken from points on the building to the resultant gridlines and from this information the building plan is plotted. The alternative approach employs one or more survey techniques to accurately define the position of a number of well chosen points on the building itself. Since no regular grid is used I have called this system the direct method. Further detail and a discussion of the merits and drawbacks of each system are as follows.

The Grid System

This system can be applied to any structure; however, its most advantageous application is to buildings of irregular geometry and/or materials, for example, primitive structures or buildings in ruins. The gridlines, usually spaced at 1500 mm (5'0") on centre, are laid out using a theodolite and tape measure, and the points of intersection are marked with survey tacks set in stakes (exterior) or on the building itself (interior).
Measurements can be made to string or chalk lines set between these points or to the sight line of a theodolite aligned on a gridline. Measurements are taken to the wall surfaces at intervals sufficiently closely spaced to define the shape of the walls (usually at the grid module spacing) and at corners, door frames, windows, and all other features required to produce the plan. These measurements, when plotted, will unambiguously define the building geometry, and thickness of walls and other inaccessible spaces will be evident.

Although the grid system appears to be simple and scientific in its method, it suffers from several real disadvantages. First, the laying out of the grid is an extra step which must be carried out with great accuracy (+5mm), as must the measurements themselves. The system is not workable as an approximate approach. Secondly, the number of individual measurements is greatly multiplied with the grid system. The combination of these factors makes the method slow but accurate and still the best choice for ruinous sites.

The Direct Method

The direct method employs measurements to points on the building surfaces as a means of defining overall form. These points, whose relative positions are established, are referred to here as "control" points. This system is appropriate for the recording of buildings with reasonably uniform continuous surfaces as typified by frame or masonry buildings in reasonably intact condition.

The controlling framework of points is established by one or more survey techniques. The simplest of these is the use of a network of triangles which, knowing the side lengths, can be plotted as "rigid" figures. For the sake of accuracy, these triangles should be as close to equilateral as possible. Where it is not possible to fix the geometry of control points by this method, a theodolite is employed to measure a series of angles in a closed or open loop traverse. Points on the exterior wall are located with respect to the traverse stations by short distance and angular measurements. The traverse can also be used in building interiors to establish control points where required.

The drafting of floor plans by the direct system involves the fitting of interior and exterior dimensions and wall thicknesses into a coherent whole. The following description of the process is offered:
1. Each room has been measured and triangulated and its shape accurately drafted on individual sheets of tracing paper at a sufficiently large scale (normally 1:25). The location of all openings (doors, windows) is accurately plotted.

2. The internal and external wall thicknesses have been measured at all accessible points, e.g. at openings (see Figure 3). It may prove necessary to obtain additional wall thicknesses by drilling, inspection traps, comparison of construction details or by survey methods. Using the wall thicknesses and the position of openings, e.g. doors, windows, etc., the individual room tracings are superimposed and aligned to produce an overall interior floor plan. Overall interior dimensions, taken wherever feasible, are used to check the overall plan.

3. The exterior plan of the building is plotted from survey measurements and it is laid over the interior plan. The exterior wall thicknesses apparent in this superimposition are checked against those actually measured in the field. At this point, discrepancies must be resolved, by checking measurements and possibly by taking additional ones. When the residual distributed error is equal or less than the acceptable tolerance, the plan can be considered to be resolved.

Elevations

Measurement procedures for the drawing of these views are similar in both the grid and direct systems. In the grid system, horizontal distances are measured to the gridlines and vertical distances are measured to a datum (level line) that has been established around the building using a surveyor's level. Typically, the vertical measurements are taken to floors, ceilings, window and door sills and heads, and to ground level, foundation walls, plinths, eaves, soffits, and ridges. In direct measurement surveys, if the floor is reasonably level, it can be used as the level reference datum. On the exterior, the water table or plinth is used for the same purpose. If the floors are not level, a level datum can be established as in grid surveys. If the walls, columns, etc., are tilting significantly, then plumb lines can be used to provide reference lines for measurement of horizontal distances at various heights. The decision to record building sags and tilts is related both to the ultimate use of the drawings and to the nature of the building. For example, one may be justified in recording a badly racked wood frame building which was originally built level and plumb, as if it were so, recognizing that the drawings are then, in fact, "as restored" drawings.
same reasoning would not be appropriate for the recording of a building
that is and always was of irregular (non rectilinear) form.

Sections

The construction of sections is similar to the elevations, except that
structural parts, such as foundation walls, beams, joists, walls, rafters, etc.,
and the construction of concealed details, such as cornices, soffits and
eaves, are observed, measured and drawn.

The measurement of roof slopes can be made by measuring the rise and
the run or by using a plumb bob and protractor. The sizes of structural
members should be given in actual dimensions (not nominal, as in 2 x 4,
etc.) and the spacings should be measured at least frequently enough to
establish the pattern (e.g. 57 x 190 joists @ 450mm +/-8mm) with
exceptions noted. The determination of floor and wall construction may
require the cutting of inspection traps; however, the necessity for doing so
should be carefully considered and the location given equally detailed
attention.

Recording of Detail

Detail will include windows; doors; hardware; moldings, such as
baseboard, wainscotting, picture rails, cornices and eavestroughs;
mantelpieces; panelling; exterior cladding and trim; eave and soffit details;
brackets; and miscellaneous structural and decorative details. They are
recorded by direct measurement (often with the aid of a plumb line or
level) and referenced to gridlines where these are used. In addition, the
following special techniques are used:

- **Profile Measurements**: gauging devices based on sliding metal
  laminations or pins are available. When carefully pressed against
  the profile of a molding, they will duplicate the shape. It is best to
  reproduce this shape on a piece of stiff paper which is then cut out
  and checked against the original. Profiles can also be obtained by
  fitting strips of flexible metal - lead or aluminum foil - to the
  contours of the surface. An accurate method of obtaining the profile
  is at an exposed end or open joint. Care should be taken to measure
  a representative sample that has not been damaged by wear or
  obscured by excessive paint.

- **Rubbings**: outlines of inscriptions, low-relief ornamental features,
hardware, fretwork, etc., can be quickly obtained by overlaying
apiece of paper and rubbing with a crayon. The image so produced is then traced onto drafting paper.

- **Measurements of Offsets**: this system is used for delineating complex and/or curved elements. A fixed baseline is established near the object in the same plane as the face to be measured. Perpendiculars are erected at uniform or convenient intervals and the distance to the points on the curve from the baseline are recorded. The baseline may be vertical - for example, a plumb line - or horizontal or sloped.

**Miscellaneous Techniques**

**Choice of Measuring Faces.** The recorder should make a consistent choice of surfaces or edges to which measurements are taken. Measurement to the centreline of walls, windows or doors should be avoided. The usual conventions are:

- walls and ceilings - to face of plaster or boarding
- window frames - interior face of frame
- door frames - face of door rebate (i.e., the face of the recess that the door fits into).

Other conventions may be developed to deal with specific situations. They should be noted in the field sketches and should also be indicated as measuring faces on the detail drawings. In this way, the position of the detail is clearly represented with respect to the overall plan or grid system.

**Method of Taking Dimensions.** There are two basic methods of taking linear dimensions. Running measurements are taken by holding the zero end of the tape measure at a corner or "control pint" and reading cumulative measurements to all points along the line. This method avoids the accumulation of small errors that can occur when incremental measurements of the component elements are summed. For overall plans and elevations, running measurements should be used as they are more accurate. It is nevertheless important to take enough incremental measurements during the field work to become familiar with the standard modules of construction that may exist. This method will help in identifying repetitive types of detail, such as types of windows and doors, joist spacings, etc.

**Dimension by Counting.** When dealing with repetitive building
components of fairly uniform size, such as brick courses, shingles and uniform boarding, it is convenient to take overall measurements and then to count the number of courses, boards, etc., within the space. This information can easily be plotted. Less accurate, but convenient, is the procedure of calculating heights by multiplying the average course height times the number of courses to obtain an overall height. This method is acceptable when great accuracy is not particularly important, such as in determining the height of chimneys above the roof.
2. Techniques

Drawings

Field Sketches

The process of hand measurement starts with the drawing of freehand sketches. These sketches define the form and provide the framework for recording of dimensions and notes. Additionally they serve as studies in how best to illustrate any particular feature (e.g., choice of view and scale). The ability to sketch quickly and accurately is a great asset that is developed with constant practice. Particularly well drawn sketches can be almost as useful as the finished drawings.

These sketches form part of the permanent survey record, and should be drawn on single-sided, uniformly-sized squared paper. They should be dated, numbered, indexed and bound.

Finished Drawings

The finished drawings should be accurate, informative and attractive to look at. Since "as-found" drawings are likely to be used by laymen and professionals alike, the style should be pictorial. The graphic shorthand employed in architectural working drawings should be avoided. Dimension lines and notes should not dominate the visual effect of the drawing. The aim should be to achieve an artistic effect that will lift the drawings beyond mere technical competence. A study of existing sets of "as-found" drawings for similar buildings is useful in assessing the success of various approaches, and in choosing the style and arrangement appropriate to the project. Consideration may also be given to choosing a style that is reflective of the period of the building that is being recorded. For this, it will be useful to study design drawings which are contemporary with the period of the building.

Particular care should be taken in composing the individual sheets.
Overcrowding should be avoided, as should distracting contrasts in scale or line weight between different views. On drawing sets of only a few pages, it may be necessary to show both plans and large-scale details on the same sheet. This requires careful consideration of layout and line weight in order to achieve a balanced effect.

Type and Order of Drawings

The following is a checklist of the usual drawings and their contents for a typical project. They are listed in the order most often used in assembled sets of drawings. Those marked with an asterisk (*) would not be on separate sheets where the total number of sheets is small (10 to 15 sheets). In that case, the information would be incorporated on the remaining drawings. The checklist is as follows:

- **Cover Sheet**: this drawing usually shows a perspective view of the building. It also displays the title information in bold face.

- **Index**: the index gives a drawing list and tabular columns for revision numbers, remarks, parties issued to, etc. A legend for symbols indicating materials (brick, stone, wood, etc.), survey stations, photo key notations, section notations, etc., may be indicated on this sheet.

- **Site Plan**: the site plan show the legal boundaries; the topographical features, including contours, vegetation, trees, roads, walks, fences and other man-made features; and the buildings. If the grid system is employed, the baseline of the grid, including its true bearing and tie-in dimensions to permanent features, is indicated as well as the level reference datum. Included with the site plan is the location plan, which is a map enabling one to find the property with reference to main roads, towns or natural features.

- **Floor Plans**: the main floor and upper floor plans (if any) are always included. In addition, depending upon the scope of the survey, plans at the following levels may be required: foundation plan, reflected ceiling plans (crawl space, main and upper floors), attic joist plan, rafter plan and roof plan.

- **Elevations**: exterior and interior elevations - some interior elevations will be shown on the cross-sections.

- **Sections**: These are used to show construction and interior elevations. They should be chosen carefully to illustrate the most
significant typical situations. Often the stairs can be included in one of the sections. A simple building may require only one section.

- **Details:** these may be split into two categories - structural and architectural. Structural details are best illustrated by sectional, *isometric* or *exploded* views, accompanied with complete notes. Larger scale sections and details, of joints are often required. Architectural detail includes stairways, doorways, doors and windows, mantels, panelling, moldings, and hardware. These are most often shown in larger scale elevations and sections. The construction of such detail, including materials, should be recorded wherever possible. For hardware, a magnet is useful to determine ferrous material.

- **Photo Key Plans:** these may be produced from duplicate negatives of relevant drafted floor plans or from free-hand sketches on which camera position, tilt and photo reference numbers are indicated. See section on Photographs.

**Sequence of Operations for Completing the Drawings**

The following steps are given as a guide:

- **Resolution of Plans, Elevations and Sections:** as described previously in this section, these views are plotted prior to the completion of field work and any discrepancies are resolved.

- **Layout:** the plans, elevations and sections are traced onto the final sheets, observing guidelines on arrangement and order of views. No dimensions or notes are shown at this stage. Details previously plotted on small pieces of paper are positioned under the final sheets and traced.

- **Ink:** where applicable, all drawings are inked.

- **Print:** reproduceable prints (see Drawing Media Standards, following) are taken of the plans, elevations and sections. These negatives, commonly called *"barebacks"*, are stored for future use. Ordinary blue prints are taken of all drawings for mark-up.

- **Mark-up:** blue prints are used for planning dimension lines and dimensioning, annotations, tilting and cross-referencing. Once finalized in pencil on the blue prints, the information is drafted onto
the final drawings in ink or pencil, as the case may be.

- **Photo Key Plans:** the photo notations and reference numbers are often drafted on "bareback" prints of the appropriate plans.

- **Final Check:** blue prints are taken of the entire set of annotated and dimensioned drawings for final checking and correction.

**Dimensioning**

The extent to which dimensions are indicated will depend on the intended use. Drawings for restoration purposes may require extensive dimensioning, whereas those for general survey purposes show only overall dimensions and dimensions to the main features. Clearly drawn and well-organized field notes can reduce the need for extensive dimensioning to the drawings, providing they are readily accessible to the user. Illustrative drawings may show no dimensions at all.

**Annotation**

The general comments regarding dimensioning apply equally to annotation. When notes are put on the drawings, they should be kept to the side or bottom of the sheet and referred to the appropriate location on the drawing by a keyed numbering system.

**Titles**

Each drawing should contain the following information:

- name and address of the structure
- name of view (elevations to be indicated by compass direction)
- scale; as a stated ratio and also graphic scale(s)
- sheet number and total number of sheets
- delineator's name(s)
- date (year) of recording/drawing
- name of the sponsoring organization and their project identification number, if any.

The historic name of a building or building group is determined by historic research. It may be the name of the original owner, or a recognized name used by the original owner. If the original owner is unknown then a general designation, e.g., commercial building, and address is used.
The location address should include everything necessary to locate the structure clearly and precisely. As street numbers and names and roads and landmarks change with time, secondary location references, such as legal description or physical description (as N.E. corner of Main Street and 2nd Avenue) are necessary. For rural sites, highway names, distances from recognized place names, and even latitude are used.

The location plan is the appropriate place to display this information.

A complete discussion of building identification is given in McKee's book *Recording Historic Buildings*. (1)

**Drawing Media Standards**

Original drawings can be drawn in pencil or ink, the former having the advantage of speed of preparation but the latter being superior in every other aspect. Pencil drawings are normally prepared on 100% rag tracing paper (e.g. Clearprint). Polyester sheets, commonly called "mylars," are recommended for ink drawings. Drawing size standards should be confirmed with the sponsoring organization.

For archival purposes, a finished pencil drawing is usually photographed full size onto a master negative which is then printed onto a sensitized polyester sheet. This "mylar" is used as the working positive for the preparation of blueprints. The draftsman should ensure that the line weights in the pencil drawing will produce a satisfactory result in the photographically produced mylar.

Ink drawings allow the use of varying line weights which can be used to good effect. Cut lines in section, silhouettes in elevation and large-scale details are made heavier for clarity. Joints in materials, dimension lines, lines in the far distance likewise can be finer. The procedure of making the master negative/positive is not necessary with ink drawings on mylar except when extra positives are required, as for "barebacks" as mentioned previously.

In the end, the drawings will be valuable both in terms of the work represented, and more importantly, as an architectural resource. Consideration should therefore be given to their safekeeping, eventual ownership and their accessibility.
2. Techniques

Photographs

Photographs play an important role in the "as found" documentation. They show the object in continuous tone or colour, in perspective projection and in detail limited only by the resolution of the lens and paper. They are recognized as both primary method of documentation and as a supplemental record to the "as found" drawings. It is for this latter purpose that photos are considered here.

In the usual course of an "as found" survey, black and white photographs are taken at an early stage because they are particularly useful in preparing the drawings. Towards the end of the survey, more photographs are taken to fill in gaps in coverage and to show more carefully composed views. The following are major uses of photographs:

- to record details that confirm and clarify the drawn details; for example, to show a perspective view of a detail drawn in plan and elevation
- to record undrawn variations of a standard type
- to record details that fall beyond the limits of extent of coverage decided upon for the drawings; for example, condition of surfaces and jointing patterns
- to record textures and colours
- to record overall perspective views of exteriors and interiors
- to record the artifact in the context of its environs, perhaps including area outside the survey limits.
- to record artifacts and furniture associated with the building.

The edited photographs are organized and referenced on photo plans showing camera position, orientation, and tilt.

The negatives are likewise indexed and stored in an organized manner. In contracted work, the ownership of the negatives should be established in
the contract. The format in general use for photographs supplemental to "as found" drawings is 35mm.
3. Report and Conclusion

The "as found" drawings and photographs are generally supplemented with a brief report which includes, as a minimum, the following information:

- identification of the project, including building name and location
- dates of survey
- names of members of survey team, supervisors and sponsoring organization
- brief historical sketch of the building
- brief architectural description of the building
- description of the survey procedure, including an explanation of any special techniques
- explanation of any assumptions inherent in the survey of drawing technique
- articulation of any areas of doubtful or missing information
- description of any urgent repairs or remedial action required
- Appendices, such as Drawing List and Photograph Index.

The report may be expanded as indicated by the terms of reference of the survey, for example, recommendations relative to restoration process may be included if the author is qualified to give them. More often that not, however, this subject is addressed in a separate report.

This paper of necessity provides only an outline of the "As Found" drawing process, knowledge of which the reader may wish to expand through further study. In addition to the standard textbooks on drawing and surveying and to the references cited, the reader's attention is drawn to the large number of existing drawings available from governmental and archival agencies. The Heritage Trust will be pleased to assist in identifying these sources for specific requests.

The practice of "As Found" measurement and drawings provides an invaluable documentation for restoration and archival purposes.
Additionally the recorder participates in a time-honoured method of architectural study which expands the detail understanding of our building tradition and architectural heritage. It is our earnest hope that this paper will stimulate this satisfying and illuminating vocation.
Glossary

"barebacks": A term used to describe an "as found" drawing (usually floor plan, elevation, or section) that is complete with the exception of dimension lines, dimensions, and annotations.

cornice: A projecting ornamental moulding along the top of a building.

elevation: The orthographic projection of a vertical element (building wall, façade or detail such as a door or window) onto a vertical picture plane. Elevations are identified by compass reference, i.e. a North Elevation is the view of the wall which faces in a northerly direction.

exploded view: A pictorial illustration (usually isometric) of a construction detail in which the various parts are displaced from their actual positions to show the sequence and relationship of assembly.

isometric projection: A simple method of pictorial illustration similar to perspective but without foreshortening used primarily to show construction details.

orthographic projection: The method of producing an image or view of an object by projecting points of the object onto an imaginary picture plane such that all projections are at right angles to the picture plane. The importance of this method is that lines of the object which are parallel to the picture plane are true length in the resulting view. They can therefore be drawn to scale.

perspective: The science dealing with the apparent diminution in the size of objects as they recede from the spectator. Perspective projection is the geometric method of producing this effect in a line drawing, given the dimensions of the object and the position of the observer. Dimensions cannot be "taken off" perspective drawings because the various parts are at constantly varying scales (also known as foreshortening).
**picture plane**: An imaginary plane surface usually considered to be placed between the viewer and the object onto which rays from points on the object are projected in order to produce a view. The drawing paper is in the picture plane.

**picture rail**: A moulding fastened to the surface of an interior wall at or above door head height for the purpose of hanging pictures.

**plan (plan view)**: An orthographic projection onto a horizontal picture plane typically of the site, floor levels, and roofs of buildings. See also "section".

**plinths**: The projecting base of a wall. The square block at the base of a column or pedestal.

**reflected ceiling plan**: A plan view of a ceiling drawn as it would appear in a mirror placed on the floor below it, or in other words, a plan view drawn looking downwards. As such the reflected ceiling plan bears a direct relationship to floor plan of the room.

**scale**: The ratio of the size of an object as drawn, to the actual size of the object. In an orthographic projection, all true length lines are drawn to this constant ratio, i.e. "to scale."

**section (or sectional view)**: An orthographic projection created when the picture plane is imagined to cut through the object at a convenient location to illustrate internal structure or detail. **Floor Plans** are a specific type of section where the picture plane is horizontal, usually one meter above floor level, and the viewing direction is downwards.

**soffit**: The underside of an architectural element

**theodolite**: A surveying instrument used for measuring horizontal (and vertical) angles.

**traverse**: A surveying procedure consisting of the measurement of distance and angles between fixed points (stations) and the mathematical reduction of this data to enable the positions of the stations to be plotted.

**true length**: A true length line in orthogonal projection is defined by two points each of which is equidistant to the picture plan as measured at right angles to the picture plane.
wainscotting: A wooden lining of walls of rooms often covering the lower part only of the wall.

water table: A ledge or offset on or above a foundation wall formed to shed water.
Bibliography


